

# Appendix 1

(Translation)

## Official Emblem

No. Sor.Jor.3033770

Partnership and Company Registration Office of Bangkok Metropolis  
Business Development Department, Ministry of Commerce

## CERTIFICATE

This is to certify that this company has been registered in accordance with Civil and Commercial Code as a juristic person. Category : Limited Company on 9<sup>th</sup> September 2010 with registration number 0105553110547, as appeared in the documentary contents of the registration of the juristic person as of the date of issuing this certificate as follows:

1. Name of Company : **BETTER LIVING MANAGEMENT CO., LTD.**
2. There is 1 director according to following name list:
  1. Mr. Asvin Asvinvichit /
3. Number or names of directors authorized to affix signature and be binding on the company is Mr. Asvin Asvinvichit who can sign name with the common seal of the company affixed./
4. Registered Capital : 1,000,000.00- Baht / One Million Baht only/
5. Head Office is located at [redacted] **Contact Information Redacted**  
[redacted] **Contact Information Redacted**
6. Company's objectives contain 27 Clauses as appeared in the copies of document attached herewith, 2 sheets, bearing the signature of the registrar for certification of this document, along with the seal of the Bureau of Partnership and Company Registration.

Issued on: 18<sup>th</sup> April 2012

- Signature -

(Mrs. Ankhanang Naksuwan)  
Registrar

(Seal of Office of Partnership and Company Registration Bangkok Metropolis)

The notes for juristic person are as follows:

DBD Department of Business Development,  
Ministry of Commerce

Creative Service Smilely, Transparent and Good services  
Creative Service

- Document request service through [www.dbd.go.th](http://www.dbd.go.th) - -> Payment through the banks - ->

**Contact Information Redacted**

printed at 15.02 hrs.



Certified True and Correct Translation

Aree Suphantnant

INTERLANGUAGE TRANSLATION CENTER

**Contact Information Redacted**

Official Emblem

No. SorJor.3033770

Partnership and Company Registration Office of Bangkok Metropolis  
Business Development Department, Ministry of Commerce

CERTIFICATE

Note :

1. The registered juristic person, when employ the employees or workers, is required to contact the local/provincial social security office within 30 days to act in compliance both the law on the social security and the law on compensation.
2. This juristic person has not already submitted the financial statement.
3. This certificate certifies only the information given by partnership/company for registration for legal purpose only. Facts should be sought for standing consideration.
4. The registrar may revoke the registration if it appears that the substantial contents registered are not correct or false.

DBD Department of Business Development,  
Ministry of Commerce

Creative Service Smiley, Transparent and Good services  
Creative Service

- Document request service through [www.dbd.go.th](http://www.dbd.go.th) -> Payment through the banks ->

Contact Information Redacted

printed at 15.02 hrs.

Contact Information Redacted



Certified True and Correct Translation

Aree Suphagthanant  
INTERLANGUAGE TRANSLATION CENTER

Contact Information Redacted



This document copy is attached to the certificate.  
- Signature -  
Registrar  
(Seal)

**DETAILS OF OBJECTIVES**

**General Objectives:**

- (1) To purchase, supply, accept, hire, buy on hire-purchase, acquire ownership, occupy, modify, utilize, and manage by other means any property as well as interest accruing thereon;
- (2) To sell, transfer, mortgage, pledge as security, trade and dispose by other means of properties;
- (3) To act as brokers, representatives, agents for enterprises and business of all kinds, except for insurance business, recruiting member for associations and securities trading;
- (4) To borrow from, overdraw on accounts with banks, juristic person or other financial institutions; and to lend or give credit by other means, with or without collateral securities, as well as to accept, issue, make a transfer and endorse bills or other negotiable instruments except those in banking business, finance and credit foncier;
- (5) To set up branches or appoint agents to operate both in and outside of the country;
- (6) To become partner with limited liability in limited partnerships and to hold shares in limited companies and limited public companies;

**Trading Objectives/Service**

- (7) To undertake works under contracts for construction of buildings, commercial buildings, residential buildings, office buildings, roads, bridges, dams and tunnels and other construction works of every kind as well as civil works of every kind;
- (8) To operate hotels, restaurants, bars and nightclubs;
- (9) To engage in transport business, transport of goods and passengers by land, water and air in the country and abroad, as well as to engage in the service of clearing of goods from ports in accordance with customs formalities and booking of space for freight of every kind;
- (10) To conduct guided sight-seeing tours and engage in business connected with tourism of every kind;
- (11) To engage in the service of collection, compilation, preparation, printing and publication of statistics and data on agriculture, industry, commerce, finance and marketing as well as analysis and evaluation of business operation;
- (12) To render service in the legal field, in accounting, engineering, architecture and advertising business;
- (13) To provide surety for debts, liability and performance of contracts by other individuals, and to furnish surety for persons who enter or depart the country in accordance with the immigration law, tax and duty law and other laws;
- (14) To act as advisor and give advice on administrative problems in the commercial and industrial fields as well as on production, marketing and distribution problems;
- (15) To serve as trustee of other person's interests and property, as well as collection of such interest and management of other person's properties;
- (16) To engage in the operation of private hospitals, and clinics and treatment of patients and sick persons and to undertake technical training and instruction in the medical and health fields;
- (17) To produce and sell movie films and to construct movie theaters, other entertainment establishments, place of vacation, sports stadiums, swimming pools and bowling establishment;
- (18) To engage in repair, maintenance, inspection, greasing and lubrication of vehicles of every kind and spraying of rust-proof solutions on such vehicles, as well as to carry out installation, inspection and repair or equipment for protection against danger of every kind;
- (19) To engage in laundry service, hair-cutting, hair dressing and beautification;
- (20) To engage in photographing service, development of films, printing and enlargement of pictures and document Photostat service;
- (21) To operate massage establishments;
- (22) To submit bids for undertaking the production of goods in accordance with all the objects for supply to individuals, groups of persons, juristic persons, government agencies and state organizations.

DBD Department of Business Development,  
Ministry of Commerce

Creative Service Smilely, Transparent and Good services  
Creative Service

Contact Information Redacted

- Document request service through www.dbd.go.th -> Payment through the banks ->

Contact Information Redacted

printed at 15.02 hrs.



Certified True and Correct Translation

Aree Suphanthanant  
INTERLANGUAGE TRANSLATION CENTER

Contact Information Redacted

No. SorJor.3033770 issued on 18<sup>th</sup> April 2012

This document copy is attached to the certificate  
- Signature -  
Registrar  
(Seal)

The objectives of this Partnership/Company contain 27 clauses as follows:

- (23) To engage in the business relating to the leasing out, sale, purchasing, development and allocation of land, residential/non-residential building, condominium as well as the management of residential business;
- (24) To engage in the business of immovable property business;
- (25) To engage in selling computers, office automation of all types;
- (26) To engage in accepting to pledge, mortgage the immovable property;
- (27) To engage in the business of exporting, importing clothes of all types.

DBD Department of Business Development,  
Ministry of Commerce

Creative Service Smiley, Transparent and Good services  
Creative Service

- Document request service through [www.dbd.go.th](http://www.dbd.go.th) -> Payment through the banks ->  
printed at 15.02 hrs.

Contact Information Redacted

Certified True and Correct Translation



Aree Suphanthanant

INTERLANGUAGE TRANSLATION CENTER

Contact Information Redacted





(Translation)

(Official Emblem) Department of Business Development  
Ministry of Commerce

Document issued No. 1-1003-55-4-018376

Document issued dated: April 18, 2012

Correct copy

- Signature -  
(Mrs. Ankhana Naksuwan)  
Registrar

Bangkok Metropolis Partnership/Company Registration Office

COPY OF LIST OF SHAREHOLDER'S NAME

Form : BorOrJor. 5

Limited company's Name		<b>BETTER LIVING MANAGEMENT CO., LTD.</b>			Registration No		0105553110547		
<input checked="" type="checkbox"/> On meeting <input type="checkbox"/> Statutory Meeting <input type="checkbox"/> Shareholder's Ordinary <input type="checkbox"/> Shareholder's Extraordinary No. .... on September 7, 2010 <input type="checkbox"/> Extract from list of Shareholder's registration on ..... Registered Capital : 1,000,000 baht divided into 10,000 shares valued at 100.- baht Shareholders of nationality Thai: 4 persons Total: 10,000 shares Alien persons Total: shares									
No.	Shareholder's name			No. of shares held	Paid up amount (1) as if paid up (2)	Share Certificate No.		Date of registration of shareholders	
	Nationality	Occupation	Address			Certificate No.	Date	Entry	Exit
1	Mr. Asvin Asvinvichit			9,998	par value (1)	0001-9998	07/09/2010	07/09/2010	
	Thai	Employee	Contact Information R		100.-				
<b>Contact Information Redacted</b>					(2)				
2	Mr. Saknukorn Lamsamut			1	par value (1)	9999	07/09/2010	07/09/2010	
	Thai	Employee	Contact Information Redacted		100.-				
<b>Contact Information Redacted</b>					(2)				
3	Mr. Asvin Asvinvichit			1	par value (1)	10000	07/09/2010	07/09/2010	
	Thai	Employee	Contact Information Redacted		100.-				
<b>Contact Information Redacted</b>					(2)				
					par value (1)				
					(2)				
					par value (1)				
					(2)				
					par value (1)				
					(2)				
					par value (1)				
					(2)				

Page 1 of 1 page

I do hereby certify that the listings are true to the entries in shareholder registration book.

Signed:

- Signature -  
(Mr. Asvin Asvinvichit)

Director

Note: In the space "Paid up amount (1)": specify the paid up amount of each share value, only for the shares paid in cash.  
In the space "As if paid up (2)": specify that share value deemed as paid for each share, for only the shares which are paid by properties or labor.

SorJor. 14:58

Certified True and Correct Translation



Handwritten signature of Aree Suphanthanant

Aree Suphanthanant  
INTERLANGUAGE TRANSLATION CENTER  
Contact Information Redacted



ที่ สจ.3033770

สำนักงานทะเบียนหุ้นส่วนบริษัทกรุงเทพมหานคร  
กรมพัฒนาธุรกิจการค้า กระทรวงพาณิชย์

## หนังสือรับรอง

ขอรับรองว่าบริษัทนี้ได้จดทะเบียน ตามประมวลกฎหมายแพ่งและพาณิชย์ เป็นนิติบุคคลประเภท  
บริษัทจำกัด เมื่อวันที่ 9 กันยายน 2553 ทะเบียนเลขที่ 0105553110547

ปรากฏข้อความในรายการตามเอกสารทะเบียนนิติบุคคล ณ วันออกหนังสือนี้ ดังนี้

1. ชื่อบริษัท บริษัท เบ็ทเทอร์ ลิฟวิ่ง แมเนจเม้นท์ จำกัด

2. กรรมการของบริษัทมี 1 คน ตามรายชื่อดังต่อไปนี้

1.นายอัศวิน อัศวินวิจิตร/

3. จำนวนหรือชื่อกรรมการซึ่งลงชื่อผูกพันบริษัทได้คือ นายอัศวิน อัศวินวิจิตร ลงลายมือชื่อ  
และประทับตราสำคัญของบริษัท/

4.ทุนจดทะเบียน 1,000,000.00 บาท / หนึ่งล้านบาทถ้วน/

5. สำนักงานใหญ่ ตั้งอยู่เลขที่ 563 ซอยลาดพร้าว 64 (เกตุนติ) แขวงวังทองหลาง เขตวังทองหลาง  
กรุงเทพมหานคร/

6. วัตถุประสงค์ของบริษัทมี 27 ข้อ ดังปรากฏในสำเนาเอกสารแนบท้ายหนังสือรับรองนี้จำนวน 2 แผ่น  
โดยมีลายมือชื่อนายทะเบียนซึ่งรับรองเอกสารและประทับตราสำนักงานทะเบียนหุ้นส่วนบริษัทเป็นสำคัญ

ออกให้ ณ วันที่ 18 เดือน เมษายน พ.ศ. 2555



รายการข้อควรทราบของนิติบุคคลมีดังนี้



กรมพัฒนาธุรกิจการค้า กระทรวงพาณิชย์  
Department of Business Development  
Ministry of Commerce

"จัดให้มี บริการ 9 ชั่วโมง"  
Creative Service  
สายด่วน 1570 [www.dbd.go.th](http://www.dbd.go.th)

บริการขอเอกสารผ่าน [www.dbd.go.th](http://www.dbd.go.th) -->ชำระเงินทางธนาคาร --> บริการจัดส่ง Contact Information Redacted

จัดพิมพ์ เมื่อเวลา 15:02 น.





ที่ สจ.3033770

สำนักงานทะเบียนหุ้นส่วนบริษัทกรุงเทพมหานคร  
กรมพัฒนาธุรกิจการค้า กระทรวงพาณิชย์

## หนังสือรับรอง

### ข้อควรทราบ

1. นิติบุคคลที่จดทะเบียนแล้วเมื่อมีลูกจ้าง ให้ติดต่อสำนักงานประกันสังคมเขตพื้นที่/จังหวัด ภายใน 30 วัน เพื่อปฏิบัติตามกฎหมายว่าด้วยการประกันสังคม และกฎหมายว่าด้วยเงินทดแทน/
2. นิติบุคคลนี้ไม่ส่งงบการเงิน
3. หนังสือรับรองเฉพาะข้อความที่ห้าง/บริษัทได้นำมาจดทะเบียนไว้เพื่อผลทางกฎหมายเท่านั้น ข้อเท็จจริงเป็นสิ่งที่ควรหาไว้พิจารณาฐานะ
4. นายทะเบียนอาจเพิกถอนการจดทะเบียน ถ้าปรากฏว่าข้อความอันเป็นสาระสำคัญที่จดทะเบียน ไม่ถูกต้อง หรือเป็นเท็จ



กรมพัฒนาธุรกิจการค้า กระทรวงพาณิชย์  
Department of Business Development  
Ministry of Commerce

“จับงาน ไม่รังเกียจ 9 19 บริการ”  
Creative Service

สายด่วน 1570 [www.dbd.go.th](http://www.dbd.go.th)

บริการขอเอกสารผ่าน [www.dbd.go.th](http://www.dbd.go.th) -->ชำระเป็นทางธนาคาร --> บริการจัดส่ง **Contact Information Redacted**

จัดพิมพ์ เมื่อเวลา 15:02 น.

สำเนาเอกสารนี้มอบท้ายหนังสือรับรอง

นายจาเขียน



วัตถุประสงค์ของ ห้างหุ้นส่วน/บริษัท นี้ มี.....:27.....ข้อ ดังนี้

( ) .....  
 23. ประกอบกิจการเกี่ยวกับการให้เช่า การขาย การซื้อ การพัฒนาและการจัดสรรที่ดิน อาคารที่อยู่

อาศัยและ ไม่ได้อยู่อาศัย คอนโดมิเนียม รวมทั้งรับบริหารกิจการที่พักอาศัย

- 24. ประกอบกิจการอสังหาริมทรัพย์
- 25. ประกอบกิจการขายสินค้าเครื่องคอมพิวเตอร์ เครื่องใช้สำนักงานทุกประเภท
- 26. ประกอบกิจการรับจํานำ จํานอง อสังหาริมทรัพย์
- 27. ประกอบกิจการนำเข้าส่งออก เสื้อผ้าทุกประเภท



กรมพัฒนาธุรกิจการค้า กระทรวงพาณิชย์  
 Department of Business Development  
 Ministry of Commerce

"จับจ่าย ไม่รังเกียจ" บริการ  
 Creative Service  
 สายด่วน 1570 www.dbd.go.th





ว.2 (วบ.พิเศษ)

## รายละเอียดวัตถุประสงค์

### วัตถุประสงค์ทั่วไป

- (1) ชื่อ จัดหา รับ เข้า เข้าชื่อ ถือกรรมสิทธิ์ ครอบครอง ปรับปรุง ไข และการจัดการโดยประการอื่น ซึ่งทรัพย์สินใดๆ ตลอดจนดอกผลของทรัพย์สินนั้น
- (2) ขาย โอน จำนอง จำน่า แลกเปลี่ยน และจำหน่ายทรัพย์สินโดยประการอื่น
- (3) เป็นนายหน้า ตัวแทน ตัวแทนคำต่างในกิจการและธุรกิจทุกประเภท เว้นแต่ในธุรกิจประกันภัย การหาสมาชิกให้สมาคม และการค้าหลักทรัพย์
- (4) กู้ยืมเงิน เบิกเงินเกินบัญชีจากธนาคาร นิติบุคคล หรือสถาบันการเงินอื่น และให้กู้ยืมเงินหรือให้เครดิตด้วยวิธีการอื่น โดยจะมีหลักประกันหรือไม่ก็ตาม รวมทั้งการรับ ออก โอน และสลักหลังตัวเงิน หรือตราสารที่เปลี่ยนมือได้อีกวิธีอื่น เว้นแต่ในธุรกิจธนาคาร ธุรกิจเงินทุน และธุรกิจเครดิตฟองซิเอร์
- (5) ทำการจัดตั้งสำนักงานสาขาหรือแต่งตั้งตัวแทน ทั้งภายในและภายนอกประเทศ
- (6) เข้าเป็นหุ้นส่วนจำกัดความรับผิดชอบในห้างหุ้นส่วนจำกัด เป็นผู้ถือหุ้นในบริษัทจำกัด และบริษัทมหาชนจำกัด

### วัตถุประสงค์ประกอบธุรกิจบริการ

- (7) ประกอบกิจการรับเหมาก่อสร้างอาคาร อาคารพาณิชย์ อาคารที่พักอาศัย สถานที่ทำการ ถนน สะพาน เขื่อน อุโมงค์ และงานก่อสร้างอย่างอื่นทุกชนิด รวมทั้งรับทำงานโยธาทุกประเภท
- (8) ประกอบกิจการโรงแรม ภัตตาคาร บาร์ ไนท์คลับ
- (9) ประกอบกิจการขนส่งและขนถ่ายสินค้า และคนโดยสารทั้งทางบก ทางน้ำ ทางอากาศ ทั้งภายในประเทศและระหว่างประเทศ รวมทั้งรับบริการนำของออกจากท่าเรือตามพิธีศุลกากรและการจัดระวางการขนส่งทุกชนิด
- (10) ประกอบกิจการนำเที่ยว รวมทั้งธุรกิจที่เกี่ยวข้องกับการนำเที่ยวทุกชนิด
- (11) ประกอบกิจการบริการจัดเก็บ รวบรวม จัดทำ จัดพิมพ์และเผยแพร่สถิติ ข้อมูลในทางเกษตรกรรม อุตสาหกรรม พาณิชยกรรม การเงิน การตลาด รวมทั้งวิเคราะห์และประเมินผลในการดำเนินธุรกิจ
- (12) ประกอบกิจการบริการทางด้านกฎหมาย ทางบัญชี ทางวิศวกรรม ทางสถาปัตยกรรม รวมทั้งกิจการโฆษณา
- (13) ประกอบธุรกิจบริการรับค้าประกันหนี้สิน ความรับผิด และการปฏิบัติตามสัญญาของบุคคลอื่น รวมทั้งรับบริการค้าประกันบุคคล ซึ่งเดินทางเข้ามาในประเทศหรือเดินทางออกไปต่างประเทศตามกฎหมายว่าด้วยคนเข้าเมือง กฎหมายว่าด้วยภาษีอากร และกฎหมายอื่น
- (14) ประกอบธุรกิจบริการรับเป็นที่ปรึกษาและให้คำแนะนำปัญหาเกี่ยวกับด้านบริหารงานพาณิชยกรรม อุตสาหกรรม รวมทั้งปัญหาการผลิต การตลาดและจัดจำหน่าย
- (15) ประกอบธุรกิจบริการรับเป็นผู้จัดการและดูแลผลประโยชน์ เก็บผลประโยชน์และจัดการทรัพย์สินให้บุคคลอื่น
- (16) ประกอบกิจการโรงพยาบาลเอกชน สถานพยาบาล รัรักษาคนไข้และผู้ป่วยเจ็บ รับทำการฝึกสอนและอบรมทางด้านวิชาการเกี่ยวกับการแพทย์ การสาธารณสุข
- (17) ประกอบกิจการจัดสร้างและจัดจำหน่ายภาพยนตร์ โรงภาพยนตร์ และโรงมหรสพอื่น สถานพักตากอากาศ สนามกีฬา สระว่ายน้ำ โบว์ลิ่ง
- (18) ประกอบกิจการให้บริการซ่อมแซม บำรุงรักษา ตรวจสอบ อัปเดต พ่นน้ำยากันสนิมสำหรับยานพาหนะทุกประเภท รวมทั้งบริการติดตั้ง ตรวจสอบ และแก้ไขอุปกรณ์ ป้องกันวินาศภัยทุกประเภท
- (19) ประกอบกิจการซักรีดเสื้อผ้า ตัดผม แต่งผม เสริมสวย
- (20) ประกอบกิจการรับจ้างถ่ายรูป ล้างอัด ขยายรูป รวมทั้งเอกสาร
- (21) ประกอบกิจการสถานบริการอาบอบนวด
- (22) ประกอบกิจการประมูลเพื่อรับจ้างทำของ ตามวัตถุประสงค์ทั้งหมด ให้แก่บุคคล คณะบุคคล นิติบุคคล ส่วนราชการ และองค์การของรัฐ



กรมพัฒนาธุรกิจการค้า กระทรวงพาณิชย์  
Department of Business Development  
Ministry of Commerce

"จัดแห่งใหม่ ไร้สิ่งที่ไม่ดีในบริการ"  
Creative Service  
สายด่วน 1570 www.dbd.go.th

บริการขอเอกสารผ่าน www.dbd.go.th -->ชำระเงินทางธนาคาร --> บริการจัดส่ง Contact Information Redacted

จัดพิมพ์ เมื่อเวลา 15:02 น.

สำเนาถูกต้อง

สำเนาบัญชีรายชื่อผู้ถือหุ้น

แบบ บอจ. 5

ชื่อบริษัทจำกัด บริษัท เบ็ทเทอร์ ลิฟวิ่ง แมเนจเม้นท์ จำกัด ทะเบียนเลขที่  
นางลัดดา 0105553110547

ณ วันประชุม  จัดตั้งบริษัท  ตายผู้ถือหุ้น  วิสามัญผู้ถือหุ้น ครั้งที่ ..... เมื่อวันที่ 7 กันยายน 2553

คัดจากสมุดทะเบียนผู้ถือหุ้น เมื่อวันที่ .....  
ทุนจดทะเบียน 1,000,000 บาท แบ่งออกเป็น 10,000 หุ้น มูลค่าหุ้นละ 100 บาท  
สัญชาติของผู้ถือหุ้น ไทย 4 คน จำนวน 10,000 หุ้น ต่างชาติ ..... คน จำนวน ..... หุ้น

ลำดับที่	ชื่อผู้ถือหุ้น			จำนวนหุ้นที่ถือ	เงินชำระแล้ว		เลขหมายไปหุ้น		วันลงทะเบียนผู้ถือหุ้น	
	สัญชาติ	อาชีพ	ที่อยู่		ถือว่าชำระแล้ว (1)	เศษหมายของหุ้น	ลงวันที่	เป็น	ขาด	
1.	นายอัศวิน อัศวินวิจิตร			9,998	หุ้นละ (1)	0001-9998	07/09/2553	07/09/2553		
	ไทย	รับจ้าง			ถือว่าชำระแล้ว (2)					
	68 ซอยสุขุมวิท 31 (สวีตส์) แขวงคลองตันเหนือ									
	เขตวัฒนา กรุงเทพมหานคร									
2.	นายศักดิ์ภูมิกร ลำสมุทร			1	หุ้นละ (1)	9999	07/09/2553	07/09/2553		
	ไทย	รับจ้าง			ถือว่าชำระแล้ว (2)					
	99/ 411 หมู่ที่ 6 ตำบลบางเมือง									
	อำเภอเมืองสมุทรปราการจังหวัดสมุทรปราการ									
3.	นางสาวทวงภา ปุระพชรค์			1	หุ้นละ (1)	1๐๐๐๐	07/09/2553	07/09/2553		
	ไทย	รับจ้าง			ถือว่าชำระแล้ว (2)					
	9 หมู่ที่ 12 ตำบลหนองสังข์ อำเภอแก่งกระจาน									
	จังหวัดชัยภูมิ									
					หุ้นละ (1)					
					ถือว่าชำระแล้ว (2)					
					หุ้นละ (1)					
					ถือว่าชำระแล้ว (2)					
					หุ้นละ (1)					
					ถือว่าชำระแล้ว (2)					

หน้า 1 ..... ของจำนวน 1 ..... หน้า

ขอรับรองว่าเป็นรายการที่ถูกต้องตรงกับสมุดทะเบียนผู้ถือหุ้น

(ลงลายมือชื่อ) *X A. Avi* ..... กรรมการ  
(นายอัศวิน อัศวินวิจิตร)

หมายเหตุ คัด "เงินที่ชำระแล้ว (1)" ให้ระบุจำนวนเงินค่าหุ้นที่ชำระแล้วแต่ละหุ้น เฉพาะหุ้นซึ่งต้องชำระเป็นเงิน  
ของ "ถือว่าชำระแล้ว (2)" ให้ระบุค่าหุ้นที่ถือว่าชำระแล้วแต่ละหุ้น เฉพาะหุ้นซึ่งยังชำระด้วยทรัพย์สิน หรือ แรงงาน





# ICANN

From Wikipedia, the free encyclopedia

Appendix 2

The **Internet Corporation for Assigned Names and Numbers** (**ICANN**, /ˈaɪkæn/ *EYE-kan*) is a nonprofit private organization headquartered in the Playa Vista section of Los Angeles, California, United States, that was created on September 18, 1998, and incorporated on September 30, 1998<sup>[1]</sup> to oversee a number of Internet-related tasks previously performed directly on behalf of the U.S. government<sup>[*citation needed*]</sup> by other organizations, notably the Internet Assigned Numbers Authority (IANA), which ICANN now operates.

ICANN is responsible for the coordination of the global Internet's systems of unique identifiers and, in particular, ensuring its stable and secure operation.<sup>[2]</sup> This work includes coordination of the Internet Protocol address spaces (IPv4 and IPv6) and assignment of address blocks to regional Internet registries, for maintaining registries of Internet protocol identifiers, and for the management of the top-level domain name space (DNS root zone), which includes the operation of root name servers. Most visibly, much of its work has concerned the DNS policy development for internationalization of the DNS system and introduction of new generic top-level domains (TLDs). ICANN performs the actual technical maintenance work of the central Internet address pools and DNS root registries pursuant to the "IANA function" contract.

ICANN's primary principles of operation have been described as helping preserve the operational stability of the Internet; to promote competition; to achieve broad representation of the global Internet community; and to develop policies appropriate to its mission through bottom-up, consensus-based processes.<sup>[3]</sup>

On September 29, 2006, ICANN signed a new agreement with the United States Department of Commerce (DOC) that moves the private organization towards full management of the Internet's system of centrally coordinated identifiers through the Multistakeholder Model of consultation that ICANN represents.<sup>[4]</sup>

## ICANN



<b>Founded</b>	September 18, 1998
<b>Headquarters</b>	Los Angeles, California, U.S.
<b>Key people</b>	Fadi Chehadé
<b>Focus(es)</b>	Manage Internet protocol numbers and Domain Name System root
<b>Motto</b>	One World. One Internet.
<b>Website</b>	<span>www.icann.org</span> ( <span>http://www.icann.org</span> )



ICANN headquarters in Playa Vista

## Contents

- 1 History
- 2 Notable events
- 3 Structure
  - 3.1 Governmental Advisory Committee
  - 3.2 Democratic input
- 4 Activities



## Application number: 1-2112-4478 for Better Living Management Company Limited

Generated on 08 Jul 2012

### Applied-for gTLD string

**13. Provide the applied-for gTLD string. If an IDN, provide the U-label.**

thai

**14(a). If an IDN, provide the A-label (beginning with "xn--").**

**14(b). If an IDN, provide the meaning or restatement of the string in English, a description of the literal meaning of the string in the opinion of the applicant.**

**14(c). If an IDN, provide the language of the label (in English).**

**14(c). If an IDN, provide the language of the label (as referenced by ISO-639-1).**

**14(d). If an IDN, provide the script of the label (in English).**

**14(d). If an IDN, provide the script of the label (as referenced by ISO 15924).**



## Appendix 3

**14(e). If an IDN, list all code points contained in the U-label according to Unicode form.**

**15(a). If an IDN, Attach IDN Tables for the proposed registry.**

Attachments are not displayed on this form.

**15(b). Describe the process used for development of the IDN tables submitted, including consultations and sources used.**

**15(c). List any variant strings to the applied-for gTLD string according to the relevant IDN tables.**

**16. If an IDN, describe the applicant's efforts to ensure that there are no known operational or rendering problems. If such issues are known, describe steps that will be taken to mitigate these issues in software and other applications.**

BLM (The Registry) are applying for a normal ASCII string and do not foresee any operational or rendering problems arising from the use of the applied-for gTLD string. We have also tested out the use of the string in a private DNS root setup using popular web browsers and email applications with no problems

**17. (OPTIONAL) Provide a representation of the label according to the International Phonetic Alphabet (<http://www.langsci.ucl.ac.uk/ipa/>).**

### Mission/Purpose

**18(a). Describe the mission/purpose of your proposed gTLD.**

The mission of .thai TLD is to provide a platform for online identity and online presence for the Thai people, the Thai language and the Thai culture.

# Appendix 3

## 18(b). How proposed gTLD will benefit registrants, Internet users, and others.

The .thai TLD appeals to all businesses, organizations and individuals in Thai communities. The Thai communities include:

- Individuals who speak Thai and practise Thai culture;
  - Organizations and individuals with activities in Thailand;
- and
- Companies, organizations and individuals associated with Thai people, language and culture.

### Specialties:

.thai TLD aims to be preferred TLD choice for Thai communities.  
.thai TLD will carry a very strong intuitive association of for the Thai communities.

### Service Levels:

BLM provides a platform for Registrars and Service Providers to value-add and upsell solutions and services.

All these services are optional and can be bundled into the offerings of .thai domain names by the Registrars and Service Providers with the aim to improve service availability and reputation of the website or services in association with the .thai domain names.

### Underserved Market

In general, the domain name market in Thailand is underserved. With over 20 million Internet population in Thailand, there is less than 300,000 domain names (including all gTLDs and ccTLDs) registered in Thailand. There is obviously a lot of room for growth of .thai domain names in Thailand.

### Short and Intuitive

As compared with the country codes TLD, .thai 2nd level domain names are short and appealing to both registrants and end users. It is intuitive with strong association to the branding of website related to Thai communities.

The goals of .thai TLD is to provide a platform for online identity and online presence for the Thai people, the Thai language and the Thai culture.

BLM will adopt Generic Registration Policy with proof of presence requirement (similar with .asia).

BLM will accredit a number of registrars, for the registration and other domain name operations such as renew, update, transfer, delete etc of .thai domain names. A list of accredited registrars will be prominently displayed on the BLM's website.

## Appendix 3

The composition of a domain name shall contain a string of minimum 1 (one) character and can contain up to a maximum of 63 (sixty-three) characters, excluding the .thai TLD extension. A guideline of the characters accepted by BLM includes:

- The alphabets from "A" to "Z". There will be no distinction between upper-case and lower-case characters i.e. "A" is treated as "a" and vice-versa;
- The numerals from "0" to "9"; and
- The hyphen character. It shall not occupy the beginning, end or the third and/or fourth character of a domain name.

### Proof of Presence

Registrant will be required to declare a 'Proof of Presence' stating that they are a legal entity within the Thai communities.

Thai communities, include:

- Individuals who speak Thai and practise Thai culture;
  - Organizations and individuals with activities in Thailand;
- and
- Companies, organizations and individuals associated with Thai people, language and culture.

Upon registration of a .thai domain name, a registrant must declare from where the proof of presence can be established, and what form of proof it is. A suggested list includes, but not limited to: nationality, business registration, organization, government, etc. BLM does not plan to validate the registrants' proof-of-presence during the registration process, but rather will rely on the dispute resolution mechanism to allow interested users to dispute on the accuracy of the information.

In addition, Registrants must comply with all rules, policies, procedures and guidelines of .thai domain names in respect of registration. BLM may amend such rules, policies, procedures and guidelines from time to time. BLM will ensure that such changes are communicated to its registrants on a timely basis.

.thai domain names are allocated on a "first-come-first-serve basis", provided the information submitted is complete and all rules, policies, procedures and guidelines relating to the registration have been compiled with. BLM may cancel or suspend a registration accepted by a registrar in its sole and absolute discretion should BLM determine that the registration is not in conformity with BLM's rules, policies, procedures and guidelines. Each of the registrant and registrar agrees that BLM shall not be responsible for any loss or damages arising out of

## Appendix 3

the rejection and/or cancellation of the registration.

The registrant shall provide to his registrar with complete and accurate information and maintain this information during the term of the domain name registration. The failure of a registrant to provide, promptly update or respond to inquiries from the registrar in regards to complete and accurate information may constitute to a material breach of the registrant agreement and shall be a basis for cancellation of the domain name registration.

BLM shall not be involved in any dispute that the registrant may have with a third-party. Any dispute arising from the registration and use of a .thai domain name shall be determined in accordance with the abuse handling mechanism in Question 28.

The proposed .thai TLD will impose measures for protecting the privacy or confidential information of registrants or users.

Firstly, all accredited registrars are required to abide by a Code of Practice established by the registry to be used in conjunction with the Registry-Registrar Agreement and all rules, policies, procedures and guidelines published by the registry.

The Code of Practice is a compulsory set of principles and approaches to market conduct for all accredited registrars and their appointed resellers. The objective of the Code of Practice is to promote and protect the interests of the domain name industry, registrants and domain name registrars by:

- a) Establishing minimum standards for dealings between domain name registrars and registrants;
- b) ensuring that registrants receive accurate, complete and timely information concerning domain name activities including, but not limited to registrations, renewals, transfers and solicitations;
- c) Preventing practices that undermine the reputation of the industry and the interests of registrants.

It is mandatory for all domain name registrars to comply with the code of practice herein without exception. The Code of Practices addresses data privacy of registrants and states the following:

"Domain name registrars must not disclose the registrant's domain data information, including, but not limited to the domain name, registrant, contact persons, name servers, registration, and expiry and billing information to any third party for any reason or purpose."



## Appendix 3

Alleged breaches of the Code of Practice will be dealt with severely under the registry's Complaints Policy. A breach of the Code of Practice is also a breach under the Registry-Registrar Agreement and may result in the suspension or termination of the registrar's accreditation.

Secondly, an acceptable use policy shall be implemented by the registry in regards to the WHOIS service. The acceptable use policy shall clarify that the information published in the WHOIS service is only for informational purposes and can only be used for lawful purposes. Users are strictly prohibited to use the information published in the WHOIS service for the following purposes, but not limited to:

- a) Advertising and/or marketing purposes;
- b) Unsolicited communication purposes via email or otherwise;
- c) Spamming or speculative purposes;
- d) Commercial purposes;
- e) Illegal purpose; and
- f) Any other abusive purposes.

Any user that is caught abusing the WHOIS service for unlawful purposes will be reported to the relevant authorities for further actions. This will be on a best effort attempt as not every country has implemented relevant policies in regards to SPAM and/or use of public information for commercial, illegal and other abusive purposes.

Lastly, two preventive measures can be adopted by the registry to prevent automated scripts from data-mining from the WHOIS service. The measures are as follows:

- a) Implement the use of an Image Verification Check (IVC) on web-based WHOIS services where a user is required to type in a random word or phrase that is shown to the user in the form of a graphical picture. The principle is that machines cannot read the words in a graphical picture and only a real person can enter the word or phrase successfully. The technology for IVC has advanced quite a bit over the past few year and is still very effective against data-mining robots today; and
- b) Limit the number of WHOIS queries per hour for a particular IP. This helps to thwart data-mining attempts.

The outreach and communication program will certainly help to create public awareness about the projected benefits of .thai TLD for the Thai communities.

### Overview of the Outreach and Communications Program

The objective of the Program is to establish .thai TLD as the home of the Thai communities, and set a strong foundation for

# Appendix 3

viral marketing through early adopters of .thai domain names.

The targets of the Program are general consumers, adopters of .thai domain names and Channels (i.e. Registrars), for the reasons of:

- General Consumers (Public Users) – General consumers will be aware of .thai TLD as a specific zone for Thai communities;
- Adopters (Registrants) – Through the Program, the early adopters will reap the benefits and uniqueness of the .thai domain names. With the increase of usage of .thai domain names, the viral impact of the benefits will be multiplied; and
- Channels (Registrars) – The Program will bring awareness to the Channels about the opportunities to value-add on the various bundled services to make .thai domain names for Thai communities. It promotes innovation among Channels to bring additional services to enhance security, availability and reputation.

The Program can be segregated into 2 main parts, namely:

- Marketing Campaign – to bring awareness of BLM positioning and awareness of its projected benefit among adopters and channels; and
- Public Relation – to educate the public about the positioning of BLM and benefits attached with .thai domain names.

The Key Result Areas (KRAs) for the Program would be the financial indicators (sales and profits) and the volume of live sites using .thai domain names. BLM will constantly monitor and review its approach for the Program.

## Marketing Campaign

The marketing campaign for BLM consists of:

- Outreach to the Thai Communities;
- Campaign Support Material; and
- Channel Reward Programs.

## Outreach to Intellectual Property (IP) Communities

- Association with the Communities  
During the initial phase of the campaign, the Registry will reach out the Thai communities to raise awareness of .thai domain names. The primary effort shall aim to establish 'co-marketing' initiative with key associations that have regional influence to their local counterparts, where they have conferences and events for outreach to their respective

# Appendix 3

communities.

- Advertising

BLM could participate in the activities of the Thai communities by advertising in the associations' newsletter, magazines and websites.

- Trade Shows

BLM will participate in the Thai communities' trade shows to build awareness and preference for .thai domain names among the communities' members.

## Support Material for Marketing Campaign

BLM will develop support material for marketing campaign for its Channels (i.e. Registrars). The marketing material will be helpful for registrars simply because:

- It saves time for registrar to create similar material;
- The Registry could portray a consistent message for .thai domain names; and
- To be used as training material for registrars and their channels to market .thai domain names.

The marketing material shall consist of consistent content, message, diagram and taglines for:

- Presentation – Standard boiler-plate that spells out the information about .thai domain names and its benefits;
- Press articles – Contents for joint press release with Channels;
- Website – Incorporate website contents of standard FAQ, 'Why dot-thai?', benefits and etc.;
- Banners – Wide array of banner choices with different taglines for Registrars to choose;
- Newsletter – Contents for periodic opt-in newsletters to be shared among Registrars and Thai communities;
- Email – Contents to be incorporated within email communications by the Registrars to their clients for converting or upselling their prospects or existing clients; and
- Success Cases – A listing of 'live' sites that are using .thai domain names, with short overview of the credential of these sites.

## Channel Reward Program

BLM will develop a Channel Reward Program with the following characteristics:

- Broad-base – We insist on equal treatment to all registrars, regardless of their size;

## Appendix 3

- Growth-base – We will reward Registrars based on the percentage of growth, benchmarked on its existing size or regional volume; and
- Time-bound – All reward program shall be time-bound (e.g. monthly or quarterly).

The reward program can also be in the form of Marketing Rebates, where Registrars conduct marketing activities according the guideline given by the BLM. Upon completion of the activities with performance assurance, the Registry shall reimburse partially or fully on the marketing expenses in association with the activity.

BLM will make use of the channel reward features incorporate in the Qinetics' RegistryASP SRS application that meets the above mentioned characteristics. We strongly emphasize on quality growth to .thai domain names that results in active websites. We will reward Registrars who deliver more growth in quality registration of .thai domain names.

### Public Relation (PR) Program

The PR Program aims to educate the general public about the usage of .thai domain names and its associated benefits. It also serves to establish the brand recognition of .thai domain names as the online presence for the Thai communities.

### Phases of Implementation

The PR program can be implemented in phases, namely:

- Education – We educate the general public about the usage of .thai domain names. We also educate the Registrars about the opportunity to bundle related services with .thai domain names;
- Awareness – We create awareness about .thai domain name branding and its benefits over other potential domain name choices; and
- Influence – We make use of our Success Cases – adopters of .thai domain names who found success through unique branding, traffic generation and customer engagement. Through these Success Cases, it will create a viral effect on the usage of .thai domain names.

### PR Activities

The PR program shall include the following activities:

- Media Relationship – BLM may establish a press desk to satisfy the needs for information about domain names in general and .thai domain names in specific. We shall also target the Thai communities based media and court for long term

## Appendix 3

relationship.

- Editorial contribution – The press desk of BLM shall also serve to contribute relevant articles and success stories of .thai domain names to press and magazine on periodic basis.
- Speaker's Bureau – As part of our outreach program, the BLM will develop a Speaker's Bureau program to secure speaking opportunities at events focused on the Thai communities.

### **18(c). Describe operating rules to eliminate or minimize social costs or financial resource costs, various types of consumer vulnerabilities.**

There will be three main phases for domain name registration upon the launch of BLM namely:

1. Sunrise
  - a. Government
  - b. Trademarks
  - c. Company Name
2. Landrush
3. General Availability

During the Sunrise phase, there are three identified sub-phases as follows:

#### a. Government

This sub-phase is only open to government organisations.

#### b. Trademarks

This sub-phase is only open to brand and trademark owners. BLM will work with the Trademark ClearingHouse for the verification and validation of registered marks. If there are multiple applications for the same domain name, Trademark ClearingHouse will only verify and validate the genuine owner(s) of the registered mark. If there are multiple owners of the registered mark in different countries, the registrants that have applied for the same domain name will be notified of the contention. The domain name contention will be resolved via an English auction, where the highest bidder wins.

#### c. Company Name

This sub-phase is open to companies that would like to register a domain name similar to their company name but do not have an existing trademark. The company needs to submit a legal document that shows the legal name of the organisation with its application. If there are multiple owners of the registered mark in different countries, the registrants that have applied for the same domain name will be notified of the contention. The domain name contention will be resolved via an English auction,

## Appendix 3

where the highest bidder wins.

Next, multiple applications for the same domain name will be accepted in the Landrush phase. After the Landrush phase, registrants that have applied for similar domain names will be notified that the domain name contention will be resolved via an auction, where the highest bidder wins. The registration of domain names in the last phase of the launch, General Availability will be on a first-com/first-serve basis.

BLM may run several programs that will provide cost benefits directly to its registrants.

### Pioneer Program

BLM may launch a pioneer program prior to the launch of the registry which allows Registrant to apply for a domain name that he/she is interested in at minimum cost if he/she is able to fulfil the stated terms and conditions as described below.

The Pioneer Program is organised into 5 categories:

- Community

To cater to general communities based on commonly used words and phrases such as, "properties.thai", "music.thai"

- Global Brand

To cater to proactive brand owners to develop and expand its branding online. The Pioneer Program does not replace the Sunrise process where most brand owners can register their marks for defensive purposes. To qualify, the brand owner must have trademark registrations for the brand and demonstrate development and promotion of the brand online and offline.

- Partner

To cater to service and technology partners of BLM to further promote and their products and services in conjunction with .thai TLD.

- Celebrity / VIP

To cater to any prominent individual, group or team in the areas of sports, entertainment, arts, businesses, politics or other areas of human activity. The applicant could be the celebrity himself or it could be someone acting on his behalf with the appropriate authorization.

- Social

To cater to any Non-Governmental Organisations (NGOs), Non-Profit Organisations and other social enterprises or initiatives

## Appendix 3

to develop .thai domain name services to benefit the community.

Applicants whose proposals have been selected successfully to participate in the relevant categories are expected to dedicate time and resources into the marketing and development of the relevant services and content as per the submitted proposal to promote the selected .thai domain name.

Development commitment includes the assurance of a working website and/or relevant services that features the selected .thai domain name. The applicant is also expected to commit some marketing funds to showcase its website and services in conjunction with the selected .thai domain name. The financial support of the applicant and the long-term viability of the financial proposal would be important criteria in selecting the applicant to participate in the Pioneer Program. To ensure that the applicant fulfils the marketing commitment, a marketing commitment deposit will be collected, which will be refunded to the applicant upon document proof of advertising attributed to the selected .thai domain name. Certain categories of the Pioneer Program may be exempted from collection of the marketing commitment deposit.

A comprehensive challenge process will also be setup for intellectual property rights owners to challenge decisions that may appear to infringe upon the rights of its registered marks. Proposals that contain potentially abusive content will also be declined.

An applicant will go through the following stages when participating in the Pioneer Program:

- Submission of Proposal
- Payment of a Marketing Commitment Fee (If applicable)
- Selection or Rejection of Proposal
- Challenge Period
- Execution of Contract
- Registration of Selected Domain Name
- Fulfilment of Development and Marketing Commitments

### Special Introductory Discount

BLM may introduce Special Introductory Discount (SID) to Registrants from selected geographical regions (e.g. Latin America) and/or selected community group (e.g. celebrities from Bollywood). The SID program is only available after General Availability, for a limited duration (e.g. 3 months), and may be for a limited volume of registration.



## Appendix 3

The objective of SID is to grow a specific market segment that is crucial to the strategy and the market positioning of the .thai domain names. It is also applicable for specific under-served market, where the SID would spur interest for the growth market. SID is strictly not meant to bias towards certain community or geographical area.

BLM shall extend the SID to Registrants via Registrars. BLM will extend the SID program to all Registrars who can serve the target market fairly. A pre-determined discount structure will be presented in the program prior to the engagement of the Registrars into the program.

Other than the commitment of the advance written notice of price increases in the Registry Agreement, BLM shall not make any contractual commitment to Registrants regarding the magnitude of price escalation.

### Community-based Designation

#### 19. Is the application for a community-based TLD?

Yes

**20(a). Provide the name and full description of the community that the applicant is committing to serve. If this application is included in a community priority evaluation, it will be scored based on the community identified in response to this question.**

Thai communities include:

- Individuals who speak Thai and practise Thai culture;
  - Organizations and individuals with activities in Thailand;
- and
- Companies, organizations and individuals associated with Thai people, language and culture.

Size of community:

- Thailand: 70 million (source: World bank)
- Over 3 million of Thai origins living outside Thailand (source: Wikipedia)

**20(b). Explain the applicant's relationship to the community identified in 20(a).**

## Appendix 3

BLM is a company based in Thailand. BLM receives strong support from the Thai government for the application of .thai TLD.

The Ministry of Interior of the Kingdom of Thailand is an important Cabinet-level department in the Government of Thailand. The Ministry is given wide ranging responsibilities over many aspects. For example the Ministry has responsibility over: the Royal Thai Police, local administrations, internal security, citizenship, disaster management, land management, issuing national identity cards and public works. The Ministry is also responsible for appointing 74 Governors of the Provinces of Thailand. A Letter of Support from the Ministry of Interior, authorized by Mr Pranai Suwanrath, the Permanent Secretary of Ministry of Interior, is attached in the answer to question (f).

The Ministry of Information and Communication Technology (ICT) of Thailand (was established on the 3 October 2002. The Ministry envisions Thailand to become a regional center for ICT development and business. Other visions of the Ministry include:

- Enable equitable access to information for entrepreneurs and citizens;
- Direct benefits of ICT are manifested throughout the Thai economy, adding values to products and services of every sector;
- Strengthening Thailand's competitiveness in the global market through ICT;
- Moving Thai communities towards Knowledge-based society.

A Letter of Support from the Ministry of ICT, authorized by Mr Anudith Nakornthap, the Minister of ICT, is attached in the answer to question (f).

BLM is committed to operate the .thai TLD registry according to the policy, rules and regulation as set for by the Ministry of Interior and Ministry of ICT, Thailand.

BLM will closely collaborate with THNIC – the registry operator of .TH country code TLD. BLM intends to hold joint promotion and marketing activities with THNIC for the promotion of .thai and IDN equivalent.

### **20(c). Provide a description of the community-based purpose of the applied-for gTLD.**

Intended registrants in the TLD are from the Thai communities that include:

- Individuals who speak Thai and practise Thai culture;
  - Organizations and individuals with activities in Thailand;
- and

## Appendix 3

- Companies, organizations and individuals associated with Thai people, language and culture.

Intended end-users of the TLD are from the Thai communities that include:

- Individuals who speak Thai and practise Thai culture;
- Organizations and individuals with activities in Thailand; and
- Companies, organizations and individuals associated with Thai people, language and culture.

Related Activities:

- Facilitate to promote Thai language, Thai culture and Thai people's activities online
- Facilitate the government of Thailand to promote Thai businesses, cultural activities, languages and other related activities locally (in Thailand) and internationally.

As part of its social obligation to the Thai community, BLM is committed to re-invest part of the profit into the social and technology advancement initiatives within the Thai community.

BLM aspires to bring together the Thai community within Thailand and overseas. A dedicated domain can help cement a common identity that will be reinforced by the reinvestment of registry proceeds into further development.

In addition, the Internet is playing an increasingly important role in the economies in Thailand. An intuitive online identity for a corporation and entities will play vital roles for their digital branding that would be recognized worldwide.

Similarly, when multinationals establish presence in Thailand, they would have an option to register a domain name that associate strongly with their activities in Thailand, which may be best for communicating with the prospective clients in the Thai community.

### **20(d). Explain the relationship between the applied-for gTLD string and the community identified in 20(a).**

.thai domain name is for the Thai communities that include:

- Individuals who speak Thai and practise Thai culture;
- Organizations and individuals with activities in Thailand; and
- Companies, organizations and individuals associated with Thai people, language and culture.

## Appendix 3

**20(e). Provide a description of the applicant's intended registration policies in support of the community-based purpose of the applied-for gTLD. Policies and enforcement mechanisms are expected to constitute a coherent set.**

Eligibility -

i) Reserved List

BLM will adopt the ICANN resolution and recommendations on maintaining a reserved domain list, such as reserving the list of country names and country codes. BLM will also continue to adhere to the ICANN recommendations for reserved domains coming from ICANN resolution and/or consensus policies.

BLM will invite all supporting Thai communities to submit additions to the list of names to be reserved. These supplemental names will serve to provide extra protection to preserve names of value within the community that may be ripe for abusive registrations.

ii) Proof of Presence

Registrant will be required to declare a 'Proof of Presence' stating that they are a legal entity within the Thai community.

Upon registration of a .thai domain name, a registrant must declare from where the proof of presence can be established, and what form of proof it is. A suggested list includes, but not limited to: nationality, business registration, organization, government, etc. BLM does not plan to validate the registrants' proof-of-presence during the registration process, but rather will rely on the dispute resolution mechanism to allow interested users to dispute on the accuracy of the information.

Name selection - no restriction except for the following:

- o BLM will adopt the restricted list from the Thai government authority; and
- o BLM will reserve the list of geographical names as stated in the answer to Question 22.

Content/use - BLM will encourage and promote the use of .thai TLD for websites with contents related to Thai people, Thai language and Thai culture.

Enforcement

Upon registration of a .thai domain name, a registrant must declare from where the proof of presence can be established, and what form of proof it is. A suggested list includes, but not

## Appendix 3

limited to: nationality, business registration, organization, government, etc.

BLM does not plan to validate the registrants' proof-of-presence during the registration process, but rather will rely on the dispute resolution mechanism to allow interested users to dispute on the accuracy of the information

**20(f). Attach any written endorsements from institutions/groups representative of the community identified in 20(a). An applicant may submit endorsements by multiple institutions/groups, if relevant to the community.**

Attachments are not displayed on this form.

### Geographic Names

**21(a). Is the application for a geographic name?**

No

**21(b). If a geographic name, attach documentation of support or non-objection from all relevant governments or public authorities.**

Attachments are not displayed on this form.

### Protection of Geographic Names

**22. Describe proposed measures for protection of geographic names at the second and other levels in the applied-for gTLD. This should include any applicable rules and procedures for reservation and/or release of such names.**

BLM shall adhere to the list provided by ICANN in Specification 5 of the Registry Agreement in regards to the schedule of reserved names at the second level in gTLD registries.

BLM shall reserve all names of countries and distinct economies contained in the ISO 3166-1 list at the second level and any other levels within the TLD that is opened for registration under..thai TLD. The names shall be reserved in English and all related official languages as may be directed by ICANN or GAC.

# Appendix 3

The names of territories, distinct geographical locations, and other geographical and geopolitical names shall also be reserved as ICANN may direct from time to time. The names shall be reserved for registration in ICANN's name upon the launch of the .thai TLD.

BLM shall ensure procedures to allow governments, public authorities or inter-governmental organizations to challenge abuses of names with national or geographical significance at the second level and any other levels within the TLD that is opened for registration under .thai TLD.

## Registry Services

**23. Provide name and full description of all the Registry Services to be provided. Descriptions should include both technical and business components of each proposed service, and address any potential security or stability concerns. The following registry services are customary services offered by a registry operator:**

**A. Receipt of data from registrars concerning registration of domain names and name servers. B. Dissemination of TLD zone files. C. Dissemination of contact or other information concerning domain name registrations (Whois service). D. Internationalized Domain Names, where offered.**

**E. DNS Security Extensions (DNSSEC).**

**The applicant must describe whether any of these registry services are intended to be offered in a manner unique to the TLD. Additional proposed registry services that are unique to the registry must also be described.**

The Registry shall provide Registry Services as defined below:

- (i) the receipt of data from registrars concerning registrations of domain names and name servers;
- (ii) provision to registrars of status information relating to the zone servers for the TLD;
- (iii) dissemination of TLD zone files;
- (iv) operation of the Registry zone servers;
- (v) dissemination of contact and other information concerning domain name server registrations in the TLD as required by the Registry Agreement;
- (vi) Internationalized Domain Names (IDN);
- (vii) DNS Security Extensions (DNSSEC);
- (viii) WHOIS Data Watch Service;
- (ix) Searchable WHOIS Service and

## Appendix 3

(x) Other products or services that the Registry Operator is required to provide because of the establishment of a Consensus Policy

The Registry will be engaging Qinetics Solutions Berhad of Malaysia as the back-end registry service provider for the new gTLD operations.

### Registry System

The system is based on RegistryASP SRS Application Suite that is deployed in ccTLD Registries, namely .sg (Singapore), .hk (Hong Kong, SAR), .cd (Congo, Democratic Republic) and .my (Malaysia).

RegistryASP utilizes a 'thick' registry model which is EPP (Extensible Provisioning Protocol) version 1.0 compliant, where registrant data is maintained on a central registry database as a contact set.

#### - Stealth DNS (Zone Generation)

The resolution of domain names is a crucial function in a registry system. The DNS system supports both IPv4 and IPv6. The stealth DNS stores the generated zone file from the database, which will undergo a complicated reconciliation process before the data is reloaded into the master zone. The Stealth DNS is hidden in the internal network and is only visible to the primary DNS server. The primary DNS server is hidden as well and is responsible for the zone transfer to external secondary DNS servers. RegistryASP has achieved 100% uptime for all country codes that they are supporting on DNS resolution. The DNS is in compliance to RFCs 1034, 1035, 1982, 2181, 2182, 2671, 3226, 3596, 3597, 4343, and 5966.

#### - External DNS (Zone Resolution)

The external DNS setup consists of the secondary DNS servers dedicated to resolution of the extension domain worldwide. The Secondary DNS are utilizing 2 of the main providers in the world that supports AnyCast DNS with more than 100 nodes all around the world. The provider is CommunityDNS. All zone transfer will be protected using TSIG. The DNS is in compliance to RFCs 1034, 1035, 1982, 2181, 2182, 2671, 3226, 3596, 3597, 4343, and 5966.

#### - DNSSEC

The Registry shall provide DNSSEC services to registrars comply with RFCs 4033, 4034, 4035, 4509 and their successors, and follow the best practices described in RFC 4641 and its successors. The DNSSEC services shall include the publishing of Delegation Signature (DS) records and signed records to the root



# Appendix 3

zones of the applied TLD.

## - WHOIS Services

General public can check the information of a domain name through port 43. The daemon is proven of handling millions of WHOIS queries daily for some of the ccTLD reference for RegistryASP SRS. WHOIS data watch and web based searchable WHOIS will be provided for subscribed users. The WHOIS services are highly scalable, capable of handling higher query loads and comply with RFC 3912.

## - Registry Web Interface

The control panel is used by the registry operational staff to administrate domain names, registrars and other domain name data. Key features include multi-users function control, flexible product configurations, business process configurations and event-triggered alerts.

## - Registrar Web Interface

A registrar can perform daily operations, channel management and transaction accounting via the web control panel. Major functions include domain, contact and host management for domain names registered under the registrar, account balance and account top-up.

## - EPP Services

A standard EPP server is used to provide flexibility for registrars to automate domain registration and management. The EPP server is configured with a SSL communications link that uses the EPP version 1.0 protocol comply with RFCs 5910, 5730, 5731, 5732, 5733, 5734, 3735.

## - Reporting Services

Standard reports are provided to registry and registrar staff to perform secondary check on transactions made, payment received, domain renewal and balance enquiries.

## - Operational Testing and Evaluation (OT&E)

All newly accredited registrars shall reserve a time slot to access OT&E server and perform a technical test. This is to ensure that the registrar's system is capable of registering and managing domain names in the production environment without unnecessary problems. Once a registrar passes the OT&E Test, the registrar will receive an account to access the production system to register and manage domain names.

## - Security and Monitoring

The system has been proven to adhere to ISO27001 standards by

# Appendix 3

Hong Kong government and compliance with Singapore government security guidelines. User access will be controlled through 3 tiers of authentication: Registrar SSL Certificate, Registrar IP Addresses and Registrar User Name/Password Combination. The communication link with registrar will be SSL encrypted. Multiple firewalls will be in place to ensure multiple levels of security together with IP filtering and Intrusion Detection with Prevention. Multiple security monitoring systems will be setup within and outside of the network of the Registry System to monitor the Registry Services. Host based intruder detection system will be in place on top of hardware based intruder protection system. Multi Router Traffic Grapher (MRTG) will be installed to monitor traffic utilization in the network and each server of the Registry System.

## - Data Escrow

The data will be deposited into ICANN approved escrow agent based on escrow requirements to ensure business continuity and data recovery in the unlikely event of data loss.

## - Call Centre

System support and maintenance to guarantee maximum uptime shall be provided through Email and Phone to registrars. 24/7 technical support hotline are available in multiple languages.

## - Channel Management

Client Relation Management (CRM) software is in place to manage communications and contact with the registrars.

## - Other Registry Services

The registry will provide IDN domain names to the end users. The IDN will be deployed according to the IDN RFCs (5890, 5891, 5892, 5893) and the languages supported will be based on registered language tables in IANA.

## **Demonstration of Technical & Operational Capability (External)**

**24. Shared Registration System (SRS) Performance: describe the plan for operation of a robust and reliable Shared Registration System. SRS is a critical registry function for enabling multiple registrars to provide domain name registration services in the TLD.**

The Registry is compliant to Specification 6 and Specification

# Appendix 3

10 in the Registry Agreement. The compliance table for Specification 6 is as attached.

## SRS System Description

### 1. System Architecture

RegistryASP SRS application is designed with multiple control interfaces to allow access by different parties via defined user roles and matrixes. All components have been designed to be deployed in a distributed environment. A diagram of the system architecture is attached.

### Core Component of Registry SRS

The Registry SRS is split into multiple components to improve scalability. The Core SRS Component consists of presentation layer, application security framework, application layer and database layer. It supports HTTP, HTTPS and EPP protocols.

The application layer is used to handle the business flow, audits, messages, processes and the daily tasks in the system. It has a data logger, which stores the details of all requests and responses from the application. The database layer deals with raw data management and utilizes relational databases.

### 2. SRS Data Flow Diagram

The system architecture of the SRS is designed to allow the EPP, WHOIS, registry web panel and registrar web panel to share the same set of business logics. In other words, the processing of the request will be the same regardless the request comes from which interfaces. A diagram of the SRS data flow is attached.

### 3. SRS System Features

#### Business Process Configuration:

- Administration module to configure business rules, policies and practices;
- Utilization of extensions in EPP to store additional information, e.g. language tag etc;
- Control panels to validate pending transactions and facilitate the submission of documents;
- Control panels for black and white list coupled with a pragmatic system to restrict sensitive names;
- Policy manager panels allow registry staff to control access to products and adjust policies;
- Feature access controller panels allow registry and registrar staff to customize functionalities available at various channels; and
- User access controller panel allows registry and registrar

# Appendix 3

staff to customize access level of different users.

Channel Marketing (Registrar Support):

- Web-based multi-tier administrative control panel;
- Ability to brand email templates and extensive email tracking;
- Built-in marketing features such as volume discount and period discount tools;
- EPP connection Software Development Kit (SDK) and toolkits (in Java, PERL);
- Documentation, registrar technical training and change management.

Billing and Payment:

- Reminder notification with configurable alerts, content including other parameters; and
- Billing Manager to manage offline payments, fund alert, incentive rebate calculation and online invoice.

Report Management:

- Comprehensive statistical and transaction reporting system; and real-time reports for channel management (transaction, balance, renewal, announcements etc).
- Registrars detail and summary monthly statements; and
- Transaction tracking and action audit logs

Network Diagram

The attached diagram shows the network architecture and connectivity for all the components of The Registry SRS System. The Registry System infrastructure is located in 2 different data centers for redundancy and scalability purposes. The primary data center consists of the SRS, DNSSEC signing and Data Escrow. The secondary data center will be running the WHOIS services. The stealth and primary DNS are located in the primary data center. DNS Resolution Services are fully AnyCast enabled and dispersed geographically.

The primary data center has full redundancy up to the node level. The network is separated into 2 segments. The first network segment is IP restricted area for registrars to access the SRS which is the DMZ zone. The second segment is for internal access which consist of the database. All servers are protected by redundant firewall.

The Web and EPP services are load-balanced between multiple servers. This provides maximum reliability, and is highly extensible by adding more servers behind the load balancers. Each server has redundant components (Power supplies, hard disk RAID, fans, network interfaces). The presence of multiple

## Appendix 3

servers, multiple facilities, and multiple network providers means that the services will be well protected against single points of failure.

All services are setup in the secondary data center for emergency recovery in case of melt down in the primary data center. The services in the secondary data center can be online within 2 hours from the activation. Each site has at least 2 different network connections to the Internet. Our data centre belongs to a tier 1 provider with has four backbones peering to other tier 1 provider.

The OTE server connects to the test database where the data resembles the production database. The Disaster Recovery Site (Secondary data center) is designed to replicate the primary site except the OTE environment. The OTE environment is not essential during a disaster. The DR site shall only be used to temporarily take over The Registry operations while the primary site is being restored. A diagram of the network is attached.

### Interconnectivity

The main components in the systems are SRS, Data Escrow, WHOIS, DNS, Reporting, Registrar Systems, Accounting System and System Monitoring. A diagram of the interconnectivity is attached which explains the interconnectivity between these components.

The system consists of a SRS system where the main database server resides. The interfaces in the SRS system are mainly web and EPP. The data are received from registrars through Web panel or automation from registrar system to the EPP server in real time. The central data will then be distributed to DNS, Accounting system and Data escrow agent through batch processing mode.

A secondary database cluster is configured using bidirectional geographical replication to replicate data from the main database in near real time. The secondary database will provide WHOIS query and data access for reports. The monitoring system will probe the services in the SRS in real time.

### Synchronization Scheme

Interconnectivity between registry system components appear in 3 synchronization scheme:

#### 1. Replication Synchronization (Only for database)

Source (SRS) to Destination (WHOIS)

- A secondary database cluster will be installed for providing the WHOIS response. The synchronisation is done using bidirectional database replication. The data are replicated to



# Appendix 3

secondary database within mili seconds.

Source (SRS) to Destination (Reporting Services)

- A secondary database cluster will be installed for providing reports. The synchronisation is done using bidirectional database replication. The data are replicated to secondary database within mili seconds.

## 2. Batch Processing

Source (SRS) to Destination (Stealth DNS)

- A DNS reconciliation and generation program is in place to regenerate the zones in the interval of 2 hours.

Source (Stealth DNS) to Destination (Primary DNS)

- The zone is transfer to primary using notify = yes. Once records changed in stealth DNS, the primary will be notified to transfer the zone. The transfer takes less than 1 second.

Source (Primary DNS) to Destination (Secondary DNS)

- The zone is transfer to secondary using notify = yes. Once records changed in primary DNS, the secondary will be notified to transfer the zone. The transfer takes less than 1 second.

Source (SRS) to Destination (Data Escrow)

- A backend program will be running daily to deposit the data into Escrow agents SFTP server.

Source (SRS) to Destination (Accounting System)

- A backend program will be running daily to generate data file in the accounting system data import format.

## 3. Real Time Access

Source (Registrar System) to Destination (SRS)

- All transactions will be processed in real time and response will be returned immediately after processing.

Source (System Monitoring) to Destination (SRS)

- The monitoring software will be probing the services in near real time interval (every second).

## Resource Plan

Qinetics will deploy the registry service for the Registry using its existing system and infrastructure. During the implementation of the registry system, new server hardware will be provisioned for SRS services. The Data Center Engineer will perform the server provisioning and installation of OS. Once the hardware is provisioned, System Administrator shall continue to install the required software and perform security

## Appendix 3

configurations. On the other hand, the Database Administrator will create the required schemas. The assigned Software Developer will configure the rules and policies into the SRS system. Once done, the Test Engineer will perform rigorous testing procedures to ensure the system performs according to specifications. Upon the testing is fully completed, the SRS system shall be hand-over to System Administrator to perform deployment to production environment. Throughout the process, a Project Manager is assigned to perform project management and overall control on the implementation. The Project Manager will conduct training to The Registry users on the functionalities of the system. The SRS setup shall be completed within a month.

The system will be in maintenance mode after the SRS is deployed. The SRS will be supported by general helpdesk support for enquiries. Any support issue related to SRS will be escalated to the Application Support Engineer for trouble shooting. System Administrator is tasked to monitor the SRS availability. Whenever there is a support ticket, Application Support Engineer and System Administrator will further escalate the support request base on severity. The emergency response team will be triggered whenever there is a catastrophe scenario at the highest severity.

Once a remedy is identified, Test Engineer will perform testing on the fixes before deployment by System Administrator. During maintenance, the outsourced party has committed 4 resources for the 24 x 7 helpdesk, 4 data center engineers, 2 application support engineers, 1 support manager, 1 test engineer and 2 system administrators. As part of on going policy changes, a team of software developer is available for any common upgrade to the SRS and the changes will trigger the change request procedure in accordance to CMMI standards.

### Service Level Agreement (SLA)

The Registry is committed to provide SLA according to the parameters below in accordance to Specification 10:

#### DNS

- DNS service availability: 0 min downtime = 100% availability
- DNS name server availability: = 432 min of downtime (~99%)
- TCP DNS resolution RTT: = 1500 ms, for at least 95% of the queries
- UDP DNS resolution RTT: = 500 ms, for at least 95% of the queries
- DNS update time: = 60 min, for at least 95% of the probes

#### RDDS (WHOIS)

- RDDS availability: = 864 min of downtime (~98%)

## Appendix 3

- RDDS query RTT: = 2000 ms, for at least 95% of the queries
- RDDS update time: = 60 min, for at least 95% of the probes

### EPP

- EPP service availability: = 864 min of downtime (~98%)
- EPP session-command RTT: = 4000 ms, for at least 90% of the commands
- EPP query-command RTT: = 2000 ms, for at least 90% of the commands
- EPP transform-command RTT: = 4000 ms, for at least 90% of the commands

**25. Extensible Provisioning Protocol (EPP): provide a detailed description of the interface with registrars, including how the applicant will comply with Extensible Provisioning Protocol in the relevant RFCs, including but not limited to: RFCs 3735, and 5730-5734. Provide the EPP templates and schemas that will be used. Include resourcing plans (number and description of personnel roles allocated to this area).**

Qinetics deploys real time Interface between registry and registrar based on EPP implementation. EPP implements a thick model registry where WHOIS information is stored in registry main database as contact set. Every registration requires a set of contacts to be submitted to registry system. The EPP commands and responses are compliance to RFC 5730 to RFC 5734. The EPP supports all Login Commands (login, logout), Query Commands (check, info, poll, transfer) and Object Transform Commands (create, delete, renew, transfer, update). The supported commands in the system are:

Greeting, Hello, Login, Logout, Poll, Domain Check, Domain Info, Domain Create, Domain Update, Domain Delete, Domain Renew, Domain Transfer, Contact Check, Contact Info, Contact Create, Contact Update, Contact Delete, Contact Transfer, Host Check, Host Info, Host Create, Host Update, Host Delete

The full set of commands and responses syntax are in a 30 pages document which can be furnished on demand.

The system utilizes EPP statuses stated in the RFC as follows:

Domain Action Statuses:

- clientDeleteProhibited: Requests to delete the object must be rejected.
- serverDeleteProhibited: Requests to delete the object must be rejected.
- clientHold: Delegation information must be withheld from

## Appendix 3

- publication in the object's nominal zone.
- serverHold: Delegation information must be withheld from publication in the object's nominal zone.
  - clientRenewProhibited: Requests to renew the object must be rejected.
  - serverRenewProhibited: Requests to renew the object must be rejected.
  - clientTransferProhibited: Requests to transfer the object must be rejected.
  - serverTransferProhibited: Requests to transfer the object must be rejected.
  - clientUpdateProhibited: Requests to update the object (other than to remove this status) must be rejected.
  - serverUpdateProhibited: Requests to update the object (other than to remove this status) must be rejected.

### Domain State Statuses:

- ok: This is the nominal status value for a domain object at all times, whether or not the domain has prohibition of operation statuses.
- Expired: This is the domain status when the domain fall into auto renew grace period
- RedemptionPeriod: The domain has fall out of renewal grace period into redemption grace period
- pendingRestore: A restore request has been received for the object, and completion of the request is pending.
- pendingDelete: A delete request has been received for the object, but the object has not yet been purged from the server database.
- pendingTransfer: A transfer request has been received for the object, and completion of the request is pending.

When the requested action has been completed, the pendingDelete, pendingTransfer, or pendingRestore status value are removed. All clients involved in the transaction will be notified using a service message (Poll Command) that the action has been completed and that the status of the object has changed.

Below are conditions where domain statuses cannot co exist:

- "ok" status cannot be combined with any other status.
- "pendingDelete" status is cannot be combined with either "clientDeleteProhibited" or "serverDeleteProhibited" status.
- "pendingTransfer" status is cannot be combined with either "clientTransferProhibited" or "serverTransferProhibited" status.

The pendingDelete, pendingTransfer, and pendingRestore status values cannot be combined with each other.

## Appendix 3

All Client statuses can be performed by the Registry or registrar, all server statuses can only be performed by the Registry.

Domain Transfer State Statuses:

Pending - The domain transfer request is initiated

clientApproved - Domain Transfer is approved by losing registrar

clientCancelled - Gaining registrar cancel domain transfer request

clientRejected - Losing registrar rejected the domain transfer request

serverApproved - Domain Transfer is approved by system after transfer grace

serverCancelled - Domain transfer is cancelled by registry system

Registrar will be required to download the EPP SDK (bundled with documentation) to establish connection to EPP Server. Procedure of TCP connection:

- a. Post SSL request
- b. SSL Handshaking
- c. SSL session established
- d. Send Greeting command
- e. Greeting acknowledgment
- f. Send login information
- g. Authentication process
- h. TCP over SSL connection established
- i. Send command for operation such as Domain check command
- j. Send Poll command to keep connection alive
- k. Session will be closed automatically after 20 minutes if Poll command is not issued
- l. Send logout command
- m. Session closed

XML parser will be used against request and response to ensure integrity of the data and detect corruption of data. Once data is found to be loss or corrupted, EPP command fail response will be sent to the requestor.

SSL

The EPP handshake requires exchange of certificates between the client and the server. Qinetics implementation accepts any certificates issued by authorized Certificate Authority (CA). The authorized CA list supported: Verisign, Thawte, GeoTrust, EnTrust, Comodo, GlobalTrust, DigiCert, USERTrust, CyberTrust, Microsoft

Qinetics provides a self signed certificate as optional to the



## Appendix 3

registrar for better security. Registrars can file in a request through email for Qinetics generated certificate.

Once SSL handshake is established, registrar shall send in a Login command with username and password to access the EPP services. The EPP services implements IP address check before responding to the client. 2 Tier IP check are implemented in firewall and the EPP services respectively to provide double protection.

### Operation and Test Environment (OTE)

As part of the standard procedure, registrar will be given access to the OTE environment only. Registrar will have to download the OTE guideline and program according to the documentation.

Registrar will then send a request to start OTE test at a predefined time slot. Once the registrar pass the test, the production username and password will be sent to the registrar technical contact.

### Registration Tools

- EPP 1.0 client SDK and documentation; and
- Tools are downloadable from registrar interface.

### EPP Extensions Schemas

The EPP shall not implement an extension except for DNSSEC according to RFC 5910 and IDN according to RFC 3735. The extensions are applied to the following commands only:

- Domain Info
- Domain Create
- Domain Update

The table detailing the XML for the EPP commands and responses are as follows:

#### Domain Info

- Request

```
<?xml version="1.0" encoding="UTF-8"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
  <command>
    <info>
      <domain:info xmlns:domain="urn:ietf:params:xml:ns:domain-
1.0"
xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0 domain-
1.0.xsd">
```

## Appendix 3

```
        <domain:name hosts="all">example.com</domain:name>
    </domain:info>
</info>
    <clTRID>ABC-12345</clTRID>
</command>
</epp>
```

- Response

```
<?xml version="1.0" encoding="UTF-8"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
    <response>
        <result code="1000">
            <msg>Command completed successfully</msg>
        </result>
        <resData>
            <domain:infData
    xmlns:domain="urn:ietf:params:xml:ns:domain-1.0"
    xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0 domain-
    1.0.xsd">
<domain:name>example.com</domain:name>
            <domain:roid>EXAMPLE1-EP</domain:roid>
            <domain:status s="ok"/>
            <domain:registrar>jd1234</domain:registrar>
            <domain:contact type="admin">sh8013</domain:contact>
            <domain:contact type="tech">sh8013</domain:contact>
            <domain:ns>
<domain:hostObj>ns1.example.com</domain:hostObj>
<domain:hostObj>ns1.example.net</domain:hostObj>
            </domain:ns>
            <domain:host>ns1.example.com</domain:host>
            <domain:host>ns2.example.com</domain:host>
            <domain:clID>ClientX</domain:clID>
            <domain:crID>ClientY</domain:crID>
            <domain:crDate>1999-04-03T22:00:00.0Z</domain:crDate>
            <domain:upID>ClientX</domain:upID>
            <domain:upDate>1999-12-03T09:00:00.0Z</domain:upDate>
            <domain:exDate>2005-04-03T22:00:00.0Z</domain:exDate>
            <domain:trDate>2000-04-08T09:00:00.0Z</domain:trDate>
            <domain:authInfo>
                <domain:pw>2fooBAR</domain:pw>
            </domain:authInfo>
            </domain:infData>
        </resData>
    </extension>
    <secDNS:infData
```

## Appendix 3

```
xmlns:secDNS="urn:ietf:params:xml:ns:secDNS-1.1">
<secDNS:dsData>
  <secDNS:keyTag>12345</secDNS:keyTag>
  <secDNS:alg>3</secDNS:alg>
  <secDNS:digestType>1</secDNS:digestType>
  <secDNS:digest>49FD46E6C4B45C55D4AC</secDNS:digest>
```

(Below are optional)

```
      <secDNS:keyData>
        <secDNS:flags>257</secDNS:flags>
        <secDNS:protocol>3</secDNS:protocol>
        <secDNS:alg>1</secDNS:alg>
        <secDNS:pubKey>AQPJ////4Q==</secDNS:pubKey>
      </secDNS:keyData>
</secDNS:dsData>
  </secDNS:infData>
</extension>
  <trID>
    <clTRID>ABC-12345</clTRID>
    <svTRID>54322-XYZ</svTRID>
  </trID>
</response>
</epp>
```

Domain Create (IDN)

- Request

```
<?xml version="1.0" encoding="UTF-8"?>
<epp xmlns="urn:ietf:params:xml:ns:epp-1.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
  <command>
    <create>
      <domain:create
xmlns:domain="urn:ietf:params:xml:ns:domain-1.0"
xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0
domain-1.0.xsd">
        <domain:name>xn--asjeiu3h34jhew.com</domain:name>
        <domain:period unit="y">2</domain:period>
        <domain:ns>
<domain:hostObj>ns1.example.com</domain:hostObj>
<domain:hostObj>ns1.example.net</domain:hostObj>
          </domain:ns>
        <domain:registrant>jd1234</domain:registrant>
        <domain:contact type="admin">sh8013</domain:contact>
        <domain:contact type="tech">sh8013</domain:contact>
        <domain:authInfo>
          <domain:pw>2fooBAR</domain:pw>
```

## Appendix 3

```
        </domain:authInfo>
      </domain:create>
    </create>
  <extension>
  <ext:extension xmlns:ext="urn:ietf:params:xml:ns:ext-1.0"
xsi:schemaLocation="urn:ietf:params:xml:ns:ext-1.0 ext-1.0.xsd">
    <langtag>CHI</langtag>
  </ext:extension>
</extension>
  <clTRID>ABC-12345</clTRID>
</command>
</epp>
```

### - Response

```
<?xml version="1.0" encoding="UTF-8"?>
  <epp xmlns="urn:ietf:params:xml:ns:epp-1.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0
epp-1.0.xsd">
  <response>
    <result code="1000">
      <msg>Command completed successfully</msg>
    </result>
    <resData>
      <domain:creData
xmlns:domain="urn:ietf:params:xml:ns:domain-1.0"
xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0
domain-1.0.xsd">
        <domain:name> xn--asjeiu3h34jhew.com </domain:name>
        <domain:crDate>1999-04-03T22:00:00.0Z</domain:crDate>
        <domain:exDate>2001-04-03T22:00:00.0Z</domain:exDate>
      </domain:creData>
    </resData>
    <trID>
      <clTRID>ABC-12345</clTRID>
      <svTRID>54321-XYZ</svTRID>
    </trID>
  </response>
</epp>
```

### Domain Create (DNSSEC)

#### -Request

```
<?xml version="1.0" encoding="UTF-8"?>
  <epp xmlns="urn:ietf:params:xml:ns:epp-1.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0 epp-1.0.xsd">
```

## Appendix 3

```
<command>
  <create>
    <domain:create
xmlns:domain="urn:ietf:params:xml:ns:domain-1.0"
xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0
domain-1.0.xsd">
      <domain:name>example.com</domain:name>
      <domain:period unit="y">2</domain:period>
      <domain:ns>
<domain:hostObj>ns1.example.com</domain:hostObj>
<domain:hostObj>ns1.example.net</domain:hostObj>
      </domain:ns>
      <domain:registrant>jd1234</domain:registrant>
      <domain:contact type="admin">sh8013</domain:contact>
      <domain:contact type="tech">sh8013</domain:contact>
      <domain:authInfo>
        <domain:pw>2fooBAR</domain:pw>
      </domain:authInfo>
    </domain:create>
  </create>
<extension>
<secDNS:create xmlns:secDNS="urn:ietf:params:xml:ns:secDNS-1.1">
  <secDNS:maxSigLife>604800</secDNS:maxSigLife>
  <secDNS:dsData>
<secDNS:keyTag>12345</secDNS:keyTag>
<secDNS:alg>3</secDNS:alg>
<secDNS:digestType>1</secDNS:digestType>
<secDNS:digest>49FD46E6C4B45C55D4AC</secDNS:digest>

(below are optional)
<secDNS:keyData>
  <secDNS:flags>257</secDNS:flags>
  <secDNS:protocol>3</secDNS:protocol>
  <secDNS:alg>1</secDNS:alg>
  <secDNS:pubKey>AQPJ////4Q==</secDNS:pubKey>
</secDNS:keyData>
</secDNS:dsData>
</secDNS:create>
</extension>
  <clTRID>ABC-12345</clTRID>
</command>
</epp>
```

- Response

```
<?xml version="1.0" encoding="UTF-8"?>
  <epp xmlns="urn:ietf:params:xml:ns:epp-1.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0
```



## Appendix 3

```
epp-1.0.xsd">
  <response>
    <result code="1000">
      <msg>Command completed successfully</msg>
    </result>
    <resData>
      <domain:creData
xmlns:domain="urn:ietf:params:xml:ns:domain-1.0"
xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0
domain-1.0.xsd">
        <domain:name>example.com</domain:name>
        <domain:crDate>1999-04-03T22:00:00.0Z</domain:crDate>
        <domain:exDate>2001-04-03T22:00:00.0Z</domain:exDate>
      </domain:creData>
    </resData>
    <trID>
      <clTRID>ABC-12345</clTRID>
      <svTRID>54321-XYZ</svTRID>
    </trID>
  </response>
</epp>
```

### Domain Update

#### -Request

```
<?xml version="1.0" encoding="UTF-8"?>
  <epp xmlns="urn:ietf:params:xml:ns:epp-1.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0
epp-1.0.xsd">
    <command>
      <update>
        <domain:update
xmlns:domain="urn:ietf:params:xml:ns:domain-1.0"
xsi:schemaLocation="urn:ietf:params:xml:ns:domain-1.0
domain-1.0.xsd">
          <domain:name>example.com</domain:name>
          <domain:add>
            <domain:ns>
<domain:hostObj>ns2.example.com</domain:hostObj>
              </domain:ns>
              <domain:contact type="tech">mak21</domain:contact>
              <domain:status s="clientHold"
lang="en">Payment overdue.</domain:status>
            </domain:add>
          <domain:rem>
            <domain:ns>
<domain:hostObj>ns1.example.com</domain:hostObj>
```

## Appendix 3

```

        </domain:ns>
        <domain:contact type="tech">sh8013</domain:contact>
        <domain:status s="clientUpdateProhibited"/>
    </domain:rem>
    <domain:chg>
<domain:registrant>sh8013</domain:registrant>
    <domain:authInfo>
        <domain:pw>2BARfoo</domain:pw>
    </domain:authInfo>
</domain:chg>
    <domain:add>
        <domain:status s="clientHold"/>
    </domain:add>
</domain:update>
</update>
<extension>
<secDNS:update xmlns:secDNS="urn:ietf:params:xml:ns:secDNS-1.1">
    <secDNS:rem>
        <secDNS:dsData>
            <secDNS:keyTag>12345</secDNS:keyTag>
            <secDNS:alg>3</secDNS:alg>
            <secDNS:digestType>1</secDNS:digestType>
</secDNS:dsData>
</secDNS:rem>
        <secDNS:add>
            <secDNS:dsData>
                <secDNS:keyTag>12346</secDNS:keyTag>
                <secDNS:alg>3</secDNS:alg>
                <secDNS:digestType>1</secDNS:digestType>
</secDNS:dsData>
</secDNS:add>
</secDNS:update>
</extension>
<clTRID>ABC-12345</clTRID>
</command>
</epp>
```

# Appendix 3

-Response

```
<?xml version="1.0" encoding="UTF-8"?>
  <epp xmlns="urn:ietf:params:xml:ns:epp-1.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="urn:ietf:params:xml:ns:epp-1.0
  epp-1.0.xsd">
    <response>
      <result code="1000">
        <msg>Command completed successfully</msg>
      </result>
      <trID>
        <clTRID>ABC-12345</clTRID>
        <svTRID>54321-XYZ</svTRID>
      </trID>
    </response>
  </epp>
```

## Resource and Operation Plan

Qinetics will deploy the registry service for the Registry using its existing system and infrastructure. During the implementation of the registry system, new server hardware will be provisioned for EPP services. The Data Center Engineer will perform the server provisioning and installation of OS. Once the hardware is provisioned, System Administrator shall continue to install the required software and perform security configurations. The assigned Software Developer will configure the rules and policies into the EPP system. Once done, the Test Engineer will perform rigorous testing procedures to ensure the system performs according to specifications. Upon the testing is fully completed, the EPP system shall be hand-over to System Administrator to perform deployment to production environment. Throughout the process, a Project Manager is assigned to perform project management and overall control on the implementation. The Project Manager will conduct training to the Registry users on the functionalities of the system. The EPP setup shall be completed within a month.

The system will be in maintenance mode after the System is deployed. The EPP will be supported by general helpdesk support for enquiries. Any support issue related to EPP will be escalated to the Application Support Engineer for trouble shooting. System Administrator is tasked to monitor the EPP availability. Whenever there is a support ticket, Application Support Engineer and System Administrator will further escalate

## Appendix 3

the support request base on severity. The emergency response team will be triggered whenever there is a catastrophe scenario at the highest severity.

Once a remedy is identified, Test Engineer will perform testing on the fixes before deployment by System Administrator. During maintenance, the outsourced party has committed 4 resources for the 24 x 7 helpdesk, 4 data center engineers, 2 application support engineers, 1 support manager, 1 test engineer and 2 system administrators. As part of on going policy changes, a team of software developer is available for any common upgrade to the EPP and the changes will trigger the change request procedure in accordance to CMMI standards.

### EPP Server Capacity Plan

System performance depends heavily on the application server capability and the processes required for completing a transaction. As the transaction load increases, the system performance can be increased by tuning the application server, upgrade the hardware of the server or increase the number of servers and utilizing load balancers. A test has been carried out using the below hardware for the capacity planning:

- 1 x Dual Core CPU 1.6GHz
- 2G RAM

The test results recorded with a database of 180,000 names and 100 concurrent EPP connections for each commands (in parallel 1500 commands posting) in our test environment are as follows:

### EPP Queries

- Average 1.5 seconds response time for query transactions
- Average 4 seconds response time after 90% line

### EPP transactions

- Average 1.5 seconds response time for transactional commands
- Average 5 seconds response time after 90% line

The results are shown in the screen shot below. According to the result, more than 90% of online transactions take less than 2 seconds in average to response and the remaining of 10% (more time-consuming) transactions can also be completed in 5 seconds as per expectation.

Based on the proposed 2 EPP server hardware which is 4 times more powerful than the test server, the system can handle up to 500 concurrent connections easily. The number of servers will be increased based on the growth of number of registrars or change

## Appendix 3

in the maximum number of connections allocated.

Shall the number of registrars increase, new servers will be provisioned into shared pool. Each registrar will have equal access to the shared pool of connections. The shared pool will serve registrars on First Come First Serve basis.

**26. Whois: describe how the applicant will comply with ICANN's Registry Publicly Available Registration Data (Whois) specifications for data objects, bulk access, and lookups as defined in Specifications 4 and 6 to the registry agreement. Describe how the Applicant's Registry Publicly Available Registration Data (Whois) service will comply with RFC 3912. Describe resourcing plans (number and description of personnel roles allocated to this area).**

### WHOIS System Architecture

The WHOIS service contains data submitted by registrars during the domain name registration process. Any changes made to the data will be reflected in real-time, thus providing all interested parties with up-to-date information.

The WHOIS services to be provisioned include:

- a. Port 43 command prompt WHOIS;
- b. Searchable Port 80 web based WHOIS;
- c. Configurable Port 43 rate limiter to prevent excessive request from the same IP;
- d. Penalty for violation of query limit (e.g. barring access for the next 24 hours);
- e. Ability to exclude certain IPs from normal rate limiting facilities;
- f. Support multilingual WHOIS display;
- g. Easy, scalable and reliable WHOIS service;
- h. Ensure accuracy in the display of WHOIS data; and
- i. Conforms to RFC 3912.

### WHOIS Access Method

WHOIS service shall be accessed via:

Command line (port 43)

The command line WHOIS allow queries by domain name in compliance to RFC 3912. The information will be displayed in a standard format. The WHOIS client makes a text request to the WHOIS server, then the WHOIS server replies with text content. All requests are terminated with ASCII CR and then ASCII LF. The response might contain more than one line of text, so the presence of ASCII CR or ASCII LF characters does not indicate the end of the response. The WHOIS server closes its connection as soon as the output is finished. The closed TCP connection is



## Appendix 3

the indication to the client that the response has been received.

Registry Public Web Site (port 80)

The web based WHOIS is a searchable WHOIS by domain name. The corresponding information will be displayed if a match is found.

Both web and command prompt WHOIS will be accessing a standard database connection pool before connecting to the database as shown below. The secondary database is configured to replicate the data from production database in real time. A interconnectivity diagram between the SRS and WHOIS service is attached.

DB Connection Thread Controller

The WHOIS system will connect directly to replicate secondary database using a connection pool which will limit the number of maximum connections that can be connected to the database at any given time. Once the maximum is reached, the remaining requests are queued until the current connections are released. If the connection(s) could not be released on time (until database timeout hits), the system will throw an error out stating that the system is currently busy.

Searchable WHOIS Service

The Registry will offer searchable web-based WHOIS service on a subscription basis and reserves the rights to impose a fee. The searchable WHOIS will have partial match capabilities on the following fields:

- domain name
- registrant's name
- registrant's postal address
- all the sub-fields described in EPP (e.g., street, city, state or province, etc.).

The WHOIS will offer exact-match capabilities on the following fields:

- registrar id
- name server name
- name server's IP address (only applies to glue records).

The searchable WHOIS will allow Boolean search capabilities supporting logical operators to join a set of search criteria: AND, OR, NOT. The search results will include domain names matching the search criteria.

A potential form of abuse for this feature is data-mining, which is already commonly seen in the domain name industry with many

## Appendix 3

domain name registries implementing reviewing their public WHOIS display policies to mitigate the problem. For example, SGNIC (.SG Registry) has recently revamped their WHOIS display to remove the mailing address of the registrant and administrative contact, the mailing address and telephone number of the technical contact and all of the information of the billing contact. The formal announcement from SGNIC can be found at <http://sgnic.sg/news/sgnic-sg-whois-changes-2-may-2012>.

The subscribers can access the searchable WHOIS feature from the Registry website. To access this feature, the subscriber would have to apply for access to the feature and sign an agreement with the Registry. The Registry reserves the right not to approve the application. Upon approval, the subscriber would be given an unique login to ensure non-abusive use of this feature. The search is also protected by Image Verification Check (IVC). The access to this service will be monitored by the Registry. Any abuse detected by the Registry will be severely dealt with and the access of the offending subscriber will be revoked immediately.

All subscribers will agree to abide by all applicable privacy laws and policies as stated in the Searchable WHOIS Subscription Agreement.

### WHOIS Data Watch Service

The Registry will provide a service for alerts on WHOIS information change. Any changes on the WHOIS data will be alerted to the previous and the new email address of the registrant contact. The Registry shall provide the services for free but reserves the right to impose a fee on the service. This feature provides extra security to ensure accuracy of the WHOIS information.

### WHOIS Query Control

The WHOIS service has the capability to perform query limit to avoid bulk access. The Registry has the flexibility to amend the rate limit any time. To avoid further access to the registrant information, the search do not allow query on the registrant name. The search will return exact match results to avoid harvesting of related matching records.

### WHOIS and Privacy

The Registry shall provide access to registrant information to the extent compatible with applicable privacy laws and policies. The Registry shall not use the WHOIS data to send any unsolicited email to registrants, to solicit registrants by telephone or to otherwise engage in unauthorized uses of their

## Appendix 3

data. the Registry shall not sell any WHOIS data to third party under any circumstances.

Registrars will agree to abide by all applicable privacy laws and policies as stated in the Registry Registrar Agreement. Registrars shall require customers to enter into an agreement prohibiting the customer from using the WHOIS database to send email, contact by phone or use it for other commercial purposes.

Registrars are required to post privacy policies that provide clear and complete notice to registrants of the type of data that will be collected, the use of such data in operating the Registry service and correct data maintained by the Registry. Such data are required for submission of domain registration.

### System Network and Hardware:

For optimum effect of WHOIS server, minimum 2 WHOIS servers will be provisioned. 2 database servers are provisioned as replicated secondary database cluster from the production site. A backup WHOIS server is setup for disaster recovery purposes in the primary data center. The network diagram is attached.

### Interconnectivity and Synchronization

A replicated secondary database cluster is configured to replicate data from the main database in the SRS system. The secondary database will provide WHOIS query and data access for reports. The replication will be done using MySQL bidirectional geographical replication feature which is near real time and providing active-active hot site. The monitoring system will probe the services in the SRS in real time.

### Source (SRS) to Destination (WHOIS)

- A secondary database cluster will be installed for providing the WHOIS response. The synchronisation is done using bidirectional database replication. The data are replicated to secondary database within mili seconds.

### WHOIS Output

The WHOIS server is based on a template system for both web interface and command line based WHOIS. The templates can be configured and changed in real time. The standard WHOIS output format is as below:

### Sample WHOIS Output (Search By Domain):

```
Domain Name:EXAMPLE<New gTLD String>
Created On:18-Feb-1996 05:00:00 UTC
Last Updated On:26-Mar-2010 16:53:27 UTC
Expiration Date:19-Feb-2015 05:00:00 UTC
```

# Appendix 3

Sponsoring Registrar:GoDaddy.com, Inc. (R91-VIP)  
Status:DELETE PROHIBITED  
Status:TRANSFER PROHIBITED  
Status:UPDATE PROHIBITED  
Registrant ID:VIP-0000012  
Registrant Name:Registration Department  
Registrant Organization:Domain Company.  
Registrant Street1: Contact Information Redacted  
Registrant Street2:Contact Information Redacted  
Registrant Street3:  
Registrant City: Contact Information Redacted  
Registrant State/Province:Contact Information Redacted  
Registrant Postal Code:Contact Information Redacted  
Registrant Country:Contact Information Redacted  
Registrant Phone:Contact Information Redacted  
Registrant Phone Ext.:  
Registrant FAX:Contact Information Redacted  
Registrant FAX Ext.:  
Registrant Email:Contact Information Redacted  
Admin ID:VIP-22131674  
Admin Name:Registration Department  
Admin Organization:Domain Company.  
Admin Street1: Contact Information Redacted  
Admin Street2:Contact Information Redacted  
Admin Street3:  
Admin City: Contact Information Redacted  
Admin State/Province:Contact Information Redacted  
Admin Postal Code:Contact Information Redacted  
Admin Country:US  
Admin Phone:Contact Information Redacted  
Admin Phone Ext.:  
Admin FAX: Contact Information Redacted  
Admin FAX Ext.:  
Admin Email: Contact Information Redacted  
Tech ID:VIP-12131674  
Tech Name:Registration Department  
Tech Organization:Domain Company  
Tech Street1:Contact Information Redacted  
Tech Street2:Contact Information Redacted  
Tech Street3:  
Tech City:Contact Information Redacted  
Tech State/Province:Contact Information Redacted  
Tech Postal Code:Contact Information Redacted  
Tech Country:Contact Information Redacted  
Tech Phone:Contact Information Redacted  
Tech Phone Ext.:  
Tech FAX:Contact Information Redacted  
Tech FAX Ext.:

## Appendix 3

Tech Email: Contact Information Redacted  
Name Server: NS1.EXAMPLE<New gTLD String>  
Name Server: NS2.EXAMPLE<New gTLD String>  
DNSSEC: Signed  
DS Created 1:26-Mar-2010 16:52:50 UTC  
DS Maximum Signature Life 1:3456000 seconds  
DS Key Tag 1:54135  
Algorithm 1:5  
Digest Type 1:1  
Digest 1:225F055ACB65C8B60AD18B3640062E8C23A5FD89  
DS Created 2:26-Mar-2010 16:53:27 UTC  
DS Maximum Signature Life 2:3456000 seconds  
DS Key Tag 2:54135  
Algorithm 2:5  
Digest Type 2:2  
Digest  
2:6CDE2DE97F1D07B23134440F19682E7519ADDAE180E20B1B1EC52E7F58B283  
1D

If the information does not exist, WHOIS will display a message e.g. "No Record Found".

Sample WHOIS Output (Search By Host or Host IP: For Searchable WHOIS Subscribers Only):

Hostname: ns1.fivio.tld  
Created On: 18-Feb-1996 05:00:00 UTC  
Last Updated On: 26-Mar-2010 16:53:27 UTC  
Expiration Date: 19-Feb-2015 05:00:00 UTC  
Sponsoring Registrar: GoDaddy.com, Inc. (R91-VIP)  
IP address: 202.11.11.90  
IP address: 202.11.11.91

Sample WHOIS Output (Search By Registrar Name, Address, Phone etc: For Searchable WHOIS Subscribers Only):

Registrar Name: Example Registrar, Inc.  
Street: 1234 Admiralty Way  
City: Marina del Rey  
State/Province: CA  
Postal Code: 90292  
Country: US  
Phone Number: +1.3105551212  
Fax Number: +1.3105551213  
NEW GTLD AGREEMENT SPECIFICATIONS  
Email: registrar@example.tld  
WHOIS Server: whois.example-registrar.tld  
Referral URL: http://www.example-registrar.tld  
Admin Contact: Joe Registrar  
Phone Number: +1.3105551213

# Appendix 3

Fax Number: +1.3105551213  
Email: joeregistrar@example-registrar.tld  
Admin Contact: Jane Registrar  
Phone Number: +1.3105551214  
Fax Number: +1.3105551213  
Email: janeregistrar@example-registrar.tld  
Technical Contact: John Geek  
Phone Number: +1.3105551215  
Fax Number: +1.3105551216  
Email: johngeek@example-registrar.tld

Sample WHOIS Output (Search By Registrant ID: For Searchable WHOIS Subscribers Only):

Registrant ID: TLD-0000012  
Created On: 18-Feb-1996 05:00:00 UTC  
Last Updated On: 26-Mar-2010 16:53:27 UTC  
Expiration Date: 19-Feb-2015 05:00:00 UTC  
Sponsoring Registrar: GoDaddy.com, Inc. (R91-VIP)  
Registrant Name: Registration Department  
Registrant Organization: Domain Company.  
Registrant Street1: Contact Information Redacted  
Registrant Street2: Contact Information Redacted  
Registrant Street3:  
Registrant City: Contact Information Redacted  
Registrant State/Province: Contact Information Redacted  
Registrant Postal Code: Contact Information Redacted  
Registrant Country: Contact Information Redacted  
Registrant Phone: Contact Information Redacted  
Registrant Phone Ext.:  
Registrant FAX: Contact Information Redacted  
Registrant FAX Ext.:  
Registrant Email: Contact Information Redacted

Internationalized Domain Name (IDN)

The same templates that are used for the English version will be used for IDN display. Users will have to convert the domain name to xn-before executing the query.

IPv6 Address

Any hostname submitted with IPv6 AAAA record will be displayed.

Resource and Operation Plan

Qinetics will deploy the registry service of the Registry using its existing system and infrastructure. During the implementation of the registry system, new server hardware will be provisioned for WHOIS services. The Data Center Engineer will perform the server provisioning and installation of OS. Once the hardware is provisioned, System Administrator shall continue to

## Appendix 3

install the required software and perform security configurations. On the other hand, the Database Administrator will ensure the database cluster work fine across geographically different data centers. The assigned Software Developer will configure the WHOIS display template into the WHOIS system. Once done, the Test Engineer will perform rigorous testing procedures to ensure the system performs according to specifications. Upon the testing is fully completed, the WHOIS system shall be hand-over to System Administrator to perform deployment to production environment. Throughout the process, a Project Manager is assigned to perform project management and overall control on the implementation. The Project Manager will conduct training to the Registry users on the functionalities of the system. The WHOIS setup shall be completed within 2 weeks.

The system will be in maintenance mode after the System is deployed. The WHOIS will be supported by general helpdesk support for enquiries. Any support issue related to WHOIS will be escalated to the Application Support Engineer for trouble shooting. System Administrator is tasked to monitor the EPP availability. Whenever there is a support ticket, Application Support Engineer and System Administrator will further escalate the support request base on severity. The emergency response team will be triggered whenever there is a catastrophe scenario at the highest severity.

Once a remedy is identified, Test Engineer will perform testing on the fixes before deployment by System Administrator. During maintenance, the outsourced party has committed 4 resources for the 24 x 7 helpdesk, 4 data center engineers, 2 application support engineers, 1 support manager, 1 test engineer and 2 system administrators. As part of on going policy changes, a team of software developer is available for any common upgrade to the WHOIS and the changes will trigger the change request procedure in accordance to CMMI standards.

Compliance Table (Specification 4)

The table showing our compliance to specification 4 is attached.

**27. Registration Life Cycle: provide a detailed description of the proposed registration lifecycle for domain names in the proposed gTLD. The description must explain the various registration states as well as the criteria and procedures that are used to change state. It must describe the typical registration lifecycle of create/update/delete and all intervening steps such as pending, locked, expired, and transferred that may apply. Any time elements that are involved - for instance details of add-grace or redemption grace**

# Appendix 3

**periods, or notice periods for renewals or transfers - must also be clearly explained. Describe resourcing plans (number and description of personnel roles allocated to this area).**

Registration (1 to 10 years)

A .THAI domain name can be registered for a span of 1 to 10 years.

## 1. Active Period

A .THAI domain name becomes ACTIVE immediately upon being registered, meaning that it is no longer available for registration. The WHOIS record of the newly registered domain is created upon registration. A .THAI domain name can be active for 1-10 years depending on the duration of the registration term selected by the registrant. A .THAI domain name can be transferred from one registrar to another while it is in ACTIVE state. The domain will have OK status.

## 2. Registry-Lock

This condition can only be set by the Registry. A .THAI domain name with this status cannot be transferred, modified or deleted by its registrar. The domain can however be renewed. The domain will be resolvable as it is included in the Registry zone files if the domain has been delegated to at least one name server. The domain will have serverTransferProhibited, serverUpdateProhibited, serverDeleteProhibited statuses.

## 3. Registry-Hold

This condition can only be set by the Registry. A .THAI domain with this status cannot be transferred, modified or deleted by its registrar. The domain can however be renewed. The domain will not be resolvable as it is not included in the Registry zone files. The domain will have serverHold Status.

Renewal

A .THAI domain name can be renewed up to a maximum period of 10 years. The following are the rules that govern the renewal of a domain name:

- The request to renew a domain name should contain the Period parameter to identify the number of years to be added to the registration. If not provided, the system provides a default one year renewal.
- The request to renew a domain name must contain the current expiration date. This is required to ensure that repeated attempts to retry this command do not result in multiple successful renewals.
- The system renews the domain name for the period specified by the registrar. If the domain name renewal is completed successfully, the system returns the new registration expiration



## Appendix 3

date in the response.

- The number of years requested plus the time of the remaining registration period cannot exceed 10 years. Registration periods are capped at 10 years per the agreements between the Registry and ICANN. Any attempt to create a registration period longer than 10 years will be rejected with an error response code. For example, if a registration has 18 months remaining until expiration and 9 years are requested for the renewal, the request would be rejected. The resulting period would be 10 years and 6 months - this is not allowed because it is greater than 10 years.

The state diagram of the .THAI domain life cycle is attached.

Grace periods are available for billable EPP commands to account for errors and support the auto-renewal model. The applicable grace period information is returned in the domain info EPP XML response.

### Add Grace Period

The Add Grace Period is a specified number of calendar days following the initial registration of the domain. The proposed Add Grace Period is 5 calendar days. The domain could be in OK or prohibited statuses.

If a Delete, Renew, or Transfer operation occurs within the 5 calendar days, the following rules shall apply:

- Delete. If a domain name is deleted within the Add Grace Period, the sponsoring registrar will be refunded the amount of the registration fee. The domain name is immediately deleted from the Registry database and available for registration by any registrar. If a domain name is deleted after the 5 calendar day grace period expires, it will be placed in the Redemption Period Status for 30 calendar days and then deleted via the system after going through a 5 calendar day Pending Delete Period.
- Renew. If a domain name is renewed within the Add Grace Period, there will be no grace period credit for the registration fee. In addition to the initial registration charge, the sponsoring registrar will be charged for the number of years the domain name is renewed up to a maximum resulting registration period of not more than 10 years.
- Transfer. A domain name may not be transferred within the Add Grace Period. Registrants are prohibited from changing registrars within the first 60 days of the initial registration of the domain name.

### Add Grace Period Consensus Policy

If a domain is deleted within the Add Grace Period, the

## Appendix 3

sponsoring registrar is credited for the amount of the registration fee. However, the Add Grace Period Consensus Policy limits the number of deletes within the grace period that are allowed per registrar. It is the intention of this Policy is to limit the behavior known as "domain tasting" through modifications to the Add Grace Period (AGP) process.

The Add Grace Period Consensus Policy can be found on the ICANN website at <http://www.icann.org/en/tlds/agp-policy-17dec08-en.htm>

The Registry will not offer any refund to an ICANN accredited registrar for any domain names deleted during the AGP that exceed (i) 10% of that registrar's net new registrations (calculated as the total number of domain name registrations of one-year through ten-year registrations) in that month, or (ii) fifty (50) domain names, whichever is greater, unless an exemption has been granted by the Registry. The calculation will be done automatically by the system.

A registrar may seek an exemption from the Registry from the application of such restrictions in a specific month under special circumstances. A report would have to be presented to the Registry by the registrar requesting for the exemption stating the circumstances and that the registrar was unable to prevent the deletions from taking place. The acceptance of any exemption will be at the sole and reasonable discretion of the Registry, however special circumstances which reoccur regularly for the same registrar will not be deemed acceptable and will be rejected as a reason.

### Example:

If a registrar has 1,000 net new registrations, had its account with the Registry auto-debited for US\$5,000 (based on a price of US\$5 per domain name registration), and had 250 AGP deletes, the Registrar would be entitled to a refund of US\$500 for 100 AGP deletes (10% of 1,000 net new registrations at US\$5 per domain name registration). The registrar would not be eligible for a refund of US\$750 for the additional 150 deletes made.

### Renew Grace Period

The Renew Grace Period is a specified number of calendar days following the renewal/extension of a domain name registration period. The proposed Renew Grace Period is 5 calendar days. The domain could be in OK or prohibited statuses.

If a Delete, Renew, or Transfer occurs within that 5 calendar days, the following rules apply:

## Appendix 3

- **Delete:** If a domain name is deleted within the Renew Grace Period, the sponsoring registrar will be refunded the renewal fee. The domain then enters the Redemption Grace Period unless the deletion occurs during the 5 day Add Grace Period.
- **Renew** A domain name can be renewed up to a total of 10 years. If a domain name is renewed within the Renew Grace Period, there will be no grace period credit for the renewal fee. The sponsoring registrar will be charged the renewal fee for each of the additional number of years the domain name is renewed.
- **Transfer:** If a domain name is transferred within the Renew Grace Period, the number of years that was renewed for the domain name will still be valid.

If a domain name is deleted and then restored or if a domain name transfer is approved or auto-approved [within the grace period], then the domain name is no longer considered to be in the renew grace period.

### Transfer Grace Period

The Transfer Grace Period is a specified number of calendar days following the completion of a domain name transfer, The proposed Transfer Grace Period is 5 calendar days. The domain could be in OK or prohibited statuses.

If a Delete, Renew, or Transfer operation occurs within the 5 calendar days, the following rules apply:

- **Delete.** If a domain is deleted within the Transfer Grace Period, the sponsoring registrar will be refunded the registration fee.
- **Renew.** If a domain is renewed within the Transfer Grace Period, there will be no grace period credit for the transfer fee. In addition to the transfer fee, the registrar will be charged for the number of years the registration is renewed resulting in a registration period of not more than 10 years.
- **Transfer.** A domain can be transferred to another registrar within the Transfer Grace Period. There will be no refund for the transfer fees. The gaining registrar will be charged for the transfer fee.

If a domain is deleted and then restored or if a domain transfer is approved or auto-approved [within the grace period], then it is considered no longer to be in the transfer grace period.

### Auto-renew Grace Period

The Auto-Renew Grace Period is a specified number of calendar days following the completion of the auto-renewal (via batch process) of the domain name. The proposed Auto-Renew Grace Period is 45 calendar days. The domain will be in Expired

## Appendix 3

status.

If the sponsoring registrar does not renew the domain name prior to its expiration date, The Registry automatically renews the domain for 1 year. The renewal of the domain name is executed by The Registry system the day prior to the expiration date via a batch process. The sponsoring registrar has 45 calendar days to delete the domain and receive a refund for the domain name renewal fee.

If a Delete, Renew, or Transfer operation occurs within the 45 calendar days, the following rules apply:

- Delete. If a domain name is deleted within the Auto-Renew Grace Period, the sponsoring registrar will be refunded the renewal fees.
- Renew. A domain name can be renewed up to a total of 10 years. If a domain name is renewed within the Auto-Renew Grace Period, there will be no grace period credit for the renewal fee.
- Transfer. If a domain name transfer is approved or auto-approved within the Auto-renewal Grace Period, the losing registrar is refunded the renewal fees..

### Overlapping Grace Periods

If an operation is performed that falls into more than one grace period, the actions appropriate for each grace period apply as follows:

- If a domain is deleted within the Add Grace Period and the renew Grace Period, then the registrar is credited the registration and renew amounts, taking into account the number of years for which the registration and renewal were done.
- If several billable operations, including transfers, are performed on a domain and the domain is deleted within the grace periods of each of those operations, only those operations that were performed after the latest successful transfer, including the latest transfer, are credited to the current registrar.
- If a domain is deleted within one or several transfer Grace Periods, then only the current sponsoring registrar is credited for the last transfer amount. For example, if a domain is transferred from Registrar A to Registrar B, and then to Registrar C and finally deleted by Registrar C within the Transfer Grace Period of the first, second, and third transfers, then only the last transfer is credited to Registrar C.

NOTE: There is no special logic for renewals within any grace period. For example, if a domain is renewed within the Transfer Grace Period, then the current registrar's account is debited for the number of years the registration is renewed.

# Appendix 3

## 5. Pending Period

Pending Periods are defined as a specified number of calendar days following a specific operation during which certain operations are prohibited. The following subsections define the length of each pending period and the operations that are allowed within each pending period.

### Types of Pending Periods

There are three Pending Periods - Redemption Period, Pending Restore, and Pending Delete.

NOTE: These three periods correspond to the following statuses in EPP - redemptionPeriod, pendingRestore, and pendingDelete.

When a delete domain request is successful, the domain is placed on redemptionPeriod status for 30 days. During this 30-day Redemption Period, the domain can be restored if the registrar submits a successful Restore request and Restore Report.

The successful restore request changes the domain to pendingRestore status and subsequently, the successful Restore Report replaces the pendingRestore status with the ok status

If a domain in pendingRestore status does not have a Restore Report successfully submitted within the 7 day pending period Pending Restore Period, then the domain is moved to the beginning of a new 30 day Redemption Period.

If the domain is not successfully restored within the 30 day Redemption Period, then the domain is changed to pendingDelete status. The domain remains in the Pending Delete Period for 5 days before it is purged and made immediately available for registration.

### Redemption Period

The proposed Redemption Period is 30 calendar days. When a domain name is deleted outside of the Add Grace period, it is placed on redemptionPeriod status for 30 days.

The Redemption Period status does NOT apply to domain names deleted within the 5 day Add Grace Period. If a domain name is deleted within the 5 day Add Grace Period, it is immediately purged from the Registry, and immediately made available for registration.

The Redemption Period is designed to help registrars defend against inadvertent deletions. By placing the domain name on Redemption Period status for 30 days, the registrar has a sufficient time to realise the deletion and restore it, and not

## Appendix 3

worry about the domain name being purged from the Registry.

### Pending Restore Period

The proposed Pending Restore Period is 7 calendar days. A domain stays in the redemptionPeriod status for 30 days OR until a successful RESTORE command places the domain on pendingRestore status.

The domain name stays in pendingRestore status for 7 calendar days or until a Restore Report is received from the Registrar and verified to be complete.

If a domain in pendingRestore status does not have a Restore Report successfully submitted within the 7 day pending period, then the domain is moved to the beginning of a new 30 day Redemption Period.

### Pending Delete Period

The proposed Pending Delete Period is 5 calendar days. A domain name that is deleted outside of the Add Grace Period, and does not have a RESTORE command issued during the 30 day Redemption Period is placed into the Pending Delete Period.

Once a domain enters the Pending Delete Period, it cannot be restored. The domain stays in pendingDelete status for 5 days and then it is purged from the system at the end of the 5 days. It should be noted that no EPP operations can be performed on domains with the pendingDelete status.

### Pending Transfer Period

The proposed Pending Transfer Period is 5 calendar days. A successful TRANSFER REQUEST command will place the domain on pendingTransfer status for 5 days or until the transfer is explicitly approved, rejected, cancelled, or auto-approved.

The sponsoring registrar (also referred to as the losing registrar) has 5 calendar days to approve or reject the request. If the potential winning registrar receives an approve response, then the domain is automatically transferred. If the potential gaining registrar receives a reject response, then the pendingTransfer status is removed. If the potential gaining registrar does not receive any response by the end of 5 calendar days, then the request is automatically approved.

### Resource and Operations Plan

Qinetics will deploy the registry service for the Registry using its existing system and infrastructure. The assigned Software Developer will configure the domain life cycle into the system.

## Appendix 3

Once done, the Test Engineer will perform rigorous testing procedures to ensure the system performs according to specifications. Upon the testing is fully completed, the configurations shall be hand-over to System Administrator to perform deployment to production environment. Throughout the process, a Project Manager is assigned to perform project management and overall control on the implementation. The Project Manager will conduct training to the Registry users on the domain life cycle of the system. The domain life cycle setup shall be completed within 2 weeks.

The system will be in maintenance mode after the System is deployed. The domain life cycle will be supported by general helpdesk support for enquiries. Any support issue related to domain life cycle will be escalated to the Application Support Engineer for trouble shooting. Whenever there is a support ticket, Application Support Engineer will further escalate the support request base on severity. The emergency response team will be triggered whenever there is a catastrophe scenario at the highest severity.

Once a remedy is identified, Test Engineer will perform testing on the fixes before deployment by System Administrator. During maintenance, the outsourced party has committed 4 resources for the 24 x 7 helpdesk, 2 application support engineers, 1 support manager, 1 test engineer and 2 system administrators. As part of on going policy changes, a team of software developer is available for any common upgrade to the domain life cycle and the changes will trigger the change request procedure in accordance to CMMI standards.

The Registry shall allocate resources from its Operation team to the following finance and billing activities:

- Refund and billing activities with the registrars;
- Discrepancies on billing with the registrars;
- Reconcile the billing on the accounts and the systems

The Registry relies on the automated system for calculation of billing and refund activities based on the logics of the Registration Life Cycle as described in this section. Operation Manager will lead the management and administration for the finance and billing function.

**28. Abuse Prevention and Mitigation: Applicants should describe the proposed policies and procedures to minimize abusive registrations and other activities that have a negative impact on Internet users. Answers should include:**

# Appendix 3

- **safeguards the applicant will implement at the time of registration, policies to reduce opportunities for abusive behaviors using registered domain names in the TLD, and policies for handling complaints regarding abuse. Each registry operator will be required to establish and publish on its website a single abuse point of contact responsible for addressing matters requiring expedited attention and providing a timely response to abuse complaints concerning all names registered in the TLD through all registrars of record, including those involving a reseller.**
- **a description of rapid takedown or suspension systems that will be implemented.**
- **proposed measures for management and removal of orphan glue records for names removed from the zone.**
- **resourcing plans (number and description of personnel roles allocated to this area).**

The Registry recognizes that the abusive uses of domain names, such as phishing, spamming and distribution of malware, are growing problem across the Internet. These behaviors are increasingly perpetrated by professional criminals who use technically and socially sophisticated means to victimize the public and misuse Internet resources.

The Registry will adopt an anti-abuse use policy that is designed to benefit registrants, registrars and end-users of the domain names across the Internet. It will define the abusive practices with respect to the domain names and outline the prevention and mitigation effort towards these practices.

## Implementation Plan

### 1. Single Abuse Point of Contact

The Registry will establish an Implementation Plan for handling complaints about abuse, as following:

- Registry will prominently publish abuse contact information on its website;
- The abuse contact will prominently displayed on its webpage, and a uniform naming convention will be utilized to facilitate discovery of the website;
- The abuse contact information shall consist of telephone and email address. The email address may be an alias, not a specific person's name, to manage operational efficiency;
- Request submitted by verified law enforcement agencies to this contact will receive an acknowledgement of receipt from the registry within 24 hours; and
- The contact at the registry will be empowered to act in response to a well-founded report of illegal, criminal or malicious activity involving the domain name registration.



# Appendix 3

Policies for Handling Complaints regarding Abuse

## 1. Scope of Jurisdiction

The Registry's area of jurisdiction for handling complaints is only limited to matters related to the domain names. It does not have the authority to handle complaints related to other Top Level Domains (TLDs), web hosting, email services and objectionable website content.

## 2. Anti-Abuse Use Policy

### a. Registrar

The Registry intends to incorporate Anti Abuse Use Policy into the The Registry Registrar Agreement (RRA). Registrars should not tolerate abusive use related to the domain names for which they act as sponsoring registrars.

Under the provision of the Registry Registrar Agreement (RRA), Registrar shall promptly investigate complaints alleging any such abusive practices, and shall take all appropriate actions based upon such investigations. Registrar shall use commercially reasonable effort to resolve the complaints, as request or recommended by the registry or any legal authority.

Registrar's failure to comply with the policy shall constitute a material breach of the RRA, and shall give rise to the rights and remedies available to the registry under the RRA.

### b. Registry

Pursuant to the RRA, The Registry reserve the right to deny, cancel, or transfer any registration or transaction, or place any domain name(s) on registry lock or hold, in its discretion, with the aim to:

- Protect the security and stability of the DNS;
- Comply with any applicable court order, laws, government rules and requests of law enforcement;
- Comply with any dispute resolution process;
- Comply with the terms of Registration Agreement;
- Avoid any liability, civil or criminal, on the part of the registry, as well as its affiliates, subsidiaries, officers, directors and employees;
- Correct mistakes of the registry or any registrars with regards to the domain registration.

The Registry reserves the right to place upon registry lock, hold or similar status a domain name during resolution of a dispute.

### Glue Records

The Registry does not allow orphan glue records. Glue records

## Appendix 3

are removed when (or required to be removed before) the delegation point NS record is removed. Other domain names that need the glue record for correct DNS operation may become unreachable or less reachable depending on their settings of DNS service.

### Resource Plan

#### Anti-Abuse Desk

The Registry will have a management staff (i.e. Operations Manager) to spearhead the setting up of an anti-abuse desk, dedicated to handle all matters with regards to abuse. An Administrative Executive will be hired to assist the Operations Manager for the handling of abuse complaints, shall the workload increase.

The Registry will intend to engage external providers to resolve the abuse complaints, such as:

- Uniform Rapid Suspension (URS), as drafted by ICANN;
- Rapid Takedown, as similar service engaged by ICM Registry (the operator of .XXX TLD); or/and
- Legal professional to deal with any legal matters arise.

The budget for the engagement of the legal professional is provisioned in the projection forecast in Template 1. The fees for the URS and Rapid Takedown would be borne by the complainant.

### Joining Working Groups

To keep up with knowledge in dealing with anti-abuse issues and mitigation practises, The Registry intends to participate in Anti-Phishing Working Group (APWG). The APWG is the global pan-industrial and law enforcement association focused on eliminating fraud and identity theft that result from phishing, pharming, and email spoofing of all types. The APWG also focuses on policy-related issues associated with the DNS to examine abuses of the DNS that may require remediation.

The Registry may also tap into the forum of Registry Internet Safety Group (RISG). The purpose of RiSG is to facilitate dialogue, affect change, and promulgate best practices to combat domain name abuse, Internet identity theft in all its forms and malware distribution. The member registry operators are examining anti-abuse best practices and use cases for registries, and opportunities for data sharing.

### WHOIS Accuracy

The Registry intends to outline measures to promote WHOIS accuracy that to be undertaken by the registry directly or by

## Appendix 3

the registrars via the requirements in the The Registry-Registrar Agreement (RRA).

The Registry intends to incorporate the WHOIS Accuracy policy into the RRA where Registrars are required to regularly monitor registration data for accuracy and completeness.

Registrar shall use commercially reasonable effort to monitor and check on the registration data, as requested or recommended by the registry.

Registrar's failure to comply with the policy shall constitute a material breach of the RRA, and shall give rise to the rights and remedies available to the registry under the RRA.

Authentication of registrant information

The domain name is for open registration and generic use TLD. The Registry (via its registrars) will perform authentication of the registrant information as complete and accurate during Sunrise registration.

Regular Monitoring of Registration Data for Accuracy and Completeness

The Registry will randomly sample WHOIS data from the registry database daily, and will check on the registration data for accuracy and completeness. Any WHOIS irregularities or inaccuracies found during the sampling will be forwarded to the sponsoring registrars for their subsequent remedies.

Any failure to remedy the situation in a timely fashion may result the domain name to be treated as violation of Registration Agreement, where anti-abuse domain use policy shall be enforced.

The Registry will rely on the WHOIS Data Reminder Policy (WDRP) set down by ICANN for the accredited registrars to ensure the WHOIS data of all the domain names are at least reviewed once a year for accuracy.

The Registry provides a Data Watch service which will will email the new and old registrant contact address when there is a change in contact information for the domain. This mechanism works as a counter check measurement to ensure that the registrant validates that the information. The registrant can contact The Registry through the anti-abuse helpdesk.

Policies and Procedures that define malicious or abusive behavior

# Appendix 3

## 1. Definition of Abuse

The Registry does not tolerate the abusive use of its domain name, which causes security and stability issues for the registry, registrars and the general Internet community. The Registry defines abusive use as the wrong use of power, position or ability and includes but is not limited to the following:

- Illegal or fraudulent actions;
- Any form of spam i.e. email spam, messaging spam etc;
- Phishing which involves the use of bogus websites to obtain personal information;
- Pharming which involves redirecting unknowing users to fraudulent websites to obtain personal information;
- Willful dissemination of malware;
- Fast-flux hosting which involves the use of DNS to frequently change the location of a website to hide its location or host illegal activities; and
- Botnet command and control.

Establishing Service Level Requirement for resolution

## 2. Participating in Uniform Rapid Suspension (URS)

The Registry will cooperate with ICANN for the implementation of URS, shall the policies and procedures are finalized. The involvement of the registry for the scope of URS shall include the followings:

- Upon completion of the Administrative Review, the URS Provider will immediately notify the registry (via email) ("Notice of Compliant") after the Compliant has deemed compliant with the filing requirements. Within 24 hours of receipt of the Notice of Complaint from the URS Provider, the registry shall "lock" the domain name, meaning the registry shall restrict all changes to the registration data, including transfer and deletion of the domain names, but the name will continue to resolve. The registry will notify the URS provider immediately upon locking the domain name ("Notice of Lock").
- If after the Examination in Default case, the Examiner rules in favor of the Registrant, the URS provider shall notify the registry. Upon receiving the official notice from the URS provider, the registry will unblock the name and return full control of the domain name registration to the Registrant.
- If the Determination is in favor of the Complainant, upon receiving the official decision from the URS provider, the registry will suspend the domain name, which shall remain suspended for the balance of the registration period and would not resolve to the original web site. The nameservers shall be re-directed to an informational web page provided by the URS Provider.
- The Registry will incorporate URS into the Registration policies, as a takedown measures and procedures to minimize

# Appendix 3

abusive registration.

3. Alternative use of Rapid Takedown Dispute Resolution Policies  
In the absence of URS, The Registry may provide a Rapid Takedown process through engagement with a dispute resolution provider that consists of a response team of qualified expert (qualified UDRP panelist).

The Registry agrees that majority of cases that go through the Uniform Dispute Resolution Process (UDRP) are mainly obvious variant of well-known marks. As such, it would be a waste of time or resources for the most obvious cases of infringement to go through the UDRP filings. The Registry may provide a rapid takedown process where a response team of qualified experts (qualified UDRP panellists) will be involved to determine within 48 hours of receipt of a short and simple claim of involving a well-known mark or otherwise inherently distinctive mark and a domain name where no conceivable good faith basis exists. The results may result in an immediate termination of the domain name, but will not prejudice either party's election to pursue other dispute mechanisms.

4. Service Level for responding to law enforcement requests  
In responding to law enforcement requests, The Registry will use the provision within the Anti-Abuse Domain Use policy to act quickly to take down sites that are harboring malware, launching phishing attacks, or otherwise being used to launch attacks across the Internet.

5. Disqualification of Registrant  
Traditionally, speculative abusive domain registrations have always attracted a small group of individuals and organizations specializing in high volume registrations due to the profitability of abusive registrations. The Registry may disqualify any registrants that have been found to be making abusive registrations and their agents or any parties determined to be acting in cahoots will also be disqualified from maintaining any registrations or making future registrations in the TLD.

Control for proper access to domain function

The Registry intends to outline measures to promote access control to domain functions by the registrars. The measures to be outlined in the RRA shall include:

- Requiring strong passwords from registrants to process update, transfers and deletion requests;
- Requiring the notification of multiple, unique points of contact when a domain has been updated, transferred or deleted.

## Appendix 3

**29. Rights Protection Mechanisms: Applicants should describe how their proposal will comply with policies and practices that minimize abusive registrations and other activities that affect the legal rights of others. Describe how the registry operator will implement safeguards against allowing unqualified registrations, and reduce opportunities for behaviors such as phishing or pharming. At a minimum, the registry operator must offer either a Sunrise period or a Trademark Claims service, and implement decisions rendered under the URS. Answers may also include additional measures such as abusive use policies, takedown procedures, registrant pre-verification, or authentication procedures, or other covenants. Describe resourcing plans (number and description of personnel roles allocated to this area).**

The Registry shall implement and adhere to any Rights Protection Mechanisms (RPMs) that may be mandated by ICANN from time to time. Additional RPMs as further described below may also be developed and implemented by The Registry to discourage and prevent abusive domain name registrations. All RPMs mandated by ICANN and independently developed by The Registry will be included in the The Registry registry-registrar agreement.

Compliance with RPM mandated by ICANN  
Trademark Clearinghouse

The Registry will use Trademark Clearinghouse to support its pre-launch or initial launch period rights protection mechanism (RPMs). These RPMs, at minimum, will consist of a Trademark Claim service and a Sunrise process.

The Registry agrees to adhere to the Clause 6 'Mandatory Rights Protection Mechanisms' and Clause 7 'Protection for Marks in Clearinghouse' of the Trademark Clearinghouse attachment to the DAG.

The Registry shall also take reference to the Trademark Notice as attached in the same document.

The Registry has allocated budget as cost of sales to pay Trademark Clearinghouse for the Trademark Claims and Sunrise service.

Uniform Rapid Suspension System ("URS")

The Registry will cooperate with ICANN for the implementation of URS, shall the policies and procedures are finalized. The involvement of the registry for the scope of URS shall include the followings:

- Upon completion of the Administrative Review, the URS Provider

## Appendix 3

will immediately notify the registry (via email) ("Notice of Compliant") after the Compliant has deemed compliant with the filing requirements. Within 24 hours of receipt of the Notice of Complaint from the URS Provider, the registry shall "lock" the domain name, meaning the registry shall restrict all changes to the registration data, including transfer and deletion of the domain names, but the name will continue to resolve. The registry will notify the URS provider immediately upon locking the domain name ("Notice of Lock").

- If after the Examination in Default case, the Examiner rules in favor of the Registrant, the URS provider shall notify the registry. Upon receiving the official notice from the URS provider, the registry will unblock the name and return full control of the domain name registration to the Registrant.
- If the Determination is in favor of the Complainant, upon receiving the official decision from the URS provider, the registry will suspend the domain name, which shall remain suspended for the balance of the registration period and would not resolve to the original web site. The nameservers shall be re-directed to an informational web page provided by the URS Provider.
- The Registry will incorporate URS into the Registration policies, as a takedown measures and procedures to minimize abusive registration.

### Trademark Post-Delegation Dispute Resolution Procedure (Trademark PDDRP)

As part of the intended Registry Agreement, The Registry agrees to participate in all post delegation procedures and be bound by the resulting Determinations.

### Registry Restriction Dispute Resolution Procedure (RRDRP)

The TLD is a generic use TLD and there is no intention to set out any registration restriction in the Registry Agreement. At such, it is unclear if the RRDRP would apply with The Registry.

### Uniform Dispute Resolution Policy (UDRP)

The Registry will adopt UDRP within the Registration Agreement and also be adopted by the registrars. Essentially, the UDRP is a policy between a registrar and its customer and is included in registration agreements for all ICANN-accredited registrars.

### Transfer Dispute Resolution Policy (TDRP)

The Transfer Dispute Resolution Policy (TDRP) applies to transactions in which a domain-name holder transfers or attempts to transfer a domain name to a new registrar. The TDRP concerns registrar disputes under the Inter-Registrar Transfer Policy.

## Appendix 3

The Registry will support the TDRP, and the proceedings may be filed with an independent dispute resolution provider (i.e. HKIRC).

### Additional Measures Specific to Rights Protection

#### Sunrise Program for Registrant Pre-Verification

The Registry intends to adopt a Sunrise Program that has the following details:

#### RPMs

- Sunrise with three phases:

Phase 1: Sunrise for Governments

Phase 2: Sunrise for registered trade marks

Phase 3: Sunrise for company names

- Schedule / Length of Sunrise

Phase 1: 4 weeks

Phase 2: 4 weeks

Phase 3: 4 weeks

Landrush: 2 weeks

General Availability

- Term of Registration

Sunrise: Two years minimum

Open registration: One year minimum, ten year maximum

- Submission Process

a) Via The Registry accredited registrars.

b) All applications under each Sunrise phase deemed to have arrived at the same time. Electronic auctions held between eligible competing applicants for the same term.

c) English auction format selected with highest bidder winning.

d) Auction will be carried out by outsourcing provider.

- Policies Key term

Comply with terms in Trademark Clearing House

- Character strings

Comply with terms in Trademark Clearing House

- Authentication

All application validated by third party Verification Agent, namely Trademark Clearinghouse appointed by ICANN.

- Amendments & Reconsiderations

a) Verification Agent could request an Amendment Clarification from applicant to correct a typographical mistake. No additional fee charged.

b) Applicant could apply for Reconsideration within seven days



## Appendix 3

of a rejection on the basis of original application or with the provision of further information.

### - Supporting information

Proof of eligibility such as Certified copy of trade mark certificate could be requested by Verification Agent. Certified translations of such document into English could also be requested.

### - Challenge Mechanism

a) Sunrise Registration Challenge Policy administered by TCH or Hong Kong International Arbitration Center (HKIAC)

b) During domain auction, an invited bidder who disputed the entitlement of a competing bidder must notify The Registry and initiate a dispute prior to the commencement of the auction.

c) HKIAC will administer the Challenge Process for Pioneer Names.

### - Disputes

All registrants agree to be bound by the UDRP.

### - Dispute provider

Hong Kong International Arbitration Centre (HKIAC)

### - Auction

a) Selecting auctions between competing applicants rather than First Come First Served.

b) Pre-validation offer by Validation agent. Pre-validation applications were to assign a code with which permitted instant approval following submission to the registry.

### - Pioneer Program

Pioneer Program allocates desirable names to applicant who competed via a provision of Business Plans stating why they deserved a term. Applications accompanied by a deposit, and shall return to winning applicant when they showed receipts for marketing to the value of the deposit.

### Sunrise Challenge Policy

The Sunrise Challenge Policy shall be applied only during the sunrise period for the TLD. The challenges under the Sunrise Challenge Policy shall be administered by the Hong Kong International Arbitration Centre (the "Centre").

A third-party (the "Challenger") is required to submit to a mandatory administrative proceeding to seek cancellation, transfer or other changes to a domain name registration, in compliance with the rules that:

## Appendix 3

- Phase 1: Sunrise for Governments

The corresponding government body objects to the right the applicant claims or fails to acknowledge the application.

- Phase 2: Sunrise for registered trade marks

- o The applicant is not the owner, co-owner or assignee of the corresponding registered mark.

- o The registered mark was not registered in full force and effect at the time of application of the domain name.

- o The applied-for domain names is not a exact match or acceptable match to the textual or word elements of the registered mark which the application of the domain name is based on.

- o The registered mark was not registered with a trademark office or trademark registry that corresponds to one of the states or other entities set out in the WIPO Standard ST.3 code.

- Phase 3: Sunrise for company names

- o The applied-for domain name does not correspond with the name of the registered entity.

- o The applied-for domain name is not an exact match or acceptable match to the textual or word elements of the name of the registered entity which the application of the domain name is based on.

All challenges under this Policy must be submitted to the Centre no later than 120 days after the conclusion of the proposed Sunrise Period. The first challenge to be filed will be granted priority by the Centre if there are multiple challenges for the same domain name. The Centre's challenge is of an administrative nature and shall be final. The Centre shall not be required to state reasons for its decision.

The fees for the submission of a challenge and its response shall be decided by the Centre prior to the start of the Sunrise Period.

The Registry shall not participate in the administration or conduct of any proceeding before the Centre under this Policy. The Registry shall also not be liable as a result of any decisions rendered by the Centre.

The Centre shall notify the challenger and The Registry of all its decision made under this Policy. If the Centre rules in favor of the challenger and the domain name is to be transferred to the new registrant, the Centre shall provide an authorization code provided by the Registry to transfer the domain name to its preferred registrar and update all the WHOIS information within 30 days that the authorization code is provided.

# Appendix 3

## Abusive Use Policy

The Registry does not tolerate the abusive use of its domain name, which causes security and stability issues for the registry, registrars and the general Internet community. The Registry defines abusive use as the wrong use of power, position or ability and includes but is not limited to the following:

- Illegal or fraudulent actions;
- Any form of spam i.e. email spam, messaging spam etc;
- Phishing which involves the use of bogus websites to obtain personal information;
- Pharming which involves redirecting unknowing users to fraudulent websites to obtain personal information;
- Wilful dissemination of malware;
- Fast-flux hosting which involves the use of DNS to frequently change the location of a website to hide its location or host illegal activities; and
- Botnet command and control.

In regards to abusive use as defined above, The Registry reserves the right to deny, cancel or transfer any registration and lock or place any domain name(s) on hold that it deems necessary in its discretion to protect the integrity and stability of the registry and comply with any applicable laws, government rules, requests of law enforcement, or any dispute resolution process.

## Resource Plan

The Registry will have a management staff (i.e. Operations Manager) to spearhead the compliance to ICANN policy matters, and enforce our policies for RPMs are adhered by the Registrars and Registrants. An Administrative Executive will be hired to assist the Operational Manager for the policy matters, shall the workload increase.

During the Sunrise periods, the RPM mechanisms are outsourced to the respective outsourcing partners, namely Trademark Clearing House, URS provider, PDDRP provider, and UDRP providers, Registry backend service provider and legal professionals. Our internal resources are deployed for the following areas:

- Coordination with the providers;
- Liaison with ICANN for the compliance issues;
- Communication with registrars and registrants (where necessary);
- Public relation; and
- Development of new policies.

During the implementation phase, the software developer of Qinetics shall configure the reserve words based on input by the

# Appendix 3

operations manager and ICANN default reserve list. The developer shall perform the configuration of the sunrise, landrush and general availability phases into the SRS between sunrise cooling periods.

Upon the completion of the implementation phase, the Test Engineer of Qinetics will perform rigorous testing procedures to ensure that the system performs according to specifications. Once the testing phase is completed, the configuration shall be hand-over to System Administrator to be deployed to the production environment. A Project Manager is assigned to perform project management and overall control during the implementation phase. The Project Manager will conduct training for the registry users on the sunrise, landrush and general availability handling in the system. The setup shall be completed in stages according to the sunrise process. The configuration in each stage shall be completed in 2 weeks.

The system will be in maintenance mode after the System is deployed. The Operation Manager and the Administrative Executive of The Registry will monitor the registration and WHOIS data daily for any potential trademark issues. They will process the trademark cases and complaints according to policy set by the operations manager. The Operation Team of The Registry shall participate in various workgroups to be updated on any new trademark infringement scenarios and best practices. They shall perform policy review and refinement from time to time so that the rights protection policy can cover as many cases as possible. The application support engineer of Qinetics is tasked to maintain the reserve list according to instructions given by the Operation Team of The Registry.

## **Demonstration of Technical & Operational Capability (Internal)**

**30(a). Security Policy: provide summary of the security policy for the proposed registry, including but not limited to:**

- **indication of any independent assessment reports demonstrating security capabilities;**
- **description of any augmented security levels or capabilities commensurate with the nature of the applied for gTLD string;**
- **lists of commitments made to registrants concerning security levels;**

Summary of Security Policies

## Appendix 3

The Registry adopts standard registration policies without any specific services related to e.g. financial services. As such Criterion 5 is not applicable to the Registry. The Registry outsource the technical backend registry service to Qinetics. The Registry will deploy Security Policy and Security Measures of Qinetics.

The policies established provides a comprehensive approach as highlight below, to identify and prevent unauthorized access, intrusion, loss of information and software error. Qinetics has wide experience on security implementation with successful implementation of ISO27001 in .HK registry system.

- Physical Security

Physical security is provided by data center. Only authorized personnel are allowed to enter the premises of the data center. Below are standard policies set:

- o Data Center Access Policy
- o Equipment Policy
- o Site Visits Policy

- Network Security

This layer protects all equipment in the network from hacker or malicious attack. Another layer of sniffer (IPS) is put in place as second layer of screening. Security alarm will be triggered if there are abnormal activities in the network. Standard policies applied:

- o Firewall Policy
- o Denial of Services Policy
- o System Monitoring Policy

- Host Security

At the server level, governance policy is required to establish control over access to the servers and movement of servers. Below are the standard policies to achieve control over these parameters:

- o Server Access Policy

- Application Security

Security is built within the applications running on the servers. The applications are built using the well known Open Web Application Security Project (OWASP) security policy

- General

Other than the above policies, general policies below applied across the network, server, application and data center to ensure system and registrants are well protected:

- o Password Policy

# Appendix 3

- o Data Integrity Policy
- o System audit Policy
- o Security Patch Policy
- o Security Response Policy
- o Acceptable Use Policy

## Security Assessment

Qinetix has engaged independent 3rd party auditor to perform product assessment which is inclusive of security assessment as 1 of the core assessment. The Malaysia MSC Product Assessment & Rating Standard was developed by TÜV Rheinland Malaysia Sdn. Bhd., in collaboration with Macrofirm Technology Sdn. Bhd., under the commissioning of the Multimedia Development Corporation (MDeC). TÜV Rheinland Malaysia is a member of TÜV Rheinland Group, a global leader in independent testing and assessment services. The TÜV Rheinland Group was established in 1872, and has offices located in over 490 locations in 61 countries on all five continents.

Existing software quality evaluation standards were used as the basis for the development and endorsement of the software quality criteria and sub-criteria to be assessed in MSC Malaysia Software Product Assessment and Rating Standard. This is also referred to as the "As-is Situation". The standards used as the basis for development of this assessment standard are as follows:

- CMMI (Capability Maturity Model Integration) Ver. 1.3 Dev
- ISO/IEC 9126 (Software Engineering – Product Quality)
- ISO/IEC 14598 (Information technology - Software product evaluation)
- Common Criteria (CC)

In the product assessment, a total of 13 main requirements or criteria, divided into 6 process-related criteria (criteria in which the process of development of the software product is assessed) and 7 product-related criteria (criteria in which the developer's methods to manage and ensure the actual performance of their software product is assessed), were identified for inclusion in the Standard. These criteria in turn were divided into a further 44 process-related sub-criteria and 32 product-related sub-criteria to make a total of 76 sub-criteria.

## Evaluation Report

This evaluation report is based on the findings of the MSC Malaysia Product Assessment & Rating on-site product evaluation. As a supplement to the awarded rating, this report provides recommendations to improve the company's methods of ensuring product quality.

# Appendix 3

The MSC Malaysia Product Assessment & Rating rates the product on 13 main criteria which are divided into:

- 1) Six (6) Process-related criteria, ie. criteria in which the process of development of the software product is assessed.
- 2) Seven (7) Product-related criteria, ie. criteria in which the developer's methods to manage and ensure the actual performance of their software product itself is assessed.

Results of the evaluation are as below:

Overall % Compliance 97%

Process-Related Requirements:

- Requirements Management 95%
- Technical Solution 100%
- Product Integration 100%
- Validation 98%
- Verification 100%
- Support 100%

Product-Related Requirements:

- Functionality 100%
- Reliability 100%
- Security 91%
- Usability 92%
- Maintainability 100%
- Portability 96%
- Architectural Principles 97%

A copy of the Product Assessment Evaluation and Rating Report and Product Assessment Certificate is attached.

## **30(b). Security Policy: provide the security policy and procedures for the proposed registry, including:**

- **system (data, server, application / services) and network access control, ensuring systems are maintained in a secure fashion, including details of how they are monitored, logged and backed up;**
- **resources to secure integrity of updates between registry systems and nameservers, and between nameservers, if any;**
- **independent assessment report to demonstrate security capabilities (if any), and provision for periodic independent assessment reports to test security capabilities;**
- **provisioning and other measures that mitigate risks posed by denial of service attacks;**
- **computer and network incident response policies, plans, and processes;**
- **plans to minimize the risk of unauthorized access to its systems or**

# Appendix 3

- tampering with registry data;
  - intrusion detection mechanisms,
  - details for auditing capability on all network access;
  - physical security approach;
  - identification of department or group responsible for the registry's security organization;
  - background checks conducted on security personnel;
  - a threat analysis for the proposed registry, the defenses that will be deployed against those threats, and provision for periodic threat analysis updates;
  - number and description of personnel roles allocated to this area; and
- Security Policy and Procedures

## Physical Security Policies

### Data Center Access Policy

- Automated Access - Keycard (card swipe) holder

Card swipe access is available to the data center on a 7x24 basis for authorized card holders. Card swipe access is limited to authorized Qinetics Data Center staffs.

- Manual Access - Non-keycard holder

Qinetics will maintain a list of authorized personnel who are granted access to the equipment housed in the data center. The list is provided to Data Center for authorization purpose. When access is required, proper notification and justification will need to be provided, in accordance with the access policy set forth in the Site Visit section of this document. Qinetics authorized personnel with pre-approved manual access to the Data Center are required to identify themselves to Data Center Operations and sign in/out of the Data Center using the Site Log located in the Data Center Operations Surveillance Area.

- Vendor Access

An approved Qinetics vendor list is maintained at the data center. With proper notification and justification as set forth in the Site Visit section of this document, approved vendors will be allowed into the data center to perform scheduled maintenance or repair work. Vendors with approved manual access to the Data Center are required to identify themselves to Data Center Operations and sign in/out of the Data Center using the Site Log located in the Data Center Operations Surveillance Area.

- Data Center Tours / Visitors

In general, casual visits and/or tours of the data center are not allowed.

### Receiving new equipment

Qinetics authorized personnel will inform Data Center Operations via telephone or email with details of what is included in a particular shipment. Data Center Operations will receive the equipment, store it in a secure location, and notify Qinetics



# Appendix 3

when the shipment arrives.

Installation of new equipment

Staging and racking policies at the Data Center requires all equipment housed in the Data Center machine room to:

- be rack-mountable, and housed in standard racks using standard rack configurations, and
- possess power and heat consumption specifications that are within Data Center specified thresholds.

Equipment is to be moved directly from the loading dock to a separate, pre-designated "staging" area for de-skidding and de-boxing. After equipment has been removed from its packaging, it may be brought into the Data Center machine room for installation in a rack. Unpacking and de-skidding of equipment is not allowed within the Data Center machine room in order to maintain a clean room environment.

Site Visits Policy

- Planned Work Visit

Qinetics authorized personnel who are planning to work on equipment within the Data Center will provide Data Center Operations with at least 3 days advance notice of the scheduled work taking place. Planned-work site visits must be pre-approved by the Data Center Manager, providing as much notice as possible increases the likelihood that the desired work window will be available. Requests for planned site visits should be made in accordance with the policy set forth below in the "Requesting a Site Visit" section of this document. Planned work site visits are approved and tracked via the ticketing system.

- Unplanned (Emergency) Work visit

Qinetics Authorized personnel will be allowed immediate access to the Data Center when an emergency situation warrants that access. It is requested that Emergency-work site visits be preceded by a telephone call to Data Center Operations explaining the situation and the need for immediate access.

Requesting a Site Visit

- Request Access for a Planned Work visit

Requests for planned work must be made to the Data Center Operations staff as far in advance of the planned work as possible. The request can be made either via a Change/Outage ticket or directly to the Data Center Operations staff via phone or email.

Open Change/Outage requests are regularly reviewed by Data Center Management for possible work conflicts and ultimately, for approval and scheduling of the request.

# Appendix 3

## - Request Access for an Emergency Work visit

Immediate visits are permitted for emergency work only. The emergency visit must be accompanied by notification to Data Center Operations by an authorized Qinetics representative with details of the urgent issue and corresponding need for access. In order to preserve the security of the facility, emergency access will not be granted to personnel who have not been identified to Data Center Operations as authorized Qinetics personnel.

## Network Security Policies

### - Firewall Policy

1. The Network Firewall Rulesets where Firewall Administration is performed are recorded and documented. All requests are subject to the approval of team leader and review by operation manager. All related documentation are retained by the support staff for seven (7) years and is subjected to review by External Audit and Advisory Services.

2. Firewall Rulesets and Configurations are backed up frequently to alternate storage (not on the same device). Multiple generations are captured and retained in order to preserve the integrity of the data, should restoration be required. Access to rulesets and configurations and backup media are restricted to those responsible for administration and review.

3. Network Firewall administration logs (showing administrative activities) and event logs (showing traffic activity) are written to alternate storage (not on the same device) and reviewed daily, with logs retained for ninety (90) days. Appropriate access to logs and copies is permitted to those responsible for Firewall and/or system maintenance, support and review.

4. Support staff will execute approved changes to the Firewall Rulesets during the scheduled maintenance window. The support staff will perform changes to Firewall Configurations according to approved production maintenance schedules.

### - Policies Based on IP Addresses and Protocols

Firewall policies only allow IP protocol numbers, 17 are ICMP (1), TCP (6), and UDP (17) to pass through. These necessary protocols are restricted to the specific hosts and networks. By permitting only necessary protocols, all unnecessary IP protocols are denied by default.

### - IP Addresses and Other IP Characteristics

Firewall policies only permit appropriate source and destination IP addresses to be used.

Invalid IPv4 addresses 127.0.0.0 to 127.255.255.255 (also known as the localhost addresses), link-local addresses (169.254.0.0 to 169.254.255.255) and 0.0.0.0 (interpreted by some operating

## Appendix 3

systems as a localhost or a broadcast address) are blocked.

Traffic with an invalid source address for incoming traffic or destination address for outgoing traffic (an invalid "external" address) are blocked at the network perimeter. This traffic is often caused by malware, spoofing, denial of service attacks, or misconfigured equipment. The invalid external addresses is an IPv4 address within the ranges in RFC 1918, Address Allocation for Private Internets that are reserved for private networks. These ranges are 10.0.0.0 to 10.255.255.255 (10.0.0.0/8 in Classless Inter-Domain Routing [CIDR] notation), 172.16.0.0 to 172.31.255.255 (172.16.0.0/12), and 192.168.0.0 to 192.168.255.255 (192.168.0.0/16).

Traffic with a private destination address for incoming traffic or source address for outgoing traffic (an "internal" address) are blocked at the network perimeter. Perimeter devices can perform address translation services to permit internal hosts with private addresses to communicate through the perimeter, but private addresses are not allowed to be passed through the network perimeter.

Outbound traffic with invalid source addresses are blocked (this is often called egress filtering). Systems that have been compromised by attackers can be used to attack other systems on the Internet; using invalid source addresses makes these kinds of attacks more difficult to stop. Blocking this type of traffic at an organization's firewall helps reduce the effectiveness of these attacks. Incoming traffic with a destination address of the firewall itself are blocked.

- IPv6

Although IPv6's internal format and address length differ from those of IPv4, many other features remain the same—and some of these are relevant to firewalls. For the features that are the same between IPv4 and IPv6, firewalls work the same.

The firewall is configured to filter ICMPv6, as specified in RFC 4890, Recommendations for Filtering ICMPv6 Messages in Firewalls.

For firewalls that permit IPv6 use, traffic with invalid source or destination IPv6 addresses are blocked—this is similar to blocking traffic with invalid IPv4 addresses.

- TCP and UDP

As with aspects of firewall rulesets, deny by default policies are used for incoming TCP and UDP traffic.

- ICMP

To prevent malicious activity, firewalls at the network

# Appendix 3

perimeter deny all incoming and outgoing ICMP traffic except for ICMP type 3 messages because they are used for important network diagnostics. The ping command (ICMP code 8) is blocked by firewall policies to prevent attackers from learning more about the internal topology of the network.

- IPsec Protocols

The firewall will block ESP and AH because IPsec is not implemented in the network..

Denial of Services policy

This policy is in place as a protection and response towards DDOS attack. While the system is under attack, the below policy will be triggered in sequence:

- Geo-location Based Policies

These policies define which countries are allowed or denied. Under attacks, many times, these policies are useful to a first level filtering.

- High Level Access Control Policies

These policies define which IP addresses/subnets are allowed/denied or not tracked.

- Granular Rate Threshold Based Policies

The below parameters will be monitored and gradually reduce if the DDOS is getting heavier:

- SYN Packets/second

- SYN Packets/source/second

- Number of concurrent connections/source

- Number of HTTP GETs/second, number of Posts/second etc.

- Number of accesses per user-agent/second

- Response Time Policies

In the severe case of DDOS traffic exceeding the bandwidth of tier-1 providers, the above policies will be implemented. In extreme case, it is possible the DDOS is destructive enough to deny services even after the above policies are implemented.

The policies for handling extreme DDOS case are outlined below:

- DNS

- The Registry shall engage 2nd and 3rd anycast provider.

- The estimated provisioning time required is 48 hours.

- WHOIS

- The Registry shall trigger DDOS protection services by 3rd party (TATA or prolexic).

- The estimated provisioning time required is 24 hours.

- SRS

- The Registry shall trigger DDOS protection services by 3rd party (TATA or prolexic).

- The estimated provisioning time required is 24 hours.

System Monitoring Policy

# Appendix 3

By Default, the system must be configured to monitor below parameters:

Hardware statuses that will be monitored:

- Host up/down
- CPU load
- Server memory usage
- Storage space
- Services

The following software services will be monitored for service availability:

- Webservers
- Database Server
- Database Replication
- WHOIS Daemon
- DNS server
- Mail Server
- Cron-job Server
- Data Escrow Services

System Access

All user access, especially the login attempt failure, will be logged and monitored. This information allows the system administrator to identify potential hacking or unauthorized access that going onto the system.

Host Security Policies

Server Access Policy

Strict Access Control Matrix will be implemented as below:

Level 1: Support Engineer (Authority to view logs, select data)

Level 2: Senior Support Engineer (Authority to view logs, restart services, select data)

Level 3: Deployment Engineer (Authority to alter files, restart services, select data)

Level 4: Support Manager (Full administrative rights to the system)

Level 5: One-Time Access Emergency User (Full administrative rights to the system)

All access to the servers shall be limited unless explicitly informed by support manager to open access. All personnel with access above shall sign NDA (Non-Disclosure Agreement) to ensure information is not flown out to unauthorized personnel. The access matrix shall be documented and reviewed from time to time.

All servers will use different root password, username and

# Appendix 3

direct root access shall be blocked. Only level 4 and level 5 users will have super user rights. Level 4 and level 5 users will be able to SSH into server via restricted IP using specific username and later login as super user.

## Application Security Policies

Application authentication is done through centralized user database for web and EPP. Web and EPP are separately stored with 2 different passwords to ensure security and isolation of both systems where most Registrars will have 2 different teams of people handling web and EPP transactions.

Application authentication password utilizes keyword and proprietary encryption algorithm to increase difficulty in cracking. For example, a password with six characters after applying the algorithm will become 20 characters long and stored in database table.

Application access control for the proposed System is built as such that each user will have specific rights to access various functions. Users will be blocked if exceeds pre-configured failed number of attempts. The system will later auto unblock the users following a pre-defined time frame or administrator can explicitly remove the lock status. The application currently forces users to change password after a configurable period.

Test accounts will not be created in production environment. System default accounts which are not required will be removed from login access. The System will automatically close a user session when there is no activity over a period of defined time.

Other than the above, the application is using OWASP as guideline for the product's security. Details of OWASP can be found in [www.owasp.org](http://www.owasp.org)

## General Policies

### - Password Policy

The first key principle is that the password must be sufficiently complex. Having a password that is complex would mitigate the risk of a brute force attack who will try to guess a password. To ensure that a password is sufficiently complex, the password must conform to the following requirements:

- It must be at least 7 characters long but less than 16.
- It must contain at least one digit and one alphabet.

### - Data Integrity

OSSEC (Open Source Host-based Intrusion Detection System) will be installed in all systems to ensure data integrity.

Notification will be sent if abnormal change of files is

## Appendix 3

detected in the system. As for database, only view access will be granted to production server for level 1, 2, 3. Any alteration will require approval from level 4 users and temporary access will be granted. Engineers will specifically provide deployment plan and modification to the system will be monitored by team leader.

Automated scripts are available to perform dig check between stealth DNS and primary DNS. Another script is installed to perform dig check between primary DNS and Secondary DNS Servers in Any Cast network. The dig check program compares:

- SOA and serial number
- NS records by domain
- Glued records by domain

Any discrepancy will be alerted to the support team for further actions. The support team will perform diagnostic according to the security response policy.

- System Auditing

A centralized server will be mapped to all servers and logs will be copied to the server daily. All server access logs will be logged using Syslog which provides information on host (access terminal identifier), user identifier, action taken, number of attempts and date/ time stamp for the activities.

By default, Syslog will log:

- Successful or failed login attempt;
- Logout;
- System startup event;
- System shutdown event; and
- Services event

Application logs will be stored to local file system and a copy will be stored in database for all transactions e.g. registration, renewal, transfer, deletion etc. In any case if the flat file or database logs are corrupted, information still available in the other form. Exception logs will be stored separately from transaction logs in exception log folder.

Refer to the Access Control Matrix, only deployment engineer will be able to alter any log file which will trigger notification to administrator and recorded if any unauthorized editing is done (tripwire).

By default, all files are stored and tar monthly using logadm and files shall be kept for 7 years before it is rotated. The files are stored into tape library daily. For database audit log, it will be stored for 1 month before being recycled.

## Appendix 3

Additional alerts are built on top of the logs to identify potential security risk e.g. alerts on the number of logins per day by registrars users through EPP and WEB.

### Security Patch Policies

Support staffs will periodically (half yearly) conduct manual audit on any system or device. Systems and software will be evaluated to verify currency of patch and update levels and an analysis of vulnerabilities will be performed. Online resources such as US Computer Emergency Response Team ([www.us-cert.gov/federal/](http://www.us-cert.gov/federal/)) and the National Vulnerability Database (<http://nvd.nist.gov>) should be consulted in this process. Specific guidelines for applying patches and updates will be developed and made available to support staffs.

#### - Patch Management:

- 1) Manual scans and reviews will be conducted on systems half yearly.
- 2) An informal risk assessment will be performed within 2 business days of the scheduled patches. If a determination regarding the applicability of the patch or mitigating controls cannot be made in that time a formal risk assessment will begin.
- 3) Vendor supplied patch documentation will be reviewed in order to assure compatibility with all system components prior to being applied.
- 4) Patches will be successfully tested on non-production systems installed with the majority of critical applications/services prior to being loaded on production systems.
- 5) Successful backups of mission critical systems will be verified prior to installation of patches and a mechanism for reverting to the patch levels in effect prior to patching will be identified.
- 6) Patches will be applied during an authorized maintenance window in cases where the patch application will cause a service interruption for mission critical systems.
- 7) Logs will be maintained indicating which devices have been patched. System logs help record the status of systems and provide continuity among support staffs. The log may be in paper or electronic form. Information to be recorded will include but is not limited to: date of action, support staff's name, patches and patch numbers that were installed, problems encountered, and remarks.
- 8) In the event that a system must be, reloaded, all relevant data on the current OS and patch level will be recorded. The system should be brought back to the patch levels in effect before reloading.
- 9) In the event that a patch will not be applied due to incompatibility or risk assumption, precautions to mitigate the risk of exploitation to the network will be implemented and



# Appendix 3

documented in the log.

## Roles & Responsibilities:

- 1) Support Staff are responsible for ensuring that their systems are maintained in compliance with patch management policies.
- 2) The team leader is responsible for auditing information systems to ensure that they comply with patch management policies.

## Security Response Policies

A diagram showing the various phases of a security incident response is attached.

### - Incident Declaration

Whenever any of the policies are violated, the system internally declares an incident or an event. Depending on the type of incident the system automatically goes into a triage mode.

### - Triage

Support staff will prioritize and isolate the incidents to facilitate further investigation later.

### - Investigation

Investigation will be conducted to find the root cause of the attack. The investigation performs source tracking to see what causes the security problems and other impacts that may not have been observed.

### - Analysis

The purpose of analysis is to determine:

- What happened during the incident
- How did it happen?
- What is the scope?
- What is common amongst all incidents?
- How can the incidents be contained?

### - Containment

Once incidents have been analyzed, solution will be formulated to contain the problems. The objective at this stage will be to stop the damage, prevention of further damage and recurrence.

### - Recovery

The purpose of the Recovery Phase is to:

- Restore to pre-incident condition
- Include measures to prevent recurrence

### - Debriefing

Finally, the team shall inform affected parties and management on the details of the incidents. Incident reports will be produce to document what happened and the measures taken.

## Resource Plan

Qinetics will deploy the registry service of the Registry using its existing system and infrastructure. The security policies

## **Appendix 3**

are already in place and serving other Qinetics customers. The assigned System administrator will configure the Registry's specific security rules and policies into the system. Once done, the Test Engineer of Qinetics will perform rigorous testing procedures to ensure the system performs according to specifications. Upon the testing is fully completed, the configurations shall be hand-over to System Administrator to perform deployment to production environment. Throughout the process, a Project Manager is assigned to perform project management and overall control on the implementation. The security policies configuration shall be completed within 2 weeks.

The system will be in maintenance mode after the system is deployed. The registrar IP change request will be supported by general helpdesk support. The system administrator shall configure the rules into the system and helpdesk support will feedback to registrars on the completion of the changes. The system security alerts will be sent to the helpdesk support too. The ticket will be reassigned to the system administrator. System administrator will further escalate the support request base on severity. The emergency response team will be triggered whenever there is a catastrophe scenario at the highest severity.

Once a remedy is identified, Test Engineer will perform testing on the fixes before deployment by System Administrator. During maintenance, the outsourced party has committed 4 resources for the 24 x 7 helpdesk, 2 application support engineers, 1 support manager, 1 test engineer and 2 system administrators.

### **31. Technical Overview of Proposed Registry: provide a technical overview of the proposed registry.**

**The technical plan must be adequately resourced, with appropriate expertise and allocation of costs. The applicant will provide financial descriptions of resources in the next section and those resources must be reasonably related to these technical requirements.**

**The overview should include information on the estimated scale of the registry's technical operation, for example, estimates for the number of registration transactions and DNS queries per month should be provided for the first two years of operation.**

**In addition, the overview should account for geographic dispersion of incoming network traffic such as DNS, Whois, and registrar transactions. If**

## Appendix 3

**the registry serves a highly localized registrant base, then traffic might be expected to come mainly from one area.**

**This high level summary should not repeat answers to questions below.**

### Technical Overview

#### High Level Data Flow Diagram

The Registry implements full registry system which consists of all 5 components as stated in the new Application Guide Book. The attached data flow diagram explains the overview of how the system works from data collection to resolution and backup.

Domain name transactions will be posted from Registrars through automated registrar systems. The Registrars' request will pass through the Registry's redundant firewall and perimeter defence before reaching the EPP and Web Servers. The firewalls are configured in active-active mode to avoid any down time. Redundant Load balancers are in place to ensure scalability of the EPP and Web services. At any time, the Registry can expand the capacity by putting in more servers to serve the EPP and Web requests. Due to the nature of redundant servers, the load balancer will automatically route the request to the other servers in case of hardware failure with near zero down time. The request will be validated and served; data will be stored into the primary database.

The primary database is setup in multiple servers under cluster mode. In case of failure, the database will automatically swing to the failover instance with zero downtime. The data are replicated to the slave database at the secondary site to serve WHOIS request and to act as real time backup. The primary and secondary database are in active-active mode where updates to primary and secondary database cluster can be done at the same time with auto conflict resolution. At the time of emergency, the backup servers can be activated to take over the SRS system in the primary site if the service at the primary site is down. Both sites are geographically separated in Singapore and Hong Kong. Both locations are earth quake free zone.

The DNS services will pickup the data from the primary database to generate the signed zones in stealth. The zones will be transferred to primary DNS before transmitting to Any Cast Stealth DNS through secure channel. The Registry will engage multiple Any Cast DNS networks to provide DNS resolution throughout the world. The Any Cast Stealth DNS will distribute the updates to Any Cast Node around the world for quick resolution conforming to the required SLA by ICANN.

An Escrow Agent Service is in place to generate the data

## Appendix 3

conforming to ICANN standards and deposit to 3rd party escrow agent daily through secure channel. Any failed deposit will be automatically retry and alerted to the system administrator. All data transmission will pass through our perimeter defence firewalls.

The data are back-up into a local repository from the database daily. The data will be deposited to the tape library on a daily basis. The tape will then be transported to off site location weekly. In case of emergency, data are available in escrow agent and off site tapes up till the records of the previous day.

All WHOIS request are redirected to the secondary site to ensure primary site will not be accessible by public. The WHOIS agents will respond to public request using the replicated data in the slave database. If the secondary site is not available due to natural disaster, WHOIS agent can be available in primary site.

All hardware is at least RAID 1 with redundant network card and hot swap capability hard disk, CPU and power supply for real time replacement.

### Registry Operation Outsourcing

The Registry will outsource the technical operation, registry services platform to Qinetics, DNS services to CommunityDNS and Data Escrow to NCC Group. The Registry believes in leaving the critical system to the experts rather than building its own team to maintain the Registry system. The services will be outsourced to industry's service providers who have tremendous experience in managing a registry system. All outsourcing providers' resources are committed and readily available for the implementation of the Registry.

The Registry will be the operator of the TLD and manage all business and policy aspect of the TLD.

### Resource Plan

The technical plan shall be managed by the assigned solution architect by Qinetics. The Solution Architect shall monitor the implementation of the whole system and drill into the details of the implementation to ensure conformance to ICANN specifications. A Project Manager is assigned to perform project management and overall control on the implementation. The technical plan shall be completed within 3 months.

The solution architect shall continuously monitor the overall technical plan and fine tune the plan according to new standards that are required to be implemented by ICANN during maintenance

# Appendix 3

mode.

Organisational Chart of Project Team (During Implementation Phase Only)

The organisation chart of the project team during implementation phase is attached.

The role and scope of work for each resources are described in next section: overall project plan.

Overall Project Plan

The overall project plan is attached.

Organisational Chart of Maintenance Team

The organisation chart of the maintenance team during implementation phase is attached.

During Maintenance mode, the registry system will be supported by the support manager of Qinetics with a team of resources handling application, database and system support. A first level helpdesk is available to handle general enquiries. The Support Manager will be the command center to communicate with Data center, esrow and anycast DNS engineers for any potential fault. The support manager will work closely with the registry policy manager and operation manager for effective communications.

The Support Manager, Policy Manager and Operation Manager are members of Emergency Response Team (ERT). The maintenance team are responsible to carry out yearly fault tolerant test and the execution of business continuity plan.

Registry Size Estimation

The registry system is scaled according to 3 years volume estimation in the financial response. A matrix of the estimation is attached.

The estimation above is based on the aggregated figures collected while operating .SG, .HK, .MY and .CD registry system. The maximum capacity of the servers is at least 2 times more than 3rd year's estimation. The number of servers will be expanded once the transactions exceed 80% of the peak capacity of the machines.

Due to the amount of DNS queries, the Registry has identified Any Cast provider to handle the DNS queries. Please refer to the response on DNS services. The estimation above can be comfortably handled by the AnyCast provider without any worries of resolution or response time.

# Appendix 3

The initial setup and engagement of the outsourced service providers can easily handle the estimated load during the first 3 years without any addition of hardware.

## Data Centers

Primary Site: Hong Kong

### Peering, bandwidth, upstream provider:

The datacenter have 2 x 1Gb bandwidth directly connecting to HKIX which is served for local connection. The international bandwidth is provided by TATA with peering to tier 1 provider such as NTT, China Telecom and China Unicom. The bandwidth can also be routed to any of the peering providers. This provides redundancy on the Internet connection and better coverage in Asia, South Pacific, Africa, America and Europe. The attached diagram exhibits the peering within TATA and NTT that covers all continents.

### Cooling Facility:

The datacenter conform to international standards. The environment is controlled by 24x7 temperature and humidity control system to keep the air-conditioned environment constant. Standard rack and air-conditioning system keeps the environment stable and suitable for all servers.

### Power Arrangement:

The datacenter provides reliable power supply including redundant AC supply, uninterruptible power supply and diesel generator. In addition, extra equipment is in place to ensure even electricity usage between different racks and to avoid interruption caused by electricity overload in other server rack.

Secondary Site: Singapore

### Peering, bandwidth, upstream provider:

#### Domestic Carriers

- SingTel with Multiple STM-4 (622 Mbps) with redundant fibre routes
- Starhub with Multiple STM-1 (155 Mbps) and STM-16 (2.4Gbps) present with redundant fibre routes

#### Reginal Carriers

- Orient Networks
- PLDT
- China Motion
- MacQuarie

# Appendix 3

- TeleKom Malaysia

## International Carriers

- TATA
- NTT
- Sprint International
- FLAG Telecom
- T-System
- REACH
- France Telecom
- MCI

## UPS and Power Generator Backups

To achieve high availability and redundancy, individual racks are fed with separate power feeds. Power is further backed by multiple diesel generators with fuel storage tanks (for an additional 40 hours of power) as well as multiple UPS that provide backup power for another 30 minutes.

## Network Operations Center

The Network Operations Center allows data center staff to put their finger on the operations to ensure round-the-clock availability and reliability. Multiple networks, systems and security are constantly monitored and managed on a 24 x 7 x 365 basis.

## Continuous Video Surveillance, Security Breach Alarms

Surveillance cameras, video surveillance cameras, motion detectors and security breach alarms safeguard the data center and its perimeter.

## FM 200™ and Pre-Action Dry Sprinkler Fire Suppression System

A state-of-the-art fire suppression system constantly monitors the physical environment for smoke, chemicals and other hazardous materials that might spark a fire. The data center is zoned and monitored separately to contain the spread of any fires. Non-corrosive FM 200™ fire suppression gas is used to prevent equipment damage.

## Raised Floors

Cables, network and bandwidth connectivity points laid beneath the raised floors offer a plug-and-play approach for customers moving into the data center.

## Test / Staging Suites

In order to secure and reduce movement in the data center, our testing and staging suites replicate the data center environment so that customers can install, configure and test their

## Appendix 3

equipment in a secure setting before actual move-in.

Secure Smart Card Access and Exit Sensors to Monitor Movements to and from the IBX Center

Constant monitoring of staff and visitor access to and from the data center prevents unauthorized entry or exit.

Redundant Precision Air-Conditioning with Dehumidifier and Power Distribution

Multiple air-conditioning units and dedicated chillers ensure redundancy, consistent temperature control and maximum airflow through secure ducts beneath the raised floors. The data center is also equipped with dehumidifiers to achieve optimal climate controls.

**32. Architecture: provide documentation for the system and network architecture that will support registry operations for the proposed scale of the registry. System and network architecture documentation must clearly demonstrate the applicant's ability to operate, manage, and monitor registry systems. Documentation may include multiple diagrams or other components sufficient to describe:**

- **Network and associated systems necessary to support registry operations, including:**
  - **Anticipated TCP/IP addressing scheme**
  - **Hardware (CPU and RAM, Disk space, networking components, virtual machines)**
  - **Operating system and versions**
  - **Software and applications (with version information) necessary to support registry operations, management, and monitoring**
  -
- **General overview of capacity planning, including bandwidth allocation plans**
- **List of providers / carriers**
- **Number and description of personnel roles allocated to this area**

Network Architecture

The registry system is installed at 2 different geographical located data centers as shown in the attached diagram. There are multiple layers of network addressing at each data center for network segmentation of registry sub-system.

The primary data center and secondary data center have different roles and provision different registry services.

The primary data center is configured with active-active



## Appendix 3

firewall for redundancy purpose. The traffic passes through an Intruder Protection System (IPS) which inspects any suspicious traffic and patterns. The IPS has a unique pass through feature where traffic will still flow through even if there's a failure on the IPS.

The network is segregated into 2 virtual LAN which are configured as different subnet. Access to the VLAN is controlled by access list in the firewall. VLAN1 is the red zone where access is allowed only by the registrars with IP restriction. The primary DNS is located in this zone as access is granted to zone transfer to AnyCast Stealth DNS.

VLAN2 is the green zone which only allows access from internal IPs. Logically, VLAN1 is the DMZ zone and VLAN2 is in the internal network which is guarded by 2 logical layers of firewalls.

All servers and equipment are in pairs for redundancy purpose. All components are in pair such as hard disk, power unit, network card etc. Due to the design, the capacity can be increased by adding new servers to the server farm easily.

The same network design and architecture is deployed into secondary data center. All servers and equipment are in pairs for redundancy purpose. All components are in pair such as hard disk, power unit, network card etc. The capacity can be increased by adding new servers to the server farm easily.

A virtual private network is in place to ensure data transmission from the main database to the slave database is secured. Based on the redundancy and high availability setup with easy future expansion of servers, The Registry can comfortably provide the overall SLA that is required by ICANN.

### DNSSEC Signing Infrastructure

The DNSSEC implementation are done at the stealth DNS. The stealth DNS is a secure box which has proper access control for storage of the keys and zones. Key generation, management and rolling are done in the box by authorized personnel as described in response to Question 43.

### DNS Network Infrastructure

The Registry uses CommunityDNS as its outsourced provider for AnyCast DNS. CommunityDNS deploys AnyCast DNS in over 40 countries. The attached diagrams details the connectivity and network infrastructure of the DNS network.

# Appendix 3

## Community DNS Master Centers

Spanning multiple continents, CommunityDNS redundant master centers ensure maximum resilience through multiple levels of redundancy designed into each master site.

Redundant networks within each Master Center are isolated into no less than four distinct networks to ensure maximum security and high levels of efficiency.

Data between the European and North American Master Centers is mirrored in real time. Data from Europe to the Asia Master Center is mirrored at delayed intervals should data at the European Master Center become corrupted.

A diagram showing the node configuration and information of CommunityDNS setup is attached and detailed as follows:

- Highly modified and hardened version of Linux.
- OS locked down and using AES-256 encryption.
- Encryption key unique to OS per node.
- Operates on multiple hardware platforms for platform diversity.
- Tested to handle 500,000,000 domain names.
- 10 times faster than BIND and 8 times faster than NSD.
- Faster than Oracle's fastest database – over 11 times faster on reads and close to 4 times faster on writes.
- Database locked down and using AES-256 encryption.
- Encryption key unique to database per node.
- Fast disaster recovery of 1 million+ names per minute database reload
- Uses onboard firewall for greater troubleshooting ability and resilience should external firewalls become disabled.
- Hard drive automatically wiped clean prior to each installation.
- Sensing tampering, node automatically shuts down until reinstallation.
- Outbound zone transfers not allowed.
- Zone data transmitted through network consists only of zone changes.
- Nodes accessed only from CommunityDNS Network Operating Center (NOC).
- Each node reached by NOC through second, International link for out-of-band management.
- Advanced encryption used between nodes

## Bill of Materials

The total number of servers in both primary and secondary site is summarized as below:

9 units of Servers:

# Appendix 3

- DELL PowerEdge Rack Mount Intel Xeon Quad Core 2.66GHz 450GB x 2 SAS RAID 1 (Hot Swap) 12GB RAM, 2 network cards, 2 power units

4 units of Database Servers:

- DELL PowerEdge Rack Mount Server 2 x Intel Xeon Quad Core 2.4GHz 600G x 2 SAS RAID 1 (Hot Swap) 16GB RAM, 2 network cards, 2 power units

2 units of SAN Storage:

- DELL PowerVault MD3620f Fibre Channel Storage Arrays, dual controllers, 2 power units, 4SFP, 1T storage space

2 units of Load Balancers:

- Barracuda Load Balancer (BBF340) Model 340 - with instant replacement support

4 units of Firewall:

- Juniper SRX240

4 units of Switches:

- Cisco Catalyst 2950 24 ports and 12 ports

1 unit of Tape Library:

- PowerVault 124T LTO3 400/800GB x 10 Pack included

2 units of IPS:

- Juniper IDP75

1 unit of KVM:

- HP TFT7600

1 unit of HSM:

- AEP Networks: Professional Ultra Keyper HSM

4 units of WAN Routers:

- To be provided by Data Center Provider

Bandwidth allocation in the primary data center:

Local bandwidth : 100Mbps

International bandwidth : 10Mbps

Bandwidth allocation in the secondary data center:

Local bandwidth : 10Mbps

International bandwidth : 10Mbps

Software and Operating System

The details of the software and operating system to be used is as follows:

# Appendix 3

## Operating System

- CentOS 6.0

## RegistryASP Software

- RegistryASP EPP services
- RegistryASP WHOIS services
- RegistryASP Batch Job Services
- RegistryASP Registry Web Panel Module
- RegistryASP Registrar Web Panel Module
- RegistryASP Reporting Module
- RegistryASP DNS Generation Program
- RegistryASP DNSSEC Module
- RegistryASP IDN Module
- RegistryASP OTE ModulesJava Engine

## Javae Engine

- J2SE 6.0

## Mail Relay

- SendMail 9.0

## Monitoring

- Nagios Core Monitoring Software
- MRTG Monitoring Software
- MySQL enterprise monitor

## DNS

- BIND 9.9.0

## Web Application Server

- Glassfish Application Server 3.0

## Database

- MySQL Cluster edition

## Capacity Planning

Qinetics has performed capacity planning for peak usage volumes, based on the experience managing .SG and .HK registry. The SRS, Whois, and nameserver architectures are designed with highly scalable servers and connected through networks that can be smoothly scaled up without disrupting the system. Expansion provisions include the following:

- Hardware Upgrades:
  - o CPU Upgrades
  - o RAM Upgrades
  - o Extra Servers
- Bandwidth Upgrade
- Extensible switches

## SRS peak capacity

The SRS provides the core subsystems that handle registrar transaction-based services, including billing and collection, promotions, registrar management and audit logs. The peak transaction load is projected to be 500 transactions per second in 3rd year. The average packet size is estimated to be 6Kb

## Appendix 3

which requires a capacity of 3Mbps. The allocated line can comfortably cater for 100 times expansion.

The EPP and Web servers are front ended with load balancers that distribute the transaction processing workload across the servers. Distribution algorithms include least connections, weighted least connections, round robin, and weighted round robin. At any time, new servers can be deployed to increase the number of transactions that can be supported per second.

### Whois peak capacity

The peak Whois transaction rate is estimated to be 250 queries per second, with an estimated packet size of 10kb. This produces a maximum load of 2.5 Mbps. The local and international bandwidth provisioned for the Registry in secondary site is well exceeding the estimated peak bandwidth.

Whois request to the servers are distributed through DNS round robin. The transaction-processing workload is split across the servers. New servers can be provisioned to increase the number of transaction the services can response to. The Registry will closely monitor Whois usage and increase the system capacity to accommodate increasing demand.

### DNS Query peak capacity

The DNS resolution service is out sourced to AnyCast provider. The AnyCast provider has more than sufficient capacity to handle the DNS queries world wide with their AnyCast DNS network. We estimated our traffic will take less than 2% of AnyCast provider's maximum capacity.

### Miscellaneous servers and personnel

The backup/recovery systems, escrow systems, system/network management, and system administration systems of the Registry use enterprise strength hardware and software platforms that can easily be scaled to meet the growth estimates throughout the entire registry operations lifespan. Additional desktops/workstations can be added to accommodate growth in staff and registry workload as usage increases and the Registry infrastructure grows.

### Providers/Carriers

The providers/ carriers for the registry platform is as follows:

#### Registry System

- Qinetics Solutions Berhad

#### DNS

- CommunityDNS

#### Primary Data Center

## Appendix 3

- TATA (Backbone)
- NTT, China Telecom and China Unicom (Peering)  
Secondary Data Center
- Singtel, Starhub (Backbone)
- NTT, TATA (Peering)

### DNS Attack and Mitigation

DDoS attacks are a daily occurrence across the Internet. One independent study in 2008 determined 1,300 DDoS attacks occurred daily. The key to mitigating DDoS attacks is to provide a highly-distributed network, provide a platform that delivers exceedingly high amounts of capacity, provide a platform that can respond to such attacks within the direct control of CommunityDNS technicians, and finally a team that can take appropriate action based upon the type of attack that may be occurring.

At a high level, CommunityDNS mitigates the impacts of DDoS attacks in four ways:

- CommunityDNS uses Anycast technology. Anycast allows the same IP Address to be available at multiple locations on the Internet. The more locations, the more difficult it will be to bring down the service. BGP (the Internet's core Border Gateway routing Protocol) then ensures that a query to a CommunityDNS server is routed to the closest available server, thus serving to geographically isolate such attacks.
- The speed and efficiency with which the CommunityDNS platform software is designed provides extremely high levels of capacity which can easily handle extremely large volumes of queries per second; thus ensuring all properly formed queries are answered very efficiently.
- CommunityDNS ignores any query which is not properly formed, thus providing another defense to attacks. CommunityDNS has special algorithms that also monitor suspected malicious activity to make the nodes more resilient to attack traffic leaving legitimate traffic obtaining our exemplary level of DNS resolution service.
- In addition, CommunityDNS has dedicated staff to effectively handle major attacks based on the individual style, or attack profile.

It should be noted that CommunityDNS has never experienced an outage, thus always having ample capacity to handle any DoS/DDoS that have been encountered by the network, easily sustaining an attack of over 2 million transactions per second for more than 13 hours with no service degradation.

CommunityDNS utilizes its own highly-secure platform designed to

## Appendix 3

provide extremely high levels of capacity to ensure all legitimate queries continue to be answered during heavy DDoS attacks. The on-server firewall allows for rapid response to such attacks based upon the attack's unique profile. CommunityDNS' extensive global monitoring network is utilized to ensure traffic statistics are accurate.

Understanding that each DDoS attack can have its own unique characteristics, CommunityDNS utilizes the basic policy when dealing with major attacks.

1) CommunityDNS can throttle or divert the attack. If the attack is only hitting a single node it can be preferable to remove one or more subnets from the node's BGP; spreading the attack across a number of nodes. Also, BGP prefixes can be used to temporarily make the route to that node appear more expensive than it is and have the same effect on distributing the traffic to multiple locations.

Another effective step is to temporarily disable the targeted customer on one or more nodes, thus bringing the situation under control at that location. CommunityDNS staff would also be working with the respective registry, registrar or zone owner for the temporarily disabled target name or customer. The zone's owner also has complete control over temporarily deleting the targeted name by removing the name from their respective zone file.

2) Filter out the traffic. Each of CommunityDNS' Anycast nodes has an "on-server" firewall to monitor packet anomalies. When it is considered a malicious attack ongoing filtering can be triggered from a broad brush approach to a fine tuned approach, down to AS number filtering of specific packet types.

3) Where the attack has little or no impact on normal operation CommunityDNS NOC staff will monitor and develop approaches to handling specific attacks.

### SRS Attack and Mitigation

The SRS system is protected by firewall, only registered IP address are allowed to access. As such, DDOS should not have any impact on the network as the traffic are black holed at the firewall. In situation where firewall cannot handle the number of packets, high capacity advance router in the data center has the capability to black holed unwanted traffic thus significantly reduces the risk on DDOS attack. If the router is down due to extreme DDOS attack, The Registry can trigger the DDOS protection provided by data center which will redirect the

## Appendix 3

attacks to advance DDOS filtering center before rerouting the traffic back to the SRS system.

### WHOIS Attack and Mitigation

The WHOIS system is protected by IPS which will filter malicious DDOS attack. In situation where IPS cannot handle the number of packets, high capacity advance router in the data center has the capability to black holed unwanted traffic thus significantly reduces the risk on DDOS attack. If the router is down due to DDOS attack, the Registry can trigger the DDOS protection provided by data center which will redirect the attacks to advance DDOS filtering center before rerouting the traffic back to the SRS system.

### Resource Plan

Qinetics will deploy the Registry Service of the Registry using its existing system and infrastructure. Additional hardware will be provisioned for SRS, EPP and WHOIS Services by data center engineer. The whole system will be configured and setup by the software developer and system administrator. Once done, the Test Engineer will perform rigorous testing procedures to ensure the system performs according to specifications. Upon the testing is fully completed, the configurations shall be hand-over to System Administrator to perform deployment to production environment. The Support manager will issue change to IANA once the deployment to production environment is completed.

Throughout the process, a Project Manager is assigned to perform project management and overall control on the implementation. The Registry system is scheduled to be in production within 3 months from the ICANN approval.

The system will be in maintenance mode after the System is deployed. The system will be supported by general helpdesk support for enquiries. Any support issue related to registry system will be escalated to the Application Support Engineer for trouble shooting. Whenever there is a support ticket, Application Support Engineer will further escalate the support request base on severity. Once a remedy is identified, Test Engineer will perform testing on the fixes before deployment by System Administrator.

The data center engineer will perform routine check on the hardware. If any hardware is found to be defected, data center engineer will issue the hardware replacement according to the new equipment handling policy. The system administrator will perform routine OS and application patches to the system. The system capacity and security is monitored by system administrator. The system administrator will issue a change request for addition of hardware if the capacity has reach 80%



# Appendix 3

based on the alert configured in the monitoring system.

The database performance is monitor by the database administrator. The database administrator will issue a change request for addition of hardware if the capacity has reach 80% based on the alert configured in the monitoring system. The emergency response team will be triggered whenever there is a catastrophe scenario at the highest severity.

During maintenance, the outsourced party has committed 4 resources for the 24 x 7 helpdesk, 4 data center engineers, 2 application support engineers, 1 support manager, 1 test engineer, 2 system administrators and 1 database administrator.

## **33. Database Capabilities: provide details of database capabilities including:**

- **database software,**
- **storage capacity (both in raw terms [e.g., MB, GB] and in number of registrations / registration transactions),**
- **maximum transaction throughput (in total and by type of transaction),**
- **scalability,**
- **procedures for object creation, editing, and deletion,**
- **high availability,**
- **change notifications,**
- **registrar transfer procedures,**
- **grace period implementation,**
- **reporting capabilities, and**
- **number and description of personnel roles allocated to this area.**

### Database Capabilities

#### Database

- Domain registrations: 1,000,000
- Registrars: 150 (6 connections per registrar)
- Size of registration object: 10K
- Total data: 10G
- Database Management System (DBMS) and logs: 50G
- Database indexing: 20G
- Total size: 80G
- Database throughput: 1000 transactions per second
- Database scalability: 2 times CPU power, unlimited disk capacity with stackable SAN storage and new data node

#### Shared Registration System

- Billable events per month: 50,000
- Transaction size: 5K
- Transactions per month: 250M
- Historical data for a year: 3G

## Appendix 3

- DBMS & logs per month: 500M
- Database indexing: 5G (Consistent)
- Total size / year : 14G
- Database throughput: 600 transactions per second
- Database scalability: 2 times CPU power, unlimited disk capacity with stackable SAN storage and new data node

The estimation of packet and transactions size is extracted from our experience managing registry system for .HK, .SG and .CD registries. The database is designed to be easily expandable where multiple servers can be added into the cluster to increase the servers processing capacity. The storage capacity can be easily increase by adding new hard disk into the SAN storage. If the storage space is at 80% capacity, new data nodes can be deployed and stack on top the existing database cluster to double the storage capacity.

### MySQL Cluster Architecture

MySQL Cluster is the default database used to provide following capabilities:

- Auto-sharding for write-scalability;
- Real-time responsiveness;
- Active / active geographic replication - automatically scale writes, as well as reads, both within and across geographically dispersed data centers;
- Online scaling and schema upgrades - able to add capacity and performance to the database, and to evolve the schema - without downtime
- SQL and NoSQL interfaces;
- 99.999% availability - scale the database while maintaining continuous availability

MySQL Cluster's real-time design delivers predictable, millisecond response times with the ability to service millions of operations per second. Support for in-memory and disk-based data, automatic data partitioning (sharding) with load balancing and the ability to add nodes to a running cluster with zero downtime allows linear database scalability to handle the most unpredictable web-based workloads.

Alcatel-Lucent, BT Plusnet, Cisco, Docudesk, Neckermann, Shopatron, Telenor, Zillow.com and many more deploy MySQL Cluster in highly demanding web, broadband and mobile communications environments for the types of high-scale, mission-critical services.

MySQL Cluster comprises three types of node which collectively provide service to the application:

## Appendix 3

- Data nodes manage the storage and access to data. Tables are automatically sharded across the data nodes which also transparently handle load balancing, replication, failover and self-healing.
- Application nodes provide connectivity from the application logic to the data nodes. Multiple APIs are presented to the application. MySQL provides a standard SQL interface, including connectivity to all of the leading web development languages and frameworks. There are also a whole range of NoSQL interfaces including memcached7, REST/HTTP, C++ (NDB-API), Java, JPA and LDAP.
- Management nodes are used to configure the cluster and provide arbitration in the event of a network partition.

### Scaling Across Data Centers (Hot Site)

Qinetics utilized MySQL Cluster Geographic Replication which distributes clusters to remote data centers, serving to reduce the affects of geographic latency by pushing data closer to the user, as well as providing a capability for disaster recovery.

Geographic Replication is implemented via standard asynchronous MySQL replication, with one important difference: support for active / active geographically distributed clusters. Therefore, if the SRS are attempting to update the same row on different clusters at the same time, MySQL Cluster's Geographic Replication can detect and resolve the conflict, ensuring each site can actively serve read and write requests while maintaining data consistency across the clusters.

The MySQL Cluster provides a new option for cross data center scalability – multi-site clustering. For the first time splitting data nodes across data centers is a supported deployment option.

Improvements to the heartbeating mechanism in MySQL Cluster enables greater resilience to temporary latency spikes on a WAN, thereby maintaining operation of the cluster. With this deployment model, the Registry system can synchronously replicate updates between data centers without needing conflict detection and resolution, and automatically failover between those sites in the event of a node failure.

### .On Demand Scaling

MySQL Cluster allows the Registry system to scale both database performance and capacity by adding Application and Data Nodes on-line, enabling system to start with small clusters and then scale them on-demand, without downtime, as a service grows.

## Appendix 3

When new data nodes and node groups are added, the existing nodes in the cluster initiate a rolling re-start to reconfigure for the new resource. This rolling restart ensures that the cluster remains operational during the addition of new nodes. Tables are then repartitioned and redundant rows are deleted with the OPTIMIZE TABLE command. All of these operations are transactional, ensuring that a node failure during the add-node process will not corrupt the database

### On-Line Cluster Maintenance

With its shared-nothing architecture, it is possible to avoid database outages by using rolling restarts to not only add but also upgrade nodes within the cluster. Using this approach, Qinetics can:

- Upgrade or patch the underlying hardware and operating system;
- Upgrade or patch MySQL Cluster, with full online upgrades between releases.

MySQL Cluster supports on-line, non-blocking backups, ensuring service interruptions are again avoided during this critical database maintenance task. Qinetics are able to exercise fine-grained control when restoring a MySQL Cluster from backup using `ndb_restore`. Qinetics can restore only specified tables or databases, or exclude specific tables or databases from being restored, using `ndb_restore` options `--include-tables`, `--include-databases`, `--exclude-tables`, and `--exclude-databases`.

### Resilience to Failures

The distributed, shared-nothing architecture of MySQL Cluster has been carefully designed to ensure resilience to failures, with self-healing recovery:

MySQL Cluster detects any failures instantly and control is automatically failed over to other active nodes in the cluster, without interrupting service to the clients.

- In the event of a failure, the MySQL Cluster nodes are able to self-heal by automatically restarting, recovering, and dynamically reconfiguring themselves, all of which is completely transparent to the application.
- The data within a data node is synchronously replicated to all nodes within the Node Group. If a data node fails, then there is always at least one other data node storing the same information.
- In the event of a data node failure, then the MySQL Server or application node can use any other data node in the node group to execute transactions. The application simply retries the transaction and the remaining data nodes will successfully satisfy the request.

# Appendix 3

- Duplicate management server nodes can be deployed so that no management or arbitration functions are lost if a single management server fails.

Designing the cluster in this way makes the system reliable and highly available since single points of failure have been eliminated. Any node can be lost without it affecting the system as a whole. As illustrated in the figure below, an application can, for example, continue executing even though a Data Node is down, provided that there are one or more surviving nodes in its node group. Techniques used to increase the reliability and availability of the database system include:

- Data is synchronously replicated between all data nodes in the node group. This leads to very low fail-over times in case of node failures as there is no need to recreate and replay log files in order for the application to fail over.
- Nodes execute on multiple hosts, allowing MySQL Cluster to operate even during hardware failures.
- With its shared-nothing architecture, each data node has its own disk and memory storage, so a failure in shared storage does not cause a complete outage of the cluster.
- Single points of failure have been eliminated. Multiple nodes can be lost without any loss of data and without stopping applications using the database. Similarly, the network can be engineered such that there are no single points of failure between the interconnects.

In addition to the site-level high-availability achieved through the redundant architecture of MySQL Cluster, geographic redundancy can be achieved using replication between two or more Clusters, or splitting data nodes of a single cluster across sites.

## Database Setup

Qinetics deploys MySQL Cluster servers across both data centers. 2 application nodes, 2 management nodes and 4 data nodes are spread across 2 servers in each data center. At anytime, the database can fail over across nodes, across servers and data centers. The design takes advantage of the MySQL Cluster features for scaling across data center, on demand scaling, online cluster maintenance and resilience to failures as described above. A diagram illustrating the design of the database clusters is attached.

## Hardware

The database servers will be using:

2 DELL PowerEdge Rack Mount Server: 2 x Intel Xeon Quad Core  
2.4GHz 1T x 6 SAS RAID 5 (Hot Swap) 16GB RAM, 2 network cards, 2

# Appendix 3

power units in each data center

1 DELL PowerVault MD3620f Fibre Channel Storage Arrays, dual controllers, 2 power units, 4SFP, 1T storage space in each data center

The above hardware specification can easily handle a throughput of minimum 4000 concurrent connections per second with approximately 1 TB storage. The specification is capable of handling 4x the designed throughput as stated in the design parameters.

The storage capacity is 10x higher than the anticipated storage utilization. The hardware capacity is capable of handling transactions far exceeding the minimum designed parameters.

## Monitoring Capabilities

MySQL Enterprise Monitor provides the following monitoring features:

- Provide consolidated view into the health of all MySQL databases
- Monitor over 600 MySQL and operating system variables with the Enterprise Dashboard
- Monitor MySQL sessions, connections, replication latency and more with 30+ graphs
- Improve application performance with the MySQL Query Analyzer
- Provide immediate visibility into the replication topologies through auto detection and grouping
- View real time master/slave performance using the MySQL Replication Monitor
- Get notified of issues before they become costly outages using threshold driven alerts
- Resolve problems faster by using the option to collect and package server specific MySQL, OS and query diagnostic for MySQL Support
- MySQL and Operating System Graphs provide better visual monitoring of key system resources like database transactions and binlog cache efficiency for real-time and historical trending purposes.

The MySQL Enterprise Monitor is a distributed web application that is deployed within the safety of the firewall. It comprised a centralized Service Manager and lightweight Service Agent that is installed on each monitored MySQL server.

## Database Management Policy

Credential management procedure

Changes to any user access privileges (such as add, delete, suspend or modification) must be authorised by Support Manager

## Appendix 3

before the change can be implemented. All changes should be updated timely in the access control document and signed off by Support Manager.

### New staff or reassignment of staff duties

For any new staff or existing staff that has been assigned new access privileges, Support Manager has to ensure that each individual personnel have sufficient understanding of the system and is made aware of his/her responsibilities in regards to system access. This is to minimize any accidental modification of system information due to unfamiliarity of the system.

### Staff resignation or prolonged leave

Access privileges should be removed or modified when a staff has resigned, or will be on prolonged leave. The staff's individual login account (if any) must be immediately disabled on all systems that he/she has access to previously. For systems where a shared login account (e.g. root user access to servers) is used, the password of the shared login account must be changed immediately.

The database access metrics is as below:

Support Manager and Database Administrator

- Root Access: Yes
- Deployment Access: Yes
- Database: Full Administrative Rights

1st and 2nd Level Support

- Root Access: No
- Deployment Access: No
- Database: View Rights

### Change management procedure

Any changes to the database are considered as change request. The process flow of the change request procedure is defined as attached.

### Reporting Capabilities

The registry system is using Business Intelligence and Reporting Tools (BIRT) reporting tool to extract data from the MySQL server. BIRT is an Eclipse-based open source reporting system for web applications, especially those based on Java and Java EE. BIRT has two main components: a report designer based on Eclipse, and a runtime component in the app server.

With BIRT, the following features are available:

- Lists - The simplest reports are lists of data. As the lists get longer, grouping can be done to organize related data together (orders grouped by customer, products grouped by

## Appendix 3

supplier). If the data is numeric, developer can easily add totals, averages and other summaries.

- Charts - Numeric data is much easier to understand when presented as a chart. BIRT provides pie charts, line & bar charts and many more. BIRT charts can be rendered in SVG and support events to allow user interaction.
- Crosstabs - Crosstabs (also called a cross-tabulation or matrix) shows data in two dimensions: sales per quarter or hits per web page.
- Letters & Documents - Notices, form letters, and other textual documents are easy to create with BIRT. Documents can include text, formatting, lists, charts and more.
- Compound Reports - Many reports need to combine the above into a single document. For example, a customer statement may list the information for the customer, provide text about current promotions, and provide side-by-side lists of payments and charges. A financial report may include disclaimers, charts and tables.

BIRT reports consist of four main parts: data, data transforms, business logic and presentation.

- Data - Data are extracted from the MySQL enterprise server.
- Data Transforms - Reports present data sorted, summarized, filtered and grouped to fit the user's needs. BIRT allows sophisticated operations such as grouping on sums, percentages of overall totals and more.
- Business Logic - Many reports require business-specific logic to convert raw data into information useful for the user. If the logic is just for the report, developer can script it using BIRT's JavaScript support. If the application already contains the logic, existing Java code can be used.
- Presentation - Once the data is ready, a wide range of options is available for presenting it to the user. Tables, charts, text and more. A single data set can appear in multiple ways, and a single report can present data from multiple data sets.

### Resource Plan

Qinetics will deploy the Registry Service of the Registry using its existing system and infrastructure. The database instances will be configured by database administrator. Once done, the Test Engineer will perform rigorous testing procedures to ensure the system performs according to specifications. Upon the testing is fully completed, the configurations shall be hand-over to Database Administrator to perform deployment to production environment. Throughout the process, a Project Manager is assigned to perform project management and overall control on the implementation. The database schemas creation is schedule to be completed in 1 week.



## Appendix 3

The data center engineer will perform routine check on the hardware. If any hardware is found to be defected, data center engineer will issue the hardware replacement according to the new equipment handling policy. The database performance is monitor by the database administrator. The database administrator will issue a change request for addition of hardware if the capacity has reach 80% based on the alert configured in the monitoring system. The emergency response team will be triggered whenever there is a catastrophe scenario at the highest severity.

During maintenance, the outsourced party has committed 4 data center engineer, 1 test engineer and 1 database administrator. As part of on going policy changes, a team of software developer is available for any standards upgrade to the Registry and the changes will trigger the change request procedure in accordance to CMMI standards. The changes may include amendments to the database which will be tested by the test engineer and deploy to production by database administrator.

### **34. Geographic Diversity: provide a description of plans for geographic diversity of:**

- a. name servers, and
- b. operations centers.

**This should include the intended physical locations of systems, primary and back-up operations centers (including security attributes), and other infrastructure. This may include Registry plans to use Anycast or other geo-diversity measures. This should include resourcing plans (number and description of personnel roles allocated to this area).**

#### Registry Facilities Location

The registry system is geographically dispersed worldwide to provide excellent resolution services to the end users. The facilities are listed in the table below:

#### Registry Office

- Bangkok

#### Qinetics Office (Technical Operation Center)

- Kuala Lumpur (Primary)
- Singapore (Secondary)

#### CommunityDNS Office

- United Kingdom

## Appendix 3

- Japan
- United States

### Primary Data Center

- Hong Kong

### Secondary Data Center

- Singapore

The offices, operation centers and data centers are located in different countries. If the office in one country ceased to operate, the office in other country will take over the operation. The proposed geo-diversity plan can support continued critical registry functions in the event of temporary or prolonged outages as described in the answers to Question 39. The risks, threats and contingency plan are explained in answer to Question 39.

All offices, operation centers and data centers required door access and is equipped with CCTV. The security guards work in 24 hours shift and routinely go around the premises to detect any breaches or attempted break into the offices. All offices and centers are setup with automatic alarm system in case of any break in attempts. The data centers has further security configuration as defined in question 30.

### Anycast DNS provider - CommunityDNS

CommunityDNS is a secure, global anycast DNS network made up of 42 anycast nodes distributed across 5 continents in 2 separate networks each with different upstream provider and peering. The Registry will use both CommunityDNS AnyCast DNS Networks as primary and secondary DNS.

### Europe - 17 DNS Anycast Nodes

- Amsterdam, Netherlands
- Luxembourg City, Luxembourg
- Brussels, Belgium
- Madrid, Spain
- Budapest, Hungary
- Milan, Italy
- Copenhagen, Denmark
- Paris, France
- Dublin, Ireland
- Riga, Latvia
- Helsinki, Finland
- Sofia, Bulgaria
- Heraklion, Greece
- Vienna, Austria

## Appendix 3

- Ljubljana, Slovenia
- Warsaw, Poland
- London, United Kingdom

### North America - 5 DNS Anycast Nodes

- Ashburn, Virginia, USA
- New York City, New York, USA
- Chicago, Illinois, USA
- San Jose, California, USA
- Los Angeles, California, USA

### Asia - 16 DNS Anycast Nodes

- Bangkok, Thailand
- Mumbai, India
- Chennai, India
- Semey, Kazakhstan
- Delhi, India
- Singapore, Singapore
- Hong Kong, China
- St. Petersburg, Russia
- Jakarta, Indonesia
- Tehran, Iran
- Kyiv, Ukraine
- Tokyo, Japan
- Manila, Philippines
- Ulyanovsk, Russia
- Moscow, Russia
- Yerevan, Armenia

### Africa - 3 DNS Anycast Nodes

- Johannesburg, South Africa
- Nairobi, Kenya
- Lagos, Nigeria

### Australia - 1 DNS Anycast Node

- Perth, Western Australia

CommunityDNS positions its nodes around the globe within peering points, large ISP or Exchange Points. With CommunityDNS' nodes positioned within the backbone's peering network CommunityDNS' bandwidth is as big as the backbone's bandwidth on which CommunityDNS' nodes are placed. Based upon the configuration of a peering point's respective router configuration it is not uncommon for a peering provider to have a CommunityDNS server(s) reside on multiple backbones within a respective peering point.

The attached world map shows the actual location of the nodes and data centers.

# Appendix 3

## Resource Plan

Qinetics will deploy the registry service of the Registry using its existing system and infrastructure. System administrator shall counter check to ensure registry services setup can run nicely in both data centers. The system administrator will perform response time check on the system and DNS from various locations to ensure conformance to ICANN required service level. Throughout the process, a Project Manager is assigned to perform project management and overall control on the implementation. The response probing can be completed within 1 week.

During maintenance, the system administrator shall continue to perform response time check on the system and DNS from various locations to ensure conformance to ICANN required service level daily. The outsourced party has committed 2 system administrators.

**35. DNS Service Compliance: describe the configuration and operation of nameservers, including how the applicant will comply with RFCs. All name servers used for the new gTLD must be operated in compliance with the DNS protocol specifications defined in the relevant RFCs, including but not limited to: 1034, 1035, 1982, 2181, 2182, 2671, 3226, 3596, 3597, 3901, 4343, and 4472.**

**Describe the DNS services to be provided, the resources used to implement the services, and demonstrate how the system will function. Suggested information includes: Services. Query rates to be supported at initial operation, and reserve capacity of the system. How will these be scaled as a function of growth in the TLD? Similarly, describe how services will scale for name server update method and performance. Resources. Describe complete server hardware and software. Describe how services are compliant with RFCs. Are these dedicated or shared with any other functions (capacity/performance) or DNS zones? Describe network bandwidth and addressing plans for servers. Describe resourcing plans (number and description of personnel roles allocated to this area).**

**Describe how the proposed infrastructure will be able to deliver the performance described in the Performance Specification (Specification 6) attached to the Registry Agreement. Examples of evidence include:**

- **Server configuration standard (i.e., planned configuration)**
- **Network addressing and bandwidth for query load and update propagation**
- **Headroom to meet surges**

The registry system shall maintain the stealth DNS, propagation to primary DNS and propagation to secondary DNS. The resolution

## Appendix 3

of domains will be provided by secondary DNS. The stealth and primary DNS will not serve any DNS queries, it's main function is only to generate, sign and distribute the zone records to secondary DNS. Details on the DNS implementation are described in answer to Question 43.

The DNS Services resolution are provisioned through the AnyCast DNS provider which we identified as CommunityDNS. The provider has good experience with gTLD and currently handling resolutions for some of the gTLD extensions. CommunityDNS has over 70 nodes across 5 continents which reduces the latency time in terms of DNS queries. PCH is identified as Emergency AnyCast DNS provider in the unlikely case the primary and secondary AnyCast Node of CommunityDNS failed.

The use of anycast makes a server appear to be one server, but in fact it is be many more. Each instance of an anycast node serves the same content to the machines "closest" to it. The determination of "closest" is made by BGP (Border Gateway Protocol), the routing protocol used on the Internet to announce networks. A node serves it's surrounding area. Response times are much lower than in most traditional cases, because the anycast node almost always is closer than a single unicast node would have been. A denial of service attack will usually only affect a single node. All other nodes in the world will not notice anything about the attack and the rest of the Internet will thus not notice it either. A local attack is therefore only affecting the local neighborhood. Distributed denial of service attacks usually affects a few nodes only, but because the attack is spread out between nodes, so is the amount of traffic flowing to each node. Based on the capacity of the nodes, often the attacked nodes are still able to answer legitimate queries.

CommunityDNS

CommunityDNS is fully compliant with the following standards:

- 1034
- 1995
- 2182
- 2870
- 3597
- 4035
- 4592
- 1035
- 1996
- 2535
- 3226
- 3901
- 4343

## Appendix 3

- 4641
- 1101
- 2136
- 2671
- 3490
- 4033
- 4472
- 5155
- 1982
- 2181
- 2845
- 3596
- 4034
- 4509
- 5910

On an average, non-busy day, CommunityDNS processes 20Gb per second of traffic inbound while also processing 50Gb per second of traffic outbound. The unique design of CommunityDNS' platform was optimized for extremely high performance. Due to the platform's exceedingly fast performance, the dimension of speed yields greater efficiencies in backbone utilization.

The software which serves as the basis for CommunityDNS' platform is highly-secure and highly efficient. It is the level of code efficiency that allows CommunityDNS to comfortably provide high levels of capacity. Through our internal testing CommunityDNS' platform can successfully support 500,000,000 domain names. As an example of CommunityDNS' capacity in August 2010 CommunityDNS' node in Hong Kong experienced a traffic spike for just less than two hours. During the length of the traffic spike CommunityDNS' Hong Kong node comfortably processed a sustained query rate of over 863,000 queries per second.

Extrapolating the rate of queries handled in Hong Kong over 41 global locations CommunityDNS' network has a demonstrated capacity of comfortably handling 35,383,000 queries per second / 2,122,980,000 queries per minute / 127,378,800,000 queries per hour / 3,057,091,200,000 queries per day / 91,712,736,000,000 queries per 30 day month / 1,115,838,288,000,000 queries per year.

Today CommunityDNS supports 28 TLDs which are authoritative in the ROOT Zone as well as carries 504 top level, second level and reverse domain zones. On an average, non-busy day, CommunityDNS processes 20Gb per second of traffic inbound while also processing 50Gb per second of traffic outbound. This equates to roughly 8,400,000 queries per minute / 504,000,000 queries per

# Appendix 3

hour and 12,096,000,000 queries per day. CommunityDNS' platform has never reached a maximum query rate. Currently CommunityDNS' capacity is in excess of 855 billion queries per day.

In an independent trial conducted at Bath University, CommunityDNS' database was tested against Oracle's fastest database (Berkeley). Results showed that while processing at speeds of 11,000,000 transactions per second CommunityDNS's database outperformed Oracle's fastest database by over 11 times on reads and close to 4 times on writes.

As for scaling, in a study conducted in 2010, CommunityDNS' platform was compared with BIND and NSD-based platforms. In a normal, unsigned zone (non-DNSSEC) environment performance and scaling appeared as attached.

In a signed zone, (DNSSEC) environment performance and scaling appeared as attached.

The registry system is scaled according to 3 years volume estimation in the financial response. The estimation matrix table is attached.

The estimation above is based on the aggregated figures collected while operating .SG, .HK, .MY and .CD registry system. Based on the 855 billion queries per day excess, the estimated DNS queries above only takes about 0.8% of CommunityDNS capacity.

## DNS Network Infrastructure

The Registry uses CommunityDNS as its outsourced provider for AnyCast DNS. CommunityDNS deploys AnyCast DNS in over 40 countries. The diagrams detailing the connectivity and network infrastructure of CommunityDNS is attached.

## CommunityDNS Master Centers

A diagram illustrating the network infrastructure of the CommunityDNS master data centers is attached. Spanning multiple continents, CommunityDNS redundant master centers ensure maximum resilience through multiple levels of redundancy designed into each master site.

Redundant networks within each Master Center are isolated into no less than four distinct networks to ensure maximum security and high levels of efficiency.

Data between the European and North American Master Centers is mirrored in real time. Data from Europe to the Asia Master

# Appendix 3

Center is mirrored at delayed intervals should data at the European Master Center become corrupted.

## CommunityDNS Node Configuration and Information

A diagram illustrating the CommunityDNS node configuration and information is attached.

- Highly modified and hardened version of Linux.
- OS locked down and using AES-256 encryption.
- Encryption key unique to OS per node.
- Operates on multiple hardware platforms for platform diversity.
- Tested to handle 500,000,000 domain names.
- 10 times faster than BIND and 8 times faster than NSD.
- Faster than Oracle's fastest database – over 11 times faster on reads and close to 4 times faster on writes.
- Database locked down and using AES-256 encryption.
- Encryption key unique to database per node.
- Fast disaster recovery of 1 million+ names per minute database reload
- Uses onboard firewall for greater troubleshooting ability and resilience should external firewalls become disabled.
- Hard drive automatically wiped clean prior to each installation.
- Sensing tampering, node automatically shuts down until reinstallation.
- Outbound zone transfers not allowed.
- Zone data transmitted through network consists only of zone changes.
- Nodes accessed only from CommunityDNS Network Operating Center (NOC).
- Each node reached by NOC through second, International link for out-of-band management.
- Advanced encryption used between nodes

## Resource Plan

Qinetics will assign a support manager as the DNS administrator. This is because Qinetics treat DNS resolution as the services with highest priority. The support manager will perform the integration configuration to the AnyCast DNS provider. Once done, the Test Engineer will perform rigorous testing procedures to ensure the system performs according to specifications. Upon the testing is fully completed, the configurations shall be hand-over to system administrator to perform deployment to production environment. Throughout the process, a Project Manager is assigned to perform project management and overall control on the implementation. The integration is schedule to be completed in 1 week.



## Appendix 3

During maintenance, the helpdesk support shall respond to any DNS related enquiries. The support manager shall monitor the zone transfer, resolution and zone generation. Any issues on DNS resolution at the secondary DNS AnyCast shall be immediately routed to AnyCast DNS provider helpdesk. The outsourced party has committed to provide 4 resources for the 24 x 7 helpdesk, 1 test engineer, 1 support manager, 2 AnyCast helpdesk support and 1 senior DNS administrator to maintain the function.

**36. IPv6 Reachability: the registry supports access to Whois, Web-based Whois and any other Registration Data Publication Service as described in Specification 6 to the Registry Agreement. The registry also supports DNS servers over an IPv6 network for at least 2 nameservers. IANA currently has a minimum set of technical requirements for IPv4 name service. These include two nameservers separated by geography and by network topology, each serving a consistent set of data, and are reachable from multiple locations across the globe. Describe how the registry will meet this same criterion for IPv6, requiring IPv6 transport to their network. List all services that will be provided over IPv6, and describe the IPv6 connectivity and provider diversity that will be used. Describe resourcing plans (number and description of personnel roles allocated to this area).**

IPv6 support will be put in place for the network infrastructure, hardware and registry functions allowing IPv6 transport in the network over independent IPv6 capable networks in compliance to IPv4 IANA specifications, and Specification 10. For all network equipment and servers purchased and installed, IPv6 support will be present and enabled in OS. IPv6 address will be assigned to all servers, routers, firewall and load balancer. The switches, routers and firewalls has the capability of routing traffic through IPv6 addressing.

At the application level, IPv6 support will be enabled in:

1. SRS system
2. WHOIS
3. DNS

SRS system

The SRS servers are fully IPv6 enabled with IPv6 assigned. IPv6 will be enabled in the host management functions. Registrars will be able to add, edit and delete hostname with IPv6. A single hostname can be assigned a IPv4 or IPv6 host or both through the web panel. However, a single domain must have at least one nameserver which is IPv4 to avoid name space fragmentation.

## Appendix 3

The same action can be performed through EPP using host create, update and delete functions. When host info function is invoked, IPv6 address for the hostname will be shown.

### WHOIS

The WHOIS servers reside in IPv6 enabled hardware and network. The WHOIS is capable of accepting the commands to check hostname. The WHOIS results for the hostname query will response with IPv6 records if the hostname are configured with IPv6 address.

### DNS

Once SRS system accept IPv6 records, the IPv6 records will be published into stealth DNS. The stealth DNS will publish the record into anycast DNS network. TTL for both IPv4 and IPv6 records will be the same to avoid any discrepancy. The DNS AnyCast provider that we engage are currently IPv6 enabled. The Registry is comply to RFC 4472 and AnyCast DNS provider will provide IPv6 addressing for the TLD root DNS. 1 IPv6 address will be assigned to each of the 2 TLD name servers.

The AnyCast DNS servers are allocated with IPv6 address which the traffic are distributed to various locations in IPv6 enabled network. Once a client machine with IPv6 try to access a web site, the AnyCast DNS will be accessed through the IPv6 interface and return dig records which is AAAA records for resolution. If the hostname is configured with IPv4, the result will be returned to the IPv6 client. The IPv6 client will then tunnel out from the IPv6 network at the ISP to the IPv4 network.

### Compliance Table

The compliance table is accordance to Specifications 6 is attached.

### Resource Plan

Qinetics will deploy the registry service of the Registry using its existing system and infrastructure which supports IPv6. The system administrator will configure an IPv6 address to the newly provisioned servers. Once done, the Test Engineer will perform rigorous testing procedures to ensure the system performs according to specifications. Upon the testing is fully completed, the servers shall be hand-over to system administrator to perform deployment to production environment. Throughout the process, a Project Manager is assigned to perform project management and overall control on the implementation. The IPv6 configuration is schedule to be completed in 1 week.

During maintenance, the system administrator is responsible to

# Appendix 3

allocate IPv6 address to any newly added hardware. The test engineer will perform the testing to ensure new servers are IPv6 ready. AnyCast Provider will ensure newly added nodes supports IPv6. The outsourced party has committed to provide 1 test engineer, 2 system administrator and 1 senior DNS administrator to maintain the function.

## 37. Data Backup Policies & Procedures: provide

- details of frequency and procedures for backup of data,
- hardware, and systems used for backup
- data format,
- data backup features,
- backup testing procedures,
- procedures for retrieval of data/rebuild of database,
- storage controls and procedures, and
- resource plans (number and description of personnel roles allocated to this area).

### Overall Backup Design

The Backup and Recovery (B&R) Plan covers all the essential components of the System, including:

- System files;
- Database files;
- Electronic images; and
- Software and OS (Applications and system).

The attached diagrams describe the overall B&R plan, which can be categorized into:

- System and applications backup (including all electronic images);
- Application and system logs backup; and
- Database Backup.

All hardware comes with RAID1. The data files are archived daily and deposit into the tape library. A diagram illustrating the design of the backup infrastructure is attached.

### 1.1 Hard disk Failures

If a server has only 1 harddisk, a hardware disk failure would require a lengthy procedure to obtain a new harddisk and restore the Operating System and data via backups copies. To reduce the recovery time in case of harddisk failures, system is thus designed to have at least 2 harddisks.

Application servers are configured in RAID 1 (mirror) mode. Should one harddisk fail, a new disk will be procured. Data from

# Appendix 3

the surviving harddisk can be mirrored to the new disk via RAID mirror rebuild. Tape recovery is not required.

Database servers are configured as RAID 1. Should one harddisk fail, a new disk will be procured. Data from the surviving harddisks can be rebuilt to the new disk via RAID rebuild. Tape recovery is not required.

SAN Storage has 5 x harddisks. 4 harddisks are in use with 1 harddisk configured as hotspare. Should one harddisk fail, the system will automatically use the hotspare harddisk. The failed harddisk will be replaced by a new harddisk and it will become the new hotspare disk

## 1.2 Data Loss

In cases where the physical harddisks are functioning properly but the partial or full data loss or corruption have occurred, the data loss or corruption may be unrecoverable regardless of whether the system has multiple harddisks and whether it is in RAID mode since the same data loss will be replicated across the RAID array. For such cases, it will be necessary to recover the system via backups.

Typical cases of such data loss/corruption:

- A sudden power failure causes system to shutdown improperly. As it is an improper shutdown, some data loss may occur, especially for busy systems with high IO activity. The worst case would be OS corruption and renders the system unbootable. If the system cannot be rescued via fsck (after booting up from a rescue cd), recovery from tape backups will be necessary.

To prevent data loss, including complete OS failures, the system is designed to backup full disk data to tape backups.

## 2. Tape Hardware

### a. Data Format

The Linear Tape File System (LTFS) is a self-describing tape format and file system, which uses an XML schema architecture for ease of understanding and use. It allows:

- Files and directories to appear on desktop and directory listings
- Drag-and-drop files to/from tape
- File level access to data
- Supports data exchange

### b. Connection

Each server is connected to the tape library via network to a central backup server. The tape library is directly connected to the central backup server. Scripts are written to backup the

# Appendix 3

files into the harddisk and move to the central backup server (network monitoring server). The tape library tool is scheduled to backup the files to the tape library at the frequency defined in Section 4 Backup Routine.

## c. Capacity

The tape library PowerVault 124T can hold up to 8 cartridges providing up to 6.4TB data backup. The tape library will be using Ultrium LTO-3 cartridges. The tape capacity allows for multiple backups to be performed before a tape change is required. Once the tape is full, the tape library will auto load in the next tape and continue the backup. The frequency of tape change is described in Section 5 Backup Routine. If the backup data capacity exceed 6.4T for a particular week, a change of tape drive hardware to a higher capacity type may be required (e.g. LTO4).

## 3. Backup and Recovery Software

Bacula backup program will be used to manage backup, recovery, and verification of computer data across a network of computers of different kinds. Bacula is relatively easy to use and efficient, while offering many advanced storage management features that make it easy to find and recover lost or damaged files.

## 4. Backup Routine

The backup routine will be as attached.

On every Wednesday, the system administrator will eject the tapes by pressing the 'eject' button on the tape library. The tape will rewind and eject. The system admin will physically label the tape with the following convention:  
WEEK < YYMMDD > where YYMMDD is the Year-Month-Date of the day the tape is ejected. e.g. WEEK1 120101

The files will be stored in folder: /home/backup/[hostname]

The tapes will be brought offsite to a prearranged secure site for storage. Tapes stored offsite will be recycled for new backups after 30 days, starting with the oldest tapes. At any point in time, the Registry will have at least 30 days of backup information for retrieval.

## Recovery Procedures

### File Recovery

The procedure for file recovery is as below:

1. Identify the date of the file to be restored
2. Retrieve the sets of tapes for the week where the data are to

## Appendix 3

be restored

3. Identify the job id for the backup file based on date
4. Mark the files for restore
5. Issue the restore command to rewind the position of the tape
6. Data will be extracted and ready to be used

### Server Recovery

The servers are configured in high availability mode. Server backup may not be required due to all services are mirrored. As the state of server to be recovered is not important, the recovery procedure will fall back to the file recovery steps. A new server will be provisioned. The last known good backup for / and /home of that particular crashed server will be restored. The files will then be copied over to the newly provisioned server.

The above process will be the same for database servers. The database server recovery via tape will be deployed only when the event where multiple disasters strike, where the RAID 5 for the database is unrecoverable, the disks are unusable and data in the replication secondary database cluster is also corrupted. On such very unlikely event, the system administrator will restore the server using the backup files from the tape. Once data are retrieved from tape, the rest of missing data shall be reconstructed from the application log files back to the point of failure.

### Resource Plan from Qinetics

#### Backup Testing Procedure

Qinetics will backup the registry System of the Registry using its data backup infrastructure. The data center engineer will configure the backup services. Once done, our Test Engineer will perform rigorous testing procedures to ensure the system backup the files according to the backup plan. Throughout the process, a Project Manager is assigned to perform project management and overall control on the implementation. The setup and testing is schedule to be completed in 2 weeks.

During maintenance, the data center engineer will perform the tape change and restoration of data if required. The restored data will be checked by the application support engineer before confirm it can be reused. The outsourced party has committed 4 data center engineer and 2 application support engineer to maintain the data backup.

**38. Escrow: describe how the applicant will comply with the escrow arrangements documented in the Registry Data Escrow Specifications**

# Appendix 3

**(Specification 2 of the Registry Agreement). Describe resourcing plans (including number and description of personnel roles allocated to this area).**

## 1 Description of Technical Capabilities and Redundancies

### 1.1 Hardware to be used

NCC Group will provide a mix of dedicated hardware and shared infrastructure for the ICANN Registry Operator Data Escrow ("RODE") solution in accordance with Specification 2 of the gTLD Application and the arias-noguchi-registry-data-escrow draft. NCC Group utilizes a shared infrastructure for internet access and management of its Enterprise hosting sites. This greater efficiency allows NCC Group to provide a superior but more cost sensitive solution.

NCC Group only uses "best of breed" hardware in the solution (dedicated and shared) from HP, Cisco and Foundry Networks. To provide maximum flexibility and performance a hardware load balancer would be implemented. The load balancer intelligently monitors each server in the pool to ensure that the Registry is directed to the server most capable of performing the required processes in the most efficient manner and in accordance with established data processing procedures. Another benefit of NCC Group's architecture is that it allows the solution to scale horizontally or undertake maintenance without impacting service or performance to the Registry. This architecture also allows NCC Group to manage and process hundreds of coterminous escrow deposits, be they from the Registry, or other Registry Operators.

Continual performance management will trend usage to identify and predict future capacity issues. NCC Group would instigate the process of providing extra capacity, disk, processor, etc when utilization of a component was close to reaching its threshold. This review, analysis and maintenance is done daily in accordance with established IT policies and based upon NCC Group's monitoring and performance reports. This type of proactive maintenance insures that issues are averted rather than responded to once they occur.

Hardware Utilization Diagram is attached for reference.

### 1.2 Internet Connectivity

NCC Group utilizes low latency, high availability connectivity at each of their Enterprise hosting sites, with a minimum of two completely separate Internet connections from high quality transit providers. These connections are delivered as blended BGP feeds giving exceptional bandwidth to the major tier 1

# Appendix 3

networks internationally. This architecture enables NCC Group to select the most suitable IP space to host burstable solutions while aiming to exceed no more than 30% utilization of their Internet bandwidth, thus delivering consistently high availability and fast response.

NCC Group would initially provide a committed information rate of 100MB. NCC Group has continuous monitoring of utilization of this link to ensure its performance is within established service level expectations, and this monitoring is considered paramount to the performance of the data escrow solution. NCC Group has provided for standby bandwidth resources to be quickly available to NCC Group, so bandwidth can be scaled up to 1GB within twenty minutes, and beyond this significant level within four hours.

## 1.3 Proposed Software

File transfer, security and encryption for the NCC Group Escrow Live portal is handled using industry-leading software from GlobalScape. NCC Group's current installation of GlobalScape would be expanded and configured to provide file transfer capability, security architecture and encryption which would be compliant with ICANN's RODE requirements.

The attached diagram provides an overview of the infrastructure. The Registry data would be protected behind two firewalls for maximum protection.

The Registry would connect to the DMZ Gateway server and transfer the file, the system would transfer the file automatically to the storage server, decompress and decrypt the data and perform integrity checks as part of the process automatically. ICANN and the Registry (and its outsourced service providers as required) would then be sent an automated email confirming the receipt and processing of their deposit.

The software uses industry standard security protocols to ensure interoperability with existing secure applications. Additionally, it employs FIPS compliant algorithms in accordance with U.S. Government Department of Defense specifications in order to ensure maximum protection and confidentiality of data transmissions. The software supports the following protocols and standards:

- Support for FTP (SSL/TLS), SFTP and HTTP/S Protocols
- Compliant with RFC 959, 2228, 2389, 2289, 2440, 2616, 2069 & others
- Based on OpenSSL library 0.9.8a
- Compliant with latest Secure Shell drafts



# Appendix 3

- OpenPGP support includes:
- Create public and private key pairs
- Establish key expiration dates
- Import public keys only or key pairs
- Set a default site key for encrypting and signing data
- Encrypt, decrypt or sign based on a particular event

## Guaranteed Delivery

When a transfer is initiated, the NCC Group service guarantee delivery mechanisms ensure integrity and completion. Typical problems associated with file transfer may include:

- Interrupted transfers – Remote connections are frequently interrupted (network error, server disconnect, etc.) The service supports auto-resume attempts from file transfer clients with resume transfer capability, such as CuteFTP Professional.
- Transfer paused by initiator – Transfers in progress can be paused and restarted at any time while using a supporting client. This is often referred to as checkpoint restart or manual restart.

## Data Integrity Checking

Data integrity is a critical part of electronic data transmissions, especially when mission critical or classified data is involved. All TCP/IP packets arriving at the destination does not guarantee that a transfer is successful. The actual data being transferred may be corrupted in transit or during the storage phase. Typical scenarios include compromised transmissions where data is replaced in transit or a failed disk I/O operation. Most protocols and applications provide only minimal data integrity verification mechanisms. Aside from inherent measures built into the underlying protocols used, the NCC Group service offers the following additional measures to protect against corrupted data:

- Cyclical Redundancy Checking (CRC) is the process of comparing the checksum of a transferred file compared to its original source. The source and destination file checksums are compared once the transfer is finished. If the checksums match, the file transfer is considered complete. If they don't match, an error is reported and the transfer is retried until the checksums match.
- Message Authentication Code (MAC) checking is similar process to CRC checking except that it applies only to SSH2 connections. The transferring packets are verified; however, no further validation occurs once the transfer is completed and the data is stored on disk.

## Accelerated Transfers

The NCC Group service utilizes accelerated transfer technology:

# Appendix 3

- Multi-part Accelerated Transfers (Segmented Delivery) – This cutting-edge approach to transferring large files can accelerate transfers by over 400%. A file is segmented (split) into multiple equally sized parts, and each part is then transferred simultaneously over a separate thread. Once all segments are received, the resulting parts are recombined back into a whole file. A diagram of this process is included for reference.
- Simultaneous Transfers (Concurrent Delivery) – When used with a supporting client the NCC Group service can permit multiple simultaneous sessions over FTP/S, HTTP/S or SFTP. EFT Server can handle as many simultaneous connections as allowed by the underlying hardware, and allowed sockets by the operating system.
- Mode Z Compression – Allow users to compress transfers on the fly to speed up delivery and increase bandwidth efficiency with streaming compression.

## Registry Operator Compliance

NCC Group will work with ICANN and the Registry to ensure maximum compliance with the RODE requirements. All non-compliances will be flagged immediately with the Registry and ICANN.

NCC Group will provide a web portal to allow ICANN and the Registry to produce deposit reports. The web portal will allow the Registry and ICANN to view details of all deposits stored. The portal would be a custom development specifically for ICANN.

ICANN will be sent emails notifying them of:

- Each successful deposit and verification to allow it to update its own system.
- Each failure by a registrar to adequately remedy failed deposits, including failed and uncorrected verification checks.

The Registry will be notified by e-mail if they fail to submit a deposit according to the schedule.

## 1.4 Physical and electronic security systems and procedures

Security will be a paramount concern for all parties involved in the use of the Registry Data Escrow service. NCC Group will draw on its considerable expertise in the areas of infrastructure and web application security to ensure that the Registry Data Escrow system maintains high levels of security at all times.

NCC Group is a leading independent IT security advisor and we have completed numerous security related projects. We have been providing network security testing services and consultancy advice on security infrastructures since 1997. NCC Group

# Appendix 3

provides security testing services, which are accredited to the CHECK requirements established by CESG, the UK National Technical Authority for Information Assurance ([www.cesg.gov.uk](http://www.cesg.gov.uk)). NCC Group also provides consultancy to the Information Security Management Standard, ISO 27001.

NCC Group security testing services use a robust and thorough methodology which mimics the actions of real 'hackers' – we do not simply rely on automated tools. Our security testing service involves far more than simply scanning the network for weaknesses. Automated testing services can be useful, but given that hacking tricks, cheats and techniques evolve on a daily basis, automated systems quickly become redundant. Our tests are performed 'hands-on' by experienced consultants who utilize the same methods and tools as expert hackers in addition to developing their own. We keep up-to-date by continuously researching, studying and mimicking the emerging techniques.

## 1.5 Procedures for handling large files and sets, encrypted and/or compressed data, and sensitive or confidential third-party data

As part of our Escrow service, NCC Group regularly handles large files containing encrypted, compressed and/or password protected data. We have procedures in place for the secure handling of such information. Our existing customer portal Escrow Live allows for the secure transfer of data electronically using HTTPS and secure FTP.

## 1.6 Procedures for archiving data deposits

Sensible security practices dictate that confidential data transferred to a publicly accessible server should not remain on that server due to the risk of exposure or compromise. If the publicly accessible server is configured to broker the incoming transactions with a server inside the corporate firewall, it safeguards the files since they reside on a secure corporate intranet, inaccessible from public networks.

Once a deposit has been made, it will be verified using the ICANN supplied Perl scripts. This validation will occur within 24 hours of receipt and will verify that the deposit format is consistent with ICANN's requirements. If the deposit is successfully validated it will be transferred to archive storage where it will be kept for the minimum defined term by ICANN.

Once a deposit has been validated and moved to archive storage it becomes read only and is only accessible by NCC Group staff. In the event that ICANN request a retrieval of the Registry Operator's data, it would either be delivered electronically (by

## Appendix 3

a pre-agreed methodology, most likely Secure FTP) or placed on a CD, DVD or USB external storage device and sent overnight with a reputable commercial carrier – the delivery method would be of ICANN's choosing.

All transactions would be logged to a database for auditing and production of statistics to support ICANN's compliance requirements.

### 1.7 Contingency planning and disaster preparedness

NCC Group has comprehensive business continuity plans, developed in accordance with the PAS56 standard and now superseded by British Standard 25999. These are reviewed bi-annually and tested on a regular basis.

The dedicated infrastructure has sufficient redundancy to ensure that failure of a single component will not impact the service.

NCC Group will continually test the system by collecting performance information, availability, any error details, as well as upload and download speeds. The system will be continuously monitored, and should there be any performance issues, a response will be initiated directly into NCC Group's IT organization to diagnose and fix errors. The notification of web site performance issues are automatic and come via e-mail and phone alerts.

**39. Registry Continuity: describe how the applicant will comply with registry continuity obligations as described in the Registry Interoperability, Continuity and Performance Specification (Specification 6), attached to the draft Registry Agreement. This includes conducting registry operations using diverse, redundant servers to ensure continued operation of critical functions in the case of technical failure. Describe resourcing plans (number and description of personnel roles allocated to this area).**

Compliance with Registry Continuity Obligation as described in Specification 6

#### 1. High Availability (HA)

##### Robust Design

The design of the Registry system relies on multiple, high availability components to reduce the risk of failure. The key components of the Registry Service such as SRS, WHOIS, DNS, EPP and DNSSEC, will be able to continue to function, even in the event of total failure of one server. Sub-system will be interconnected with redundant network to ensure that a data path is always available. The whole system will not have 'Single

# Appendix 3

Points of Failure'.

The registry system is proven and tested based on the experience of implementing other registries, such as .HK, .SG and .CD TLD.

Conform to HA Standards

The Registry will conform to the following high availability practices:

- Fault-tolerant Hardware – The Registry select hardware that is tolerant to faults, so that in most cases, the hardware can function even if part of the hardware is damaged, and can be service without interruption.
- Multiple Sub-System – The Registry will build the system with multiple-redundant sub-systems, in order to ensure the entire system remain function even if whole sub-system fail.
- Geographical Diversity – The Registry will place its data centers in multiple, geographically separated locations, in order to guard againsta the complete destruction of one data center.
- Protecting against Bad Data – The Registry will use hardware and programing techniques which guard against the introduction of bad data, which will allow multiple audit paths.
- Operational Policy and Procedures – The Registry will apply operational policies and procedures to ensure that system is always function.

Fault-tolerant Hardware

The Registry will use enterprise-grade hardware, which is designed to tolerate the failure of its components, and which can be serviced without removing power. The failure of CPU, memory module, disk drive or system board will not cause the server to fail, but will generate warning messages to inform Support Engineers (System Administrators) that a fault condition occurs. Only

ECC memory will be used, to ensure a failing memory module cannot affect system operation or data integrity.

In the case of a fault condition, it is possible to replace the failing components without removing power from the server. The failing component will be replaced, and the server will continue to handle requests.

At anytime, a spare unit is available and the components in the spare unit can be used for emergency hardware replacement until the spoilt hardware is replaced.

Redundant Sub-Systems

The Registry will use multiple-redundant subsystem in order to

## Appendix 3

ensure that, in the event of a failure of any component, the entire system is not affected, Each server in the primary data center will be paired with another server, so that one server may be removed from service without affecting data processing. If it is necessary to remove a single server from service, its paired member will continue to provide the affected service.

### Geographical Diversity with Hot Site

The Registry System is located in Class A secure facilities (for details, answer to Question 34). The primary site in Hong Kong will be copied to the secondary site in Singapore, so that a complete destruction of the entire primary site will not destroy the ability to register and query names.

The secondary site is in Active-Active mode where database are in bi-directional setup with auto conflict resolution. This means data can be updated in real time at the same instance to both data centers. In time of disaster at primary site, the transactions can be swing to secondary site in real time. Once the primary site is recover, the MySQL cluster in primary site has auto recovery function to replicate the data automatically from secondary database cluster reducing the time to recover the system.

### Protecting Against Bad Data

Except the administration of the system, interaction with the database will happen only through the EPP server. This allows the assurance of careful data normalization before any data reaches the data store. Keeping data normalization and data integrity checks outside the database ensure that no malicious or mistaken input will get into or persist in the system.

All servers, data stores and backup device will use ECC memory and similar memory-correction technology to protect against the possibility that any failing component might introduce random data errors.

Regular audits of backups will ensure that data is safe and available.

Internally, a three-way audit path allows regular checks of SRS functioning. The three-way audit trail allows for quick troubleshooting in the event of any trouble.

### Operation Policy and Procedure

The Registry will adopt policy and procedures to ensure high availability and registry continuity are the top most priority. These can be achieved through thoughtful operation policies and

# Appendix 3

procedures.

For the operation, each component will be monitored for security, performance and stability both from within the data centers, and from a remote site. Three different monitoring system provide triple-checks for potential problems. This allows the earliest possible warning of trouble, in order to allow ample preparation in case of a detected fault.

Qinetics' Support Engineers, at 24x7 monitoring, will be alerted immediately in the event of any hardware or software troubles. Senior Support Engineer, at the tier-2 support, will be available 24 hours a day, seven days a week, to address immediately any potential failure of a system component.

Consistent policies on maintenance script placement, commenting rules, and rigorous schedules for audits and maintenance will ensure that the system does experience outages. Upgrades and maintenance will be conducted according to well-established policies. Each proposed system change will be documented in advance, and will undergo peer review before being implemented.

## 2. Risk Scenario and Mitigation via High Availability

### Scenario (End Node - Servers)

- Single host hard disk or power vault failure
  - Hot swap the failed component, no downtime is to be expected
- Single host motherboard or other single component failure
  - Host is not reachable. The load balancer will redirect traffic to next available host. Once the failed host are restored, load balancer will automatic balance the traffic again
  - SAN storage are in active-active mode. Any failure e.g. on a single controller, power or hard disk will have no impact on the system.
- Firewall, router or switch failure
  - The active-active setup will automatically route traffic to remaining active host. Failed unit can be replace and relinked
- Database hardware failure
  - The MySQL cluster software will auto redirect the traffic to the next available database host

### Scenario (End Node - Data Center)

- Data center power backup failure
  - The backup data center power will be activated
- Intruder Protection System (IPS) failure
  - The physical connection will still flow through even the services failed

# Appendix 3

- IPS total failure
  - In the unlikely event of total unit failure, the appliance will be removed and rewired until the hardware is replaced
- Total Servers and Network failure
  - In the unlikely event of all servers and network failed, The Registry will switch the services to secondary data centre until the primary site is recovered
- Database total failure
  - In the unlikely event of all interfaces in the database cluster failed, The Registry will switch the services to secondary hot database cluster site until the primary database cluster is recovered

## Scenario (Network and DDoS)

- DNS AnyCast Nodes Failure
  - Traffic will be redirected to other nodes
- Entire Primary DNS AnyCast provider services, network or servers failure
  - Secondary AnyCast provider still operate without interruption to the resolution
- Primary and secondary site under DDOS attack
  - Trigger DDOS protection scheme provided by TATA Group to mitigate the attack

Certain failure scenarios may not be at the hardware or infrastructure level. Below are some operational failures and the possible action plan:

## Scenario (Operation Center)

- Helpdesk system failure
  - Restore the system from backup within 2 hours
- Melt down of Registry Operational Centers in Singapore and Kuala Lumpur
  - Registry staffs will work remotely via VPN

## 3. Extraordinary Event

The Registry will use commercially reasonable efforts to restore the critical functions of the registry service within 24 hours after the termination of an extraordinary event beyond control of the Registry, and restore full system functionality within a maximum of 48 hours following such event, depending on the type of critical function involved.

Possible Scenario i. Total annihilation of registry operation team due to natural disaster or other events

Action Plan: ICANN shall trigger the backup registry operator to take over the Registry



## Appendix 3

Possible Scenario ii. Registry sustain major financial losses due to improper management or lawsuit

Action Plan: The Registry shall perform a down-sizing of the operation. If the situation still cannot be under control after budget cut, the Registry will arrange the backup registry operator to take over the Registry

#### 4. Business Continuity Plan

The Registry will maintain a business continuity plan, which provides maintenance of Registry Service in the event of an extraordinary beyond the control the Registry or business failure of the Registry (as highlighted in the previous section).

The Registry Continuity Plan main objective is to ensure continuity of registry operations. Based on the parameters defined above, the Registry will inform ICANN and Registrars of the timeline for return to normal operations and the status of the TLD zones.

For situation where registrants are affected, the Registry will provide notice to the community of the timeline for return to normal operations.

In the situation where the Registry is operational but financially unable to support the operation, the Registry will invoke the contingency plan to reduce operation cost and budget. Once the management decides to cease operation due to severe financial loss, the Registry will trigger the continuity plan by transferring the Registry to backup operations provider. The Registry shall inform ICANN under cover of full confidentiality unless otherwise agreed to by both parties.

#### Registry Service Continuity Provider

In compliance of Specification 6, the Registry shall have a contingency plan including the designation of a registry services continuity provider. The designated provider is Qinetics Solutions Berhad --- the outsourced registry service provider of the Registry ('Qinetics').

Address: Lot 2-2, incubator 1, technology park Malaysia, 57000 Kuala Lumpur, Malaysia.

In the case of extraordinary event beyond the control of the the Registry where the  
The Registry cannot be reached, the Registry consents that ICANN may contact

# Appendix 3

Qinetics.

## Best Practices for Business Continuity Information Sharing

The Registry shall share information for routine Situations as well as Events affecting the registry services with ICANN. The information will help all parties to understand risks and, if necessary, provide assistance to ensure continuity of essential services. Information that should be shared includes information about threats, vulnerabilities, incidents, protection and mitigation measures, and best practices. Information sharing can be viewed as a means by which to better manage risk and, in turn, help deter, prevent, mitigate, and respond to Events.

It is recognized that information sharing needs to take place in an environment of trust and confidentiality. Existing formats and mechanisms should be used for information exchange. as far as possible.

In order to facilitate effective communication during situation activities, The Registry will maintain a private directory of designated ICANN. The list of contact types include:

- Designated Point of Contact
- Technical Point of Contact
- Legal Point of Contact

The accuracy of the directory information shall be reviewed quarterly by the Registry, with notices sent to the designated prime contacts in the list. Each contact shall respond within 15 calendar days to the notice, affirming the accuracy of the provided information or providing updated information.

## Situation Handling and Event Management

The Registry will provide helpdesk for technical and customer service support via email and 24 by 7 phone support. A ticket will be created upon received of the problem reporting. The ticket will record the following information:

- The timeline of the situation (time occurred, time identified, events, etc)
- The Critical Function(s) involved,
- The identity of the party providing the notification,
- As much detail regarding the nature and impact of the situation as is available (and practically possible to collect).

## Severity Categories

The engineer on duty will categorize the level of problem severity and assign the appropriate level of support. The different severity levels, type of support personnel to be

# Appendix 3

assigned, response time, resolution time and frequency of update as attached.

## Support Tiers

There are three tiers of support differentiated by the experience and skill of the support personnel:

Tier-1 Support: Support is provided by system engineers on basic system issues, fault reports and diagnostics. Problems that cannot be resolved will be escalated to Tier-2.

Tier-2 Support: Support is provided by senior engineers. They provide in-depth investigation on areas affected by the problem. Problems that cannot be resolved will be escalated to Tier-3.

Tier-3 Support: Support is provided by support manager. Where circumstances dictate, experts from the equipment or third-party software vendors may be engaged or emergency response team may be triggered.

## Escalation Policy

For severity level 1 cases, the support manager shall inform the CEO on the issue via phone while he work on the issue and thereafter provide the necessary updates as per frequency of update. Notification shall be sent to ICANN and registrars as per the update interval on the table above.

For severity level 2 cases, the engineer on duty shall escalate to tier 2 engineer on the issue via phone. Tier 2 engineer will work on the issue and thereafter provide the necessary updates as per frequency of update to on duty tier 1 engineer. If the problem cannot be solved in the allocated timeframe, the issue will be escalated to the support manager.

For severity level 3 cases, on duty tier 1 engineer will resolve the problem and no escalation is required. Support manager will monitor the response time.

## Emergency Response Team

The decision to initiate the emergency response team will be made by joint decision of Support Manager and CEO. The crisis team will be initiated in events where there is public impact and the need for coordinated internal and external communications.

The emergency response team shall consist of:

- a. Channel Management Team
- b. Support Team
- c. Legal Advisor
- d. Other staff, as necessary

The Registry's CEO is the designated public spokesperson to coordinate with the emergency response team prior to making

# Appendix 3

public statements. Where the public is potentially impacted by an Event, a public awareness program may be implemented. The Registry shall inform registrars and ICANN of the Event in line with the negotiated agreements.

In a long-term Event, the Registry shall, in consultation with ICANN, examine the cause of the failure and whether the Event occurred as a result of technical, business/financial or other reasons.

## Testing for Business Continuity

The Registry will conduct business continuity and disaster recovery testing at least once a year. The Registry will provide information to ICANN on the business continuity and disaster recovery plan and the plan has been tested.

Testing Plan for HA, Compliance for Registry Continuity for critical Registry functions (e.g. EPP, WHOIS, DNS, DNSSEC)

The Registry shall arrange planned outage twice a year to perform the interruption failover plan testing. The first planned outage shall test for:

- Simulation of the shutting down of 1 server in the pair (e.g. shut down EPP1 while EPP2 remain operational) and ensure transactions still can be performed successfully
- Shutting down of IPS and ensure traffic still flow into the network
- Simulation of the shutting down of 1 firewall to ensure the active-active setup is still in place even after a firewall is down or restored and transactions are not affected
- Simulation of the shutting down of 1 load balancer to ensure the active-active setup is still in place even after a load balancer is down or restored and transactions are not affected
- Simulation of the shutting down of 1 switch to ensure the active-active setup is still in place even after a switch is down or restored and transactions are not affected
- Simulation of the shutting down of 1 database server to ensure the active-passive setup is triggered and the failover is done to the next database server and the failover is recovered on primary database is up again
- Simulate the failure of primary DNS. Record the time required to reconfigure Stealth DNS to resume primary DNS IP and time to recovery.
- Simulate case where hardware replacement is required. The engineers should know how to react, who to contact and record the response time
- Perform data recovery simulation from tape backup to the servers and record the time required to perform the recovery

# Appendix 3

The second planned outage shall test for:

- Simulate the roll over of services from primary data center to secondary data center. Record the time required to perform the switch and ensure all services are running fine in secondary data center
- Perform data recovery from secondary site to primary site and record the time required to perform the recovery. Record the data lost and the last available data in compare to the primary database to determine new RPO.
- Perform data recovery from data escrow agent and record the time required to perform the recovery. Record the data lost and the last available data in compare to the primary database to determine new RPO.

## Resource Plan for Implementation and Maintenance of Registry Continuity

Qinetics will deploy the Registry Service of the Registry using its existing system and infrastructure. The continuity planning has been done and provisioned during the new gTLD application response stage. The solution architect shall counter check implementation with the overall technical plan to ensure specification 6 of the new gTLD application guide book is satisfied. System administrator shall counter check to ensure registry services setup can run nicely in both data center. During fail over test in the implementation stage, RTO and RPO will be recorded and reviewed during yearly failover test. The application support engineers, system administrators, data center engineers, support manager, Database Administrator, Solution Architect, data escrow engineer and AnyCast DNS engineers will be involved in the fail over test. Throughout the process, a Project Manager is assigned to perform project management and overall control on the implementation.

During maintenance, the system administrator shall continue to perform response time check and health check on the system. The solution architect shall periodically review the continuity plan to ensure The Registry system can continue operation under various disaster scenarios. In case of disaster, emergency response team will react according to the failover plan if applicable. The outsourced party has committed 2 system administrators and 1 solution architect.

## Data Security and Data Escrow

The Registry will engage escrow services for escrow of registry data as per required by ICANN. The expectation of data escrow is to help restore or continue operation of a registry. Data escrow may be used to help ensure continuity of service in the event of

## Appendix 3

a technical failure of a registry.

The registry data escrow services engaged is conformed to the specification developed in consultation with gTLD Registry Technical teams as part of the draft Applicant Guidebook for the new gTLD process.

The Registry shall conduct the business continuity and disaster recovery testing by retrieving the data from data escrow agent once a year.

### Plan Review

The Registry shall periodically review the continuity plan and make modifications as necessary to stay current with registry practices. There should be a review of the plan following each exercise. Result of the review shall be documented and if required, implemented into new version of the continuity plan.

### 5. Transition of a TLD

A transition of a TLD is necessary when an event occurs that renders the Registry unable to execute critical registry functions and therefore unable, in the long term, to continue operation of the TLD. The Registry and ICANN shall cooperate in efforts to protect registrants, promote and facilitate the Security and Stability of the Internet and the DNS, and to accomplish the terms of the Registry agreement. A voluntary transition will occur under the cooperative terms of transition in the Registry agreement.

Once the Registry made a decision to transition the TLD, the Registry will work cooperatively with ICANN to facilitate and implement the transition of The Registry for the TLD in a reasonable timeframe, with notice to the community.

The Registry will trigger a transition to the designated backup Registry Provider. Transition will be complete following notification to the community and registrar testing.

More details of the Transition Plan is written in answer to Question 40.

**40. Registry Transition: provide a plan that could be followed in the event that it becomes necessary to transition the proposed gTLD to a new operator, including a transition process.**

The Registry has developed a Registry Transition Plan based on ICANN Registry Transition Process. The Registry has identified

## Appendix 3

Qinetics, its backend registry operator as the successor for the transition. The following process by ICANN may be triggered based on various possible scenarios:

- Registry Transition Process with proposed successor
- Registry Transition Process with Request For Proposals (RFP)
- Emergency Back-End Registry Operator Temporary Transition Process

The Registry Transition can be initiated by either the Registry or ICANN. The Registry may invoke the process if the business continue to make losses until evaluation of the business deem not viable during the term of assignment by ICANN or any other possible severe termination reasons. The Registry will study the possible alternate way including selling stakes and shares to investors for fund raising. Registry transition will be the last resort when all attempts to rescue the business failed. For such cases, the Registry will invoke either Registry Transition Process with proposed successor or Registry Transition Process with RFP.

The Registry may violate the terms of Registry Agreement or the services uptime breach ICANN guideline. ICANN will activate temporary Registry Transition Process if the Registry cannot remedy the breach within the given timeframe. If the Registry still cannot remedy with the given cure period, ICANN may require the Registry to initiate the Registry Transition Process with proposed successor or Registry Transition Process with RFP. Details of the above 3 processes are described below.

Registry Transition Process with proposed successor

The Registry will kick start this process if a registry transition is required. The Registry preferred to transfer the Registry to our Backend Registry Operator due to obvious reasons for security and stability. This option requires minimum impact to the whole registry system including DNS, WHOIS, SRS, DNSSEC and Escrow. The Registry will setup a registry transition team and prepare a detail project plan for the Registry transition. The project plan will consist of tasks starting from filing a request, monitoring of the transition and completion of transition. The Registry will file a request to ICANN for the front end registry entity change. The Registry transition process will not involve support check because the Registry is a generic TLD which doesn't form any part of a community.

ICANN will evaluate the proposed successor and enter into Registry Agreement with the Backend Registry Operator if approved. If the evaluation is rejected, the Registry will initiate Registry Transition Process with RFP to seek for new

## Appendix 3

successor.

Once approved, the successor will file a change in sponsoring organization to IANA. The Registry will stop all registry operation and freeze the domain state to facilitate the migration of entity and system. The Registry will pass all documents and information regarding the Registry operation to the successor.

After that, the Registry and the successor shall inform all relevant parties of the entity change.

The successor will then enter into new agreement with the AnyCast DNS provider, registrars and data escrow provider. the Registry will continue the payment to external providers until ICANN approve the successor and there after the successor shall handle the payment to the external providers.

The successor shall arrange a proper entity cut over date and provide a grace period for registrars to renew names which are freeze after the transition.

Registry Transition Process with Request For Proposals (RFP)  
In the event ICANN does not approve the proposed successor, the Registry will initiate this process with ICANN. The Registry will setup a registry transition team and prepare a detail project plan for the Registry transition. The Registry transition team will prepare the RFP according to current system specification. The project plan will consist of tasks starting from filing a request, monitoring of the transition and completion of transition. The Registry will perform necessary checks as per Registry Transition Process and identify the successor. If there is no response to the RFP, ICANN will invoke the TLD sunset process to close the gTLD.

If the successor is identified, the Registry will stop all registry operation and freeze domain state to facilitate the migration of entity and system. The successor will file a change in sponsoring organization to IANA. The Registry will pass all documents and information regarding the Registry operation to the successor. If the successor decides to use the existing backend registry operator, there will be minimum changes to the Registry system.

If there is a change in backend registry operator, the Registry existing backend registry operator shall provide the latest copy of DNS, DNSSEC, SRS, WHOIS and Escrow data to the new backend registry operator to facilitate the migration, please refer to service migration plan section. Once the successor pass the pre-



## Appendix 3

delegation test, the new operator will change the sponsoring organization in IANA, perform migration and issue DNS and WHOIS change to IANA.

### Emergency Back-End Registry Operator Temporary Transition Process

This process will be used by the Registry and ICANN primarily when two conditions are met: (1) the Registry is in breach of its Registry Agreement and (2) a Critical Function is being performed below the Emergency Thresholds, as defined in the Registry Agreement, resulting in a situation of unacceptable risk.

ICANN will initiate the selection of Emergency Back-End Registry Operator (EBERO) and draw the funds from the Registry Continued Operations Instruments to support the operation of the EBERO. As soon as ICANN selects the Emergency Operators, ICANN will offer a lightweight Registry-Registrar Agreement to all registrars that will enable the Emergency Operators to perform SRS functions during a temporary transition process. At this point, the Registry has loose its control over the Registry.

The Registry will restore the Registry back to normal operation as soon as possible. Once the Registry is ready to resume operations and has remedied all issues that may have caused it to be in breach, the Registry will initiate a Registry Transition Process with proposed successor in order to regain control of gTLD operations before the expiry of the cure period for the breach. The Registry will then initiate the service migration plan.

### Service Migration Plan

#### Migration to New Operator

The Registry will setup a registry transition team and prepare a detail project plan for the Registry transition. The project plan will consist of tasks starting from filing a request, monitoring of the transition and completion of transition. Once the Registry transition process is approved, the Registry will stop all operations and the domain life cycle in the Registry System. The Registry transition team will work closely with the project team from the new operator to coordinate the transition. At this stage, the Successor has been recorded as organization for the Registry. As such, the Registry will stop accepting new domains, renewals, transfers, deletion or modifications.

If the successor intends to change backend operator, the following will applied. The Registry will forward the last generate zone files after operation stopped to facilitate quick

## Appendix 3

transfer of DNS services. The Registry will generate a copy of data in escrow format together with registrar data after shutdown of the operation so that new operator can easily import the data into their system. The Registry transition team will arrange a series of meetings with the new operator project team to detail out the services which needs to migrate and the policies applied. This gap analysis will be done to ensure all registry services component are moved to the new operator without any impact to the registrant or registrars.

The new operator shall prepare its registry platform, prepare for any additional services their platform has not catered and setup the required hardware if necessary. The new operator will then import the data into their system and perform initial testing. The new operator shall ensure the data received can be generated into the zones and the zones generated is tally with the last generated zone files forwarded by the Registry as well as the rest of data such as WHOIS information and data escrow files.

Once the new operator is satisfied with the internal test result, the pre-delegation testing will be initiated. During this stage, ICANN will perform the verification and the Registry will assist ICANN if requested. Once the new operator passes the pre-delegation testing, the new operator will perform migration to the new production system.

The Registry will help to verify and ensure all domains in the registry system are resolve properly in the new system. The Registry will run the zone conciliation script to counter check the zones in new operator DNS system with the data in the the Registry system to ensure consistency. The Registry will verify the WHOIS information to ensure the correct information are migrated to the new operator platform. The Registry will ensure the data are deposited by the new operator to the escrow agent using ICANN approved format. Lastly, the Registry will monitor the implementation based on the gap analysis documents done during initial discuss to ensure all gaps are implemented as discussed.

If the new operator failed the pre-delegation testing, the reason of failure will be made known to the new operator and cure period will be given for the new operator to rectify the problems. Once new operator is deem ready for pre-delegation testing, the process for checking during pre-delegation will be reinitiated. If the new operator continue to fail the pre-delegation test repeatedly, a decision shall be made to engage another operator based on predefined registry transition process

## Appendix 3

or provide a final cure period.

Once verification is done, the new operator shall arrange OTE test session with the existing registrars. This will ensure the registrars have sufficient time to prepare for the transit and code their system accordingly. The new operator shall ensure all existing registrar pass the OTE test before proceed to next stage.

Once the pre-delegation test and registrar OTE test are completed, the Registry Transition is considered complete and the Registry will be removed from the transition process. The new operator will file DNS change to IANA and cut over the system.

New operator shall arrange sufficient time for registrars to renew freeze domains during the transition period to ensure these names will not immediately drop after the transition.

### Migration to EBERO

Under extreme situation such as catastrophic disaster occur in whole Asia, it is possible the whole registry management team is no longer exist. Under this situation, ICANN will have to take over the Registry transition team's role. Under normal circumstances, the Registry will setup a registry transition team and prepare a detail project plan for the Registry Transition. The project plan will consist of tasks starting from freezing services, monitoring of the transition and completion of transition. Typically EBERO operator will not handle any additional services other than DNS, DNSSEC, WHOIS, data Escrow and SRS as per required by ICANN. This service migration will only cater for the 5 critical functions as defined by ICANN only. Thus gap analysis are not required for this temporary transition.

Once EBERO is activated the Registry will stop accepting new domains, renewals, transfers, deletion or modifications. ICANN will assign a light-weighted Registry Registrar Agreement and inform registrars on the changes. The Registry will email registrars to explain the situation and introduce the EBERO to the registrars for exceptional case handling.

The Registry will forward the last known good zone files to facilitate quick transfer of DNS services. The Registry will generate a copy of data in escrow format after shutdown of the operation so that EBERO can easily import the data into their system. In situation where the last know zone files are not available or data cannot be generated, the Registry or ICANN

## Appendix 3

will retrieve the last known good records from Escrow Service Provider.

After this, the pre-delegation testing will be initiated by EBERO. After that, ICANN security team will perform the verification and ensure all domains in The Registry system are resolve properly in the new system. The Registry will help to verify and ensure all domains in the registry system are resolve properly in the new system. The Registry will run the zone conciliation script to counter check the zones in EBERO operator DNS system with the data in the The Registry system to ensure consistency. The Registry will verify the WHOIS information to ensure the correct information are migrated to the EBERO operator platform. The Registry will ensure the data are deposited by the EBERO operator to the escrow agent using ICANN approved format.

Once the EBERO pass the pre-delegation testing, the Registry Transition is considered complete and the Registry will be removed from the transition process after the pre-delegation testing. EBERO will file the DNS change to IANA to complete system cut over. EBERO will then inform the registrars of completion of the transition.

If the EBERO failed the pre-delegation testing, the reason of failure will be made known to the EBERO and cure period will be given for the EBERO to rectify the problems. Once EBERO is deem ready for pre-delegation testing, the process for checking during pre-delegation will be reinitiated. If the EBERO continue to repeatedly fail the pre-delegation test, a decision shall be made to engage EBERO based on predefined registry transition process or provide a final cure period.

Typically, EBERO will not accept new domains, domain renewals, domain transfers, or domain name deletions from registrars. However, under exceptional cases the aforementioned operations will be accepted, e.g., under the Expedited Registry Security Request<sup>5</sup>, UDRP, or any other ICANN domain name dispute resolution procedures. Bulk domain transfers can be approved by ICANN for domains sponsored by registrars that no longer can service them (e.g., registrar has been de-accredited).

EBERO will not expire registrations or auto-renew them; and will include in the RDDS (e.g., WHOIS) output a short explanation (approved by ICANN) atop the legal disclaimer (if any) as described in section 1.1 of Specification 4 of the Registry Agreement of why the expiry date is in the past. The rest of the standard domain name, contact, and host (RFC 5730-34, 5910) SRS

## Appendix 3

operations will be allowed. The Emergency Operator will work with all the accredited registrars that have domains under sponsorship in the gTLD.

During EBERO period, the Registry transition team shall work closely with current outsourcing provider to solve any breaches immediately either contractual or services. Once breaches are resolved, the Registry transition team shall initiate the service migration plan from EBERO.

### Migration from EBERO

The Registry will file the Registry Transition Process where the successor will be the Registry once the Registry resumes operation. Upon approval, the EBERO agent shall provide the updates/changes done during the emergency period so that the Registry can patch back the records.

After that, the pre-delegation testing will be initiated and ICANN will cross check to ensure the integrity of the patched system and records in EBERO registry system. Once approved, the Registry will issue a change of organization to IANA and announce the time to resume operation. During the actual cut over date, the Registry will initiate change of DNS to IANA and inform registrars on the completion of transition.

Once operation is resumed, registrars and registrants will be given one month to renew the domain name. One month later, the domain life cycle will resume and names will start to drop out from zones as per normal.

**41. Failover Testing: provide a description of the failover testing plan, including mandatory annual testing of the plan. Examples may include a description of plans to test failover of data centers or operations to alternate sites, from a hot to a cold facility, or registry data escrow testing. Describe resourcing plans (number and description of personnel roles allocated to this area).**

The Registry intends to conduct an annual registry competency test to pro-actively check the effectiveness of its failover plan. Several types of tests are to be performed as the Registry matures and grows bigger, which are the structured walk-through, checklist, simulation, parallel and full-interruption tests. The different types of tests are explained below in details:

### Structured Walk-through

In a structure walk-through test, the team members involved in

## Appendix 3

disaster recovery have to meet and go through the specific steps of each component in the disaster recovery process as documented in the failover plan. The purpose of this test is to confirm the effectiveness of the plan and identify gaps, bottlenecks or any other weakness in the plan.

### Checklist

In the checklist test, supplies at the backup site are checked if they are sufficient, telephone number listing of key project members are valid, a copy of the failover plan and operational manuals are available. The team members review the plan and identify key components that should be current and available in the checklist test. It ensures that the organization complies with the requirements of the failover plan.

The structured walk-through and checklist test is to be used in conjunction with one another during the early stages to determine modifications to the plan before more extensive tests are performed.

### Simulation

The team members simulate a disaster in this test so as not to affect normal operations. The test should take the following factors into consideration: purpose, objectives, timing, scheduling, duration, test participants, assignments, constraints, assumptions and test steps. The test can include notification procedures, temporary operating procedures, backup and recovery operations. All elements such as hardware, software, personnel, communications, procedures, transportation, utilities and secondary site processing should be thoroughly tested during the simulation.

However, it may not be possible to test out transportation for example during a simulation.

### Interruption Test

The interruption test activates the failover plan, which is costly and could disrupt normal operations. Adequate time must be allocated for the testing and the duration must be predetermined to ensure adequate response time. The type of disaster, extent of damage, recovery capability, staffing and equipment availability, and backup resource availability should be planned as part of the disaster scenario. The personnel required and the time required for each task should also be planned in advance.

This test can be used to identify the workability of each part before attempting a full test as well.

# Appendix 3

## Failover Test Methodology

The Registry will run annual tests using a mixture of the methods above to ensure that the failover tests are effective.

All events are logged in the tests to help evaluate the results. The results in turn will provide feedback to ensure that the failover plan is adequate and provide confidence and experience necessary to deal with a real emergency.

The testing method to be used and the frequency of testing is detailed in a table as attached.

## Failover Test Plan

### Key Contacts

This section of list the key players who will be critical to the execution of the Registry failover plan. The listing serves as a quick reference guide for who to call in case of a contingency.

### Basic Contact Information

#### 1. Key Personnel (Registry System):

- Application Support Engineers
  - o Name : Cheong Khoi Peng
  - o Company : Qinetics Solutions Berhad
  - o Contact Number : **Contact Information Redacted**
  - o Address : **Contact Information Redacted**

## Contact Information Redacted

- o Name : Danny Chan Pak Keong
- o Company : Qinetics Solutions Berhad
- o Contact Number : **Contact Information Redacted**
- o Address : **Contact Information Redacted**

### Contact Information Redacted

- System Administrator
  - o Name : Kent Lee
  - o Company : Qinetics Solutions Berhad
  - o Contact Number : **Contact Information Redacted**
  - o Address : **Contact Information Redacted**

### Contact Information Redacted

- o Name : Steve Khoo
- o Company : Qinetics Solutions Berhad
- o Contact Number : **Contact Information Redacted**
- o Address : **Contact Information Redacted**

### Contact Information Redacted

## Appendix 3

- Support Manager
    - Name : Danny Chan Chuan Bin
    - Company : Qinetics Solutions Berhad
    - Contact Number : **Contact Information Redacted**
    - Address : **Contact Information Redacted**
- Contact Information Redacted

- CEO
  - Name : Asvin Asvinvichit
  - Company : Better Living Management Company Limited
  - Contact Number : **Contact Information Redacted**
  - Address : **Contact Information Redacted**

- VP, Policy and Business Development:
  - Name : Kum Ying Hao Lester
  - Company : Better Living Management Company Limited
  - Contact Number : **Contact Information Redacted**
  - Address : **Contact Information Redacted**

Contact Information Redacted

- Manager, Operations:
  - Name : Pansak Srisub
  - Company : Better Living Management Company Limited
  - Contact Number : **Contact Information Redacted**
  - Address : **Contact Information Redacted**

Contact Information Redacted

2. First Responders. This list identifies the main emergency operator number, fire, medical services and maintenance services that will be needed to restore vital services:

- Hardware vendor
    - Name : Eric Fan
    - Company : udomain pte ltd
    - Contact Number : **Contact Information Redacted**
    - Address : **Contact Information Redacted**
- Contact Information Redacted
- Fire department : 999
  - Medical services: 911

3. Key Stakeholders. List of key entities the organization may need assistance from or provide information to during an event:

- ICANN Registry Liaison
  - Name : To be filled later
  - Contact Number : To be filled later
  - Address : To be filled later



# Appendix 3

- ICANN Security Department

- Name : To be filled later
- Contact Number : To be filled later
- Address : To be filled later

- SingCERT

- Name : **Contact Information Redacted**
- Contact Number :
- Address :

Contact Information Redacted

- HKCERT

- Name : SC Leong
- Contact Number : Contact Information Redacted

4. Key Customers. The List of registrars will be retrieved from SRS system. If SRS system is not available, the information can be retrieved from Channel Management Department's CRM system.

5. Key Vendors. List of key vendors the Registry will turn to during a recovery effort for either resupply or replacement of expertise, inventory, and equipment. This includes contracted off-site data centers.

- Data Center Operator

- Name : Eric Fan
- Company : udomain pte ltd
- Contact Number : **Contact Information Redacted**
- Address : **Contact Information Redacted**  
Contact Information Redacted

- Anycast Operator

- Name : James Steven
- Company : CommunityDNS
- Contact Number : **Contact Information Redacted**
- Address : **Contact Information Redacted**  
Contact Information Redacted

- Escrow Operator

- Name : Tom Scopazzi
- Company : NCC Group
- Contact Number : **Contact Information Redacted**
- Address : **Contact Information Redacted**

Contact Information Redacted

## Organization

### 1. Systems Overview.

The list detailing the system components and outsourcing vendor is as follows:

#### SRS

- Shared Registry System which inclusive of WEB and EPP (Qinetics)

# Appendix 3

DNS and DNSSEC

- Domain Resolution Services (CommunityDNS)

WHOIS

- Contact Directory Services (Qinetics)

Data Escrow

- Data Escrow Services (NCC Group)

Database

- Central Data Repository (Qinetics)

Helpdesk

- 24 x customer support (Qinetics)

Mail Server

- Email system for the Registry correspondence and support (Qinetics)

Tape Backup

- Tape library used to backup all the data in the servers (Data Center)

Monitoring System

- Inclusive of services, network and database monitoring (Qinetics)

Detail system description and setup is available in System Setup Document.

2. Recall Roster. This section contains the registry organization chart, name and contact information. The chart is used as a notification chart for situations where expedient communications means – such as phone, fax, and email – are unavailable.

The contact information will be filled once recruitment processes completed.

3. Critical System Name. This section describes the Critical Processes / Functions / Assets/ Key Lists required for the Registry operation. The table detailing the identified risks and mitigations is attached.

Test Scenarios

Node Interruption Test:

- Simulation of the shutting down of 1 server in the pair (e.g. shut down EPP1 while EPP2 remain operational) and ensure transactions still can be performed successfully
- Shutting down of IPS and ensure traffic still flow into the network
- Simulation of the shutting down of 1 firewall to ensure the active-active setup is still in place even after a firewall is down or restored and transactions are not affected
- Simulation of the shutting down of 1 load balancer to ensure

# Appendix 3

the active-active setup is still in place even after a load balancer is down or restored and transactions are not affected

- Simulation of the shutting down of 1 switch to ensure the active-active setup is still in place even after a switch is down or restored and transactions are not affected
- Simulation of the shutting down of 1 Web Server, 1 EPP server, 1 WHOIS server to ensure the balance node is still in place and transactions are not affected
- Simulation of the shutting down of 1 database server to ensure the active-passive setup is triggered and the failover is done to the next database server and the failover is recovered on primary database is up again
- Simulate the failure of primary DNS. Record the time required to reconfigure Stealth DNS to resume primary DNS IP and time to recovery.
- Simulate case where hardware replacement is required. The engineers should know how to react, who to contact and record the response time
- Perform data recovery simulation from tape backup to the servers and record the time required to perform the recovery

## Site Interruption Test:

- Simulate the roll over of services from primary data center to secondary data center. Record the time required to perform the switch and ensure all services are running fine in secondary data center
- Perform data recovery from secondary site to primary site and record the time required to perform the recovery. Record the data lost and the last available data in compare to the primary database to determine new RPO.
- Perform data recovery from data escrow agent and record the time required to perform the recovery. Record the data lost and the last available data in compare to the primary database to determine new RPO.

## Testing Sequence

### Quarter 1:

Re-evaluate this checklist to identify changes to the key contacts, vendors, and risk list and mitigation steps. Readjust the steps for testing in Quarter 3 and Quarter 4 below.

### Quarter 2:

Based on the updated checklist, run simulation to contact all relevant parties to simulate as if there is a major break down in the system and record:

- Initiation Point
- Key Person Responded
- Response time

# Appendix 3

Pre inform the parties there will be a drill in the coming 1-2 weeks but not giving key person the exact date.

## Quarter 3:

Perform the node interruption steps in accordance to the test scenarios formulated from the risk identify in the risk table.

## Quarter 4:

Perform the Site interruption steps according to test senarios. Prepare closure report and document lesson learnt for discussion in Quarter 1 next year.

## Resource Plan

The fail over test plan will be executed for testing before deployment of system. The application support engineers, system administrators, data center engineers, support manager, Database Administrator, Solution Architect, data escrow engineer and AnyCast DNS engineers will be involved in the first fail over plan test run. Throughout the process, a Project Manager is assigned to perform project management and overall control on the implementation. The failover plan and testing is estimated to be completed in 1 month.

The system will be in maintenance mode after the system is deployed. The failover test plan will be tested yearly. The outsourced party has committed 2 application support engineers, 2 system administrators, 4 data center engineers, support manager, Database Administrator, Solution Architect, data escrow engineer and 2 AnyCast DNS engineers to run the failover test yearly.

42. Monitoring and Fault Escalation Processes: provide a description of the proposed (or actual) arrangements for monitoring critical registry systems (including SRS, database systems, DNS servers, Whois service, network connectivity, routers and firewalls). This description should explain how these systems are monitored and the mechanisms that will be used for fault escalation and reporting, and should provide details of the proposed support arrangements for these registry systems. Describe resourcing plans (number and description of personnel roles allocated to this area).

## 1 Monitoring and Fault Escalation

The registry system will be monitored from 2 locations. The service monitoring server in primary site will be checking the services in the secondary site. The service monitoring server in secondary site will be checking the services in the primary site. The traffic will be monitored within the data center

# Appendix 3

network. The databases in primary and secondary sites will be monitored in the primary data center.

## 1.1 Hardware

Hardware statuses are namely:

- Host up/down
- CPU load
- Storage Space
- Firewall
- Load Balancer
- Router

## 1.2 Software

The following software services will be monitored:

- Webservers
- Database Servers
- EPP Servers
- WHOIS Daemons
- DNS servers
- Mail Servers
- Cron-job Server

## 1.3 System Access

All user access, especially the login attempt failure, will be logged and monitored. This information allows the system administrator to identify potential hacking or unauthorized access that going onto the system.

## 2 Services Monitoring Tool

Nagios (<http://www.nagios.org/>), an Open Source host, service and network monitoring program, is the tool used to perform the monitoring.

## 3 Monitoring Approaches

### 3.1 Monitoring Implementation

The Nagios daemon is setup in the monitoring server in primary and secondary sites. The role of Nagios daemon is act as a centralized intelligence to gather and process information from all monitored machines.

The Nagios daemon alone is not able to perform the monitoring service. It has to work together with the Nagios plug-ins installed in the individual servers. Nagios plug-ins is executable scripts that perform various types of checking on a machine. For example, the script "check\_disk" returns the storage usage of the machine and "check\_http" that returns status of the web service.

On each server, a NRPE daemon is installed. The NRPE daemon acts

# Appendix 3

as a proxy to process information between the plug-ins and the centralized Nagios daemon on NMS. The attached illustration shows the monitoring architecture.

## 3.2 Nagios Monitoring Output

The following output will be generated:

Email Notification - When problems are encountered or certain a pre-set criterion has been met, the Nagios daemon will send notifications to inform technical support team via email. This allows the support personnel in charge to take immediate action to investigate the problem.

Monitoring Log / Data - Server and network condition will be recorded continuously. This useful information is presented in text-based log files, such as nagios.log (Nagios server log), host-perfdata.dat (host monitoring result log) and service-perfdata.dat (service monitoring result log). The latest monitoring status can also be viewed through the Nagios web panel.

## 4 Monitoring Level Configuration

The entire monitoring process of Nagios is controlled by a set of server-side configuration files stored in network monitoring server as well as an agent configuration file in every node under monitoring.

Configurations of the entire service monitoring plan have been summarized and stated in the attached table.

## 5 Traffic Monitoring Tool

The Multi Router Traffic Grapher (MRTG) is a tool to monitor the traffic load on network links. MRTG generates HTML pages containing PNG images which provide a LIVE visual representation of this traffic.

### 5.1 Monitoring Approaches

All servers will be installed with SNMP package. The MRTG program will be installed in the monitoring server to collect information from all servers and routers. The information will then be published into the web GUI for analysis. The support team will be able to see daily, weekly, monthly and yearly traffic graph for each servers as well as total traffic from the router.

Some diagrams illustrating the graphs is attached.

## 6 Database Monitoring Tool

The MySQL Enterprise Monitor continuously monitors MySQL servers

# Appendix 3

and alerts potential problems before they impact the system. The tool recommends best practices to eliminate security vulnerabilities, improve replication, optimize performance and more.

## 6.1 Monitoring Approaches

MySQL Enterprise Monitor comprised of a centralized Service Manager and lightweight Service Agent this is installed on each monitored MySQL server. It auto-discovers and groups the Replication topologies and allows viewing of the status of all Master/Slaves from a single console. Threshold driven alerts are available to alert support engineers through email when any system parameter hits critical level.

## 7 Fault Response Team

The support engineer will be stationed at the monitoring workstation and eye ball the services availability and health of the entire registry system on shift basis 24 x 7. Once abnormality is observed, the support engineer will log a problem ticket according to the escalation policy in the support framework according to response in question 39. At any time, minimum 3 person will be available to provide technical support.

The support manager will be notified on every alert through mobile phone. The support manager worked as a cross checking node to ensure issues are logged, reported and escalated.  
Resource Plan

Qinetics will deploy the Registry Service of the Registry using its existing system and monitoring infrastructure. The assigned system administrator will configure the probes into the registry system. Once done, the Test Engineer will perform rigorous testing procedures to ensure the monitoring performs according to specifications. Upon the testing is fully completed, the probes shall be hand-over to System Administrator to perform deployment to production environment. Throughout the process, a Project Manager is assigned to perform project management and overall control on the implementation. The monitoring setup shall be completed within 2 weeks.

The system will be in maintenance mode after the System is deployed. The system shall send alerts to system administrator. Whenever there is a support ticket, System Administrator will further escalate the support request base on severity. The emergency response team will be triggered whenever there is a catastrophe scenario at the highest severity.

Once a remedy is identified, Test Engineer will perform testing

## Appendix 3

on the fixes before deployment by System Administrator. During maintenance, the outsourced party has committed 4 data center engineers, 2 application support engineers, 1 support manager, 1 test engineer, 1 database administrator and 2 system administrators.

Organisational Chart of Maintenance Team

A diagram of the organisational chart of the maintenance team is attached.

During Maintenance mode, the registry system will be supported by the support manager of Qinetics with a team of resources handling application, database and system support. A first level helpdesk is available to handle general enquiries on a 24x7 basis. The Support Manager will be the command center to communicate with Data center, esrow and anycast DNS engineers for any potential fault. The support manager will work closely with the Registry policy manager and operation manager for effective communications.

The Support Manager, Policy Manager and Operation Manager are members of Emergency Response Team (ERT). The maintenance team are responsible to carry out yearly fault tolerant test and execution of business continuity plan.

**42. Monitoring and Fault Escalation Processes: provide a description of the proposed (or actual) arrangements for monitoring critical registry systems (including SRS, database systems, DNS servers, Whois service, network connectivity, routers and firewalls). This description should explain how these systems are monitored and the mechanisms that will be used for fault escalation and reporting, and should provide details of the proposed support arrangements for these registry systems. Describe resourcing plans (number and description of personnel roles allocated to this area).**

The Registry intends to conduct an annual registry competency test to pro-actively check the effectiveness of its failover plan. Several types of tests are to be performed as the Registry matures and grows bigger, which are the structured walk-through, checklist, simulation, parallel and full-interruption tests. The different types of tests are explained below in details:

Structured Walk-through

In a structure walk-through test, the team members involved in disaster recovery have to meet and go through the specific steps of each component in the disaster recovery process as documented in the failover plan. The purpose of this test is to confirm the



# Appendix 3

effectiveness of the plan and identify gaps, bottlenecks or any other weakness in the plan.

## Checklist

In the checklist test, supplies at the backup site are checked if they are sufficient, telephone number listing of key project members are valid, a copy of the failover plan and operational manuals are available. The team members review the plan and identify key components that should be current and available in the checklist test. It ensures that the organization complies with the requirements of the failover plan.

The structured walk-through and checklist test is to be used in conjunction with one another during the early stages to determine modifications to the plan before more extensive tests are performed.

## Simulation

The team members simulate a disaster in this test so as not to affect normal operations. The test should take the following factors into consideration: purpose, objectives, timing, scheduling, duration, test participants, assignments, constraints, assumptions and test steps. The test can include notification procedures, temporary operating procedures, backup and recovery operations. All elements such as hardware, software, personnel, communications, procedures, transportation, utilities and secondary site processing should be thoroughly tested during the simulation.

However, it may not be possible to test out transportation for example during a simulation.

## Interruption Test

The interruption test activates the failover plan, which is costly and could disrupt normal operations. Adequate time must be allocated for the testing and the duration must be predetermined to ensure adequate response time. The type of disaster, extent of damage, recovery capability, staffing and equipment availability, and backup resource availability should be planned as part of the disaster scenario. The personnel required and the time required for each task should also be planned in advance.

This test can be used to identify the workability of each part before attempting a full test as well.

## Failover Test Methodology

The Registry will run annual tests using a mixture of the methods above to ensure that the failover tests are effective.

# Appendix 3

All events are logged in the tests to help evaluate the results. The results in turn will provide feedback to ensure that the failover plan is adequate and provide confidence and experience necessary to deal with a real emergency.

The testing method to be used and the frequency of testing is detailed in a table as attached.

## Failover Test Plan

### Key Contacts

This section of list the key players who will be critical to the execution of the Registry failover plan. The listing serves as a quick reference guide for who to call in case of a contingency.

### Basic Contact Information

#### 1. Key Personnel (Registry System):

- Application Support Engineers
  - o Name : Cheong Khoi Peng
  - o Company : Qinetics Solutions Berhad
  - o Contact Number : **Contact Information Redacted**
  - o Address : **Contact Information Redacted**

## Contact Information Redacted

- o Name : Danny Chan Pak Keong
- o Company : Qinetics Solutions Berhad
- o Contact Number : **Contact Information Redacted**
- o Address : **Contact Information Redacted**

## Contact Information Redacted

- System Administrator
  - o Name : Kent Lee
  - o Company : Qinetics Solutions Berhad
  - o Contact Number : **Contact Information Redacted**
  - o Address : **Contact Information Redacted**

## Contact Information Redacted

- o Name : Steve Khoo
- o Company : Qinetics Solutions Berhad
- o Contact Number : **Contact Information Redacted**
- o Address : **Contact Information Redacted**

## Contact Information Redacted

- Support Manager
  - o Name : Danny Chan Chuan Bin
  - o Company : Qinetics Solutions Berhad

## Appendix 3

- o Contact Number : Contact Information Redacted
- o Address : Contact Information Redacted

Contact information Redacted

- CEO
  - o Name : Asvin Asvinvichit
  - o Company : Better Living Management Company Limited
  - o Contact Number : Contact Information Redacted
  - o Address : Contact Information Redacted

- VP, Policy and Business Development:
  - o Name : Kum Ying Hao Lester
  - o Company : Better Living Management Company Limited
  - o Contact Number : Contact Information Redacted
  - o Address : Contact Information Redacted

Contact information Redacted

- Manager, Operations:
  - o Name : Pansak Srisub
  - o Company : Better Living Management Company Limited
  - o Contact Number : Contact Information Redacted
  - o Address : Contact Information Redacted

2. First Responders. This list identifies the main emergency operator number, fire, medical services and maintenance services that will be needed to restore vital services:

- Hardware vendor
  - o Name : Eric Fan
  - o Company : udomain pte ltd
  - o Contact Number : Contact Information Redacted
  - o Address : Contact Information Redacted
- Fire department : 999
- Medical services: 911

3. Key Stakeholders. List of key entities the organization may need assistance from or provide information to during an event:

- ICANN Registry Liaison
  - o Name : To be filled later
  - o Contact Number : To be filled later
  - o Address : To be filled later
- ICANN Security Department
  - o Name : To be filled later
  - o Contact Number : To be filled later

## Appendix 3

- o Address : To be filled later
    - SingCERT
  - o Name : Contact Information Redacted
  - o Contact Number :
  - o Address :
- Mapletree Business City
- HKCERT
  - o Name : SC Leong
  - o Contact Number : Contact Information Redacted

4. Key Customers. The List of registrars will be retrieved from SRS system. If SRS system is not available, the information can be retrieved from Channel Management Department's CRM system.

5. Key Vendors. List of key vendors the Registry will turn to during a recovery effort for either resupply or replacement of expertise, inventory, and equipment. This includes contracted off-site data centers.

- Data Center Operator
  - o Name : Eric Fan
  - o Company : udomain pte ltd
  - o Contact Number : Contact Information Redacted
  - o Address : Contact Information Redacted
- Anycast Operator
  - o Name : James Steven
  - o Company : CommunityDNS
  - o Contact Number : Contact Information Redacted
  - o Address : Contact Information Redacted
- o Name : Tom Scopazzi
- o Company : NCC Group
- o Contact Number : Contact Information Redacted
- o Address : Contact Information Redacted

Contact Information Redacted

### Organization

#### 1. Systems Overview.

The list detailing the system components and outsourcing vendor is as follows:

#### SRS

- Shared Registry System which inclusive of WEB and EPP (Qinetics)

#### DNS and DNSSEC

- Domain Resolution Services (CommunityDNS)

#### WHOIS

# Appendix 3

- Contact Directory Services (Qinetics)
- Data Escrow
  - Data Escrow Services (NCC Group)
- Database
  - Central Data Repository (Qinetics)
- Helpdesk
  - 24 x customer support (Qinetics)
- Mail Server
  - Email system for the Registry correspondence and support (Qinetics)
- Tape Backup
  - Tape library used to backup all the data in the servers (Data Center)
- Monitoring System
  - Inclusive of services, network and database monitoring (Qinetics)

Detail system description and setup is available in System Setup Document.

2. Recall Roster. This section contains the registry organization chart, name and contact information. The chart is used as a notification chart for situations where expedient communications means – such as phone, fax, and email – are unavailable.

The contact information will be filled once recruitment processes completed.

3. Critical System Name. This section describes the Critical Processes / Functions / Assets/ Key Lists required for the Registry operation. The table detailing the identified risks and mitigations is attached.

## Test Scenarios

### Node Interruption Test:

- Simulation of the shutting down of 1 server in the pair (e.g. shut down EPP1 while EPP2 remain operational) and ensure transactions still can be performed successfully
- Shutting down of IPS and ensure traffic still flow into the network
- Simulation of the shutting down of 1 firewall to ensure the active-active setup is still in place even after a firewall is down or restored and transactions are not affected
- Simulation of the shutting down of 1 load balancer to ensure the active-active setup is still in place even after a load balancer is down or restored and transactions are not affected
- Simulation of the shutting down of 1 switch to ensure the

# Appendix 3

active-active setup is still in place even after a switch is down or restored and transactions are not affected

- Simulation of the shutting down of 1 Web Server, 1 EPP server, 1 WHOIS server to ensure the balance node is still in place and transactions are not affected
- Simulation of the shutting down of 1 database server to ensure the active-passive setup is triggered and the failover is done to the next database server and the failover is recovered on primary database is up again
- Simulate the failure of primary DNS. Record the time required to reconfigure Stealth DNS to resume primary DNS IP and time to recovery.
- Simulate case where hardware replacement is required. The engineers should know how to react, who to contact and record the response time
- Perform data recovery simulation from tape backup to the servers and record the time required to perform the recovery

## Site Interruption Test:

- Simulate the roll over of services from primary data center to secondary data center. Record the time required to perform the switch and ensure all services are running fine in secondary data center
- Perform data recovery from secondary site to primary site and record the time required to perform the recovery. Record the data lost and the last available data in compare to the primary database to determine new RPO.
- Perform data recovery from data escrow agent and record the time required to perform the recovery. Record the data lost and the last available data in compare to the primary database to determine new RPO.

## Testing Sequence

### Quarter 1:

Re-evaluate this checklist to identify changes to the key contacts, vendors, and risk list and mitigation steps. Readjust the steps for testing in Quarter 3 and Quarter 4 below.

### Quarter 2:

Based on the updated checklist, run simulation to contact all relevant parties to simulate as if there is a major break down in the system and record:

- Initiation Point
- Key Person Responded
- Response time

Pre inform the parties there will be a drill in the coming 1-2 weeks but not giving key person the exact date.

# Appendix 3

## Quarter 3:

Perform the node interruption steps in accordance to the test scenarios formulated from the risk identify in the risk table.

## Quarter 4:

Perform the Site interruption steps according to test senarios. Prepare closure report and document lesson learnt for discussion in Quarter 1 next year.

## Resource Plan

The fail over test plan will be executed for testing before deployment of system. The application support engineers, system administrators, data center engineers, support manager, Database Administrator, Solution Architect, data escrow engineer and AnyCast DNS engineers will be involved in the first fail over plan test run. Throughout the process, a Project Manager is assigned to perform project management and overall control on the implementation. The failover plan and testing is estimated to be completed in 1 month.

The system will be in maintenance mode after the system is deployed. The failover test plan will be tested yearly. The outsourced party has committed 2 application support engineers, 2 system administrators, 4 data center engineers, support manager, Database Administrator, Solution Architect, data escrow engineer and 2 AnyCast DNS engineers to run the failover test yearly.

42. Monitoring and Fault Escalation Processes: provide a description of the proposed (or actual) arrangements for monitoring critical registry systems (including SRS, database systems, DNS servers, Whois service, network connectivity, routers and firewalls). This description should explain how these systems are monitored and the mechanisms that will be used for fault escalation and reporting, and should provide details of the proposed support arrangements for these registry systems. Describe resourcing plans (number and description of personnel roles allocated to this area).

## 1 Monitoring and Fault Escalation

The registry system will be monitored from 2 locations. The service monitoring server in primary site will be checking the services in the secondary site. The service monitoring server in secondary site will be checking the services in the primary site. The traffic will be monitored within the data center network. The databases in primary and secondary sites will be monitored in the primary data center.

# Appendix 3

## 1.1 Hardware

Hardware statuses are namely:

- Host up/down
- CPU load
- Storage Space
- Firewall
- Load Balancer
- Router

## 1.2 Software

The following software services will be monitored:

- Webservers
- Database Servers
- EPP Servers
- WHOIS Daemons
- DNS servers
- Mail Servers
- Cron-job Server

## 1.3 System Access

All user access, especially the login attempt failure, will be logged and monitored. This information allows the system administrator to identify potential hacking or unauthorized access that going onto the system.

## 2 Services Monitoring Tool

Nagios (<http://www.nagios.org/>), an Open Source host, service and network monitoring program, is the tool used to perform the monitoring.

## 3 Monitoring Approaches

### 3.1 Monitoring Implementation

The Nagios daemon is setup in the monitoring server in primary and secondary sites. The role of Nagios daemon is act as a centralized intelligence to gather and process information from all monitored machines.

The Nagios daemon alone is not able to perform the monitoring service. It has to work together with the Nagios plug-ins installed in the individual servers. Nagios plug-ins is executable scripts that perform various types of checking on a machine. For example, the script "check\_disk" returns the storage usage of the machine and "check\_http" that returns status of the web service.

On each server, a NRPE daemon is installed. The NRPE daemon acts as a proxy to process information between the plug-ins and the centralized Nagios daemon on NMS. The attached illustration shows the monitoring architecture.



# Appendix 3

## 3.2 Nagios Monitoring Output

The following output will be generated:

Email Notification – When problems are encountered or certain a pre-set criterion has been met, the Nagios daemon will send notifications to inform technical support team via email. This allows the support personnel in charge to take immediate action to investigate the problem.

Monitoring Log / Data – Server and network condition will be recorded continuously. This useful information is presented in text-based log files, such as nagios.log (Nagios server log), host-perfdata.dat (host monitoring result log) and service-perfdata.dat (service monitoring result log). The latest monitoring status can also be viewed through the Nagios web panel.

## 4 Monitoring Level Configuration

The entire monitoring process of Nagios is controlled by a set of server-side configuration files stored in network monitoring server as well as an agent configuration file in every node under monitoring.

Configurations of the entire service monitoring plan have been summarized and stated in the attached table.

## 5 Traffic Monitoring Tool

The Multi Router Traffic Grapher (MRTG) is a tool to monitor the traffic load on network links. MRTG generates HTML pages containing PNG images which provide a LIVE visual representation of this traffic.

### 5.1 Monitoring Approaches

All servers will be installed with SNMP package. The MRTG program will be installed in the monitoring server to collect information from all servers and routers. The information will then be published into the web GUI for analysis. The support team will be able to see daily, weekly, monthly and yearly traffic graph for each servers as well as total traffic from the router.

Some diagrams illustrating the graphs is attached.

## 6 Database Monitoring Tool

The MySQL Enterprise Monitor continuously monitors MySQL servers and alerts potential problems before they impact the system. The tool recommends best practices to eliminate security vulnerabilities, improve replication, optimize performance and

# Appendix 3

more.

## 6.1 Monitoring Approaches

MySQL Enterprise Monitor comprised of a centralized Service Manager and lightweight Service Agent this is installed on each monitored MySQL server. It auto-discovers and groups the Replication topologies and allows viewing of the status of all Master/Slaves from a single console. Threshold driven alerts are available to alert support engineers through email when any system parameter hits critical level.

## 7 Fault Response Team

The support engineer will be stationed at the monitoring workstation and eye ball the services availability and health of the entire registry system on shift basis 24 x 7. Once abnormality is observed, the support engineer will log a problem ticket according to the escalation policy in the support framework according to response in question 39. At any time, minimum 3 person will be available to provide technical support.

The support manager will be notified on every alert through mobile phone. The support manager worked as a cross checking node to ensure issues are logged, reported and escalated.  
Resource Plan

Qinetics will deploy the Registry Service of the Registry using its existing system and monitoring infrastructure. The assigned system administrator will configure the probes into the registry system. Once done, the Test Engineer will perform rigorous testing procedures to ensure the monitoring performs according to specifications. Upon the testing is fully completed, the probes shall be hand-over to System Administrator to perform deployment to production environment. Throughout the process, a Project Manager is assigned to perform project management and overall control on the implementation. The monitoring setup shall be completed within 2 weeks.

The system will be in maintenance mode after the System is deployed. The system shall send alerts to system administrator. Whenever there is a support ticket, System Administrator will further escalate the support request base on severity. The emergency response team will be triggered whenever there is a catastrophe scenario at the highest severity.

Once a remedy is identified, Test Engineer will perform testing on the fixes before deployment by System Administrator. During maintenance, the outsourced party has committed 4 data center engineers, 2 application support engineers, 1 support manager, 1

## Appendix 3

test engineer, 1 database administrator and 2 system administrators.

### Organisational Chart of Maintenance Team

A diagram of the organisational chart of the maintenance team is attached.

During Maintenance mode, the registry system will be supported by the support manager of Qinetics with a team of resources handling application, database and system support. A first level helpdesk is available to handle general enquiries on a 24x7 basis. The Support Manager will be the command center to communicate with Data center, esrow and anycast DNS engineers for any potential fault. The support manager will work closely with the Registry policy manager and operation manager for effective communications.

The Support Manager, Policy Manager and Operation Manager are members of Emergency Response Team (ERT). The maintenance team are responsible to carry out yearly fault tolerant test and execution of business continuity plan.

**43. DNSSEC: Describe the policies and procedures the proposed registry will follow, for example, for signing the zone file, for verifying and accepting DS records from child domains, and for generating, exchanging, and storing keying material. Describe how the DNSSEC implementation will comply with relevant RFCs, including but not limited to: RFCs 4033, 4034, 4035, 5910, 4509, 4641, and 5155 (the latter will only be required if Hashed Authenticated Denial of Existence will be offered). Describe resourcing plans (number and description of personnel roles allocated to this area).**

### DNSSEC Implementation

The attached diagram explains the overall DNSSEC system architecture.

The registry system utilize a zone generation program to create zone files from the registry database and load the zones into stealth DNS. Any changes to the DNS will be trigger via nsupdate to the stealth. The zones will later be transferred to primary DNS. Primary DNS (transparent to internet) acts as intermediate server to distribute the zones to the secondary name servers. Secondary DNS servers will serve resolution of names to the internet.

The system DNSSEC implementation process flow is described as below:

## Appendix 3

- a. Web/EPP accepts optional input of DS records
- b. The DS key data is optional. If registrar sends in the key data, the system will apply the algorithm to check if the digest match with the key data.
- c. DS record are stored in the registry database
- d. Zone generation program will read DS record from database and write to the zones
- e. A zone signing program will sign the created zones.
- f. The zone signing program will read the Zone Signing Key and Key Signing Key from HSM and use the key to sign all DNSSEC related domain records
- g. Key roller program is used to monitor and automate key rolling
- h. A check program is present to ensure the created signed zones are valid
- i. The Stealth DNS server supports NSEC3 and opt out

The system is compliance with RFCs 4033, 4034, 4035, 5910, 4509, 4641.

### DNSSEC Technical Details

The below fields are required in the EPP extensions and Web Panel:

- Keytag
- Algorithm (BIND supported algorithm)
- Digest Type
- Digest
- Optional:
  - o Maximum Signature Life – in seconds
  - o Flags
  - o Protocol (BIND supported protocol)
  - o Public Key

Below are the extensions that are accepted by the EPP server for DNSSEC support:

-Info Domain XML

<extension>

    <secDNS:infData

xmlns:secDNS="urn:ietf:params:xml:ns:secDNS-1.1">

<secDNS:dsData>

    <secDNS:keyTag>12345</secDNS:keyTag>

    <secDNS:alg>3</secDNS:alg>

    <secDNS:digestType>1</secDNS:digestType>

    <secDNS:digest>49FD46E6C4B45C55D4AC</secDNS:digest>

(Below are optional)

        <secDNS:keyData>

            <secDNS:flags>257</secDNS:flags>

            <secDNS:protocol>3</secDNS:protocol>

## Appendix 3

```
        <secDNS:alg>1</secDNS:alg>
        <secDNS:pubKey>AQPJ////4Q==</secDNS:pubKey>
        </secDNS:keyData>
</secDNS:dsData>
  </secDNS:infData>
</extension>
```

-Create Domain XML

```
<extension>
<secDNS:create xmlns:secDNS="urn:ietf:params:xml:ns:secDNS-1.1">
  <secDNS:maxSigLife>604800</secDNS:maxSigLife>
  <secDNS:dsData>
<secDNS:keyTag>12345</secDNS:keyTag>
<secDNS:alg>3</secDNS:alg>
<secDNS:digestType>1</secDNS:digestType>
<secDNS:digest>49FD46E6C4B45C55D4AC</secDNS:digest>
```

(below are optional)

```
<secDNS:keyData>
  <secDNS:flags>257</secDNS:flags>
  <secDNS:protocol>3</secDNS:protocol>
  <secDNS:alg>1</secDNS:alg>
  <secDNS:pubKey>AQPJ////4Q==</secDNS:pubKey>
</secDNS:keyData>
</secDNS:dsData>
</secDNS:create>
</extension>
```

- Update Domain XML

CASE 1:

```
<extension>
  <secDNS:update xmlns:secDNS="urn:ietf:params:xml:ns:secDNS-
1.1">
    <secDNS:rem>
      <secDNS:dsData>
        <secDNS:keyTag>12345</secDNS:keyTag>
        <secDNS:alg>3</secDNS:alg>
        <secDNS:digestType>1</secDNS:digestType>
<secDNS:digest>38EC35D5B3A34B33C99B</secDNS:digest>
      </secDNS:dsData>
    </secDNS:rem>
    <secDNS:add>
      <secDNS:dsData>
        <secDNS:keyTag>12346</secDNS:keyTag>
        <secDNS:alg>3</secDNS:alg>
```

## Appendix 3

```
<secDNS:digestType>1</secDNS:digestType>
<secDNS:digest>38EC35D5B3A34B44C39B</secDNS:digest>
(below are optional)
<secDNS:keyData>
  <secDNS:flags>257</secDNS:flags>
  <secDNS:protocol>3</secDNS:protocol>
  <secDNS:alg>1</secDNS:alg>
  <secDNS:pubKey>AQPJ////4Q==</secDNS:pubKey>
    </secDNS:keyData>
  </secDNS:dsData>
</secDNS:add>
</secDNS:update>
</extension>
```

### CASE 2:

```
<extension>
<secDNS:update urgent="true"
Xmlns:secDNS="urn:ietf:params:xml:ns:secDNS-1.1">
  <secDNS:rem>
    <secDNS:all>true</secDNS:all>
  </secDNS:rem>
  <secDNS:add>
    <secDNS:dsData>
      <secDNS:keyTag>12346</secDNS:keyTag>
      <secDNS:alg>3</secDNS:alg>
      <secDNS:digestType>1</secDNS:digestType>
    </secDNS:dsData>
  </secDNS:add>
</secDNS:update>
</extension>
```

"Urgent" element is optional

- WHOIS  
Display:  
DNSSEC Signed- Yes/No  
DS Created

### Zone Signing and Re-Signing Process

The following are the steps performed by the system in terms of zone signing. The system will generate current and published Zone Signing Keys (ZSK). ZSK generation is done using the

## Appendix 3

dnssec-keygen utility. The parameters needed to generate the DNSSEC keys:

- Algorithm
- Use NSEC3
- Key Bits [RSA/SHA1 1024]
- Domain Zone

The outputs are two files:

- Private Key - K++.key, K++.private
- Public Key - K++.key, K++.key

The system will then generate the Key Signing Key (KSK). The parameters needed to generate the DNSSEC keys:

- Algorithm
- Use NSEC3
- Key Bits [RSA/SHA1 1024]
- Domain Zone
- KSK flag

The system will include the public keys of the current ZSK, published ZSK and the KSK to the zone file. The .key file generated during key generation contains DNSKEY RRS that will be copied to the zone file. The system will then increments the SOA serial value of the domain. The system will then sign the zone using the private keys. For zone signing, the system uses dnssec-signzone utility. The parameters needed to generate complete the zone signing process:

- Key signature expiration date
- NSEC3 salt (randomly generated by the system, automatically)
- NSEC3 iterations
- NSEC3 optout
- Random device (/dev/random resource)
- KSK (For signing DNSKEY RRSET only)
- Current ZSK (Signs all RRSET)
- Zone file of the domain zone.

The output is a signed zone file. DNS will reload the signed zone file. Administrator must provide the DS RR or the DNSKEY RR to the DNS Administrator of IANA.

### Automated Key Rollover

The following are the steps performed by the system when performing automated KSK rollover to prevent keys from being compromised. Since the KSK only signs the DNSKEY RRset, it could be set to a larger size compared to the ZSK. Their key lifetime is much longer compared to ZSK. Please refer to DNSSEC practice statement attached.

## Appendix 3

The KSK rollover process uses the seven-phased Double-Signature method. At some point, the zone will be signed by both the Current KSK and the new (published) KSK at the same time.

### Automated KSK Rollover

When the Current KSK reaches the end of its lifetime, the seven-phased (7) KSK rollover process will start. The system will ensure that there is sufficient time since the last rollover. The time between roll-overs has to be at least twice the maximum zone TTL period.

The system will perform a double-sign zone's DNSKEY RRset with the current KSK and a newly generated KSK. The system will first generate a new KSK type key and include this to the zone file.

The system will then increment the SOA serial value; signs the zone with both KSK keys and performs a DNS reload of the domain.

The system will wait for older DNSKEY RRset to expire from caches. This is a pre-calculated waiting time that is at least twice the maximum zone TTL period for the old DNSKEY RRset. This is the largest TTL in the entire zone multiplied by two. This will also allow the new data to propagate.

The system will change (roll) the KSK keys. Since the new KSK DNSKEY and RRSIG data has already propagated to resolvers caches by this time, it is now safe to remove the current KSK and make it obsolete. The new KSK will then replace the current KSK. The system increments the SOA serial value and resign the zone.

The chain of trust must be restored. The DNS Administrator does this step manually. He/she will provide a copy of the new DS or DNSKEY RR to IANA in a secure out-of-band channel (e-mail s/mime and other means). The resigned zone will not be reloaded, otherwise the chain of trust will be broken.

The system will wait until the parent zone will publish the new DS record that corresponds to the new KSK. The system will periodically lookup for DS record at the parent's delegation point and check if it matches with the new KSK before proceeding to the next phase. The system will reload the domain.

### Automated ZSK Rollover

ZSK rollover is necessary to frequently change the keys and mitigate signed zone compromise. ZSK keys are usually configured to be smaller in size (1024 bits) compared to KSK, so they need to be changed more often. Please refer to DNSSEC practice statement for the refresh duration.



## Appendix 3

The ZSK rollover process of the system makes use of a four-phased (4) pre-published method. Notice in a signed zonefile there are two ZSK - current and published. The current ZSK is used for signing and the published ZSK is included in the DNSKEY RRset so that it can be stored in advance to cache of validating resolvers. When the published ZSK is promoted as a current ZSK, the validating resolver can validate the signature instantaneously which is signed by this ZSK since it has already stored the corresponding DNSKEY RR in its cache.

When the ZSK reaches the end of its lifetime, the four-phased (4) ZSK rollover will be performed by the system. The system will ensure that sufficient time has elapsed since the last rollover. The time between roll-overs has to be at least twice the maximum zone TTL period. That waiting time is 2 times the max-zone-ttl.

The system will sign the zone with the KSK and Published ZSK, increments the SOA serial value and reloads the domain. The current ZSK will still be in the zone file. The system will wait for old zone data (e.g. RRSIG generated by the current ZSK) to expire from caches. This is at least twice the maximum zone TTL period.

The system will promote the published ZSK to current ZSK, increments the SOA serial value and resigns the zone. The old current ZSK becomes obsolete. A new Published ZSK is generated and included in resigned zone file.

The system will wait for another ZSK lifetime period to expire before restarting the ZSK rollover process. Pre-published method is chosen over Double-signature method in ZSK rollover because it is less resource intensive.

### Emergency Key Rollover

DNS administrator will inform IANA of the KSK compromise so that it can remove the DS resource record corresponding to the compromised KSK. RFC 4641 states that a Zone containing a DNSKEY rrset with a compromised KSK is vulnerable as long as the compromised key is configured as a trust anchor or a parental DS points to it. A compromised key can be used to sign the key set of an attacker's zone. Therefore, when the KSK is compromised, the trust anchor or parental DS should be replaced as soon as possible.

The DNS administrator will wait for IANA to remove the Zone's DS Record. If the Registry does not wait for the Parent to remove

## Appendix 3

the DS record and proceeds to replace the compromised KSK with a new one, then it would appear that the Child Zone is Bogus, while the Attacker's Zone is valid. Therefore, it is not advisable to remove the KSK before the parent has at least removed the DS associated with that KSK.

If the DS in the parental zone maintained by IANA is removed, then the DNS administrator will remove the KSK in the child zone as soon as possible. This effectively breaks the chain of trust between the Parent and child zones, but not being able to validate genuine zone data is a lesser evil compared to being able to validate fake zone data.

Disable automatic rollover for Zone. Roller daemon will skip any rollover process for this zone. If rollerd is currently in the middle of an automated rollover process, it will be stopped and reset at some point.

A new KSK key will be generated and will replace the current KSK. Both the Current ZSK and Published ZSK will also need to be replaced since they can no longer be trusted. Using zonesigned, this can be done in a single command:  
# zonesigner -genkeys

A zone's dnssec signing and key information is stored in Database. In the table where a zone's signing parameters are stored, the values of current KSK, Current ZSK and Published ZSK will refer to the newly generated keys. The old KSK, Current ZSK, and Published ZSK keys will then be marked as obsolete or will be deleted at some point in the emergency rollover process.

The DNS administrator will wait for Parent to publish new DS record corresponding to the new KSK. The new DS record will be sent in a secure out-of-band channel. The DNS administrator will reload the zone signed with the new set of keys and dispose of the old set of keys. The DNS administrator will then re-enable automatic rollover for Zone and reset the KSK and ZSK phases to zero.

### Key Storage

When signing a zone for the first time, the system will generate the ZSKs (Current and Published) and KSK first before doing the zone signing operation. The system stores zone signing and key information in database. The system kept record of the Current ZSK, Published ZSK, KSK and other zone-signing parameters such as the signature expiry, generate DS flag, use nsec3 flag, nsec-optout flag, nsec3 iterations, nsec3 salt, etc. At some point during emergency or automated rollover, the

## Appendix 3

Current ZSK/KSK value will be replaced with the value of the Published ZSK/KSK, and the

Published ZSK/KSK will be replaced with a new ZSK/KSK in the database table.

If a user wants to update the Current ZSK, for example, he/she can do it by performing the import key or emergency zsk rollover operation. During automated rollover, system will check the Current key's lifetime value if it is already past its due date. If it is, then the rollover process for the key will start and the Current ZSK/KSK status will change to Obsolete and the Published ZSK/KSK status will change to Current. Obsolete keys will remain kept in DB and file-system.

### Resource Plan

Qinetics will deploy the Registry Service of the Registry using its existing system and DNSSEC infrastructure. The support manager will perform new key generation and zone signing. Once done, the Test Engineer will perform rigorous testing procedures to ensure the DNSSEC performs according to specifications. Upon the testing is fully completed, the DNSSEC setup shall be hand-over back to Support manager to perform deployment to production environment. Throughout the process, a Project Manager is assigned to perform project management and overall control on the implementation. The setup shall be completed within 2 weeks.

The system will be in maintenance mode after the System is deployed. The support manager shall perform key rolling according to the DNSSEC practice statement. Whenever there is a support ticket, helpdesk support will further escalate the support request base on severity. The emergency response team will be triggered whenever there is a catastrophe scenario at the highest severity.

Once a remedy is identified, Test Engineer will perform testing on the fixes before deployment by support manager. During maintenance, the outsourced party has committed 4 helpdesk support, 1 support manager, 1 test engineer and 2 system administrators.

**44.(OPTIONAL) IDNs: state whether the proposed registry will support the registration of IDN labels in the TLD, and if so, how. For example, explain which characters will be supported, and provide the associated IDN Tables with variant characters identified, along with a corresponding registration policy. This includes public interfaces to the databases such as Whois and EPP. Describe resourcing plans (including number and description of**

# Appendix 3

personnel roles allocated to this area). Describe how the IDN implementation will comply with RFCs 5890, 5891, 5892, and 5893, as well as the ICANN IDN Guidelines at <http://www.icann.org/en/topics/idn/implementation-guidelines.htm>.

## Introduction

### ASCII Domain Names

Domain names technical specifications limit the permissible code points to a restricted subset of 38 signs: the letters a-z (26 signs), the digits 0-9 (10 signs), the hyphen character (collectively called "LDH" – Letter Digit Hyphen), plus the label-separating period (with additional rules such as no hyphen at the beginning or at the end of a label).

### IDN and Punycode

In order to use IDN characters in domain names, the IDN characters (which are essentially Unicode code points) need to be first converted to the ASCII format of domain names (see "LDH" above). This process requires the use of an algorithm (ASCII-Compatible-Encoding ) to convert Unicode characters to an ASCII string. Various ACEs were proposed, each with its pros and cons in terms of speed of conversion, resulting length of the string etc. Eventually IETF decided on an ACE format called "Punycode" (RFC 5890). Punycode carries the prefix format of xn--.

### Language Table

All registered internationalized domain name must be associated with one language tag. For each language, a language table to define to state the permissible code points. The Registry will support Chinese, Japanese and Korean Characters for the initial implementation. The Chinese Domain Name Consortium (CDNC) has developed a complex table that handles Chinese Variant characters and published by CNNIC and TWNIC. This table is the defacto language table for any registry that intends to register Chinese IDN. The Registry will be utilizing the following language tables:

- .CN Chinese Table Version 4.0 provided by CNNIC on 2005-03-31 ([http://www.iana.org/domains/idn-tables/tables/cn\\_zh-cn\\_4.0.html](http://www.iana.org/domains/idn-tables/tables/cn_zh-cn_4.0.html))
- .TW Chinese Table Version 4.0.1 provided by TWNIC on 2009-07-15 ([http://www.iana.org/domains/idn-tables/tables/tw\\_zh-tw\\_4.0.1.html](http://www.iana.org/domains/idn-tables/tables/tw_zh-tw_4.0.1.html))
- .JP Japanese Table Version 1.2 provided by JPRS on 2005-08-30 ([http://www.iana.org/domains/idn-tables/tables/jp\\_ja-jp\\_1.2.html](http://www.iana.org/domains/idn-tables/tables/jp_ja-jp_1.2.html))
- .KR Korean Table Version 1.0 provided KRNIC on 2004-03-25 (

## Appendix 3

kr\_1.0.html)

- .TH Thai Table Version 1.0 provided by Thailand Network Information Center on 2004-06-21  
([http://www.iana.org/domains/idn-tables/tables/th\\_th-th\\_1.0.html](http://www.iana.org/domains/idn-tables/tables/th_th-th_1.0.html))

Character Variants (RFC3743)

A character-by-character substitution without consideration of language context creates variants that result in confusion and misunderstanding. In Latin the most obvious example is that every letter has both an upper case and a lower case variant. The variety of representing a single character with different writing or stroke that carries the same interpretation defines the variant issue. This creates what has been called as variants. The Internationalized Domain Name (IDN) in Applications (IDNA) protocol enables the translation of all Unicode code points into unique ASCII strings. The variant issue needs to be address to avoid confusion and dispute of domain names registration.

While there are different types of variants, character variant is the most significant that needs to be addressed. Character Variant Solution needs to be defined by the local community and include into the system to help improve the end-user experience.

For Chinese IDN registrations, all variants of the IDN will be registered as a package. By blocking the all character variants from registration by third party, the IDN domain remains uniquely owned by the registrant without the need to register names in various character variant forms.

Language Tag Support

The language tag will provide the language associated with the IDN registration. The language tag will determine which mapping table to apply. A language tag for Chinese IDN is 'zh', Japanese is 'jp' and Korean is 'kr'.

IDN Conversion Tool (According to RFC 5890 - 5893)

Java based IDN Conversion tool can be used to convert an IDN name from native characters to the Punycode version. This tool can be used to conduct a reverse conversion from Punycode to native. Registrars will be able to use this tool to convert native names to XN-(Punycode) before sending request to registry thru EPP.

General IDN Handling

System will display punycode (xn--) and Unicode both in web panel and WHOIS. Variants in the package shall be able to be

## Appendix 3

used for all domain related operations in WEB, EPP and WHOIS. However, this does not apply to host operations. For host operations, only the original form of the IDN can be used to add/delete/modify the child hosts of the parent IDN domain.

### IDN Query

User will input the IDN Domain Name into the system for query. The system will generate a master key from the queried domain and compare with master keys of registered names in the database. (Master key is a technique to detect variants of an IDN). If match is not found, system will further check with reserved and pragmatic list. If the queried domain matches any reserved pattern, system will return domain is not available. If queried domain matches pragmatic pattern, system will still show as domain is available. The process flow for an IDN query is as attached.

### IDN Registration

The registration process starts with domain check (availability) query. Once the domain is found to be available, system will convert the name into punycode (if is not already in punycode). The system will perform regular checking such as registrar balance check, contact validation etc. Once completed, the Original (O), preferred Traditional (T) and preferred Simplified (S) form of the variants (the preferred forms are "as per defined by the language tables") will be activated and inserted into zone file. (Registrar will have to activate other variants through the variant activation process.) The process flow for an IDN registration is as attached.

### IDL (International Domain Label) Package Generation Process

The domains in an IDL Package will not be stored in the database as it is not an efficient or scalable way to do so. The identification of variants will be done through the master key. Only the activated variants will be stored in the system. The system will generate the IDN variants on demand. The algorithm for generating IDN variants is as attached.

### IDN Info Command

EPP and WEB info command shall display all activated variants (including the Original, preferred Traditional and preferred Simplified domains). If users activated any additional variants other than Original, preferred Traditional and preferred Simplified forms, the additional variants will appear in INFO command.

### IDN Renewal

When renewal, reinstate or activation is performed, whole IDL

## Appendix 3

package (i.e. both activated and not activated variants) will be renewed.

### IDN Transfer

When transfer is initiated, whole IDL package will be transferred.

### IDN Deletion

The whole IDL package will be removed. If deletion is done during registration grace period, refunds will be provided. The refund includes the base domain name and variant activation fees (if any).

### IDN Activation

Registrars are allowed to do variant activation. Original, simplified and traditional form will be automatically activated at no fees other than the base domain registration fee. Activated variants shall be retrievable through the EPP info command or at the Webpanel. The activation of other variants can only be done by registrar at the Registrar webpanel; EPP will not support variant management. The extension of EPP to support variant management is complex while China's and Taiwan's experience has shown that variant activation is infrequent. Thus balancing the investment of coding variant management versus the frequency of use, the Registry will not implement variant management now. If there is a demand in the future, a further study will be done.

It is suggested that the web interface allow registrar to choose the combination of characters which will generate the actual variants they would like to activate. This suggestion avoids confusion and reduces scrolling compare to current design which displays 100 variants per page for registrar to choose.

### IDN Host and contacts

For all Host fields, the system will only accept punycode (xn--) for IDN domain host format. Only the punycode of the original IDN string (as supplied by user during registration) will be used to create child hosts. Without this rule, all variants of the child host must be inserted into the DNS zone file and this will create extra load in DNS. Registrant contact will be the same for all activated variants of a particular domain.

### Reserve and pragmatic list

For pragmatic and reserved list, IDN variants of each string will be checked. System will accept the inputted reservation pattern as it is, generate a master key and stored into database. During matching, the system will match the master key

## Appendix 3

of the pattern with the domain intended for registration and reject the domain if a match is found.

### WHOIS for IDN names

The WHOIS will display all activated variants only. The domain name will be displayed in both native and punycode. For WHOIS query, the input shall accept only punycode due to most command prompt do not support native. The WEB WHOIS service page will convert the domain into punycode before sending to the command prompt WHOIS.

### IDN Zone Generation

Handling for IDN domain is similar. Once a domain is identified as IDN, the IDL package will be retrieved and all variants that are set to Active will be written into the zones. All IDN extensions and activated IDN domain names are resolvable in DNS. The process for generating the IDN zones is as attached.

### Resource Plan

Qinetics will deploy the Registry Service of the Registry using its existing system and infrastructure. The assigned Software Developer will configure the rules and language table into the registry system. Once done, our Test Engineer will perform rigorous testing procedures to ensure the system performs according to specifications. Upon the testing is fully completed, the configurations shall be hand-over to System Administrator to perform deployment to production environment. Throughout the process, a Project Manager is assigned to perform project management and overall control on the implementation. The IDN setup shall be completed within 2 weeks. The system will be in maintenance mode after the System is deployed. The IDN will be supported by general helpdesk support for enquiries. Any support issue related to IDN will be escalated to the Application Support Engineer for trouble shooting. Whenever there is a support ticket, Application Support Engineer will further escalate the support request base on severity. The emergency response team will be triggered whenever there is a catastrophe scenario at the highest severity.

Once a remedy is identified, Test Engineer will perform testing on the fixes before deployment by System Administrator. During maintenance, the outsourced party has committed 4 resources for the 24 x 7 helpdesk, 2 application support engineers, 1 test engineer and 2 system administrators. As part of on going policy changes, a team of software developer is available for any IDN language table version upgrade and the changes will trigger the change request procedure in accordance to CMMI standards.



## Demonstration of Financial Capability

**45. Financial Statements:** provide audited or independently certified financial statements (balance sheet, income statement, statement of shareholders equity/partner capital, and cash flow statement) for the most recently completed fiscal year for the applicant, and unaudited financial statements for the most recently ended interim financial period for the applicant. For newly-formed applicants, provide the latest available financial statements. Financial statements are used in the analysis of projections and costs.

The reports and financials statements of Better Living Management Company Limited has been audited on 10 April 2012 by Ms Panwadee Karnchanawisetchan.

The attached report includes the following documents:

- balance sheet;
- income statement;
- statement of shareholders equity/ partner capital;
- cash flow statement; and
- letter of auditor.

The report is signed by:

Ms Panwadee Karnchanawisetchan  
Official Accounting Auditor number 4370  
47/368 Soi Nimitmai, Eastern Sam-Wa, Klong Sam-wa District,  
Bangkok

**46. Projections Template:** provide financial projections for costs and funding using Template 1 (attached) for the most likely scenario. The template is intended to provide commonality among TLD applications and thereby facilitate the evaluation process. Include explanations for any significant variances between years (or expected in years beyond the timeframe of the template) in any category of costing or funding. Describe the basis / assumptions for the numbers provided, and the rationale for the basis / assumptions. This may include studies, reference data, or other steps taken to develop the responses and validate any assumptions made.

Better Living Management Company Limited ('the Registry') has been a dormant company since its inception in year 2009. Until recently, the shareholder of the Registry will inject new capital investment to manage the .THAI namespace. The Registry will have an existing paid up capital of THB 50million (US\$1.5million) to fund the initial activities and payment commitment such as:

# Appendix 3

- General legal and administrations;
- Company incorporation and secretary fees; and
- Travelling and miscellaneous expenses.

The Shareholder of the Registry has also prepared an amount of US\$80,000 to be used for the financial escrow instrument for the COI (Continued Operation Instrument). This expense is not drawn from the funding to The Registry, but directly from the Shareholder of the Registry.

## Operational Resources

The setup of the registry management and operations team is one of the first items that one needs to look into prior to the start of operations.

The organisational structure of The Registry shall be as attached.

The roles of the individual staff are defined as follows:

### Chief Executive Officer

- Sets the overall strategy and direction of the domain name registry
- Monitor upcoming trends of the domain name industry
- Work with VP, Policy and Business Development to oversee and promote new growth for the registry via multiple channels
- Manage the outsourcing vendors
- Reports to the board of directors

### VP, Policy and Business Development (ICANN Liaison Officer)

- Sets the overall direction for product development
- Oversees brand building, awareness and endorsement promotions and campaigns
- In charge of channel development such as relation building with registrars
- In charge of the registry agreements with ICANN and enforces compliance internally
- In charge of drafting the relevant rules, regulations, policies, procedures and guidelines that govern the registration and management of domain names within the registry.

### Manager, Communications and Registrar Liaison

- Liaison officer for registrars
- In charge of corporate communications such as press releases
- Assisting the VP, Policy and Business Development in daily operations

### Manager, Operations

## Appendix 3

- Liaison officer for ICANN
- In charge of overall operations and compliance
- Takes care of day-to-day financial activities
- Takes care of day-to-day human resource matters
- Lead in handling of abuse complaints and any complaints on registrar and registrants

### Administrative Executive, Abuse and Compliance

- Assists the Manager, Operations in day-to-day activities such as monitoring the point of abuse and assisting with policy matters

### Administrative Executive, Finance and Human Resource

- Assists the Manager, Operations in day-to-day activities such as registrar account top-ups and other human resource matters

The technical and operational roles of the registry are outsourced to Qinetics. The technical implementation and operation structure of Qinetics in servicing the Registry is described in details for the answer in Question 31, Resource Plan from Qinetics.

The Registry shall provision the salary estimation of the above position in a prudent manner. The salary estimation is based on analysis of:

- Thailand Salary Guide 2012 by Adecco Group Thailand. This is a comprehensive reference tool on the salary benchmark and trends. A copy of the report is also attached for reference purposes.

In conclusion, the salary estimation for the staffs of the Registry is as attached.

The estimated salary cost for a fully-staffed registry is US\$264,000, while the estimated salary cost for a minimally-staffed registry is US\$114,000. The assumption is that the Chief Executive Officer and the Manager, Operations are identified as the bare minimum staff required to operate the registry.

### Marketing Budget

There is a budget of US\$50,000 set aside for marketing the .THAI TLD on an annual basis to differentiate it from the existing and upcoming gTLDs. The budget would be used to sponsor industry and other popular events to increase awareness and position .THAI as a premium namespace. A portion of the budget would also be used to incentivise channel partners to further promote and grow the .THAI namespace. Retention programs will also be formulated as part of the collaboration with channel partners to improve the renewal rates and ensure that users are fully utilizing their

## Appendix 3

domain names as per intended.

### Other Operating Costs

The Registry has catered a budget of US\$2000 per month for the rental of office space and facilities.

There is also a budget of US\$15,000 that is catered for general legal and audit services.

### Capital Expenditures

Next, the Registry will need to purchase laptops and an all-in-one printer, fax and scanner for the registry management and operations team. The hardware will be depreciated over a period of 3 years as a best practice as shown below:

- 6 units of Laptop at US\$1500 each
- 1 unit of All-in-One Printer/ Fax/ Scanner at US\$800

The total expenditure for the purchase is US\$9800 and depreciation of the hardware over 3 years is:  $US\$8,300 / 3 = USD3266.67$  per year

### Revenue Projection - Assumptions

Next, the number of projected registrations and renewals from year 1 to year 3 is as attached.

The assumptions for the projections are as follows:

#### 1. Registration Volume

- Estimate based on the actual numbers achieved by .ASIA and .TEL domain name registry at the end of their first year of operations
- .ASIA reported receiving 248,406 registrations
- .TEL reported receiving 281,407 registrations
- Estimate that number of new registrations will be maintained from previous years i.e. 25,000 new domain name registrations in every year.
- .ASIA and .TEL reports that registrations continue to grow at a percentage of 25%-30% of the total number of registered domain names in the respective namespace
- Estimate that the renewal rate would be 60% in Year 2 and 50% in Year 3. i.e.  $(60\% \times 25,000) = 15,000$  domain name renewals in Year 2 and  $(50\% \times 40,000) = 20,000$  domain name renewals in Year 3. It should also be noted that the 5,000 Sunrise registrations in Year 1 is renewed 100% by the end of Year 3.
- . ASIA and .TEL reports an average renewal rate of 70%-80%.

# Appendix 3

The projections are extremely conservative and have taken other economic factors such as market saturation due to the huge influx of new gTLDs being launched in the market at the same time.

For clarity, the numbers for .ASIA and .TEL are retrieved from the monthly reports provided by the respective registries to ICANN at <http://www.icann.org/en/tlds/monthly-reports/>

## 2. Registration Fee

- Estimated at US\$20 per domain name after considering the recent pricing charged by other global Top Level Domain (gTLD) registries and benchmarking against them:
- .ASIA charges US\$10
- .TEL charges US\$8
- .CO charges US\$22
- .XXX charges US\$62

## 3. Sunrise Registration

In the financial template (Most Likely scenario), there are other revenue sources generated from the application during the Sunrise Trademarks phase. It is estimated that there will be 5,000 applications received during the Sunrise Trademarks phase which is estimated to be charged at US\$200 per application. The additional revenue generated from the applications during the Sunrise Trademarks phase in the first year is estimated to be USD1,000,000.

The number of estimated applications in the Sunrise, Trademark phase is a very conservative estimate in comparison with the 30,000 applications that DotAsia Organisation received during its Sunrise, Trademarks phase in 2008. DotAsia Organisation charged US\$120 per application during its Sunrise, Trademark phase in 2008.

## 4. Auction during Sunrise and Landrush

The Registry believes that premium service providers will find this pricing affordable due to the branding and unique positioning of the .THAI TLD.

There could also additional sources of revenue generated from the domain name auctions during the Sunrise, Trademark and Landrush phases. Multiple applications for the same domain names will lead to contention in the Sunrise, Trademark (assuming the registrant has been verified for the registered mark) and Landrush phases.

The Registry conservatively estimates that there are 1,000 domain names that will go to auction in both the Sunrise and

## Appendix 3

Landrush phases. In comparison with .ASIA, its registry claimed that there were over 40,000 auctions being hosted as shown here: <http://www.dotasia.org/about/auctions.html>

The Registry estimates that each bid for domain name will close at an average of US\$500. This assumption is based on the top 1,000 domain name closed auction pricing released by .ASIA registry here:

[http://www.dotasia.org/about/auctions\\_schedule/closed\\_auctions\\_0ct10\\_full.pdf](http://www.dotasia.org/about/auctions_schedule/closed_auctions_0ct10_full.pdf). It is noted that the average pricing shown is between US\$2000-3000 in comparison to our estimate of US\$1,000.

As such, The Registry conservatively estimates additional revenue of US\$1,000,000 (US\$500,000 individually from the Sunrise and Landrush phases) in the most likely scenerio and US\$500,000 (US\$250,000 individually from the Sunrise and Landrush phases) in the worst case scenario.

### Outsourcing Providers:

Validation Service Provider – Trademark Clearinghouse

It is estimated that US\$500,000 is required to cater for the domain name validation services provided by reputable service providers like Deloitte via Trademark ClearingHouse during the Sunrise, Trademark phase. The estimation is based on 5,000 registrations where the validation agent is expected to charge approximately USD100 for validating each name.

As the cost of validating the domain names are covered in the cost of sales for each individual domain name, there is no need to cater for funding on this item.

### Registry Service Provider - Qinetics

The Registry will be outsourcing the provisioning and maintenance of the registry-registrar software, system and network infrastructure to Qinetics, which has over 8 years of experience in providing registry and registrar services to various country-code top level domain (ccTLD) registries. Qinetics currently provides registry services for .CD (Congo), .HK (Hong Kong) and .SG (Singapore). In addition, Qinetics provides customized registry components such as billing and reporting modules for .MY Registry (Malaysia) as well as policy consultation services to .OM (Oman). Qinetics have also collaborated with MY.CO – a local Columbian company in 2010 to provide registry gateway services to international registrars for .CO (Columbia) domain names.

Qinetics, through its subsidiary, Web Commerce Communications Limited ('WEBCC' dba. [www.webnic.cc](http://www.webnic.cc)), is a leading ICANN

## Appendix 3

Accredited Registrar in Asia, managing over 600,000 domain names through 2,000 reseller channels in over 50 countries.

Qinetics will be utilising a revenue sharing model of US\$1 per name regardless of the number of domain names with the Registry in regards to the charges for provisioning the registry-registrar software (includes the WHOIS), system and network infrastructure.

AnyCast DNS Service Providers – CommunityDNS

The Registry is collaborating with CommunityDNS to provide primary DNS Anycast services for the .THAI TLD. CommunityDNS charges US\$0.25 per domain name per year.

Data Escrow Service Provider – NCC Group

The Registry is collaborating with the NCC Group to provide Data Escrow services for the .THAI TLD as part of ICANN requirements. The NCC Group charges US\$0.25 per domain name per year.

The Registry has taken the effort to negotiate and execute a three-year contract with all outsourcing providers to ensure that the outsourcing costs for the next three years are fixed with no significant changes to the pricing of the outsourced services.

ICANN

Other fees include the fixed ICANN fees which is US\$25,000 and the variable ICANN fees which is charged in excess of 50,000 domain names at US\$0.25 per registered domain name.

**47(a). Costs and capital expenditures: describe and explain the expected costs and capital expenditures of setting up and operating the proposed Registry. As described in the Applicant Guidebook, the information provided will be considered in light of the entire application and the evaluation criteria. Therefore, this answer should agree with the information provided in the template to: 1) maintain registry operations, 2) provide registry services described above, and 3) satisfy the technical requirements described in the Demonstration of Technical & Operational Capability section. Costs should include both fixed and variable costs.**

1. Expected Operating Cost
  - a. Staff salary

Staff Resource

The Registry will outsource the technical operation (to Qinetics), DNS Anycast (to CommunityDNS), legal professional for policy development, trademark validation (to appointed

# Appendix 3

validation agent and Trademark Clearinghouse), auction service provider, data escrow (to NCC Group), and etc.

The Registry will retain a core team in Bangkok to manage:

- Business Development and Registrar relationship;
- Marketing and Communications;
- Policy and Liaison with ICANN;
- Abuse handling and policy compliance;
- Finance and Billing; and
- Human Resource and Administration.

## Organization Chart

The organizational chart is attached.

## Roles of Key Staffs

A table describing the primary and secondary roles of the key staff is attached.

## Salary and Projection

The Registry shall provision the salary estimation of the above position in a prudent manner. The salary estimation is based on analysis of:

- Thailand Salary Guide 2012 by Adecco Group Thailand. This is a comprehensive reference tool on the salary benchmark and trends. A copy of the report is also attached with the answer.

In conclusion, the salary estimation for the staffs of the Registry is stipulated as attached.

The estimated salary cost for a fully-staffed registry is US\$264,000, while the estimated salary cost for a minimally-staffed registry is US\$114,000. The assumption is that the Chief Executive Officer and the Manager, Operations are identified as the bare minimum staff required to operate the registry.

## b. Marketing

The Registry will adopt a prudent approach in marketing expenditure. The annual marketing expenditure of US\$50,000 can be further broken down into the following sections:

- Online Advertising, Marketing Material, Promotion, Public Relation and Corporate Communications: US\$10,000 per year
- Travelling, Accommodations and Allowance: US\$10,000 per year
- Trade event participation and Sponsorship: US\$10,000 per year
- Special Media event: US\$10,000 per year
  - Event with strong media coverage for public and brand awareness
- Co-marketing program: US\$10,000 per year



## Appendix 3

- Advertising and marketing with brands
- Public relation with celebrities

### c. Facilities

For the initial 3 years of operation, the Registry will choose to rent office suite for its operation centers in Bangkok.

In Bangkok, the Registry intends to rent from commercial office suite provider, where we could rent 4-5 workstations as a start. The business suite will come with facilities such as:

- Workstation table
- Broadband
- Meeting room (shared)
- Utilities – pantry, air-con, network, etc
- Lockers
- Signage

It will cost The Registry less than US\$300 per workstation per month based on the advertised price. We may also subscribe to call answering services at US\$50 per month.

Hence, the total monthly expenditure for rental and office facilities adds up to approximately US\$2,000 per month.

### d. General and Administration

There is a monthly expenditure budget catered for courier services and office supplies estimated to be at US\$500.

The estimation for other required professional services are:

- Audit – US\$3,000 per annum, estimated base on simple operation and clear business model; and
- Legal service – US\$12,000 per annum, estimated based on 1 query per month.

It should also be noted that there is a start-up costs for the Registry to engage legal professionals prior to the launch of the registry. The involvement of the legal professional is for the following activities:

- o policy development;
- o contract development;;
- o anti-abuse best practice development; and
- o right protection mechanism development.

The Registry shall have the above deliverables in place prior to the launch of the TLD. We estimate a consulting project fee of US\$20,000 during the startup of the registry operation.

### e. Other costs

The expenditure features in the outsourcing and ICANN fees, which is highlighted in the latter section.

# Appendix 3

## 2. Capital Expenditures

### a. Office IT facilities

The Registry will not need to purchase fixed assets apart from laptop and other necessary office equipment since we intend to rent an office suite, which includes office facilities and public utilities.

Our outsourcing providers will also supply infrastructures, software and hardware to provision the shared registration system (SRS), WHOIS, Anycast DNS and data escrow services. The Registry will need to purchase laptops and an all-in-one printer, fax and scanner for the registry management and operations team as follows:

- 6 units of Laptop at US\$1500 each
- 1 unit of All-in-One Printer/ Fax/ Scanner at US\$800

The total expenditure for the purchase is US\$9800 and depreciation of the hardware over 3 years is:  $US\$9,800 / 3 = USD3266.67$  per year

## 3. Outsourcing Providers

### - Domain Name Validation Services during Sunrise Period

The Registry will outsource the validating of domain names during the Sunrise Period to the Trademark ClearingHouse. The Registry has decided to outsource this function due to the lack of in-house expertise. Trademark ClearingHouse is one of the leading independent online repositories for validated trademarks for domain name registries and registrars with thousands of submitted trademarks. Trademark ClearingHouse is also familiar with the domain name Sunrise process and has a good track record having participated in various projects previously such as the .ASIA and .TEL sunrise.

There is no upfront cost to connect to the Trademark ClearingHouse system but the cost of validating a new trademark is USD100.

### - Auction Service Provider

Domain name auctions are becoming common for allocation of valuable domain names. A collision auction can be used to decide between applicants during the Sunrise or Landrush period.

The Registry intends to outsource the auction service to reputable providers (e.g. Pool.com, Snapnames or Moniker). The Registry intend to hold web-based auctions of domain names with competing bidders.

## Appendix 3

There is not upfront cost to use the auction platform but it is estimated that the auction provider will charge 30% of the total transactional fees for conducting the auction.

### - Registry Backend Service Provider

The Registry will outsource the provisioning, operation, support and maintenance of the shared registry system to Qinetics Solutions Berhad, Malaysia (Qinetics). The Registry will not be developing the Shared Registry System from scratch as it would take too much resources and time to properly develop a system that is compliant to the IETF RFCs and ICANN's requirements. Qinetics has a good track record of operating and providing registry systems to various country-code top level domains (ccTLDs) such as .CD, .HK and .SG.

There is no upfront cost to provisioning the system with Qinetics. Qinetics will charge USD1 for each domain name exists in the database of the registry system.

The estimated cost of outsourcing the provisioning, operating, supporting and maintaining the shared registry system to Qinetics is USD30,000 (Most Likely Scenario based on 30,000 domain names) or USD12,000 (Worst Case Scenario based on 12,000 domain names) in the first year of operations.

### - DNS Anycast Services

The Registry will outsource the DNS Anycast services to CommunityDNS (CDNS). The Registry has decided to outsource this function to CDNS as it would take up a lot of resources and time in order to properly build a diverse network that CDNS has built over the years. As such it would not be feasible to undertake this function internally. Qinetics are also using CDNS services currently for other ccTLDs which is important as the shared registry system would need to be integrated with the Anycast service provide platform.

The Registry is collaborating with CommunityDNS to provide primary DNS Anycast services for the .THAI TLD. CommunityDNS charges US\$0.25 per domain name per year.

### - Data Escrow Services

The Registry will outsource the provision of data escrow services to the NCC Group due to the lack of in-house expertise. The NCC Group has experience providing data escrow services to ICANN and has a good track record working with the .PRO registry

The NCC Group charges US\$0.25 per domain name per year..

# Appendix 3

## 4. ICANN Fees

ICANN charges a fixed fee of USD25,000 on an annual basis for the operation of a gTLD registry.

## 5. Cost variances between years

### a. Salary

We estimate there is a 10% increase in salary expenditure for:

- Annual increment (ranges about 4 – 8%); and
- Increase of low-level resource (i.e. Admin Executive to cover administration work in the 3rd year).

### b. Marketing

We expect the marketing fees to remain flat at US\$50,000 per year over 3 years, simply because:

- .THAI domain name will have a niche target market;
- We deploy selective marketing approach that is cost effective;
- We leverage on co-marketing partners to create a viral marketing impact that is long lasting; and
- We carried forward or backward on the marketing budget if there is surplus or shortfall within 10% of the allocation.

We will have minimum 3 years contract with our outsourcing partners to lock down the unit charge rate, so that we could have a fixed estimation on our outsourcing cost, based on the unit revenue that we earn.

## **47(b). Describe anticipated ranges in projected costs. Describe factors that affect those ranges.**

### 1. Operating Cost

#### Salary

Base on the detailed research and benchmark with industry practices, the anticipated range of salary expenditure shall not range beyond 15% from the target numbers. The factors that could affect the anticipated ranges are:

#### Upward Pressure

- Market inflation
- Shortage of expertise with experience due to influx of new gTLDs
- In need for extra resource due to sudden surge in workload and sales revenue.

#### Downward Pressure

- Global economic crisis
- Migrants from neighbouring countries

#### Marketing

## Appendix 3

Marketing budget and expenses could be controlled within 10% from the target budget of US\$50,000, based on the factors of:

Upward Pressure

- Strong market competition
- Carry forward last year budget

Downward Pressure

- Strong endorsement of brands
- Strong co-marketing partners

If there is a huge influx of new gTLDs into the market at the same, there will be keen competition for market awareness campaign for Registrants, Channels (Registrars) and public users. This may drive up the cost for running the campaign targeting for the same audience, and dilute the 'Return of Investment' for the marketing dollars that we spend.

The impact can be mitigated by sharing the marketing cost through brand endorsement. The Registry firmly believes in brand endorsement, which costs less money but carry a longer lasting marketing impact.

The Registry will engage for selected early adopters to be co-marketing partners to drive awareness for .THAI domain names. This allows us to share cost on marketing while achieving a multiple awareness impact through advertising and brand endorsement.

The Registry could moderate the utilization of the market budget by allowing 10% of the budget to be brought forward to the following year, or utilize in advance the similar quantum from the next year.

Legal

Legal cost can possibly swing upward to 300% of the target budget of US\$12,000 per annum, especially during startup of the registry, based on the factors of:

- Legal case for abuse and mis-handling of dispute;
- Additional handling for trademark during Sunrise; and
- Policy development;
- Any other unexpected incidents.

The Registry would leverage on the existing panel lawyers used by its Shareholder, and negotiate for a competitive rate.

Nonetheless, the Registry has provisioned amount of US\$20,000 for the legal professional fees during startup of the registry.

## Appendix 3

### Capital Expenditure

With very minimum capital expenditure, we anticipate insignificant difference in expenditure for capital investment.

### Outsourcing

Volume of domain name registration would be a common denominating factor that could affect the fees for outsourcing providers, namely Registry Backend Service Provider, Provider of Domain Name Validation during Sunrise, Auction Service Provider, Anycast DNS Service Provider and Data Escrow Service Provider. However, the impact on fees varies based on their charging model, as summarized in the following sections:

#### High Impact

- Registry Backend Service
- Validation Service during Sunrise

#### Moderate Impact

- DNS Anycast
- ICANN
- Auction Service Provider

#### Least Impact

- Data Escrow

Though the outsourcing fees could be affected by the volume of registration, with the additional revenue generated for the increase in volume, there is net positive impact on the profitability of The Registry. There is no risk attached with the increase of volume of registration that in turn increases the outsourcing fees.

Another possible factor could be unexpected surge in network traffic utilization due to DDOS. However, the outsourcing providers have agreed to absorb the cost of mitigating any DDOS attack.

**48(a). Funding and Revenue: Funding can be derived from several sources (e.g., existing capital or proceeds/revenue from operation of the proposed registry). For each source (as applicable), describe: I) How existing funds will provide resources for both: a) start-up of operations, and b) ongoing operations, II) a description of the revenue model including projections for transaction volumes (if the applicant does not intend to rely on registration revenue in order to cover the costs of the registry's operation, it must clarify how the funding for the operation will be developed and maintained in a stable and sustainable manner), III) outside sources of funding (the applicant must, where applicable, provide evidence of the commitment by the party committing the funds). Secured vs. unsecured funding should be clearly**

# Appendix 3

**identified, including associated sources for each type.**

Existing Funding Resource of The Registry:

1) Initial Paid Up Capital amounting to US\$1.5million

Base on the above, the Registry has existing fund amounting to US\$1.5million to be used for start-up and on-going operations.

The two attached tables show the estimated operating costs based on the most likely and worst case scenarios and how the existing funds can provide for it.

In the Most Likely Scenario, the existing fund of US\$1.5million, without resourced from any revenue generating from on-going operation:

- Cover 3 year of cost expenditures;
- Exclude the professional fee of Validation Service at the Trademark ClearingHouse, as we treat this as Cost of Sales since the service would incur only when there is registration occur during Sunrise.
- Exclude the professional fee of using the auction platform, as we treat this as Cost of Sales since the service would only incur only when there are domains being contented and have to be auctioned off to the highest bidder.

In the Worst Case scenario, the existing fund of US\$1.5million, without resourced from any revenue generating from on-going operation:

- Cover 3 year of cost expenditures;
- Include the professional fee of Validation Service at the Trademark ClearingHouse, though strictly basis, this is a Cost of Sales since the service would incur only when there is registration occur during Sunrise.
- Include the professional fee of using the auction platform, though strictly basis, this is a Cost of Sales since the service would only incur only when there are domains being contented and have to be auctioned off to the highest bidder.

In conclusion, the existing fund is clearly quantified on hand by the commitment of shareholder as paid up capital. In the Most Likely scenario, on-going operations for whole 3 years (without accounting for 2nd year and 3rd year marketing fund) can be fully covered from existing funds, rather than revenue generated from on-going operations. In the Worst case scenario, the existing funds cover the entire 3 year of cost expenditures, rather than revenue generated from the on-going operation.

Revenue Projection - Assumptions

# Appendix 3

Next, the number of projected registrations and renewals from year 1 to year 3 is attached.

The assumptions for the projections are as follows:

## 1. Registration Volume

- Estimate based on the actual numbers achieved by .ASIA and .TEL domain name registry at the end of their first year of operations
- .ASIA reported receiving 248,406 registrations
- .TEL reported receiving 281,407 registrations
- Estimate that number of new registrations will be maintained from previous years i.e. 25,000 new domain name registrations in every year.
- .ASIA and .TEL reports that registrations continue to grow at a percentage of 25%-30% of the total number of registered domain names in the respective namespace
- Estimate that the renewal rate would be 60% in Year 2 and 50% in Year 3. i.e.  $(60\% \times 25,000) = 15,000$  domain name renewals in Year 2 and  $(50\% \times 40,000) = 20,000$  domain name renewals in Year 3. It should also be noted that the 5,000 Sunrise registrations in Year 1 is renewed 100% by the end of Year 3.
- . ASIA and .TEL reports an average renewal rate of 70%-80%.

The projections are extremely conservative and have taken other economic factors such as market saturation due to the huge influx of new gTLDs being launched in the market at the same time.

For clarity, the numbers for .ASIA and .TEL are retrieved from the monthly reports provided by the respective registries to ICANN at <http://www.icann.org/en/tlds/monthly-reports/>

## 2. Registration Fee

- Estimated at US\$20 per domain name after considering the recent pricing charged by other global Top Level Domain (gTLD) registries and benchmarking against them:
- .ASIA charges US\$10
- .TEL charges US\$8
- .CO charges US\$22
- .XXX charges US\$62

## 3. Sunrise Registration

In the financial template (Most Likely scenario), there are other revenue sources generated from the application during the Sunrise Trademarks phase. It is estimated that there will be 5,000 applications received during the Sunrise Trademarks phase



## Appendix 3

which is estimated to be charged at US\$200 per application. The additional revenue generated from the applications during the Sunrise Trademarks phase in the first year is estimated to be USD1,000,000.

The number of estimated applications in the Sunrise, Trademark phase is a very conservative estimate in comparison with the 30,000 applications that DotAsia Organisation received during its Sunrise, Trademarks phase in 2008. DotAsia Organisation charged US\$120 per application during its Sunrise, Trademark phase in 2008.

#### 4. Auction during Sunrise and Landrush

The Registry believes that premium service providers will find this pricing affordable due to the branding and unique positioning of the .THAI TLD.

There could also additional sources of revenue generated from the domain name auctions during the Sunrise, Trademark and Landrush phases. Multiple applications for the same domain names will lead to contention in the Sunrise, Trademark (assuming the registrant has been verified for the registered mark) and Landrush phases.

The Registry conservatively estimates that there are 1,000 domain names that will go to auction in both the Sunrise and Landrush phases. In comparison with .ASIA, its registry claimed that there were over 40,000 auctions being hosted as shown here: <http://www.dotasia.org/about/auctions.html>

The Registry estimates that each bid for domain name will close at an average of US\$500. This assumption is based on the top 1,000 domain name closed auction pricing released by .ASIA registry here: [http://www.dotasia.org/about/auctions\\_schedule/closed\\_auctions\\_0ct10\\_full.pdf](http://www.dotasia.org/about/auctions_schedule/closed_auctions_0ct10_full.pdf). It is noted that the average pricing shown is between US\$2000-3000 in comparison to our estimate of US\$1,000.

As such, The Registry conservatively estimates additional revenue of US\$1,000,000 (US\$500,000 individually from the Sunrise and Landrush phases) in the most likely scenerio and US\$500,000 (US\$250,000 individually from the Sunrise and Landrush phases) in the worst case scenario.

The Registry is fully funded in the form of:

#### 1) Start-up

- Initial committed Capital of THB 1million (US\$32,000) with the statement of accounts as proof

## Appendix 3

- Increase of committed Capital to a total of THB 50million (US\$1.5million) with the attached Company certificate as proof

The Registry has secured all existing funding at the time of application, amounting to US\$1.5million. Upon approval from ICANN, though it may not be necessary, the Registry may explore further fund raising exercise for additional up to US\$1 million from government related venture capital firms. Nonetheless, all funding shall be secured prior and during the initial kick-off of the Registry's operation.

As for revenue, we forecast a gradual increase in revenue deriving from .THAI domain name registration over 3 years and a jump-start in revenue deriving from registration and auction during Sunrise and Land Rush phases of launch. The breakdown in revenue is clearly shown as attached.

### **48(b). Describe anticipated ranges in projected funding and revenue. Describe factors that affect those ranges.**

#### Funding

##### Existing Funding

There is no anticipated range in existing funding as all sources of funding are secured and has been committed.

##### Funding from External Sources

The Registry may consider having fund raising exercise upon attaining approval from ICANN on the .THAI TLD. We anticipate we could raise additional US\$1 million from external investors (on top of the paid-up US\$1.5million from the existing shareholder).

Nonetheless, to stay very prudent in our funding estimation, we do not include the fund from external parties into our forecast. It serves as bonus to us shall we secure additional funding, though we may not exercise the fund raising exercise.

#### Revenue

There may be anticipated ranges in projected revenue as shown in the most likely and worst case scenario as attached.

We anticipate we will achieve the Most Likely scenario based on the assumption and analysis stated in the answer to V.

For the Worst Case scenario, it is unlikely scenario where the following negative factors in play:

- Adverse poor global economy – This may not impact the revenue by not more than 5% of the Most Likely scenario since:
  - o There is not historical proof that domain name registration is

## Appendix 3

- greatly affected by economic condition;
- o Online business is generally thriving during tough market condition;
- o The Registry will target global market where we could switch to specific growth market, rather than addressing the overall global market.
  - Extreme competition among new gTLDs – This may impact the revenue by not more than 20% of the Most Likely scenario, because:
    - o We make a conservative forecast for new registration and renewal of .THAI domain name;
    - o .THAI is uniquely position for specific market segment for the Thai communities.
    - Bad public relationship – This may be caused by a bad incident of abuse or negative publication against the reputation of The Registry. This may impact the revenue by not more than 10% based on the mitigation efforts as:
      - o Exercise our existing press desk to clarify the situation and defend our reputation;
      - o Engage active public relation using PR agency; and/or
      - o Seek legal action to resolve the conflict and clarify our position.

**49(a). Contingency Planning: describe your contingency planning: identify any projected barriers to implementation of the business approach described in the application and how they affect cost, funding or timeline in your planning. Identify any particular regulation, law or policy that might impact the Registry Services offering. For each contingency, include impact to projected revenue and costs for the 3-year period presented in Template 1.**

### General Contingency Plan

#### 1. Risk and Contingency

##### I.Barrier and Risk

###### i. Market Competition

###### Risk/ Contingency:

- Large registrars (with its own new gTLD ventures) are not keen to market .THAI TLD.
- Pricing and promotion competition

###### Probability:

- Moderate

###### Impact on Revenue /Funding/ Cost/Timeline:

- This may impact overall revenue generation
- This may impact registration and renewal rates.
- Overall, we estimate the impact may affect up to 20% of the

## Appendix 3

revenue forecast on Most Likely scenario, but well below the Worst Case scenario.

Mitigations:

- Leverage on the marketing channels of Qinetics (through its subsidiary, WEBCC dba. WEBNIC.CC), a leading registrar in Asia, with over 2,000 channels, and its existing relationship with over 200 ICANN accredited registrars worldwide.
- Exercise the marketing strategies on brand endorsement and co-marketing program with adopters, to create a viral marketing influence to Registrars, Registrants and public users.
- .THAI TLD is currently competitive price though it is not addressing to the mass market.

Resource required:

- The management members of Better Living Management have over 10 years of business development, operational and market experience in domain names.
- The revenue and cost impact on the market competition has been factored into our Revenue and Cost projection of Template 1.

ii. System and Network

Risk/ Contingency:

- Major network failure (i.e. failure of upstream network providers to Data Centers, undersea cable breakdown).
- Operation Center/Data Center is not accessible due to force majeure.

Probability:

- Low

Impact on Revenue /Funding/ Cost/Timeline:

- It may impact revenue due to service interruption.
- It may incur cost to recover the service and data loss during the system and network outage.

Mitigations:

- Redundant registry systems in geographically separated data centers in Hong Kong and Singapore respectively.
- The data centers have different upstream network providers that could mitigate major network failure.
- Anycast DNS providers have a combined network of 70 nodes across the world, and it is unlikely to breakdown altogether.

Resource required:

- The costs of redundant systems in redundant sites are catered in the cost projection.
- The Registry Continuity plan during disaster is also provisioned within the cost projection.

iii. Funding

Risk/ Contingency:

- Better Living Management face financial difficulties to continue funding the Registry.

## Appendix 3

### Probability:

- Low

### Impact on Revenue /Funding/ Cost/Timeline:

- This may create major impact to the funding resource for the Registry.
- This may defer the timeline to launch for the Registry.

### Mitigations:

- Better Living Management has an initial paid-up capital of US\$32,000 which has been increased to US\$1.5million by the Shareholder but is not shown the audited statement of accounts that is sufficient to launch .THAI TLD and sustain the first year of operation.

### Resource required:

- NA

### iv. Increase of Cost

#### Risk/ Contingency:

- The cost of operation can increase unexpectedly if the salary increment in the market is much better than estimated or significant increase in office rental due to increase in property values.
- More marketing may be required to run events and promote the TLD due to the TLD rush which could increase operation cost as well.

### Probability:

- Moderate

### Impact on Revenue/ Funding/ Cost & Timeline:

- The cost of operation increase and reduces on hand funds and revenue for operation. However, the increase of cost may not be significant as salary increase generally will not exceed 20% of total salary for any position. Rental increase may not be significant and it may be capped at max 20% on heated property market.

### Mitigations:

- The salary offered are based on industry guideline. If the increase of salary demanded is more than the guideline the Registry is following, the salary increment will not be approved by the finance manager. All expenses shall be reported to board of directors periodically to ensure the operation cost are will inline with the business plan. If the staff salary is more than the guideline followed during review of reports, the management shall execute a pay cut to the staff to ensure the increment of cost is under control. If the office expenses increase more than expected, the management shall look into cost cutting on the operation. The method include moving of office to lower rental location or reduction of office space. The marketing cost are controlled by finance during budgeting. Finance shall monitor the budget set for each department including marketing funds.

## Appendix 3

Any request for additional budgeting funds will be subjected to internal review on cost and revenue to ensure the company profit justify for the extra amount required for marketing. If the justification are not satisfied, the additional funds will not be granted.

Resources required:

- Finance department will monitor the cost and expenditure of the company to ensure the cost is inline with the cost projection

v. Projected Revenue cannot be met

Risk/ Contingency:

- The number of domains registered are less than sales forecast or the auction revenue is less than projection.

Probability:

- Low

Impact on Revenue/ Funding/ Cost & Timeline:

- The revenue of the business will shrink depends on the level of target achieved. This may affect the profitability up to a level where the worst case scenario may be assumed.

Mitigations:

- During the first year, the Registry shall remove the marketing budget and monitor the cost and revenue. At the same time, the Registry shall run promotions remotely with minimum expenditure to the existing registrars to increase the domain registrations. During second year, the Registry will reduce cost to sustain the business if the domain registration is still far below expectation. Measures of cost reduction include pay cut and reduction of office space. During 3rd year, the registry will switch to worst case model after cutting cost in 2nd year. The Registry forecast the registration numbers will not be lower than the worst case.

Resources required:

- Finance department will monitor the cost and expenditure of the company to ensure the cost is inline with the revenue projection. The CEO will constantly monitor and motivate the business development team to recruit more registrars and throw out innovative promotion schemes.

vi. Change of registry outsourcing operator

Risk/ Contingency:

- The registry outsourcing provider violates the service engagement agreement and terminated by the Registry. The Registry shall engage a new operator to replace the existing contractual operator.

Probability:

- Low

Impact on Revenue/ Funding/ Cost & Timeline:

## Appendix 3

- Change of outsourcing provider will impact the registry services fee, the cost for operation will have to renegotiated. It is possible that the new operator charges are more expensive than the old operator thus increase the operation cost and per domain charges.

Mitigations:

- The charges for the new operator shall be capped at the current operator rate. If none of the operator can offer the same rate, the Registry shall select the lowest operator rate. The Registry may cut down the marketing cost to fund the per domain cost.

Resources required:

- Finance department will renegotiate the cost and look into cost cutting so that the total cost is inline with the cost projection

### II. Change of Regulations and/or Policies

#### i. Government Policy

Risk/ Contingency:

- Strict local rules for domain name registration  
- Need to conform to local regulatory and policy requirement.

Probability:

- Moderate

Impact on Revenue /Funding/ Cost/Timeline:

- This may impact revenue source from selected market.  
- This may impact cost expenditure if additional resource is required to conform to the local regulatory and policy requirement. (i.e. local office setup, and additional local resource for government relationship building).

Mitigations:

- The Registry's management has vast experience in dealing with cross-border business development. The Registry could also leverage on Qinetics' contacts in a strict market.  
- The Registry may hire local personnel to deal with local governmental regulatory requirement.

Resource required:

- The Registry's management members are multi-lingual and experience in dealing with governmental relationship building.  
- The Registry may dedicate its business development resource to deal with local market, shall the market potential is very significant to .THAI TLD.

#### ii. ICANN Policy

Risk/ Contingency:

- Change of ICANN policy  
- ICANN increases fees

Probability:

## Appendix 3

- Low

Impact on Revenue /Funding/ Cost/Timeline:

- This may impact revenue source if the new policy restrict the domain name registration.
- This may impact cost expenditure if ICANN increases the annual fees.

Mitigations:

- The Registry shall investigate the impact of the change during the transition period for the policy change given by ICANN.
- The Registry may pass the increase to Registrar, shall the ICANN fees increases, though this is highly unlikely.

Resource required:

- The Registry has resource to comply with any change of policy from ICANN.
- The Registry has no provision for additional fees incurred by ICANN, as the Registry intends to pass the increase of fees to Registrar.

**49(b). Describe your contingency planning where funding sources are so significantly reduced that material deviations from the implementation model are required. In particular, how will on-going technical requirements be met? Complete a financial projections template (Template 2) for the worst case scenario.**

The Registry contingency planning is as follows:

Suppressed Funding

The Registry has secured committed funding from Better Living Management on:

- Paid-up capital of US\$32,000 during the inception of Better Living Management, before submission of Proposal; and
- 2nd round of injection of capital from Better Living Management shareholder to increase total paid-up capital to US\$1.5million, before submission of Proposal.

These existing funding are secured from Better Living Management, with proof as attached with the proposal in question 48a.

Worst Case scenario

Taking into consideration of the Worst Case scenario where revenue source is suppressed, the seed funding is still way sufficient to cater for 1st year cost expenditure and capital expenditure, without taking account from the earnings from revenue.

No Delay in Launch



## Appendix 3

Despite of the situation, there is no need to defer the launch of .THAI TLD upon approval as we have sufficient funding to kick-start the operations.

### Possible reduction in Marketing

As in Worst Case scenario, the marketing activities that involves substantial budget may be suppressed. Nonetheless, the Registry will continue with its competitive strategies to engage with Registry and Early Adopters (for co-marketing) that does not involve substantial marketing funding.

### Possible reduction in Resources (where appropriate)

There may be a need reduce staffing to the minimal in the Worst Case scenario taking into consideration of the resources are able to efficiently support the operations of the registry on a daily basis. In a minimally-staffed registry, only the Chief Executive Officer and Manager, Finance and Administration is required for daily operations and grow the registry.

### Registry Services

The Registry Services, AnyCast DNS and Data Escrow Services are outsourced to providers who commit the service level and have tiered fees structure base on volume of registration (i.e. revenue sharing). Our seed funding is sufficient to sustain the engagement with these providers for the entire 3 years. Furthermore, the earning from the revenue shall be able to compensate the services without any compromise on the service levels.

### Registration Validation Service during Sunrise

The Registry intends to engage Trademark Clearinghouse) for registration validation service during Sunrise. We will charge the registrar on a markup fee from the fees from Trademark Clearinghouse, without any upfront commitment. Hence, there is no need to make fund reserve to engage for this service with Trademark Clearinghouse.

### **49(c). Describe your contingency planning where activity volumes so significantly exceed the high projections that material deviation from the implementation model are required. In particular, how will on-going technical requirements be met?**

The contingency planning for the surge in activity volumes is as follows:

#### i. Surge of Business Volume

Risk/ Contingency:

- High volume of Sunrise registration and auction

## Appendix 3

- High volume of registration during General Availability
- Large number of participating registrars

### Probability:

- Moderate

### Impact on Revenue /Funding/ Cost/Timeline:

- It may defer the completion of Sunrise period, due to large pending cases to be resolved.
- It may impact on the limit of the system to cater for a sudden surge in registration during General Availability

### Mitigations:

- Request for additional resource at the Registration Validation service provider. The Registry could also engage additional legal personnel to speed the process of validation.
- The system is designed to provide a fix number of connectivity to the registrars. The Registry also has a spare unit that can be used to increase capacity of the system at all time. This spare server can be converted to be production unit and new spare unit will be purchase as standby and replacement unit.

### Resource required:

- The fees for Registration Validation service is provisioned as Cost of Sales for Sunrise registration, where the Registry markup a margin from the fees charged by the providers. Shall the volume surge, the cost may escalate in tandem with the business volume. The period to process application may be extended if the volume is significantly huge compare to estimation.
- Additional spare server is available to attend to emergency capacity increase.

## ii. System Abuse

### Risk/ Contingency:

- Large volume of WHOIS queries
- Large volume of EPP queries
- Large volume of queries in Web Panel for Registrars (DDOS)
- Large volume of DNS queries (DDOS)

### Probability:

- Moderate

### Impact on Revenue /Funding/ Cost/Timeline:

- It may cause system to breakdown and service outage eventually.
- It may consume unnecessary system resource, and hinder resource allocation for productive usage.
- It may impact additional cost for the Registry, charged by the outsourcing providers (i.e. Registry service, Anycast DNS)

### Mitigations:

- Technically, EPP and Web access to the registry is IP controlled and the number of connections allowed are controlled as well. DDOS may not impact the services as non allowed IP

## Appendix 3

address can be black holed the firewall and routers

- DDOS on DNS will be handled by AnyCast DNS. AnyCast DNS has the capability to comfortably absorb large amount of DDOS attack up to hundred of Gigabytes traffic per second.

- If the WHOIS is under DDOS, the registry will trigger on demand DDOS protection provided by tier 1 provider in the data center. The Traffic will be cleansed by proprietary DDOS cleansing center before redirect back to the servers.

Resource required:

- Data center operation staff, Anycast DNS operation engineers have been properly trained to handle the situation.

iii. Surge in Help Desk request

Risk/ Contingency:

- Large number of inquiries from registrars who are 1) not familiar with the system and/or 2) not familiar with the various phases

- Large number of inquiries from the public in regards to the various phases

Probability:

- Moderate

Impact on Revenue /Funding/ Cost/Timeline:

- It may consume unnecessary system resource, and hinder resource allocation for productive usage.

Mitigations:

- To ensure that registrars are trained and adequately briefed on the various system functionalities and phases prior to launch with clear and concise documentation and literature

- To ensure that details of the various launches are published on the registry website with clear and concise information

Resource required:

- The outsourcing providers will provision additional resource shall there be a surge in helpdesk request, especially during the launch (Sunrise, Land Rush and General Availability) phase of the TLD.

iv. Surge in Abusive Use and Violation of Policy

Risk/ Contingency:

- Large volume of complaints in abusive use of .THAI domain names.

- Large volume of cases on violation of registration and acceptance use policy of .THAI domain name.

Probability:

- Low

Impact on Revenue /Funding/ Cost/Timeline:

- This may incur additional expenditure cost for:

- a. Additional resource to manage complaints, and check on compliance of policies;

## Appendix 3

b. Additional resource by legal professional to provide legal response to complaints and legal action to abuse.

Mitigations:

- The risk is mitigated by the various protection mechanism implemented e.g. rapid take down procedure, URS and UDRP. Our resources will only perform the coordination with 3rd parties and decision will be either by URS panel, UDRP panel or court. Resource required:

- The dispute resolution is resolved by 3rd party panels of experts which the cost is absorbed by the complainant and the accused.

**50(a). Continuity: Provide a cost estimate for funding critical registry operations on an annual basis. The critical functions of a registry which must be supported even if an applicant's business and/or funding fails are:**

- **i) DNS resolution for registered domain names; ii) Operation of the Shared Registration System; iii) Provision of Whois service; iv) Registry data escrow deposits; and v) Maintenance of a properly signed zone in accordance with DNSSEC requirements. List the estimated annual cost for each of these functions (specify currency used).**

The Registry has outsourced its DNS resolution services (in accordance with DNSSEC requirements) to CommunityDNS. CommunityDNS shall charge the Registry based on the total number of .THAI domain names being served by the CommunityDNS platform as attached.

The Registry will be using CommunityDNS as its primary DNS Anycast provider. The cost estimate of provisioning the DNS resolution service based on the most likely and worst scenario is as attached.

Based on the agreement between the Registry and CommunityDNS, there are no incremental costs associated with increasing levels of DNS queries. The fees chargeable are based on US\$0.25 per domain name.

CommunityDNS also commits to scaling up its infrastructure to handle increasing levels of queries as and when required with no interruption to the service.

Qinetics Solutions Berhad (Qinetics), our outsourcing provider for the Shared Registration System and Whois service has a long-standing relationship with CommunityDNS having co-operated in

## Appendix 3

providing DNS Anycast services to several country-code top level domain registries (e.g. SGNIC -.sg TLD registry). Being one of the registry critical functions, CommunityDNS also provides 24x7x365 monitoring of the platform and related customer services including emergency access for urgent matters.

CommunityDNS has a good track record in the domain name industry for providing DNS resolution service and is also committed to meet the SLA requirements for the DNS resolution service laid out in Specification 10.

The operation of the Shared Registration System and the provision of the Whois service are outsourced to Qinetics Solutions Berhad (Qinetics). Qinetics has committed to charging US\$1 per domain name regardless of the volume of daily EPP transactions or Whois queries. As such, there are no incremental costs associated with increasing level of EPP transactions and/or Whois queries.

As such, the cost estimate of provisioning the Shared Registration System and Whois service based on the most likely and worst scenario is as attached.

Qinetics also commits to scaling up its infrastructure to handle increasing levels of queries as and when required with no interruption to the service.

Qinetics is a leading registry backend provider that has a proven track record of operational performance and excellent customer support since its inception in 2000. Qinetics currently provides registry back-end services for ccTLD Registries, such as .CD (Congo), .HK (Hong Kong) and .SG (Singapore) and registry gateway services for .CO (Columbia). In addition, Qinetics provides several critical registry components for Registry of .MY (Malaysia) as well as policy consultation services to Telecom Regulatory Authority (TRA) of .OM (Oman).

Qinetics has a good track record in the domain name industry for providing registry back-end services and is also committed to meet the SLA requirements for the Shared Registration System and Whois service laid out in Specification 10.

The Registry has outsourced the registry data escrow service to the NCC Group. The NCC Group charges a one-time setup fee of US\$3200 for provisioning data escrow services for a new generic Top Level Domain (gTLD) registry. After which, the Registry is charged based on US\$0.25 per domain name.

## Appendix 3

As such, the cost estimate of provisioning the data escrow service based on the most likely and worst scenario is as attached.

The costing provided by the NCC Group above is inclusive of administration, retention, transfer fees and deposit and handling of the data to ICANN regardless of a full or incremental data dump. The NCC Group commits to scaling up its infrastructure to handle increasing size of the files in escrow.

The NCC Group claims to be the world's largest provider of enterprise risk management solutions and well-known in the domain name industry as a leading data escrow provider. The NCC Group has been participating in data escrow discussion within the domain name industry since 2008 and has also been selected by RegistryPro (.pro registry) to act as its daily data escrow provider in 2008.

The NCC Group also warrants in its service agreement with the Registry that its registry data escrow service is and shall be remain fully compliant with ICANN requirements

### **50(b). Applicants must provide evidence as to how the funds required for performing these critical registry functions will be available and guaranteed to fund registry operations for a minimum of three years following the termination of the Registry Agreement**

The guidance provided by ICANN in regards to the Continued Operations Instrument (COI) is as attached.

VIP Registry projection of the domain name registrations and renewal over the first three years in the most likely scenario is as attached.

Using the COI guidance provide by ICANN and based on the forecasted registration with the highest number of 50,000 at the end of Year 3, the COI should be approximately US\$80,000.

The cost expenditure for the registry critical functions over the first three years based on both the most likely and worst case scenario is as attached.

The total cost expenditure for the registry critical functions over the first three years under the most likely scenario is US\$187,500, while the total cost expenditure for the registry critical functions over the first three years under the worst case scenario is US\$83,500.

## **Appendix 3**

It should be noted that the total cost expenditure for operating the registry critical functions is calculated based on the total number of active domain names on the outsourcing vendor platform, which is a cost of sales. As such, the revenue from the registration and renewal of the domain names will be used to supplement the costs of operating the registry critical services.

The registry believes it would be sufficient to cater approximately US\$80,000 for the COI based on ICANN COI guidelines but Better Living Management is committed to increase the amount required for COI based on its most likely scenario if ICANN requests for the increase.

It is stressed that it is highly unlikely for the Registry to fail in either the most likely or worst case scenario as explained in detail in both questions 47 and 48 where expenditures, funding and revenue scenarios, factors and variables are explored in detailed with positive outcomes.

A copy of the executed of irrevocable LOC for the COI is attached.







No. 0200.1/2840

Ministry of Information and  
Communication Technology  
The Government Complex

Contact Information Redacted

12 April B.E. 2555 (2012)

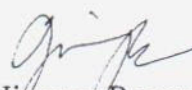
To the Members of the Board of Directors of ICANN:

I am writing this letter as the official representative of the Ministry of Information and Communication Technology of Thailand to convey our support for the application of Better Living Management Company Limited (BLM) to secure, create and operate the .THAI top-level domain. It is my understanding that BLM will submit an application to ICANN for the creation of the .THAI top-level domain.

I support the application of BLM in this effort. I believe that the .THAI top-level domain, as conceived and proposed by BLM represents the best interests of our communities. Furthermore, I understand that BLM accepts the conditions under which .THAI will be made available from ICANN, such as entry into a registry agreement with ICANN requiring compliance with consensus policies and payment of fees.

I, therefore, ask you to look favorably upon the application of BLM for the .THAI top-level domain for the benefit of our communities. If you need more detailed information on this matters, please feel free to contact me or my staff at [Contact Information Redacted](#) or by email at [Contact Information Redacted](#)

Yours sincerely,

  
Jirawan Boonperm  
Permanent Secretary



No. 1332



Ministry of Interior  
Contact Information Redacted

12 April 2012

To the Members of the Board of Directors of ICANN

This is to convey the support for the application of Better Living Management Company Limited (BLM) to secure, create, and operate the .THAI top-level domain. It is my understanding that BLM will be submitting an application to ICANN for the creation of the .THAI top-level domain.

We believe that the .Thai top-level domain as conceived and proposed by BLM represents the best interests of our communities.

We therefore would like you to look favorably upon the application of BLM for the .THAI top-level domain for the benefit of our communities. Should you need to clarify any details, please contact my staff via email address:  
Contact Information Redacted

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Pranai Suwanrath'.

(Mr. Pranai Suwanrath)  
Permanent Secretary for Interior





No. 0202/1892

Ministry of Industry

Contact Information Redacted

2/ May B.E. 2555 (2012)

To the Members of the Board of Directors of ICANN

This is to convey the support for the application of Better Living Management Company Limited (BLM) to secure, create, and operate the .THAI top-level domain. It is my understanding that BLM will be submitting an application to ICANN for the creation of the .THAI top-level domain.

We believe that the .THAI top-level domain as conceived and proposed by BLM represents the best interests of our communities.

We therefore would like you to look favorably upon the application of BLM for the .THAI top-level domain for the benefit of our communities. Should you need to clarify any details, please contact my staff via email address: Contact Information Redacted

Yours sincerely,

(Mr. Witoon Simachokedee)

Permanent Secretary







No. 0206/3555

Ministry of Culture

Contact Information Redacted

7 November 2012

To whom it may concern

This is to convey the support for the application of Better Living Management Company Limited (BLM) to secure, create, and operate the .THAI top-level domain. It is my understanding that BLM will be submitting an application to ICANN for the creation of the .THAI top-level domain.

We believe that the .THAI top-level domain as conceived and proposed by BLM represents the best interests of our communities.

We therefore would like you to look favorably upon the application of BLM for the .THAI top-level domain for the benefit of our communities. Should you need to clarify any details, please contact my staff via email address: Contact Information Redacted

A handwritten signature in black ink, appearing to read 'Sungathorn'.

Office of the Permanent Secretary

November 2012









MIRACLE OF LIFE FOUNDATION

Under HRH Princess Ubolratana Rajakanya Sirivadhana Barnavadi

NO. 1961 / 2555

Miracle of Life Foundation

Contact information Redacted

8 November 2012

To: The Members of the Board of Directors of ICANN

The Miracle of Life Foundation under HRH Princess Ubolratana Rajakanya Sirivadhana Barnavadi was established under the royal patronage of HRH Princess Ubonrat Rajakanya Barnavadi. Our objectives are to help new generations with talents but lack opportunities. The Princess, thus, wishes to provide supports in order to bring desirable quality of life to them. The foundation also aims to support the Thai Culture and to co-operate with other charitable foundations to provide aids for Thai people over the country without political involvement.

It is to our understanding that Better-Living Management Company Limited (BLM) will be submitting an application to ICANN for the creation of the .THAI top-level domain. We would like to convey our support for the application of BLM to secure, create and operate the .THAI top-level domain. We believe that the .THAI application submitted by Better Living Management Company Limited will benefit the development of Internet and Technology in Thai community. We hope that our support can represent a part of the Thai community due to our numerous involvements in community service activities around Thailand, promoting better quality of life.

We believe that the .THAI top-level domain, as conceived and proposed by BLM, represents the best interest of our community and citizen.

We therefore would like to request that you look favorably upon the application of BLM for the .THAI top-level domain for the benefit of the Thai community. Should you need to clarify any details, you may reach via email at [Contact Information Redacted](#)

Yours Sincerely,

(Anan Sathusen)

Miracle of Life Foundation Secretary

Tel. [Contact information Redacted](#)Fax. [Contact information Redacted](#)





Better Ilving Management Coompany Limited

## Contact Information Redacted

28  
30th May A.D. 2555  
2012  
Rujin B...

No. 018/024

Attention Permanent Secretary of Ministry of Science and Technology

Subject Policy and Benefit clarification of .Thai registration

As Better Living Management Co., Ltd, has submitted a letter to Ministry of Science and Technology requested support for .Thai domain with Internet Corporation for Assigned Names and Number (ICANN), the company, hereby, clarifies the policy and the benefit of .Thai registration as follow:

1. The registration of .Thai aims to let Thai citizen around the world that share interest in Thai culture, attraction, local product, export product, and any service can register in order to identify the nationality on the internet and to let the visitor to understand that the website ends with .Thai is related to Thai culture.
2. .Thai is the registration on second level domain type, which is different from .th as it is the third level domain such as .co.th, .in.th or .net.th. As the clarification on 1<sup>st</sup> point, .Thai does not aim to express the geographical identity but aims for culture like .irish or Irish people, .scot of Scotland citizen, or .Fra by French.
3. In the past to present, there are not many website using .th because majority registers the website with .com domain. .Thai domain registration, thus, would be a new choice to replace the majority with .com. It is possible that there is a well-known website under .Thai domain.
4. The company hires the international law advisor to advice on .Thai registration. The company received proper advice in order for the company to follow ICANN regulation strictly. The company also studies the Uniform Domain Name Dispute Resolution Policy (UDRP) and including the prohibit cybersquatting in registration process on .Thai accordingly to the ICANN regulation. In addition, the company also develop Right Protection Mechanism (RPM) to protect the right of existing domain owner.
5. In Macroeconomic, currently, Thai consumer prefers the .com registration because the more convenience, fast process, and easy to understand. The revenue from .com domain is the



expense of Thai citizen that leaks to international firm. This is a reason that the country runs deficit on Macroeconomics. Thus, .Thai domain would create a chance for Thai consumer to use this domain and reduce the Macroeconomic problem.

6. The company aims to donate part of the revenue to the foundations, which the company is currently working to contact foundations.
7. THNIC is the only private firm in Thailand that acquire the right on domain. The company believes that .Thai would be another choice for domain registration of Thai citizen. It would be proud to the country to have .Thai and let the world knows this through Internet Source.
8. The company tries to find a way to work with THNIC such as the co-working on ASCII and IDN of two company together and also the promotion to promote Thai people to use domestic domain. In addition, the company also looks forward to co-working with THNIC to host the ICANN meeting, which will benefit the country in tourism industry.
9. In term of security, the company has placed 80,000US as a guarantee. The company is registered in Thailand and operates under Thai law. The company paid the capital of 50 Million Baht and it is easier to manage than .com, which is owned by foreign company. The CEO of .Thai is graduated from National Defend College year A.D 2544 and the Senior Nation Defend 3<sup>rd</sup> Generation, and is attending the senior management accordingly to the King policy. Thus, the company is confident that the service will not create any damage to the country.
10. In the soon future, the company BLM is offering INET or Internet Thailand that has CAT telecom and TOT own shares to take shares of the company to show the good governance and confident to the consumers.
11. Regarding to Ministry of Science and Technology and Nation Science and Technology Development Agency (NSTDA), the company believes that we can support the objective of NSTDA that to continually improve Thailand to be solid and developed on international business through the scientific ability and technology to improve nation industry. NSTDA also mentions that the country can be developed in long term is depended on the nation ability to produce excellent goods more than other countries and the stability of the nation will happen to Thai people. In addition, Ministry of Science has a vision to build up alliance to work with justice, honest and good governance to build the confidential. The company is ready to share such a vision with Ministry of Science to create new benefit to nation society. The company believes that what the company intends to do is in the same direction of NSTDA without any harm to the nation.
12. The company has clear policy to operate the domain. The user that wants to use our service will have to select domain names and the objective to create a domain with the company. The company will consider the domain and objective whether it damages the country or not especially on the matter of Royal family, Thai regulation, and any direction to

the nation. If the domain name and objective could create damage to the policy, the company will not allow the user to register such a domain

13. Rather the initial evaluation, the company also has a policy to randomly check the users if there is any break of regulation or not. If the company finds the website under the company operation breaks the regulation or national law, the company will cancel such a website.
14. The government has policy to distribute 400,000 pieces of tablet this year and currently, NSTDA has policy to support the user of internet, which the news to award the most visited website from the news of 14<sup>th</sup> May: National Science and Technology Development Agency (NSTDA) and Internet Development Agency of Thailand has announce the "Truehits.net Web Awards 2011" award to most popular website for 9<sup>th</sup> time, having Mr. Plodpasop Suraswadee, Minister of Science and Technology Ministry (ST.) as the president to give an award. Mr. Piya Tantawichian, the president of technical of Internet Development Agency of Thailand announces that the top 10 websites are
  - a. [www.sanook.com](http://www.sanook.com)
  - b. [www.mthai.com](http://www.mthai.com)
  - c. [www.kapook.com](http://www.kapook.com)
  - d. [www.dek-d.com](http://www.dek-d.com)
  - e. [www.manager.co.th](http://www.manager.co.th)
  - f. [www.exteen.com](http://www.exteen.com)
  - g. [www.teenee.com](http://www.teenee.com)
  - h. [www.truelife.com](http://www.truelife.com)
  - i. [www.thairath.com](http://www.thairath.com)
  - j. [www.siamsport.com](http://www.siamsport.com)

According to the most visited website information in 2011, it shows that the internet users increase for 26.77% comparing to 2010 averaging to 6 million users in last year August. The total internet users is 25,090, 390 people. The research indicates that male users is more than female users at 55%. Majority are student. Bangkok has the most internet users with 31%, midland is 20%, North-Eastern is 18%, Southern is 12%, Northern is 12%, and Eastern is 9%

After the distribution of table by Thai Government, the tablet market around the world has high competition led to cheaper product. Thus, the internet users and information search will increase in domestic and international.

(Reference from: Open the most popular website of the year, Matichol (Gorpbai), on 16<sup>th</sup> May, A.D 2555)

From the information above, it shows that the websites in Thailand are mostly use .com and

there is only one .th. Thus, .Thai would be another choice that hopefully Ministry of Science and Technology will not block it by issue a letter of support to the company would be very thankful.

The company hopes that Ministry of Science and NSTDA would support the company as same as the other three ministries, which are Interior Ministry, Technology information and Communication Ministry, and industry Ministry, especially on the Industry that is directly related to Ministry of Science that support Industry Ministry. .Thai will be another channel of industry, thai product, and rather than to create a well-known domain to the world, it is also a proud to Thai people and create a love of Thai people to the country as the company quote is "Proud to be Thai"

Please urgently consider would be very thankful.

Sincerely Yours

-Signature-

(Rachanee Yingchairak)

Chief Executive Officer

Better Living Management Co., Ltd.

Tel Contact Information Redacted

Fax Contact Information Redacted







Proud To Be Thai

บริษัท เบ็ทเทอร์ ลิฟวิ่ง แมนเนจเม้นท์ จำกัด  
Contact Information Redacted

วันที่ 28 พฤษภาคม 2555

เลขที่ 018/024

เรียน ท่านปลัดกระทรวงวิทยาศาสตร์

เรื่อง หนังสือชี้แจงนโยบายและประโยชน์ของการจดทะเบียน .thai

ตามที่ทางบริษัท เบ็ทเทอร์ ลิฟวิ่ง แมนเนจเม้นท์ (BLM) จำกัด ได้ทำหนังสือถึงกระทรวงวิทยาศาสตร์และเทคโนโลยีเพื่อขอหนังสือสนับสนุนการจดทะเบียนโดเมน .thai กับทางองค์กร Internet Corporation for Assigned Names and Numbers (ICANN) นั้นบริษัทฯขออนุญาตชี้แจงนโยบายและประโยชน์ ของการจดทะเบียน .thai เพิ่มเติมดังต่อไปนี้

1. การจดทะเบียน .thai มีจุดประสงค์เพื่อให้คนไทยทั่วโลกหรือชาวต่างชาติที่รักหรือมีความสนใจในศิลปวัฒนธรรมนิยมประเพณีวัฒนธรรมไทยตลอดจนสถานที่ท่องเที่ยว ผลิตภัณฑ์พื้นเมือง สินค้าส่งออก รวมทั้งงานด้านบริการต่างๆ สามารถเข้ามาจดทะเบียนเพื่อแสดงสัญชาติผ่านที่อยู่บนอินเทอร์เน็ตให้ผู้แะชมได้รับรู้ว่าเว็บไซต์ที่จดกับ .thai นั้นเกี่ยวข้องกับความเป็นไทย โดยทางบริษัทฯ มีความเห็นว่า .ไทย ไม่สามารถรองรับความต้องการของชาวไทย หรือชาวต่างชาติที่ไม่สามารถหรือไม่ถนัดการพิมพ์ภาษาไทยได้ รวมถึงชาวต่างชาติที่ไม่สามารถอ่านภาษาไทยได้ .ไทย เหมาะสำหรับใช้ในหมู่คนไทย แต่ .Thai เหมาะสำหรับการเผยแพร่ความเป็นไทยไปสู่นานาชาติทั่วโลก จึงจำเป็นต้องใช้ภาษาอังกฤษ ซึ่งเป็นภาษาสากลทั่วทั้งโลกที่เป็นกลุ่มเป้าหมายที่สอดคล้องกับนโยบายยุคโลกาภิวัตน์ของรัฐบาล
2. .thai เป็นการเสนอการจดทะเบียนในรูปแบบ second level domain ซึ่งแตกต่างจาก .th ซึ่งเสนอการจดทะเบียนในรูปแบบ third level domain ดังเช่น .co.th, .in.th หรือ .net.th ทั้งนี้ดังที่กล่าวไว้ในข้อ 1 .thai ไม่ได้มีจุดประสงค์ในการแสดงตัวตนด้านภูมิศาสตร์ โดยสิ้นเชิงหากแต่มุ่งเน้นด้านวัฒนธรรม ดังเช่นการจดทะเบียน .irish ของชาวไอริช .scot ของชาวสก๊อตแลนด์ หรือ .fra ของชาวฝรั่งเศส
3. ตั้งแต่อดีตที่ผ่านมาจนถึงปัจจุบันมีผู้ใช้บริการจดทะเบียนเว็บไซต์ ลงท้ายด้วย .th ไม่มาก เพราะส่วนใหญ่จะจดด้วย .com การเปิดโอกาสให้จด .thai จึงเป็นทางเลือกแทนที่เว็บไซต์ส่วนใหญ่จะไปจดด้วย .com ซึ่งอนาคตข้างหน้าอาจจะมีเว็บไซต์ลงท้ายด้วย.thai มีชื่อเสียงดังไปทั่วโลกก็เป็นได้



4. ทางบริษัทฯ มีการว่าจ้างที่ปรึกษาต่างประเทศในการจดทะเบียน .thai โดยทางบริษัทฯ ได้รับคำปรึกษาแนะนำแนวทางเพื่อให้บริษัทฯ ปฏิบัติตามกฎหมายทุกข้อที่เกี่ยวข้องกับ ICANN อย่างเคร่งครัด บริษัทฯ ยังได้ศึกษากฎ Uniform Domain Name Dispute Resolution Policy (UDRP) รวมถึงการไม่อนุญาตในการทำ cyber squatting ในการจดทะเบียนโดเมนผ่าน .thai ตามหลักเกณฑ์สากลขององค์กร ICANN นอกจากนี้ทางบริษัทฯ ยังได้สร้างกฎ Right Protection Mechanism (RPM) เพื่อปกป้องสิทธิประโยชน์ของเจ้าของโดเมนต่างๆ ในปัจจุบันอีกด้วย
5. ในทางเศรษฐศาสตร์มหภาคนั้น ปัจจุบันคนไทยนิยมการจดทะเบียน .com เนื่องจากมีความสะดวก รวดเร็ว และ เข้าใจง่าย โดยรายได้จากการจดทะเบียน .com นั้นจะเป็นรายจ่ายของคนไทยซึ่งไหลออกสู่ต่างประเทศ โดยเป็นอีกหนึ่งเหตุผลที่ทำให้ประเทศเสียดุลย์การค้าระหว่างประเทศมาตลอด ดังนั้นการจดทะเบียน .thai สามารถทำให้คนไทยมีโอกาสหันมาจดทะเบียนโดเมนนี้ ลดปัญหาดังกล่าวได้ และเป็นประโยชน์ต่อประเทศชาติ
6. ทางบริษัทฯ มีความประสงค์ที่จะนำรายได้ส่วนหนึ่งบริจาคให้กับมูลนิธิต่างๆ ซึ่งปัจจุบันบริษัทฯ อยู่ในการดำเนินการพิจารณาและติดต่อมูลนิธิหลายๆ แห่ง
7. ปัจจุบัน THNIC เป็นบริษัทเดียวในประเทศไทยซึ่งครอบครองสิทธิตรงนี้ ซึ่งบริษัทฯ เห็นว่าการจดทะเบียน .thai จะเป็นอีกหนึ่งทางเลือกของคนไทยในการจดทะเบียนโดเมนของคนไทยซึ่งเป็นความภูมิใจและหน้าตาของประเทศไทยที่มี .Thai ให้ชาวโลกรู้จักผ่านสื่ออินเตอร์เน็ตมากขึ้น
8. บริษัทฯ มองหาช่องทางที่จะร่วมมือกับทางบริษัท THNIC อย่างเช่นการรวมการใช้งานระหว่าง ASCII กับ IDN ของสองบริษัทเข้าด้วยกัน รวมถึงการร่วมกันโปรโมทให้คนไทยใช้เว็บไซต์ของคนไทยเอง นอกจากนี้ทางบริษัทฯ ยังได้มองถึงการร่วมมือกันในการผลักดันประเทศไทยให้เป็น host ในการประชุมใหญ่ของ ICANN ที่จะมีผู้จดทะเบียน Top Level Domain และผู้เกี่ยวข้องร่วมประชุม ซึ่งจะเป็นการนำรายได้ในเชิงการท่องเที่ยวเข้าสู่ประเทศอีกด้วย
9. สำหรับกรณีความมั่นคงปลอดภัยนั้น บริษัทฯ มีเงินวางประกันความเสียหาย 80,000 USD นอกนั้นบริษัทฯ จดทะเบียนในประเทศไทย อยู่ภายใต้กฎหมายไทย ได้ชำระค่าหุ้นตามมูลค่าเต็ม 50 ล้านบาท บริษัทฯ สามารถกำกับดูแลได้ดีกว่า .com ที่จดทะเบียนในต่างประเทศ ประธานกรรมการบริหารของ .thai ก็จบการศึกษาจากวิทยาลัย ป้องกันราชอาณาจักรรุ่นปี 2544 และ หลักสูตรการบริหารจัดการด้านความมั่นคงระดับสูงรุ่นที่ 3 และกำลังเข้ารับการอบรมหลักสูตรผู้นำระดับสูงตามแนวพระราชดำรินี้ ดังนั้นทางบริษัทฯ มั่นใจว่าการให้บริการจะไม่ก่อให้เกิดความเสี่ยงต่อความเสียหายใดๆ ให้เกิดขึ้นกับประเทศไทยอย่างแน่นอน



10. ในอนาคตอันใกล้นี้ บริษัท BLM จะเสนอให้บริษัท INET หรือ อินเทอร์เน็ต ไทยแลนด์ ซึ่งเป็นบริษัทที่มี CAT Telecom และบมจ.ทีโอทีถือหุ้นอยู่ด้วย ให้เข้ามาถือหุ้นในบริษัท เพื่อความโปร่งใสและความมั่นใจให้กับผู้ใช้บริการ
11. ในส่วนของกระทรวงวิทยาศาสตร์และเทคโนโลยีแห่งชาติ และ สำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ (สวทช.) นั้นบริษัทเชื่อว่าจะสามารถส่งเสริมสนับสนุนจุดประสงค์ของ สวทช. คือ การมุ่งผลักดันให้ประเทศไทยแข็งแกร่งและเจริญรุ่งเรืองบนเวทีเศรษฐกิจระดับโลกผ่านความสามารถด้านวิทยาศาสตร์ และเทคโนโลยีมาช่วยด้านอุตสาหกรรมของประเทศซึ่ง สวทช. ยังได้ให้เหตุผลว่าการที่ประเทศของเราจะเจริญรุ่งเรืองอย่างยั่งยืนได้นั้น ขึ้นอยู่กับความสามารถของประเทศเราในการผลิตงานให้ได้ดีกว่าประเทศอื่นๆ และความมั่งคั่งของประเทศจะเกิดขึ้นได้กับคนไทย อีกทั้งตามที่ กวทช. มีวิสัยทัศน์ในการสร้างพันธมิตรที่ดี ในการดำเนินงานอย่างมีคุณธรรม จริยธรรม ซื่อสัตย์ โปร่งใสและเอื้อเฟื้อเผื่อแผ่ก่อให้เกิดความน่าเชื่อถือนั้น ทางบริษัทฯพร้อมที่จะร่วมแบ่งปันวิสัยทัศน์นี้กับทาง กวทช. เพื่อสร้างสรรค์ประโยชน์ใหม่ให้แก่สังคมประเทศชาติ โดยทางบริษัทฯ มั่นใจว่าสิ่งที่บริษัทฯกำลังจะทำนั้น จะสอดคล้องกับจุดประสงค์ของทาง สวทช. อย่างแน่นอนโดยไม่สร้างความเสี่ยงต่อความมั่นคงของชาติและผลเสียอื่นๆใด
12. ทางบริษัทฯมีนโยบายชัดเจนในการให้บริการการจดโดเมนดังกล่าว โดยทางผู้ประสงค์ขอใช้บริการกับทางบริษัทฯจำเป็นต้องรายงานชื่อโดเมนและจุดประสงค์ในการจดโดเมนให้กับทางบริษัทฯในขั้นต้น โดยบริษัทฯจะพิจารณาชื่อโดเมนและจุดประสงค์เว็บไซต์ดังกล่าวอย่างถี่ถ้วนโดยคำนึงถึงผลกระทบต่อประเทศไทยในด้านต่างๆโดยเฉพาะ สถาบันพระมหากษัตริย์ การละเมิดกฎหมายของประเทศไทย และผลกระทบต่อประเทศไทยในทุกๆด้านโดยหลังจากการพิจารณา หากชื่อเว็บไซต์และจุดประสงค์ของผู้ขอใช้บริการเข้าข่ายละเมิดนโยบายดังกล่าว ทางบริษัทฯจะไม่มีกรให้บริการกับผู้จดโดเมนดังกล่าวอย่างแน่นอน
13. นอกจากการพิจารณาในขั้นตอนแรกแล้ว บริษัทฯยังมีนโยบายสุ่มตรวจผู้ใช้บริการกับทางบริษัทฯโดยเป็นการสุ่มตรวจเว็บไซต์ต่างๆ ว่ามีการดำเนินการตามกฎหมายหรือไม่โดยหากทางบริษัทฯตรวจพบว่า เว็บไซต์ใดภายใต้การบริหารงานของบริษัทฯมีการกระทำผิดนโยบายหรือผิดกฎหมายข้อใดข้อหนึ่งของประเทศทางบริษัทฯจะยกเลิกบริการเว็บไซต์ดังกล่าวโดยทันที
14. รัฐบาลมีนโยบายจะแจก แท็บเล็ตจำนวน 400,000 เครื่องในปีนี้ และปัจจุบันเห็นได้ชัดว่า สวทช. มีแนวทางชัดเจนในการสนับสนุนนโยบายให้มีการใช้อินเทอร์เน็ตคือข่าวการประกาศให้รางวัลเว็บไซต์ในประเทศไทยที่มีผู้นิยมสูงสุด จากข่าววันที่ 14 พฤษภาคม สำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ (สวทช.) ร่วมกับบริษัท ศูนย์วิจัยนวัตกรรมอินเทอร์เน็ตไทย จำกัด ประกาศรางวัลเว็บไซต์ในประเทศไทยที่มี

ผู้นิยมสูงสุด “Truehits.net Web Awards 2011” ปีที่ 9 โดยมีนายปลอดประสพ สุรัสวดี รัฐมนตรีว่าการกระทรวงวิทยาศาสตร์และเทคโนโลยี (วท.) เป็นประธานมอบรางวัล นายปิยะ ตันทิวีเชียร ประธานเจ้าหน้าที่ฝ่ายเทคนิค บริษัทศูนย์วิจัยนวัตกรรมอินเทอร์เน็ต ไทยจำกัด เปิดเผยว่า เว็บไซต์ที่มีผู้นิยม 10 อันดับ ได้แก่

- 1) www.sanook.com
- 2) www.mthai.com
- 3) www.kapook.com
- 4) www.dek-d.com
- 5) www.manager.co.th
- 6) www.exteen.com
- 7) www.teenee.com
- 8) www.truelife.com
- 9) www.thairath.com
- 10) www.siamsport.com

ทั้งนี้จากสถิติการเข้าชมเว็บไซต์ประเทศไทยในปี 2011 พบว่ามีอัตราการใช้อินเทอร์เน็ตเฉลี่ยสูงขึ้นถึงร้อยละ 26.77 เมื่อเทียบกับปี 2010 เฉลี่ยวันละประมาณ 6 ล้านคนโดยในเดือนสิงหาคมปีที่แล้ว มีผู้ใช้งานอินเทอร์เน็ตสูงสุดถึง 25,090,390 คน จากการสำรวจเพศชายเป็นเพศที่ใช้งานอินเทอร์เน็ตสูงกว่าหญิง คิดเป็นร้อยละ 55 ส่วนใหญ่เป็นกลุ่มนักเรียน นักศึกษา โดยกรุงเทพมหานครและปริมณฑลมีผู้ใช้อินเทอร์เน็ตสูงสุด ร้อยละ 31 ภาคกลาง ร้อยละ 20 ภาคตะวันออกเฉียงเหนือ ร้อยละ 18 ภาคใต้ ร้อยละ 12 ภาคเหนือ ร้อยละ 10 และภาคตะวันออก ร้อยละ 9

หลังจากมีการแจกแท็บเล็ตของรัฐบาลไทยแล้วในตลาดแท็บเล็ตทั่วโลกก็มีการแข่งขันด้านราคาทำให้มีราคาถูกลง ดังนั้นจะมีผู้ใช้บริการอินเทอร์เน็ตและการใช้บริการหาข้อมูลก็เพิ่มขึ้นด้วยทั้งในประเทศไทยและรวมทั้งทั่วโลก

(รายการอ้างอิง :เปิดเว็บไซต์ยอดนิยมประจำปี. มติชน (กรอบாய). ฉบับวันที่ 16 พฤษภาคม พ.ศ. 2555)

จากตารางผู้ให้บริการเว็บไซต์ตามข่าวข้างต้น จะเห็นได้ว่าเว็บไซต์ในประเทศไทยส่วนใหญ่ .Com มีเพียง .th เพียงรายเดียว ดังนั้น .Thai จึงน่าจะเป็นทางเลือกอีกทางหนึ่งที่หวังว่าทาง กวทช.จะไม่ปิดกั้นโดยการออกหนังสือสนับสนุนหรือเป็น Letter of Non Objection ให้กับทางบริษัทก็จะขอบพระคุณเป็นอย่างสูง



บริษัทฯ หวังอย่างยิ่งว่าทาง กวทช. จะให้การสนับสนุนสอดคล้องกับแนวนโยบายของอีก 3 กระทรวง คือ กระทรวงมหาดไทย กระทรวงการสื่อสารสารสนเทศและเทคโนโลยี และกระทรวง-อุตสาหกรรม โดยเฉพาะกระทรวงอุตสาหกรรมที่เกี่ยวข้องโดยตรงกับกระทรวงวิทย์ฯ ซึ่งมีนโยบายที่จะสนับสนุนอุตสาหกรรมไทย .thai จะเป็นช่องทางของการทำการตลาดของอุตสาหกรรมผลิตภัณฑ์ สินค้าไทย นอกจากนี้จะสร้างชื่อเสียงให้รู้จักชัดเจนในตลาดสากลแล้ว ยังเป็นการสร้างความภาคภูมิใจให้กับคนไทยตลอดจนสามารถช่วยเสริมสร้างความเป็นชาตินิยมของคนไทย

จึงเรียนมาเพื่อโปรดพิจารณาโดยด่วนจักเป็นพระคุณยิ่ง

ด้วยความเคารพ

รชนี ยิ่งฉายรักษ์  
กรรมการผู้จัดการใหญ่  
บริษัท เบ็ทเทอร์ ลิฟวิ้งแมนเนจเม้นท์ จำกัด

โทร.

Contact Information Redacted

แฟกซ์

Contact Information Redacted

(Translation)

Appendix Appendix 1

Office of the Permanent Secretary for Science and Technology NSTDA  
Receipt No. : 5513625  
Date: October 31, 2012  
Time : 14.02

**Memorandum of Statements**

No. WorThor 5401/7726

Date: October 31, 2012

**Subject:** Requesting for justice in relation with asking for the support of .Thai

**To:** Permanent Secretary, Ministry of Science and Technology

Pursuant to the most urgent memorandum No. WorThor 0201/5508217, dated October 11, 2012, asking the Institute of Academic Development (AD) to provide information for consideration and carry out in concerning part to the letter of consult of Better Living Management Co., Ltd. delivered to the Permanent Secretary of Ministry of Science and Technology in relation with asking for the support of .Thai, details as shown thereof.

AD would like to provide more information from the memorandum of statements No. WorThor 5401/3383, dated May 22, 2012 and memorandum of statements No. WorThor 4401/4440, dated June 26, 2012 as follows:

1. Information about Top-Level Domain Names relating to Thailand
  - 1.1 .th (dot th) started to be used in 1986 during the starting time of internet, supervised by Thai academics who took part in the internet development. After it had been widely used the service was provided under the name of TH NIK Co., Ltd. under the supervision of Thai Network Information Center and its policy.
  - 1.2 .Thai (dot Thai) started to be developed in 2010 during such time ICANN (Internet Cooperation for assigned names and member) which is World's Domain Resources Management Organization that operated its business without profit in return had provided its services under the country code top-level domain. Thai Network Information Center who was supervising .th consulted with Thai Internet Community and requested to use Thai as its country code top-level domain. The development on this matter had been supported by Government Sector, National Technology and Computer Center and Ministry of Information and Communication Technology throughout these years as the services provided to Thai internet community by the Foundation of Thai Network Information Center free of charge.
2. In applying for being a supervisor of the new top-level domain generally organized by ICANN and in the case of trade name that many organizations may have applied at the same time (For competition), for examples, .inc, .book, .shop, etc., ICANN must consider to approve the permit to the most suitable entity. Some types of names may have been in geographic names (i.e. .patagonia), cultural name or community name (i.e. .scot) in which some private companies submitted to have their names registered under the geographic names or the name relating to the country. ICANN shall have the mechanism to require the applicant to show the supporting evidences provided by governments of those countries.
3. In the case of .Thai applied by the private company to ICANN as the .Thai domain caretaker had filed the complaint to Permanent Secretary for Science and Technology saying that its opinion was not neutral and was disputed with other ministries. In consideration of such complaint, AD would like to present the academic issue and the issues relating to the Internet Governance to the Ministry of Science and Technology as follows:
  - 3.1 The use of .Thai is likely to have the meaning as "Thai shop" or "Thai citizen", although it is not the name of the country, it covers wider than the geographic name as it means the Thai community all



Certified True and Correct Translation

Aree Suphanthanant

INTERLANGUAGE TRANSLATION CENTER

Contact Information Redacted



over the world where the useful services should be provided by the Government agencies such as Ministry of Information and Communication Technology. If such service should be carried out by the private company it is likely to be in the form of concession given by the Government with the requirements on quality and prices.

- 3.2 Since .Thai has the identical sound as .Inc, making it not to conform to ICANN's requirements on string conflict (In case of New Zealand where the country's domain is .nz, the application of .kiwi or .maori registration is considered having no string clash problem with .nz at all). The homophone shall have caused the problem on practice in the future, so it is prohibited by ICANN. In case other names that are not homonymous to .Inc are proposed by BLM, it is deemed expedient for the Ministry of Science and Technology to give it the support.
- 3.3 In the event that it wishes to use the name .thai, the consultation should be made with the Thai internet community first before submitting the application. At the present it is understood that no consultation is made with the internet community and the issue presented in the letter delivered to Permanent Secretary of Ministry of Science and Technology, dated October 4, 2012, on the price (Detailed statement No. 5) and the solution of dispute problem (Detailed statements No. 6 and No. 7) saying that it is the application in the form of community domain, not related to the geography which is considered as the new information that should be consulted with the Thai Internet Community. After the consultation the clarification would have been sufficient for receiving the support from the community and Ministry of Science and Technology. In addition, the study should be made in comparison with the case of .scot registered by the non-profit organization for providing services to the community. The Scotland Government has the same vision as that of the applicant and in the document of BLM which is the joint application made with the company in Malaysia, it can be understood that this is not within the scope of Non-profit seeking".
- 3.4 However, from BLM's letter presenting the explanation of statement No. 3, saying that this matter should be responsible for by Ministry of Information and Communication Technology, for now BLM has already been supported by Ministry of Information and Communication Technology in writing, so it is unnecessary for BLM to ask for .thai supporting letter from Ministry of Science and Technology and in the case that the Company had the dispute problem with Dr. Kanchana Kanchanasut, it would not be the issue concerning the opinion of Ministry of Science and Technology at all.

From the fact as mentioned above AD presumes that Ministry of Science and Technology is able to issue a letter showing no intention to object or deny the .thai application of the Company since it the task of Ministry of Information and Communication Technology who has been providing the support to the Company's operation.

Please kindly be informed for further consideration.

Acknowledged

-Signature-

(Mr. Weeraphong Phaesuwan)

Permanent-Secretary, Ministry of Science and Technology

-Signature-

(Mrs. Chadamat Thuwasetthakun)

Deputy Director of Institute of Academic Development (AD).

For Director of Institute of Academic Development

Central Office  
Directorate Bureau  
Tel. Contact Information Redacted  
Fax:



Certified True and Correct Translation

Aree Suphanthanant

INTERLANGUAGE TRANSLATION CENTER

Contact Information Redacted





สำนักงานปลัดกระทรวงวิทยาศาสตร์และเทคโนโลยี	
และเทคโนโลยี	
เลขที่	5513625
วันที่	31 มี.ค. 2555
เวลา	14.02 น.

## บันทึกข้อความ

ที่วท ๕๔๐๑/ ๗๗ ๒ ๖

วันที่ ๓๑ ตุลาคม ๒๕๕๕

เรื่อง ขอบความเป็นธรรมเกี่ยวกับการขอหนังสือสนับสนุน .Thai

① เรียน ปทท.วท.

ตามบันทึก ด่วนที่สุด ที่ วท ๐๒๐๑/๕๕๐๘๒๑๓ ลงวันที่ ๑๑ ตุลาคม ๒๕๕๕ ขอให้ พว. พิจารณาให้ข้อมูลเพื่อการพิจารณาและดำเนินการในส่วนที่เกี่ยวข้องต่อหนังสือหารือที่บริษัท เบ็ทเทอร์ ลิฟวิ่ง แมนเนจเม้นท์ จำกัด มีมาถึง ปทท.วท. เกี่ยวกับการขอหนังสือสนับสนุน .Thai ความละเอียดแจ้งแล้ว นั้น

พว. ขอให้ข้อมูลเพิ่มเติม จากบันทึกข้อความ ที่ วท ๕๔๐๑/๓๓๘๓ ลงวันที่ ๒๒ พฤษภาคม ๒๕๕๕ และบันทึกข้อความ ที่ วท ๕๔๐๑/๔๔๔๐ ลงวันที่ ๒๖ มิถุนายน ๒๕๕๕ ดังนี้

๑. ข้อมูลเกี่ยวกับ Top-Level Domain Names ที่เกี่ยวกับประเทศไทย

๑.๑ .th (คอต ที เอช) เริ่มมีใช้เมื่อปี พ.ศ. ๒๕๒๙ ในช่วงเริ่มต้นของอินเทอร์เน็ต ดูแลโดยนักวิชาการไทยที่มีส่วนร่วมในการพัฒนาอินเทอร์เน็ต ต่อมาเมื่อมีการใช้งานแพร่หลาย จึงได้จัดเป็นบริการขึ้นเรียกว่า บริษัท ที เอช นิค จำกัด โดยมีมูลนิธิศูนย์สารสนเทศเครือข่ายไทย ทำหน้าที่ให้คำแนะนำเชิงนโยบายการดำเนินงาน

๑.๒ .ไทย (คอต ไทย) เริ่มมีการพัฒนาขึ้นในช่วง พ.ศ. ๒๕๕๓ ในช่วงที่ไอแคนน์ (ICANN: Internet Cooperation for assigned names and number) ซึ่งเป็นองค์กรบริหารทรัพยากรโดเมนโลกที่ดำเนินงานแบบไม่หวังผลกำไร ได้เปิดให้บริการชื่อโดเมนภาษาท้องถิ่นคู่กับโดเมนระดับสูงสุดประเทศรหัสประเทศ (Country code top-level domain) ทางมูลนิธิศูนย์สารสนเทศเครือข่ายไทย ซึ่งเป็นผู้ดูแล .th ได้ทำการปรึกษาประชาคมอินเทอร์เน็ตไทย และขอใช้ .ไทย เป็นชื่อโดเมนระดับบนสุดแบบรหัสประเทศในภาษาท้องถิ่น พัฒนาการทางด้านนี้ได้รับความสนับสนุนจากภาครัฐ, ศูนย์เทคโนโลยีอิเล็กทรอนิกส์และคอมพิวเตอร์แห่งชาติ และกระทรวงเทคโนโลยีสารสนเทศและการสื่อสารมาโดยตลอด และเป็นบริการที่ทางมูลนิธิศูนย์สารสนเทศเครือข่ายไทยได้ให้แก่ประชาคมอินเทอร์เน็ตไทยโดยไม่คิดค่าใช้จ่าย

๒. ในการยื่นสมัครเป็นผู้ดูแลโดเมนระดับสูงสุดใหม่นี้ เป็นการเปิดตลาดอิสระ ที่ไอแคนน์จัดทำขึ้นเป็นการทั่วไป และในกรณีที่เป็นชื่อการค้า อาจจะมีหลายองค์กร ยื่นขอพร้อมกัน (แข่งขัน) จำนวนมาก เช่น .inc, .book, .shop เป็นต้น ซึ่งไอแคนน์ ต้องทำการพิจารณาอนุญาตแก่ผู้ที่เหมาะสมที่สุด ส่วนชื่อบางประเภท อาจจะเป็นชื่อภูมิศาสตร์ (เช่น .patagonia) วัฒนธรรม หรือชุมชน (เช่น .scot) ซึ่งในกรณีที่มีบริษัทเอกชนยื่นขอจดทะเบียนชื่อภูมิศาสตร์ หรือชื่อที่เกี่ยวข้องกับประเทศ ไอแคนน์จะมีกลไกกำหนดให้ผู้ขอ ต้องแสดงหลักฐานการสนับสนุนจากรัฐบาลของประเทศนั้นๆ

๓. สำหรับกรณีของ .thai ที่บริษัทเอกชนผู้ยื่นสมัครขอเป็นผู้ดูแลโดเมน .thai ต่อไอแคนน์ ได้ร้องเรียนต่อ ปทท.วท. ว่า มีความเห็นไม่เป็นกลาง และไปขัดแย้งกับกระทรวงอื่นนั้น ในการพิจารณาข้อร้องเรียนดังกล่าว พว. ขอเรียนเสนอประเด็นทางวิชาการและประเด็นเกี่ยวกับระบบการดูแลอินเทอร์เน็ตโลก (Internet Governance) ต่อ วท. เพิ่มเติมจากที่ พว. ได้เคยให้ความเห็นมาแล้ว ดังต่อไปนี้

๓.๑ การใช้ .thai น่าจะมีความหมายว่า "ความเป็นไทย" หรือ "ชาวไทย" แม้จะไม่ใช่ชื่อประเทศ แต่ก็ครอบคลุมกว้างกว่าภูมิศาสตร์ เนื่องจากหมายถึงชุมชนไทยทั่วโลก เป็นสิ่งที่มีประโยชน์ แต่ก็น่าจะ



เป็นการดำเนินการ (ให้บริการ) โดยหน่วยงานภาครัฐ เช่น กระทรวงเทคโนโลยีสารสนเทศและการสื่อสาร หากจะเป็นการดำเนินการโดยบริษัทเอกชน ก็น่าจะเป็นรูปของการให้สัมปทานจากรัฐ โดยมีข้อกำหนดด้านคุณภาพและราคา

๓.๒ เนื่องจาก .thai มีเสียงพ้องกับ .ไทย ทำให้ไม่สอดคล้องกับข้อกำหนดของไอแคนน์ ในด้านที่เรียกว่า string conflict (ในกรณีของประเทศนิวซีแลนด์ ซึ่งมีโดเมนประเทศเป็น .nz การยื่นขอจด .kiwi หรือ .maori จัดว่าไม่มีปัญหา string clash กับ .nz แต่อย่างใด) ซึ่งการพ้องเสียงจะทำให้มีปัญหาในภาคปฏิบัติในอนาคต ทางไอแคนน์ จึงกำหนดห้ามเอาไว้ ในกรณีที่บริษัท BLM ยื่นเสนอเป็นชื่ออื่นที่ไม่ไปพ้องเสียงกับ .ไทย วท. ก็สมควรสนับสนุนได้

๓.๓ ในกรณีที่ประสงค์จะใช้ชื่อ .thai ควรมีการปรึกษาหารือกับประชาคมอินเทอร์เน็ตไทยก่อนการยื่นขอดูแล .thai ในปัจจุบันเข้าใจว่าไม่ได้มีการหารือกับประชาคมผู้ใช้อินเทอร์เน็ต และประเด็นที่บริษัท BLM ได้เสนอในหนังสือถึง ปกท.วท. ลงวันที่ ๔ ตุลาคม ๒๕๕๕ ว่าด้วยราคา (คำชี้แจงรายละเอียดข้อ ๕) และการแก้ปัญหาข้อพิพาท (คำชี้แจงรายละเอียดข้อ ๖ และ คำชี้แจงรายละเอียดข้อ ๗) ว่าเป็นการสมัครในรูปแบบโดเมนด้านชุมชน ไม่เกี่ยวกับภูมิศาสตร์ นับว่าเป็นข้อมูลใหม่ที่ควรหารือกับประชาคมอินเทอร์เน็ตไทย หลังการหารือ อาจจะเกิดความชัดเจนพอที่จะมีการสนับสนุนจากประชาคม และ วท. ได้ ทั้งนี้ ควรศึกษาเปรียบเทียบกับกรณีที่มีการจด .scot โดยองค์กรไม่แสวงหากำไร เพื่อบริการชุมชน โดยรัฐบาลของสก๊อตแลนด์ได้มีวิสัยทัศน์ตรงกันกับผู้ยื่นขอจด และในเอกสารของ BLM ซึ่งเป็นการยื่นขอร่วมกับบริษัทในประเทศมาเลเซียทำให้เข้าใจว่า ไม่ได้เข้าข่าย "ไม่แสวงหากำไร"

๓.๔ อย่างไรก็ตาม จากหนังสือของบริษัท BLM ที่นำเสนอคำชี้แจงข้อ ๓ ที่กล่าวว่า เรื่องนี้ควรเป็นหน้าที่ความรับผิดชอบของกระทรวงเทคโนโลยีสารสนเทศและการสื่อสารนั้น ขณะนี้ บริษัท BLM ได้รับหนังสือสนับสนุนจากกระทรวงเทคโนโลยีสารสนเทศและการสื่อสารแล้ว ดังนั้น การขอหนังสือสนับสนุน .thai จาก วท. จึงอาจจะไม่จำเป็น และในกรณีที่บริษัท มีความขัดแย้งกับ ดร.กาญจนา กาญจนสุด นั้น ก็ไม่ได้มีประเด็นที่เกี่ยวข้องกับความเห็นของ วท. แต่อย่างใด

จากข้อเท็จจริงดังกล่าวข้างต้น พว. จึงเห็นว่า วท. สามารถออกหนังสือแสดงความไม่ประสงค์จะคัดค้านหรือปฏิเสธการสมัคร .thai ของทางบริษัทได้ เนื่องจากเป็นภารกิจของกระทรวงเทคโนโลยีสารสนเทศและการสื่อสาร ซึ่งได้มีหนังสือสนับสนุนการดำเนินการของบริษัทแล้ว

จึงเรียนมาเพื่อโปรดทราบและพิจารณา

๒) ทราบ

*J. P. West*  
2 พ.ค. ๕๖  
(นายวิระพงษ์ แพสุวรรณ)  
ปกท.วท.

สำนักงานกลาง  
สำนักผู้อำนวยการ  
โทร. ๐ ๒๕๖๔ ๗๐๐๐ ต่อ ๑๕๘๒  
โทรสาร ๐ ๒๕๖๔ ๗๐๘๔

*นางนุ อภิวงษา*  
(นางชฎามาศ จุระเศรษฐกุล)  
รอง ผพว. **ธำเนา**

ปฏิบัติการแทน ผพว.  
ที่ งท ๐๖๑๑/๕๕๐๔๗/๖๗  
๓) *เจน ดก. อภิวงษา*

*ปิยนุช อภิวงษา*  
เชิงสื่อ คทพ/๖๖๐

*J. P. West*

No. WorTor 5401/5601814 (Official Emblem)

Ministry of Science and Technology

Contact Information Redacted

13 March, 2013

In re; Request the justice on promotion letter. Thai

To; Managing directors of Better Living Management Co., Ltd

Referred to ; Letter of Better Living Management Co., Ltd dated 4 October, 2012

According to the referred document, Better Living Management Co., Ltd has requested the Ministry of Science and Technology to issue a document to be a supervisor of domain name .thai of the company that has been submitted to ICANN.

Due to the fact that the said matter is the responsibility of the Ministry of Information Technology and Communication. Therefore, the Ministry of Science and Technology does not wish to obstruct or refuse the request to be the supervisor of the said domain of the company which the Ministry of Science has learned that the company has received the supporting document from the Ministry of Information Technology and Communication so it should be enough for the company to proceed with the operation.

Please be informed accordingly.

Yours Truly,

.....

(Mr. Weerapong Paesuwan)

Secretary of the Ministry of Science and Technology

Science and Technology Development Office

Central Office

Tel. Contact Information Redacted

Fax. Contact Information Redacted





ที่ วท ๕๔๐๐๗/๕๖๑๖๗๖๕

กระทรวงวิทยาศาสตร์และเทคโนโลยี  
ถนนพระรามที่ ๖ เขตราชเทวี กทม. ๑๐๕๐๐

๑๓ มีนาคม ๒๕๕๖

เรื่อง ขอความเป็นธรรมเกี่ยวกับการขอหนังสือสนับสนุน .Thai

เรียน กรรมการผู้จัดการใหญ่ บริษัท เบ็ทเทอร์ สฟวิง แมนเนจเม้นท์ จำกัด

อ้างถึง หนังสือบริษัท เบ็ทเทอร์ สฟวิง แมนเนจเม้นท์ จำกัด ลงวันที่ ๔ ตุลาคม ๒๕๕๕

ตามหนังสือที่อ้างถึง บริษัท เบ็ทเทอร์ สฟวิง แมนเนจเม้นท์ จำกัด ได้ขอให้กระทรวงวิทยาศาสตร์และเทคโนโลยี ออกหนังสือสนับสนุนการยื่นขอเป็นผู้ดูแลโดเมนเนม .thai ของบริษัท ที่ยื่นต่อไอแคนน์ ความละเอียดแจ้งแล้วนั้น

เนื่องจากเรื่องดังกล่าวควรเป็นหน้าที่ความรับผิดชอบของกระทรวงเทคโนโลยีสารสนเทศและการสื่อสาร (กระทรวงไอซีที) ดังนั้น กระทรวงวิทยาศาสตร์และเทคโนโลยี จึงไม่ประสงค์จะคัดค้านหรือปฏิเสธการยื่นขอเป็นผู้ดูแลโดเมนเนมดังกล่าวของทางบริษัท ซึ่งกระทรวงวิทยาศาสตร์ฯ ได้รับทราบว่ามีบริษัทที่ได้รับหนังสือสนับสนุนจากกระทรวงไอซีทีแล้ว จึงน่าจะเพียงพอแล้วสำหรับบริษัทในการดำเนินการต่อไปได้

จึงเรียนมาเพื่อโปรดทราบ

ขอแสดงความนับถือ

(นายวิระพงษ์ แพสุวรรณ)

ปลัดกระทรวงวิทยาศาสตร์และเทคโนโลยี

สำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ

สำนักงานกลาง


โทร. ๐ ๒๕๖๔ ๗๐๐๐ ต่อ ๑๕๘๖

โทรสาร ๐ ๒๕๖๔ ๗๐๘๔



# Thai is Geographical Name

In the manual, the Geographical Name refers to UNGEGN

**United Nations Group of Experts on Geographical Names**

**Eighth United Nations Conference on the Standardization of Geographical Names**

Berlin, 2002



E/ConF.94/INF.41  
 Writing Systems: Romanization  
 Principles of Romanization for  
 Thai Script by Transcription Method  
 (Submitted by Thailand) <sup>1</sup>



...

### 3.4 COMMON NOUN

3.4.1 GENERAL NOUN e.g. พระ (phra), คน (khon), เข็ (suea), สัตว์ (sat) แมว (maeo), นก (nok), ต้นไม้ (tonmai), มะม่วง (namuang), ไร่ (ri), วิทยุ (witthayu), บันได (bandai), วัด (wat), วัง (wang), ถนน (thanon) จังหวัด (changwat), แม่น้ำ (maenam), องค์การ (ongkon), บริษัท (borisat)

3.4.2 GEOGRAPHICAL NAME is general noun describing natural geographical features, e.g. ภู (phu), เขา (khao), ภูเขา (phukhao), ควน (khuon), ดอย (doi), พนม (phanom), แม่น้ำ (maenam), ลำคลอง (lam khlong), ห้วย (huai), หนอง (rong), บึง (bueng), เกาะ (ku), ทะเล (hale), มหาสมุทร (mahasamut), แล่น (iaem), ชาว (ao); or man-made geographical features, e.g. ท่าเรือ (tharuea), ถนน (thanon), ซอย (soi), สะพาน (saphan); including political geography, e.g. **ประเทศ (prathet)**, จังหวัด (changwat), อำเภ (amphoe), แขวง (khwaeng), ตำบล (tarnbon), หมู่บ้าน (muban)

...

E/ConF.94/INF.41  
Writing Systems: Romanization  
Principles of Romanization for  
Thai Script by Transcription Method  
(Submitted by Thailand) <sup>1</sup>



...

3.4 COMMON NOUN

3.4.1 GENERAL NOUN e.g. พระ (phra), คน (khon), เสือ (suea), สัตว์ (sat) แมว (rnaeo),  
นก (nok), ต้นไม้ (tonmai), มะม่วง (rnamuang), ไร่ (to), วิทย์ (witthayu), บ้านโต (bandai),  
วัด (wat), วัง (wang), ถนน (thanon) จังหวัด (changwat), แม่น้ำ (maenam), องค์การ (ongkon),  
บริษัท (borisat)


3.4.2 GEOGRAPHICAL NAME is general noun describing natural geographical  
features, e.g. ภู (phu), เขา (khao), ภูเขา (phukhao), ดวน (khuan), ดอย (doi),  
พนม (phanom), แม่น้ำ (maenam), ลำคลอง (lam khlong), ห้วย (huai), นนong (nong),  
บึง (bueng), เกาะ (ko), ทะเล (lale), มหาสมุทร (mahasamut), แลม (iaem), ช่าว (ao);  
or man-made geographical features, e.g. ท่าเรือ (tharuea), ถนน (thanon) ซอย  
(soi), สะพาน (saphan); including political geography, e.g. ประเทศ (prathet),  
จังหวัด (changwat), อำเภอ (amphoe), แขวง (khwaeng) ตำบล (tarnbon), หมู่บ้าน (muban)

...






In the manual, the Geographical Name refers to UNGEGN

 **UNGEGN**  
 United Nations Group of Experts on Geographical Names  
 Eighth United Nations Conference on the Standardization of Geographical Names  
 Berlin, 2002



 **UNGEGN**  
 United Nations Group of Experts on Geographical Names  
 Technical Reference Manual for the standardization of Geographical Names  
 New York, 2007



ISO	COUNTRY - English (UN)	ISO code; Language	Short name	Formal name
TH	THAILAND	th; Thai	ประเทศไทย <i>Prathet Thai</i>	ราชอาณาจักรไทย <i>Ratcha Anachak Thai</i>

Short name: ประเทศไทย, Prathet Thai

Formal name: ราชอาณาจักรไทย, Racha Anachak Thai



Technical reference manual for the standardization of geographical names

According to the “Principles of Romanization for Thai script by the transcription method” by the Royal Institute of Thailand adopted as the international system for the romanization of Thai geographical names(2006?) at the Eighth United Nations Conference on the Standardization of Geographical Names in 2009 (may be 2002? ), <http://unstats.un.org/unsd/geoinfo/ungegn/ungegnConf8.html>

ISO	COUNTRY - English (UN)	ISO code; Language	Short name	Formal name
SZ	SWAZILAND	en: English ss: Swati	Swaziland eSwatini	Kingdom of Swaziland Umbuso weSwatini
SE	SWEDEN	sv: Swedish	Sverige	Konungariket Sverige
CH	SWITZERLAND	de: German fr: French it: Italian	Schweiz (die) Suisse (la) Svizzera (la)	Schweizerische Eidgenossenschaft Confédération suisse Confederazione Svizzera
SY	SYRIA	ar: Arabic	سورية Sūriyah	الجمهورية العربية السورية Al Jumhūriyah al Arabiyah as Sūnyah
TJ	TAJIKISTAN	tg: Tajik	Тоҷикистон Tojikiston	Ҷумҳурии Тоҷикистон Jumhūrii Tojikiston
TH	THAILAND	th: Thai	ประเทศไทย Prathet Thai	ราชอาณาจักรไทย Ratcha Anachak Thai

UN Statistics Home | UN Home



**UNEGN**

United Nations Group of Experts on Geographical Names

Overview

Mandate

Conference

General

Conferences

UNEGN

8th<sup>th</sup> Conference

27 August - 5 September 2002, Berlin, Germany

Documents

Report of the Conference

E/CONF.94/3

Arabic | Chinese | English | French | Russian | Spanish

“Prathet” and “Ratcha Anachak” are common geographical nouns and “THAI” is the proper geographic noun for the Kingdom of Thailand.

22 August 2002

Original: English

Eighth United Nations Conference on the  
Standardization of Geographical Names  
Berlin, 27 August-5 September 2002  
Item 16 (a) of the provisional agenda"

WRITING SYSTEMS: ROMANIZATION

Principles of Romanization for Thai Script by Transcription Method

(Submitted by Thailand)

the application 1-2112-4478  
based on using geographical  
name of the country while  
placing itself within the  
community-based  
applications.

3.4 COMMON NOUN

3.4.1 GENERAL NOUN e.g. พระ (phra), คน (khon), เสือ (suea), สัตว์ (sat) แมว (maeo),  
นก (nok), ต้นไม้ (tonmai), มะม่วง (mamuang), โต๊ะ (to), วิทย์ (withayui), บันได (bandai),  
วัด (wat), วัง (wang), ถนน (thanon) จังหวัด (changwat), แม่น้ำ (maenam), องค์การ (ongkon),  
บริษัท (borisat)

3.4.2 GEOGRAPHICAL NAME is general noun describing natural geographical  
features, e.g. ภูเขา (phu), เขา (khao), ภูเขา (phukhao), ดวน (khuan), ดอย (doi),  
พนม (phanom), แม่น้ำ (maenam), ลำคลอง (lam khlong), ห้วย (huai), หนอง (nong),  
บึง (bueng), เกาะ (ko), ทะเล (thale), มหาสมุทร (mahasamut), แมลิม (iaemi), อ่าว (ao);  
or man-made geographical features, e.g. ท่าเรือ (tharuea), ถนน (thanon) ซอย  
(soi), สะพาน (saphan); including political geography, e.g. ประเทศ (prathet),  
จังหวัด (changwat), อำเภอ (amphoe), แขวง (khwaeng) ตำบล (tambon), หมู่บ้าน (muban)

Thank you



*WANAWIT Ahkuputra*  
Deputy Executive Director

Contact Information Redacted





The GAC referenced its WHOIS principles from 2007 and its Beijing advice regarding the WHOIS Review Team recommendations, which both have served as input for the work of the EWG. The GAC expressed its concerns about the risks associated with centralized storage of data in one repository in one jurisdiction, and raised a series of issues relating to the proposed data repository structure and access including security, data accuracy, consistency with national law, accreditation of database users, and privacy governance. The GAC looks forward to further discussion of these issues as the working group progresses.

### 9. Briefing from Architelos

The GAC received a briefing on the TLD market and its development from Architelos, a consultancy focused on the domain name industry.

\*\*\*

The GAC warmly thanks the GNSO, the SSAC, the ccNSO and the ALAC, as well as all those among the ICANN community who have contributed to the dialogue with the GAC in Durban.

## III. Internal Matters

1. The GAC held its second capacity building session for new and existing members on 13 July, which included an update to the GAC on internationalization and the ICANN's strategy for engagement in the Africa region.
2. The GAC welcomed Madagascar, Namibia, São Tomé and Príncipe, Swaziland, and Zambia to the GAC as members.
3. The chair and vice chairs provided an update in Durban on progress with regard to ACIG providing secretariat support to the GAC.

## IV. GAC Advice to the Board<sup>2</sup>

### 1. New gTLDs

#### 1. GAC Objections to Specific Applications (ref. Beijing Communiqué 1.c.)

##### a. The GAC Advises the ICANN Board that:

- i. The GAC has reached consensus on GAC Objection Advice according to Module 3.1 part I of the Applicant Guidebook on the following applications:<sup>3</sup>

<sup>2</sup> To track the history and progress of GAC Advice to the Board, please visit the GAC Advice Online Register available at: <https://gacweb.icann.org/display/GACADV/GAC+Register+of+Advice>

<sup>3</sup> Module 3.1: "The GAC advises ICANN that it is the consensus of the GAC that a particular application should not proceed. This will create a strong presumption for the ICANN Board that the application should not be approved."

1. The application for .amazon (application number 1-1315-58086) and related IDNs in Japanese (application number 1-1318-83995) and Chinese (application number 1-1318-5591)
2. The application for .thai (application number 1-2112-4478)

**b. guangzhou (IDN in Chinese), shenzhen (IDN in Chinese), .spa and .yun**

- i. The GAC agrees to leave the applications below for further consideration and **advises the ICANN Board**:
  - i. Not to proceed beyond initial evaluation until the agreements between the relevant parties are reached.
    1. The applications for .spa (application number 1-1309-12524 and 1-1619-92115)
    2. The application for .yun (application number 1-1318-12524)
    3. The application for .guangzhou (IDN in Chinese - application number 1-1121-22691)
    4. The application for .shenzhen (IDN in Chinese - application number 1-1121-82863)

**2. .wine and .vin (ref. Beijing Communiqué 1.c.)**

**a. The GAC advises the ICANN Board that:**

- i. The GAC considered the two strings .vin and .wine and due to the complexity of the matter was unable to conclude at this meeting. As a result the GAC agreed to take thirty days additional time with a view to conclude on the matter.

**3. .date and .persiangulf (ref. Beijing Communiqué 1.c.)**

**a. The GAC has finalised its consideration of the following strings, and does not object to them proceeding:**

- i. .date (application number 1-1247-30301)
- ii. .persiangulf (application number 1-2128-55439)

**4. .indians and .ram**

**a. The GAC Advises the ICANN Board that:**

- i. The GAC has noted the concerns expressed by the Government of India not to proceed with the applications for .indians and .ram.

**5. Protection of IGO Acronyms**





**New gTLD Program**  
**Initial Evaluation Report**  
 Report Date: 03 May 2013

Application ID:	1-2112-4478
Applied-for String:	THAI
Priority Number:	258
Applicant Name:	Better Living Management Company Limited

Overall Initial Evaluation Summary

<b>Initial Evaluation Result</b>	<b>Pass</b>
<p>Congratulations!</p> <p>Based on the review of your application against the relevant criteria in the Applicant Guidebook (including related supplemental notes and advisories), your application has passed Initial Evaluation.</p>	

Background Screening Summary

<b>Background Screening</b>	<b>Eligible</b>
<p>Based on review performed to-date, the application is eligible to proceed to the next step in the Program. ICANN reserves the right to perform additional background screening and research, to seek additional information from the applicant, and to reassess and change eligibility up until the execution of the Registry Agreement.</p>	

Panel Summary

<b>String Similarity</b>	<b>Pass - No Contention</b>																								
<p>The String Similarity Panel has determined that your application is consistent with the requirements in Sections 2.2.1.1 and 2.2.1.2 of the Applicant Guidebook, and your applied-for string is not in contention with any other applied-for strings.</p>																									
<b>DNS Stability</b>	<b>Pass</b>																								
<p>The DNS Stability Panel has determined that your application is consistent with the requirements in Section 2.2.1.3 of the Applicant Guidebook.</p>																									
<b>Geographic Names</b>	<b>Not a Geographic Name - Pass</b>																								
<p>The Geographic Names Panel has determined that your application does not fall within the criteria for a geographic name contained in the Applicant Guidebook Section 2.2.1.4.</p>																									
<b>Registry Services</b>	<b>Pass</b>																								
<p>The Registry Services Panel has determined that the proposed registry services do not require further review.</p>																									
<b>Technical &amp; Operational Capability</b>	<b>Pass</b>																								
<p>The Technical &amp; Operational Capability Panel determined that:</p> <p>Your application meets the Technical &amp; Operational Capability criteria specified in the Applicant Guidebook.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Question</th> <th style="text-align: right;">Score</th> </tr> </thead> <tbody> <tr> <td>24: SRS</td> <td style="text-align: right;">1</td> </tr> <tr> <td>25: EPP</td> <td style="text-align: right;">1</td> </tr> <tr> <td>26: Whois</td> <td style="text-align: right;">2</td> </tr> <tr> <td>27: Registration Life Cycle</td> <td style="text-align: right;">1</td> </tr> <tr> <td>28: Abuse Prevention and Mitigation</td> <td style="text-align: right;">1</td> </tr> <tr> <td>29: Rights Protection Mechanism</td> <td style="text-align: right;">1</td> </tr> <tr> <td>30: Security Policy</td> <td style="text-align: right;">2</td> </tr> <tr> <td>31: Technical Overview of Registry</td> <td style="text-align: right;">1</td> </tr> <tr> <td>32: Architecture</td> <td style="text-align: right;">2</td> </tr> <tr> <td>33: Database Capabilities</td> <td style="text-align: right;">2</td> </tr> <tr> <td>34: Geographic Diversity</td> <td style="text-align: right;">2</td> </tr> </tbody> </table>		Question	Score	24: SRS	1	25: EPP	1	26: Whois	2	27: Registration Life Cycle	1	28: Abuse Prevention and Mitigation	1	29: Rights Protection Mechanism	1	30: Security Policy	2	31: Technical Overview of Registry	1	32: Architecture	2	33: Database Capabilities	2	34: Geographic Diversity	2
Question	Score																								
24: SRS	1																								
25: EPP	1																								
26: Whois	2																								
27: Registration Life Cycle	1																								
28: Abuse Prevention and Mitigation	1																								
29: Rights Protection Mechanism	1																								
30: Security Policy	2																								
31: Technical Overview of Registry	1																								
32: Architecture	2																								
33: Database Capabilities	2																								
34: Geographic Diversity	2																								

35: DNS Service	1
36: IPv6 Reachability	1
37: Data Backup Policies & Procedures	1
38: Data Escrow	1
39: Registry Continuity	2
40: Registry Transition	1
41: Failover Testing	1
42: Monitoring and Fault Escalation	2
43: DNSSEC	1
44: IDNs (Optional)	1
Total	28
Minimum Required Total Score to Pass*	22

*\*No zero score allowed except on optional Q44*

**Financial Capability**

Pass

The Financial Capability Panel determined that:

Your application meets the Financial Capability criteria specified in the Applicant Guidebook.

Question	Score
45: Financial Statements	1
46: Projections Template	1
47: Costs and Capital Expenditures	2
48: Funding and Revenue	1
49: Contingency Planning	2
50: Funding Critical Registry Functions	1
Total	8
Minimum Required Total Score to Pass**	8

*\*\*No zero score allowed on any question*

**Disclaimer:** Please note that these Initial Evaluation results do not necessarily determine the final result of the application. In limited cases the results might be subject to change. All applications are subjected to due diligence at contracting time, which may include an additional review of the Continued Operations Instrument for conformance to Specification 8 of the Registry Agreement with ICANN. These results do not constitute a waiver or amendment of any provision of the Applicant Guidebook or the Registry Agreement. For updated application status and complete details on the program, please refer to the Applicant Guidebook and the ICANN New gTLDs microsite at <newgtlds.icann.org>.



GAC Register #	Summary of GAC Advice		NGPC Response/Notes
1. 2013-07-18 - Obj- Amazon (Communiqué §1.1.a.i.1)	The GAC Advise the ICANN Board that the GAC has reached consensus on GAC Objection Advice according to Module 3.1 part I of the Applicant Guidebook on the following application: .amazon (application number 1-1315-58086) and related IDNs in Japanese (application number 1-1318-83995) and Chinese (application number 1-1318-5591)		Per § 3.1 of the AGB, the applicant submitted a response to the ICANN Board. Given the volume of information presented, the NGPC continues to consider the information presented by the applicant and proposes to take action at a future NGPC meeting.
2. 2013-07-18 - Obj- Thai (Communiqué §1.1.a.i.2)	The GAC Advise the ICANN Board that the GAC has reached consensus on GAC Objection Advice according to Module 3.1 part I of the Applicant Guidebook on the following application: .thai (application number 1-2112-4478)	1A	The NGPC accepts this advice. The AGB provides that if "GAC advises ICANN that it is the consensus of the GAC that a particular application should not proceed. This will create a strong presumption for the ICANN Board that the application should not be approved." (AGB § 3.1) The NGPC directs staff that pursuant to the GAC advice and Section 3.1 of the Applicant Guidebook, Application number 1-2112-4478 for .thai will not be approved. In accordance with the AGB the applicant may withdraw (pursuant to AGB § 1.5.1) or seek relief according to ICANN's accountability mechanisms (see ICANN Bylaws, Articles IV and V) subject to the appropriate standing and procedural requirements.
3. 2013-07-18 - gTLDStrings (Communiqué §1.1.b.i.i.1)	The GAC Advises the Board to leave the following applications for further consideration and advises the ICANN Board not to proceed beyond initial evaluation until the agreements between the relevant parties are reached: .spa (application number 1-1309-12524 and 1-1619-92115)	1A	The NGPC accepts this advice. The AGB provides that "GAC advice will not toll the processing of any application (i.e., an application will not be suspended but will continue through the stages of the application process)" (AGB § 3.1). At this time, ICANN will not proceed beyond initial evaluation of these identified strings. ICANN will allow evaluation and dispute resolution processes to go forward, but will not enter into registry agreements with applicants for the identified strings, subject to the parties having reached agreement or the GAC issuing final advice prior to the close of the ICANN Public meeting in Buenos Aires.



# Appendix 1

No. WorTor 5101/219  
Technology

Ministry of Science and

Contact Information Redacted

20 January 2014

Topic Thai GAC Representative appointing to ICANN  
To Miss Rachanee Yingchairak  
Better Living Management, Co., Ltd  
Reference to Better Living Management Co., Ltd letter no. 170/2556, 18<sup>th</sup> November 2013

According to that Better Living Management Co., Ltd considers from the Thai GAC Website of ICANN that Dr. Taweesak Koranantakul was appointed by Ministry of Science and Technology (Thailand) to be the Thai GAC representative, the company, which applied for .Thai domain with ICANN, would like to inquiry about the historical appointment and work of Thai GAC. When Thai GAC was created and the Ministry had ever sent such a representative to attend ICANN meeting or not. How many time the representative has attended the meeting and how many report was submitted. The company would like to take this information for the future work.

The Ministry of Science and Technology, by National Science and Technology Development Agency would like to provide information as follow

Government Advisor Committee (GAC) of Internet Corporation for Assigned Names and Numbers – ICANN) is one set of the committee that ICANN set up to acquire the expert of Internet system management that work in government sector from every country involves in providing the advice to ICANN Board in assigning name and number from the government perspective. The first set up was in 1999. The first President of GAC started to appoint committee by sending a letter to asking the ITU representative of each country to offer the name of the representative. At that moment, it was Ministry of ICT responsibility. However, there was no answer to the letter for long period of time. Thus, GAC started to search for the candidate from Thai Government that had expertise and understanding the Internet system network. GAC found that the government sector who started the internet system in Thailand was National Science and Technology Development Agency (NSTDA), which Dr. Tweesak Koranantakul was the president, who developed and was responsible for the Internet network of Thailand under the name Thai Social/Scientific Academic and Research Network, and also acted as the secretary of Information and Technology Board, which had

the Prime Minister as the president. GAC, therefore, send the invitation letter to Dr. Tweesak Koranantakul to be the GAC representative from Thailand.

For further information regarding the work and meeting of GAC, it has been done with good governance. Every committee can attend the meeting with self-sponsored or attend the meeting via VDO conference. It was opened for everybody. The document about the meeting can be found in <https://gacweb.icann.org/>

For your information

Sincerely Yours

-Signature-

(Mr. Peeraphan Palushuk)

Ministry of Science and Technology

National Science and Technology Development Agency

Head Quarter

Tel: Contact nformation Redacted

Fax: Contact Information Redacted







ที่ วท ๕๔๐๑/๒๑๓

กระทรวงวิทยาศาสตร์และเทคโนโลยี  
ถนนพระรามที่ ๖ เขตราชเทวี กทม. ๑๐๔๐๐

๒๐ มกราคม ๒๕๕๗

เรื่อง การแต่งตั้งกรรมการที่ปรึกษาฝ่ายรัฐบาลของไทยในองค์กร อินเทอร์เน็ตสากล

เรียน นางสาวรัชณี ยิ่งฉายรักษ์  
บริษัท เบ็ทเทอร์ ลิฟวิง แมนเนจเม้นท์ จำกัด

อ้างถึง หนังสือ บริษัท เบ็ทเทอร์ ลิฟวิง แมนเนจเม้นท์ จำกัด เลขที่ ๑๗๐/๒๕๕๖ ลงวันที่ ๑๘ พฤศจิกายน ๒๕๕๖

ตามหนังสือที่อ้างถึง บริษัท เบ็ทเทอร์ ลิฟวิง แมนเนจเม้นท์ จำกัด ได้พิจารณาจากเว็บไซต์ตัวแทนรัฐบาลไทยในองค์กรอินเทอร์เน็ตสากลได้กล่าวว่า ดร. ทวีศักดิ์ กอนันต์กุล ได้รับการแต่งตั้งจากกระทรวงวิทยาศาสตร์และเทคโนโลยีให้เป็นกรรมการที่ปรึกษาฝ่ายรัฐบาลของไทยหรือ Thai GAC นั้น บริษัทฯ ผู้ยื่นจดทะเบียนโดเมน.Thai กับทางองค์กรอินเทอร์เน็ตสากล มีความประสงค์ที่จะขอทราบประวัติการแต่งตั้งและการทำงานของตำแหน่งกรรมการที่ปรึกษาฝ่ายรัฐบาลของไทย หรือ Thai GAC มีมาตั้งแต่เมื่อไรและที่ผ่านมาจากกระทรวงเคยส่งตัวแทนดังกล่าวเข้าร่วมประชุมกับทางองค์กรอินเทอร์เน็ตสากลกี่ครั้งและมีรายงานการประชุมดังกล่าวหรือไม่ เพื่อเป็นข้อมูลและประโยชน์ในการประสานงานต่อไปในภายหน้า ดังความละเอียดแจ้งแล้ว นั้น

ในการนี้ กระทรวงวิทยาศาสตร์และเทคโนโลยี โดยสำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ ขอให้ข้อมูลดังนี้

คณะกรรมการที่ปรึกษาผู้ทรงคุณวุฒิภาครัฐ (Government Advisor Committee - GAC) ของบรรษัทอินเทอร์เน็ต ว่าด้วยการจัดสรรชื่อ และเลข (Internet Corporation for Assigned Names and Numbers - ICANN) เป็นกรรมการคณะหนึ่งที่ ICANN ตั้ง ขึ้น เพื่อให้มีผู้เชี่ยวชาญด้านการบริหารจัดการอินเทอร์เน็ต ที่เป็นผู้ที่ทำงานในภาครัฐของทุกประเทศ ประเทศละหนึ่งเสียง เข้าร่วมทำหน้าที่ให้คำแนะนำแก่กรรมการ ICANN ใน วาระของการกำหนดชื่อและหมายเลขจากมุมมอง ของภาครัฐ และในการแต่งตั้งครั้งแรก ประมาณปี ค.ศ. ๑๙๙๙ นั้น ประธานของ GAC ท่านแรก ได้เริ่มก่อตั้งคณะกรรมการโดยทำหนังสือเชิญผู้ที่เป็นตัวแทนประเทศใน ITU (International Telecommunications Union) ให้ เป็นผู้เสนอชื่อ ซึ่งในขณะนั้นเจ้าหน้าที่ของกระทรวงคมนาคม แต่ปรากฏว่าไม่มีคำตอบจากกระทรวงคมนาคม จนเวลาล่วงเลยไปมาก ดังนั้น GAC จึงได้ศึกษาหาบุคลากรในภาครัฐของไทยที่เป็นผู้มีความรู้ความเข้าใจในกลไกของเครือข่ายอินเทอร์เน็ต และได้พบว่าหน่วยงานภาครัฐที่บุกเบิกทำหน้าที่จัดการ

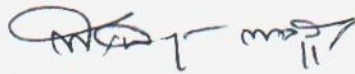
/อินเทอร์เน็ต

อินเทอร์เน็ตในประเทศไทยในขณะนั้น คือ ศูนย์เทคโนโลยีอิเล็กทรอนิกส์และคอมพิวเตอร์แห่งชาติ ซึ่งมี ดร.ทวิศักดิ์ กอนันต์กุล เป็นผู้อำนวยการ และเป็นผู้พัฒนาและรับผิดชอบดูแลเครือข่ายอินเทอร์เน็ตของประเทศไทยด้วยตนเอง ภายใต้ชื่อ เครือข่ายไทยสาร เครือข่ายคอมพิวเตอร์เพื่อโรงเรียนไทย และเครือข่ายกาญจนาภิเษก รวมทั้งเป็นผู้ทำหน้าที่เป็นเลขานุการของคณะกรรมการเทคโนโลยี สารสนเทศแห่งชาติ ซึ่งมีนายกรัฐมนตรีเป็นประธาน GAC จึง ได้ทำหนังสือเชิญ ดร.ทวิศักดิ์ กอนันต์กุล เป็นกรรมการที่ปรึกษาผู้ทรงคุณวุฒิภาครัฐของประเทศไทย

สำหรับรายละเอียดเกี่ยวกับการทำงาน และการประชุมของ GAC เป็นการดำเนินงานแบบโปร่งใส กรรมการทุกคนสามารถเข้าร่วมการประชุมได้โดยออกค่าใช้จ่ายเอง หรือร่วมประชุมทางอินเทอร์เน็ต และบุคคลทั่วไปสามารถอ่านเอกสารต่างๆ เกี่ยวกับการประชุมของ GAC ได้ที่ <https://gacweb.icann.org/>

จึงเรียนมาเพื่อโปรดทราบ

ขอแสดงความนับถือ



(นายพิรพันธุ์ พาลุสุข)

รัฐมนตรีว่าการ

กระทรวงวิทยาศาสตร์และเทคโนโลยี

สำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ

สำนักงานกลาง

โทร. Contact Information Redacted

โทรสาร Con ac nformation Redac ed





## GAC Operating Principles

### ARTICLE IV - MEMBERSHIP

#### Principle 14

Members of the GAC shall be national governments, multinational governmental organisations and treaty organisations, and public authorities, each of which may appoint one representative and one alternate representative to the GAC. The accredited representative of a Member may be accompanied by advisers. The accredited representative, alternate and advisers must hold a formal official position with the Member's public administration. The term 'official' includes a holder of an elected governmental office or a person who is employed by such government, public authority or multinational governmental or treaty organisation, and whose primary function with such government, public authority or organisation is to develop or influence governmental or public policies.



Look for allies to sign names submitted to "Icaan" so as to oppose foreign capitals taking over ".thai" domain name



Updated: June 13, 2013 at 09:56:39  
Prachachat Turakij Online

Related parties accelerate seeking allies from both "business sector and Thai students in foreign countries" to sign names so as to oppose foreign capital seeking registration of ".thai" domain name so as to file letter opposing foreign capital on the move within this July, noting that foreigners' movement may adversely affect huge value of Thai economy and may stir up troubles of defying intellectual property.

Due to the case that Better Living Management Co., Ltd., running property business and being claimed to be company belonging to Thai people but its major sources of fund are from Malaysia, undertakes a matter seeking rights to be entitled to use .thai domain name.

The Company did so by seeking letter of recommendation from permanent secretaries of various ministries, such as interior and industry ministries etc., so as to be filed to committee of central agency registering domain name of website or Icaan. And on April 11, 2013, after Icaan's meeting in China and Icaan's proposal to postpone period of rights to file documents seeking rights to manage .thai domain name.

Mr. Wanawit Ahkuputra, Deputy Director of Electronic Transactions Department Agency 1 (Public Organization), as fighter to stop parties seeking rights to be entitled to use .thai domain name, says that as Icaan allows parties seeking the rights to manage gTLDs type domain name, or users in accordance with organizations such as .com.

Apart from ccTLDs type adopted by countries or precincts, comprising 2 letters such as .th which resulted in number of domains increasing in 2012 to a record 1,930 domains, from a mere about 200 domains previously.

It resulted in problems seeking the rights of gTLDs type domain name being increasing as well, such as .thai domain name. Although the move has not yet been damaging Thailand for the moment, it may adversely affect the country in the future in terms of credibility and counterfeiting with launching of similar domain names as .th and .thai. ccTLDs type domain names indicate that such domain names' receivers are Thai people or residing in Thailand only. However, if it is .thai, the receivers are not necessarily Thai people or residing in Thailand.

Additional impact also falls on economic value arising from Thai culture which has value



Certified True and Correct Translation

Aree Suphanthanant  
INTERLANGUAGE TRANSLATION CENTER

Contact Information Redacted

which results in many countries seeking benefit from this aspect. For example, in case of making restaurant, spa and Thai massage websites, with Thai final wordings so as to enable people to misunderstand that they are genuine Thai shops. But in reality, they may be entrepreneurs from other countries. In addition, presently, over 50% of Thai restaurants in foreign countries are not owned by Thai people.

Deputy Professor Surasak Sanguanpong, Vice Rector of information technology Department, Kasetsart University, talks about impact of use of Thai that it may cause infringement of intellectual property.

Because there is no such verifying or controlling agency as .th or .ไทย which is monitored by THNIC for users of the domain names. The verification or controlling process also creates extra expenses for both small and big companies wanting to seek registration of such final words. Because they are afraid of parties falsely claiming the names for registration and there may be counterfeiting case. For example, Hotel A is famous and is registered with the last words as .th. Then, .hotel emerges. If Hotel A does not seek registration its domain name, other parties imitating the name may seek registration the domain name and take Hotel A's place wrongfully so as to falsely claim Hotel A's business.

This case is not only unique for Thailand. In foreign countries, such as group of countries in Africa, there was dispute resulting in tears from related parties seeking the rights to use .Africa domain name which covered over 53 countries of this group. Dispute also arose from use of such last words as .Amazon.

"They invested over 5 million Baht by seeking registration of domain name as they had to take into account upcoming inflowing of revenues which would be definitely larger amount by basing on being Thai's way of living, Thai culture which has enormous value. Everybody wants it. Let's calculate use of such last words as .th or .ไทย which have over 65,000 domain names. Annual service fee is over 428 Baht. It reflects that each year, THNIC receives over 27.8 million Baht as revenues from this part. Let's think how much parties seeking registration of the domain name will earn?"

Mr. Wannawit also says that at the moment, he wants both list of names of those opposing foreign parties seeking registration of the domain name and reason of business entrepreneurs. Because previously, only government agencies, webmasters association and Thai Airways International opposed the move which was insufficient to submit the country's opposing move to Icaan as Icaan prefers variety of views from all parties in the Thai society of the matter. As a result, he had to coordinate with Thai students in Euro zone and Thai entrepreneurs in Thai restaurants in foreign countries. The move received good response from these two groups. They have begun to express their views.

"I hope that before final decision in this July, we will receive list of names opposing foreign ownership of Thai to be successfully presented to Icaan so as to stop this matter. If we do this after this period, it will be difficult. So, I would like to invite interested parties to sign names opposing the foreigners' move by contacting Icaan or forward email to me at [wannawit@icann.org](mailto:wannawit@icann.org)."



Certified True and Correct Translation

Aree Suphanthanant  
INTERLANGUAGE TRANSLATION CENTER

Contact Information Redacted





# ประชาชาติธุรกิจ

## หน้าแรก | ข่าวสาร | บทความ | ข่าวสาร | ติดต่อเรา | เกี่ยวกับเรา | นโยบาย | บริการ | การสมัคร | การสมัคร | การสมัคร

### หน้าแรก | ข่าวสาร | บทความ | ข่าวสาร | ติดต่อเรา | เกี่ยวกับเรา | นโยบาย | บริการ | การสมัคร | การสมัคร | การสมัคร

#### หน้าแรก | ข่าวสาร | บทความ | ข่าวสาร | ติดต่อเรา | เกี่ยวกับเรา | นโยบาย | บริการ | การสมัคร | การสมัคร | การสมัคร

##### หน้าแรก | ข่าวสาร | บทความ | ข่าวสาร | ติดต่อเรา | เกี่ยวกับเรา | นโยบาย | บริการ | การสมัคร | การสมัคร | การสมัคร

###### หน้าแรก | ข่าวสาร | บทความ | ข่าวสาร | ติดต่อเรา | เกี่ยวกับเรา | นโยบาย | บริการ | การสมัคร | การสมัคร | การสมัคร

###### หน้าแรก | ข่าวสาร | บทความ | ข่าวสาร | ติดต่อเรา | เกี่ยวกับเรา | นโยบาย | บริการ | การสมัคร | การสมัคร | การสมัคร

###### หน้าแรก | ข่าวสาร | บทความ | ข่าวสาร | ติดต่อเรา | เกี่ยวกับเรา | นโยบาย | บริการ | การสมัคร | การสมัคร | การสมัคร

###### หน้าแรก | ข่าวสาร | บทความ | ข่าวสาร | ติดต่อเรา | เกี่ยวกับเรา | นโยบาย | บริการ | การสมัคร | การสมัคร | การสมัคร

###### หน้าแรก | ข่าวสาร | บทความ | ข่าวสาร | ติดต่อเรา | เกี่ยวกับเรา | นโยบาย | บริการ | การสมัคร | การสมัคร | การสมัคร

Appendix Appendix 1



updated: 13 มิ.ย. 2556 เวลา 09:56:39 น.

### ประชาชาติธุรกิจออนไลน์

รณรงค์รณรงค์ "ภาคธุรกิจนักเรียนไทยในต่างแดน" ลงชื่อคัดค้านทุนต่างชาติยื่นขอจดโดเมน ".thai" ระบุอาจส่งผลกระทบต่อมูลค่าทางเศรษฐกิจมหาศาล และจุดชนวนละเมิดทรัพย์สินทางปัญญา ระบุยื่นคัดค้านให้ทัน "ก.ค." นี้

สืบเนื่องจากกรณีบริษัท เบ็ทเทอร์ ลิฟวิ่ง แมเนจเม้นท์ จำกัด ประกอบธุรกิจอสังหาริมทรัพย์ที่ระบุว่าเป็นบริษัทของคนไทย แต่แหล่งทุนส่วนใหญ่มาจากมาเลเซีย ดำเนินเรื่องขอสิทธิ์ชื่อโดเมนเนม .thai

โดยขอหนังสือรับรองจากปลัดกระทรวงต่าง ๆ เช่น กระทรวงมหาดไทย กระทรวงอุตสาหกรรม เป็นต้น เพื่อยื่นต่อคณะกรรมการหน่วยงานกลางรับจดทะเบียนชื่อเว็บไซต์หรือไอแคนน์ และเมื่อวันที่

11 เม.ย. 2556 ที่ผ่านมา หลังไอแคนน์มีการประชุมที่ประเทศจีน และเสนอให้เลื่อนการพิจารณาการยื่นขอสิทธิ์บริหารโดเมน .thai

นายวรรณวิทย์ อาชุนทร รองผู้อำนวยการสำนักงานพัฒนาธุรกรรมทางอิเล็กทรอนิกส์ 1 ในผู้ต่อสู้เพื่อยุติการขอสิทธิ์ชื่อโดเมนเนม .thai กล่าวว่า จากการที่ไอแคนน์เปิดให้ขอสิทธิ์ชื่อโดเมนแบบ gTLDs หรือใช้ตามประเภทองค์กร เช่น .com

นอกเหนือจากแบบ ccTLDs ใช้โดยประเทศหรือเขตปกครอง ประกอบด้วยตัวอักษร 2 ตัว เช่น .th ในปี 2555 ทำให้มีจำนวนโดเมนเพิ่มขึ้นถึง 1,930 โดเมน จากสมัยก่อนมีเพียง 210 กว่าโดเมนเท่านั้น

ปัญหาการขอสิทธิ์ชื่อโดเมนแบบ gTLDs จึงเพิ่มขึ้นด้วย เช่น กรณี .thai แม้ขณะนี้จะไม่ส่งผลกระทบต่อประเทศไทย แต่ต่อไปอาจมีผลกระทบในแง่ความน่าเชื่อถือและการโดนปลอมแปลง ด้วยชื่อโดเมนที่มีส่วนคล้ายกับ .th และ .ไทย โดเมนแบบ ccTLDs บ่งบอกว่า ผู้ที่ได้รับโดเมนดังกล่าวเป็นคนไทยหรืออาศัยในประเทศไทยเท่านั้น แต่หากเป็น .thai ไม่จำเป็นต้องเป็นคนไทยหรืออาศัยในประเทศไทย

ทั้งยังมีผลกระทบต่อมูลค่าทางเศรษฐกิจที่เกิดจากวัฒนธรรมไทยที่มีค่า

แชร์ 14

ทวีต 2

0

อีเมลข่าว

ปรับขนาดอักษร

พิมพ์

วิรัตน์

หอศาล ทำให้หลายประเทศแสวงหาประโยชน์ตรงนี้ เช่น กรณีการทำเว็บไซต์ร้านอาหาร สปา และนวดแบบไทย โดยใช้คำลงท้าย .thai จะทำให้คนเข้าใจว่าเป็นร้านไทยแท้ แต่ในความเป็นจริงอาจเป็นผู้ประกอบการจากประเทศอื่นได้ และพบอีกว่า ปัจจุบันกว่า 50% ร้านอาหารไทยในต่างแดนไม่ใช่ของคนไทย

ด้านรองศาสตราจารย์สุรศักดิ์ สงวนพงษ์ รองอธิการบดีฝ่ายเทคโนโลยีสารสนเทศ มหาวิทยาลัยเกษตรศาสตร์ กล่าวถึงผลกระทบของการใช้ .thai ว่า อาจทำให้เกิดการละเมิดทรัพย์สินทางปัญญา

เนื่องจากไม่มีหน่วยงานตรวจสอบหรือควบคุม เช่น .th หรือ .ไทย ที่มี THNIC คอยตรวจสอบผู้เข้ามาขอใช้โดเมนเนม และเป็นการเพิ่มค่าใช้จ่ายแก่บริษัทขนาดเล็กและใหญ่ที่ต้องจดทะเบียนขอใช้คำลงท้ายดังกล่าว เพราะเกรงมีผู้แอบอ้างชื่อไปจดทะเบียน และเกิดการปลอมแปลงขึ้น เช่น มีกิจการโรงแรมในชื่อ ก มีชื่อเสียง และจดทะเบียนลงท้ายด้วย .th ต่อมา มี .hotel ออกมา หากไม่ไปจดทะเบียนโดนคนที่ใช้ชื่อเหมือนเข้าไปจดและสวมรอยเป็นกิจการของตนเอง

กรณีเช่นนี้ไม่ได้เกิดขึ้นในประเทศไทยเท่านั้น ในต่างประเทศ เช่น กลุ่มประเทศในทวีปแอฟริกาเกิดข้อพิพาทและเรียกน้ำตากันในการขอใช้สิทธิ์ชื่อโดเมน .Africa ซึ่งครอบคลุมประเทศในกลุ่มทวีปนี้กว่า 53 ประเทศ และการใช้คำลงท้าย .Amazon

"การที่เราลงทุนขอสิทธิ์จัดชื่อโดเมนมูลค่ากว่า 5 ล้านบาทนั้น เราต้องคำนวณรายได้ที่จะเข้ามา ซึ่งมากกว่านี้แน่นอน โดยมองจากความเป็นไทย วัฒนธรรมไทยมีมูลค่ามหาศาล ใคร ๆ ก็อยากได้ ลองคำนวณดูในการใช้ชื่อลงท้าย .th และ .ไทย มีกว่า 65,000 ชื่อ ค่าบริการต่อปีกว่า 428 บาท แสดงว่าแต่ละปี THNIC ได้รับเงินส่วนนี้กว่า 27.8 ล้านบาท แล้วคนที่มายื่นขอโดเมนเนมจะได้เท่าไร"

นายวรรณวิทย์กล่าวอีกว่า ในขณะนี้ต้องการรายชื่อผู้ขอคัดค้านและเหตุผลจากฝั่งผู้ประกอบการธุรกิจ เนื่องจากก่อนหน้านี้มีเพียงหน่วยงานรัฐบาล สมาคมเว็บมาสเตอร์ และการบินไทยเท่านั้นที่ออกมาต่อต้าน ซึ่งไม่เพียงพอต่อการยื่นเรื่องคัดค้านไปทางไอแคนน์ เพราะไอแคนน์ต้องการความเห็นที่หลากหลายจากทุกภาคส่วน ดังนั้นจึงได้มีการประสานไปยังนักเรียนนักศึกษาในโซนยุโรป และผู้ประกอบการร้านอาหารไทยในต่างแดน ซึ่งได้รับความร่วมมือเป็นอย่างดี เริ่มมีการออกมาแสดงความคิดเห็นบ้างแล้ว

"หวังว่าก่อนตัดสินใจในเดือน ก.ค.นี้ จะล่ำรายชื่อผู้ที่มีความเห็นคัดค้านเสนอต่อไอแคนน์ได้สำเร็จ เพื่อยุติเรื่องดังกล่าว ถ้าทำหลังจากนี้จะเป็นเรื่องยาก จึงอยากชวนผู้ที่สนใจลงชื่อขอคัดค้านติดต่อไปยังไอแคนน์หรืออีเมลมาที่ wanawit@etda.or.th ก็ได้"



Government is urged to oppose foreign ownership of .thai  
Close door leading to losing cyber kingdom  
And awake to receive wide opening of international domain names

Policy of wide opening of registration of maximum level of international domain names of Icaan's gTLD is an issue being afraid of causing damage to the country if it falls into private sector's hand as government sector will not be able control it. Many parties jointly raise the issue urging the government to protect the .thai domain.

Based on earlier news reporting on the Internet Corporation for Assigned Names and Numbers (ICANN)'s, the international agency managing and supervising world's internets performing function allocating domain names and IT addresses, allowing registration of international domain names which private companies have been seeking registration of .thai, many parties are worried that the move may cause damages to the country in the future. Regarding this issue, ARIP website ([www.arip.co.th](http://www.arip.co.th)) has been earlier reporting the news. (Readers can read the earlier reported news at <http://www.arip.co.th/news.php?id=16815>). Now, eENTERPRISE magazine under ARIP group has raise continuous movement of the issue here.

such as .com, .net, .org. About half of the registered domain names currently are .com. The remainders are other Top-Level domain names.

Steve Crocker, Icaan Executive Chairman, says on the occasion of his recent visiting Thailand to participate in celebrating ".th" domain name's 25<sup>th</sup> anniversary that the new round of Icaan's allowing registration of maximum level domain names is aimed at promoting free competition, increasing more options and creating new forms of businesses, brand creation of businesses, as well as to be prepared for increased volume of internet use worldwide.

When Icaan allowed interested parties seeking registration of new generic Top-Level Domain Name (gTLD) type maximum domain names, there were around 1,900 new domain names seeking the registration, from about 20 Top-Level Domain Names currently.

Icaan believes in competition. Earlier, prices of dot com domain names' registration was 70 dollars per annum which was subsequently decreasing to 50 dollars. And after completion intensified, current price is 10 dollars a year.



Certified True and Correct Translation

*[Handwritten Signature]*

Aree Suphanthanant  
INTERLANGUAGE TRANSLATION CENTER

Contact Information Redacted





Icaan expects that it will spend about 18 months considering 1,900 new domain names seeking for registration for this round. It can announce whole names of parties entitled to manage new type of maximum level international domain names (gTLD).

Crocker says "Allowing this new round of maximum level of international domain names' registration is difficult to expect the result. Because it is new matter which is regarded as pilot period. However, in the internet world, testing new things are stimulants of innovations."

Wanawit Akhkuputra, one of two representatives from Thailand of Icaan's Governmental Advisory Committee (GAC), states that GAC's meeting in Beijing, People's Republic of China, in April, parties proposed that Icaan delays initial evaluation of applications seeking rights to manage ".thai" domain name because they did not consider by GAC first despite that it is geographical name which should not be raised as Top-Level domain name.

Geographical names and other sensitive names relating to ethics, culture and religions should be considered and supervised by the government or local agencies.

Approval for use of the domain name causes more confusion and wastage among businesses which must invest to buy more domain names. Currently, Thailand has ".ไทย" and ".th" domain names already.

"If Icaan allows .thai to be entitled for the right to be managed by private sector, it will be chaos and damaging to the country. For example, if sex.thai domain name is registered, it will be damaging to the country in terms of image, culture and religion."

Wanawit additional explains that ".thai" is the word which has both positive and negative marketing value. Consequently, it should be considered to be included in part of sensitive words sector and should be included in words which should be preserved. And the whole procedures of ".thai" should be stopped if there is no conclusion yet of the matter so that when the word enters into consideration during the new meeting, it will be able immediately beginning the process.

Wanawit says "Question which follows is how to supervise it. The Government cannot guarantee that there will not have such word as sextour.thai which will be different from ".th" which is under management of "THNIC", non-profit organization"

Another IT industry source notes that based on inspection by Better Living Management Co., Ltd. a Thai company with Malaysian executives signing their names seeking the rights to manage ".thai" domain name.

If ".thai" is approved, private company seeking registration of the domain name will be entitled to control second level domain name which is under .thai maximum level international domain name, such as abc.thai, food.thai, spa.thai. Policy of seeking the rights to use maximum level international domain name is not limited that parties' offices seeking the rights to use second level domain name must be established in Thailand or their representatives being Thai juristic person. So, it is exposed to risk if foreign businesses hope to use ".thai" in a way causing damages to Thailand.

Meanwhile Kanjana Kanjanasut, Deputy Chairperson of Thai Network Information Centre Foundation (THNIC Foundation), one of THNIC Foundation's founders, suggests that in case that .thai is domain name, private companies, should not be allowed to seek business benefit from the domain name. It is particularly the case for foreign firms which will be even more dangerous as it will be exposed to risk of losing sovereignty in cyber world.

Wanawit goes on saying that apart from .thai, GAC also suggests that Icaan's Board should delay initial evaluation other sensitive domain names, including .shanzhan, .persiangulf, .guangzhou, .anazibm, .patagonia, .cate, .spa, .yun, .thai, .zulu, .wine, .vin.

Currently, Siam Commercial Bank is the Thai company applying for registration of domain name and has been initially approved for evaluation for the use of .scb.

While large corporations, such as Siam Cement, Charoen Pokaphand Foods, Thai Airways International and other companies, should speed up registration of their own international domain names.

And various towns and cities and tourism business should also accelerate seeking the rights to manage international domain names. Presently, many international domain names have filed for the rights in this part, such as .Helsinki, .Rid, .food, .organic, .hotel and .ticket.

However, the launch of service of new gTLD wide opening may cause problems of confusion and argument in term of trademark, such as if a party is entitled to use .HOTEL and if there is Dusit Hotel website, it may cause confusion to users.

Business organizations can use Icaan's mechanism [www.trademark-clearinghouse.com/](http://www.trademark-clearinghouse.com/) which allows brands' owners to be able to file the matter so as to prevent such incident from happening with 100 dollars per year expenses. And allocating new gTLD must inspect whether second level domain is protected.

Wanawit notes "Large organizations should speed up filing for their own brands' protection in procedures of trademark clearinghouse."

While public sector will be able to use this opportunity to promote tourism by

brand promotion and protecting national benefits and assets in cyber world.

Regarding this matter, Crocker states that .thai is sensitive issue which Icaan has delayed application of private companies seeking permission to manage the domain name.

However, generally if there is dispute arguing the rights to manage domain names or other cases, auction will be adopted to allow other parties seeking the same domain names to participate in the auction so that they will be entitled to the rights which is regarded as final.

Crocker also says that currently, .com is the most international domain name seeking registration by around 120 million names. While number of top ranks of domain names of nationality, or country code Top Level Domain Name (ccTLD), are Germany, United Kingdom, Japan and Brazil.

He admits that from now on, Asia will be the most influential region of the internet world, from previously United States' domination. Because population connecting internet in this region is swiftly increasing and growth of mobile phones

and other portable devices and high speed wireless communication devices which increase number of mobile internet users.

It is obvious that during past several years, local languages domain names have been significantly increasing. And number of .com seeking registration which used to account for half of whole domain names which used to be more than half of entire domain names seeking registration has been reducing to less than 50 per cent of the entire domain names.

He raises an example that in China, particularly, there are over 500 million persons using internet service which are more than total population of the United States.

"Internet world will evolve into new structures which all related agencies worldwide including public, private and business sectors must cooperate to stipulate standard and direction of supervision of the internet services."

Based on information from whois.sc, in June, presently, the world have had 145,716,250 domain names covering .com, .net, .org, .info, .biz and US top level domains (TLDs).

Regarding this issue, if Thailand, by Government or other central agency, does not exercise rights to use .thai domain name as .thai domain name falls into foreigners' hands, Thailand will be unfortunately as if losing kingdom of cyber world. Moreover, it is wondering that the country will be exposed to incalculable damages which may follow. Consequently, various parties want to Government to step in to play part for this issue before it may be too late.



Certified True and Correct Translation

*(Handwritten signature)*

Aree Suphanthanant

INTERLANGUAGE TRANSLATION CENTER

Contact Information Redacted





# จี้รัฐค้าน .thai

## ปิดประตูเสียอาณาจักรไซเบอร์

### พร้อมต้อนรับโอกาสเปิดกว้างชื่อโดเมนสากล

นโยบายการเปิดกว้างให้มีการจดทะเบียนชื่อโดเมนสากลระดับสูงสุดแบบสากล หรือ gTLD ของไอแคนน์เป็นประเด็น หัวข้อเกิดความเสียหายต่อประเทศหากตกไปอยู่ในมือเอกชน ด้วยรัฐไม่สามารถควบคุมได้ หลายฝ่ายร่วมขั้ประเด็นให้รัฐ ปองโดเมน .Thai

จากการนำเสนอข่าวเรื่องการเปิดให้จดทะเบียนชื่อโดเมนสากลโดยไอแคนน์ (Internet Corporation for Assigned Names and Numbers :ICANN) ซึ่งเป็นหน่วยงานสากลในการบริหารดูแลอินเทอร์เน็ตโลกที่ทำหน้าที่ในการ จัดสรรโดเมนเนมและไอพีแอดเดรส ซึ่งมีบริษัทเอกชนได้ยื่นขอจด .thai นั้น หลายฝ่ายมีความกังวลว่าอาจจะเกิดความเสียหายต่อประเทศในอนาคต โดย ในประเด็นนี้เว็บไซต์เออาร์ไอที (www.arip.co.th) ได้นำเสนอข่าวไปก่อนหน้านี้ นั้น (อ่านข่าวก่อนหน้านี้ได้ที่ <http://www.arip.co.th/news.php?id=416815>) บัดนี้มติยสาร eENTERPRISE ในเครือเออาร์ไอที ได้หยิบยกประเด็น นี้มาเสนอข่าวความเคลื่อนไหวต่อเนื่องในที่นี้

เมื่อไอแคนน์ ได้เปิดให้ผู้สนใจขอจดชื่อโดเมนระดับสูงสุดแบบสากล gTLD (generic Top-Level Domain Name) ใหม่ นั้น ปรากฏว่ามีผู้สนใจขอจดทะเบียน ชื่อใหม่อีก 1,900 ชื่อโดเมน จากปัจจุบันที่มีอยู่ราว 20 Top-Level Domain

เช่น .com .net .org โดยชื่อโดเมนที่จดกันในปัจจุบัน ราวเกือบครึ่งเป็นการจด .com และนอกจากนั้นเป็น Top-Level Domain อื่นๆ

สติฟ คร็อกเกอร์ ประธานกรรมการบริหารของไอแคนน์ กล่าวในโอกาส มาเยือนประเทศไทยเพื่อฉลองครบรอบ 25 ปีของชื่อโดเมน ".th" ว่า การ เปิดให้ขอจดทะเบียนชื่อโดเมนระดับสูงสุดแบบสากลในรอบใหม่นี้ เพื่อให้ มีการแข่งขันเสรี เพิ่มทางเลือกและสร้างรูปแบบธุรกิจใหม่ๆ มากขึ้น การสร้าง แปรนต์ชื่อธุรกิจต่างๆ พร้อมรองรับปริมาณการใช้อินเทอร์เน็ตที่เพิ่มขึ้น ทั่วโลก.

ไอแคนน์เชื่อในการแข่งขัน ก่อนหน้านี้ราคาการจดชื่อโดเมนคอม อยู่ ที่ 70 ดอลลาร์ต่อปี และลดลงเหลือ 50 ดอลลาร์ และเมื่อมีการแข่งขันเพิ่มขึ้น ปัจจุบันอยู่ที่ 10 ดอลลาร์ต่อปี



ทั้งนี้ ไอแคนน์ คาดว่าจะใช้เวลา 18 เดือนในการพิจารณาผู้ขอจดทะเบียนชื่อใหม่ราว 1,900 โดเมนเนมในรอบนี้ จะสามารถประกาศผู้มีสิทธิบริหารชื่อโดเมนระดับสูงสุดแบบสากลใหม่ (gTLD) ทั้งหมดได้

"การเปิดให้จดทะเบียนชื่อโดเมนระดับสูงสุดแบบสากลในรอบใหม่นี้ ยากที่จะคาดการณ์ว่าผลลัพธ์ที่ได้จะเป็นอย่างไร เพราะเป็นเรื่องใหม่ ถือเป็นกาทดลอง กระนั้นในโลกของอินเทอร์เน็ต การทดลองสิ่งใหม่ก็เป็นตัวกระตุ้นหนึ่งของนวัตกรรม" คร็อกเกอร์ กล่าว

**วรรณวิทย์ อาชูปตร** หนึ่งในสองตัวแทนจากประเทศไทยใน Governmental Advisory Committee (GAC) ของไอแคนน์ ระบุว่า ในการประชุมของ GAC ที่กรุงปักกิ่ง สาธารณรัฐประชาชนจีน ในเดือนเมษายนที่ผ่านมา ได้เสนอให้ไอแคนน์ชะลอการพิจารณาเบื้องต้น (Initial evaluation) การขอขึ้นขอสิทธิบริหารชื่อโดเมน ".thai" เนื่องจากไม่ได้ผ่านการพิจารณาจาก GAC ก่อน ทั้งที่เป็นชื่อทางภูมินาม (Geographical Name) ซึ่งไม่ควรจะนำมาเป็น Top Level Domain

ทั้งนี้ชื่อทางภูมินามและชื่อที่อ่อนไหวอื่นๆ ที่เกี่ยวข้องกับชาติพันธุ์ วัฒนธรรมและศาสนา ควรจะได้รับการพิจารณาและกำกับดูแลจากรัฐบาลหรือหน่วยงานท้องถิ่น

การอนุมัติให้มีการใช้จะยิ่งทำให้เกิดสับสนและสับสนกับธุรกิจต่างๆ ที่ต้องลงทุนชื่อชื่อโดเมนเพิ่ม จากปัจจุบันประเทศไทยมีชื่อโดเมน ".ไทย" และ ".th" อยู่แล้ว

"หากไอแคนน์ ปล่อยให้ชื่อ .thai ไปให้สิทธิเอกชนบริหาร จะสร้างความวุ่นวายและความเสียหายให้กับประเทศได้ เช่น หากมีการจดชื่อโดเมน sex.thai ก็จะทำให้ประเทศเกิดความเสียหายในแง่ภาพลักษณ์ วัฒนธรรม และศาสนา"

วรรณวิทย์ อธิบายเพิ่มเติมว่า ".thai" เป็น คำที่มีมูลค่าทางการตลาดทั้งด้านบวกและด้านลบ ดังนั้นควรได้รับการพิจารณาให้เข้าอยู่ในหมวดคำอ่อนไหว และเพิ่มในรายชื่อคำที่ควรสงวนไว้ และหยุดกระบวนการทั้งหมดของ ".thai" หากไม่สามารถหาข้อยุติได้ เมื่อผ่านเข้าไปสู่การประชุมครั้งต่อไปก็จะสามารถเริ่มดำเนินการได้ทันที

"คำถามที่ตามมาก็คือ จะกำกับดูแลอย่างไร รัฐบาลไม่สามารถรับประกันได้ว่าจะไม่ มี sextour.thai ซึ่งจะแตกต่างจาก ".th" ที่อยู่ภายใต้การบริหารขององค์กรที่ไม่แสวงหากำไร 'THNIC'" วรรณวิทย์ กล่าว

แหล่งข่าววงการไอทีอีกรายหนึ่ง กล่าวเสริมว่า จากที่มีกรตรวจสอบบริษัท เบ็ทเทอร์ ลิฟวิ่ง แมเนจเม้นท์ จำกัด ซึ่งเป็นบริษัทไทยแต่มีผู้บริหารที่ลงนามในใบขอสิทธิบริหารชื่อโดเมนเป็นชาวมาเลเซีย เป็นผู้ยื่นขอบริหารชื่อโดเมน ".thai"

หาก ".thai" ได้รับการอนุมัติ บริษัทเอกชนที่ยื่นจะได้รับสิทธิในการควบคุมชื่อโดเมนชั้นที่สอง (Second Level Domain name) ที่อยู่ภายใต้ชื่อโดเมนระดับสูงสุดแบบสากล .thai เช่น abc.thai, food.thai, spa.thai ซึ่งนโยบายการขอใช้ชื่อโดเมนระดับสูงสุดแบบสากลนั้น ไม่จำกัดว่าผู้ขอใช้ชื่อโดเมนชั้นที่สองต้องมีสถานที่ตั้งในประเทศไทย หรือมีตัวตนเป็นนิติบุคคลไทย จึงอาจเกิดความเสียหายในกรณีธุรกิจชาติหวงนำชื่อ ".thai" ไปใช้ในทางที่ก่อให้เกิดผลเสียต่อประเทศไทย

ด้าน กาญจนา กาญจนสุด รองประธานมูลนิธิศูนย์สารสนเทศเครือข่ายไทย หนึ่งในผู้ก่อตั้งทีเอชเน็ต กล่าวเสริมว่า กรณีของ .thai เป็นชื่อโดเมนที่ไม่ควรให้บริษัทเอกชนนำไปหาผลประโยชน์ในทางธุรกิจ โดยเฉพาะบริษัทต่างชาติ จะยังเป็นอันตราย เสี่ยงต่อการสูญเสียอธิปไตยในโลกไซเบอร์

วรรณวิทย์ กล่าวต่อว่า นอกจาก .thai แล้ว จีเอซี ยังได้แนะนำของไอแคนน์ให้ชะลอการพิจารณาเบื้องต้น (Initial Evaluation) ในส่วนที่อ่อนไหวอื่นๆ ทั้ง .shenzhen, .persiangulf, .guangzhou, .amazon, .patagonia, .date, .spa, .yun, .thai, .zulu, .wine, .vin

ทั้งนี้ ปัจจุบันมีบริษัทไทยที่ได้ยื่นขอสมัครเพื่อจดชื่อโดเมนและผ่านการประเมินในเบื้องต้นแล้ว (initial Evaluation) แล้วคือธนาคารไทยพาณิชย์ได้รับ .scb

ขณะที่หน่วยงานขนาดใหญ่ เช่น บริษัทเครือปูนซิเมนต์ไทย บริษัทเครือเจริญโภคภัณฑ์อาหาร การบินไทย และอื่นๆ ควรจะเร่งจดชื่อโดเมนสากลของตนเอง

รวมทั้งเมืองต่างๆ และธุรกิจท่องเที่ยว ควรจะเร่งขอสิทธิในการบริหารชื่อโดเมนสากลใหม่นี้ด้วยเช่นกัน ปัจจุบันมีชื่อโดเมนสากลที่ได้ยื่นแล้วในส่วนนี้ เช่น .Helsinki, .Rio, .food, .organic, .hotel และ .ticket

อย่างไรก็ตาม การเปิดกว้างการใช้งาน gTLD ใหม่ นี้ อาจส่งผลให้เกิดปัญหาความสับสนและข้อโต้แย้งเรื่องเครื่องหมายการค้า เช่น กรณีที่มีผู้ได้ .HOTEL และถ้ามีเว็บไซต์ DUSIT.HOTEL จะทำให้ผู้ใช้สับสนได้

องค์กรธุรกิจสามารถใช้กลไกของไอแคนน์ [www.trademark-clearinghouse.com/](http://www.trademark-clearinghouse.com/) ที่อนุญาตให้เจ้าของแบรนด์ สามารถยื่นเรื่องเพื่อป้องกันเหตุการณ์ที่จะเกิดขึ้นดังกล่าวได้ โดยมีค่าใช้จ่าย 100 ดอลลาร์ต่อปี และในการจัดสรร gTLD ใหม่ๆ ต้องมีการตรวจสอบว่ามีชื่อโดเมนชั้นที่สอง (second level domain) ได้รับการคุ้มครอง

"องค์กรขนาดใหญ่ ควรจะเร่งดำเนินการ ยื่นเรื่องการคุ้มครองแบรนด์ตนเองในกระบวนการเทรดมาร์ค เคลียร์ริง แฮาส์" วรรณวิทย์ กล่าว

ส่วนของภาครัฐจะสามารถใช้โอกาสนี้ในการส่งเสริมการท่องเที่ยว โดย



**เว็บไซต์และปกป้องผลประโยชน์และทรัพย์สินของชาติในโลกไซเบอร์**  
**จะยังคงกล่าว** ครัวเกอร์ ระบุว่า .thai เป็นประเด็นที่อ่อนไหว ซึ่งได้  
**มีการประเมินผลกระทบของเอกชนดังกล่าวไปแล้ว**

**อย่างไรก็ตาม** โดยทั่วไปหากมีกรณีพิพาทข้อโต้แย้งสิทธิการบริหารชื่อ  
**โดเมน กรณีอื่นๆ** จะเปิดให้ผู้ยื่นขอที่คัดค้านได้มาประมวลเพื่อที่ได้รับสิทธิ  
**ในการใช้ชื่อ**

**อย่างไรก็ตาม** กล่าวเสริมว่า ปัจจุบัน .com เป็นชื่อโดเมนสากลที่จดทะเบียน  
**มากที่สุดแล้ว** 120 ล้านชื่อ ขณะที่จำนวน ชื่อโดเมนประจำสัญชาติ หรือ ccTLD  
**(country code top-level domain name)** ในลำดับต้นๆ จะอยู่ใน เยอรมนี  
**ฝรั่งเศส อิตาลี ญี่ปุ่น และบราซิล**

**อย่างไรก็ตาม** ระบุว่า จากนี้ไป เอเชียจะเป็นภูมิภาคที่มีอิทธิพลสูงสุดในโลก  
**ของอินเทอร์เน็ต** จากเดิมที่อยู่ในสหรัฐอเมริกา เนื่องจากภูมิภาคนี้มีประชากร  
**ที่เพิ่มขึ้นอินเทอร์เน็ตเพิ่มขึ้นอย่างรวดเร็ว** การเติบโตของอุปกรณ์มือถือ

และอุปกรณ์พกพาอื่นๆ และการสื่อสารไร้สายความเร็วสูงที่ทำให้ผู้ใช้โมบาย  
**อินเทอร์เน็ตเพิ่มขึ้น**

**จะเห็นได้ชัดเจนว่า** ช่วงหลายปีที่ผ่านมาชื่อโดเมนภาษาท้องถิ่นเพิ่มขึ้น  
**มากและจำนวน .com** ที่เคยเจ็ดครั้งหนึ่งของชื่อโดเมนทั้งหมดลดลงเหลือ  
**ไม่ถึง 50%**

**เขายกตัวอย่างว่า** เฉพาะในประเทศจีน ก็มีผู้ใช้อินเทอร์เน็ต กว่า 500 ล้าน  
**คน** ซึ่งมากกว่าจำนวนประชากรของประเทศสหรัฐอเมริกาทั้งประเทศ

**"อินเทอร์เน็ตโลกจะวิวัฒนาการสู่โครงสร้างใหม่ๆ** ซึ่งทุกหน่วยงานที่เกี่ยวข้อง  
**ทั่วโลกทั้งภาครัฐ เอกชน และภาคธุรกิจต้องหันมาร่วมมือกันกำหนดมาตรฐาน**  
**และทิศทางการกำกับดูแล"**

**ข้อมูลจาก whois.sc** ในเดือนมิถุนายนที่ผ่านมา พบว่าปัจจุบันทั่วโลก  
**มีชื่อโดเมนสากล 145,716,250** ชื่อโดเมน ครอบคลุม .COM, .NET, .ORG,  
**INFO, .BIZ, and .US top level domains (TLDs)**

**สถิติฐานข้อมูลชื่อโดเมนระดับโลกเมื่อเดือนมิถุนายน 2556**

ทั้งหมด	จุดชื่อโดเมนไทย	ชื่อโดเมนทั่วไป	ชื่อโดเมนที่มีการเปลี่ยนมือ	ชื่อโดเมนระดับบนสุด
145,716,250	146,770	179,886	212,118	All TLDs
109,374,494	138,456	137,644	167,617	COM
15,132,940	14,461	21,042	20,588	NET
10,332,947	5,450	6,173	7,047	ORG
6,703,545	3,646	11,291	13,085	INFO
2,362,291	2,793	1,952	2,447	BIZ
1,810,033	1,964	1,784	1,334	US

ถ้าต้องการดู <http://www.whois.sc/Internet-statistics/>

**ในประเด็นดังกล่าวนี้** หากประเทศไทยโดยรัฐบาลหรือหน่วยงาน  
**กลาง** ไม่ได้ได้สิทธิในชื่อโดเมน .thai โดยชื่อโดเมน .thai นั้นต่อ  
**ตกเป็นของต่างชาติก็เหมือนหนึ่งประเทศไทยต้องสูญเสียอาณาจัก**  
**บนโลกไซเบอร์ไปอย่างน่าเสียดาย** อีกทั้งยังเป็นที่น่าหวั่นกลัว  
**ต่อความเสียหายที่อาจตามมาอย่างประเมินค่ามิได้** ดังนั้นหลายฝ่าย  
**จึงอยากให้รัฐบาลเข้ามามีบทบาทต่อประเด็นนี้** ก่อนที่จะสา  
**งเกตเกินกว่า e**





# Appendix 1

Case no 2305/2556

Indictment

Administration Court  
Received 3 sets of document  
Name -----signature----- receiver  
14 November 2556, time 14.20

Administration Court of Thailand

2013 Ruiji B...

2013 Ruiji B...

The 14th day of November AD 2556.

I, BETTER LIVING Managed Limited by Mr. Asvin Asvinvichit, the director authorized signatory.

1986 Ruiji B...

Born on 24th October AD 2529, aged 27 years, professional business.

Address:

Contact Information Redacted

Contact Information Redacted

Intended to sue

1. Deputy Director, Electronic Transaction Development Agency, Ministry of Information and Communication, Mr. Wannawit Ahkuputra.

Address:

Contact Information Redacted

Contact Information Redacted

Contact Information Redacted

2. Director of the Office of Science of Thailand. Ministry of Science and Technology, Mr. Thweesak Koanantakool.

Address:

Contact Information Redacted

Contact Information Redacted

Note 1. Claimant must use proper language and in Thai

2. Claimant attaches the evidence related to the indictment and if cannot attaches the evidence, note the reason.

3. Claimant must put the copy of indictment and copy of evidence of the claimant with signature in the amount equal to number of accuses together with indictment

4. The process of indictment, the claimant does not have to follow this indictment but must contain signification information in therea

Details of the action, the facts or circumstances that caused damage suffered are summarized as follow:

COMPANY BETTER LIVING Managed Limited, the claimant, registered since 2010. The company currently has a budget capital of 50,000,000.00 Baht (fifty million Baht Net). Shareholders are 100% Thai citizen, (Attachment 1). The company is the registry of .Thai domain with Internet Corporation for Assign Names and Numbers (ICANN), which is the independent organization in charge of regulatory domains around the world, such as .com, .org, .net in which the organization currently has two representatives from Thailand, which are Director of the Office of Science of Thailand, Dr. Thweesak Koanantakool and . Deputy Director of Electronic Transaction Development Agency, Mr. Wannawit Ahkuputra. These two officers represent the Government Agency Committee of Thailand position in ICANN and responsible to deliver government policy, advice on local lawsuit and the domain registration that associate to Thailand.

Which, in the actions of two officers who made trouble for the company is summarized in detail as follow:

1. ICANN, which there no national law shall Thailand to support such organizations as an independent entity, is responsible for managing the domain name system, for example, .Com. Net and .Org. ICANN opened to the top level domain registrars (which is the same format as the domain .Com, .Net, .Th, .Jp , and etc.) for the first time under the name " New gTLD Program " (New Generic Top Level Domain: New gTLD) in the first quarter of the year 2012 with the aim to promote the competition of the top level domain as the market serviced to this domain monopoly for decades. The top level domain serves as an extension on the Internet, to enable consumers to establish a website with a name based on the needs of service users. The top level

domain name registration in the approved, applicants must be fully qualified under the rules of ICANN, which are summarized briefly as follows.

- A. A company must have formal registration with a solid financial potential.
- B. A company must receive supports from various government and public agencies, including no objection from the government or the so-called Government Agency Committee (GAC) (referred to in this indictment GAC) , which is the board under ICANN
- C. A company must have the technical and technology-based rules.
- D. A company must follow ICANN rules.

In this case, if GAC decided to make an objection to any top level domain register, ICANN would consider such an objection as delivered from the national government that GAC represents. In the .Thai top level domain registration, the company has submitted every document accordingly to the ICANN rules before the deadline of March 2012 including the supporting document from associated agencies.



2. COMPANY BETTER LIVING Managed Limited, a Top level domain registrar .Thai in the type of community domain with ICANN, aimed to provide a domain service to Thai consumers, and to provide more service option as there are only .th and .ไทย currently being serviced. Before the .Thai registration with ICANN, the company had checked that Thai GAC did not put .Thai into the not-allow list and did not mention to ICANN that "Thai" is a country name. The company believed that by providing a service of .Thai would create a fair competition in term of both pricing and quality. This would directly benefit the consumers. The company had a policy to provide a service to Thai consumers only in the fair price to other international service provider. In .Thai registration, the company had invested in mechanics, international and domestic lawsuit advisor, and the operation planning to meet the global standard. The



company paid 5,500,000.00 Baht for the registration fee and 2,500,000.00 Baht for the guarantee fee in the case that the company did not follow the regulation with ICANN. In addition, community registration required the company to have supporting letter from various organization in Thailand, which the company had a supporting letter as follow:

- a. Permanent Secretary office of Ministry of International Technology and Communication on 12<sup>th</sup> April, 2012
- b. Permanent Secretary office of Ministry of Interior on 12<sup>th</sup> April, 2012
- c. Permanent Secretary office of Ministry of Industry on 21<sup>st</sup> May, 2012
- d. Permanent Secretary office of Ministry of Culture on 1<sup>st</sup> November, 2012
- e. Miracle of Life Foundation under her majestic, Princess Ubolratana Rajakanya

The company had also tried to request a support from Ministry of Science due to the fact that Dr. Thweesak Koranantakul, Director of the Office of Science of Thailand was the only Thai GAC representative. However, the company was rejected with a reason that the concern of service quality, the duplication with .Th domain in the closer service type, and the method to control the operation to create the least problem. The company, thus, clarify the solution to prevent problems and concern accordingly to the ICANN regulation. On 31<sup>st</sup> October, 2012, recorded message from NSTDA. 's 5401/7726 by Ms. Chadamas Tuwasedtakul, acting Deputy Director of NSTDA, commended that Ministry of Science and Technology Can issue a letter of intent not to oppose or reject the application .Thai to the company. Ministry of Science and Technology has issued no objection letter to the registration of the domain .Thai to the Company on 13<sup>th</sup> March, 2012.

 2013  
 2013

3. During the month of May 2011 to 29<sup>th</sup> June, 2551, ICANN launch the program that GAC of each country could send the early warning for domains that representative of the government did not agree with. During the term, Dr. Thweesak Koranantakul, Director of NSTDA. , which positioned as GAC Thailand did not filed a warning to

the domain .Thai, which caused the company to understand that Dr. Thweesak Koranantakul, agreed to the NSTDA letter, referred to in Appendix 10 not to object domain .Thai.

- Rujin B  
2013
4. However, later in a meeting in Beijing, China on 7<sup>th</sup> April, ~~2012~~, Dr. Thweesak Koranantakul appointed a representative to the meeting, Mr. Wanawit Ahkuputra, Deputy Director of the ETDA. Mr. Wanawit Ahkuputra said at a GAC conference requested ICANN to suspend consideration domain .Thai, which such an action contrary to the letter of support from Permanent Secretary Office of the four ministries, including the letter of NSTDA. The company, therefore, had a meeting with Mr. Wanawit Ahkuputra after a meeting in Beijing purposed to know the reasons for the suspension. The company received information that the reason to suspend was the word Thai in = English is translated as a geographical indication, Thailand (Attachment 11) and should be approved by the government before. The Company clarified that Thai did not mean Thailand according to the Thai Royal Institute of Thailand dated 22 February ~~2544~~<sup>2001 Rujin B</sup>, stated that the country can be called by two English names, which were Thailand and the Kingdom of Thailand, so discretion of Mr. Wanawit Ahkuputra hence invalidated. However, due the fact that ICANN regarded Mr. Mr. Wanawit Ahkuputra as an official representative of the Government of Thailand. ICANN, therefore, accepted the requested of domain .Thai suspended (Attachment 12). In addition, the appointment of new GAC representative by Dr. Thweesak Koranatakul did not notify the Company even thought, Thai GAC was noted that the GAC position was significant to .Thai domain registration since the beginning. The appointment of second GAC representative also contrast to the NSTDA letter in appendix 10.

- Rujin B  
2013
5. On 3<sup>rd</sup> June, ~~2011~~, the Company passed the initial evaluation by ICANN in solid prove of financial stability, standard technical, and the evaluation that “Thai” was not the



geographical name (Attachment 13). However, ICANN announced to suspend the further evaluation accordingly to the Thai GAC objection. This was proved that Mr. Wanawit Ahkuputra voice directly influenced .Thai registration of the company to ICANN. If there was no objection from Thai GAC, the company would passed to the contracting stage with ICANN and provided a service to citizen.

2013 *Ruji Buj*  
6. On 13<sup>th</sup> June, ~~2011~~, Mr. Wanawit Ahkuputra provided information to Prachachart Business newspaper (Attachment 14) that the company Better Living with Managed Limited was majorly funded by Malaysia and requested the citizen to submit the objection to personal email. Mr. Wanawit Ahkuputra also mentioned that it was not required to be Thai citizen to use .Thai, which the company stated clearly in the application that the service would be provided to Thai citizen only and the company would operate .Thai under Thai law and regulation strictly. The company has sued Mr. Wanawit Ahkuputra for providing false statement about the company to the public.

2013 *Ruji Buj*  
7. In the 47<sup>th</sup> ICANN Meeting at Durban Country South Africa on 14<sup>th</sup> July, ~~2011~~, Mr. Wanawit Ahkuputra had officially objected .Thai again by providing a reason that “Thai” is a geographic name. The result of an objection led to .Thai final objection progress from ICANN to the company because the objection from Mr. Wanawit Ahkuputra in Thai GAC position was considered as the Thai government public policy.

2013 *Ruji Buj*  
8. On 25<sup>th</sup> July, ~~2011~~, Mr. Nikom Wairatchapanid, president of the Senate has issued a letter of support to the company (Appendix 15), but later, on 9<sup>th</sup> August, ~~2011~~, the letter was canceled because Mr. Wanawit Ahkuputra submitted a letter to the Senate that such an issue was authorized by Thai GAC.

- Ref B-  
2013
9. 26<sup>th</sup> July, 201~~1~~, Thai GACHas provided information via Facebook that "THNIC is a monopoly of .TH" (Attachment 16). Such a statement clarified that Mr. Wanawit Ahkuputra and Dr. Thweesak Koranantakul acknowledge that the service of this business was tied up to THNIC Co., Ltd only and still tried to create the competition chance by blocking .Thai domain.
  10. Recently, the company found more information by Mr. Wanawit Ahkuputra via E-Enterprise Magazine, July 201~~1~~ Edition that <sup>2013 Ref B-</sup> "to apply for the right to operate .Thai, it was not passed the consideration from GAC first even it was the geographic name. In addition, if ICANN passed the right of .Thai to the private company to operate, it might cause the chaos and damage to the country." Even though, .Th and .ไทย were currently operated by private company named THNIC CO., Ltd too. Yet, Thai GAC never made any objection on that private company right, which shows that the consideration was not fair.
  11. Currently, THNIC CO., Ltd was the only one top level domain operator in Thailand and tied up the business by holding two licenses of top level domain, which are .Th and ไทย. Since THNIC CO., Ltd had registered for a private company license, Thai GAC accepted this was a truth. The fee of the service was more expensive than the international domain such as .com, net, and org. and provided a service ineffectively as the system was hacked. The over pricing and ineffective of the service shows the problem of the business without a competition resulted in no motivation to the existing service provider to improve the service and that private company could control the domestic domain price to be higher than international service price.

The Company therefore requested the Administration court to reconsider for the fairness to the company because the reason and discretion of the state officer to carry .Thai objection

of the company was unfair. Both Thai GAC, which were Dr. Thweesak Koranantakul and Mr. Wanawit Ahkuputra never objected THNIC Co., Ltd to register for the .ไทย in A.D. 2552 even though, that company was a private company. The reason that .Thai was a geographic name was clearly contrast to the Royal Thai government Gazette and Royal Institute. This was the action to block the fair competition and trade liberalization. The action was unfair and unjustly used of discretion unlawfully.

This .Thai objection to the company violated the Constitution of the Kingdom of Thailand and Thai law as follow:

- a. In the section 43, it stated that person shall has freedom to engage in the business or occupation and the fair competition.
- b. Section 29, it stated that removal of the personal right and liberties that the Constitution had recognized could not be done.
- c. Section 6, the constitution is the supreme law of the country. Any provision of law, rule or regulation contrast to the constitution shall not be applied.
- d. Thai GAC position is purposed to deliver the government public policy that related to the domain registration to ICANN. However, the act of two state officer was done by personal thoughts.
- e. The objective of National Science and Technology Development Agency (NSTDA), according to the Thai Royal Institute of 108, episode 240, on 29<sup>th</sup> December A.D. ~~2554~~<sup>1991</sup>, page 100-116, did not involve the agency to be responsible for the domain registration or Thai government representative to ICANN. Dr. Thweesak was not appointed by the Thai Government.
- f. The objective of Electronic Transaction Development Agency (ETDA), according to the Thai Royal Institute to create the Electronic Transaction Development Agency (Public Agency) of ~~108~~<sup>in 2011</sup> on A.D. ~~2554~~ was that the agency was responsible to any action related to Electronic Transaction and did not mention that the agency was responsible for the domain registration or represent government in ICANN.



- g. There is no law to prevent private company to use the word ไทย or Thai to operate the business. For example, Thai Beverage Co.,Ltd., Thairath newspapers, and also the THNIC company that owns the right over .ไทย, which is similar to the .Thai of the company.
- h. It is the action that intend to block the fair competitive market resulted to the monopoly market in this business and the price was controllable, which the Royal Economic Institute of A.D <sup>1999</sup> ~~2542~~ <sup>Aug 3</sup>, Type 3, prevention of the monopoly, Section 25, stated that there shall be no business company to be able to control the price of product or service unfairly.
- i. It was the discriminated action because Thai GAC never object the registration to .ไทย of the THNIC Co., Ltd in A.D <sup>2009</sup> ~~2552~~ <sup>Aug 3</sup> with ICANN at all.

Due to the current situation, the company could be officially disqualified to operate .Thai by ICANN because Thai GAC had objected .Thai and the New gTLD committee accepted the objection as in the notification (Appendix 20). This resulted in the damage to the company. The objection riskily to be beyond the solvable period and resulted that the company would be officially disqualified the right forever. The company, thus, would like the Administration Court to urgently consider and temporary suspend the action from Mr. Wanawit Ahkuputra and Thai GAC that objected the registration of .Thai to international. So, the company could provide this to ICANN to stop the objection of .Thai until the end of this lawsuit.

Request of the prosecution (Specified objectives or needs of the claimants).

1. Request the Administration Court to command the protection of .Thai top level domain registered by Better Living Company Management Co., Ltd with ICANN by order the claimants to withdraw the objection that has been submitted to ICANN and approve the this domain temporarily until the end of this case.
2. Request the Administration court to withdraw the acts of Mr. Wanawit Ahkuputra and Thai GAC that against .Thai domain registration to ICANN.
3. Request the Administration court to not allow any action that considered as the prevention of fair competitive business in domain service.
4. Request the Administration court to prevent Thai GAC to object .Thai domain in order to create the fair competitive in this business.
5. ....

(Sign)..... the prosecution

( ..... )



○ คำฟ้อง

คดีหมายเลขดำที่ 2305 /๒๕ 56

## ศาลปกครองกลาง

วันที่ ๑๔ เดือน พฤศจิกายน พุทธศักราช ๒๕๕๖

กลุ่มรับฟ้อง สำนักงานศาลปกครองกลาง  
ได้รับเอกสารแล้ว จำนวน 3  
ลงชื่อ วิชาญ  
๑๔ พย. ๒๕๕๖ เวลา 12.20

ข้าพเจ้า บริษัท เบ็ทเทอร์ ลิฟวิ่ง แมนเนจเม้นท์ จำกัด โดย นายอัศวิน  
อัศวินวิจิตร กรรมการผู้มีอำนาจลงนาม

เกิดวันที่ 24 เดือน ตุลาคม พ.ศ. 2529 อายุ 27 ปี อาชีพ นักธุรกิจ

อยู่ที่ Contact Information Redacted หมู่ที่

ถนน ราชดำริ ตรอก/ซอย มหาตมเล็กหลวง 2

ตำบล/แขวง ลุมพินี อำเภอ/เขต ปทุมวัน

จังหวัด กรุงเทพมหานคร รหัสไปรษณีย์ 10330 โทรศัพท์ Contact Information Redacted

## มีความประสงค์ขอฟ้อง

1. ร้องผู้อำนวยการ สำนักงาน พัฒนาธุรกิจทางอิเล็กทรอนิกส์ กระทรวงเทคโนโลยี  
สารสนเทศและการสื่อสาร นาย วรรณวิทย์ อาขุนบุตร

อยู่ที่ 120 อาคารรัฐประศาสนภักดี (อาคาร บี) ชั้น 7 หมู่ที่ 3

ถนน แจ้งวัฒนะ ตรอก/ซอย

ตำบล/แขวง ทุ่งสองห้อง อำเภอ/เขต หลักสี่

จังหวัด กรุงเทพมหานคร รหัสไปรษณีย์ 10210 โทรศัพท์ 021421160

2. ผู้อำนวยการสำนักงานพัฒนาวิทยาศาสตร์แห่งประเทศไทย กระทรวงวิทยาศาสตร์และ  
เทคโนโลยี (นายทวีศักดิ์ กอนันต์กุล)

อยู่ที่ 111 อุทยานวิทยาศาสตร์ หมู่ที่

ถนน พหลโยธิน ตรอก/ซอย

ตำบล/แขวง คลองหนึ่ง อำเภอ/เขต คลองหลวง

จังหวัด ปทุมธานี รหัสไปรษณีย์ 12120 โทรศัพท์ 02-564-8000

รายละเอียดของการกระทำ ข้อเท็จจริง หรือพฤติการณ์ เกี่ยวกับการกระทำที่เป็นเหตุให้เกิด  
ความเดือดร้อนเสียหายที่พอเข้าใจได้

## หมายเหตุ

- คำฟ้องต้องใช้ถ้อยคำสุภาพและให้ทำเป็นภาษาไทย
- ผู้ฟ้องคดีแนบพยานหลักฐานที่เกี่ยวข้องกับคำฟ้อง ถ้าไม่อาจแนบพยานหลักฐานมาได้ ให้ระบุเหตุที่ไม่อาจแนบพยานหลักฐานไว้ด้วย
- ผู้ฟ้องคดีต้องจัดทำสำเนาคำฟ้อง และสำเนา พยานหลักฐานที่ผู้ฟ้องคดีรับรองสำเนาถูกต้องตามจำนวนของผู้ถูกฟ้องคดียื่นมาพร้อมกับคำฟ้อง
- การจัดทำคำฟ้อง ผู้ฟ้องคดีไม่จำเป็นต้องทำตามรูปแบบของคำฟ้องนี้ แต่ต้องมีเนื้อหาสาระสำคัญครบถ้วนตามที่ระบุไว้



บริษัท เบ็ทเทอร์ ลิฟวิ่ง แมเนจเม้นท์ จำกัด ผู้ฟ้องคดี จดทะเบียนเมื่อพ.ศ. 2553 ปัจจุบันมีทุนจดทะเบียน 50,000,000.00 บาท (ห้าสิบล้านบาทถ้วน) มีผู้ถือหุ้นเป็นคนไทยร้อยละ 100 (เอกสารแนบ 1) เป็นผู้ยื่นจดทะเบียนโดเมน .thai กับทางองค์กรอินเทอร์เน็ตสากล (ไอแคนน์) (Internet Corporation for Assign Names and Number: ICANN) ซึ่งเป็นองค์กรอิสระที่กำกับดูแลโดเมนต่างๆทั่วโลกเช่น .com, .org, .net ซึ่งในองค์กรนี้ปัจจุบันมีตัวแทนจากประเทศไทยสองท่าน คือ ผู้อำนวยการสำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ (สวทช.) โดย ดร. ทวีศักดิ์ กอนันต์กุล และ รองผู้อำนวยการสำนักงานพัฒนาธุรกรรมทางอิเล็กทรอนิกส์ (สพธอ.) โดย นายวรรณวิทย์ อาชุกบุตร ซึ่งทั้งสองบุคลากรนี้ดำรงตำแหน่งในฐานะตัวแทนจากรัฐบาลไทย (GAC ประเทศไทย) ในองค์กรองค์กรอินเทอร์เน็ตสากล มีหน้าที่นำเสนอนโยบายจากรัฐบาลและให้คำแนะนำด้านกฎหมายต่างๆที่เกี่ยวข้องกับการจดทะเบียนโดเมนใดๆที่เกี่ยวข้องกับประเทศไทย

ซึ่งในการกระทำของสองเจ้าหน้าที่ที่สร้างความเดือดร้อนให้กับบริษัทฯ มีข้อมูลความเป็นมาและรายละเอียดดังต่อไปนี้

1. องค์กรอินเทอร์เน็ตสากล ซึ่งปัจจุบันไม่มีกฎหมายไทยฉบับใดรองรับองค์กรดังกล่าว เนื่องจากเป็นองค์กรอิสระ รับผิดชอบในการบริหารระบบชื่อโดเมนต่างๆ ยกตัวอย่างเช่น .com .net และ .org ได้เปิดรับสมัครให้มีการจดทะเบียนโดเมนสูงสุด (ซึ่งเป็นรูปแบบเดียวกับโดเมน .com, .net, .th, .jp ฯลฯ) ใหม่เป็นครั้งแรกภายใต้โปรแกรมชื่อ "นิว จีทีแอลดี" (New Generic Top Level Domain: New gTLD) ในไตรมาสแรกของปี พ.ศ. 2555 โดยมีจุดประสงค์เพื่อส่งเสริมการแข่งขันธุรกิจการให้บริการโดเมนสูงสุดหลังจากที่ตลาดการให้บริการโดเมนนี้ผูกขาดมานานหลายสิบปี โดยโดเมนสูงสุดนี้ทำหน้าที่เป็นนามสกุลที่อยู่บนอินเทอร์เน็ตเพื่อเปิดให้ผู้บริโภคเข้ามาจัดตั้งเว็บไซต์ด้วยชื่อตามความต้องการของผู้ใช้บริการ ทั้งนี้ในการได้รับอนุมัติการจดทะเบียนโดเมนสูงสุด ผู้สมัครต้อง

มีคุณสมบัติครบถ้วนตามกฎหมายเกณฑ์ขององค์กรอินเทอร์เน็ตสากลซึ่งสรุปโดยคร่าว  
ดังต่อไปนี้

- ก. ต้องมีสถานบริษัทที่จดทะเบียนถูกต้องและมีสถานะทางการเงินที่มีศักยภาพ
- ข. ต้องมีการสนับสนุนจากหน่วยงานต่างๆรวมถึงไม่มีการคัดค้านจาก ตัวแทน  
รัฐบาล หรือที่เรียกกันว่า Government Agency Committee (GAC) (ต่อไปในคำ  
ฟ้องนี้เรียกว่า GAC) ซึ่งอยู่ภายใต้ องค์กรอินเทอร์เน็ตสากล โดยหาก GAC
- ค. ต้องมีศักยภาพทางด้านเทคนิคและเทคโนโลยีตามกฎหมายเกณฑ์
- ง. ต้องทำตามกฎหมายเกณฑ์ของ องค์กรอินเทอร์เน็ตสากลต่างๆ

ทั้งนี้หากตัวแทนรัฐบาลหรือ GAC ทำเรื่องคัดค้านผู้สมัครโดเมนสูงสุดรายใด ทางองค์กร  
อินเทอร์เน็ตสากลจะถือว่าคำคัดค้านดังกล่าวจากตัวแทนฯเปรียบเสมือนคำคัดค้านจาก  
รัฐบาลประเทศนั้นๆ ในการสมัครจดทะเบียนโดเมนสูงสุด .thai บริษัทฯได้ยื่นเอกสารทุก  
อย่างตามกฎหมายเกณฑ์ดังกล่าวก่อนการปิดรับสมัครตั้งแต่วันที่เดือนมีนาคม พ.ศ. 2555 รวมถึง  
การยื่นหนังสือสนับสนุนจากหน่วยงานที่เกี่ยวข้องต่างๆ

2. บริษัท เบ็ทเทอร์ ลิฟวิ่ง แมนเนจเม้นท์ จำกัด ผู้ยื่นจดทะเบียนโดเมนสูงสุด .thai ใน  
รูปแบบโดเมนเพื่อชุมชนกับองค์กรอินเทอร์เน็ตสากล มีจุดประสงค์เพื่อนำโดเมนมา  
ให้บริการผู้บริโภคชาวไทยให้มีตัวเลือกใหม่มากขึ้นจากปัจจุบันที่มีแต่โดเมน .th และ .  
ไทย ซึ่งก่อนที่บริษัทฯจะทำการจดทะเบียนโดเมน .thai กับ องค์กรอินเทอร์เน็ตสากล  
นั้น บริษัทฯเห็นว่าทาง GAC ประเทศไทยไม่ได้ประกาศไม่อนุญาตให้มีการจดทะเบียน  
.thai และไม่ได้มีการระบุกับทางองค์กรอินเทอร์เน็ตสากลว่า Thai เป็นชื่อประเทศ  
บริษัทฯเห็นว่า การจดทะเบียน .thai นำมาให้บริการผู้บริโภคชาวไทยในประเทศนั้นจะทำให้  
เกิดการแข่งขันด้านการบริการนี้ขึ้นอย่างเสรีและเป็นธรรมโดย การแข่งขันทั้งด้านราคา



และคุณภาพจะเป็นประโยชน์ต่อผู้บริโภคโดยตรง ซึ่งทางบริษัทนั้นมียุทธศาสตร์ที่จะให้บริการเฉพาะคนไทยในอัตราค่าบริการที่เท่าเทียมกับผู้ให้บริการอื่นของต่างประเทศ ในการจดทะเบียนโดเมนสูงสุด .thai ของบริษัทนั้น บริษัทฯได้ลงทุนในส่วนด้าน อุปกรณ์ การจ้างนักกฎหมายต่างประเทศและในประเทศ และการวางแผนการให้บริการ เพื่อให้ได้มาตรฐานสากล รวมถึงค่าสมัครจดทะเบียนเป็นจำนวนประมาณ 5,500,000.00 บาท (ห้าล้านห้าแสนบาทถ้วน) (เอกสารแนบ 2) และ เงินประกันไว้อีก เป็นจำนวน 2,500,000.00 บาท (สองล้านห้าแสนบาทถ้วน) (เอกสารแนบ 3) ในกรณีที่ บริษัทฯทำผิดกฎเกณฑ์เงื่อนไขของทาง องค์กรอินเทอร์เน็ตสากล นอกจากนี้การจดทะเบียนในรูปแบบชุมชน บริษัทฯจำเป็นต้องมีหนังสือสนับสนุนจากหลากหลายหน่วยงานในประเทศ ซึ่งบริษัทฯได้รับหนังสือสนับสนุนในการจดทะเบียนและบริหาร .thai จาก

- a. สำนักงานปลัดกระทรวงเทคโนโลยีสารสนเทศและการสื่อสาร เมื่อวันที่ 12 เมษายน พ.ศ. 2555 (เอกสารแนบ 4)
- b. สำนักงานปลัดกระทรวงมหาดไทย เมื่อวันที่ 12 เมษายน พ.ศ. 2555 (เอกสารแนบ 5)
- c. สำนักงานปลัดกระทรวงอุตสาหกรรม เมื่อวันที่ 21 พฤษภาคม พ.ศ. 2555 (เอกสารแนบ 6)
- d. สำนักงานปลัดกระทรวงวัฒนธรรม เมื่อวันที่ 1 พฤศจิกายน พ.ศ. 2555 (เอกสารแนบ 7) และ
- e. มูลนิธิ มิราเคิล ออฟ ไลฟ์ ภายใต้ทุลกระหม่อมหญิงอุบลรัตนราชกัญญา สิริวัฒนาพรรณวดี เมื่อวันที่ 8 พฤศจิกายน พ.ศ. 2555 (เอกสารแนบ 8)

โดยบริษัทฯ ยังได้พยายามขอการสนับสนุนจากกระทรวงวิทยาศาสตร์และเทคโนโลยี เช่นกัน เนื่องจากทาง ดร.ทวีศักดิ์ กอนันต์กุล ผู้อำนวยการสำนักงานพัฒนา



วิทยาศาสตร์และเทคโนโลยีแห่งชาติ ในขณะนั้นถือว่าเป็น GAC ประเทศไทยเพียงหนึ่งเดียว แต่บริษัทได้รับการปฏิเสธด้วยเหตุผลที่เป็นข้อกังวลในด้านคุณภาพการให้บริการ การซับซ้อนกับโดเมน .Th ที่ให้บริการในรูปแบบใกล้เคียงกัน และวิธีการควบคุมดูแลการบริหารงานให้มีปัญหาน้อยที่สุด บริษัทฯจึงชี้แจงถึงวิธีแก้ไขและป้องกันปัญหาข้อกังวลเหล่านั้นตามกฎหมายเกณฑ์สากลจากองค์กรอินเทอร์เน็ตสากล(เอกสารแนบ9) จนกระทั่งวันที่ 31 ตุลาคม พ.ศ. 2555 บันทึกข้อความ สวทช. ที่5401/7726 โดยนางชฎามาศ ชูระเศรษฐกุล รองผู้อำนวยการสวทช. ปฏิบัติการแทนผู้อำนวยการ สวทช. ได้ให้ความเห็นว่า กระทรวงวิทยาศาสตร์และเทคโนโลยี สามารถออกหนังสือแสดงความไม่ประสงค์จะคัดค้านหรือปฏิเสธการสมัคร .thai ของทางบริษัทฯได้ ทางสำนักงานปลัดกระทรวงวิทยาศาสตร์และเทคโนโลยีจึงได้ทำการออกหนังสือไม่คัดค้านการจดทะเบียนโดเมน .thai ให้กับทางบริษัทฯเมื่อวันที่ 13 มีนาคม พ.ศ. 2556(เอกสารแนบ10)

3. ในระหว่างเดือนพฤษภาคม พ.ศ. 2556 ถึงวันที่ 29 มิถุนายน พ.ศ. 2556 ทางองค์กรอินเทอร์เน็ตสากล เปิดให้ GAC ของแต่ละประเทศสามารถส่งเรื่องการดักเตือนเบื้องต้นสำหรับโดเมนที่ทางตัวแทนรัฐบาลไม่เห็นด้วยซึ่งในช่วงระยะเวลาดังกล่าว ดร. ทวีศักดิ์ กอนันตกุล ผู้อำนวยการ สวทช. ซึ่งดำรงตำแหน่งเป็น GAC ประเทศไทย ไม่ได้ยื่นเรื่องดักเตือนโดเมน .thai แต่อย่างไร ซึ่งทำให้บริษัทฯเข้าใจว่าทาง ดร.ทวีศักดิ์ กอนันตกุล มีความเห็นตามหนังสือของ สวทช. ที่อ้างถึงในเอกสารแนบ 10 ที่จะไม่คัดค้านการจดทะเบียนโดเมน .thai

4. อย่างไรก็ตามหลังจากนั้นในการประชุมที่กรุงปักกิ่ง ประเทศจีน เมื่อวันที่ 7 เมษายน พ.ศ. 2556 ทาง ดร.ทวิศักดิ์ กอนันตกุล ได้แต่งตั้งตัวแทนไปที่ประชุมคือ นายวรรณวิทย์ อาชุนบุตร รองผู้อำนวยการสำนักงานพัฒนาธุรกรรมทางอิเล็กทรอนิกส์ ซึ่งนายวรรณวิทย์ อาชุนบุตรได้กล่าวในที่ประชุมในนาม GAC ประเทศไทยขอให้องค์กรอินเทอร์เน็ตสากลระงับการพิจารณา .thai ซึ่งข้อกังวลดังกล่าวขัดต่อหนังสือสนับสนุนจากทางสำนักงานปลัดทั้ง 4 กระทรวง รวมถึงหนังสือจาก สวทช. อีกด้วย ทางบริษัทจึงได้เข้าพบกับนายวรรณวิทย์ อาชุนบุตร หลังจบการประชุมที่กรุงปักกิ่ง เพื่อทราบถึงเหตุผลของการระงับการพิจารณาโดยได้รับเหตุผลว่าคำว่า Thai ในภาษาอังกฤษนั้นแปลว่าประเทศไทยซึ่งเป็นคำบ่งบอกทางด้านภูมิศาสตร์ (เอกสารแนบ 11) และควรได้รับการอนุมัติจากทางหน่วยงานรัฐบาลก่อน บริษัทจึงชี้แจงกลับไปว่า Thai นั้นไม่ได้แปลว่าประเทศไทยตามราชบัณฑิตยสถาน ฉบับลงวันที่ 22 กุมภาพันธ์ พ.ศ. 2544 ที่ระบุไว้ว่าชื่อประเทศภาษาอังกฤษสามารถเรียกได้สองชื่อคือ Thailand และ Kingdom of Thailand ดังนั้นดุลพินิจความเห็นของ นายวรรณวิทย์ จึงไม่ถูกต้อง อย่างไรก็ตามเนื่องด้วยทางต่างประเทศถือว่า นาย วรรณวิทย์ อาชุนบุตร เป็นตัวแทนอย่างทางการจากรัฐบาลไทย องค์กรอินเทอร์เน็ตสากลจึงรับรองคำคัดค้านและส่งผลให้บริษัทและโดเมน .thai ถูกระงับการพิจารณาออกไป (เอกสารแนบ 12) นอกจากนี้การแต่งตั้งตัวแทนของ ดร.ทวิศักดิ์ กอนันตกุล ไม่มีการแจ้งบริษัทถึงการแต่งตั้งตัวแทนคนใหม่แต่อย่างใด ทั้งๆที่ทาง GAC ประเทศไทยทราบว่า GAC ประเทศไทยมีส่วนสำคัญในการจดทะเบียน .thai ครั้งนี้ของทางบริษัทกับองค์กรอินเทอร์เน็ตสากล ซึ่งบริษัทพยายามติดต่อกับทาง GAC ประเทศไทยมาโดยตลอด รวมถึงเป็นการแต่งตั้งตัวแทนที่น่าส่งความเห็นที่คัดค้านกับบันทึกข้อความของ สวทช. ที่อ้างถึงในเอกสารแนบ 10 อีกด้วย



5. วันที่ 3 มิถุนายน พ.ศ. 2556 บริษัทฯได้ผ่านการพิจารณาเบื้องต้นของทางองค์กรอินเทอร์เน็ตสากลทั้งด้านการเงินที่มีความมั่นคง ด้านเทคนิคซึ่งมีการให้บริการที่มีคุณภาพในระดับสากล รวมถึงการพิจารณาว่า .thai นั้นไม่ได้อยู่ในหมวดภูมิศาสตร์ (เอกสารแนบ 13) อย่างไรก็ตามองค์กรอินเทอร์เน็ตสากล ประกาศการระงับพิจารณา .thai ออกไปตามคำคัดค้านของ GAC ประเทศไทยซึ่งเห็นได้ชัดว่าคำคัดค้านของนายวรรณวิทย์ อาขุบุตรนั้นมีผลโดยตรงต่อการจดทะเบียนโดเมน .thai ของบริษัทต่อองค์กรอินเทอร์เน็ตสากล ซึ่งหากไม่มีคำคัดค้านจาก GAC ประเทศไทย บริษัทฯจะสามารถผ่านเข้าสู่ขั้นตอนการทำสัญญากับองค์กรอินเทอร์เน็ตสากลและพร้อมให้บริการ .thai แก่ประชาชน
6. ต่อมาในวันที่ 13 มิถุนายน พ.ศ. 2556 นายวรรณวิทย์ อาขุบุตร ได้ให้ข้อมูลกับทางหนังสือพิมพ์ประชาชาติธุรกิจ (เอกสารแนบ 14) ว่า บริษัท เบ็ทเทอร์ ลิฟวิ่ง แมนเนจเม้นท์ จำกัด มีแหล่งทุนส่วนใหญ่มาจากประเทศมาเลเซีย เรียกร้องให้ประชาชนส่งคำคัดค้านมาที่อีเมลส่วนตัว และได้ให้ข้อมูลว่าผู้ใช้บริการ .thai นั้นไม่จำเป็นที่จะต้องเป็นคนไทยแต่อย่างใด ซึ่งแท้จริงแล้วบริษัทฯได้ระบุไว้ในการสมัครกับทาง องค์กรอินเทอร์เน็ตสากล อย่างชัดเจนว่าบริษัทฯจะให้บริการเฉพาะประชาชนชาวไทยเท่านั้น และบริษัทฯจะดำเนินการบริหารโดเมน .thai ภายใต้กฎหมายไทยอย่างเคร่งครัด ผลจากการให้ข้อมูลที่เป็นเท็จต่อสาธารณะ บริษัทฯจึงได้ทำการฟ้องหมิ่นประมาท นายวรรณวิทย์ อาขุบุตร และอยู่ระหว่างการดำเนินคดี

7. ในการประชุม องค์กรอินเทอร์เน็ตสากล ครั้งที่ 47 ที่เมือง เดอร์บัน ประเทศแอฟริกาใต้ วันที่ 14 กรกฎาคม พ.ศ. 2556 นายวรรณวิทย์ อาชูปุตร ทำการคัดค้านการจดทะเบียน โดเมน .thai อย่างเป็นทางการอีกครั้งโดยให้เหตุผลในที่ประชุมว่า Thai นั้นเป็นชื่อทาง ภูมิศาสตร์ ซึ่งจากการคัดค้านของนายวรรณวิทย์ ในครั้งนี้ส่งผลให้บริษัทอยู่ระหว่างการ ถูคดีสิทธิในการให้บริการจดทะเบียนโดเมน .thai อย่างเป็นทางการจาก องค์กร อินเทอร์เน็ตสากล เนื่องจาก คำคัดค้านของ นายวรรณวิทย์ อาชูปุตร ในตำแหน่ง GAC ประเทศไทยนั้น กฎขององค์กรอินเทอร์เน็ตสากลถือเป็นคำคัดค้านตามนโยบายของ รัฐบาลไทย
8. ในวันที่ 25 กรกฎาคม พ.ศ. 2556 ท่านนิคม ไวยรัชพานิช ประธานรัฐสภา ได้ออก หนังสือสนับสนุนให้กับทางบริษัท (เอกสารแนบ 15) แต่ต่อมาในวันที่ 9 สิงหาคม พ.ศ. 2556 หนังสือดังกล่าวได้ถูกยกเลิกเนื่องจาก นายวรรณวิทย์ อาชูปุตร ได้ทำหนังสือไป ยังวุฒิสภาเพื่อให้ยกเลิกหนังสือดังกล่าวเนื่องจากเป็นอำนาจการตัดสินใจของ GAC ประเทศไทยเท่านั้น
9. วันที่ 26 กรกฎาคม พ.ศ. 2556 ทาง GAC ประเทศไทยได้ทำการให้ข้อมูลผ่าน Facebook ว่า "THNIC ผูกขาดการจด .TH ก็ไม่ผิดนัก" (เอกสารแนบ 16) ซึ่งการกระทำ ดังกล่าวชี้ให้เห็นว่าทาง GAC ประเทศไทยคือนายวรรณวิทย์ อาชูปุตรและ ดร.ทวีศักดิ์ กอนันตกุลรับทราบดีว่า การให้บริการของธุรกิจนี้ปัจจุบันมีการผูกขาดขึ้นกับบริษัท ที. เอช.นิค จำกัด และยังพยายามในการปิดกั้นโอกาสการแข่งขันที่จะเกิดขึ้นของโดเมน .thai



10. เมื่อไม่นานนี้ บริษัทพบว่าในนิตยสาร อี-อินเทอร์เน็ตไพรส์ ฉบับเดือน กรกฎาคม พ.ศ. 2556 (เอกสารแนบ 17) นายวรรณวิทย์ อาชูปุตร์ ให้ข้อมูลว่า “การขอยื่นขอสิทธิบริหารชื่อโดเมน .thai เนื่องจากไม่ได้ผ่านการพิจารณาจาก GAC ก่อนทั้งที่เป็นชื่อทางภูมินาม (Geographic Name) อีกทั้งยังได้กล่าวว่า หากองค์กรอินเทอร์เน็ตสากล ปล่อยให้ชื่อ .thai ไปให้สิทธิเอกชนบริหารจะสร้างความวุ่นวายและความเสียหายให้กับประเทศได้” ในขณะที่ปัจจุบันชื่อโดเมน .Th และ .ไทย นั้นก็เป็นสิทธิของเอกชน ภายใต้ชื่อบริษัท ที.เอช.นิค จำกัด บริหารงานเช่นกัน ซึ่งทาง GAC ประเทศไทยไม่เคยทำการคัดค้านการถือลิขสิทธิ์ของบริษัท เอกชน รายนี้แต่อย่างใด ซึ่งเป็นดุลยพินิจที่ไม่เป็นกลางแต่อย่างใด
11. ปัจจุบันการให้บริการจดทะเบียนโดเมนสูงสุดในประเทศไทยนั้น มีบริษัท ที.เอช.นิค จำกัดผูกขาดการให้บริการดังกล่าวเพียงผู้เดียวโดยถือลิขสิทธิ์โดเมนสูงสุดสองโดเมนคือ .TH และ .ไทย นับตั้งแต่บริษัท ที.เอช.นิค จำกัด ได้มีการจดทะเบียนการค้าขึ้น (เอกสารแนบ 18) ซึ่งทาง GAC ประเทศไทย ได้แสดงความเห็นยอมรับเรื่องดังกล่าวดังในข้อ 9 ซึ่งบริษัทดังกล่าวมีอัตราค่าบริการที่สูงกว่าโดเมน ที่เป็นของต่างประเทศเช่น .com, .net และ .org และมีการบริการที่บกพร่องโดยการถูกเจาะระบบ (เอกสารแนบ 19) ซึ่งราคาที่สูงเกินกำหนดและการบริการที่บกพร่องนี้แสดงให้เห็นถึงปัญหาของการตลาดที่ผูกขาดไร้การแข่งขัน จนเป็นเหตุให้ผู้ให้บริการปัจจุบันไม่จำเป็นที่จะต้องเร่งพัฒนาการให้บริการ และทำให้บริษัทเอกชนดังกล่าวสามารถกำหนดราคาการให้บริการในประเทศได้ในอัตราที่สูงกว่าอัตราค่าบริการของต่างประเทศ

ดังนั้น บริษัทฯ จึงขอให้ทางศาลปกครองโปรดพิจารณาให้ความเป็นธรรมกับทางบริษัทฯ เนื่องจากเหตุผลและดุลยพินิจของเจ้าหน้าที่รัฐที่ดำเนินการคัดค้านการจดทะเบียน .thai ของทางบริษัทฯ นั้น ไม่เป็นธรรม ซึ่งทั้งทาง GAC ประเทศไทยคือ ดร. ทวีศักดิ์ กอนันต์กุล และนายวรรณวิทย์ อาชูปุตร ไม่เคยทำการปฏิเสธ บริษัท ที.เอช.นิค จำกัด ในการจดทะเบียน .ไทย ช่วงปี พ.ศ. 2552 แต่อย่างใด ทั้งที่เป็นบริษัทเอกชน เช่นกัน และการให้ข้อมูลว่า Thai นั้นคือชื่อภูมินามนั้นไม่ตรงตามข้อเท็จจริงในพระราชกิจจานุเบกษาและราชบัณฑิตยสถานอย่างชัดเจน ซึ่งเป็นการกระทำที่ปิดกั้นการแข่งขันการค้าอย่างเสรีซึ่ง ปฏิบัติหน้าที่อย่างไม่เป็นธรรม และมีการใช้ดุลพินิจโดยมิชอบด้วยกฎหมายอีกด้วย

ทั้งนี้การคัดค้านการจดทะเบียน .thai ของบริษัทฯ ในครั้งนี้เป็นการละเมิดรัฐธรรมนูญแห่งราชอาณาจักรไทย และกฎหมายไทยดังต่อไปนี้

- ก. มาตรา 43 ซึ่งระบุว่า บุคคลย่อมมีเสรีภาพในการประกอบกิจการหรือประกอบอาชีพและการแข่งขันโดยเสรีอย่างเป็นธรรม
- ข. มาตรา 29 การก้าวจัดสิทธิและเสรีภาพของบุคคลที่รัฐธรรมนูญรับรองไว้จะกระทำมิได้
- ค. มาตรา 6 รัฐธรรมนูญเป็นกฎหมายสูงสุดของประเทศ บทบัญญัติใดของกฎหมาย กฎ หรือข้อบังคับขัดหรือแย้งต่อรัฐธรรมนูญนี้ บทบัญญัตินั้นเป็นอันใช้บังคับมิได้
- ง. ตำแหน่งตัวแทนรัฐบาลไทย (GAC ประเทศไทย) มีหน้าที่นำเสนอนโยบายของรัฐบาลที่เกี่ยวข้องกับการจดทะเบียนโดเมนต่อองค์กรอินเทอร์เน็ตสากล แต่การกระทำของเจ้าหน้าที่รัฐทั้งสองเป็นการกระทำโดยใช้คิดส่วนบุคคล
- จ. ในการจัดตั้งและวัตถุประสงค์หลักของสำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ (สวทช.) ตามเอกสารราชกิจจานุเบกษาเล่ม 108 ตอนที่ 240



วันที่ 29 ธันวาคม พ.ศ. 2534 หน้า 100-116 นั้น ไม่ได้มีการระบุให้ดูแล  
รับผิดชอบเรื่องการจดทะเบียนโดเมนหรือการรับผิดชอบเป็นตัวแทนรัฐบาลของ  
องค์กรองค์กรอินเทอร์เน็ตสากล และ ดร.ทวิศักดิ์ กอนันตกุลไม่เคยได้รับการ  
แต่งตั้งอย่างเป็นทางการจากรัฐบาลแต่อย่างใด

- จ. ในการจัดตั้งและวัตถุประสงค์หลักของสำนักงานพัฒนาธุรกรรมทาง  
อิเล็กทรอนิกส์ (สพธอ.) ตาม พระราชกฤษฎีกา จัดตั้งสำนักงานพัฒนาธุรกรรม  
ทางอิเล็กทรอนิกส์ (องค์การมหาชน) พ.ศ. ๒๕๕๔ นั้น สำนักงานดังกล่าวมี  
หน้าที่การกระทำที่เกี่ยวกับธุรกรรมทางอิเล็กทรอนิกส์ ซึ่งไม่ได้มีการระบุให้  
รับผิดชอบเรื่องการจดทะเบียนโดเมนหรือ การรับผิดชอบเป็นตัวแทนรัฐบาลของ  
องค์กรองค์กรอินเทอร์เน็ตสากล
- ข. ไม่มีกฎหมายข้อใดห้ามเอกชนนำคำว่า “ไทย” หรือ “Thai” ไปใช้ในการประกอบ  
กิจการทำธุรกิจยกตัวอย่างเช่นบริษัท ไทยเบฟเวอร์เลจ จำกัด หนังสือพิมพ์  
ไทยรัฐ รวมถึงการที่มีบริษัท ที.เอส.นิค จำกัด ได้จดทะเบียนโดเมน .ไทย ซึ่งถือ  
ว่าคล้ายคลึงกับโดเมน .thai ของทางบริษัทที่อยู่ระหว่างการจดทะเบียน
- ช. เป็นการกระทำที่พยายามปิดกั้นการค้าเสรีอย่างจงใจซึ่งเป็นเหตุให้บริษัทที่  
ผูกขาดการให้บริการด้านนี้สามารถกำหนดราคาในตลาดได้ ซึ่งตาม  
พระราชบัญญัติการแข่งขันทางการค้า พ.ศ. 2542 หมวด 3 การป้องกันการ  
ผูกขาด มาตรา 25 ระบุว่าห้ามมิให้มีผู้ประกอบธุรกิจกำหนดหรือรักษาระดับราคา  
ซื้อขายสินค้าหรือบริการอย่างไม่เป็นธรรม



ฉ. เป็นการกระทำที่เลือกปฏิบัติอย่างชัดเจนเนื่องจาก GAC ประเทศไทยไม่เคยทำการคัดค้านการจดทะเบียนโดเมน .ไทย ของบริษัท ที.เอช.นิค จำกัด ในปี พ.ศ. 2552 กับทางองค์กรอินเทอร์เน็ตสากลแต่อย่างใด

เนื่องด้วยปัจจุบัน บริษัทฯกำลังจะถูกตัดสิทธิการบริหาร .thai อย่างเป็นทางการจาก องค์กรอินเทอร์เน็ตสากล เนื่องจากตัวแทน GAC ประเทศไทย ได้มีการคัดค้านโดเมน .thai และทางหน่วยงานคณะกรรมการ New gTLD โปรแกรมได้ยอมรับคำคัดค้านดังกล่าวตามประกาศ (เอกสารแนบ 20) ซึ่งทำให้บริษัทฯได้รับความเสียหายจากการกระทำดังกล่าวซึ่งปัจจุบันนั้น ผลการคัดค้านมีความเสี่ยงที่จะล่วงเลยเวลาการเยียวยาอันเป็นผลให้บริษัทฯถูกตัดขาดทางสิทธิ์อย่างตลอดไป บริษัทฯจึงมีความประสงค์ที่จะขอให้ศาลปกครองทำการพิจารณาอย่างเร่งด่วน และทำการคุ้มครองชั่วคราวจากทางศาลปกครองในการระงับการกระทำของ นายวรรณวิทย์ อาชูปุตร และ GAC ประเทศไทยที่คัดค้านการจดทะเบียน .thai กับทางต่างประเทศอย่างด่วน เพื่อนำไปเสนอกับทาง องค์กรอินเทอร์เน็ตสากล ให้หยุดการคัดค้านการจดทะเบียนโดเมน .thai ออกไปจนกว่าคดีจะมีการพิจารณาจนถึงสิ้นสุด

คำขอของผู้ฟ้องคดี (ระบุดังกล่าวหรือความต้องการของผู้ฟ้องคดี)

๑. ขอให้ศาลปกครองมีคำสั่งคุ้มครองการจดทะเบียนโดเมนสูงสุด .thai ของ บริษัท เบ็ทเทอร์ ลิฟวิ่ง แมนเนจเม้นท์ กับทางองค์กรอินเทอร์เน็ตเนตสากลชั่วคราวโดยให้ผู้ถูกฟ้อง คดีถอนการคัดค้านที่ได้เคยให้ไว้กับทางองค์กรอินเทอร์เน็ตเนตสากลและให้รับรองการจดทะเบียน โดเมนนี้ไปพลางก่อนจนกว่าคดีนี้จะถึงที่สิ้นสุด

๒. ขอให้ศาลปกครองพิจารณาเพิกถอนการกระทำของนายวรรณวิทย์ อาชุนบุตร และ GAC ประเทศไทย ที่เป็นอันขัดขวางการจดทะเบียนโดเมน .thai ต่อในที่ประชุมองค์กร อินเทอร์เน็ตเนตสากล

๓. ขอให้ศาลปกครองมีคำสั่งห้ามปิดกั้นการทำการค้าเสรีในการให้บริการโดเมน สูงสุด

๔. ขอให้ศาลปกครองมีคำสั่งห้าม GAC ประเทศไทย ทำการคัดค้านโดเมน .thai เพื่อให้มีการแข่งขันทางการให้บริการดังกล่าวอย่างเสรี

๕. ....  
.....

(ลงชื่อ).....ผู้ฟ้องคดี

(.....)

# Appendix Append

Greetings, Yen Chew Lee  
(Logged in as Contact nformation Redacted Logout)

Cases Applications

Search

Search All

Go

[Advanced Search...](#)

Create New...

Recent Items

- [00110878](#)
- [00119692](#)
- [00117014](#)
- [00111673](#)
- [00108010](#)
- [00102445](#)
- [00103722](#)

## Outbound Email Message

### Email Message Detail

Parent Case	00110878	Status	Sent
Message Date	1/24/2014 6:23 PM		

### Address Information

From Address	<a href="mailto:no-reply-gtld@icann.org">no-reply-gtld@icann.org</a>
From Name	New gTLD Customer Service
To Address	Contact Information Redacted
CC Address	

### Email Information

Subject	Comment was added to Case 00110878
HTML Body	<a href="#">Click here to view HTML version</a>
Text Body	Dear Yen Chew Lee: A Comment has been added to this case. To view the comment, log in to the CSC Portal.

Account Name: Better Living Management Company Limited  
Subject: ACTION REQUIRED for Better Living Management Company Limited

Kind regards,  
New gTLD Customer Service

DISCLAIMER: This email is for information only and does not represent all requirements and criteria that the applicant must satisfy. ICANN is not providing legal, financial, business or any other kind of advice. This email does not represent a modification to the Applicant Guidebook, or the terms and conditions to the new gTLD program. This email also does not represent a waiver of any ICANN policy, procedure or agreement. In the event that any information provided in this email appears to be inconsistent with any information published elsewhere by ICANN, please do not rely on this email without confirmation or clarification from ICANN.  
© 2013 Internet Corporation For Assigned Names and Numbers

Always show me [fewer](#) / [more](#) records per related list