Introducing IANA

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The Internet & the post-WSIS environment: enhancing dialogue among the stakeholders
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Internet Assigned Numbers Authority
What is IANA?

- the “Internet Assigned Numbers Authority”
- Quite likely the oldest Internet institution
  - first documented in 1972
- Responsible for global coordination of the Internet’s unique names and numbers
- Since 1998, a function of ICANN
  - Previously operated in academia under US Government research contracts.
Areas of Responsibility

Domain Names
- Root Zone
- .int
- .arpa
- IDN Repository
- Service Zones

Number Resources
- Global pool of:
  - IPv4
  - IPv6
  - AS Numbers

Protocol Assignments
- 100’s of registries in protocols:
  - Port Numbers, XML Namespaces,
    MIME Types, etc.
Discussion points today:

- IPv4-to-IPv6 Migration
- ccTLD Matters
  - IANA’s role and responsibilities
  - How the operator of a ccTLD is changed ("redelegation")
  - ccTLD’s role and responsibilities
What are IP addresses?

- IP addresses are unique numbers assigned to each device (computer, etc.) on the Internet.
- Used for the internal routing of information, usually unseen by end users.
- Domain names are usually used as a more memorable way to connect to computers:

  icann.org  192.0.34.163
  (domain name)  (IP address)
Regular IP addresses are running out

- Current “IPv4” addresses devised in 1970’s didn’t envision such substantial usage.
  - Estimates of exhaustion around 5-10 years
- IPv6 is a new protocol with much more address space
  - $2^{32} \rightarrow 2^{128}$ numbers ($2^{96} \times$ more addresses)
    - $2^{128} = 340,282,366,920,938,463,463,374,607,431,768,211,456$
- IPv6 requires commitment to deploy
  - To fully switch over to new system, all systems must be upgraded to use the new number system.
Domain Name System

- The easier to remember identifiers for services on the Internet.
- Comprised of a hierarchical taxonomy separated by dots.
- The system internally converts the names into the raw numbers that computers need.

icann.org  192.0.34.163
(domain name)  (IP address)
DNS structure

- Delegations are made down a “tree”.
- $root \rightarrow .lv \rightarrow .gov.lv \rightarrow eps.gov.lv$
DNS structure

- “top-level domains” can be divided into:
  - country-codes: local policy, local law, subsidiarity
  - global: worldwide use, ICANN policy
DNS structure

- IANA operates the root
  - delegates operators of TLDs (incl. ccTLDs)

IANA operates the root.

Setting policies for TLDs.

IANA operates the root and delegates operators of TLDs (incl. ccTLDs).
Country-code top-level domains (ccTLDs)

- ISO 3166 standard nominates two-letter codes for countries and autonomous regions (as defined by UN).

- IANA will assign an operator of a ccTLD for the local Internet community in a particular country.
  
  - Initial request is a “delegation”, changing operators of an existing code is a “redelegation”.

- IANA doesn’t take an ongoing role in operating the domain, simply appoints the operator. Local interests should decide how the domain is run within country.
(Re)delegation Procedure

- Request for (re)delegation is sent to IANA
- IANA performs evaluation
  - consultations with:
    - requestor to understand situation, seek additional documentation
    - current operators (if they exist) to determine consent
    - local Internet actors to confirm assertions on LIC support
    - governments to identify support
    - ICANN staff who have insight into local situation
- If assessed to proceed, considered by ICANN board
- Upon approval, implement normally (incl. USDOC, VeriSign)
- Report published on website
Key criteria for ccTLD operator

1. **Operator must show operational and technical skills**
   Must be able to operate the TLD in an effective and proper manner.

2. **Operator must be in country**
   Allows the operation to be subject to local law.

3. **Operator must treat LIC fair and equitably**
   The operator, for example, can’t discriminate within the local Internet community on who it may provide service for.

4. **Operator must demonstrate community/government support.**
   Operator needs to show that it has reasonable support to operate the resource.

*Ability to meet these criteria is formally assessed in the event of a delegation or redelegation request.*
What ccTLD operators do

- Operate the ccTLD with policy in the public interest of the territory concerned
  - local Internet community
  - local government
  - etc.
- Operate a technically stable service
  - poor setup = unreliable domain service = “broken” Internet
  - damage of bad setup affects outside country as well!
- Liaise with IANA to ensure their details are up to date
  - Record staff changes etc. with IANA as appropriate
  - ensure technical data is properly communicated
- Participate in ICANN, other fora, to develop global policy and best practice
Summary

- ccTLDs are operated in the public interest, within countries, involving local Internet community and local government.

- IANA’s role is ensuring it is operated by a responsible operator that the community agrees is appropriate.

- ccTLD operators and IANA community on an ongoing basis to ensure technical data is properly in sync.

- It is important that ccTLD operator details are kept up to date with IANA to ensure Internet stability.
Thank you for your attention!

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