Wildcards SG Report

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1-1. Basis of the Study Group

- SSAC advisory (10 June, 2009)♪
  - Redirection and synthesizing of DNS responses by TLDs poses a clear and significant danger to the security and stability of the DNS♪
- ICANN Board Request (June, 2009 Sydney)♪
  - Provide report on possible mechanisms to prohibit redire ction and synthesis at the top level♪
- ccNSO council (October, 2009)♪
  - Study group established to provide an overview of the iss ues associated with redirection at the ccTLD level♪

1-2. Scope of the SG

- Summarise the issues associated with “redirection” as identifie d by SSAC in its reports
- Liaise with SSAC to seek further clarification and input if consid ered needed and appropriate by the group
- Liaise with the Stability, Security and Resilience department of I CANN to seek further clarification and input if considered need ed and appropriate by the group
- Liaise with the ccTLDs who are currently using “redirection” to s olicit their views and perspective on “redirection”
- Prepare a session at a ccNSO meeting, either at the ICANN mee ting in Nairobi or Brussels and discuss the results of the study t o the ccTLD community;
- Provide a final report of its findings to the ccNSO Council.

1-3. Activities of the SG

- Corresponded with ccTLDs to collect their reasons for doing so.♪
- Summarized independent findings♪
- Compared SSAC and ICANN staff harms lists and compiled one list for analysis♪
- Provided a short description of each harm♪
- Independent review of the types of redirection♪
- Assessed redirection results, resolution time, and I ANA database on registry♪
- Mapped the cc's according to the 'harms' list♪

2-1. Wildcarding Defined

- DNS redirection performed by the zone administrator or authoritative name service operator for all queried names that are not published in the zone file.
- RFC 1034 provides a definition of wildcards, and provides an overview of how wildcards work in DNS.♪

2-2. Summary of Harms List

- Architectural violation
- Impact on Internet protocols
- Single point of failure
- Reserved and blocked domains appear alive
- Fragmentation of the DNS ecosystem
- Privacy concerns
- Lack of choice for Internet users
- Poor user experience
- Use of privileged position
- Impact on IDN TLDs
- Erosion of trust relationships
- New opportunities for attacks

3. List of cc's Wildcarding

- Initial List of cc's Wildcarding (11)♪
  - **.CG, .KR, .NU, .PH, .PW, .RW, .ST, .TK, .VG, .VN, .WS**
- **Several stopped engaging in wildcarding**
- **Final list of cc's (7)**
  - **.KR , PH, .PW, .ST, .TK, .VN, .WS**
- **Cc's not on the list identified as "wildcarding"**
  - **This specific kind of synthesis involved a "*" record in a zone and responds to all non-existent labels with the contents of that rec ord**
- **A wide variety of behaviors that could be exhibited with domain syn thesis, but no viable deterministic way of identifying them all**

3-1. Three Methods for Identifying

*.TLD♪	<randomstring>.TLD♪	<xn—randomstring>.<TLD>♪
♪	♪	♪
.CN ♪	.KR ♪	.CN ♪
.KR ♪	.PH ♪	.KR ♪
.PH ♪	.PW ♪	.MP ♪
.PW ♪	.ST ♪	.PH ♪
.ST ♪	.TK ♪	.PW ♪
.TK ♪	.VN ♪	.ST ♪
.TW ♪	.WS♪	.TK ♪
.VN ♪	(7)♪	.TW ♪
.WS ♪		.VN ♪
(9)♪		.WS ♪
		(10)♪

3-2. Reasons for Wildcarding: .vn

- Status
  - Currently wildcarding
  - Developed the default web page for non-existent .vn domain nam es
- Reasons for Wildcarding♪
  - Assist internet users by providing them information on the domai n registration process
  - Helps users access regulations on Internet content and use.
- Position on Wildcarding
  - Anticipates that this method will help them better grow and man age the Internet in the near and mid-term.
  - Have chosen the current strategy as the best balance for the time being♪

Reasons for Wildcarding: .ph

- Status♪
  - .ph has been wildcarding for 8 years♪
  - 1.5M unique visitors monthly on the wildcard site, 7M pageview s (one of top 10 most trafficked sites in the Philippines)♪
- Reason for wildcarding♪
  - providing service to the user♪
- Position on wildcarding♪
  - wildcarding is a tremendous resource♪
  - providing information about the status of the domain is more us eful for the domain registrant♪
  - wildcarding provides interesting statistics on browser usage, fo r example♪
  - harms of wildcarding minimal: ♪
    - the response time is very fast♪
    - if a protocol were to be written that "broke" because of wildcarding , it would be simple enough for all gTLDs and ccTLDS (that choose to wildcard) to install a handler (on the wildcard server) for each pr otocol.♪

Reasons for Wildcarding: .nu

- Status♪
  - no longer engages in wildcarding♪
- Reason for wildcarding♪
  - considered acceptable by technical authorities ♪
  - IETF RFC 4592 which updated the definition of the wildcard pro tocol described in RFC 1034 stated that the document “avoids specifying rules for DNS implementations regarding wildcards”♪
- Position on wildcarding♪
  - the IETF RFC 1034 and the RSSAC’s report in 2009, "Harms an d Concerns Posed by NXDOMAIN Substitution" presents two co nflicting sets of Internet standards regarding wildcarding and p uts the TLD managers and operators in a potentially untenable conundrum♪
  - the IETF and the RSSAC should reach an understanding about who is responsible for which standards on the Internet, and for the IETF to make a definitive statement on the matter.♪

Reasons for Wildcarding: .kr

- Status♪
  - redirecting queries only to ensure success of the more than 50 %(Feb., 2010) of the IE6 inquires of second-level IDNs♪
  - no wildcarding: all other queries result in the normal 'page not found' response ♪
- Reasons for redirection♪
  - to assist IE6 users correctly resolve IDN.kr queries♪
  - more that 50% users in .kr using IE6 (Feb. 2010)♪
  - only redirects to check for IDN.kr ♪
- Position on wildcarding♪
  - does not believe in wildcarding for any other purpose♪
  - trying to find acceptable solution for the IE6 and IDN issue, and will stop redirecting when the issues are resolved♪

3-3. Anecdotal List of Harms

.cc♪	Country♪	Response♪
kr♪	Korea♪	“Page not found” in Korean♪
ph♪	Philippines♪	dotPH Page stating that requested (non-existent) do main is availabloe♪
pw♪	Palau♪	A .pw page promoting the use of .pw services♪
st♪	Sao Tome♪	Nic.st landing page indicating requested (non-existen t domain name) may be available♪
tk♪	Tokelau♪	Page contains several links to unrelated websites (ext ernal advertisements). No reference to registry.♪
vn♪	Viet Nam♪	Page referring user to info.vn, a portal site providing n ews, legal issues relating to use of .vn, and indicating that the requested (non-existent) domain name may be available.♪
ws♪	Samoa♪	Global Domains International Inc. page contains a 4 minute video promoting the use of .ws and a method for earning income by encouraging others to acquire . ws names.♪

3-4. Mapping exercise

- Applies to all cc's involved in wildcarding♪
  - Architectural violation♪
  - Impact on Internet protocols♪
  - Single point of failure♪
  - Fragmentation of the DNS ecosystem♪
  - Lack of choice for Internet users♪
  - Erosion of trust relationships♪
  - New opportunities for attacks♪
- Dependent on specific situations♪
  - Poor user experience♪
  - Impact on IDN TLDs♪
- Applies to certain cc's♪
  - Privacy concerns♪
  - Use of privileged position♪

4-1. Recommendation 1: Dialogue

- Full and frank dialogue on the use of redirection by ccTLDs should be fostered.♪
- This dialogue, however, will only succeed if judg ement on reasons for use is suspended.♪

4-2. Recommendation 2: Clear Identification

- A number of other ccTLDs engage in redirection of sorts even though the behaviours are not captured by RFC 1034. ♪
- Recommend that the ccNSO advise ICANN that, prior to taking further steps, ICANN and the broader community consider either more clearly delineating which behaviours it is targeting or develop systemic methods to identify (cc)TLDs who are engaged in synthesis.♪

4-3. Recommendation 3: Differentiate Harms

- Different harms were exhibited by different ccTLD's depending on the manner in which the registry use redirection. ♪
- No judgement yet on the desirability of each.♪
- Recommend that the council consider determining which harms or behaviours are less desirable than others. ♪

Questions?