Internationalized Domain Names
LACTLD Meeting

Salvador Bahia, Brazil
27-28 May 2008
Agenda

- Definitions
- How does IDNs work
- Considerations at implementation time
- What work still needs to be done?
- Summary
IDN Definitions

• Internationalized domain names are:
  – Names with characters other than the standard ASCII
    (a,b,…z), (0,1,…9), (-)

• IDNs are about localized solutions
  – But need to be ‘internationalized’ due to the global
    nature of the Internet

• IDNs have existed as second level since 2003
  – under web protocol standards
  – email protocol standards are underway (IETF)

• We also need IDN TLDs
  – 北京.中国
  – [xn--1lq90i.xn--fiQs8S]
IDNA – Protocol Functionality

- Domain Name Resolution Process:

  1. User types in 실험.test in for example a browser
  2. 실험. test gets converted to Unicode
  3. IDNA conversion → xn--9n2bp8q.test

IDNA is a client based protocol:
IDNs only work if the application software works with IDNs

- standard implementation is important to ensure secure global user experience
- today browser developers have implemented IDNA differently
What to consider when implementing IDNs under existing TLDs

• Which characters should be offered
  – Formal language, survey users, legal matters…

• Launch procedure, registration policy
  – IP rights, existing registration rights, fcfs?
  – Variant table, blocking registrations, pre-rights or packaged registrations

• IDN Guidelines and protocol adherence

• Registrar and user education & assistance
  – Web only based on application uptake, no email yet
What still needs to be done?

- IDN wiki – test facility
- IDN TLD processes at ICANN and IANA
- IDNA protocol revision at IETF
- IDN Guidelines
<table>
<thead>
<tr>
<th>Script</th>
<th>Language</th>
<th>SLD.TLD U-labels</th>
<th>SLD A-label</th>
<th>TLD A-label</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabic</td>
<td>Arabic</td>
<td>xn--mgbh0fb</td>
<td>xn--kgbechtv</td>
<td></td>
</tr>
<tr>
<td>Arabic</td>
<td>Persian</td>
<td>xn--mgbh0fb</td>
<td>xn--hbgk6aj7f3bba</td>
<td></td>
</tr>
<tr>
<td>Chinese, simplified</td>
<td>Chinese</td>
<td>xn--fso0oa</td>
<td>xn--0ymn56d</td>
<td></td>
</tr>
<tr>
<td>Chinese, traditional</td>
<td>Chinese</td>
<td>xn--fso0oa</td>
<td>xn--g6w251d</td>
<td></td>
</tr>
<tr>
<td>Cyrillic</td>
<td>Russian</td>
<td>xn--e1afmkfd</td>
<td>xn--t06a3j4f</td>
<td></td>
</tr>
<tr>
<td>Devanagari</td>
<td>Hindi</td>
<td>xn--p1b6c4b4b3a</td>
<td>xn--n1b5b3a0aj6g</td>
<td></td>
</tr>
<tr>
<td>Greek</td>
<td>Greek</td>
<td>xn--hsa6bheg2az3a</td>
<td>xn--jxalpdlp</td>
<td></td>
</tr>
<tr>
<td>Hangul</td>
<td>Korean</td>
<td>xn--9n2b8q</td>
<td>xn--n4b11yf5a</td>
<td></td>
</tr>
<tr>
<td>Hebrew</td>
<td>Yiddish</td>
<td>xn--fbdk5d8ap9b8a &amp;d</td>
<td>xn--deboad</td>
<td></td>
</tr>
<tr>
<td>Kanji Hirigana, and Katakana</td>
<td>Japanese</td>
<td>xn--r8j6c4g</td>
<td>xn--zezkah</td>
<td></td>
</tr>
<tr>
<td>Tamil</td>
<td>Tamil</td>
<td>xn--zkc6cc5bi7f6c</td>
<td>xn--hlcjf6aya9ese7a</td>
<td></td>
</tr>
</tbody>
</table>
Status of the .test wiki

• Purpose of the IDNwiki:
  – Introduce users to IDN TLDs
  – Applications test environment for usability
  – Registry information about user problems
• Conduct an experiment with IDN TLDs
  – not a pre-requisite for production in root zone
  – no registrations are available
• Functions as a “normal wiki”, user access
Status of the .test wiki

• Adding new “features”
  – New languages:
    • Amharic (4\textsuperscript{th} level under idn.icann.org)
    • Hebrew (2\textsuperscript{nd} level under existing TLD)
    • coming: Thai (4\textsuperscript{th} level) and Urdu (4\textsuperscript{th} level)
  – process available for others languages
  – DNSSEC signing the zones
  – exploring IDN email addition
    • experimental status of technical standard
IDNwiki Access

- IDNwiki can be accessed at:
  - http://idn.icann.org
  - Thanks to users, moderators, and wiki staff,
    - includes useful information about IDN
    - in all available languages
- Please:
  - Visit the site
  - Try IDNs
  - Report on results
  - Use information
  - Add information
Status of the IDNA revision

• Proposed revision at IETF
  – from extremely hard working participants
  – RFC4690 and associated internet drafts suggesting revisions and solutions to some problems

• Unicode version independent
  – Three categories by procedure not table
    • Protocol-valid (some w/ contextual rules)
    • Disallowed
    • Unassigned

• Attempting to plan for educational sessions on the difference between protocol versions
Status of IDNA revision

Basis in RFC4690, describing issues

• draft-klensin-idnabis-issues-07.txt
  – overall rationale and explanation
• draft-klensin-idnabis-protocol-04.txt
  – registration vs. resolution
• draft-faltstrom-idnabis-tables-05.txt
  – category operations procedure
  – not table, but holds Unicode-5.0 result for reference
• draft-alvestrand-idna-bidi-04.txt
  – to allow combining marks at end of string, by test
IANA management of IDN TLDs

- Process for insertion of IDN TLDs in root
  - exists for test domains only (IDN .test)
    - Developed w/ RSSAC & SSAC recommendations
    - need review, revision, and implementation
    - includes emergency removal procedure
      - for test IDN TLDs only
  - Initial review scheduled by IANA staff
    - Before 30 June 2008
    - Result to be published publicly
Country-code IDN TLDs – Fast Track
- Deploy non-contentious ccTLD equivalents quickly
- Where demand/readiness exists
- Don’t wait for full ccNSO PDP
- Tomorrow, half day session on policy issues and methodology

Country-code IDN TLDs – Long Term
- Full policy that caters for all
- Follows the full ccNSO Policy Development Process
- Issues paper scheduled for publication by ICANN Paris meeting (Jun08)

New Generic TLDs
- New ongoing policy for new gTLDs
- Includes internationalized domains
- Focus on non-ASCII squatting & confusingly similarity solutions
If I have registered [idn.tld] then will I also be the registrant of [idn.idn-tld]?

- Policy considerations
  - related to IP rights vs. competition options
  - difficult to do meaningful translation of existing strings

- GNSO Policy:
  - No precedence for existing registries
  - Objection rights exists for confusingly similarity

- ccTLD operators and GAC are considering needs for IDN ccTLD aliasing solution

- If requested then technical solution is needed
IDN Guidelines

• ICANN IDN Guidelines
  – Need revision to follow IDNA revision
  – Developed by ccTLD and gTLD registry operators

• Local community guidelines, for example:
  – Informal ‘Arabic script’ meetings in Dubai
  – Language experts participate in IDNA review
    • Review of characters that are valid per the protocol
  – In addition to protocol, a need for:
    • Local registration policies and variant tables
Summary – everything is under-way

- Protocol – general validity of character and in some extend string validity
- IDN Guidelines – implementation of protocol, and global rules for scripts and languages
- Local Directions – local rules for scripts and languages
- Registry testing and implementations
- Application testing and implementations
- Allocation and Delegation Procedures
- Apps Developer, Registry, Registrar, Reseller, Registrant, User:

Outreach, Education, Information
Thank You

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http://icann.org/topics/idn