Internationalized Domain Names

ICANN Status Report for APTLD Meeting
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Why Internationalization?

- DNS handling US-ASCII character set
  - a natural choice at the time
  - no expectation to current commercial value
  - Unicode was not available

- Domain names restricted to LDH, natural expansion for global usability
  - allow users to use domain names in local scripts
  - no need to learn US-ASCII
  - SLD IDN registration available across many TLDs
  - some applications have implemented IDNA
  - still need internationalization of TLD
IDNA – Protocol Functionality

- Example shown is Domain Name Resolution Process:

1. User types in 실례.test in for example browser
2. 실례.test gets converted to code point
3. Case-folding and normalization
4. Stringprep filter
5. Punycode conversion → xn--9n2bp8q.test
Why are we not there yet?

• Initial registration availability resulted in
  – visual confusion issues
  – damaging uniqueness principle of the DNS

• Different implementation in applications
  – security issues with IDNA2003
  – confusion of how to implement IDNA2003
  – different user experience per application
Why are we not there yet?

- display of xn--mgbh0fb instead of مثال
- display of xn--mgb0dgl27d instead of ايكوم
- display of xn--1lqs71d instead of 東京
- display of xn--1lq90i instead of 北京

- more user confusion and fraud opportunity
  - Registration of mïcrosoft.<tld> ?
- Protocol implementation experience and review showed other problems…
What is being done to fix it?

• Primarily the following two projects:
  
  – IDNA Protocol Review and Revision (IETF)
    • definition of valid IDN labels
    • inclusion based character model
    • less character mapping not retained in display
    • fixing R-to-L error in Stringprep
    • no Unicode version dependency
  
  – IDN Guidelines Revision (ICANN)
    • no mixing of scripts within labels
    • TLD dependencies
What else? – Recent news!

- Evaluation of IDN TLD capability:
  - Laboratory test of DNS resolver and root-server software (Autonomica, ICANN)
    - February report showed no negative effect in laboratory environment
  - Procedure for inserting and managing top-level labels;
  - Emergency removal procedure;
  - Tolerance measure for activating emergency removal:
    - Public comment period (2-22 June 2007)
    - Consideration by ICANN Board in San Juan (June 2007)
Looking forward

• Replication of laboratory test in live setting
  • to restate the laboratory result
  • need root server and community participation
  • plan under development (draft posting mid June07)

• Evaluation facility for end-users and application developers
  • ICANN has no mandate over application development
  • plan under development (draft posting mid June07)
Looking forward

• IDN Repository
  – added functionality for search and display (by San Juan, June07)

• UI-Apps-DNS full description (Geoff Huston, APNIC)
  – to illustrate and identify potential issues

• IDN Security Issues Study (SSAC)
  – More from Ram Mohan, Afilias, later today

• IDN Policy initiatives
  – GAC, ccNSO, ccTLDs, GNSO, APTLD – more in today’s program
Thank You

http://www.icann.org/topics/idn