



# Multilayer Internet Governance: Some Theory + Practical Implications

Michael Yakushev | ENOG 10 (Odessa, Ukraine) | 13 Oct.2015



# ONE WORLD, ONE INTERNET

## WHAT DOES ICANN DO?

To reach any device or thing connected to the Internet, you (or your search engine) must know their address – a name or a number. That address must be unique, so you can reliably find and connect to other devices, things, or information sources no matter where you are in the world. That's how the tens of thousands of physical networks appear and operate as 'One Internet'.

In concert with the technical operating community, ICANN maintains and administers the registries containing these unique addresses across the world ensuring the security, stability, and integrity of One Internet where we can reliably find each other.



## Community-Driven Global Policy Development

To keep pace with dynamic technologies and rapid innovation, ICANN facilitates an open, consensus-driven, multistakeholder policy development process that is run from the bottom up.

## Multistakeholder Model

Civil Society & Internet Users, the Private Sector, National & International Organizations, Governments, Research, Academic and Technical Communities are all represented.

## Competition & Choice

From accrediting over 1000 registrars, to introducing new Top Level Domains (TLDs), ICANN works to expand consumer choice by fostering competition and innovation in the domain name marketplace.

## WHICH FUNCTIONS DOES ICANN COORDINATE?

### DNS

- Development of generic TLD policy
- Facilitation of country code TLD policy discussions
- Delegation of and changes to Top-level domains
- Management of the root's DNSSEC trust anchor
- Facilitating Root Server System discussions

### Internet Numbers

- Approval of global number allocation policies
- Allocation of top-level blocks of Internet numbers
- Recognize Regional Internet Registries

### Protocol Parameters

- Creation of and changes to protocol parameter registries
- Management of the Time Zone Database

## HOW DO I PARTICIPATE?

- Sign up for updates at [icann.org](http://icann.org)
- Join one of the many Public Comment Forums on ICANN's website
- Attend ICANN's Public Meetings in person or online to provide input at a Public Forum
- Join one of ICANN's Supporting Organizations or Advisory Committee
- Follow us on Twitter, Facebook, LinkedIn
- Subscribe to newsletters
- Participate in our fellows program
- Join a regional engagement group

## WHO'S INVOLVED?

A number of groups, each of which represents a different interest and expertise on the Internet. All of them come together with the Board of Directors to shape policies and ICANN work.

### Supporting Organizations

- Addressing
- Country Code Names
- Generic Names

### Advisory Committees

- At-Large
- Governmental
- Root Server System
- Security & Stability

### Technical Advisory Bodies

- Technical Experts Group
- Technical Liaisons from IETF, ETSI, W3C, ITU

### Board of Directors

- 16 Community Appointed Board Members

## Security & Stability

ICANN supports DNS security by supporting a secured DNS infrastructure (DNSSEC) and managing the top-level key of that infrastructure, requiring close coordination and collaboration with the community and volunteers around the world.

## Interoperability

ICANN's work plays a role in helping the community to develop new technologies that flourish while maintaining interoperability across the global Internet. For example, the central publication point of unique protocol identifiers maintained by ICANN makes it easier for protocol developers to create protocols that allow communications using secure connections between users.

## Contractual Compliance

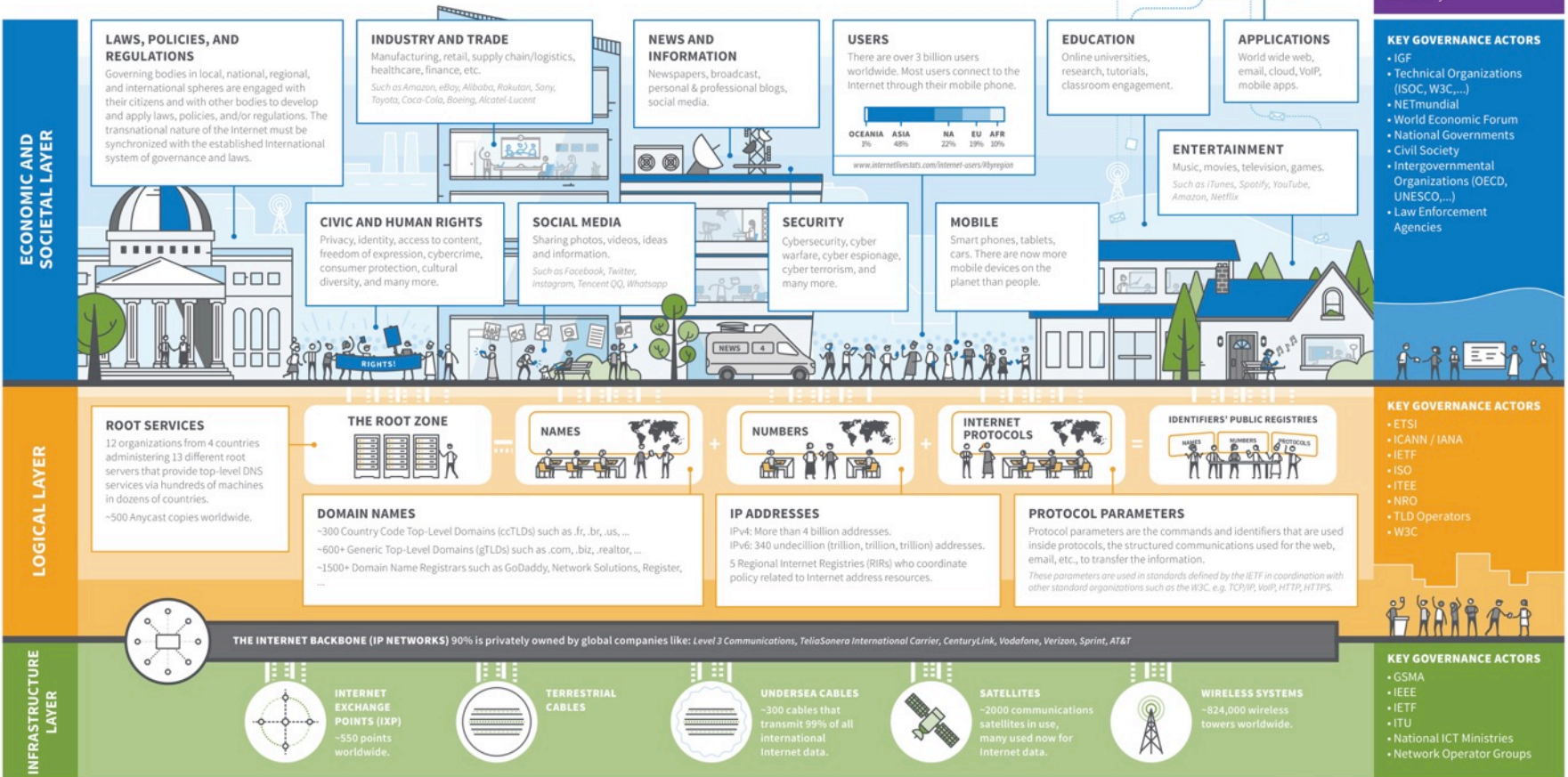
ICANN maintains the contracts and enforces the consensus policies developed through the community-driven process embodied in those contracts. While we are not a regulator, we comply with the law and enforce community policies through contractual obligations.





# THE THREE LAYERS OF DIGITAL GOVERNANCE

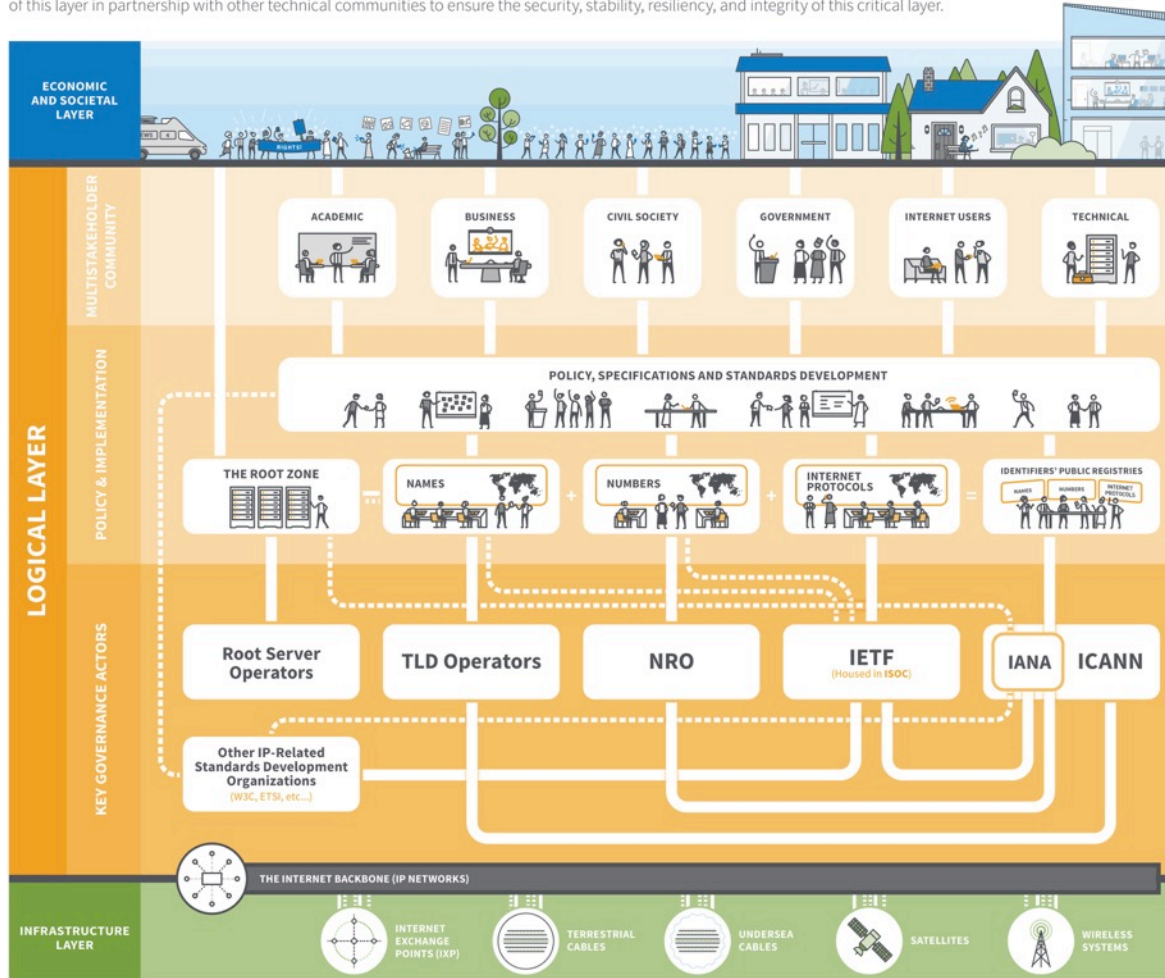
No one person, government, organization, or company governs the digital infrastructure, economy, or society. Digital governance is achieved through the collaborations of Multistakeholder experts acting through polycentric communities, institutions, and platforms across national, regional, and global 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>



**MULTISTAKEHOLDER COLLABORATIONS**  
Solutions to issues in each layer include policies, best practices, standards, and specifications developed by the collaborations of expert stakeholders from actors in business, government, academia, technical, and civil society.

# 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*  
Helps coordinate the Internet's systems of unique identifiers including domain names and IP addresses, as well as manages the IETF's protocol parameter registries.  
[www.icann.org](http://www.icann.org)

**IANA**, the Internet Assigned Numbers Authority, is a set of functions housed and operated within ICANN. It acts as the top-level allocator for blocks of IP addresses and AS numbers, proposes creation of and changes to DNS top-level domains, and manages lists of unique identifiers used in Internet protocols.  
[www.iana.org](http://www.iana.org)

**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).  
[www.ietf.org](http://www.ietf.org)

**ISO** *International Organization for Standardization*  
Standardizes, among many other things, the official names and postal codes of countries, dependent territories, special areas of geographic significance.  
[www.iso.org](http://www.iso.org)

**NRO** *Number Resource Organization*  
A coordinating body for the five Regional Internet Registries (RIRs). The RIRs manage the distribution of IP addresses and Autonomous System Numbers in their regions of the world.

[www.nro.net](http://www.nro.net)  
AFRNIC [www.afrinic.net](http://www.afrinic.net) LACNIC [www.lacnic.net](http://www.lacnic.net)  
APNIC [www.apnic.net](http://www.apnic.net) RIPE NCC [www.ripe.net](http://www.ripe.net)  
ARIN [www.arin.net](http://www.arin.net)

**TLD Operators** *Top Level Domain Operators*  
Organizations which have been assigned the management of Top-Level Domains such as: Generic TLDs (.com, .edu, .info, .name etc...), Country Code TLDs (.fr, .us, .gh, .cn etc...) and non-ASCII alphabet TLDs (in language such as Chinese, Korean, Arabic, Russian, French etc...) —among others.

**Root Server Operators**  
12 independent organisations operate the 13 authoritative name servers (A through M) that serve the Domain Name System (DNS) root zone. The name servers are a network of hundreds of physical servers located in many countries around the world.  
[www.root-servers.org](http://www.root-servers.org)

**W3C**  
The World Wide Web Consortium (W3C) is 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 Web to its full potential.  
[www.w3.org](http://www.w3.org)

### MULTISTAKEHOLDER COMMUNITY

**Academic**

- Institutions of higher learning
- Academic thought leaders
- Professors & students

**Business**

- Private-sector companies from across industries
- Industry and trade associations

**Civil Society**

- International organizations
- Non-governmental organizations
- Non-profit organizations
- Think Tanks

**Government**

- National governments
- Distinct economies recognized in international fora
- Multinational governmental and treaty organizations
- Intergovernmental organizations
- Public authorities (with a direct interest in global Internet Governance)

**Internet Users**

- Private citizens interested in regional or global Internet Governance

**Technical**

- Internet engineers
- Computer engineers
- Software developers
- Network operators



The background of the slide is a teal color. Overlaid on this is a stylized world map. The map is formed by a complex network of white nodes (small circles) connected by thin white lines. The nodes are more densely packed in some areas, particularly in North America and Europe, and more sparse in others. The overall effect is a digital, interconnected representation of the world's continents.

# Theoretical Conclusions

# What we should remember

- ⊙ **Different participants (governance actors) in different layers**
    - ⊙ {not coincide in all layers, should be differentiated}
  - ⊙ **New “dimensions” of the governance**
    - ⊙ for ICANN: traditionally triad ‘security/stability/resiliency’
    - ⊙ NEW: **interoperability** (?)
    - ⊙ NEW: **trust** (!)
  - ⊙ **Different set of ‘documents’ for different layers**
    - ⊙ Not only formal ‘standards and regulatory documents (incl.legislation), but also informal interaction between governance actors
  - ⊙ **Mixture (intentional or un-intentional) of governance methods, actors and documents -> over-politicization**
- ☹

## What we should remember (2)

*Just because you do not  
take an interest in politics  
- doesn't mean politics  
won't take an interest in  
you.*

Pericles





A world map where the continents are defined by a complex network of white dots and thin white lines. The dots vary in size, and the lines connect them to form a web-like structure. The background is a solid teal color.

# Practical Implications



# What we should do (better, or in addition to what is already being done)

- ⊙ **Multi-layer nature of the Internet Governance should ALWAYS be taken into consideration**
- ⊙ **Awareness raising** (education, trainings, discussions etc.) **efforts are the crucial factor**
  - ⊙ Should be done continuously
- ⊙ **Be ready for over-politicization**
  - ⊙ Human rights problematics -> good argument
- ⊙ **Trust = new dimension**
  - ⊙ Should be taught/explained in the same manner, as it was managed with 'Cross-border nature of the Internet' dimension
- ⊙ **Ungrounded** (or badly prepared, or not agreed with other stakeholders) **decisions on the Internet Governance => just another risk factor (threat to the Information Security)**

# Engage with ICANN



## Thank You and Questions

Reach us at:

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Website: [icann.org](http://icann.org)



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