One World, One Internet
(Many Futures)

Sigmund Fidyke III

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Overview

- Quick Internet Basics
- ICANN is…
- Internet Futures
- Your turn!
Quick Internet Basics
History of the Internet Part I

1969
ARPANET, first network run on packet switching technology, created

1974
Transmission Control Protocol/Internet Protocol (TCP/IP) designed by Vint Cerf and Bob Kahn

1989
HTTP://
Tim Berners-Lee invents World Wide Web and HTTP

1993
Mosaic Browser released, popularized the WWW
History of the Internet Part II

1998
- ICANN incorporated

2004
- Google founded
- Mark Zuckerberg launches Facebook in Cambridge, MA

2006
- Twitter launched, first Tweet “just setting up my twttr”

2007
- Apple launches iPhone

2016
- NTIA transfers oversight of IANA functions to ICANN
According to CIO Media and The Independent: every minute:

- 31.5M Facebook messages posted
- 48,611 Instagram pictures posted
- 350,000 Tweets tweeted
- 300 hours of video uploaded to YouTube
- 70 Domains Registered
Web Addressing: Unique Names and Numbers

Anything connected to the Internet – including computers, mobile phones and IoT – has a unique number called its IP (Internet Protocol) address.

This address is like a postal address. It allows messages, videos and other packets of data to be sent from anywhere on the Internet to the device that has been uniquely identified by its IP address.

IP addresses can be difficult to remember, so instead of numbers, the Internet’s domain name system uses letters, numbers and hyphens, to form a name that is easier to remember.

IPv4: 192.168.111.1
IPv6: 2001:0db8:85a3:0000:0000:8a2e:0370:7334
Who “Owns” a URL?

Registry
A domain name registry manages top-level domain names. They create domain name extensions, set the rules for that domain name, and work with registrars to sell domain names to the public.

Registrar
The registrar is an accredited organization that sells domain names to the public.

Registrant
The person or company who registers a domain name. When changes are made to the domain, their registrar will send the information to the registry to be updated and saved in the registry’s database.
Deep and Dark

SURFACE WEB
- Google
- Bing
- Wikipedia

DEEP WEB
- Medical Records
- Legal Documents
- Scientific Reports
- Subscription Information
- Competitor Websites

DARK WEB
- Drug Trafficking
- Private Communications
- Political Protests
- Illegal Information

(only accessible through certain browsers such as TOR. Deep web technologies has zero involvement with the Dark Web)

TOR Encrypted sites
ICANN is...
ICANN Ecosystem

Community

Organization

Board
Coordinating with our technical partners, we help make the Internet work.
We all work together in different ways to help make the Internet work.
The ICANN Board

ICANN Board approves Community policy and directs the ICANN org to implement them. Board members act in what they believe to be the best interests of the global community.

Provides oversight for the ICANN org, ensuring that it acts within its mission and operates effectively, efficiently and ethically.

The Board has 16 members and 4 non-voting liaisons, from different geographies and with expertise relevant to ICANN's mission.
The ICANN Community

A volunteer-based collection of business people, engineers, end users, civil society, governments, and many others.

Recommends policy, gives advice, and proposes implementation solutions for common problems within ICANN’s mission and scope.

Three Supporting Organizations and four Advisory Committees, meet separately to develop policy recommendations in their respective areas.
ICANN Community: Supporting Organizations

**ASO**
The ASO Address Council is composed of 15 volunteers — 3 from each of the Regional Internet Registries (RIRs) — who work on global Internet Protocol (IP) Address Policy.

**ccNSO**
The ccNSO (Council and members) works on global policies relating to country code top-level domain name (ccTLD) policies (e.g., .br, .uk).

**GNSO**
The GNSO Council is composed of 21 members — divided into 2 houses (contracted and non-contracted parties) — who work on generic top-level domain name (gTLD) policies (e.g., .com, new gTLDs).

Supporting Organizations (SOs)
Three SOs in the ICANN community are responsible for developing policy recommendations in the areas they represent.

- Address Supporting Organization (ASO)
- Country Code Names Supporting Organization (ccNSO)
- Generic Names Supporting Organization (GNSO)
ICANN Community: Advisory Committees

Advisory Committees (ACs)
Four ACs give advice and make recommendations on ICANN topics.

- At-Large Advisory Committee (ALAC)
- Governmental Advisory Committee (GAC)
- Root Server System Advisory Committee (RSSAC)
- Security and Stability Advisory Committee (SSAC)

ALAC
The ALAC voices the interests of the individual Internet user and is composed of 15 members - 2 from each of the five Regional At-Large Organizations (RALOs) and 5 appointed by the ICANN Nominating Committee. It is supported by over 200 At-Large Structures (ALSes) and volunteers.

GAC
The GAC provides advice on public policy issues, particularly on interactions with policies and national laws or international agreements.

RSSAC
The RSSAC advises the ICANN community and Board on the operation, administration, security, and integrity of the Internet’s Root Server System.

SSAC
The SSAC advises on matters related to the security and integrity of the Internet’s naming and address allocation systems.
How Does the Community Develop Policy?

**IDENTIFY AND SCOPE THE ISSUE**

1. **Identify issue**
   - Address Supporting Organization
   - Country Code Names Supporting Organization
   - Generic Names Supporting Organization

2. **Issue report**
   - Initiate policy development process

3. **Consult with Community and produce policy**
   - Call for volunteers to develop policy

**DEVELOP POLICY**

4. **Policy RECS**
   - Submit final report to Board
   - Public comments by Community

**VOTING OR REVIEW**

5. **Board votes on final policy**
   - Implementation

**Advisory Committees can participate during the process**

- At-Large Advisory Committee
- Security and Stability Advisory Committee
- Root Server System Advisory Committee
- Government Advisory Committee

**FINAL POLICY**
The ICANN Organization

Staff members in 40 countries focus on: policy development support, event management, Registrar & Registry support, IANA functions, contract compliance, and services for the broader community (L-Root, WHOIS, etc.).

ICANN Org, as directed by the Board, implements the Community’s recommendations (within ICANN’s mission & scope).

The ICANN organization is committed to accountable, transparent, inclusive and open operations and engagement, in cooperation with its partners.
The mission of the Internet Corporation for Assigned Names and Numbers (ICANN): 

Ensure the stable and secure operation of the Internet’s unique identifier systems as well as preserving and enhancing the stability, security, resiliency, and openness of the DNS and the Internet.
What Does ICANN Mean for the End User?

The Domain Name System allows you to easily navigate the Internet. ICANN monitors for compliance with contracts, including review of complaints.

Policy Development is an inclusive, open and transparent process for the Community to create effective rules for the Internet.

ICANN-Root is one of the root servers that helps keeps the DNS stable around the globe.

Supporting and Growing the Community ensures diverse participants contribute to bottom-up, multistakeholder, consensus-driven policy.

Generic Top-Level Domains provide choice in the domain name space.

Country Code Top-Level Domains allow countries to host their own websites.

Protocol Parameters allow computers to talk to each other.

Internet Protocol Addresses are the numbers that identify devices.

Root Zone Management keeps the DNS running smoothly.
WHOIS is a publicly available directory containing information about registered domains such as icann.org, including contact information for the registrant or registrar.

Accurate WHOIS Data is important because it:

- Ensures domain name holders receive renewal notices and important updates.
- Reduces the chance of fraud – such as an unauthorized transfer or change.
- Protects your domain name against suspension or deletion, which can happen if information is inaccurate or missing.
Key Players in Contractual Compliance

Internet Corporation for Assigned Names and Numbers (ICANN)
Helps coordinate the world’s Internet system of unique identifiers

Registries and Registrars
To make sure you get to the correct Internet address, ICANN has contracts with domain name registering companies (Registrars) and organizations responsible for operating Top-Level domains longer than two characters (Registries) around the world

Contractual Compliance
Contracts are enforced through Contractual Compliance. The mission is to preserve the security, stability and resiliency of the Domain Name System and to promote consumer trust through prevention, transparency and enforcement

Domain Name Holders
When someone has a complaint about a domain name, a registrar or registry, Contractual Compliance is often the first stop to try and resolve the complaint. Its online complaint filing system is easy to use and most users can expect a resolution within 17 days of filing
Internet Futures

1. Ubernet!
2. TLD Expansion
3. Augmented Reality, Ambient Technology, IoT
4. Internationalization
5. Your Turn!
1. Ubernet: Immersive, Invisible, Everywhere
Ubernet

Ubiquitous Connectivity

The Internet is everywhere (wired, wireless, cell). Non-connectivity is the exception. Control is difficult to non-existent. (Mostly) futile fights over access will continue for some time.

Presence-based Capabilities

Access & information so interwoven into daily life that it will become invisible. Location, condition, time input into automatic decisions by devices in the background.

Shared Experiences

Global relationships becoming common, diminished significance of national borders, creation of shared-interest “nations”.

2. Expansion of TLDs
Prior to 2013, there were 22 generic Top-Level Names
Expansion of gTLDs

Today the number of generic top-level domains is over 1,200

1200 gTLDs
2012 Round Delegated gTLDs by ICANN Region

1227 Delegations as of July 2017
Region based on Registry Public Contact

- **Europe**: 384 gTLDs
- **Asia/Australia/Pacific**: 213 gTLDs
- **North America**: 607 gTLDs
- **Latin America/Caribbean islands**: 17 gTLDs
- **Africa**: 6 gTLDs
Expansion of gTLDs

Next stop: 10,000 gTLDs

10,000 gTLDs

<aero> biz cat com coop edu gov info int jobs mil mil museum name net org post pro tel travel</a>

.any sport> <any company>

.minna 

What does this mean?

Continuous expansion of the Domain Name System: Innovation & Business Identification

Huge expansion of Internationalized Domain Names: Use the internet without any English characters

Managed by ICANN = Multistakeholder input: Streamlined process with security & stability
3. Beyond the Keyboard: Augmented Reality, Ambient Tech, IoT
Beyond the Keyboard

Augmented Reality over Internet
Augmented reality and portable devices give rapid feedback in everyday life, especially in health, mapping, and task instructions.

Ambient Connections
Everybody without a keyboard (including illiterate) can still use the Internet. Sensors know when you’re there, wearables give you control, voice recognition replaces the keyboard.

IoT feeds the Internet
Automatic connections, silent input/output, automatic decisions & controls. People will be less aware of what they are reporting. Some have/have-not issues.
4. Internationalization
Internet in any language

URL (IDN) and Email

Internet started in English, but now supports all Unicode characters (about 150 scripts, >150 languages). Entire email and domain names can be in Unicode (Mailbox, TLD, SLD, etc.)

Universal Acceptance Readiness

Support for conversion efforts: definition, test beds, lessons learned, Industry progress

// *. *

Many Internets

With Top-Level Domains in non-English character sets, the entire Internet experience can be in that language, leading to separate markets and environments.
What has changed with Top-Level Domains?

DOMAIN NAME
Latin letters a to z without accents or symbols.

INTERNATIONALIZED DOMAIN NAMES ADDED
Characters from different scripts.

2009

.org
.com
.uk
.
arth
.
china
.
pf

(.arab)
(.china)
(.rf)
All domain names should be treated equally.

Including:

- Internationalized Domain Names: пример.рф
- New gTLDs: site.example
- Internationalized Email Addresses: 名称@网站.域名
The Role of Universal Acceptance

UA-ready

Welcome to organic SOAP
We make the best soap in the world. It’s 100% organic.

http://soap.organic

http://tokyo.ストア

TOKYO
当社の製品を購入します

http://bank.com

Not ready

http://soap.organic

http://tokyo.ストア

http://bank.com

Bank

Email validated.
Account created.

Not ready

http://soap.organic

http://tokyo.ストア

http://bank.com

Not a valid email address.
5. Your turn!
Another major change: TBD
Engage at ICANN

- Do you want to be in the vanguard of Internet expansion into new markets?
- Do you want to shape open standards development and new technology?
- Do you already devote resources to lobbying about Internet policy at the national level?
- Do you already devote resources to lobbying about Internet policy at the national level?
- Do you want to shape policy at the global level and know what is on the horizon?
- Do you know if your competitors are already participating?
- Do you want to be part of a growing and active community?
- Do you see the Internet as a global shared resource worth supporting?
- Do you want to defend the multistakeholder model?
Who Drives the Internet?

ICANN Workgroups
WGIG, UASG, GNSO

ICANN Meetings
3 times a year, around the world

Support Organizations
IETF, GSMA, IGMP
Engage at ICANN

Issues discussed at ICANN impact your business
ICANN’s work ranges relates to a broad range of Internet challenges, including policies on generic names that affect your network configuration and your brand or business practices online. Let your voice be heard on the issues that affect your business.

ICANN is open to everyone
You can tailor your participation to your needs. Remote participation is available in several languages at all ICANN’s public meetings. Issues open for public comment are listed on our website for all stakeholders to provide input.

Take advantage of our multistakeholder model
Not only is ICANN open to everyone, everyone participates on equal footing. This makes it a unique place to interact with and learn from representatives from different sectors such as academia and government.
Get Involved and Informed

Attend an ICANN Public Meeting. Three times a year, ICANN holds free and open public meetings in different regions around the world. Visit meetings.icann.org to learn more.

Visit go.icann.org/journey to learn how you can attend an ICANN Public Meeting as part of the NextGen@ICANN or ICANN Fellowship programs.

Take a free online course at learn.icann.org.

Attend events in your region.

Find and participate in an ICANN community group by visiting icann.org/community.

Sign up for ICANN news alerts and regional newsletters.
Upcoming Meetings

ICANN ANNUAL GENERAL 60
ABU DHABI
28 October–3 November 2017

ICANN COMMUNITY FORUM 61
SAN JUAN
10–15 March 2018

To find out how to participate, go to: https://meetings.icann.org/en/about

Meetings

For a schedule of past and upcoming meetings, go to:
http://meetings.icann.org/calendar

Calendar

If you belong to an organization that is interested in having an exhibit at a meeting or in sponsoring a meeting, please contact:
meeting-sponsorship@icann.org

Email
One World, One Internet

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flickr.com/icann
linkedin/company/icann
slideshare/icannpresentations
soundcloud/icann