IANA Transition (2015):
значення для глобального Інтернету і для України
Михайло Якушев | VI IGF-UA, Київ | 30 вересня 2015 р.
Agenda

1. ICANN
2. Internet Identifiers
3. IANA Stewardship Transition
4. Importance for Ukraine
What is ICANN?
What is Internet?
What is Internet Governance?
THE THREE LAYERS OF DIGITAL GOVERNANCE

No one person, government, organization, or company governs the digital infrastructure, economy, or society. Digital governance is achieved through the collaborations of Multistakeholder experts acting through polycentric communities, institutions, and platforms across national, regional, and global spheres. Digital Governance may be stratified into three layers to address infrastructure, economic, and societal issues with solutions. For a map of Digital Governance Issues and Solutions across all three layers, visit https://map.netmundial.org

ECONOMIC AND
SOCIAL LAYER

LAWS, POLICIES, AND
REGULATIONS

Governing bodies in local, national, regional, and international spheres are engaged with. These citizens and with other bodies through laws, policies, and regulations. The transformation of the internet must be synchronized with the established international system of governance and law.

INDUSTRY AND
TRADE

Manufacturing, intellectual property, logistics, finance, etc.

NEWS AND
INFORMATION

Newspapers, broadcast, public and professional blogs, social media

USERS

There are over 4 billion users worldwide. Most users connect to the internet through their mobile phones.

EDUCATION

Online research, tutorial, classroom engagement

APPLICATIONS

Worldwide, email, Cloud, Wi-Fi, mobile apps.

ENTERTAINMENT

Music, movies, television, games, etc.

MOBILE

Smart phones, tablets, cars. There are now mobile devices on the planet than people.

SECURITY

Cybersecurity,文案安全, cyber warfare, cyber espionage, cyber technology, and more.

SOCIAL MEDIA

Sharing photos, videos, blogs, and more.

CIVIC AND HUMAN RIGHTS

Privacy, identity, access to content, freedom of expression, cybersecurity, consumer protection, cultural diversity, and many more.

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ROOT SERVICES

12 organizations in 4 countries administering 13 different root servers that provide top-level DNS services such as, shut down, transactions.

THE ROOT ZONE

Names in the root zone.

NAMES

Domain names, top-level domains such as .uk, .us, .ca, .fr.

NUMBERS

IP addresses, over 4 billion.

INTERNET PROTOCOLS

Protocol parameters such as TCP, IP, and more.

PROTOCOL PARAMETERS

Protocol parameters such as TCP, IP, and more.

NETWORK BACKBONES (IP NETWORKS)

95% is privately owned by global companies like Level 3 Communications, AT&T, Google, and others.

INTERNET EXCHANGE POINTS (IXP)

600 points worldwide.

TERRESTRIAL CABLES

Undersea cables are vital to the transmission of all international internet data.

SUBSEABED CABLES

Undersea cables are vital to the transmission of all international internet data.

SATELLITES

Communications satellites, many paths now the internet data.

WIRELESS SYSTEMS

400,000 wireless towers worldwide.

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ICANN

Not-For-Profit Public Benefit Corporation
ICANN is a not-for-profit public-benefit corporation with participants from all over the world dedicated to keeping the Internet secure, stable and interoperable.

Identifier Management
Maintains the databases that ensure the uniqueness of Internet Identifiers.

Multistakeholder
At the heart of ICANN's policy-making is what is called a "multistakeholder model". This is a community-based consensus-driven approach to policy-making. The idea is that Internet governance should mimic the structure of the Internet itself- borderless and open to all.

Policy body
Through its contracts with registries (such as .com or .md) and registrars (companies that sell domain names to individuals and organisations), we help define how the domain name system functions and expands.
What are Internet Identifiers?
THE LOGICAL LAYER OF DIGITAL GOVERNANCE

Layered on top of the Physical Infrastructure’s thousands of networks and satellites, the Internet’s Logical Infrastructure is what delivers One Internet for the world through Unique Identifiers (Names, Numbers, and Protocol Parameters). ICANN coordinates the administration of this layer in partnership with other technical communities to ensure the security, stability, resiliency, and integrity of this critical layer.

TECHNICAL OPERATIONS

The technical operating community is made up of multiple independent actors bound by common principles and mutual commitments that ensure the security and stability of the Internet infrastructure. Each actor’s community develops policies and standards in an open, inclusive, and consensus-based approach.

KEY GOVERNANCE ACTORS

ICANN: Internet Corporation for Assigned Names and Numbers
ICANN coordinates the internet’s systems of unique identifiers including domain names and IP addresses, as well as manages the .ICT protocol parameter registry.

IANA: Internet Assigned Numbers Authority
IANA is a set of functions focused and operated within ICANN. It acts as the top-level allocator for blocks of IP addresses and AS numbers, prepares creation and changes in TLD top-level domains, and manages the list of Unique Identifiers used in Internet protocols.

IETF: Internet Engineering Task Force
Develops and promotes a wide range of Internet standards dealing in particular with standards of the Internet protocol suite. Their technical documents influence the way people design, use, and manage the Internet. The IETF operates under the Internet Society (ISOC) with architectural oversight provided by the Internet Architecture Board (IAB) in this context.

ISO: International Organization for Standardization
ISO, the Int'l Standard Jury of Standards, and local codes of countries, dependent territories, special areas of geographic significance.

NRO: Number Resource Organization
A coordinating body for the five regional Internet Registry (RIR). The RIR manages the distribution of IP addresses and Autonomous System Numbers in their regions of the world.

TLD Operators: Top-Level Domain Operators
Organizations are assigned the management of Top-Level Domains such as generic TLDs (.com, .net, .info, etc.), country codes (.fr, .de, .au, etc.), and non-ASCII-coded TLDs (language such as Chinese, Korean, Arabic, Russian, French, etc.) among others.

Root Server Operators
13 independent organizations operate the 13 authoritative name servers (through a joint effort that ensures domain name systems (DNS) exist). Their name servers are an open network of thousands of physical servers located in many countries around the world.

W3C: World Wide Web Consortium (W3C)
An international community where Member organizations, a full-time staff, and the public work together to develop Web standards. W3C’s mission is to lead the World Wide Web to its full potential.
Evolution of Global Identifiers

- LAN OS and MAC Addresses
- IP Addresses
- Domain Names
- Search argument
- Applications, Social Networks
One Internet, Many Identifier Systems

- **Addresses** identify locations of Internet devices or hosts
  - IP version 4
  - IP version 6

- **Domain names** provide user friendly identification of hosts
  - Latin script (A-Z, 0-9, and hyphen)
  - Internationalized Domain Names accommodate non-Latin languages or scripts (.укр)

*ICANN coordinates the administration of global identifier systems*
Port numbers identify Internet application endpoints, e.g.,
- A browser and a web server
- Called and calling parties of an Internet telephony connection

Parameters identify numbers that Internet protocols need to operate correctly
- Uniform resource identifiers
- Character encodings
- Values for specific protocol fields
IANA Stewardship Transition
What are the IANA functions?
Roles of NTIA (US Government), ICANN, and IANA

- **NTIA**: National Telecommunications and Information Administration
- **IANA**: Internet Assigned Numbers Authority
- **ICANN**: Internet Corporation for Assigned Names and Numbers
What is the IANA stewardship transition?

- **March 2014** - NTIA announced transition of IANA stewardship
- Asked ICANN to convene a process to develop transition proposal

### NTIA’s Criteria
- Support and enhance the multistakeholder model
- Maintain the security, stability, and resiliency of the Internet Domain Name System (DNS)
- Meet the needs and expectation of the global customers and partners of the IANA services
- Maintain the openness of the Internet

### NTIA’s Expectations
- Broad community support
- Does not replace NTIA role with a government-led or an inter-governmental organization solution
Transition proposal
Names proposal overview

Current Contract

Post-transition

ICANN

ICANN

IFR
IANA FUNCTION REVIEW
SPECIAL IFR

CSC
CUSTOMER STANDING COMMITTEE

INITIAL SERVICE ISSUES OR COMPLAINTS
SECONDARY SERVICE ISSUES OR COMPLAINTS (ESCALATION PATH)

NTIA

IANA STEWARDSHIP

IANA FUNCTIONS OPERATOR

CONTRACT

OVERSIGHT

LEGAL SEPARATION

REVIEWS

BOARD

POST-TRANSITION IANA (PTI)

BOARD

CUSTOMERS
Post-transition IANA (PTI)

MISSION
Established to perform all the existing (pre-transition) IANA functions.
Post-transition IANA (PTI)

MISSION
Established to perform all the existing (pre-transition) IANA functions.
The RIRs have been very satisfied with the performance of ICANN in the role of the IANA Numbering Services Operator, and their communities have expressed a strong desire for stability and a minimum of operational change. The following proposals reflect these factors.

1. ICANN to continue as the IANA Functions Operator for the IANA Numbering Services via a Service Level Agreement (SLA) with the RIRs.
2. The rights over any intellectual property related to provision of the IANA services should reside with the community.
3. A Review Committee, with representatives from each RIR community, should be formed to advise the RIRs on the IANA functions operator's performance in meeting identified service levels.
Protocol parameters proposal overview

**Current Contract**

- IETF
  - Protocol Specifications and Standards Development Process
  - Oversight
  - MoU
    - Annual Updates Based On
    - Performance Metrics

- ICANN

- IANA

**Post-transition**

- IETF
  - Protocol Specifications and Standards Development Process
  - Oversight
  - MoU
    - Annual Updates Based On
    - Performance Metrics

- ICANN

- IANA

- NTIA
Oversight components in the combined proposal

Operational interactions between the communities and the IANA functions operator are not pictured.
On 17 August 2016, the National Telecommunications and Information Administration (NTIA) announced that it had informed the U.S. Congress that it planned to extend the IANA Functions Contract with ICANN for one year until September 30, 2016.

"Beyond 2016, we have options to extend the contract for up to three additional years if needed. This one-year extension will provide the community with the time it needs to finish its work."
IANA Stewardship Transition: Importance for Ukraine
What may be done
(1) FOR Ukraine and (2) BY Ukrainians

- **Protocol Parameters**
  - More active participation in IETF. Standards and RFC. Cyrillic e-mails. Universal acceptance.

- **IP-Addresses**
  - Amendments to the existing regulatory documents on IP (WHOIS), IPv4->IPv6 transition

- **Domain Name System**
  - Active role needed for the Ukrainian Government Representatives in ICANN’s GAC (Government Advisory Committee)
  - Possible Strategic Plan (MoU) with ICANN, IDN + new gT:D Program implementation
Further Reading

- https://www.icann.org/stewardship
- https://www.icann.org/ru/stewardship
  (Russian version)