

# Internationalized Domain Names: Overview & Update



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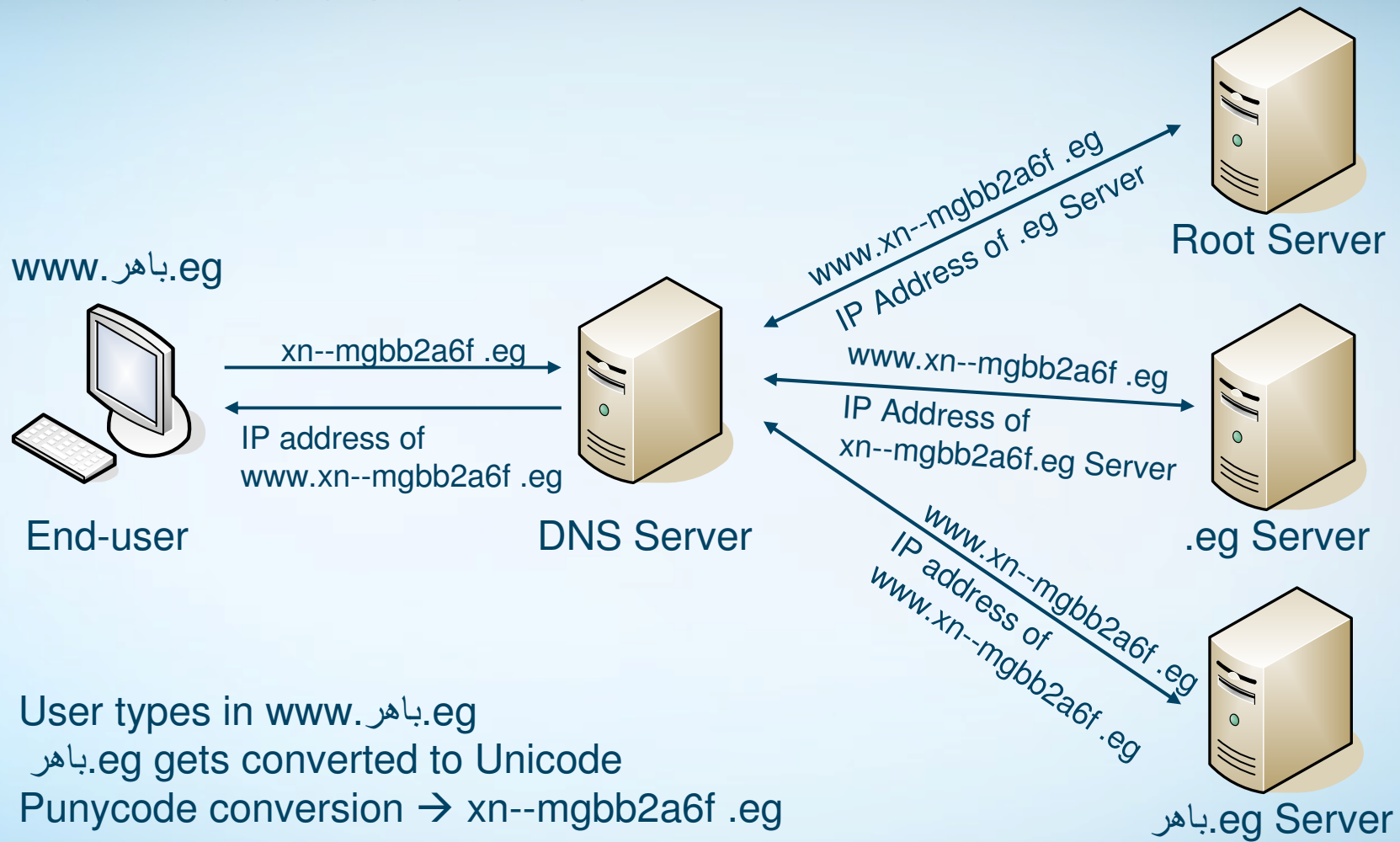
# Introduction to IDNs

- IDN stands for Internationalized Domain Name
- Domain labels that contain characters other than: **L**etters “a” to “z”, **D**igits “0” to “9”, and the **H**yphen “-”
- IDNA protocol developed by IETF in 2002-2003: RFCs 3454, 3490, 3491, 3492
- IDNs have existed as SLD since 2003
  - Example: عربي.tld
- Work is underway for introducing IDNs at the top level
  - Example: 例子.测试

# Why IDNs?

- There is demand by community
  - Help people access the Internet using their native languages
  - Promote cultural diversity and help preserve languages
- In promoting “Internet Multilingualism” IDN is not the only component

# How does it work?



1. User types in `www.باهر.eg`
2. `باهر.eg` gets converted to Unicode
3. Punycode conversion → `xn--mgb2a6f .eg`

\*.eg ccTLD does not provide IDNs at second level and using it in this slide is only for illustration purposes.

# IDNs from user perspective

- Registrants can register names in their local languages
- Registries handle all encodings needed during registration process
  - Example: باهر.eg → xn--mgbb2a6f.eg
  - Encodings tools:
    - <http://josefsson.org/idn.php>
    - <http://mct.verisign-grs.com/index.shtml>
- End users will be able write URLs and email addresses fully in IDNs (IETF is working on a standard for internationalized email)
- Some applications display the A-Label instead of the U-Label
  - xn--mgbb2a6f.eg instead of باهر.eg

# IDNA protocol revision

- Effort led by the IETF
- The basic framework of the revision was published in RFC4690 in Sep 06
  - Raises issues like same script/multiple languages, same language/multiple scripts, bi-directional issues, similar-looking characters, combining characters, migration to new versions of Unicode, etc.
- The revised protocol will:
  - Use an inclusion-based mechanism
    - Three categories by procedure not table
      - Protocol-valid (some w/ contextual rules)
      - Disallowed
      - Unassigned
  - Be Unicode version independent
  - Fix bi-directional issues

# Status of IDNA revision

- A number of Internet drafts published
  - 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

# IDN technical tests - Laboratory

- Laboratory test was successfully conducted by Autonomica and results were published in Mar 07:  
<http://www.icann.org/announcements/announcement-4-07mar07.htm>
- The laboratory environment was a close replica of the root server environment
- Localized labels for testing IDNs (.hippo18potamus):  
<http://www.icann.org/topics/idn/idn-test-labels.pdf>
  - Normal Unicode-Punycode conversion
    - فرس18النهر → xn--18-dtd1bdi0h3ask
  - Performance with a 63-character long TLD string
    - .hippo18potamushippo18potamushippo18potamushippo18po
  - Right to left script
  - Left to right script with sophisticated shaping properties
  - Non-alphabetic script

# IDN technical tests - Live

- 11 evaluative top-level domains were inserted in the root in Oct 07
- They represent the term “test” translated into: Arabic, Persian, Chinese (simplified and traditional), Russian, Hindi, Greek, Korean, Yiddish, Japanese and Tamil
- 11 SLDs were introduced representing the term “example” with the same 11 languages/scripts
- The final version of the Evaluation Plan is available at: <http://www.icann.org/topics/idn/idn-evaluation-plan-v2-9-2-14aug07.pdf>

# example.test

Script	Language	SLD.TLD U-labels	SLD A-label	TLD A-label
Arabic	Arabic	مثال إختبار	xn--mgbh0fb	xn--kgbechtv
Arabic	Persian	مثال آزمايشی	xn--mgbh0fb	xn--hgbk6aj7f53bba
Chinese, simplified	Chinese	例子.测试	xn--fsqu00a	xn--0zwm56d
Chinese, traditional	Chinese	例子.測試	xn--fsqu00a	xn--g6w251d
Cyrillic	Russian	пример.испытание	xn--e1afmkfd	xn--80akhbyknj4f
Devanagari	Hindi	उदाहरण.परीक्षा	xn--p1b6ci4b4b3a	xn--11b5bs3a9aj6g
Greek	Greek	παράδειγμα.δοκιμή	xn--hxajbheg2az3al	xn--jxalpdlp
Hangul	Korean	실례.테스트	xn--9n2bp8q	xn--9t4b11yi5a
Hebrew	Yiddish	פּרײַבשפּילן.לעבן	xn--fdbk5d8ap9b8a8d	xn--deba0ad
Kanji Hirigana, and Katakana	Japanese	例え.テスト	xn--r8jz45g	xn--zckzah
Tamil	Tamil	உதாரணம்.பரிட்சை	xn--zkc6cc5bi7f6e	xn--hlcj6aya9esc7a

# IDN .test wiki

- Purpose of the IDNwiki:
  - Introduce users to IDN TLDs
  - Evaluate usability of IDN TLDs in applications
  - Gather information about user problems
- Adding new “features”
  - New languages:
    - Amharic (4<sup>th</sup> level under idn.icann.org)
    - Hebrew (2<sup>nd</sup> level under existing TLD)
    - Thai (will be added at 4<sup>th</sup> level)
    - Urdu (will be added at 2<sup>nd</sup> level)
  - Process available for others languages
  - DNSSEC signing the zones
  - IPv6 support
  - Exploring IDN email addition
- Having a language / script represented in the IDNwiki is not a pre-requisite for eventually having an IDN TLD with the same language / script in the root
- Wiki can be accessed at: <http://idn.icann.org>

# IANA management of IDN TLDs

- Process for insertion of test IDN TLDs the in root
  - Developed with RSSAC and SSAC recommendations
  - Includes emergency removal procedure
  - Need review, revision, and implementation
  - Initial review is expected to take place later this year

# IDN policy process

- ICANN staff does not develop or decide on policy
- Work has been undertaken by various working groups of GAC, GNSO, and ccNSO
- GNSO IDN Working Group explored policy issues in relation to IDN gTLDs and summarized its outcomes in a report:  
<http://gns0.icann.org/drafts/idn-wg-fr-22mar07.htm>
- GNSO developed policy for new gTLDs which included IDN gTLDs:  
<http://gns0.icann.org/issues/new-gtlds/council-report-to-board-pdp-new-gtlds-11sep07.pdf>
- ccNSO and GAC formed a joint working group to address IDN ccTLDs and summarized its outcomes in a report:  
<http://www.icann.org/topics/idn/ccnso-gac-issues-report-on-idn-09jul07.pdf>
- ICANN Board also requested ICANN community to explore both an interim and an overall approach to IDN ccTLDs

# IDN policy process

## County Code Top Level Domains

### Fast Track

- Deploy limited number of non-contentious IDN ccTLDs within short timeframe
- Where demand / readiness exists
- Don't wait for full ccNSO PDP

## County Code Top Level Domains

### 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)

## Generic Top Level Domains

### New gTLDs

- New ongoing policy for new gTLDs
- Includes internationalized domains
- Focus on non-ASCII squatting & confusingly similarity issues

# Fast Track – IDNC WG

- Fast Track = quick feasible method for introducing IDN ccTLDs
- Purpose of IDNC WG is to develop and report on feasible methods, if any, for introduction of a limited number of non-contentious IDN ccTLDs and not preempt on IDN policy development process
- IDNC WG should take into account and be guided by:
  - The overarching requirement to preserve the security and stability of the DNS
  - Compliance with the IDNA protocols
  - Input and advice from the technical community in respect to the implementation of IDNs
  - Current practices for the delegation of ccTLDs

# Draft interim report

- The report addresses:
  - A mechanism for the selection of the IDN ccTLD string
  - A mechanism to designate an IDN ccTLD manager
- Posted for public comments till 25 April 2008:  
<http://www.icann.org/announcements/announcement-04apr08.htm>
- Discussed during the ICANN regional meeting in Dubai on 1-3 April 2008:  
<http://public.icann.org/dubaiagenda>

# Fast Track schedule

- Publish draft interim report and public consultation (31 March 2008)
- Publish final report (13 June 2008)
- Discuss final report (23 June 2008)
- GAC and ccNSO support final report (24-25 June 2008)
- Submit final report to ICANN Board (26 June 2008)

# More work is underway

- ICANN IDN Guidelines
  - Need revision to follow IDNA revision
  - Developed by ccTLD and gTLD registry operators
- Local community efforts, such as
  - language experts participate in IDNA review
    - Review of PVALID characters
  - In addition to protocol, a need for:
    - local registration policies and variant tables
  - Example: Arabic Script IDN Working Group (ASIWG)
    - Develop a framework for implementation of IDNs in Arabic Script

