

# Internationalized Domain Names

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APTLD Meeting  
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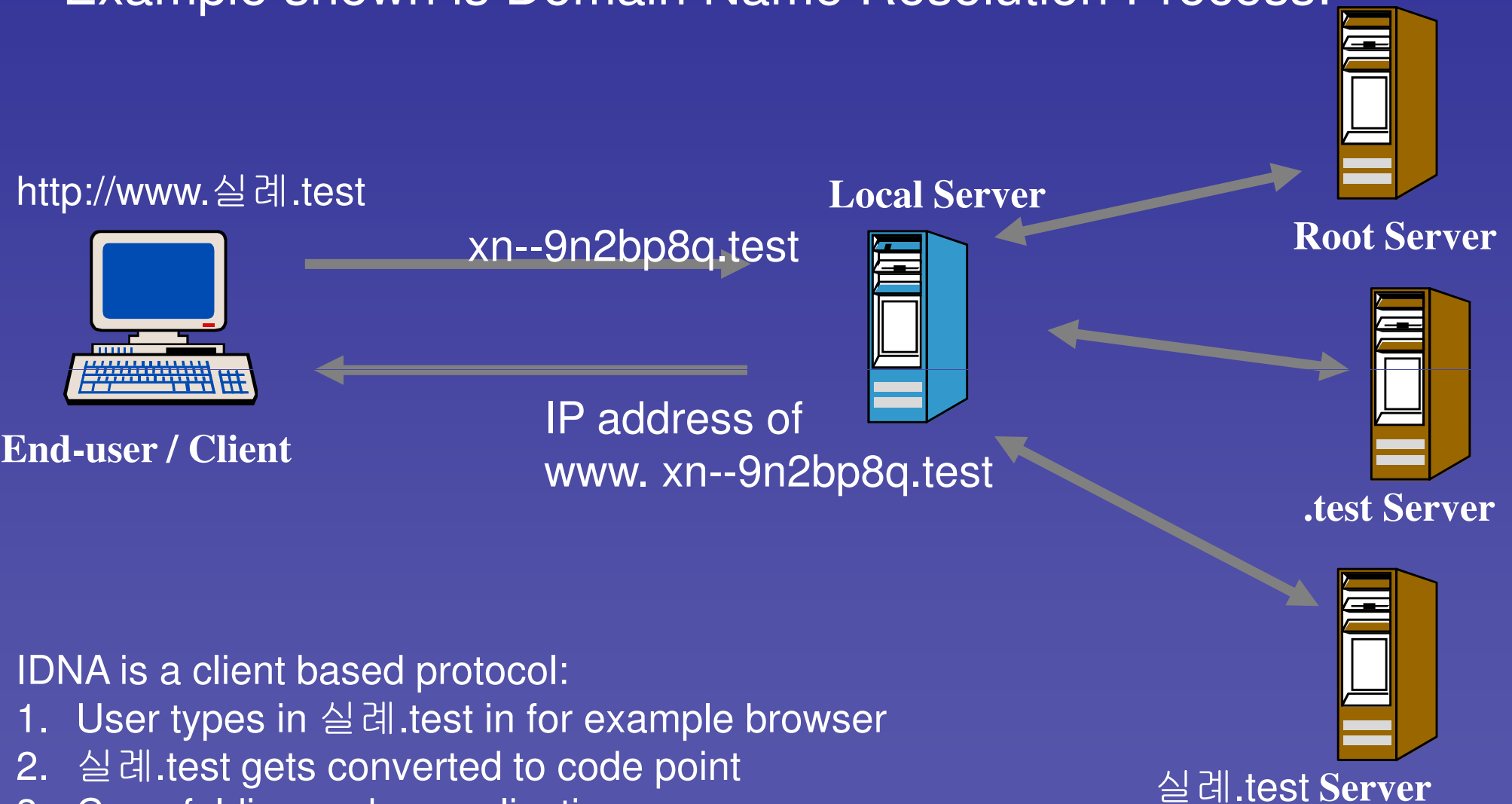


# Why Internationalization?

- 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:



IDNA is a client based protocol:

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 microsoft.<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 not 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 (2-22June07)
    - consideration by ICANN Board in San Juan (June07)

# 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>