JIG Initial Report on Universal Acceptance of IDN TLDs

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This report is intended to be a document to solicit input from the community. The document is a preliminary stocktaking of policy and other considerations as well as possible actions to taken by ICANN and the ICANN community to address the issue of Universal Acceptance of IDN TLDs in support of the implementation of IDN gTLDs and IDN ccTLDs.

The JIG (Joint ccNSO-GNSO IDN Working Group) was created to discuss issues of common interest between the ccNSO and the GNSO on IDNs (Internationalized Domain Names), especially IDN TLDs. The JIG has identified 3 issues of common interest to date:
1. Single Character IDN TLDs
2. IDN TLD Variants
3. Universal Acceptance of IDN TLDs

This report is specific to issue 3. Universal Acceptance of IDN TLDs.

I. Background & Related Works

The issue of the Universal Acceptance of TLDs is not new. The introduction of new gTLDs, especially those that are longer than 3 characters exposed this Universal Acceptance issue in the 2000 experimental expansion round, and was continued to be felt through the 2004 sTLD extension round. The introduction of IDN ccTLDs through the IDN ccTLD fast track in 2010 further exposed the issue and also made this into an issue of common interest between ccTLDs and gTLDs.

In August 2003, during the public comment forum for consideration of the opening of the sTLD extension round, the SSAC (Security and Stability Advisory Committee) submitted a report on "Support Of New Top-Level Domains By Internet Infrastructure Operators And Application Providers" (http://forum.icann.org/mtg-cmts/stld-rfp-comments/general/doc00004.doc), the report discussed compatibility problems found with the installed base of software used by Internet infrastructure operators about the introduction of new TLDs, and made 6 recommendations:

1. ICANN should develop an advisory regarding support for new TLDs for display on their website, and the GNSO constituencies should publicise this advisory through their membership and customer bases.

2. ICANN should recommend that the IAB consider issuing an informational RFC advising of the issue, and publicising this through the IETF technical community.

3. Internet infrastructure providers that have their own customised software for Internet service provision should test the capability of the software to support new TLDs, and correct problems quickly where they are found.

4. Internet software application developers should be encouraged to review their software for support of new TLDs. Where problems are found, application developers should upgrade their software, and provide these updates to their user base.

5. A central repository of known commonly used software that has compatibility problems (e.g., DNS resolver software used by common operating systems) with new TLDs, and instructions for how to upgrade the software should be created. This repository would facilitate Internet infrastructure providers and software application developers to provide necessary software updates to users of the Internet to resolve known compatibility issues.

6. ICANN should examine compatibility problems with the introduction of new TLDs in 2001 as a topic in its Proof of Concept study.

In response to 1, a TLD Acceptance forum was created by ICANN in October 2004 (http://forum.icann.org/lists/tld-acceptance/) for discussion on the subject and a website was launched in March 2006 for "Universal Acceptance of All Top-Level Domains" (http://www.icann.org/en/topics/TLD-acceptance/). In support of 3 and 4, ICANN also released a TLD Verification Tool in December 2006, which was further updated in March 2007 (http://www.icann.org/en/announcements/announcement-2-22mar07.htm).

In response to 2, an informational RFC was published in February 2004 (RFC3696: Application Techniques for Checking and Transformation of Names -- http://www.ietf.org/rfc/rfc3696).

In response to 6, the subject was included in the Comprehensive Evaluation of the Introduction of the .aero, .biz, .coop, .info, .museum, .name and .pro gTLDs (http://www.icann.org/en/announcements/announcement-31aug04.htm) which was published in August 2004, which recommended "*the designation of a member of ICANN Staff to develop an action plan for next steps. These steps might include (i) assessing the current dimensions of the problem; (ii) monitoring its improvement; and (iii) publicizing any shortcomings.*"

In 2006, in the drive to develop better user experience of domain utilization on the browser for grouping, anticipating, analysing and sorting domain names and cookies, an initiative was started (https://bugzilla.mozilla.org/show_bug.cgi?id=342314) in the Mozilla discussions, which eventually culminated into the Public Suffix List project (http://publicsuffix.org/). The list is developing into an industry reference with Firefox, Google Chrome as well as Opera implementing the list for various functionalities, along with other broadly utilized libraries and toolkits (http://publicsuffix.org/learn/). Another well referenced listing can be found at the List of Internet top-level domains entry at Wikipedia (http://en.wikipedia.org/wiki/List_of_Internet_top-level_domains), since 2004.

Another initiative, also developed from Mozilla discussions and relevant to IDN TLDs is the Mozilla IDN-Enabled TLD list project (http://www.mozilla.org/projects/security/tld-idn-policy-list.html) initiated in March 2005 (https://bugzilla.mozilla.org/show_bug.cgi?id=286534) as a response to concerns of homographic attacks such as phishing names utilizing IDNs.

Besides the development of IDN standards (http://datatracker.ietf.org/wg/idnabis/charter/), policies and guidelines (http://www.icann.org/en/topics/idn/implementation-guidelines.htm), the development of Internationalized Resource Identifiers (IRI: http://www.w3.org/International/articles/idn-and-iri/) as

well as Internationalized Email Addresses (EAI: http://datatracker.ietf.org/wg/eai/charter/) at W3C and IETF respectively also.

In the discussion of the Universal Acceptance of TLDs, another related topic is that of a Unique Authoritative Root. On this subject, the IAB published an informational RFC on IAB Technical Comment on the Unique DNS Root (RFC 2826: http://www.ietf.org/rfc/rfc2826) to assert the importance of a single unique root:

> *To remain a global network, the Internet requires the existence of a globally unique public name space. The DNS name space is a hierarchical name space derived from a single, globally unique root. This is a technical constraint inherent in the design of the DNS. Therefore it is not technically feasible for there to be more than one root in the public DNS. That one root must be supported by a set of coordinated root servers administered by a unique naming authority.*

To further assert its commitment in a Unique Authoritative Root, an Internet Coordination Policy was developed at ICANN (ICP3: A Unique, Authoritative Root for the DNS -- http://www.icann.org/en/icp/icp-3.htm)

Finally during the discussions for the other 2 issues of common interest identified by the JIG, and from public comments received for the Reports on Single Character IDN TLDs, it is also clear that the issue of Universal Acceptance of IDN TLDs is one which is critical for the successful adoption of IDN ccTLDs and IDN gTLDs.

II. ICANN Policy and Coordination Considerations on the Universal Acceptance of IDN TLDs

In considering the scope of work at the JIG, the group is cognizant of work that is currently done on the topic, including the Universal Acceptance of All TLDs (http://www.icann.org/en/topics/TLD-acceptance/) and those from the ICANN community participating in the maintenance of the Public Suffix List (http://publicsuffix.org), and understands that the charter of this group is focused on aspects relevant to issues of common interest between the ccNSO and the GNSO. Given the nature of the issue of Universal Acceptance of TLDs, nevertheless, the group has included both policy aspects as well as coordination roles that could be led by ICANN and the ICANN community in its stocktaking and recommendations on this subject.

More specifically, it is noted that while policies developed at and enforced by ICANN may not directly solve the issue of Universal Acceptance, the JIG recognized certain areas of influence by ICANN along with supportive policies at ICANN can contribute to the promotion of the goal of the Universal Acceptance of IDN TLDs by Internet applications, devices, infrastructure and other hardware and software systems.

The following are policy and coordination considerations identified:
1) Are there policy aspects to be considered and/or policies to be implemented at ICANN?
   a) Budgeting policies?
   b) Registry policies? IDN ccTLDs and/vs. IDN gTLDs?
2) Which organizations should ICANN work with on the issue and how should ICANN identify such organizations?
   a) Industry, regional and related organizations

        i)   Industry organizations, e.g. IDN SDC, etc.
        ii)   Regional organizations, e.g. RIRs, ISP associations, etc.
        iii) IT related organizations, e.g. WITSA (http://www.witsa.org), etc.
   b) Emerging industry standards
        i)   Public Suffix List currently maintained at Mozilla
        ii)   Wikipedia TLD List

3) Which areas should ICANN focus its efforts and exert its influence on?
   a) Browsers and DNS Lookup tools and components
   b) Network infrastructure, hosting and email providers
   c) Network management and security tools
   d) Applications and databases (where domains, email addresses and/or URLs represents a data object maintained, e.g. user profiles, contact information, search engines, etc.)
   e) Registries, Registrars and RIR systems

4) What types of work should ICANN and the ICANN community place its efforts and priorities on?
   a) Participation in, support and/or oversight of emerging industry standards
   b) Development and promotion of tools and educational materials
   c) Document and maintain a set of "checklist" or guidelines for new IDN TLDs
   d) Organizing and supporting relevant events (along with speaking engagements)
   e) Support for IDN TLDs in relevant local initiatives

[THE ABOVE LIST IS A FIRST DRAFT FOR DISCUSSION SO FAR.]

III. Preliminary Viewpoints & Possible Approaches

[THE FOLLOWING SESSION IS FOR DISCUSSION PURPOSES ONLY]

1. Are there policy aspects to be considered and/or policies to be implemented at ICANN?

Two items were identified: Budget allocation; and, Requirement that IDN TLDs accept IDN TLDs at least within their own systems. Both of which are consistent with the GNSO recommendations and subsequent statements in the sense that it is understood that "internationalised domain name (IDN) top-level domains will give end users more choice about the nature of their presence on the Internet. In addition, users will be able to use domain names in their language of choice." (http://gnso.icann.org/issues/new-gtlds/pdp-dec05-fr-parta-08aug07.htm) The importance of the usability of IDN is also explicitly acknowledged in the AOC: "5. DOC recognizes the importance of global Internet users being able to use the Internet in their local languages and character sets." (http://www.icann.org/en/announcements/announcement-30sep09-en.htm).

a) Budgeting policies?
[Allocation of budget specifically for the promotion of the Universal Acceptance of IDN TLDs]

b) Registry policies? IDN ccTLDs and/vs. IDN gTLDs?
[Require that all IDN TLDs commit to promoting Universal Acceptance of IDN TLDs within their systems]

2. Which organizations should ICANN work with on the issue and how should ICANN identify such organizations?
a) Industry, regional and related organizations
i) Industry organizations, e.g. IDN SDC, etc.
ii) Regional organizations, e.g. RIRs, ISP associations, etc.
iii) IT related organizations, e.g. WITSA (http://www.witsa.org), etc.

[How to identify the organizations and establish working relationship?]

b) Emerging industry standards
i) Public Suffix List currently maintained at Mozilla
ii) Wikipedia TLD List

[How to identify emerging lists and establish working relationship?]

3. Which areas should ICANN focus its efforts and exert its influence on?
a) Browsers and DNS Lookup tools and components
b) Network infrastructure, hosting and email providers
c) Network management and security tools
d) Applications and databases (where domains, email addresses and/or URLs represents a data object maintained, e.g. user profiles, contact information, search engines, etc.)
e) Registries, Registrars and RIR systems

[How to prioritize? What else should be included?]

4. What types of work should ICANN and the ICANN community place its efforts and priorities on?
a) Participation in, support and/or oversight of emerging industry standards
[Ensuring the integrity of the single unique authoritative root for the Internet, and exploring appropriateness of playing an oversight role in TLDs included]

b) Development and promotion of tools and educational materials
Expand, update and maintain the TLD Verification code
[Develop educational materials for developers and infrastructure providers, etc.]

c) Document and maintain a set of "checklist" or guidelines for new IDN TLDs
[How to coordinate and maintain work?]

d) Organizing and supporting relevant events (along with speaking engagements)

e) Support for IDN TLDs in relevant local initiatives
[How to identify events and allocate budget?]