



The problem of Attribution:

Carrier Grade Network Address Translation (CGNs)

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# Internet Corporation for Assigned Names and Numbers

1

Dedicated to keeping  
Internet Secure, Stable  
and Interoperable

2

Formed in 1998 as a not-  
for-profit public-benefit  
cooperation

3

Follows  
multistakeholder model



**ICANN**

# Some of What 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 organization also supports the stability of the DNS through its work, and also its contracts and accreditations.



## Policy Development

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



## L-Root

The ICANN organization hosts and supports one of the 13 L-Root infrastructures. At over 150 locations worldwide, L-Root is critical to infrastructure that helps reduce latency and improves performance of the DNS.



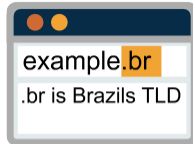
## Support and Grow the Community

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



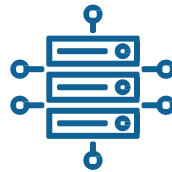
## Generic Top-Level Domains

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



## Protocol Parameters

The ICANN organization, 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 organization helps coordinate how IP addresses are supplied – preventing repetition and conflicts.

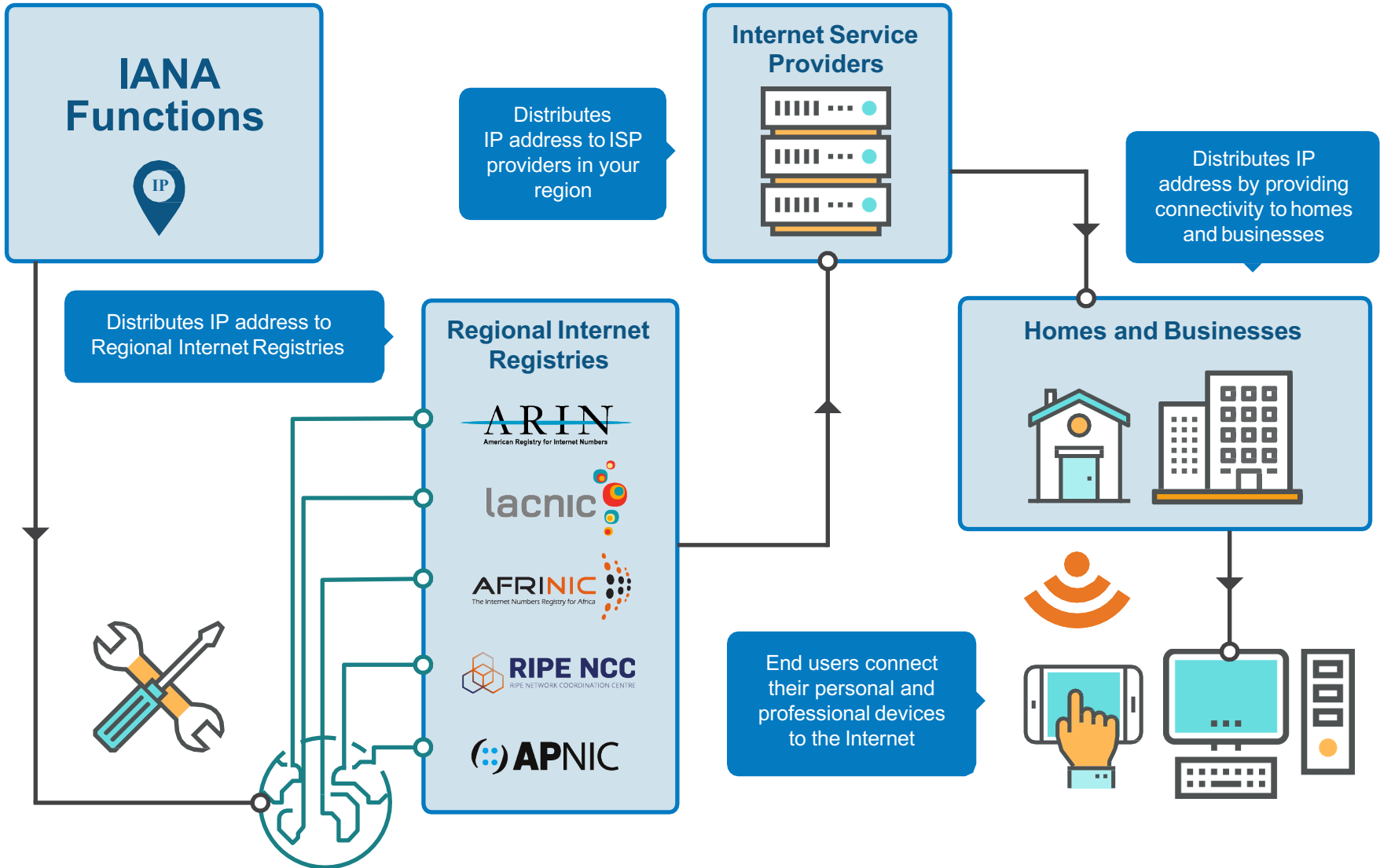


## Root Zone Management

The ICANN organization 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 the technical and administrative details.

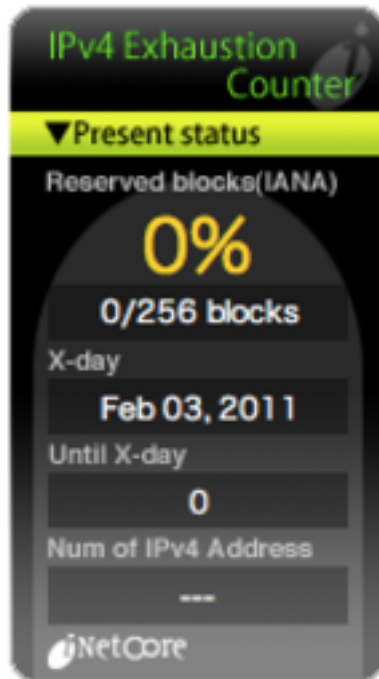
IANA Functions

# How Internet Protocol (IP) Addresses are Distributed

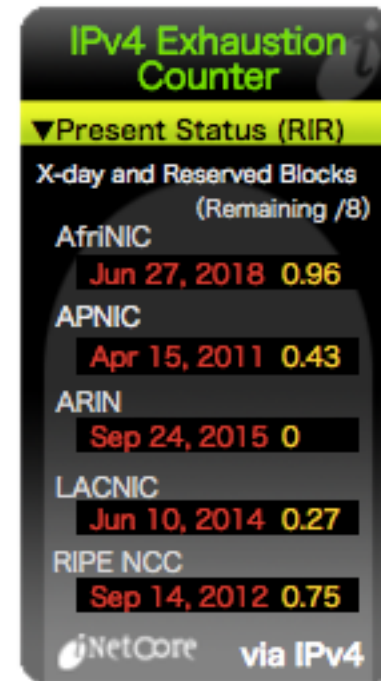


# IPv4 Exhaustion

IPv4 Exhaustion Counter  
(IANA)

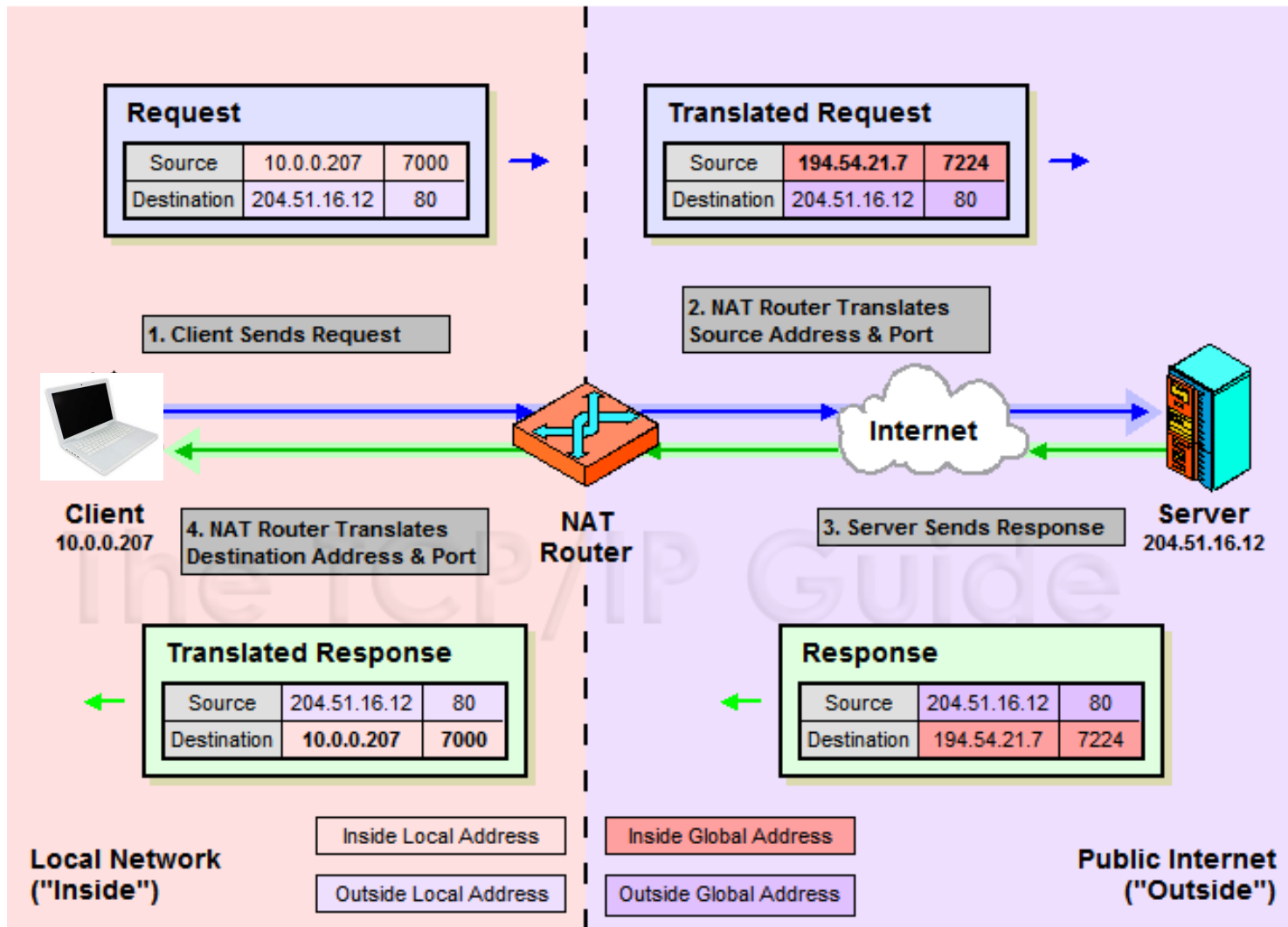


IPv4 Exhaustion Counter  
(RIR)



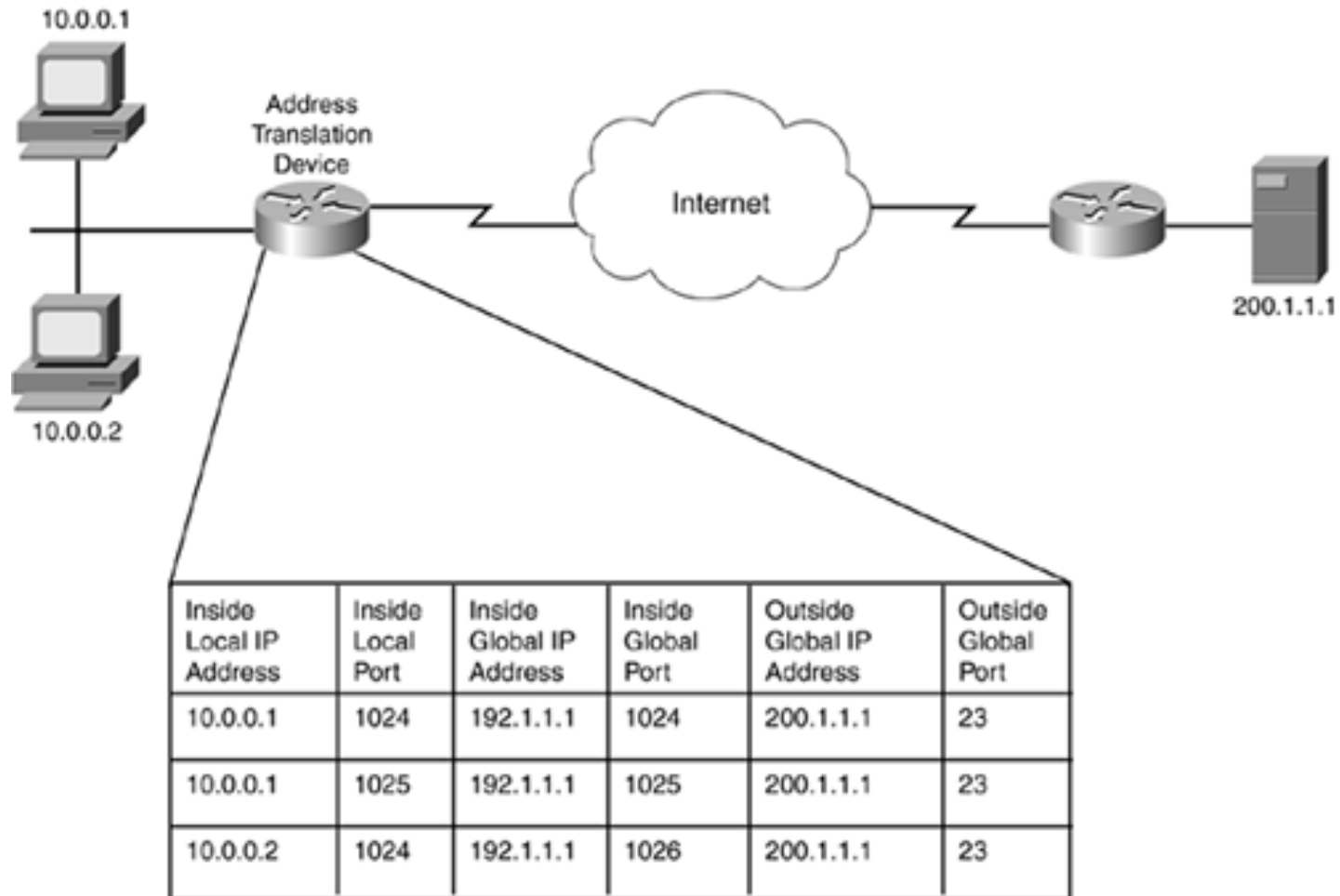
Source: <https://inetcore.com/>

# Network Address Translators (NATs)



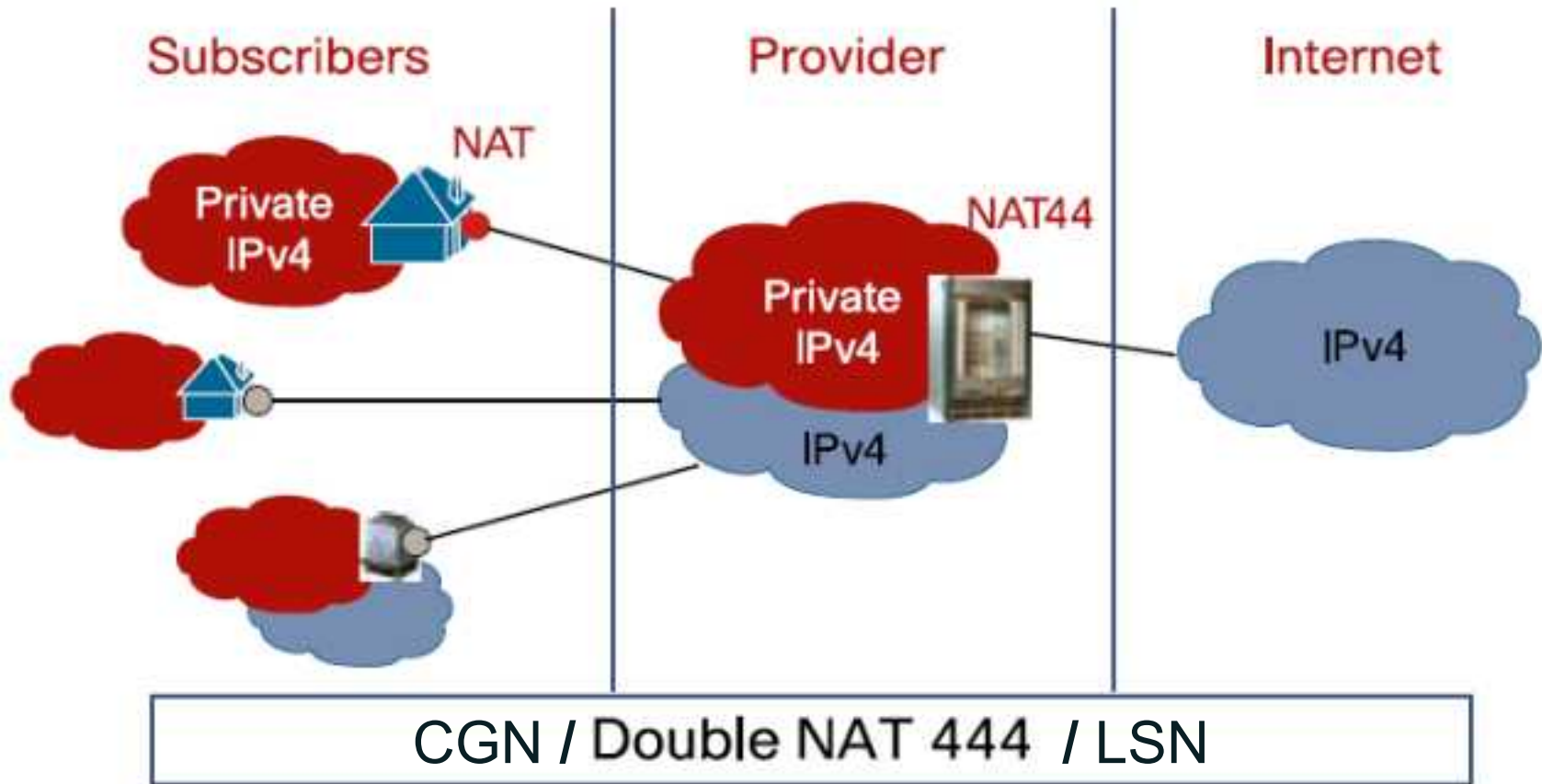
Source: <http://www.tcpipguide.com/>

# Network Address Translators (NATs)



Source: <http://etutorials.org/>

# Carrier Grade NATs / NAT444 / Large Scale NATs



Source: <https://networkingnerd.net>



# Carrier Grade NATs / NAT444 / Large Scale NATs

- Adding a whole new layer of complexity onto ISP's network (device overheads, port sharing/tuple NATs)
- Huge amount of translations in the NAT table (e.g. RAM, CPU power)
- Keeping track of all those state tables and translations (e.g. can be 1GB per subscriber per month)
- Application service issues (e.g. streaming, VoIP, web conferencing, large file transfers, geo locations etc.)
- Hosting challenges (e.g. web, email, peer-to-peer gaming etc.)
- One bad actor can affect whole lot of other users
- Challenges with Security protocols (e.g. IPSec)

# IPv6 - Where are we?

**The protocol itself is mature and IPv6 addresses are being allocated by the RIRs and used all over the world.**

Recent measurements suggest that more than 29% of the world's Globally connected Networks (ASN - Autonomous Systems) are reachable over IPv6, including those serving major ISPs, Operators and Content Providers such as T-Mobile, Verizon, Swisscom, Telefonica, Facebook, Google, App Store ....

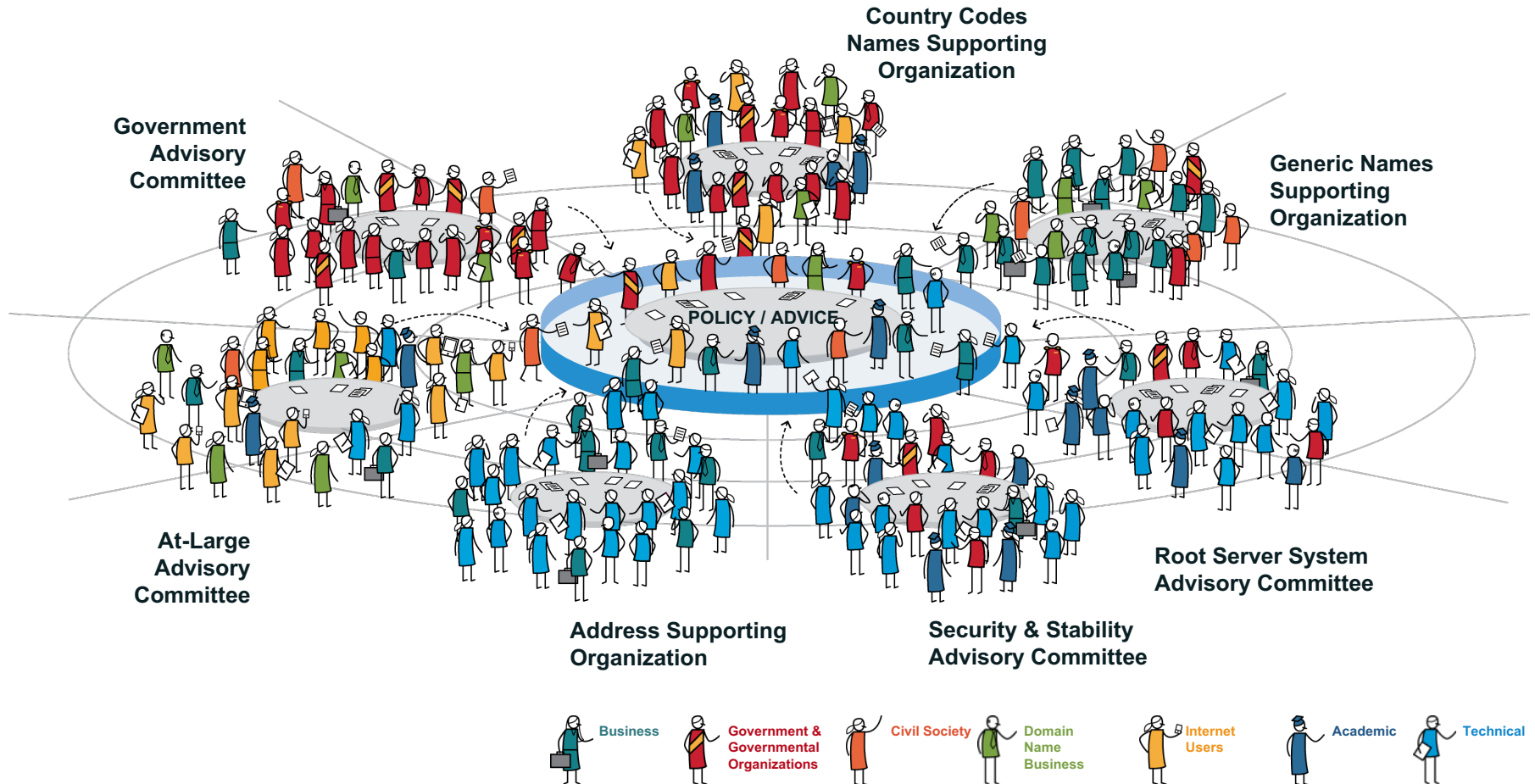
ASN globally reachable over  
IPv6

29.6%

Source: [http://v6asns.ripe.net/v/6?s=\\_AL](http://v6asns.ripe.net/v/6?s=_AL) (22.01.2017)

# The ICANN Community At Work

The diverse participants in the ICANN Community are organized into a number of Advisory Committees and Supporting Organizations, designed to ensure that no single entity can capture ICANN or exclude other parties from decision-making processes.



# Government Advisory Committee (GAC) Public Safety Working Group (PSWG)

Secure https://gacweb.icann.org/display/gacweb/GAC+Public+Safety+Working+Group

ICANN | GAC  
Governmental Advisory Committee

News About Newcomers GAC Advice Meetings GAC Work Correspondence Members-only

GAC Website (Main) > Governmental Advisory Committee > Key Topics > GAC Working Groups > GAC Public Safety Working Group

Select Language

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    - GAC Working Groups
      - GAC Operating Principles Working Group
      - GAC Public Safety Working Group**
        - GAC PSWG Members
        - GAC PSWG Newsletter
        - GAC PSWG Terms of Reference
        - PSWG Activity Report to the GAC
      - GAC Under-served Regions Working Group
      - GAC TTF Work on the new GAC website
      - GAC Working Group on Human Rights & International Law
      - GAC Working Group on...

## GAC Public Safety Working Group

[PSWG TERMS OF REFERENCE](#) | [PSWG MEMBERS](#) | [LAW ENFORCEMENT GUIDE TO ICANN](#)

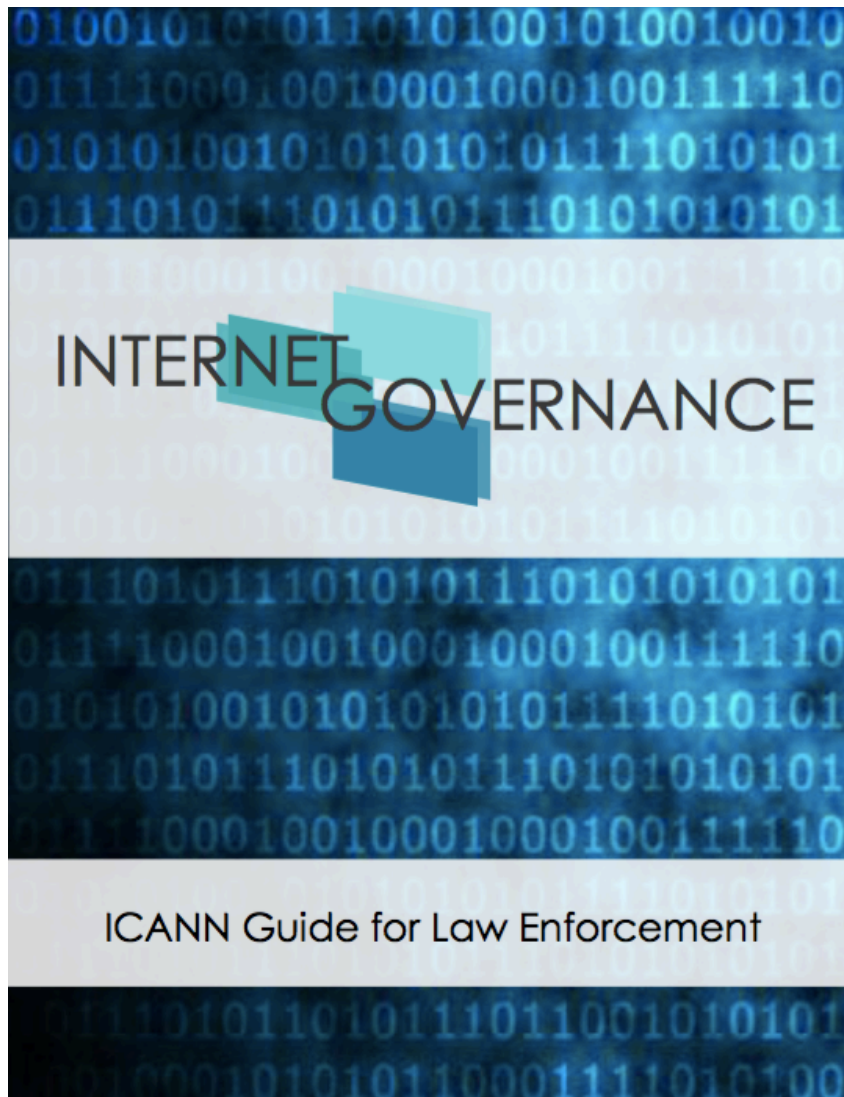
The GAC's Public Safety Working Group (PSWG) focuses on aspects of ICANN's policies and procedures that implicate the safety of the public. The PSWG was established in February 2015 at ICANN52 in Singapore as an internal working group of ICANN's Governmental Advisory Committee (GAC). The GAC endorsed the PSWG's terms of reference in June 2015.

**Co-Chairs:** Alice Munyua (African Union Commission) and Cathrin Bauer-Bulst (European Commission)

**Mailing list:** [gac-pswg@icann.org](mailto:gac-pswg@icann.org) (please email [gac-staff@icann.org](mailto:gac-staff@icann.org) if you wish to subscribe to the mailing list)

Date	Document
ICANN 59 26-19 June 2017	Presentation of the Domain Abuse Reporting Tool to PSWG
	Update to GAC Plenary on DNS Abuse Mitigation - Remote Participation <ol style="list-style-type: none"><li>Update on Abuse Mitigation Efforts<ol style="list-style-type: none"><li>Follow-up on Previous GAC Advice (Copenhagen Communiqué Scorecard)</li><li>Dialogue with ICANN CEO</li><li>Next Steps</li></ol></li><li>Discussion with Bryan Schilling, Consumer Safeguards Director, ICANN and Jamie Hedlund, SVP Contractual Compliance &amp; Consumer Safeguards</li></ol>
	Discussion of LEA Disclosure Framework with Privacy Proxy IRT

# ICANN Guide for Law Enforcement



# WHOIS Database

- WHOIS inaccuracy complaints
- Next-Generation gTLD Registration Directory Services (RDS) to Replace WHOIS
- RDS Policy Development Process (PDP) Working Group

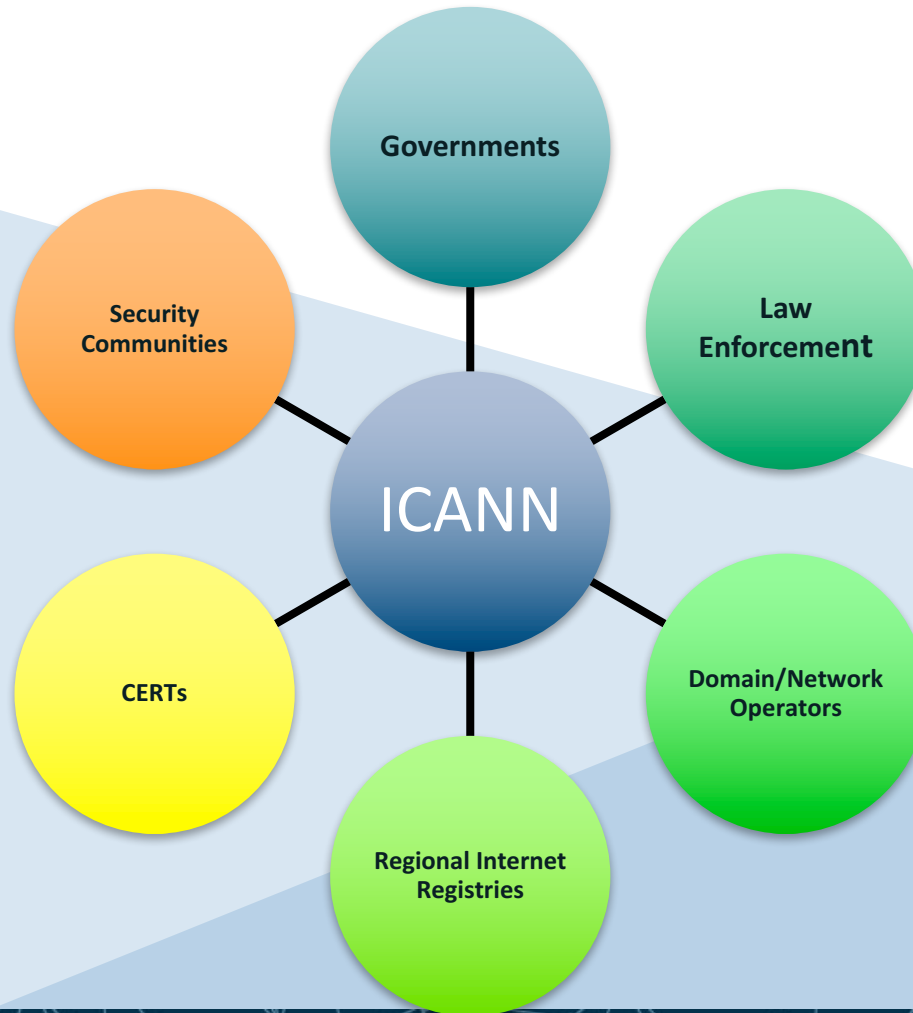
**Seven Easy Steps**

- 1 Go to: <https://forms.icann.org/en/whois-inaccuracy-form>
- 2 your name your email the domain name
- 3 Don't want to disclose your name and email?  
 Check the box and give a reason.
- 4 enter captcha code
- 5 Click → next page.
- 6  Select the relevant error(s) and provide comments that support your complaint.
- 7 Click **SUBMIT**



# Security, Stability, & Resiliency (SSR) A key pillar of ICANN

The Internet – our “Network of Networks”



Threat Awareness and Response

Trust-based Collaboration

Capability Building

Identifier SSR Analytics

# Thank you and Questions



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



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