

ICANN, Policy Development Process, and the Domain Name System (DNS)

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Agenda

ICANN

Policy
Development
Process

The Domain
Name System

Internet Corporation for Assigned Names and Numbers (ICANN)

Unique Names and Numbers

Anything connected to the Internet – including computers, mobile phones and other devices – has a unique number called its IP address. IP stands for Internet Protocol.



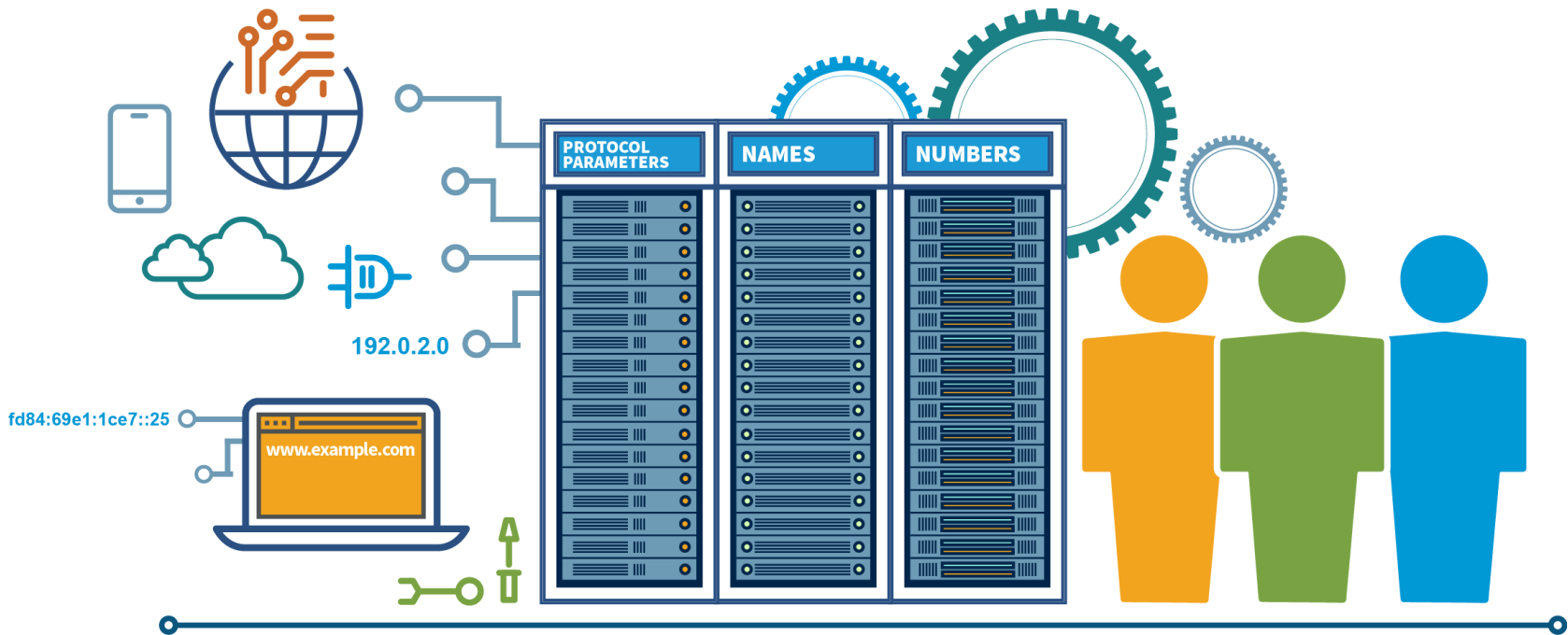
This address is like a postal address. It allows messages, videos and other packets of data to be sent from anywhere on the Internet to the device that has been uniquely identified by its IP address.

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.



Overview






Coordinating with our partners,
we help make the Internet work.



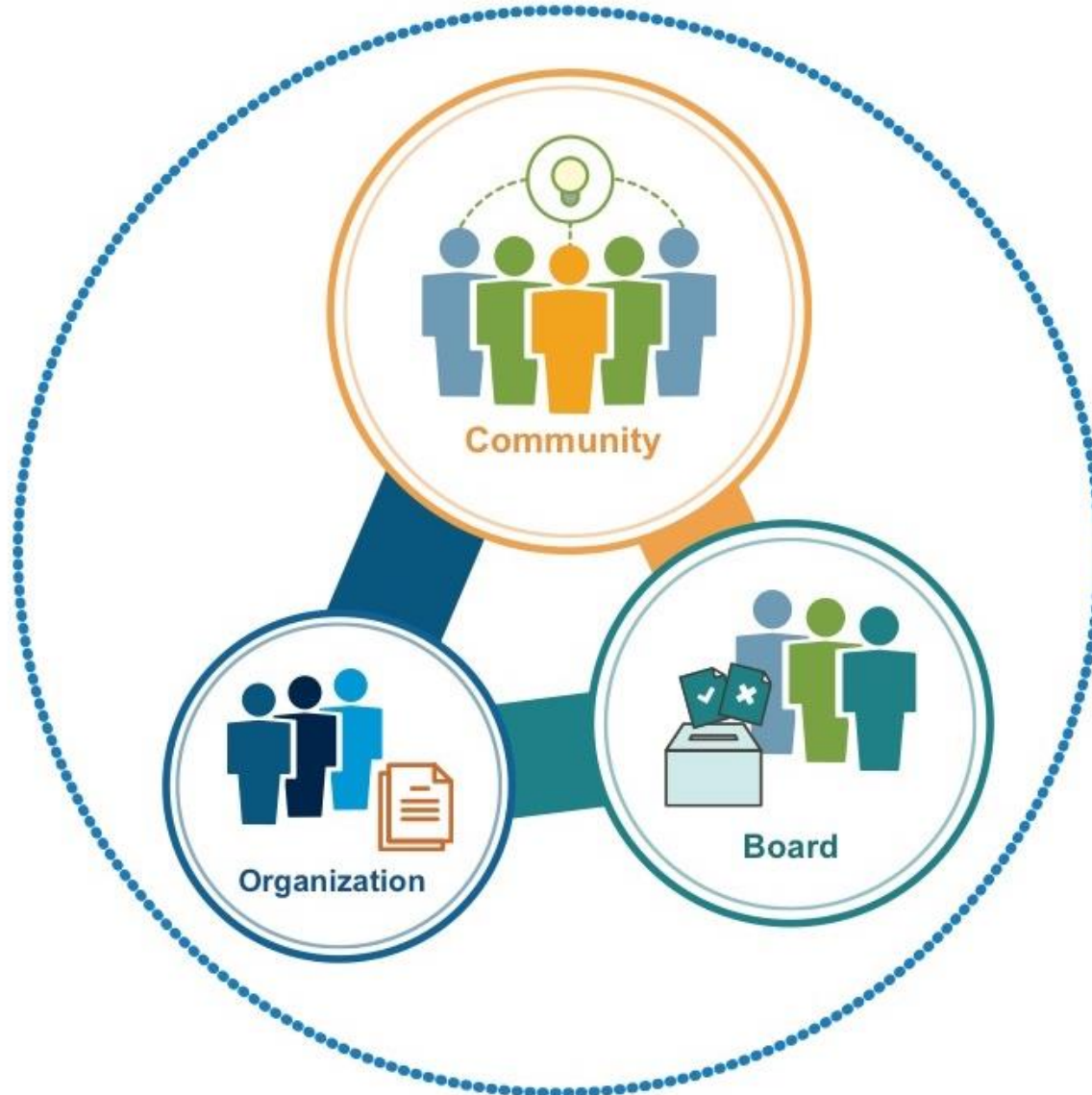
ICANN's Mission

The mission of the Internet Corporation for Assigned Names and Numbers (ICANN) is to **ensure the stable and secure operation of the Internet's unique identifier systems**

Specifically, ICANN:

-  1 Coordinates the allocation and assignment of names in the root zone of the Domain Name System
-  2 Coordinates the development and implementation of policies concerning the registration of second-level domain names in generic top-level domains (gTLDs)
-  3 Facilitates the coordination of the operation and evolution of the DNS root name server system
-  4 Coordinates the allocation and assignment at the top-most level of Internet Protocol numbers and Autonomous System numbers
-  5 Collaborates with other bodies as appropriate to provide registries needed for the functioning of the Internet as specified by Internet protocol standards development organizations

ICANN Ecosystem



The ICANN Multistakeholder Community

ICANN follows a bottom-up, multistakeholder model in which individuals, non-commercial organizations, industry, and governments play important roles in its community-based, consensus-driven, policymaking approach.



Learn More ►

<https://www.icann.org/community>

Exploring ICANN's Multistakeholder Community



Address Supporting Organization (ASO)

ICANN | ASO

Address Supporting Organization

 [Learn More ▶](#)

<https://aso.icann.org>



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.

African Network Information Center (AFRINIC), the RIR for Africa

American Registry for Internet Numbers (ARIN), the RIR for Canada, parts of the Caribbean and North Atlantic islands, and the U.S.


Réseaux IP Européens Network Coordination Centre (RIPE NCC), the RIR for Europe, the Middle East, and parts of Central Asia

Asia-Pacific Network Information Centre (APNIC), the RIR for Asia and Pacific Region

Latin America and Caribbean Network Information Centre (LACNIC), the RIR for Latin America and parts of the Caribbean

Country Code Names Supporting Organization (ccNSO)



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

The ccNSO provides a forum for country code top-level domain (ccTLD) managers to meet and discuss topical issues of concern to ccTLDs from a global perspective.

ICANN | ccNSO

Country Code Names Supporting Organization



<https://ccnso.icann.org>

Generic Names Supporting Organization (GNSO)

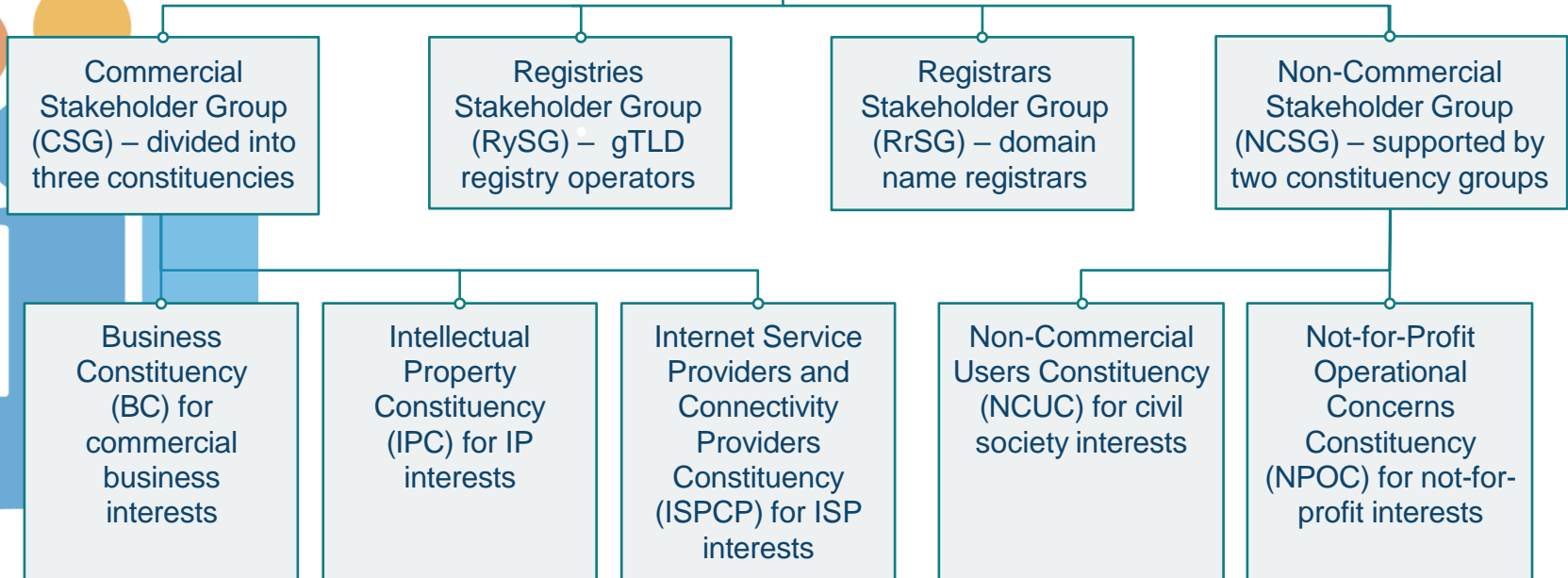
 **GNSO**
The GNSO Council is composed of 21 members – divided into 2 houses (contracted and non-contracted parties) – who work on generic top-level domain (gTLD) naming policies (e.g., .com, new gTLDs).

ICANN | GNSO

Generic Names Supporting Organization

 [Learn More ▶](#)

<https://gns0.icann.org>



At-Large Advisory Committee (ALAC)



ALAC

The ALAC voices the interests of the individual Internet user and is composed of 15 members – 2 from each of the 5 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.



Learn More ▶

<https://atlarge.icann.org>

Asian, Australasian and Pacific Islands Regional At-Large Organization (APRALO)

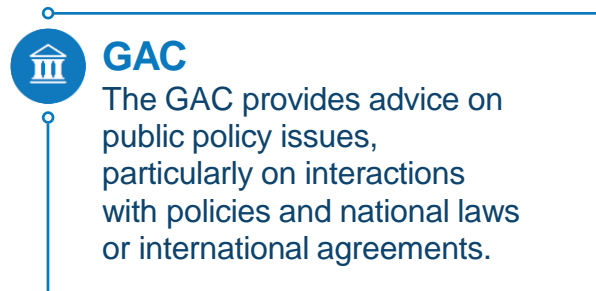
Latin American and Caribbean Islands Regional At-Large Organization (LACRALO)

African Regional At-Large Organization (AFRALO)

European Regional At-Large Organization (EURALO)

North American Regional At-Large Organization (NARALO)

Governmental Advisory Committee (GAC)



ICANN | GAC
Governmental Advisory Committee



<https://gacweb.icann.org>

Root Server System Advisory Committee (RSSAC)



RSSAC

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

RSSAC consists of representatives of the organizations responsible for operating the world's 13 root name servers (as voting members).

ICANN | RSSAC

Root Server System Advisory Committee




Learn More ▶

<https://www.icann.org/groups/rssac>

Security and Stability Advisory Committee (SSAC)



 **SSAC**
The SSAC advises on matters related to the security and integrity of the Internet's naming and address allocation systems.

The SSAC consists of technical expert individuals appointed by the ICANN Board.

ICANN | SSAC

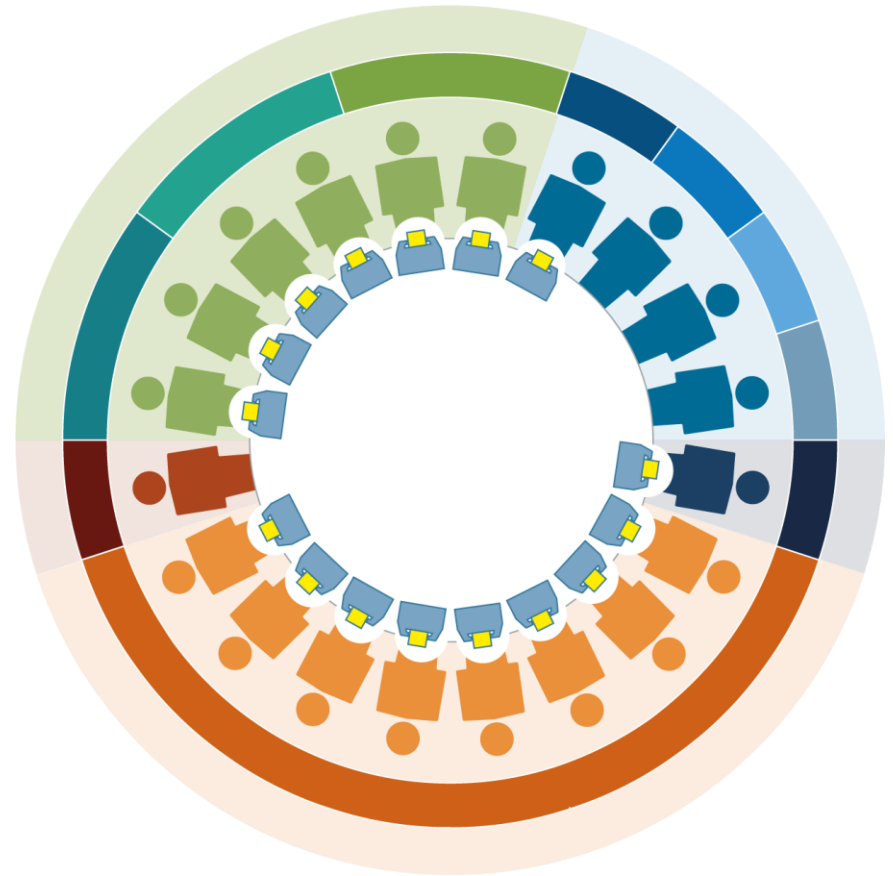
Security and Stability Advisory Committee



<https://www.icann.org/groups/ssac>

What Is the ICANN Board and What Does It Do?

The ICANN Board is a group of representatives from the ICANN community. The Board provides the ICANN organization's strategic oversight, ensuring that it acts within its mission and operates effectively, efficiently, and ethically. The Board also oversees and considers community-developed policy recommendations.



Who Makes Up the ICANN Board?

Members are representatives from the community, selected in a bottom-up approach by their peers. The Board is composed of 16 directors and 4 non-voting liaisons, from different geographies and with expertise relevant to ICANN's mission.

SUPPORTING ORGANIZATION (SO) APPOINTEES:

Each of the three SOs nominates two directors:

Address Supporting Organization (**ASO**)

Country Code Names Supporting Organization (**ccNSO**)

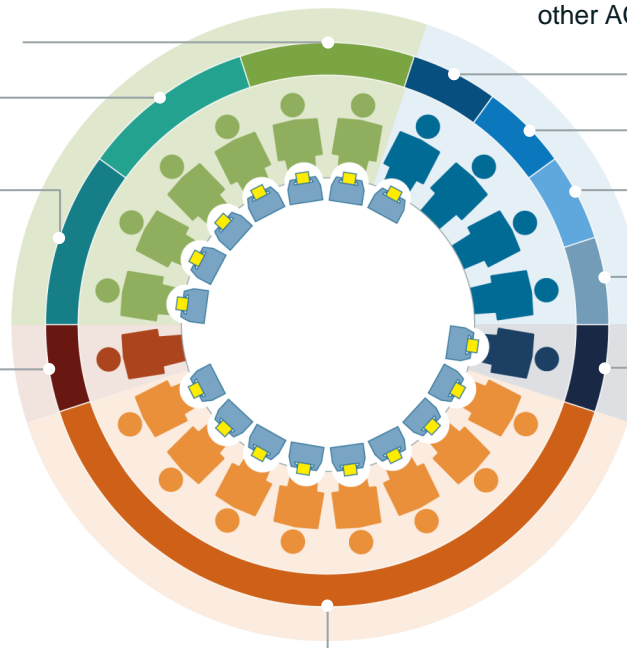
Generic Names Supporting Organizations (**GNSO**)

INTERNET ENGINEERING TASK FORCE (IETF) APPOINTEE:

The IETF nominates one non-voting liaison.



VOTING MEMBERS



NOMINATING COMMITTEE (NomCom) APPOINTEES:

The NomCom appoints eight seats.

ADVISORY COMMITTEE (AC) APPOINTEES:

The ALACs nominates one director, and each of the other ACs nominates one non-voting liaison.

- At-Large Advisory Committee (**ALAC**)
- Governmental Advisory Committee (**GAC**)
- Root Server System Advisory Committee (**RSSAC**)
- Security and Stability Advisory Committee (**SSAC**)
- ICANN PRESIDENT AND CEO



go.icann.org/board



go.icann.org/boardbylaw

ICANN's Global Presence

Call one of our regional offices or submit a question online



Contact us ▶

www.icann.org/contact

Regional Offices:

Los Angeles, U.S.A
(Headquarters)
Brussels, Belgium
Istanbul, Turkey
Montevideo, Uruguay
Singapore

Engagement Centers:

Beijing, China
Geneva, Switzerland
Nairobi, Kenya
Washington, D.C., U.S.A.

Partnership Centers:

Asunción, Paraguay
Cairo, Egypt
Seoul, Republic of Korea

Some of What the ICANN Organization Does



Domain Name System

The Domain Name System provides addressing for the Internet so people can find websites, send email, and other tasks. The ICANN org also supports the stability of the DNS through its work, contracts, and accreditations.



Policy Development

The ICANN org supports inclusive, open and transparent multi-stakeholder bottom-up consensus-based policy development mechanisms.



L-Root

The ICANN org hosts and supports 1 of the 13 L-Root infrastructures. At over 160 locations worldwide, L-Root is critical to infrastructure that helps reduce latency and improves performance of the DNS.



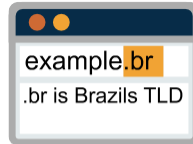
Support and Grow the Community

The ICANN org engages, nurtures and supports interested stakeholders for active and meaningful participation in ICANN. ICANN connects with stakeholders through outreach and engagement, and meeting and event support.



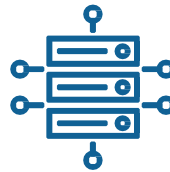
Generic Top-Level Domains

The ICANN org manages the Domain Name System's top-level domains. ICANN helps promote competition and choice in the gTLD marketplace.



Country Code Top-Level Domains

The ICANN org delegates top-level domains identified with a country code. Management is done by national ccTLD operators.



Protocol Parameters

The ICANN org, in coordination with the Internet Engineering Task Force, manages protocol parameters by maintaining many of the codes and numbers used in Internet protocols.



Internet Protocol Addresses

By serving as the central repository for IP addresses, the ICANN org helps coordinate how IP addresses are supplied – preventing repetition and conflicts.



Root Zone Management

The ICANN org helps manage the root zone through the IANA functions, which involves assigning the operators of top-level domains, such as .bank and .com, and maintaining technical and administrative details.

IANA Functions

Our Programs



Fellowship

Global capacity-building program to support ICANN's multistakeholder community. Online application process is open three times per year to participate in an ICANN Public Meeting (one meeting for Alumni only).



NextGen

Regionally based program to create awareness and promote future discussions with universities and other regional forums. Online application process is open three times per year to attend an ICANN Public Meeting.



Newcomer

Program dedicated to those entering the ICANN community. Options are self-study using the Newcomer web page or participation in person or remotely at the Newcomer Sunday meeting at an ICANN Public Meeting.

Watch Fellowship and NextGen video:

https://www.youtube.com/watch?v=nrV_ZkDEfIQ



Watch Newcomer video:

<https://www.youtube.com/watch?v=da1RQt9-e-g>



More About the Programs

Fellowship

icann.org/fellowshipprogram

NextGen

icann.org/development-and-public-responsibility/nextgen

Newcomer

icann.org/newcomers

Success Stories of Newcomers



Jelena Ozegovic (Poland):

- ⦿ Began journey in the ICANN56 NextGen program.
- ⦿ Served as a NextGen Ambassador, then was selected for ICANN58's Fellowship program.
- ⦿ Participates actively in the ccNSO. Recently became involved in the Community Onboarding Pilot, where her Newcomer experiences are helping build a better path for those who follow in her footsteps.



Amr Elsadr (Egypt):

- ⦿ Began ICANN journey as Fellow at ICANN36 in Seoul.
- ⦿ Elected to the GNSO Council in 2013, re-elected to a second term in 2015. Stepped down in 2017 to join the ICANN organization as a Policy Manager supporting the GNSO.



León Felipe Sanchez Ambia (Mexico):

- ⦿ Became engaged in ICANN through the ICANN44 Fellowship program, returning to ICANN46 and ICANN48 to mentor new Fellows.
- ⦿ In 2015, was the NomCom-appointed member to the ALAC, and served as Vice-Chair. Later was Co-Chair of the CCWG-Accountability.
- ⦿ In 2017, was selected by the At-Large Community to serve on the ICANN Board. His term started at the end of ICANN60.

ICANN | LEARN

- ⦿ ICANN Learn presents education and training, across a wide variety of topics that pertain to ICANN, to better educate stakeholders in the ICANN ecosystem.
- ⦿ ICANN Learn is a free online learning platform where ICANN community members can access and create course content.
- ⦿ ICANN Learn is currently available in the six U.N. languages.

 Learn more ▶

learn.icann.org

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.

Policy Development Process

Generic Names Supporting Organization (GNSO)

ICANN | GNSO

Generic Names Supporting Organization

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).

ICANN | ccNSO

Country Code Names Supporting Organization

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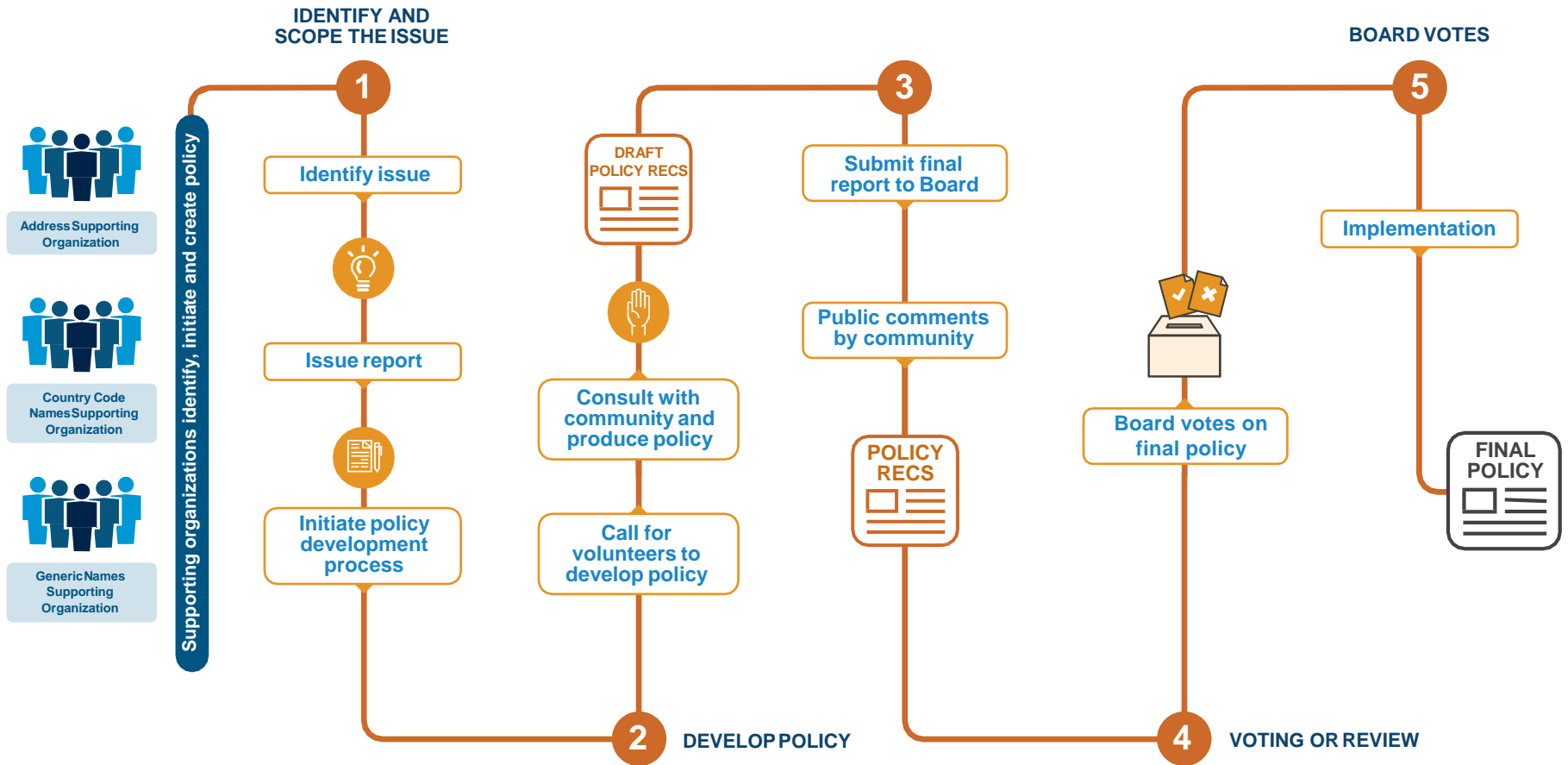
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ICANN | ASO

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How Does the Community Develop Policy?



Advisory Committees can participate during the process

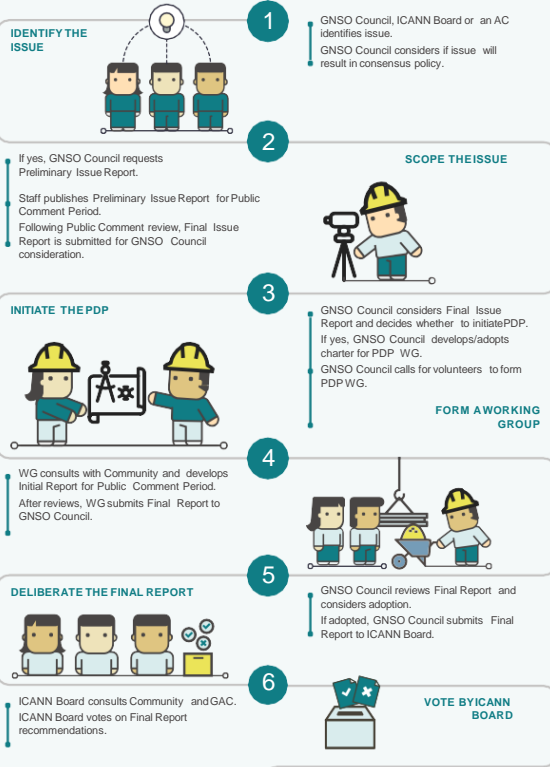
- At-Large Advisory Committee
- Security and Stability Advisory Committee
- Root Server System Advisory Committee
- Governmental Advisory Committee

Multistakeholder Policy Development

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GNSO Policy Development Process



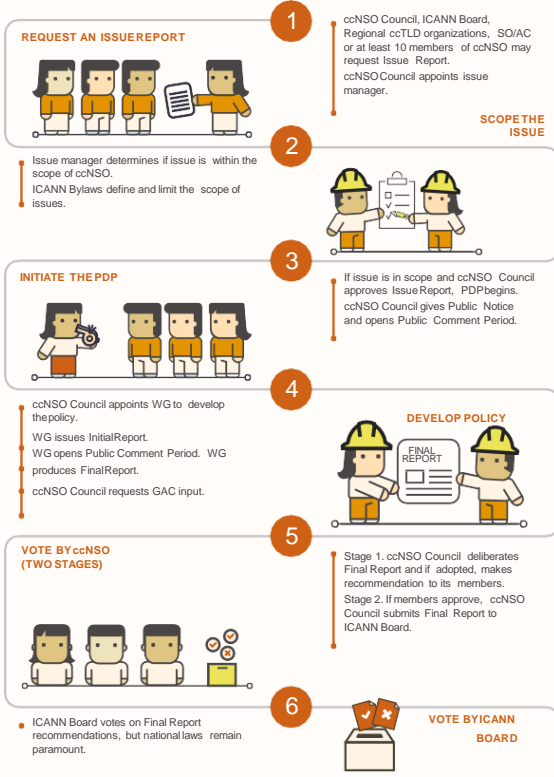
Learn more about the GNSO
gnso.icann.org

ICANN | GNSO
Generic Names Supporting Organization

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ccNSO Policy Development Process



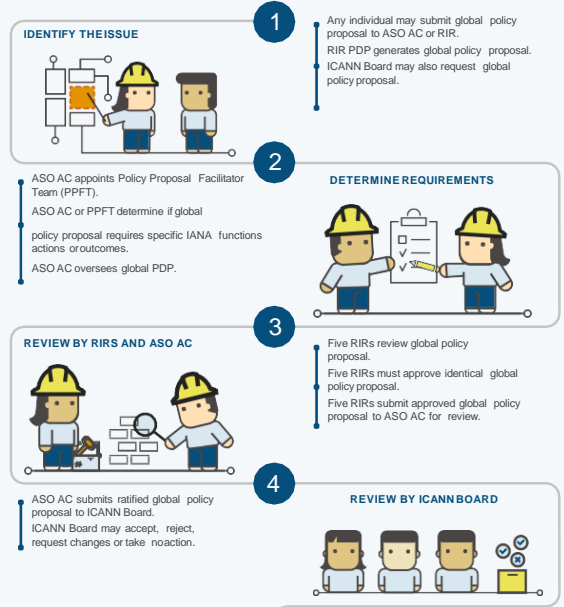
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ccnsso.icann.org

ICANN | ccNSO
Country Code Names Supporting Organization

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ASO Global Policy Development Process



*Regional Internet Registries

(RIRs) AFRINIC Africa
APNIC Asia and Pacific region
ARIN Canada, parts of the Caribbean and North Atlantic islands, and the U.S.
LACNIC Latin America and parts of the Caribbean
RIPE NCC Europe, the Middle East and parts of Central Asia

Learn more about the ASO
aso.icann.org

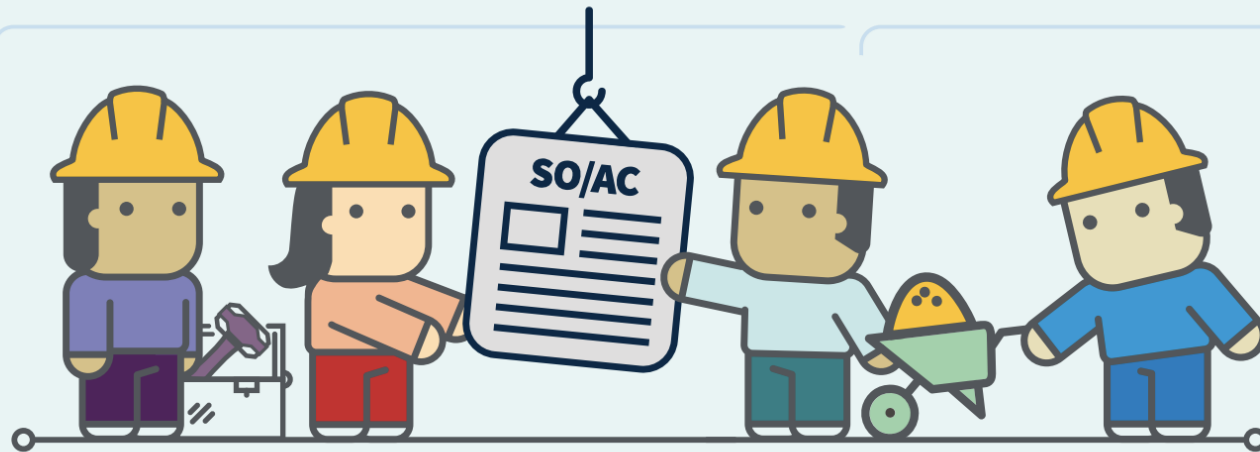
ICANN | ASO
Address Supporting Organization

GAC Governmental Advisory Committee | PDP Policy Development Process | SO/AC Supporting Organizations/Advisory Committees | WG Working Group

How DNS Policy is Developed?

Policy Development

How **Domain Name System Policy** is Developed,
and How You Can Get Involved



<https://go.icann.org/35O6dHG>

The Domain Name System (DNS)

Why Domain Names?

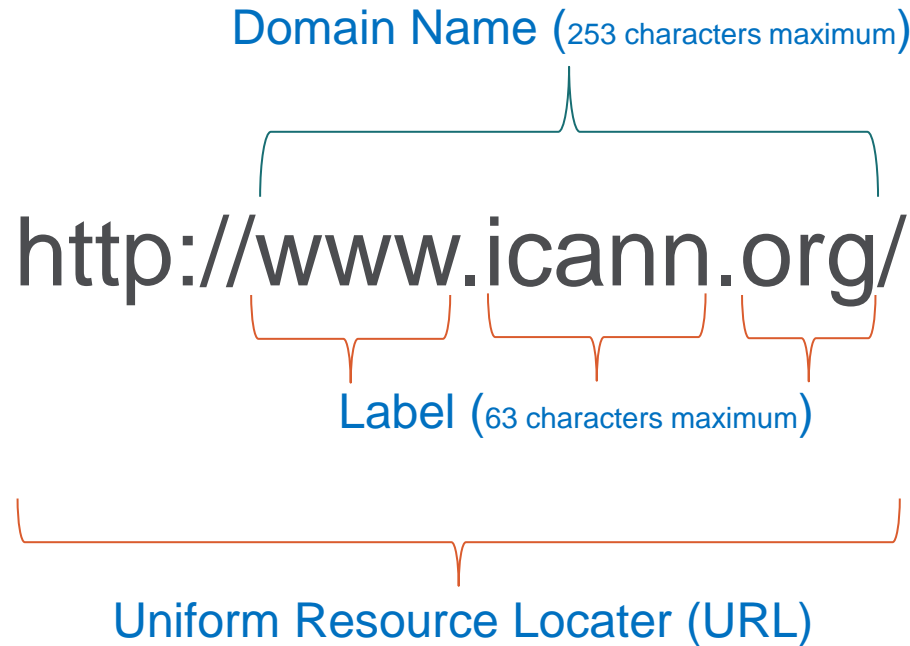
- Which is easier to memorize?

www.icann.org

or

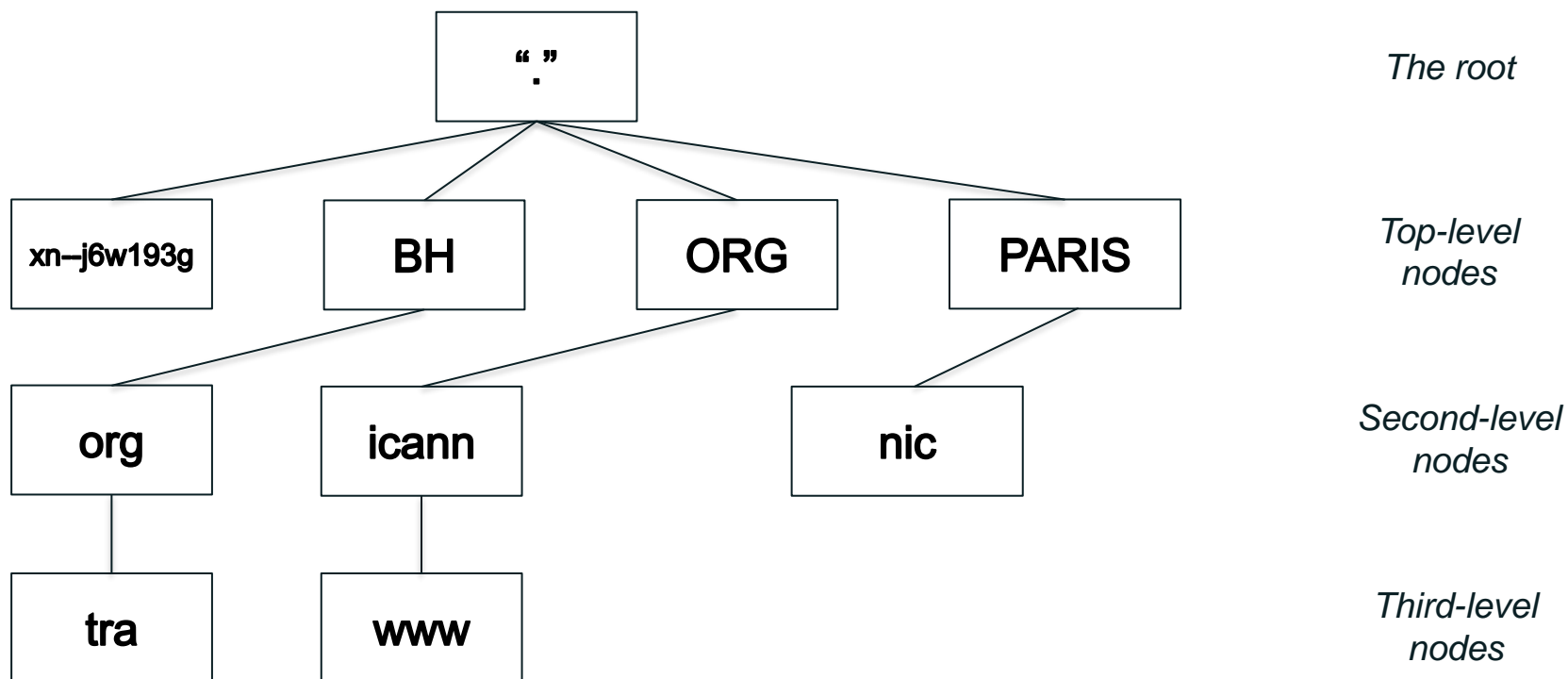
192.0.32.7

Names Terminology



The Name Space

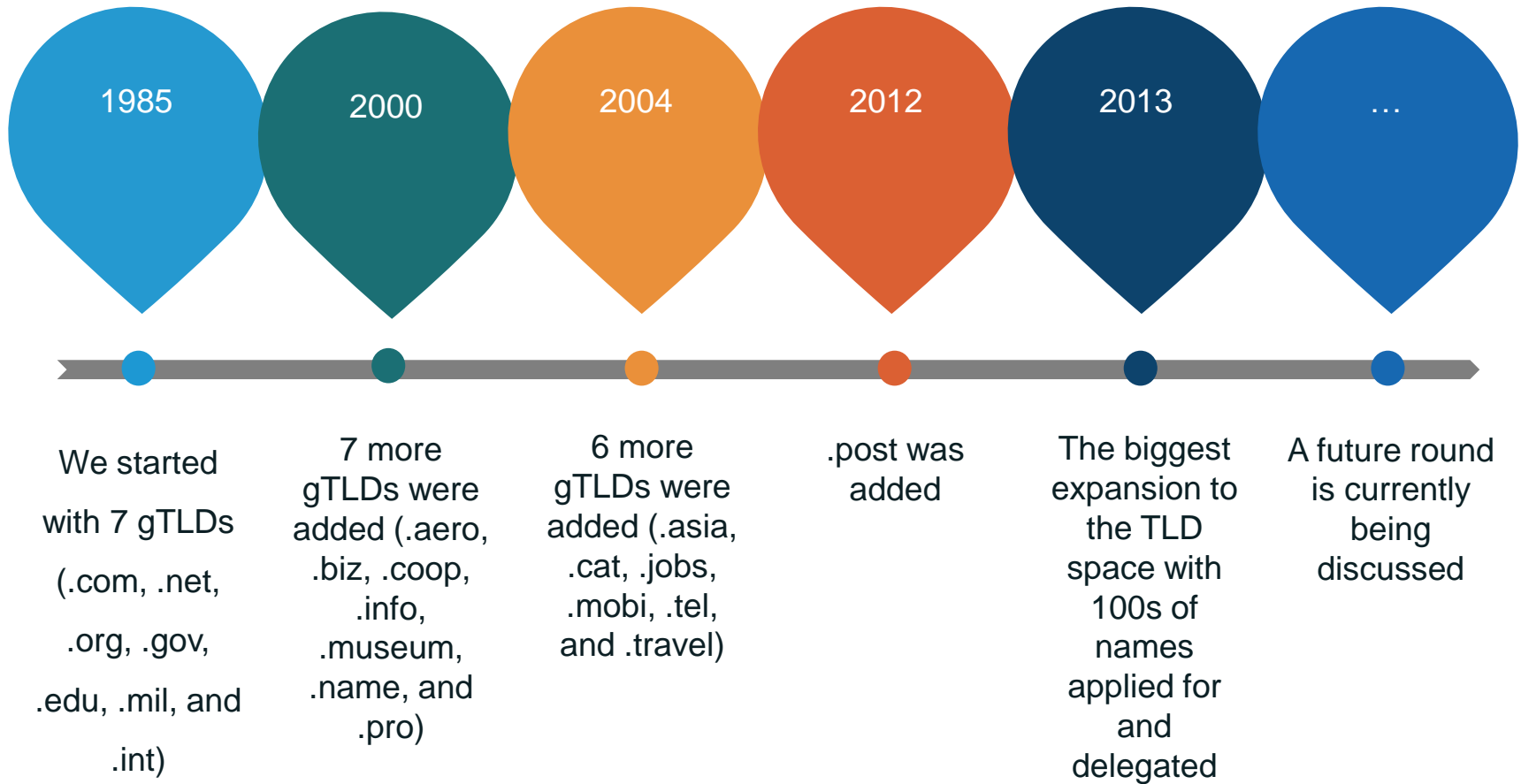
- DNS database structure is an inverted tree called the *name space*
- Each node has a label
- The root node (and only the root node) has a null label



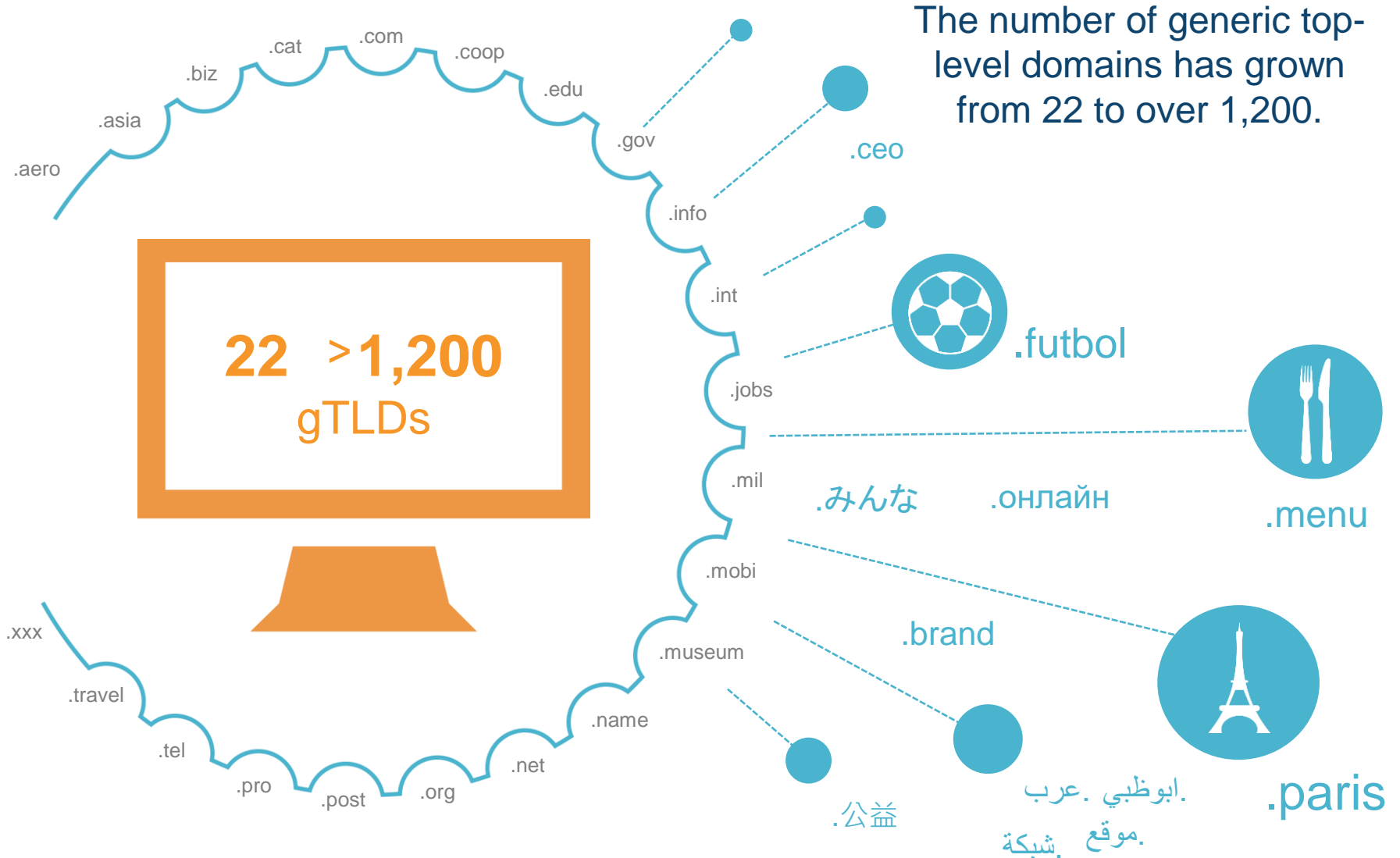
Top Level Domains (TLDs)

- Exists at the highest level of the DNS hierarchy
- It is the entry installed into the root-zone
- Consists of various groups:
 - **ccTLDs** (.ye, .tn, .jo, .eg, .lb, .uk)
 - **gTLDs**
 - Legacy (.com, .net, ... etc)
 - New (.xyz, .apps, موقع ... etc)
 - **IDN TLDs** (.عرب, .بازار, .فلسطين)

Generic TLDs (GTLDs)



Expansion of gTLDs



New gTLDs

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



- 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.

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.

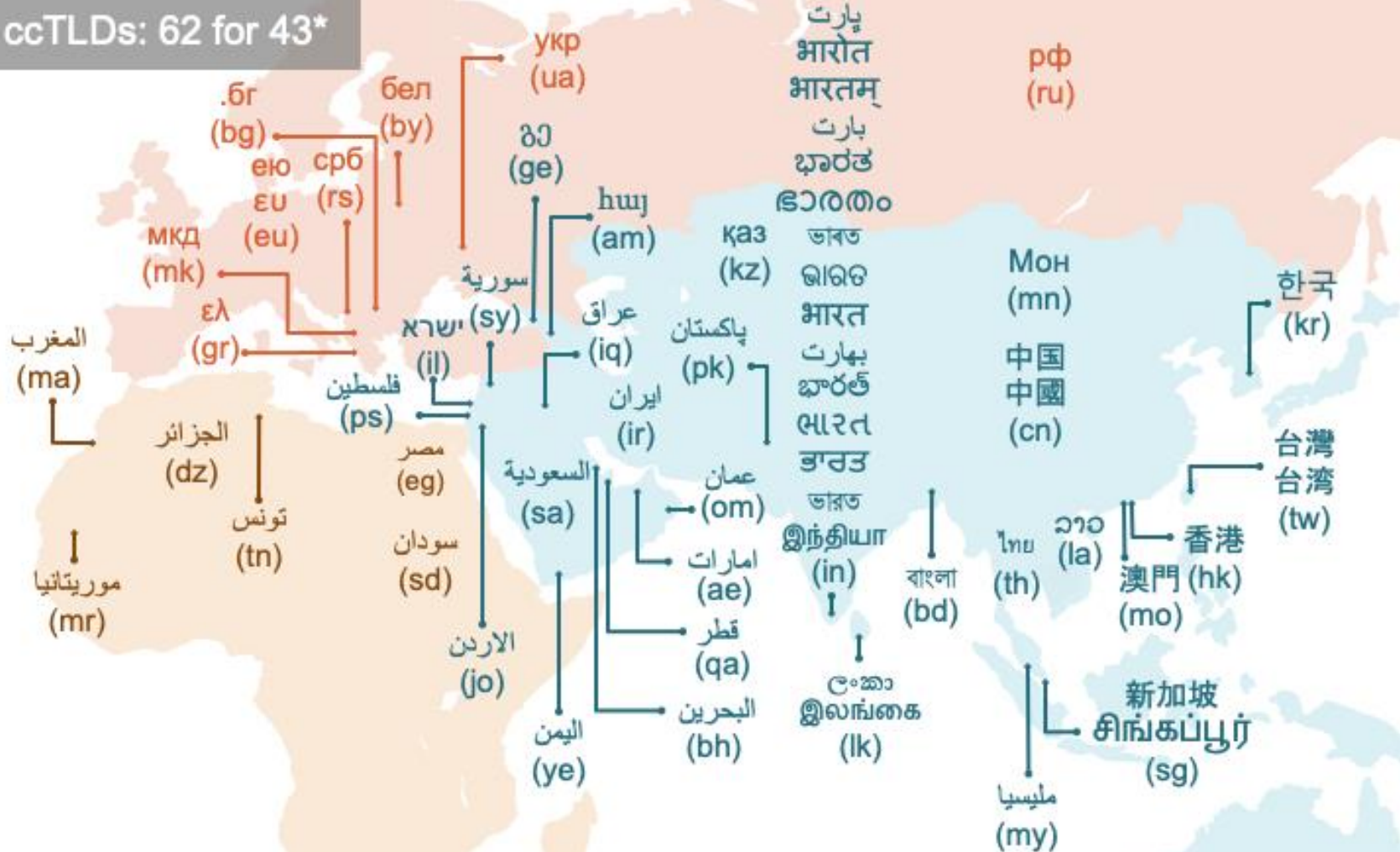
IDN TLDs can be either ccTLDs or gTLDs.

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



IDN ccTLD Fast Track Program

ccTLDs: 62 for 43*



* Successfully evaluated IDN ccTLDs for total countries and territories (as of May 2020)

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/>

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

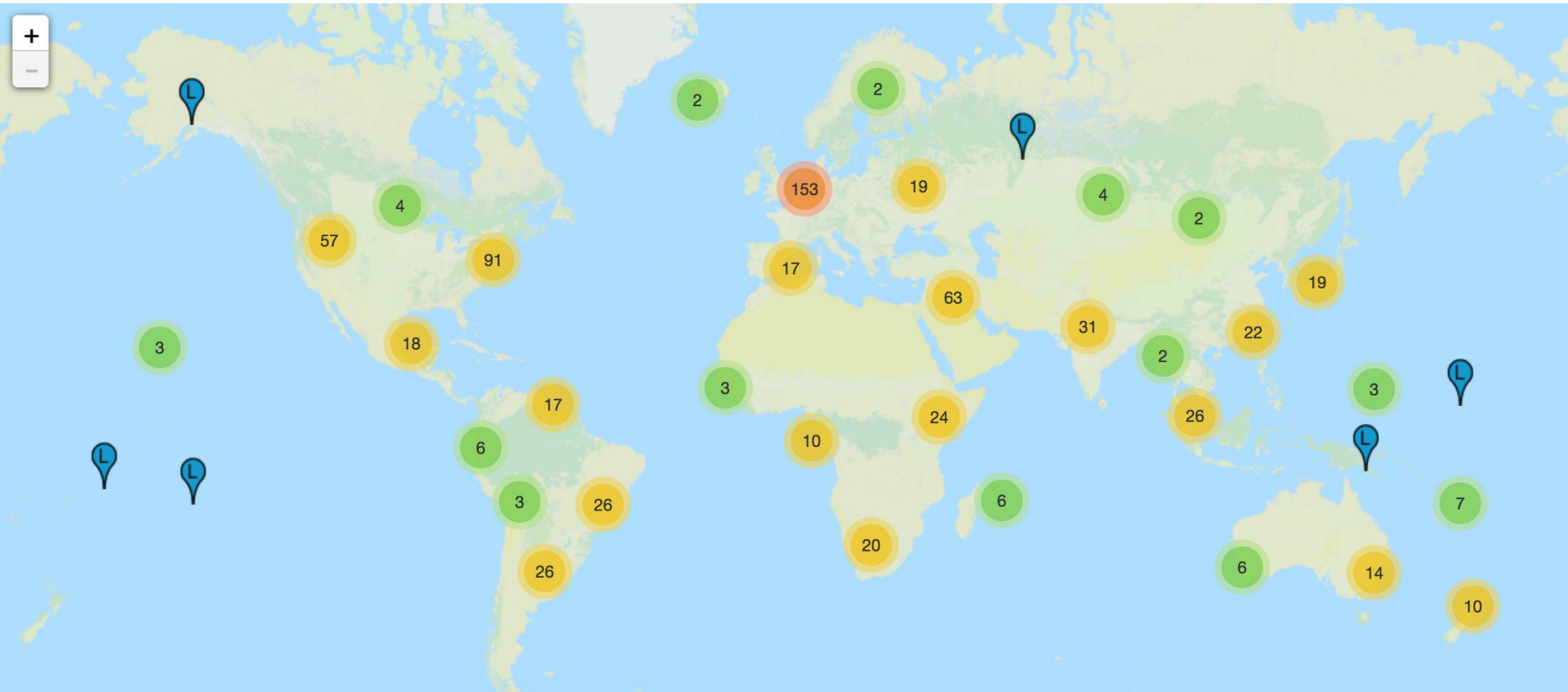
Root Zone Administration

- ⊙ Administration of the root zone is complicated
- ⊙ Two organizations cooperate to administer the zone's contents
 - ICANN (IANA Functions Operator)
 - Verisign (Root Zone Maintainer)
- ⊙ Twelve organizations operate authoritative name servers for the root zone

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 (1397)



Source at <http://root-servers.org/>



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