Understanding Domain Names

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Objectives

- Why do we use a domain name
- Understand what a domain name is
- ccTLDs vs. gTLDs vs. IDNs
- Domain Name Policy Development
- Root-Servers and Root Server Instances

Why Domain Names?

- Which is easier to memorize?

www.icann.org

or

192.0.32.7

Names Terminology

http://www.icann.org/

Label (63 characters maximum)
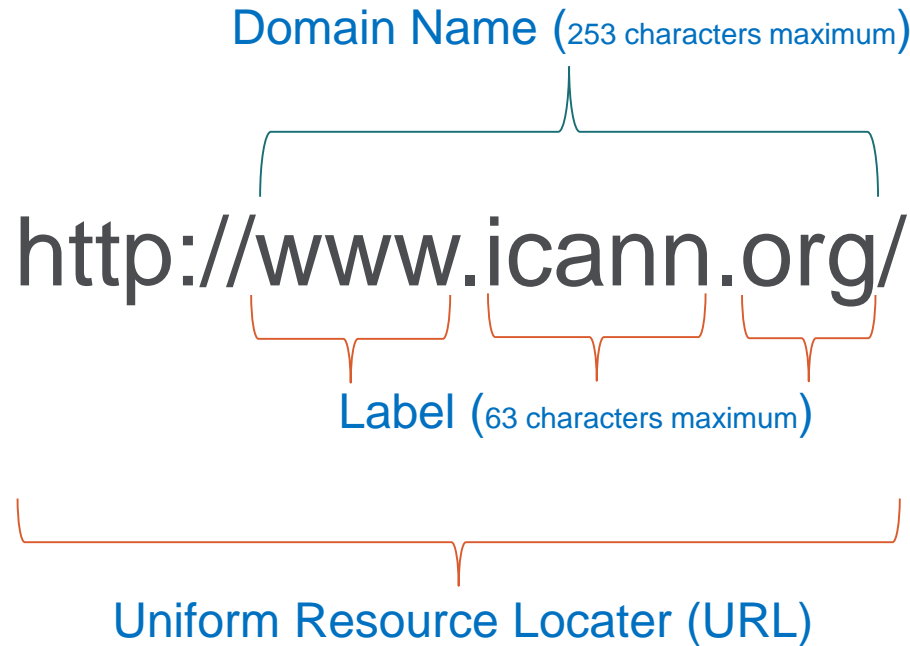
Names Terminology

Domain Name (253 characters maximum)

http://www.icann.org/

Names Terminology

http://www.icann.org/

Uniform Resource Locater (URL)

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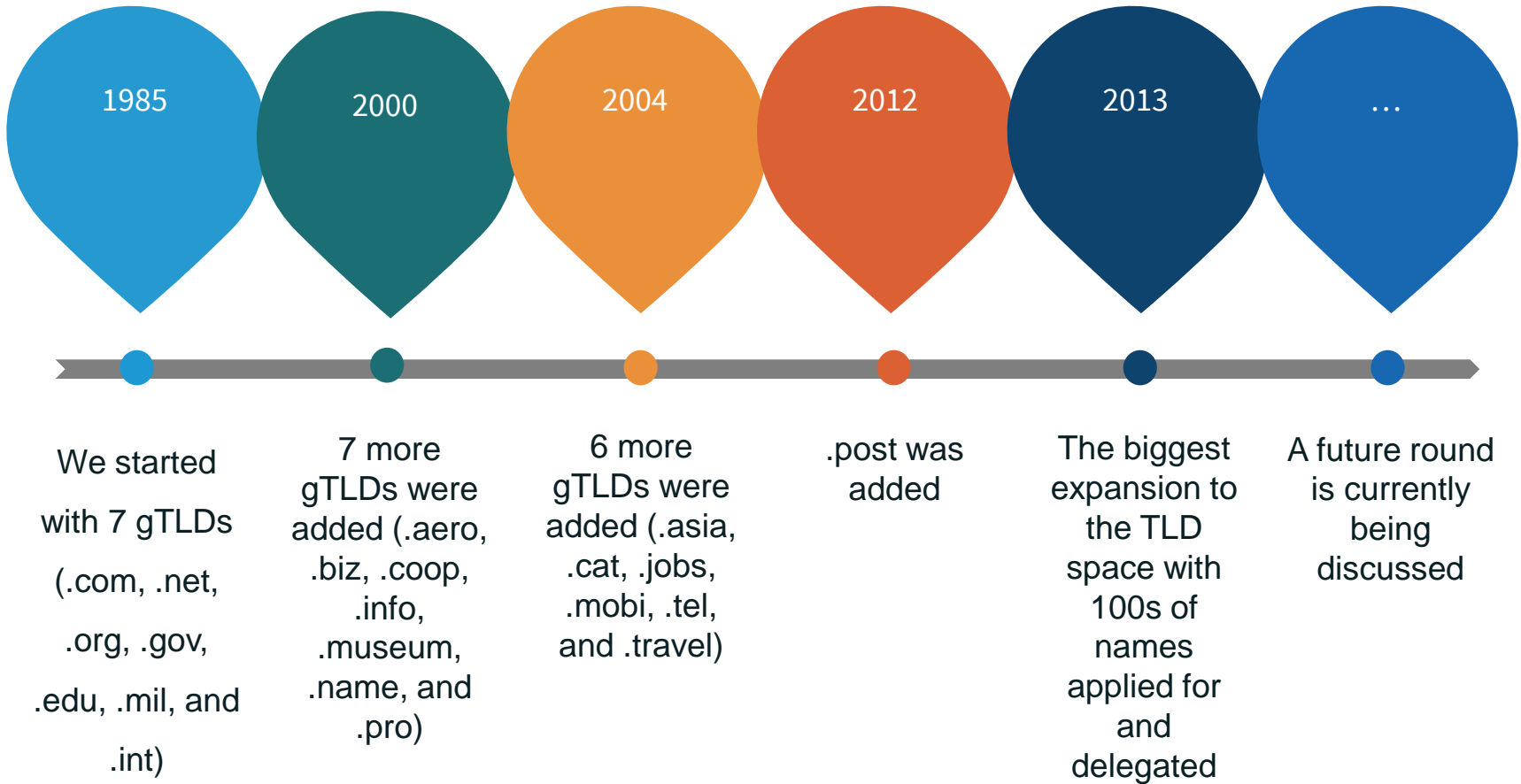
Top Level Domains (TLDs)

- Exists at the highest level of the DNS hierarchy

- It is the entry installed into the root-zone

- Consists of various groups:

  - ccTLDs (.ma, .tn, .jo, .eg, .lb, .uk)

  - gTLDs

    - Legacy (.com, .net, … etc)

    - New (.xyz, .apps, موقع. … etc)

  - IDN TLDs (.ابوظبي, بازار., البحرين.)

Country Code TLDs (ccTLDs)

Source at http://dreamstime.com/

Generic TLDs (GTLDs)

1985	2000	2004	2012	2013	…
We started with 7 gTLDs (.com, .net, .org, .gov, .edu, .mil, and .int)	7 more gTLDs were added (.aero, .biz, .coop, .info, .museum, .name, and .pro)	6 more gTLDs were added (.asia, .cat, .jobs, .mobi, .tel, and .travel)	.post was added	The biggest expansion to the TLD space with 100s of names applied for and delegated	A future round is currently being discussed

New gTLDs

The goal of the New gTLD Program is to foster competition, innovation and choice in the domain name industry.

Competition

Innovation

Choice

◉ This is an Internet community-driven initiative that is enabling the largest expansion of the domain name system, ever.

◉ The New gTLD Program is managed by ICANN, which means it has taken shape through the multistakeholder model.

◉ Over **1,200** new generic top-level domains have been introduced into the Internet over the past few years.

The gTLD Landscape

Internationalized Domain Names (IDNs)

IDNs are domain names with non-Latin characters or Latin characters beyond letters (a to z) digits (0 to 9) and hyphens (-), as allowed by relevant protocols.

Until late 2009, top-level domains were restricted to only the Latin letters a to z without accents or symbols. After 2009, IDN TLDs were introduced in other scripts, including Arabic, Chinese, and Cyrillic scripts.

IDN TLDs can be either ccTLDs or gTLDs.

IDNs use a particular encoding and format to allow a wider range of scripts to represent domain names.

例子. 测试 ← **IDNs** → пример.испытание

Humans vs. Computers

This is what we see and understand (Unicode)

http://الوكالة-الوطنية-لتقنين-المواصلات.المغرب/

This is what machines deal with (ASCII)

http://xn------nzeabcaancne6mxa3pircddecvqfa4bhn4cg.xn--mgbc0a9azcg/

Quick Quiz

What is the name **tra.gov.bh**?

- ○ Label

- ○ Domain Name

- ○ URL

- ○ IP Address

- ○ All of the Above

Quick Quiz

What are the following?

1. .EG

2. ‏.البحرين‎

3. .ORG

4. .PARIS

5. ‏.شبكة‎

ccTLD vs. gTLD Policies at ICANN

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 work on global policies relating to country code top-level domain names (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 names (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)

Root Servers

- Publish the root zone file to other DNS servers and clients on the Internet

- The root zone file describes where the authoritative servers for the DNS TLDs are located

- The root name server operators publish the root zone file as received from the IANA

Root Server Operators

1. A - VeriSign Global Registry Services

2. B - University of Southern California - Information Sciences Institute

3. C - Cogent Communications

4. D - University of Maryland

5. E - NASA Ames Research Center

6. F - Internet Systems Consortium, Inc.

7. G - U.S. DOD Network Information Center

8. H - U.S. Army Research Lab

9. I - Autonomica/NORDUnet

10. J - VeriSign Global Registry Services

11. K - RIPE NCC

12. L – ICANN

13. M - WIDE Project

Root Servers Around the World (1017)

Source at http://root-servers.org/
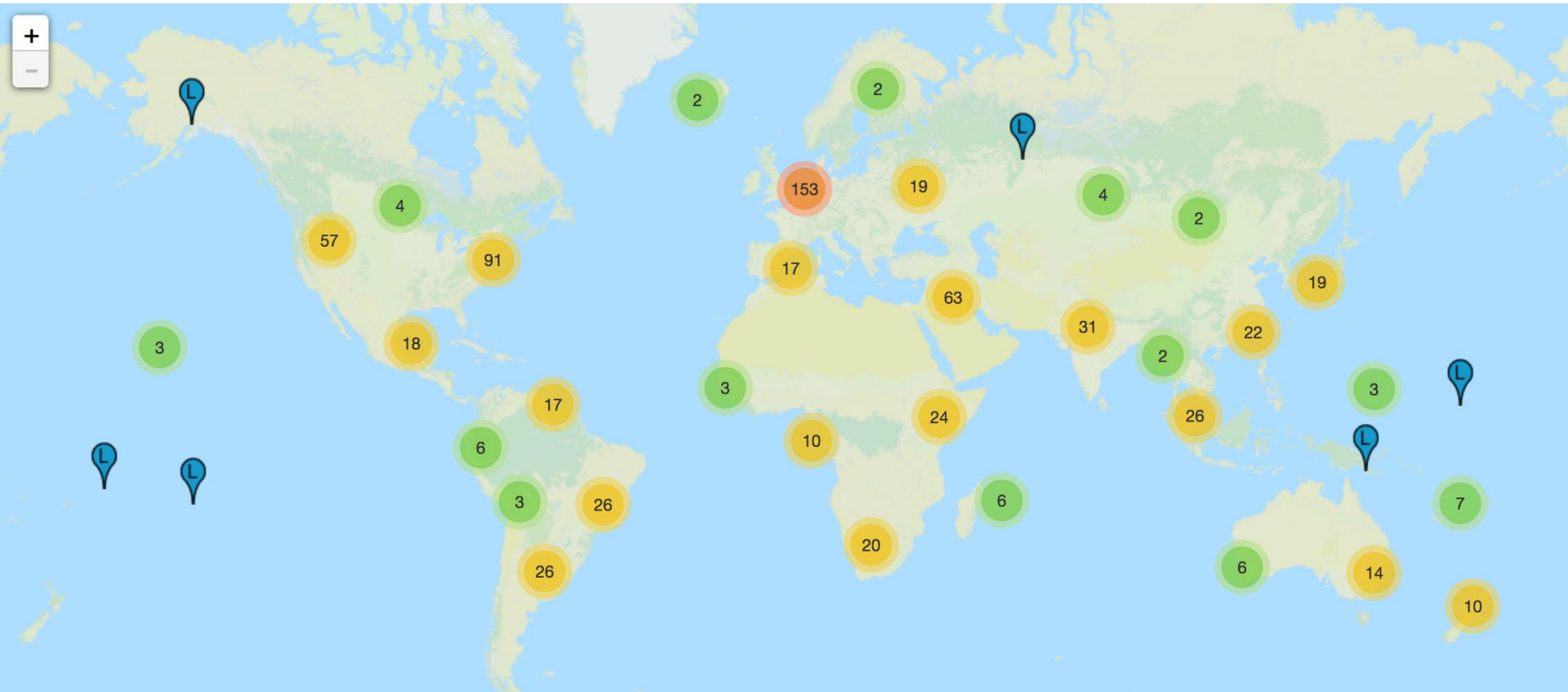
Quick Quiz

GNSO Policies are enforced on both ccTLDs and gTLDs?

- ○ Yes

- ○ No

- ○ Maybe

Quick Quiz

We have only 13 root server instances?

- ○ Yes

- ○ No

- ○ Maybe

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Summary

- Domain Names make our life easier in remembering where to navigate online

- There is a difference between a Label, a Domain Name, and a URL

- While Country Code TLDs (ccTLDs) are limited to countries, Generic TLDs (gTLDs) could be anything else

- GNSO develops gTLD policies, and are enforced on gTLD registry operators

- ccNSO members share best practices, but majority of the policies developed within the ccNSO are non-binding

- Root-servers are the yellow pages of the DNS. There are more than 1,000 instances deployed around the world

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