Arabic Domain Names

SaudiNIC’s Experiences and Initiatives Relate to UA

Raed Alfayez, SaudiNIC
ICANN 55, Marrakech, March 2016
• About SaudiNIC

• SaudiNIC Previous Work
  – IDN Assessment reports
  – Raseel – An Arabic Email System

• What's Next?
About SaudiNIC

- **Administering** the domain name space under:
  - (.sa) since 1995
  - (西亚 Languages) since 2010.

- **Operated by a government organization:**
  - CITC (Communication and Information Technology Commission)

- Coordinating with **regional and international** bodies in order to present the local community needs

- Leading the local and regional communities efforts towards supporting **Arabic language** in Domain Names since **2001** (more than **15 years of experience**)

SaudiNIC Previous Work

Arabic IDN pilot projects

- Arab League (2005 - 2009)

Tools, algorithms and solutions to manage variants:

- Master Key Algorithm
- Filters
- Variant Management System (VMS)

IDN Assessment Reports

Arabic Email Project (Raseel)
Conducted and Published a number of IDN Assessment Reports:

- **2007**
  - IDN Top Level Domain Evaluations and Testing Report
  - with the cooperation of the Arabic Domain Name Pilot Project Team.

- **2010**
  - Arabic IDN Test Results for Browsers
  - Mozilla Firefox & Microsoft IE

- **2014**
  - IDN Assessment Report
• Goal:
  – to study and assess end-user experiences regarding IDNA implementations for Arabic domain names.

• Covered many areas and behaviors

• Developed
  – methodology for Test Case Modeling and Generation
  – online system to capture results
IDN Assessment Reports - 2014

- IDNA support ≠ browsers’ address bars support.
- User acceptance for IDNA is less than 1% (Excluding address bar in some web browsers)
  - It’s been more than 10 years since the publication of IDNA RFCs, and still less than 1%!
- How long do we need for Internationalized Email (IDN Email) to be fully deployed!
  - Do we need to wait 10+ years to get a 1% acceptance!
- RFCs are not enough, we need accelerators.
• Need to cover new aspects in different technologies:
  – Variants in domain names
  – Variants in Email accounts (user part)
  – Variants in search engines

• Need to have Automation
  – To host IDNs with Variant (DNS, Web, Mail ..etc)
  – To host Email Accounts with Variant
IDN Assessment Reports - 2014

Scope

Browsers
- Windows 7
- OSX 10.9
- Android 4.3
- iOS 7
- Ubuntu 12

Email Clients
- Web
- Android 4.3
- iOS 7
- Ubuntu 12

Office Suites
- Windows 7
- OSX 10.9
- Ubuntu 12
IDN Assessment Reports - 2014

- Search Engines
  - Bing
  - Google

- Mobile App*
  - BB Mesn.
  - What's app

- Web Hosting
  - cPanel

- System Admin Tools
  - Ping
  - SSH
  - nslookup
  - traceroute

- Security
  - Certificates**
  - SSL

- CMS**
  - Wordpress

  - Drupal
We generate about **190** test cases.
Developed a test case control web application
# IDN Assessment Reports - 2014

<table>
<thead>
<tr>
<th>Target</th>
<th>Acceptable</th>
<th>Not-acceptable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Browsers</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>Email clients</td>
<td>6%</td>
<td>94%</td>
</tr>
<tr>
<td>Office Suites</td>
<td>2%</td>
<td>98%</td>
</tr>
<tr>
<td>System Admin Tools</td>
<td>3%</td>
<td>97%</td>
</tr>
<tr>
<td>Search Engines</td>
<td>14%</td>
<td>86%</td>
</tr>
<tr>
<td>Mobile Apps</td>
<td>13%</td>
<td>87%</td>
</tr>
<tr>
<td>CMS</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Security</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Web Hosting</td>
<td>0%</td>
<td>100%</td>
</tr>
</tbody>
</table>
IDN Assessment Reports - 2014

Browser: Address bar


Suggestions:
- Make sure all words are spelled correctly.
- Try different keywords.
- Try more general keywords.
IDN Assessment Reports - 2014

Browser: Hyperlink

Examples
SSL certificate info.

IDN Assessment Reports - 2014

Examples

Browser: SSL Certificate
After copy and paste the domain!

http://xn--i6bk5el.xn--mgbh5fq.xn--mgbh6h3h.xn--mgbcz8a.xn---ynchbd9bc0n.xn---ynchbc9b43bfj.xn--mgbh0fb.xn--mgberp4a5d4ar/
All Browsers didn’t support IDNA 2010!

It has been out there for more than 5 years.
This is an IDN test for the following IDN string:

مثال.السعودية.xن--mgbcz8a.xن---ymcbeq8b4b3fj.xن--خامس-سادس.xن---yynb3b2b3fj.xن--نائب.ثالث

and this is a regular domain name:

www.cnn.com

even if we add a protocol like http://

http://مثال.السعودية.xن--mgbcz8a.xن---ymcbeq8b4b3fj.xن--خامس-سادس.xن---yynb3b2b3fj.xن--نائب.ثالث
Then narrow your results by...

- language: any language
- region: any region
- last update: anytime
- site or domain: مكتبة السعودية
- terms appearing: anywhere in the text
- SafeSearch: Show most recent
- reading level: no reading level
- file type: any format
- usage rights: not filtered by license

Try Google Webmaster Tools
www.google.com/webmasters/

Google promotion
About 69,500 results (0.56 seconds)

STC: الاتصالات السعودية

Program of Electronic Administration - سير

Guide to the Electronic Administration Program - سير
User-2:~ Alhamed$
User-2:~ Alhamed$
User-2:~ Alhamed$ ssh alhamed@xn--mgbcz8a.xn--ymcbcq8b4b3fj.xn---.xn
The authenticity of host ' (::1)' can't be established.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '' (RSA) to the list of known hosts.
Password:
bash: command not found
User-2:~ Alhamed$
Raseel – An Arabic Email System

• Phase I (2010~2013):
  – A pilot project to test Arabic email addresses
  – Built before the EAI RFCs
    • Using a hack: convert the user part of the email address to Punycode
    • Implemented plugins for Outlook and Roundcube to display the Arabic addresses correctly.
  – Work with existing Email Servers and old RFCs.

• Phase II (2016+):
  – Built based on the new EAI RFCs using standard EAI addresses
    • Postfix, Horde/Roundcube and Archiveopteryx
  – Still in a beta version and not open for public.
  – Successful test internally and with Gmail.
Raseel – An Arabic Email System
Almost 3 years since the EAI RFCs were published and until now there are almost no support (or very limited) in:
- Email servers (SMTP, IMAP, POP),
- Email providers (Gmail, Hotmail, Yahoo)
- Emails clients (Webmail, Application)

Need to have a protection mechanism for the user part of the emails addresses (similar to IDN variants)

<table>
<thead>
<tr>
<th>Farsi Yeh (U+06CC)</th>
<th>Arabic Yeh(U+064A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ربيب@سريل.دواعسلایة</td>
<td>ربيب@سريل.دواعسلایة</td>
</tr>
</tbody>
</table>

Automatic tools to configure and manage variants (Domain, User Accounts).

Boosting the adoption of the new EAI RFC by ISP and service providers.
A comprehensive study should be done regularly to measure the IDN UA. It should focus on all major players and cover all possible challenges. Recommendations should be delivered and discussed with relative parties.
UA Challenges vs Main Players

- Application Vendor
- Registrant/User
- Service Provider
- Registry/Registrar
Usability
• The proper selection of available variants to be enabled at the language or script levels.
• Why allocatable variants are not the same across different IDN-TLD registries?

Lack of awareness
• IDN is not well-known or recognized
• IDN is not well-known or recognized
• Misconception about IDNs
  ➢ No need for IDNs!
  ➢ No need for ASCII domain names !!
  ➢ IDNs Benefits are not realized
  ➢ IDN will make isolated internets
• IDN variants are not understood or known
• Variant tables are not known and universal
• Variant management challenges
• Hosting and using IDNs
• Hosting and using IDN variants
• Registrant will use his/her keyboard based on his/her language knowledge.

Technical issues
• Working with IDNs and ASCII equivalents (i.e., “xn--“ versions of IDN domain names)
• Working or editing IDN’s zone files.
• Different input devices (keyboards)
• No standard or common way to work with IDN and its variants
• Language specific issues (Right-to-left direction, display, interface)
Security issues
- No protection to the TLD name space
- Missing some code points when defining variants
- Variants for the reserve list

Cross Registries
- Unified terminologies
- There should be a common (agreed) protection to secure any name space.

Full IDN support
- Ignoring the fact that IDNs are generated using input devices (keyboards) that are language based
- Therefore, some (registries) are adopting only one huge script-wide table (with mixed languages)
- No easy or direct way to enable variants
- There should be one key for all variants
- For enhancing and decreasing the number of variants they should be based on character positions
- International Reachability
- Study the whole Script
- No easy interface for variant management
- Consistent variant list
- Whois should support IDN and Variants

Lack of IDN support as part of registration information, e.g.:
- Registration system (web-interface and EPP)
- Refuse IDN Email (EAI)
- Refuse IDN Name servers
- Tools provided by the registry (whois, DNS checker..etc..).
- Sending and receiving IDN emails (EAI)
Hosting
- Does not accept IDN
- How to point all variants to the main domain (e.g. web/mail)?
- The absence of technical solutions to host variants automatically.
- Create account and login
- Accept IDN Email (EAI)
- Accept IDN Name servers

Web Email Services
- Sending and receiving EAI
- Display IDN and EAI correctly

Others
- Create account and login
- IDN Email

DNS Hosting
- Create account and login
- Accept IDN Email (EAI)
- Accept IDN Name servers
Thank you

For more information you can visit:

الجسّة يدعو

nic.sa

citc.gov.sa