

Report of Public Comments

Title:		Proposal to Mitigate Name Collision Risks	
Publication Date:		5 August 2013	
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Section I: General Overview and Next Steps			
<p>ICANN solicited public comment from 5 August to 17 September on the proposal to mitigate the collision risks between new gTLDs and existing private uses of the same strings. ICANN received over 70 comments in the period from a range of sources, including applicants and those affiliated with applicants, corporations not affiliated with applicants, various non-DNS related industry organizations, and various DNS related industry organizations. Some key themes expressed in the comments included:</p> <ul style="list-style-type: none"> • The approach or methodology of the study “Name Collisions in the DNS” • The categorization of the TLD’s into the risk profiles • The assessment of the risks of name collision in the study “Name Collisions in the DNS” • Support or criticism of the proposed risk mitigation tactics • Alternative methods for risk mitigation <p>The next steps will be for ICANN to consider refining the proposal based on the input from the community and for the ICANN Board New gTLD Program Committee (NGPC) to consider the issue.</p>			
Section II: Contributors			
<p><i>At the time this report was prepared, a total of eighty one (81) community submissions had been posted to the Forum. The contributors, both individuals and organizations/groups, are listed below in chronological order by posting date with initials noted. To the extent that quotations are used in the foregoing narrative (Section III), such citations will reference the contributor’s initials.</i></p>			
Organizations and Groups:			
Name	Submitted by	Initials	
New gTLD Applicant Group (NTAG)	Tim Switzer, Chair	TS	
H.J. Heinz Company (Heinz)	Sabrina J. Hudson	SJH	

DotGreen Community (DotGreen)	Annalisa Roger, Founder/CEO	AR
Commonwealth Bank of Australia	Cate Cobby, Online Channel Development Manager & Alban Kwan, New gTLD Manager, Asia Pacific	CC, AK
Verizon	Sarah B. Deutsch	SBD
Top Level Design LLC (Top Level Design)	Andrew Merriam, Business Development Coordinator	AM
ARI Registry Services	Yasmin Omer, Policy & Industry Affairs Officer	YO
CloudNames AS (CloudNames)	Michael B. Halvorsen, VP Product and Services	MBH
dotBERLIN GmbH & Co. KG (dotBERLIN)	Dirk Krischenowski, Founder and CEO	DK
TLDDOT GmbH (.GMBH)	Dirk Krischenowski, Managing Director	DK
Registries Stakeholder Group (RySG) & Verisign Minority Statement to RySG	Keith Drazek, Chair	KD
DotHome Inc.	Brihesh Joshi	BJ
Radix Registry	Brihesh Joshi	BJ
General Electric Company (GE)	Kathryn Barrett Park , Senior Counsel, Advertising and Brand Management	KBP
American Insurance Association (AIA)	Angela Gleason, Associate Counsel	AG
Internet Service Providers and Connectivity Providers (ISPCP)	Mike O'Connor, Rapporteur	MO
Intellectual Property Owners Association (IPO)	Herbert C. Wamsley, Executive Director	SJ
Neustar, Inc. (Neustar)	Jeffrey J. Neuman, Vice President, Business Affairs	JJN
HOTEL Top-Level-Domain S.a.r.l. (HOTEL Top-Level-Domain)	Johannes Lenz-Hawliczek, Managing Director	JL
Association of National Advertisers (ANA)	Daniel L. Jaffe, Group EVP, Government Relations	DLJ
Afnic/CORE on behalf of City of Paris (AFNIC/CORE)	Werner Staub	WS
Association for Competitive Technology (ACT)	Jonathan V. Zuck, President	JVZ
At-Large Advisory Committee (ALAC)	Heidi Ullrich, et al.	HU et al.
Verisign Inc. (Verisign-PSK & CG)	Chuck Gomes, VP Policy	PSK, CG
Verisign Inc (Verisign-PSK & RHG)	Patrick S. Kane, Senior Vice President, Naming Services, and Richard H. Goshorn, Senior Vice	PSK, RHG

	President, General Counsel & Secretary	
Uniregistry Corp. (Uniregistry)	Bret A. Fausett	BAF
Fundacio puntCAT	Nacho Amadoz, Legal Manager	NA
Verisign Inc. (Verisign-DM)	Danny McPherson, CSO	DM
Donuts	Paul Stahura	PS
Artemis, Big Room Inc., Charleston Road Registry, CORE Association, Donuts, Dot Registry LLC, Minds + Machines, NIC.br, Top Level Design, United TLD, XYZ.com (Joint Comments of Artemis et al.)	Reg Levy	RL
XYZ.com LLC (XYZ.com)	Grant Carpenter, General Counsel	GC
.Club Domains LLC (.Club Domains)	Colin Campbell, CEO and Chairman	CC
DigiCert, Inc. (DigiCert)	Jeremy Rowley	JR
NetChoice	Steve DelBianco., Executive Director	SD
Verisign, Inc. (Verisign-EO)	Eric Osterwell, Ph.D, Principal Scientist	EO
Verisign, Inc. (Verisign-PSK, TCI & DM)	Patrick S. Kane, Senior Vice President; Thomas C. Indelicarto, Vice President & Associate General Counsel, & Danny McPherson, Chief Security Officer	PSK, TCI, DM
.Club Domains LLC (.Club Domains)	Dirk Bhagat, Chief Technology Officer	DB
Association of National Advertisers (ANA)	Dan Jaffe, Group Executive Vice President, Government Relations	
Monash University	Fiona Andrewartha, Project Manager	FA
Online Trust Alliance (OTA)	Craig Spiezle, Executive Director & President	CS
Internet Service Provider and Connectivity Providers Constituency (ISPCP)	Tony Holmes, Chairman	TH
Association for Competitive Technology (ACT)	Jonathan V. Zuck, President	JVZ
Business Constituency (BC)	Steve DelBianco, Vice Chair for Policy Coordination	SD
U.S. Council for International Business (USCIB)	Barbara P. Wanner, Vice President, ICT Policy	BPW
eco Verband der deutschen Internetwirtschaft (eco)	Klaus Landefeld & Thomas Rickert	KL, TR
Internet Service Provider and Connectivity Providers Constituency (ISPCP)	Mikey O'Connor	MO
US Telecom	Kevin G. Rupy, Senior Director, Policy	KGR

Verizon	Sarah B. Deutsch, Vice President & Deputy General Counsel	SBD
DotGreen Community, Inc. (DotGreen)	Annalisa Roger, Founder/CEO	AR
Neustar, Inc. (Neustar)	J. Beckwith Burr, Deputy General Counsel	JBB
New Mexico Electric Cooperatives	Eli D. Eilbott, Counsel	EDE
Top Level Design LLC (Top Level Design)	Andrew Merriam, Business Development Coordinator	AM
United TLD	Wayne MacLaurin, Senior Vice President of Technology	WM
JAS Global Advisors & simMachines	Jeff Schmidt & Arnoldo Muller-Molina	JS, AMM
Verisign, Inc. (Verisign-EO)	Eric Osterwell, Ph.D, Principal Scientist	EO
The Chertoff Group	Michael Chertoff, Chairman	LLW
Uniregistry, Corp. (Uniregistry)	Bret Fausett	BF
New TLD Applicant Group Members (NTAG Members)	Tim Switzer, Chair	TS
Microsoft Corporation, Verisign, Inc. and Yahoo! Inc. (Microsoft-Verisign-Yahoo Joint Comments)	David Tennenhouse, Corporate Vice President, Technology Policy, Microsoft; Patrick S. Kane, Senior Vice President, Naming and Directory Services, Verisign; J. Scott Evans, Head of Global Brand, Domain & Copyright, Yahoo!	DT, PSK, JSE
Intellectual Property Constituency (IPC)	Claudio DiGangi, IPC Secretary	CD
Donuts	Chris Cowherd, CTP	CC
Google Inc.	Ben Fried, Vice President and Chief Information Officer	BF
Artemis Internet Inc. (Artemis)	Alex Stamos, CTO	AS
.Club Domains LLC (.Club Domains)	Dirk Bhagat	DB
Afilias Limited (Afilias)	John Kane, Vice President	JK

Individuals:

Name	Affiliation (if provided)	Initials
Andrew Snow (A. Snow)		AS
Scott Golightly (S. Golightly)		SG
Daniel Karrenberg (D. Karrenberg)	Chief Scientist, RIPE NCC	DK
Glen Gulyas (G. Gulyas)	Affinity Discount Stores, Inc.	GG
Stephen Forte (S. Forte)		SF
Jeffrey Broer (J. Broer)	Grayscale Ltd. Hong Kong	JB

Mikey O'Connor (M. O'Connor)		MO
Warren Kumari & Danny McPherson (W. Kumari & D. McPherson)		WK, DM
Damir Tomicic (D. Tomicic)	Chief Executive Officer, Axinom	DT
Andrew Sullivan et al. (A. Sullivan et al.)	Dyn, Inc.	AS

Section III: Summary of Comments

General Disclaimer: This section is intended to broadly and comprehensively summarize the comments submitted to this Forum, but not to address every specific position stated by each contributor. Staff recommends that readers interested in specific aspects of any of the summarized comments, or the full context of others, refer directly to the specific contributions at the link referenced above (View Comments Submitted).

Comments on Study and Staff Proposal

Timing

ALAC remains concerned that this matter is being dealt with at such a late stage of the New gTLD Process. ALAC urges the Board to investigate how and why this crucial issue could have been ignored for so long and how similar occurrences may be prevented in the future. *ALAC (27 Aug. 2013)*

While IPC welcomes ICANN's identification of the name space collision issue and proposals for mitigation, ICANN's actions at this late stage reduce external institutional confidence in ICANN, inject a degree of doubt into, and magnify potential security risks associated with, the new gTLD process. *IPC (17 Sept. 2013)*

It is difficult to understand why the Interisle report was rushed at the last minute, when the collision issue and other stability issues have been so thoroughly examined for so long over the more than 8-year process leading to new TLDs. Staff has inexplicably migrated to a new process; the community was denied the opportunity to contribute to the discussion before any report was produced and implemented (demonstrated by the unilateral decision to delay contracting for TLDs in the 20%). Instead the community was presented with a *fait accompli* statement about what should happen and what is happening without sufficient regard for accurate data due to the rushed nature. *Donuts (27 Aug. 2013); Joint Comments of Artemis et al. (27 Aug. 2013)*

A last-minute challenge to new gTLD applications, including Donuts' applications, prepared in reliance on the Applicant Guidebook, and which have been technically evaluated and approved with respect to stability and security, suggests considerations other than true technical concerns, and constitutes a basis for Donuts to consider a full range of options for its own resolution of this situation. *Donuts (27 Aug. 2013)*

Updated Strings Not Included in Study. The study mistakenly evaluated strings that have since been updated as a result of ICANN approving an application change request. The study thus needs to be amended to include these updated strings. Two examples (including a prioritized IDN) not included in

the study are: XN--9DBQ2A and KERRYLOGISTICS. A. Snow (7 Aug. 2013)

Overstates the Problem

- Only 3% of the total requests to the TLD DNS servers conflict with strings that are actually being considered under the new TLD program. Even this 3% may be overstated due to the difference in TTL treatment and the behavior of caching resolvers. *NTAG (15 Aug. 2013); DotGreen (20 Aug. 2013); ARI Registry Services (27 Aug. 2013); CloudNames (27 Aug. 2013); dotBERLIN (27 Aug. 2013); .GMBH (27 Aug. 2013); RySG (27 Aug. 2013); Radix Registry (27 Aug. 2013); HOTEL Top Level Domain (27 Aug. 2013); puntCAT (27 Aug. 2013); Donuts (27 Aug. 2013); XYZ.COM (28 Aug. 2013); .Club Domains (28 Aug. 2013); NTAG Members (17 Sept. 2013)*
- NTAG correctly states in its 15 August 2013 comments that all applied for new TLDs other than .corp and .home represent a combined 0.016% of the total query rate in the 2012 DITL data provided by Interisle. This figure and the potential reasons that these queries are taking place simply do not warrant mitigation through a 3-6 month delay. *Top Level Design (17 Sept 2013)*
- Merely counting the number of requests for each string is completely insufficient when judging risk. The true origin of the “collision” must be taken into account. The vast majority of requests provided in Table 12 either posed no potential risks or risks that could be handled with simple mitigations. *NTAG (15 Aug. 2013); DotGreen (20 Aug. 2013); Top Level Design (26 Aug. 2013 & 17 Sept. 2013); ARI Registry Services (27 Aug. 2013); CloudNames (27 Aug. 2013); dotBERLIN (27 Aug. 2013); .GMBH (27 Aug. 2013); RySG (27 Aug. 2013); Radix Registry (27 Aug. 2013); HOTEL Top Level Domain (27 Aug. 2013); puntCAT (27 Aug. 2013); Donuts (27 Aug. 2013); XYZ.COM (28 Aug. 2013); .Club Domains (28 Aug. 2013)*
- As described in a Verisign analysis, previous expansions (e.g., .xxx, .asia) caused no known issues. These successful delegations alone demonstrate that there is no need to delay any more than the 2 most risky strings. *NTAG (15 Aug. 2013); DotGreen (20 Aug. 2013); Top Level Design (26 Aug. 2013 & 17 Sept. 2013); ARI Registry Services (27 Aug. 2013); CloudNames (27 Aug. 2013); dotBERLIN (27 Aug. 2013); .GMBH (27 Aug. 2013); RySG (27 Aug. 2013); Radix Registry (27 Aug. 2013); Neustar (27 Aug. 2013); HOTEL Top Level Domain (27 Aug. 2013); puntCAT (27 Aug. 2013); Donuts (27 Aug. 2013); XYZ.COM (28 Aug. 2013); .Club Domains (28 Aug. 2013); United TLD (17 Sept. 2013)*
- Risks listed by Interisle or Verisign already exist and many are prevalent in existing gTLDs such as .com. Future studies would gain credibility if the listed risks were compared against the situation in current gTLDs. *NTAG (15 Aug. 2013); DotGreen (20 Aug. 2013); Top Level Design (26 Aug. 2013 & 17 Sept. 2013); ARI Registry Services (27 Aug. 2013); CloudNames (27 Aug. 2013); dotBERLIN (27 Aug. 2013); .GMBH (27 Aug. 2013); RySG (27 Aug. 2013); Radix Registry (27 Aug. 2013); HOTEL Top Level Domain (27 Aug. 2013); puntCAT (27 Aug. 2013); Donuts (27 Aug. 2013); XYZ.COM (28 Aug. 2013); .Club Domains (28 Aug. 2013); United TLD (17 Sept. 2013); Donuts (18 Sept. 2013)*
- Basing risk measurement on total query counts is fundamentally flawed, especially when using data collected after the new TLD applications were posted. The Interisle report makes no mention of investigating the possibility that some of the requests were issued intentionally. *NTAG (15 Aug. 2013); DotGreen (20 Aug. 2013) Top Level Design (26 Aug. 2013 & 17 Sept.*

2013); ARI Registry Services (27 Aug. 2013); CloudNames (27 Aug. 2013); dotBERLIN (27 Aug. 2013); .GMBH (27 Aug. 2013); RySG (27 Aug. 2013); Radix Registry (27 Aug. 2013); HOTEL Top Level Domain(27 Aug. 2013); puntCAT (27 Aug. 2013); Donuts (27 Aug. 2013); XYZ.COM (28 Aug. 2013); .Club Domains(28 Aug. 2013)

The Interisle study should be considered as having opened a discussion, rather than precluding one. Uniregistry is unwilling to speculate that the raw data used by that study has been subject to intentional manipulation by third parties. The study has identified possible risks to certain parties operating outside of ICANN principles embodied in ICP-3. Uniregistry accepts the Interisle study as an unbiased factual assessment and looks at it as an opportunity for ICANN to confirm its commitment to its mandated objectives, policies, and principles (e.g. ICP-3). *Uniregistry (17 Sept. 2013)*

The Interisle report fails to accurately quantify the risks in a manner that enables progress. Afilias urges ICANN to complete this work at the earliest possible date. It also fails to provide appropriate risk mitigation strategies. Many of these risks existed during the launch of the 17 new TLDs introduced in 2001, yet the security and stability of the Internet was preserved. It is neither possible nor even desirable to attempt to expand choice with no risk--such an attempt serves only to maintain the status quo. Afilias strongly urges ICANN to quickly develop a mitigation strategy to address the major risks while accepting some risk as the price of progress. *Afilias (20 Sept. 2013)*

“Blanket” statements about previously assigned TLDs not appropriate. It is concerning that some commenters minimized the impact of name collisions--e.g., arguing that because previously assigned TLDs did not cause significant name collision the risks associated with the current proposed TLD assignment should be ignored. The costs of mitigation have yet to be assessed. It is premature to make blanket statements as to the magnitude of impact and costs associated with collisions. *ACT (17 Sept. 2013)*

Collision Risk Involving Certificates and Non-Existent Domains Overstated

The potential for serious collision involving certificates and non-existent domains (NXDs) has been overstated and can be remediated without delaying any new gTLDs. Certificate collision is very unlikely unless a precise series of unlikely actions intending harm is put into place, any one of which, if interrupted, removes the risk of harm. Successful delegation of previous gTLDs with pre-existing NXD traffic and the everyday registration of SLDs with pre-existing NXD traffic by existing registries (such as .com) has proven that NXD traffic does not cause public end-user harm. *Donuts (27 Aug. 2013)*

The Interisle report is missing some critical data--e.g., it did not look at NXD traffic in existing TLDs, including .COM, or examine specific subdomains that receive NXD traffic in the so-called problem TLDS (the 20%). If a small number of SLDs in any TLD receive NXD traffic and if it is deemed that pre-existing NXD traffic is an unknown risk (even though it is currently ignored in .COM), then those few SLDs could very easily be blocked from registration by the registry, allowing other SLDs in these TLDs to exist and deliver the good to the public for which this whole program is designed. It is a remarkable leap to make such decisions without such important data. *Donuts (27 Aug. 2013)*

Based on Donuts' analysis, the NXD traffic to applied-for TLDs is a smaller percent than what is shown in the Interisle report. *Donuts (17 Sept. 2013)*

There is no factual basis in the study recommending halting the delegation process for 20% of applied-for strings. Without evidence of actual harm, the TLDs should proceed to delegation. SLDs with pre-existing NXD traffic should be allowed to be registered in those TLDs, also just as they are allowed everyday in .COM and other TLDs. *Donuts (27 Aug. 2013)*

Non-Existent Domain Responses to Queries at Second Level in .COM

NXDomain responses to queries at the second level in the .com TLD (1) are not comparable to expected NXDomain response at the top level; and (2) are in any event knowable and planned for by System Administrators. The set of risks posed by, and the set of potential repercussions that will likely be felt from, new gTLDs are necessarily broader than just DNS queries and responses. The systemic effects that come from interactions before, during, and after DNS transactions must be accounted for. It is for reasons such as this that assessing risk only by measuring query rates is wholly insufficient and naïve. *Verisign-EO (11 Sept. 2013)*

Verisign has stated that NXDomain responses in existing TLDs do not pose the same risk as an NXDomain in an undelegated TLD. While it is certainly possible to argue that the risks are different, the sheer volume of NXDomain responses in the .com space make it far more likely that an adverse result will actually be seen in .com space than in an undelegated TLD. *United TLD (17 Sept. 2013)*

Study Approach

- The Interisle report, which used a single Day in the Life (DITL) of the Internet, is preliminary in nature and its predictive capacity is significantly limited in nature. *GE (27 Aug. 2013)*
- The Interisle report only studied the frequency with which queries that could result in name collisions occurred during the DITL, not the severity of consequences of any given name collision. Relying on frequency alone as a measure of risk is not valid with regard to security or stability. E.g., a single name collision that risks a high-security network or critical communications system would be far more serious than frequent name collision impacting a low-risk network. *GE (27 Aug. 2013); USTelecom (17 Sept. 2013)*
- A significant amount of the traffic studied appeared to involve VOIP (i.e., telephone calls). It is unlikely that ICANN can evaluate risk in a rigorous way prior to conducting "use case" and "severity of consequences" studies on the disruption of mission-critical VOIP communications. *GE (27 Aug. 2013)*
- GE also notes a lack of "user studies" generally--i.e., Internet traffic has been observed "in the lab" rather than "in the field." GE is concerned about the possible effects of name collisions on GE, its vendors and distributors and its millions of consumers and users worldwide. Appropriate and complete comments from GE and other large companies should include an assessment of such risks from these companies' perspective. The short comment periods provided for these issues make such a study, or even a pilot study, unworkable. GE will explore the feasibility and timing of such a study and may provide this information in further

comments. At present, GE can only conclude that its risk from the delegation of any new gTLD is “unknown.” *GE (27 Aug. 2013)*

ALAC generally concurs with the proposed risk mitigation actions for the three defined risk categories. In doing so, ALAC recognizes that the study, its conclusions, and ICANN’s risk mitigation recommendations are based on analysis of a limited data set of query volume metrics. As acknowledged in the study, such metrics are only one perspective of risk and do not reflect other risk that may arise through complex interactions between the DNS and applications at the root level. *ALAC (27 Aug. 2013)*

The Interisle report is woefully inadequate for gauging the level of risk associated with deploying new gTLDs. The report only studied the number of potential name clashes. As a result, ICANN as far as ANA knows, has virtually no data to determine if it could interrupt important public safety communications, government web traffic, e-commerce applications, internal corporate communications or just casual web traffic by delegating new gTLDs. ICANN must know what underlying services could potentially “break” on the Internet to begin to gauge risk. *ANA (27 Aug. 2013); ANA (16 Sept. 2013); USTelecom (17 Sept. 2013)*

BC’s main concern is ensuring that any potential for domain name collision in the private network environment, including the continuity and availability of in-house corporate IT systems, is fully studied, understood, and remediated before new gTLDs are introduced into the root. *BC (17 Sept. 2013)*

Impact on small businesses. ICANN should take up an aggressive campaign to educate small businesses around the world about how to best prepare for name collisions we may see (e.g., how much of a burden, and who will pay for it). *D. Tomicic (18 Sept. 2013)*

A qualitative analysis of the harms that might ensue from name collisions is necessary. Without undertaking a thorough assessment and affording affected stakeholders additional time for analysis, ICANN and the Internet community will not have sufficient information to determine the potential negative effects of name collisions. *ANA (16 Sept. 2013); Verisign-PSK, TCI & DM (15 Sept. 2013); ACT (17 Sept. 2013); USTelecom (17 Sept. 2013)*

It is necessary to separate the data from the conclusions to be taken from that data and the recommendations on how to handle any concerns. The data, while accurate, may not support the recommendations. The data does not suggest any answer to whether the concerns raised by the report are actual threats, conjectural threats, hypothetical threats or not threats at all. The sole fact that queries are being received at the root level does not itself present a security risk, especially after the release to the public of the applied-for strings. *Uniregistry (27 Aug. 2013)*

The process leading to the Interisle study is as flawed as the staff’s recommendations based on it. The collision issue has been examined for many years, and a last-minute report--produced with no community input--raises significant competition concerns. Applicants will document, in the next 21

days, data that will be far more indicative of the minimal scope of any problem. Upon review of that data, the ICANN Board should elect to proceed with delegation of all approved gTLDs. *Donuts (27 Aug. 2013)*

The Interisle 10 “etiologies” of name collisions in the Interisle report in fact pose little or no risk. *DotGreen (17 Sept. 2013)*

Arbitrary Methods for Dividing Strings Into Categories

The Interisle report’s suggestion in Section 8.3.1 that one way for setting the threshold for dividing strings into “low risk” and “uncategorized risk” could be by reference to the number of queries for existing TLDs that have empty zone files is arbitrary. *Radix Registry (27 Aug. 2013)*

In the view of DigiCert, a major Certificate Authority, including 20% of all proposed strings in the “uncategorized risk” segment was unnecessary. According to DigiCert, the CA Forum is only really concerned about 14 of the newly applied-for TLDs (2 “high risk,” 12 “uncalculated risk”). It appears that the CA Forum would not need the 120-day revocation period for any of the “low risk” TLDs, or for all but 12 of those categorized as “uncalculated risk” TLDs. *Radix Registry (27 Aug. 2013); Neustar (27 Aug. 2013)*

ICANN’s 80/20 division of applied-for strings appears to be entirely arbitrary, and arbitrarily high. The staff’s response to the Interisle report appears to be overly conservative, involving potentially significant delays even in cases where the risk of collision appears to be extremely low. *Neustar (27 Aug. 2013); DigiCert (28 Aug. 2013)*

With respect to the 80/20 split, a look at the data suggests that it would have been much more appropriate to put the threshold at a point where the typical step change in the underlying measurement value from one rank to the next is more significant (e.g., a 95/5 or with a 97/3 split). At that point the typical step of change in the underlying measurement value from one rank to the next is in the order of 2%-3% of the category maximum. The current 80/20 split occurs at a point where the typical step of change from one rank to the next is hardly noticeable as a percentage of the category maximum. *AFNIC/CORE (27 Aug. 2013); puntCAT (27 Aug. 2013); .Club Domains (28 Aug. 2013)*

The arbitrary 80/20 division, based on wholly inadequate analysis, creates two kinds of errors. It wrongly puts some low-risk gTLDs in a “high risk” category and also incorrectly puts some high-risk gTLDs in a “low risk” category. *USCIB (17 Sept. 2013)*

Top Level Design was notified that .wiki would be halted in the contracting process some 7 hours before the close of the first public comment period on Name Collision. This is unacceptable and a clear disregard for the multistakeholder process. Top Level Design asks ICANN’s NGPC to immediately revoke the freeze of the 20% and to prioritize accordingly, in line with the original priority draw numbers. This can and should be handled holistically with reconsideration of the entire 20% category, especially its reliance on the 2013 DITL information, which is potentially corrupted and should not be

used for any further investigation or mitigation. Top Level Design also notes that ICANN's handling of this issue has created demand for costly zone analysis by applicants, especially unfortunate for applicants on the 20% list created from the potentially corrupted 2013 DITL data. *Top Level Design (17 Sept. 2013)*

.CBA

The delay caused by the Name Collision Report causes great concern. The .cba TLD should not pose a "high risk" to Internet security. Commonwealth Bank of Australia would like to discuss directly with ICANN/SSAC the risk assessment. The .cba TLD should be categorized as "low risk." As the cause of the name collision is primarily from CBA internal systems and associated certificate use, it is within the CBA realm of control to detect and remediate said systems and internal certificate use. *Community Bank of Australia (23 Aug. 2013)*

Verisign conducted a focused study of .CBA (i.e., errant queries to the root) and believes that its data and analysis shows without a doubt that Commonwealth Bank of Australia's initial conclusions are incorrect. A reasonable conclusion to draw is that ICANN's risk mitigation proposal is not a practical or reliable option (see also text of Verisign presentation on .CBA analysis attached to comments). *Verisign-PSK, TCI & DM (15 Sept. 2013)*

- Applicants lack the experience and thus are a poor choice to perform the risk assessments and to operationalize ICANN-prescribed "customer service" (which ICANN has not defined). Lacking root instrumentation, and thus unable to see much beyond their own internal usage of .CBA, the Commonwealth Bank of Australia wrote to the ICANN public forum claiming that .CBA collisions could be self-mitigated. However, Verisign's analysis demonstrates that the bank is the source of at most 6% of the observed query volume. Verisign is unaware of how many of the 952 or more Internal Names Certificates they possess, a topic that would need separate study and analysis. *Verisign-PSK, TCI & DM (15 Sept. 2013); USTelecom (17 Sept. 2013)*
- Most applicants do not seem to be qualified to assess the risks of delegating their strings without visibility to root server system data and qualitative analysis; indicators are simply not within their current observation space--it necessitates implementation of SAC045 & SAC046 recommendations regarding early warning and instrumentation across the root server system. *Verisign-PSK, TCI & DM (15 Sept. 2013)*
- x.509 certificates serve as an indicator of usage for a given string and vulnerabilities exist until all certificates expire (revocation alone is insufficient). *Verisign-PSK, TCI & DM (15 Sept. 2013)*
- DNS Service Directory and apparent standards-based search list interactions account for a large number of the queries at the root for these and most other applied-for strings; this may pose considerable risks. Given the types of devices that employ DNS-SD, notification and upgrade/corrections could be costly and resource intensive and should begin immediately. *Verisign-PSK, TCI & DM (15 Sept. 2013)*
- Verisign's data vindicates the observation that applicants face increased risk of liability from end users and network operators upon delegation. Under ICANN's current constructs, applicants will bear this risk alone, and will indemnify ICANN should the delegation give rise to

claims against ICANN. ICANN's risk mitigation plan would result in transfer of certain security and stability responsibilities to applicants—a policy which subverts ICANN's core mission. This should be soundly rejected by the Board, not ratified and continued. *Verisign-PSK, TCI & DM (15 Sept. 2013)*

- Verisign's analysis of .CBA demonstrates clearly how little can be known confidently until qualitative analysis of each individual string is conducted, and that what the community does not know can have unforeseen consequences, which could be severe. This is why SSAC, Interisle and many others strongly advise that individual string risk analysis, the only way to categorize a string as anything other than an unknown risk, should be performed and assessed prior to any delegation. This study of only one string (.CBA) shows that no one should assert or assume that collision risk is understood and acceptable without conducting proper risk analysis and incorporating community input. *Verisign-PSK, TCI & DM (15 Sept. 2013)*

The Verisign .CBA analysis highlights that ICANN and its stakeholders need more qualitative data about the names global enterprises are already using for their internal servers, networks and devices. Many of these same enterprises may not even know about ICANN or the new gTLD launch. This Verisign study also supports the point that ICANN should not rely solely on new gTLD applicants to provide evidence of “acceptable” risk. *Verizon (17 Sept. 2013)*

The Verisign .CBA analysis begins to bring to light a number of the applicant liability concerns that have received limited scrutiny in public discussion on gTLD delegation. It is very challenging to estimate the cost or resources necessary to mitigate this potential vulnerability. *Chertoff Group (17 Sept. 2013)*

.HOME AND .CORP

The analysis conducted by Interisle for .home and .corp is grossly insufficient and the proposed recommendation by ICANN staff to indefinitely delay delegation of .home and .corp is entirely unjustified. *DotHome (27 Aug. 2013)*

There are alternative ways to accomplish the same end result (absolutely no harm), other than solely taking the step of preventing .CORP from being inserted in the ICANN root (see comments text). *Donuts (27 Aug. 2013)*

Based on the data, DigiCert agrees with ICANN that .corp and .home are high risk. The data presented in the Interisle report reveal that .corp and .home account for almost all of the potential collisions at both the SLD and TLD levels. Of the remaining, only the top 30 have more than 1 million queries at the gTLD level. *DigiCert (28 Aug. 2013); USCIB (17 Sept. 2013)*

NetChoice supports the “hold” on two high-risk strings, corp and home, but remains concerned about the proposal to delegate these if the applicant “can provide evidence of the results from the steps taken to mitigate the name collision risks to an acceptable level.” *NetChoice (6 Sept. 2013); BC (17 Sept. 2013); Verizon (17 Sept. 2013)*

ICANN should articulate specific, objective measurements to define what it means by “acceptable level.” By any definition it should mean that the risk of actual collision is extremely low. Moreover the concerns expressed by the SSAC and the Interisle study must be addressed by ICANN itself, and not passed on to the applicants and operators of the proposed gTLDs. *Verizon (17 Sept. 2013)*

Requests to proposed TLDs represent a very small portion of requests reaching the root. Other than .corp and .home, no proposed TLD receives more than .05% of requests at the root. *DotGreen (17 Sept. 2013)*

Based on reviewing a rough-cut analysis of corp.com query traffic (conducted by Interisle and consisting of about 48 hours of qlog data from an authoritative DNS server, answering queries to corp.com), it is not possible to mitigate the name-collision risk using the approach proposed by ICANN staff. *M. O’Connor (17 Sept. 2013)*

.Home and .Corp have a higher level of concern simply due to their traffic levels and their unique position as having been used as the default domain for consumer Internet equipment and in corporate networks. A well-defined study into mitigation approaches for these two gTLDs should be supported provided that there is a clear path to timely delegation. *United TLD (17 Sept. 2013)*

.MAIL

The high risk list should be expanded to potentially include .mail considering the large number of internal networks using this name. *DigiCert (28 Aug. 2013)*

.Mail should be added to the high risk category. *Neustar (17 Sept. 2013)*

.GLOBAL, .ADS, .ICE

.ADS and .GLOBAL stood out as having both a significant number of certificates and a significantly high potential for collisions. Despite the low number of certificates, .ICE should be included in the unknown category since its potential for collisions at the gTLD level is high compared to other applicants. *DigiCert (28 Aug. 2013)*

.PARIS

Categorizing .paris as “uncalculated risk” overstates by several orders of magnitude any conceivable security risk to any party. Applied-for TLDs with a count of up to 19.8 million “as-TLD” queries in the 2013 DITL data are in the same category as .paris, which has 90,000. *AFNIC/CORE (27 Aug. 2013); puntCAT (27 Aug. 2013)*

.BCN

.BCN has been misleadingly labeled as of “uncalculated risk” for the reasons already exposed in comments posted by others, such as: small amount of data involved; arbitrary threshold for differentiating “low risk” and “uncalculated risk” TLDs; the negligible percentage of requests for non-existing TLDs conflicting with strings considered under the new gTLD program, according to the figures in the Interisle report; and the fact that gTLDs such as .BCN have been included in the

“uncalculated risk” category without taking into account the reliable environment that provides explicit support and safeguards set by government authorities for such applications. *puntCAT (27 Aug. 2013)*

.CLUB

Not designating .CLUB as “low risk” was arbitrary. In delaying .CLUB as an “uncalculated risk,” ICANN failed to take into account Interisle’s finding that no X.509 certificates have been issued for .CLUB. *.CLUB Domains (28 Aug. 2013)*

The issue that prevented .Club from being classified as “low risk” has been resolved. .Club Domains commissioned a report from Interisle (dated 11 Sept. 2013 and attached to .Club Domains’ 16 Sept. 2013 comments) that analyzes the 2013 DITL root query stream relating to queries where “.club” was in the TLD position. This report highlights the top 50 SLD strings ranked by occurrence, which account for 58.88% of all queries in the 2013 DITL query stream with “.club” in the TLD position. *.Club Domains (16 Sept. 2013)*

- Club Domains is committed to restricting (for at least 3 years, subject to future release per the RSEP or other ICANN review mechanism) the top 50 most queried SLD strings from being registered thereby eliminating the possibility of name collision for 58.88% of the queries represented in the DITL root query data stream. Blocking the top 50 most queried SLD strings reduces .club’s queries to fewer than that of 62 strings that were classified as “low risk.” Based on these considerations, .Club’s potential risk for collision in the DNS has been calculated and mitigated and therefore .Club should be classified as a “low risk” gTLD string. *.Club Domains (16 Sept. 2013)*
- In accordance with ICANN’s proposal for the low risk category, .Club Domains will also implement the two suggested mitigation measures for all remaining SLD strings (120 day wait from execution of Registry Agreement before activating any unblocked names, and 30-day wait or other standard period after delegation to activate any names in the DNS)
- Applying these two mitigation measures, combined with blocking of the 50 most queried SLD strings, will be overwhelmingly sufficient to allay any potential risk that .Club might pose to the DNS, such that .Club will an even lower risk than a significant portion of the low risk gTLDs that ICANN has permitted to execute Registry Agreements. .Club also does not carry any of the risks related to issuance of X.509 certificates (not on the Interisle Appendix C list) *.Club Domains (16 Sept. 2013)*

.GREEN

.GREEN does not belong on the 20% “uncalculated risk” list. Further, holding back for delay 20% of new gTLDs could seriously affect the program’s benefits to the public and Internet users. *DotGreen (17 Sept. 2013)*

.WIKI

Top Level Design provides a zone analysis in its 17 September 2013 comments, and has proposed mitigation measures (e.g., blocking of 10 SLDs that resulted in 26.79% of the total query volume). Top Level Design submits that the mitigation approach presented in the NTAG 17 September 2013

comments is the most comprehensive. The NGPC should thoroughly consider the NTAG's guidance when they define the outstanding questions surrounding what constitutes a security risk and why, what must be analyzed in greater depth and how applicants can proceed beyond these issues. Top Level Design expects the NGPC to quickly and judiciously plot a way forward for the applicants that have been held back from contracting processes due to inclusion in the "undetermined risk" category. It is fair to say that Top Level Design has determined the risk, which is limited to nonexistent. *Top Level Design (17 Sept. 2013)*

Recommendations and Requests for Action

"Uncategorized" Names

There is no reason to delay the 279 "uncategorized" names any further. Reasonable protections can be put into place while the existing new TLD calendar is executed. *NTAG (15 Aug. 2013); DotGreen (20 Aug. 2013); Top Level Design (26 Aug. 2013 & 17 Sept. 2013); ARI Registry Services (27 Aug. 2013); CloudNames (27 Aug. 2013); dotBERLIN (27 Aug. 2013); .GMBH (27 Aug. 2013); RySG (27 Aug. 2013); Radix Registry (27 Aug. 2013); HOTEL Top Level Domain (27 Aug. 2013); puntCAT (27 Aug. 2013); XYZ.COM (28 Aug. 2013); Neustar (17 Sept 2013)*

Delay Six Domains

Except for the six domains listed in DigiCert's letter to the ICANN Board (i.e., corp, home, mail, ice, global, and ads), the proposed strings present a low risk to security. Because this risk is low, DigiCert believes that ICANN may proceed with processing the remaining applications and move forward towards approval. *DigiCert (28 Aug. 2013)*

Accelerate the Mitigation Process

The Board can take four steps to accelerate the mitigation process:

- (1) Proceed with IDNs without requiring 120-day waiting period or 30-day mitigation process while staff, applicants and the Board work on deciding risk assessment and mitigation for ASCII TLDs;
- (2) Proceed with "unknown risk" strings using the "low risk" mitigations and 80% of strings classified as "low risk" should proceed immediately with no additional mitigations;
- (3) Accelerate handling of the certificate collision issue. A much more efficient solution exists than the current agreement with the Certificate Authority/Browser Forum. The Board can inform the Forum that all but a handful of new TLDs are very likely to be delegated in the next two years and, for the benefit of their customers, the 120 day revocation process should begin today.
- (4) Encourage investigation by applicants. ICANN and Interisle should post more detailed breakdowns for each applied-for string in an easily analyzed format so the community can perform more meaningful analysis. As detailed packet capture data cannot be published due to DNS OARC policies, NTAG asks for ICANN to publish raw packet capture data from the L-root after appropriate anonymization so that applicants can perform their own analysis and prepare their own responses. *NTAG (15 Aug. 2013); DotGreen (20 Aug. 2013); Top Level Design (26 Aug. 2013 & 17 Sept. 2013); ARI Registry Services (27 Aug. 2013); CloudNames (27 Aug. 2013); dotBERLIN (27 Aug. 2013); .GMBH (27 Aug. 2013); RySG (27 Aug. 2013); Radix Registry (27 Aug. 2013); Neustar (27 Aug. 2013); HOTEL Top*

Level Domain (27 Aug. 2013); puntCAT (27 Aug. 2013); XYZ.COM (28 Aug. 2013)

IDNs should be allowed to proceed through to delegation without requiring a delay. IDNs were not listed in the Interisle report, confirming that no name collision issues exist with regard to certificates and DNS queries. *USCIB (17 Sept. 2013)*

ICANN should allow all strings (including .home) to be delegated subject to certain mitigation measures. A two-phase approach (detailed in the DotHome comments and Radix Registry comments) should be implemented in order to allow all strings to proceed on to delegation while successfully avoiding unnecessary delays (i.e., Phase 1--3 months after delegation; and Phase 2--Next 3 months). This approach, or some variation of it, applied to all TLDs, will serve to alleviate even unforeseen threats in TLDs that ICANN staff has inadvertently qualified as “low risk.” This recommendation should be addressed as part of the risk mitigation exercise. *DotHome (27 Aug. 2013)*

There are many ways to improve the present Mitigation Proposal for the low-risk category without additional risk. This will avoid pointless disruption of roll-out plans and further improve preparation. It can also be used for most TLDs, such as .paris, which currently are mislabeled as “uncalculated risk.” *AFNIC/CORE (27 Aug. 2013); puntCAT (27 Aug. 2013)*

- E.g., allow TLD operators to request more detailed data from the 2012 and 2013 DITL studies. On this basis the TLD operators can make their own studies and contact potentially affected parties much earlier. The 120-day waiting period after the Registry Agreement signature can be waived in those cases. Please note that especially TLDs with strong and credible governance environments (such as those supported by government authorities) are subject to possible delays in contract signature due to stringent contracting rules. *AFNIC/CORE (27 Aug. 2013); puntCAT (27 Aug. 2013)*
- For most of the TLDs, including most in the “uncalculated risk” category, the amount of data involved is quite small if it simply contains the raw DNS query data where the string appears as a TLD in the query. *AFNIC//CORE (27 Aug. 2013); puntCAT (27 Aug. 2013)*

Accelerate Resolution of Certificate Collision. Donuts agrees with accelerating the resolution of the certificate collision issue; a constructive collaboration with certificate authorities is far more warranted than delay. As noted by NTAG, the Board can, and should, contact certificate authorities regarding probable delegation of new TLDs and the 120 day process should open immediately. As a practical matter, the risk of actual harm involving certificate collision is extremely low. *Donuts (27 Aug. 2013); DotGreen (17 Sept. 2013)*

ICANN should shorten the list of gTLDs classified as uncalculated risk in such a way that .CLUB and other low traffic gTLDs are classified as “low risk.” *.Club Domains (28 Aug. 2013)*

ICANN should allow all new gTLDs in the “low risk” and “uncalculated risk” categories to proceed directly to contracting without delay due to the no or low risks involved. *DotGreen (17 Sept. 2013)*

United TLD agrees with Neustar and other DNS experts that there is no demonstrated reason to delay

the delegation of any applied for TLD that is currently in the arbitrary classifications of “low risk” and “uncalculated risk.” “High risk” strings should be addressed in a reasonable and timely manner. *United TLD (17 Sept. 2013)*

The list of “uncalculated risk” could and should be greatly reduced from 20% to something much smaller. *DotGreen (17 Sept. 2013)*

Request for Detailed DITL Data and Minimal Information on Internal X.509 Certificates for .PARIS (as TLD). AFNIC/CORE requests this data to be able to analyze it and commit to return to ICANN its findings. Among other things, AFNIC/CORE will contact the administrators of the networks from which the queries originate. The amount of DITL data where the string appears as TLD is negligible for most of the applied-for TLDs involved. In the case of .paris, the full query data of the 90,000 as-TLD queries, even assuming an average of 300 bytes per query, can comfortably be sent by email. AFNIC/CORE further requests contact information to the Certification Authority having issued the single .paris internal X.509 certificate expiring after the end of 2013. *AFNIC/CORE (27 Aug. 2013)*

Requests Regarding .BCN

PuntCAT requests that the “uncalculated risk” label be removed from the .BCN application and that it be labeled, if at all, as “low risk.” *puntCAT (27 Aug. 2013)*

No Further Delay to Roll-out and Contracting

PuntCAT asks that the conclusions of the Interisle report cause no further delays of the roll-out plans prepared by the applicants and that those applications labeled as “uncalculated risk” not be prevented from starting the contracting process with ICANN. *puntCAT (27 Aug. 2013); Donuts (27 Aug. 2013)*

ICANN should allow all applications to proceed uninterrupted, as no harmful collision issue has been conclusively demonstrated compared to other, existing TLDs. *Donuts (27 Aug. 2013)*

The apparent goal of the delay--to allow for changes to the Registry Agreement in light of the Interisle report--is already provided for in the Registry Agreement which allows ICANN to amend any contract (Supplement to Registry Agreement, section 1(a)). There is no reason to delay any of the 20% named in the report at this point in their contracting process. The Board should immediately halt the staff’s attempts to delay the process without community input by making implementation decisions with deficient information, contrary to the multi-stakeholder process. ICANN staff in the future should wait for all of the information, including community input, to be presented before making decisions that detrimentally impact the new gTLD program. *Joint Comments of Artemis et al. (27 Aug. 2013)*

Exemption for Marketing Activities for “Low Risk” TLDs

If ICANN continues to insist on a 120-day prohibition of delegations for the “low risk” TLDs, it should grant an exemption for domain names that the registry operator desires to use for the operation and promotion of its TLD as currently contemplated in the Registry Agreement. This will allow registries to at a minimum start their respective marketing activities in order to avoid additional unnecessary

delays while at the same time presenting very little, if any, security risks. *Neustar (27 Aug. 2013)*;

ICANN should exclude from the 30-day notification period second level registrations that allow a registry operator to operate and promote its TLD. It makes little sense to withhold delegation of all names in a TLD when the evidence does not suggest significant risk of collision. This would allow registry operators to use domain names for the operation and promotion of their TLDs as contemplated in the Registry Agreement (Spec. 9, Sec. 3.2). *Neustar (17 Sept. 2013)*

Technical mitigations. The Appendix to NTAG's comments ("Risk Breakdown per Category of Collision") outlines more technical mitigations supported by the NTAG. *NTAG (15 Aug. 2013)*

Proposed Mitigation Measures for all New TLDs

ICANN should mandate implementation of the following measures at the registry level for each new TLD (as a base set of requirements, all of which could be reconsidered case by case using the RSEP process, and which likely would not be relevant to closed .brand TLDs):

- Prevent registration of SLDs corresponding to the major existing gTLDs;
- Prevent registration of specific terms related to the Internet, networking, protocol, web-related file extensions or common internal hostnames. (See list at NTAG Members 17 Sept. 2013 comments at Appendix D.)
- Exclude terms that a rightful owner has entered into the TMCH, require a one year hold on SLD registration for strings that present more than a certain number of queries represented in the DITL data, with a custom hold list generated for each proposed TLD. (See also NTAG Members 17 Sept. 2013 comments at Appendix A.)
- Block the registration of the decimal integers between 0 and 255 as an SLD under the new TLDs in order to prevent collisions from malformed reverse DNS lookups on IPv4 addresses.

NTAG Members (17 Sept. 2013)

Proposed Mitigation Measures for .Corp, .Home and .Mail

- String contention should be resolved in the normal order of business for all three strings.
- Contracting and delegation should move forward with the parties that emerge from contention, assuming that they agree to the following protections:
- Operate a 90-day sunrise period for all strings;
- Operate a 1 year extended sunrise period for the most common brand names seen globally in name collisions (see NTAG Members 17 Sept. 2013 Comments at Appendix F).
- Operate a 1 year hold for the top 50 SLDs seen in requests for each TLD, assuming such strings have not already been included in previous lists (see NTAG Members 17 Sept. 2013 Comments at Appendix G).
- While domains could be pre-sold for each TLD, no SLD names will be delegated for a period of 1 year.
- The TLD server logs from each of these new TLDs should be turned over to OARC monthly for analysis by interested parties enabling ICANN and others to gauge the effectiveness of the risk mitigation program as it operates.

- These protections could be shortened via the RSEP process if supported by DNS query data. *NTAG Members (17 Sept. 2013)*

As a follow up to its Reply Comments, NTAG Members will provide a report of registration hold lists for all proposed new TLDs and charts showing how implementing such hold would reduce name collision queries below certain risk thresholds. NTAG will also hold a second TLD Security Forum. *NTAG Members (17 Sept. 2013)*

Donuts' Recommendations to address name collision

- On a TLD by TLD basis, disallow a small list of SLD names that receive the disproportionately highest share of collision traffic, if not already blocked by ICANN or otherwise mitigated;
- Request that browsers stop generating random lookups (e.g., random 10-letter names);
- On a TLD by TLD basis, maintain the ban on 2-letter names for a period, or until the NXD traffic is mitigated at the second level for these names;
- Maintain the ban on names with underscores and other punctuation;
- Do not attempt to "instrument" the root by delaying new gTLDs to monitor collision--the data on collision clearly is available;
- Collect sources of problem traffic and address the issue directly with ISPs;
- Do not set up MX records for certain second level names (e.g. some SLDs in .MAIL) until that is mitigated by other means;
- Disallow a few Internet terms (e.g. POP3, HTTP, etc.) to mitigate such NXD traffic in some TLDs until that NXD is mitigated by other means.
- Disallow existing TLDs as second-level names (e.g. COM, NET, BIX, INFO) in certain TLDs for a period.
- Name collision mitigation must be addressed directly with applicants and not decided in a vacuum by the Board. Each TLD will have individualized needs for any perceived mitigation.

Donuts (18 Sept. 2013)

Donuts' conclusion from the data is that no applied-for TLDs need mitigation, with the possible exception of a very few. *Donuts (18 Sept. 2013)*

Delegation Delay; Further Study the "High Risk" Strings

NTAG agrees that the two strings listed as "high risk" should be delayed while further studies are conducted. *NTAG (15 Aug. 2013); Neustar (27 Aug. 2013); Neustar (17 Sept. 2013)*

None of Interisle's findings give cause to delay the new gTLD program, and none of the 20% of strings designated as "unknown risk" pose any danger to the DNS or Internet community and should therefore proceed unhindered. *NTAG (15 Aug. 2013); DotGreen (20 Aug. 2013); Top Level Design (26 Aug. 2013 & 17 Sept. 2013); ARI Registry Services (27 Aug. 2013); CloudNames (27 Aug. 2013); dotBERLIN (27 Aug. 2013); .GMBH (27 Aug. 2013); RySG (27 Aug. 2013); HOTEL Top Level Domain (27 Aug. 2013); puntCAT (27 Aug. 2013); XYZ.COM (28 Aug. 2013)*

“Uncalculated Risk” Strings Process

If ICANN deems that more action than that of the “low risk” strings is required with regard to the “uncalculated risk” category, then ICANN should adopt the predictable mechanisms proposed by ARI Registry Services in its comments to resolve the stalemate faced by applicants in the “uncalculated risk” category (i.e., Option 1--Publication of Raw Packet Capture Data; or Option 2--“Beta” Delegation). *ARI Registry Services (27 Aug. 2013); Monash University (16 Sept. 2013)*

Trial Delegation

Uniregistry proposes that ICANN continue to move forward with the current timeline, and include a trial delegation in an ICANN-controlled environment with external observers. This will allow for additional traffic collection which would lead to a real assessment of the risks associated with the new TLD and to the implementation of reasonable measures to mitigate them. This can all be done in a timely manner with minimal or no impact on the current timeline. *Uniregistry (27 Aug. 2013); ISPCP (17 Sept. 2013)*

Cautious Approach

ICANN should exercise due caution in this area and not delegate any gTLD for which there is any question regarding risk until that risk is fully understood. *GE (27 Aug. 2013); J. Broer (17 Sept. 2013)*

ICANN must be prepared to defer the introduction into the DNS of any new gTLD that its further, in-depth studies identify as presenting a threat of collision. These deferrals should remain in effect for each identified gTLD string until the threats related to that string can be substantially eliminated. *Verizon (17 Sept. 2013); Microsoft-Verisign-Yahoo (17 Sept. 2013)*

Impact on electric grid. Electric cooperatives have significant concerns that domain name collision could adversely affect the safety and reliability of the electric grids. To the extent that ICANN allows gTLDs such as .home, .cloud, .mail and .company to become operational, electronic communications that today remain safely behind firewalls and inside internal networks could suddenly and inadvertently be misdirected to external networks and the Internet at large. Given the seriousness of this issue, ICANN should delay the roll-out and implementation of the new gTLDs so as to provide sufficient time to study the potential adverse impacts of new gTLDs on the safety and reliability of electric transmission and distribution grids. *Joint Electric Cooperatives Comments (17 Sept. 2013)*

The risk of an internal SSL certificate suddenly becoming external and a malicious actor being able to take advantage of that by launching a man in the middle attack on unsuspecting web end users is de minimis. An existing risk that is far greater stems from domain names being allowed to expire and be re-registered, and yet this risk is widely recognized as acceptable. *United TLD (17 Sept. 2013)*

Fully Leverage the 120-Day Activation Waiting Period

ICANN’s proposal does not fully leverage the 120-day activation waiting period for delegated TLDs to serve the goal of reducing costs. This period should allow for gathering additional information about the TLD collision impact and the imposition of costs upon businesses. Additional reporting requirements would allow for gathering and use of this information either to move forward with use

of the TLD or to allow for additional time to mitigate costs. This is time ICANN has already built into the TLD process and should be used in a way that reduces costs to those who currently use “internal TLDs” (iTLDs). *ACT (17 Sept. 2013)*

A More Sophisticated Risk Model and Further Studies

The Interisle study is an excellent first step, but it raises many additional critical questions and concerns that demand further in-depth study. *Verizon (17 Sept. 2013)*

The correlation between frequency and risk for any particular gTLD cannot be determined without additional contextual information. ICANN should develop a more sophisticated risk model and commission further studies on this subject. Three types of study are needed to promulgate a rigorous and analytical system: (1) additional studies of traffic beyond the initial DITL sample; (2) information and analysis of “use cases” --particular types of queries and traffic--and the consequences of the failure of particular use cases to resolve as intended (particular use cases could have severe consequences even if they might occur infrequently--like hurricanes); and (3) studies of the time and costs of mitigation. *GE (27 Aug. 2013); Chertoff Group (17 Sept. 2013)*

It is prudent to conduct additional analysis on the security and liability risks associated with new gTLDs, particularly with regard to Critical Infrastructure and Key Resources (CIKR). Based on an assessment that Chertoff Group performed at the request of Verisign, Chertoff Group recommends that ICANN undertake a broader awareness campaign to educate critical infrastructure operators on the identified risks and mitigation strategies related to the new gTLD program. There is a current lack of educated awareness and mitigation strategies across certain CIKR operators. For domestic American activities the ideal method for disseminating information about gTLD name collision concerns would be through the existing CIKR Information Sharing and Analysis Centers (ISACs). Chertoff Group urges engagement with the Department of Homeland Security to foster an awareness campaign. The campaign will also need to be implemented in non-American contexts, requiring different methodologies. *Chertoff Group (17 Sept. 2013)*

ISPCP requests that:

- (1) ICANN complete further study of name-collision issues to understand their nature and impact, following the recommendations made in the Interisle report; and
- (2) The initial public comment period be placed on hold until such a study is completed, or if that is deemed infeasible, at least extended for 60 days to allow a more detailed assessment of the important issues raised. *ISPCP (27 Aug. 2013); ISPCP (17 Sept. 2013); USTelecom (17 Sept. 2013)*

All strings (high risk, uncalculated risk and low risk) should be subjected to the proposed studies so that false-positives and false-negatives can be identified. *ISPCP (17 Sept. 2013); USTelecom (17 Sept. 2013)*

USTelecom is concerned that ICANN’s proposed approach is not designed to proactively address potential security and operational impacts of name collisions before they occur. In addition, the proposed mitigation plan relies exclusively on notification responsibilities being passed through the

registry operator to the contact of the IP addresses. This approach fails to account for the reality that many end users program their internal DNS networks with no involvement from the IP address contact, and many types of equipment may be pre-programmed by the manufacturer. It is imperative that ICANN complete a broader study of risks for each of the new gTLDs prior to delegation. Based on the results of the further study, ICANN should develop a mitigation plan that proactively addresses potential user impacts prior to delegating the string. This approach will place ICANN and the community in a better *preventive* position on potential conflicts prior to delegation, as opposed to a *reactive* position following delegation. *USTelecom (17 Sept. 2013) ; Verizon (17 Sept. 2013)*

ACT suggests the following recommendations:

- ICANN resources should be dedicated to a public awareness campaign of potential problems resulting from a string resolving to a different TLD. A significant danger in assigning a new TLD is the confusion caused, as described in ACT's comments, regarding internal TLDs (iTLDs) used on company intranets which are often hard-coded into customized software used by businesses to access their internal networks. A public awareness campaign could work to reduce any harmful effects caused when a query for a TLD string--one that has historically resulted in a negative response--begins to resolve to a new TLD. *ACT (27 Aug. 2013); ISPCP (17 Sept. 2013)*
- ICANN should slow or temporarily suspend the process of delegating TLDs at risk of causing problems due to their frequency of appearance in queries to the root. There are many other TLDs besides .home and .corp which will also have a significant destructive effect. The snapshot approach used to classify the TLDs does not adequately address the risk and the 120 days delay proposed is not sufficient to inform consumers of the potential problem and allow resolution of the issue. ACT requests that additional time be given in order to resolve these problems. *ACT (27 Aug. 2013)*
- ICANN should consider reserving specific TLDs permanently for internal use. To allow for the consistency the market needs, there should be TLDs which can be reliably used for internal use. Making the changes required by release of a TLD will take significant resources. By marking TLDs for internal use only, it ensures that these changes need only be made once and they can be relied upon going forward. *ACT (27 Aug. 2013)*

The Interisle study does not provide sufficient analysis of risks to internal namespace posed by a broad range of new gTLDs. USCIB strongly urges ICANN to look at a series of community driven data-collection and analysis efforts and use this new data to better refine the analysis of risk and corresponding mitigation efforts. *USCIB (17 Sept. 2013)*

ISPCP will be looking to take a leading role as this matter progresses with ICANN. Conducting a global outreach campaign without extensive ISP involvement puts everyone at a disadvantage. ISPs are the primary customer-facing organizations that system administrators, network administrators and end users first turn to whenever they experience problems. Failure to communicate and forewarn all potentially impacted parties of the known risks, and assisting them in the best mitigation approach, would expose all ISPs to unnecessary financial and operational risk. *ISPCP (17 Sept. 2013)*

ICANN should consider these key issues:

(1) The quality of queries is much more important than the quantity; this should not be the only metric used by ICANN staff. The study makes no mention of these more important statistics--(a) the number of unique domain names queried in each string; (b) the types of unique domain names queried; (c) the number of unique sources/IP addresses of queries; and (d) the distribution of unique sources/IP addresses of queries. *DotHome (27 Aug. 2013); Radix Registry (27 Aug. 2013)*

(2) Any new data used for further studies (e.g., .home, .corp, "uncategorized risk" strings) can easily be compromised/gamed. It would be easy for any newer data to be manipulated for personal gain. ICANN should mandate that all future studies use only pre-dated data (before commissioning of the Interisle study), which is more likely to be more representative of actual usage of .home and .corp in internal networks. *DotHome (27 Aug. 2013); Radix Registry (27 Aug. 2013)*

A shorter, more targeted study should be commissioned by ICANN to simply extract and analyze the unique domain names queries and unique sources of these queries in .home. *DotHome (27 Aug. 2013)*

ICANN must proceed with caution, raise awareness and provide a clear transition plan that helps to definitively address the name collision issue proactively. ICANN should undertake a further study on this potentially serious and expensive remediation issue. This would include outreach to those entities querying a new TLD, asking how they intend to remediate and whether they have the programming components and if compilers are still available. As ICANN proceeds with excitement about the thousands of new domains that will soon be available for businesses, it must not forget the millions of businesses that may very well be devastated by a problem (name collision) they are not even aware of today. *OTA (16 Sept. 2013); Verizon (17 Sept. 2013); Microsoft-Verisign-Yahoo (17 Sept. 2013)*

ICANN Must Address the Broader SSAC Recommendations

Verisign fully supports the Board's commissioning of the Interisle study as a step in the right direction, but the ICANN proposal is limited to mitigating risks of some aspects of name collision for new gTLDs. ICANN's SSAC has since 2010 made a number of specific recommendations in connection with more broadly preserving the security, stability and resiliency of the DNS in contemplation of the delegation of new gTLDs into the root zone. The Board is no doubt well aware of them. SSAC has advised that they be addressed before the delegation of any new gTLDs and has recently noted that they remain "stubbornly unresolved." Verisign's comments outline these recommendations: SAC045, SAC046 - Recommendations 4 & 5, and SAC059. The Interisle study, while a valuable albeit late contribution, does not satisfy Recommendation 4 or 5 from SAC046 and addresses in only a limited fashion the recommendations in SAC045. Verisign requests that the ICANN Board review these issues and commission the necessary work, as appropriate, to ensure that SSAC's recommendations are finally addressed to its satisfaction before ICANN moves forward with the delegation of new gTLDs. If the Board elects to reject these long-standing SSAC recommendations, it should provide the community a clear rationale for that decision. *Verisign-PSK & CG (27 Aug. 2013)*

Impact of Mitigation Proposal on Third Parties

ALAC reiterates its previous advice to the Board that in pursuing mitigation actions to minimize

residual risk, especially for “uncalculated risk” strings, ICANN must assure that such residual risk is not transferred to third parties such as current registry operators, new gTLD applicants, registrants, consumers, and individual end users. In particular, the direct and indirect costs associated with the proposed mitigation actions should not have to be borne by registrants, consumers and individual end users. The Board must err on the side of caution and ensuring that the DNS under ICANN’s auspices remains highly trusted. *ALAC (27 Aug. 2013)*

Defining the “Acceptable Risk” Test

The same test of “acceptable risk” is proposed to allow delegation of “high risk” and the 20% of strings falling in the category of “uncalculated risk.” *NetChoice (6 Sept. 2013)*

- What would ICANN consider to be an acceptable level of costs and risks imposed on businesses? This question is not explicitly addressed in the proposal and there is no request for community input to define “acceptable level.” *NetChoice (6 Sept. 2013)*
- For applicants, ICANN seems to be proposing that a numeric threshold is the *only* evidence needed to show that their string now has “acceptable risk.” For applicants gathering evidence, what would be the period and mechanism to measure query frequency? *NetChoice (6 Sept. 2013)*
- The idea that query frequency is the only measure of risk ignores the interruption and mitigation costs imposed on businesses actually impacted by collisions. If a business is impacted by a collision, the contribution to the frequency test may be just a few queries, but the cost impact on the business would have no bearing at all on ICANN giving a green-light to a string in the “uncalculated risk” and “high risk” categories. *NetChoice (6 Sept. 2013)*
- While it would not be easy to figure costs of interruption and mitigation into a test of acceptable risk, gathering data on the actual mitigation costs and experiences of businesses should be part of the collision proposal and possible become part of the “acceptable risk” evidence test. *NetChoice (6 Sept. 2013)*
- The Notification Requirements in Appendix A of the proposal should also solicit mitigation information from Requestors. This information could be compiled as an addition to the applicant’s documentation that notice was received. At the very least, the attempt should be made to learn what steps the Requestor took to mitigate, how they have tested their mitigation plan, and what costs they incurred. *NetChoice (6 Sept. 2013)*
- In addition, ICANN could use the 120-day waiting period for the low-risk TLD activations to gather the same kind of information from users of internal names and certificates colliding with these TLDs. Data on mitigation measures and costs should be quickly published, in order to inform subsequent TLDs in giving more helpful notice to Requestors. Moreover, the actual cost and impact data might cause ICANN to revisit whether these TLDs were really as “low risk” as expected. *NetChoice (6 Sept. 2013)*
- After information is gathered on mitigation measures and costs for low-risk TLDs, it should become part of the “acceptable risk” test applied to any Uncalculated Risk and High Risk strings seeking delegation. Actual data on mitigation costs could inform the test of what evidence needs to be shown before imposing risks on businesses and users. This could be a far more meaningful test than relying only on the frequency of global queries. *NetChoice (6 Sept. 2013)*

BC asks ICANN to re-examine the “query threshold” approach because even collisions that occur fewer than 50,000 times in the interval could have serious consequences for businesses and users, depending on the type of use (e.g. VOIP-SIP traffic). *BC (17 Sept. 2013)*

ICANN should not conflate the frequency with which new gTLD string queries were observed in the Interisle study with corresponding levels of risk. The problem is not just with widely used and frequently queried proposed new gTLD strings like .corp or .mail. The SSAC and Interisle have both made it clear that even those strings having relatively small query volumes may actually present some of the highest risks if their existing private-network counterparts support critical infrastructure or services. ICANN must therefore understand which new gTLD strings present actual risks regardless of their query volumes and look deeper to understand the potential consequences arising from such collisions. *Verizon (17 Sept. 2013); Microsoft-Verisign-Yahoo (17 Sept. 2013)*

BC urges ICANN, as a matter of urgency, to complete additional study on the name collision issues to more fully understand “acceptable risk” and ensure that the proposed time allowed for remediation is in fact adequate. *BC (17 Sept. 2013); USTelecom (17 Sept. 2013)*

Impact on “Closed Environments” & Beta Test Recommendation

While beneficial long-term, domain additions could wreak havoc on entire populations of enterprise users and small businesses. ICANN should not underestimate the potential impact on business of numerous local strings suddenly resolving on the public internet. From the security perspective, the increased opportunity for systems to be breached in the chaos that could ensue could set back years of time spent to develop sophisticated solutions designed to protect closed environments and cost billions of dollars to repair, if they could be repaired at all. A sizable representative “beta” group should be commissioned by ICANN (i.e., data center/cloud providers, enterprise services companies specializing in managing networks and building/deploying intranet solutions, and businesses who are “members of communities” or who create communities within their ranks). *G. Gulyas (16 Sept. 2013)*

Consider the Impact of Increased Interest in New TLDs in Further Studies

Evidence gathered by Neustar strongly suggests that the growth in query volume for proposed TLDs in the 2013 DITL data is an indicator of growing interest in new TLDs rather than a signal that the potential for name collisions has increased. Any further study should consider the impact of increased interest in new TLDs and artificial query traffic due to testing or other automated systems before using recent data as a measure of query traffic for new TLDs. *Neustar (27 Aug. 2013); Donuts (27 Aug. 2013); .Club Domains (28 Aug. 2013)*

Donuts and others have donated hardware to the DNS Operations Analysis and Research Center (OARC) for the purpose of producing non-biased data to correctly inform the community of the scope of any potential issue and further suggestions for outright elimination of any risks, let alone mitigation. (Risks that either did not exist or did not come to pass in the delegation of prior TLDs, despite absolutely no mitigation by those registries.) This data will be available before the end of September and Donuts strongly encourages its full consideration. *Donuts (27 Aug. 2013)*

Mandatory Notifications

ICANN should neither mandate nor recommend that registry operators notify the point of contacts of IP addresses that issue DNS requests for an un-delegated TLD or names under it. Such notifications will not be effective and pose a significant risk for abuse. ICANN should also consider that issuing many notifications will reduce the effectiveness of future warnings about more important risks. *D. Karrenberg (27 Aug. 2013); ISPCP (17 Sept. 2013); Uniregistry (17 Sept. 2013)*

If despite the advice of ARIN ICANN continues to believe that notification is needed, ICANN should immediately begin notifying contacts for IP address blocks issuing DNS requests for names under proposed strings. ICANN has query source information today and there is no need to delay notifications. *Neustar (27 Aug. 2013)*

BC requests additional information about the feasibility of the requirement to notify the point of contact of any IP address that requests DNS for an un-delegated TLD, and the efficacy of such a program to identify the purpose (mistaken or intentional) of such requests. The notification period should also be used to gather and publish data on the problems encountered and workarounds used by enterprises that must quickly change their internal naming schemes and software. If there is evidence that 120 days is not enough time for enterprises to mitigate collision problems with a new TLD, ICANN should defer that delegation accordingly. *BC (17 Sept. 2013)*

Proposed Approach for Internal Certificates

It is not necessary to impose a blanket no name activation period of 120 days following execution of a Registry Agreement. In the alternative, ARI Registry Services proposes that upon delegation of the gTLD, Registry Operators should be allowed to fetch relevant names from the Certificate Revocation List (CRL) and be required to withhold these names from delegation for the first 120 days following execution of the Registry Agreement. During this period the Certificate Authority operators can revoke internal name certificates based on that gTLD. This approach allows Registry Operators to safely activate names not impacted by the internal certificates issue immediately following delegation. *ARI Registry Services (27 Aug. 2013); Monash University (16 Sept. 2013)*

Low Risk Strings

ICANN should begin the revocation of certificates for applied-for TLDs immediately. Waiting for contract signing unnecessarily increases the risk associated with potential collisions for reasons that are largely administrative. This would, in turn, provide even more time to help notify and fix systems that are utilizing the unverified domain name certificates without the risk of a domain collision occurring. The 120-day wait period would then commence upon notification of revocation from the CAB Forum or from contract signing, whichever is earlier. *Neustar (17 Sept. 2013)*

- The 120-day wait period should be applied only to those TLDs with a significant amount of certificates issued as identified by the Interisle report. For TLDs where no certificates have been issued, this 120-day period serves no purpose. *Neustar (17 Sept. 2013)*
- The domain name (SLD) certification restriction should be applied only to those names that account for the top 80% of NXD query volume. Limiting the registrations of these names

greatly reduces the probability of the domain name collision. The 80% provides a reasonable standard to determine query requests are from misconfigured systems and not typos. *Neustar (17 Sept. 2013)*

ICANN should immediately provide the CA/Browser Forum a comprehensive list of every TLD that has passed Initial Evaluation and is therefore likely to delegate. A confirmation period can be facilitated whereby the newly contracted applicant communicates its launch schedule to the CA/Browser Forum, which per ICANN rules, must include a 30-day sunrise warning period and 30-day sunrise period; this 60-day period prior will see no delegation of any SLDs and it will be a sufficient timeframe for the CA/Browser Forum to note the confirmation of delegation and plan accordingly. *Top Level Design (17 Sept. 2013)*

120 day period was designed specifically with .corp in mind, which is recognized as a unique case. As such the 120 day period should not be made the base for every TLD which all have significantly fewer internal certificates issued. *Top Level Design (17 Sept. 2013)*

30 Day No Name Activation Period. The mitigation measures for the no name activation period may cause significant volumes of unsolicited mail to be sent, possibly repeatedly. Appendix A procedures should be reviewed at a point in the short term future to allow later delegated TLDs to reduce their volume of communication and thus ease the response burden on repeat recipients of these emails. Notwithstanding this concern, ARI Registry Services generally supports the proposal of the 30 day no name activation period (and associated notification requirements) following the delegation of the new gTLD within the public DNS root to name servers designated to the Registry Operator as described in the proposal. *ARI Registry Services (27 Aug. 2013); Monash University (16 Sept. 2013)*

Reserve strings. It would make sense to specify some strings that will be reserved and never used on the open Internet so we can move forward with confidence that some change in the future won't cause problems. It would also be useful to know the proposed resolution strategy if one or more people are actively using a domain name that is now visible on the Internet. How do you establish who had it first and who has greater rights to use it? *S. Golightly (23 Aug. 2013)*

Disagreement with NTAG and Its Recommendations. Verisign does not support the NTAG letter on Name Collision. As detailed in its Minority Statement to the RySG comments, Verisign agrees with some statements in the NTAG letter but does not agree with the analysis, conclusions and recommendations made. *Verisign Minority Statement to RySG (27 Aug. 2013)*

Adequacy of Risk Measurement

A single two-day snapshot of data across a subset of the root servers annually is insufficient to assess risk; that and an early warning and instrumentation apparatus needs to exist at the root server system to enable all strings to be evaluated and addressed in a sustainable way. SAC045 and other SSAC documents have recommended various aspects of this over the past 4-plus years. Intersecting those measurements with a community developed "risk matrix" is the appropriate manner to measure risks of delegations of each individual string and proceed safely. *Verisign Minority Statement*

to RySG (27 Aug. 2013)

ICANN Role and Responsibility

ICANN must accept responsibility for communicating the potential risks associated with name collisions. This should include a significant outreach campaign to Internet infrastructure and service providers and to enterprises who serve significant numbers of Internet consumers. In addition to forewarning, time and resources must be allotted to enable potentially impacted parties to mitigate issues that may arise. At a bare minimum, the current proposals should provide an official ICANN statement to registries to help explain the issue, something that should have been resolved well before applicants chose which strings to submit and before they paid their \$185K application fees. ICANN is preparing to transfer risk to unknowing end-users, enterprises and (now) new gTLD applicants while sitting on the over \$100 million legal risk fund collected from applicants. *Verisign Minority Statement to RySG (27 Aug. 2013); ISPCP (17 Sept. 2013); USTelecom (17 Sept. 2013); Verizon (17 Sept. 2013); Microsoft-Verisign-Yahoo (17 Sept. 2013)*

The objectives of the outreach program should be: (1) minimize the impact of new gTLD induced failures on the DNS, private and public network infrastructure, and Internet users; (2) make technical-community resources robust enough to respond effectively in the event of a new gTLD induced disruption; and (3) maximize the speed, flexibility and effectiveness of response to any disruptions that do occur. See also comments text for preliminary work plan, draft presentation and overview video. *ISPCP (17 Sept. 2013)*

If implemented, ICANN's proposal would shift the responsibility to ensure the stability and security of the DNS to hundreds of new gTLD applicants after delegation and activation of new gTLDs into the root zone. This undermines ICANN's core mission and conflicts with its Articles of Incorporation, Bylaws, Code of Conduct and its contractual commitments under the Affirmation of Commitments. ICANN is best positioned to mitigate the risks of naming collisions. ICANN, and not the applicants, should bear the financial costs and retain the legal and reputational risks associated with possible naming collisions. ICANN has the funds to address naming collision mitigation. This will also ensure a consistent, coherent and uniform risk mitigation approach. The risk mitigation should be completed prior to delegation of any new gTLDs. *Verisign-PSK & RG (27 Aug. 2013)*

If ICANN mishandles the name collision issues, it will undermine trust in the Internet, subject ICANN to high scrutiny, and fuel those who believe that ICANN's function should be handled by the UN or something similar. *S. Forte (17 Sept. 2013)*

ICANN should develop checklists that can be used by impacted parties to resolve any potential for domain name collisions. ICANN should also establish a help desk staffed with technical personnel that can assist impacted parties in implementing appropriate mitigation measures. ICANN should not institute the help desk as a one-stop solution, but rather use it to direct parties to available tools and resources. Telecom provider and ISP help desks could face complex support calls with little immediate ability to resolve issues. As more consumers, devices and applications leverage non-ISP DNS resolvers, this problem could be compounded. *USTelecom (17 Sept. 2013)*

ICANN's role is to balance risk against innovation and competition. Whatever short term disruption may result to private DNS applications leaking into the public DNS root, they are best addressed by the affected network operators at this time. In the long term, security and stability are best served by addressing improper design assumptions on a distributed basis now, rather than to encourage erosion of ICANN's coordinating function by deferring to uncoordinated activity outside of the ICANN process, and thus limiting consumer choice and competition as well. *Uniregistry (17 Sept. 2013)*

Additional Verisign Study: "New gTLD Security, Stability, Resiliency Update: Exploratory Consumer Impact Analysis"

To augment its March 2013 report, in this study Verisign proposes a novel set of measures that represent actual risks to end users and illustrate their incidence by measuring operational threat vectors that could be used to orchestrate failures and attacks. Verisign presents its candidate quantification in the form of a "Risk Matrix," and illustrates one possible way to interpret its results (August 22, 2013, study text attached to comments) *Verisign-DM (27 Aug. 2013)*

- Verisign finds that there are quantifiable signs that disruptions might occur if the current deployment trajectory is followed while outstanding recommendations remain unimplemented. *Verisign-DM (27 Aug. 2013)*
- Verisign acknowledges that its study and risk matrix is by no means comprehensive, but believes that with systematic and an intellectually honest approach with sufficient consideration of the "public interest," it is possible to develop a sufficient risk matrix upon which systemic risk can be assessed. *Verisign-DM (27 Aug. 2013)*
- These recommendations are not originally Verisign's but are from ICANN's very own advisory committees. Absent the implementation of these recommendations sufficient information cannot exist to make informed decisions about what constitutes risks. Until an agreed upon risk matrix exists and sufficient information to inform that risk matrix is established, there is not "risk" at all but instead great "uncertainty." *Verisign-DM (27 Aug. 2013)*

Neustar Alternative Evaluation Methodology for Assessing Collision Risk

Neustar proposes an alternative, comprehensive risk evaluation methodology based on an analysis of existing information available on four key variables, including: (1) TLD query volume; (2) query source IP address volume; (3) queried second level domain volume; and (4) volume of SSL certificates. Using these four inputs, one can calculate the relative risk for every applied-for TLD and compare that with known information about the many new TLDs launched without incident over the past decade.

Neustar's analysis eliminates the "uncalculated risk" classification in the Interisle report and the need for further research or qualitative analysis. Based on its work, Neustar identified only 3 TLDs (.corp, .home and .mail.) that appear to merit mitigation strategies beyond the approach for all other TLDs. Neustar also offers a mitigation approach that reflects actual risk, is narrowly tailored to the type of risk involved, and in most cases eliminates the need for additional delay. Neustar's paper takes the Interisle report to the next level using additional variables that quantify the "severity of consequences" component of the risk equation and providing a holistic understanding of risk. *Neustar (17 Sept. 2013)*

JAS/simMachines Study

JAS/simMachines submitted a study which analyzes NXD responses issued from the Root Nameservers in response to queries for names within proposed new gTLDs. The analysis focuses on SLD strings in these queries and where available the IP addresses making the queries to the Root. It provides statistics concerning the entire population of queries resulting in NXD responses and details for each of the proposed new TLDs. The data is based on the DITL data collected by the DNS-OARC. The study is technical for use by those knowledgeable in data and statistical analysis. It is not meant to draw conclusions in the issue being discussed but to inform the debate by providing statistical analysis for review. *JAS Global Advisors & simMachines (17 Sept. 2013)*

DNS Search List Processing

A paper has been submitted (“On DNS Search List Processing: Perhaps the Most Misunderstood Staple of DNS Resolution”) for the consideration of the community to help clarify the cause of many of the name collisions observed and to clear up the misapprehension that some are “squatting” on names or using them as undelegated TLDs. *W. Kumari & D. McPherson (17 Sept. 2013)*

Qualitative Impact Assessments

A note has been submitted which demonstrates the need to undertake qualitative impact assessments for applied-for strings and the inadequacy of the query volume-based analysis used as a classification scheme (assesses .website, .coffee and .club). Strings must each receive individual study in order to classify the level of risk that is posed by delegation. *Verisign-EO (17 Sept. 2013)*

Verisign has chosen to single out .club but it represents a fraction of a percent of the query volume of the high risk names. Further, Verisign makes claims based on data only available to Verisign and not the DITL data provided by Interisle, an independent third party. Nothing in Verisign’s comment changes the fact that .Club has clearly demonstrated that it has the ability to mitigate risk to well within the low risk benchmarks provided by ICANN by blocking the 50 most queried SLDs, which would sufficiently mitigate any potential risk. *.Club Domains (18 Sept. 2013)*

Google Analysis of Recursive Name Server Data

Google conducted an analysis based on Google Public DNS which serves queries directly from end users. In general, as outlined in detail in the Google comments submitted to ICANN, the analysis showed that queries for nonexistent domains represent a much smaller fraction of traffic when considering user queries to recursive servers than in the query stream visible at the root servers (with the exception of MAIL and DEV) *Google (18 Sept. 2013)*

eco Study

- A study of actual request numbers and the relative impact of new strings deployed as gTLD names should in eco’s view not be performed at the root servers, but should consider request strings as close to the source as possible. Analysis at source level might provide some insight on the source distribution of requests for formerly unused names as well as the possible effects of mitigation techniques to reduce the number of requests. *eco (17 Sept. 2013)*
- Eco decided to verify the findings of the Interisle study through independent research within

its member base. It can be demonstrated that usage of proposed new gTLD strings is strongly related both to the geographic location as well as vendor dominance in the individual market, making an assessment of the global impact of individual name delegation close to impossible; even if data could be retrieved from all root servers it will with a high probability yield differing results based on the geographical location of the individual server. *eco (17 Sept. 2013)*

- The results presented by the Interisle study are only a snapshot and not representative for the global market--variances of 50% for the most popular names and over 90% for major proposed new names show the volatility of these numbers. Numbers in any such study should not be the decisive factor for proceeding with or delaying the introduction of new gTLDs to the root--it remains a political decision. *eco (17 Sept. 2013)*

Proposed Methodology to Determine Relative Safety of TLD Delegations

Andrew Sullivan, O. Kolkman and W. Kumari offer for consideration an "Internet Draft" which sketches a methodology that could be helpful to make some determinations of the relative safety of delegating different TLDs. Given that delegation of certain strings as TLDs will cause stability and security issues if such strings have been used in private environments prior to their delegation, the Internet Draft recommends that test delegations be used to enable empirical research on the extent of the possible disruption prior to actual allocation and delegation of any label in the root zone. (See Internet Draft text at <https://datatracker.ietf.org/doc/draft-kolkman-root-test-delegation/>.) A. Sullivan et al. (20 Sept. 2013)

Benefits of the New gTLD Program

New TLDs like .secure will make the Internet better, safer and more trustworthy. This is the bigger picture that those mired in details can lose sight of in the latest name collision debate. *Artemis (18 Sept. 2013)*

Other Issues

Requests for Extension of Time

ANA renews its request for an extension of time of the public comment period to November 1 for Initial comments and November 22 for reply comments. ANA and its member companies need adequate time to produce the necessary data regarding whether DNS Clash issues are present within their respective networks. ICANN needs to recognize the complexity of these matters and the need for additional analysis in order to avoid very significant harm. *ANA (27 Aug. 2013); ANA (17 Sept. 2013)*

The 21-day comment period is insufficient time to research DNS clash issues. We support the request of ANA for an extension of time and ask ICANN to extend time for initial comments to November 1 with replies due on November 22. *Heinz (15 Aug. 2013); AIA (27 Aug. 2013)*

Verizon requests an extension of time of at least an additional 60 or 90 days so that Verizon and many other stakeholders can meaningfully participate in this comment filing regarding the proposal to mitigate domain name collision issues stemming from the introduction of new gTLDs into the root.

Verizon (23 Aug. 2013)

IPO requests that the period for filing public comments on the New gTLD Collision Risk Mitigation Proposal be extended until November 1, 2013. This additional time will allow corporations and others potentially affected by name collision risks to fully evaluate any potential harm and provide informed comments to ICANN. *IPO (27 Aug. 2013)*

IPC supports the requests submitted by various parties for an extension of time to address the important security and stability matters raised by the name collision issue and is disappointed that ICANN has not responded to or addressed these requests. *IPC (17 Sept. 2013)*

Align Timing of Board Response to GAC SSR Advice and the Collision Proposal

The GAC Advice calls for an ICANN Board written briefing regarding Internal Names Certificates and Dotless Domains. The GAC Advice *implicitly* asks the Board for written briefing on name collision risks. As the GAC requested, the Board should publish the requested written briefing while the community still has time comment on the collision proposal. ICANN should follow GAC Advice to publish any and all analysis the community might rely upon when evaluating the collision proposal and any other SSR issues. NetChoice supports this GAC Advice and requests publication of any staff and SSAC analysis and recommendations that might inform assessment of risks and the adequacy of mitigation--before the collision proposal comment period ends. It makes sense to align timing of the Board response to GAC SSR advice and the collision proposal. Otherwise, the community will rightly call for yet another public comment period to assess the Board's response to the GAC advice. If the Board's briefing and document publication are not available before the 17 September comment period terminates, then ICANN should extend the comment period accordingly. *NetChoice (6 Sept. 2013); BC (17 Sept. 2013)*

Section IV: Analysis of Comments

General Disclaimer: This section is intended to provide an analysis and evaluation of the comments received along with explanations regarding the basis for any recommendations provided within the analysis.

ICANN thanks the community for their participation in this public comment forum. This public comment summary will be submitted to the Board New gTLD Program Committee for its consideration. ICANN has carefully considered all the comments and will take them into account in the development of a plan for moving forward with addressing this issue, which will include additional analysis of these comments and their effect on mitigation plans.