

ISNIC/ICANN Meeting with Icelandic Internet Community

12 March 2024

ICANN Overview

Gabriella Schitteck, ICANN

So, what is **ICANN**?

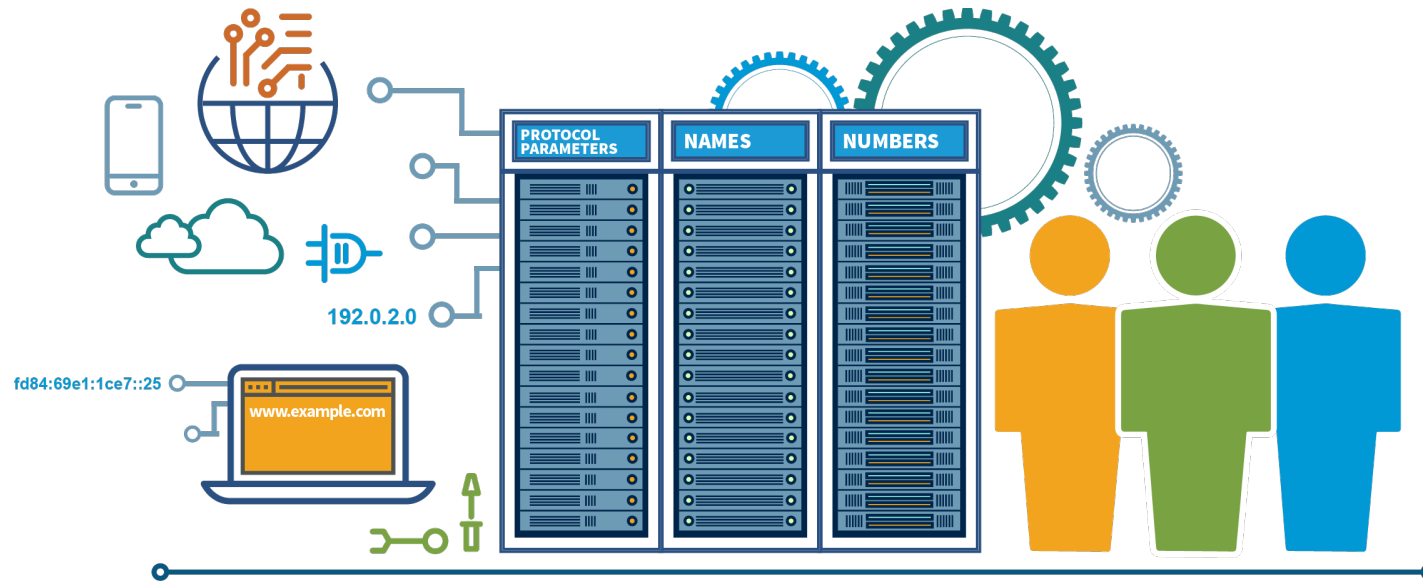


Internet Corporation for Assigned Names and Numbers



Overview

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

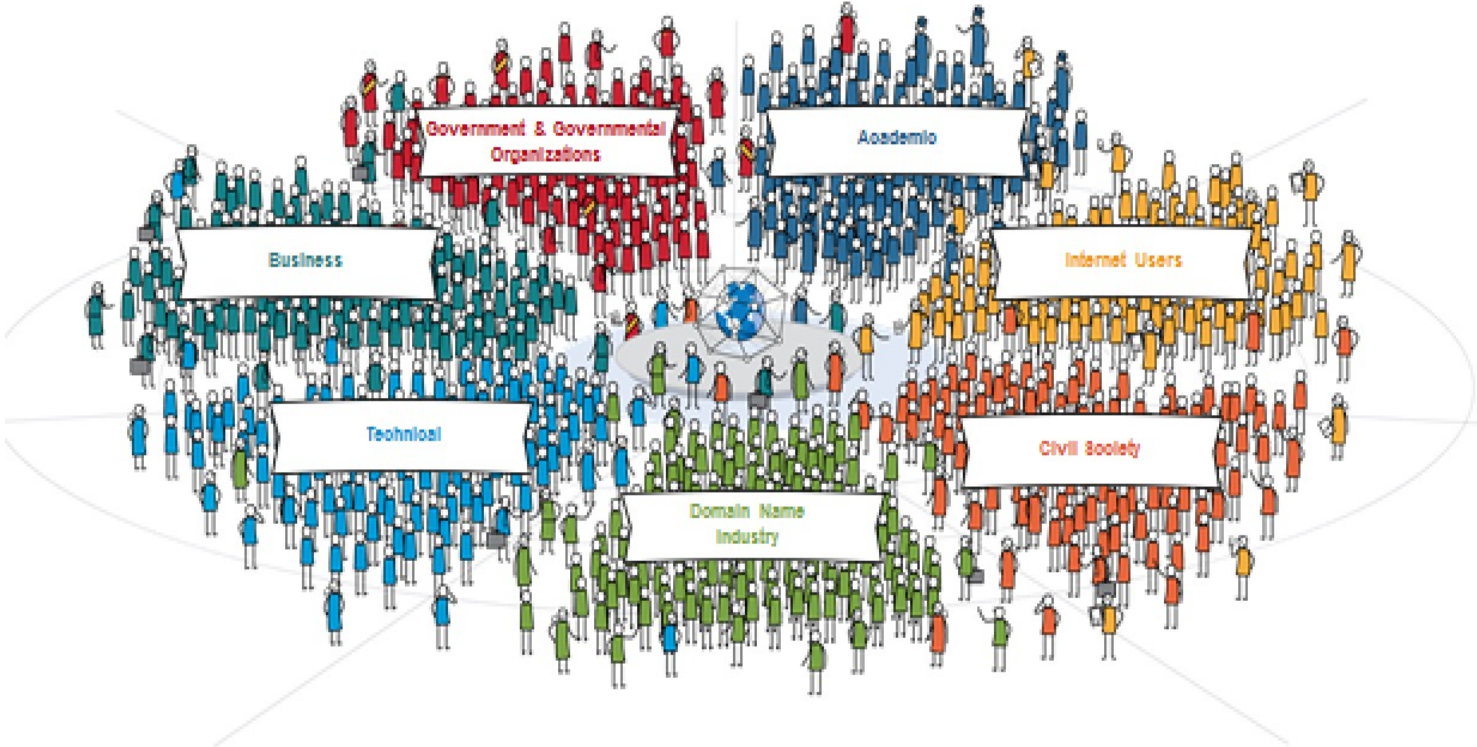


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(RFC 7231 HTTP Method Registry)


Multistakeholder Model



Supporting Organizations

 **ASO**
The ASO Address Council is composed of 15 members — three 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 two 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)

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 expresses the interests of the individual Internet user and is composed of 15 members: two from each of the five Regional At-Large Organizations and five appointed by the ICANN Nominating Committee. It is supported by At-Large Structures.



GAC

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



RSSAC

The RSSAC advises on the operation, administration, security, and integrity of the root server system.



SSAC

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



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 /.../"

ICANN Bylaws 1.1.1.

ICANN's Global Presence



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.

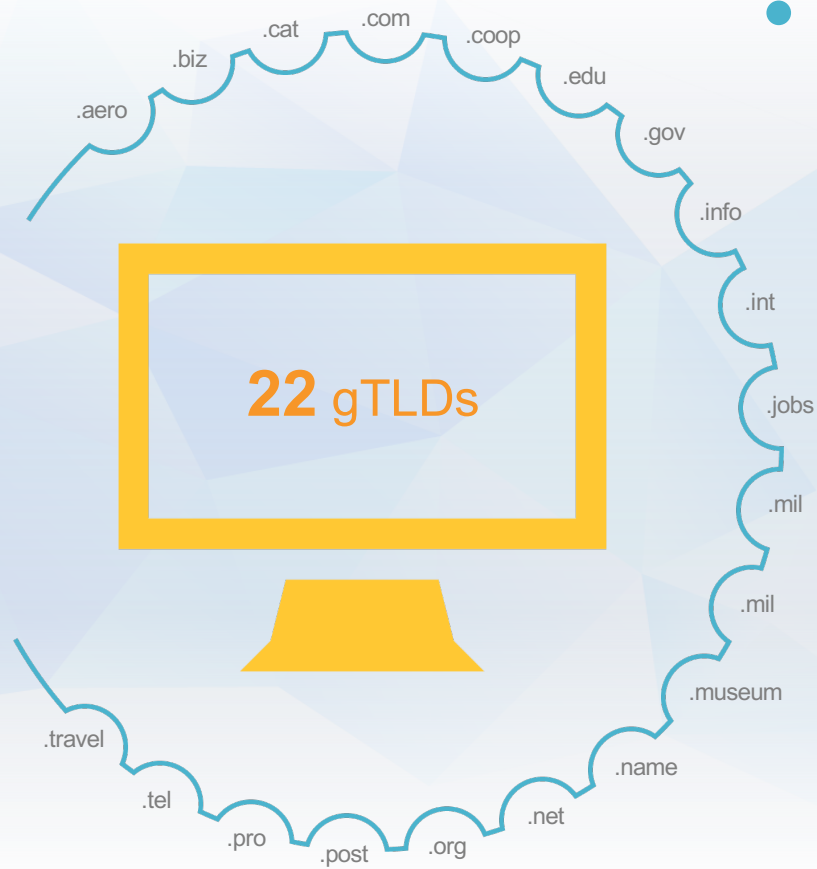
ICANN Hot Topics

Chris Mondini, ICANN

Topics

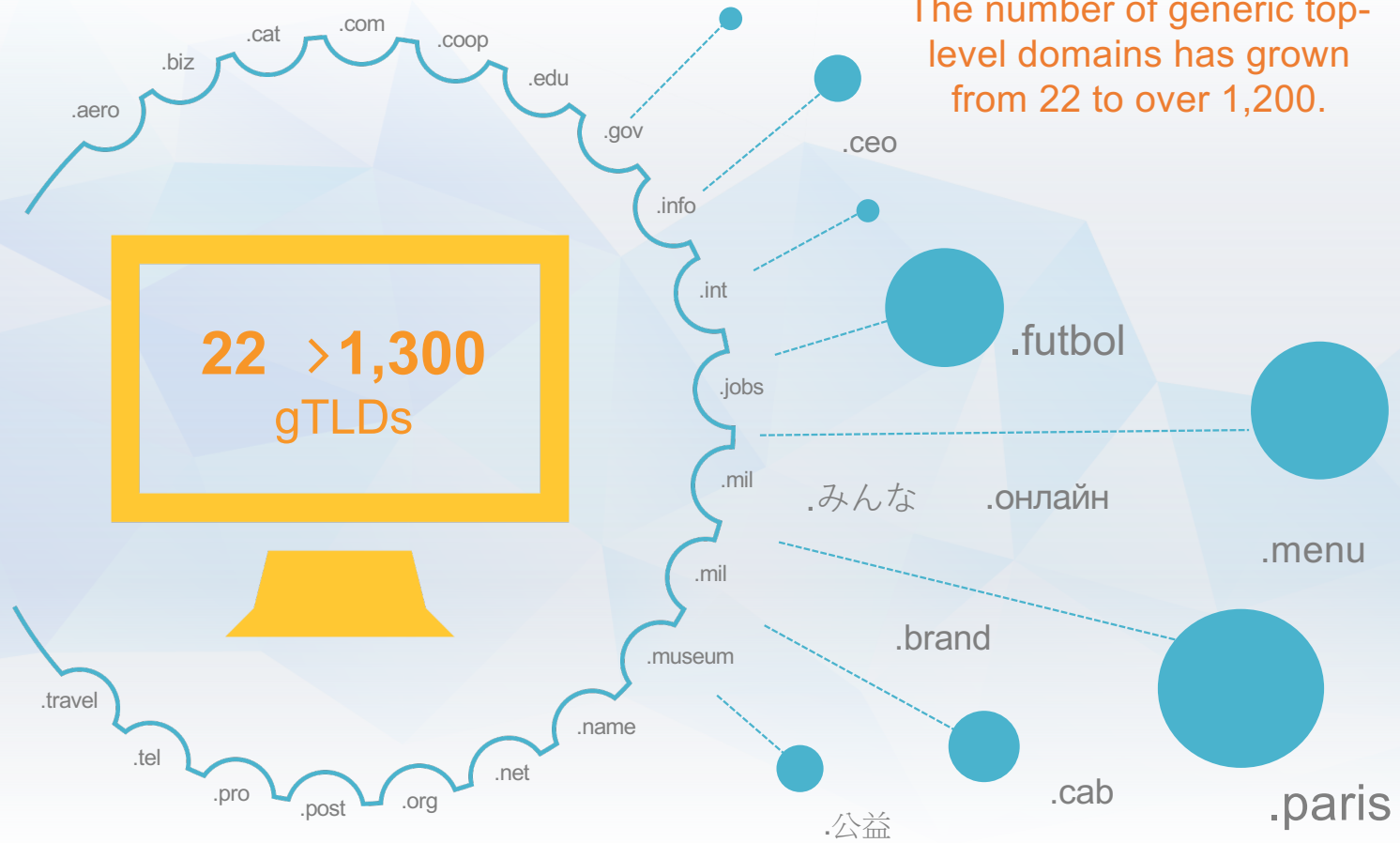
- 1) Next Round of new gTLDs**
- 2) ICANN Grant programme**
- 3) Universal Acceptance**
- 4) Registration Data Request Service (RDRS)**
- 5) Domain Metrics**
- 6) CEO Search**

2012...



Before 2013, there were only 22 generic top-level domains in the Domain Name System.

After 2013



Next Round of new gTLDs

Why?

- Incorporated into ICANN's founding documents
- Community-driven initiative
- Increase choice and competition
- Remove existing limitations to ASCII gTLDs
- Create a platform for innovation

Perhaps...?

. reykjavik

. hafnarfjörður

. vefsíðu

Next Round of new gTLDs

- Some open issues that need to be addressed before opening a new application window.
- New round is expected to open in April 2026.

More information:

<https://newgtlds.icann.org/en/next-round>

<https://newgtlds.icann.org/sites/default/files/new-gtld-next-round-implementation-plan-31jul23-en.pdf>

<https://www.icann.org/en/announcements/details/icann-seeks-input-on-next-round-draft-applicant-support-program-handbook-12-02-2024-en>

ICANN Grant Programme

Distribution of the auction proceeds from 2012 new gTLD programme;

Community recommendations;

To support projects on global interoperability, reliability and security of the Internet's Unique Identifiers;

Applicants

- Entities which are charitable by nature, meet applicable US trade laws & regulations;
- Grant awards range between US\$50,000 – US\$500,000;
- Maximum duration of projects: 24 months;

Applicant guidebook: <https://www.icann.org/en/system/files/files/icann-grant-program-applicant-guide-08jan24-en.pdf>

First call for applications: 25 March 2024;

First slate of selected applications - delivered to the Board for approval: November 2024 (decision by December 2024);

→ Independent Assessment panel to evaluate applications

More information

<https://community.icann.org/display/GP/ICANN+Grant+Program>

<https://community.icann.org/display/GP/FAQ>

Universal Acceptance

Universal Acceptance ensures that all domain names, including new top-level domains (TLDs), Internationalised Domain Names (IDNs) and email addresses are treated equally and can be used by all Internet-enabled applications, devices, and systems.

Free, specialised training programmes:

- Email Address Internationalization
- Universal Acceptance for Java Developers

Universal Acceptance Day:

- 28 March 2024 – Belgrade, Serbia;
- To increase of Universal Acceptance & its benefits;
- Emphasis on Technical training sessions;
- Mix of virtual & in-person sessions;

<https://uasg.tech/ua-day/>

Registration Data Request Service (RDRS)

A free and global proof of concept service that will handle requests for access to nonpublic registration data related to gTLDs.

Connects requestors seeking disclosure of nonpublic registration data with the relevant ICANN-accredited registrars for gTLD domain names who are participating in the service.

Use of the system by ICANN-accredited registrars is **voluntary**.



RDRS (2) - Data Disclosure



The Registration Data Request Service will not guarantee access to the registration data.



All communication and data disclosure between the registrars and requestors will take place outside of the system.



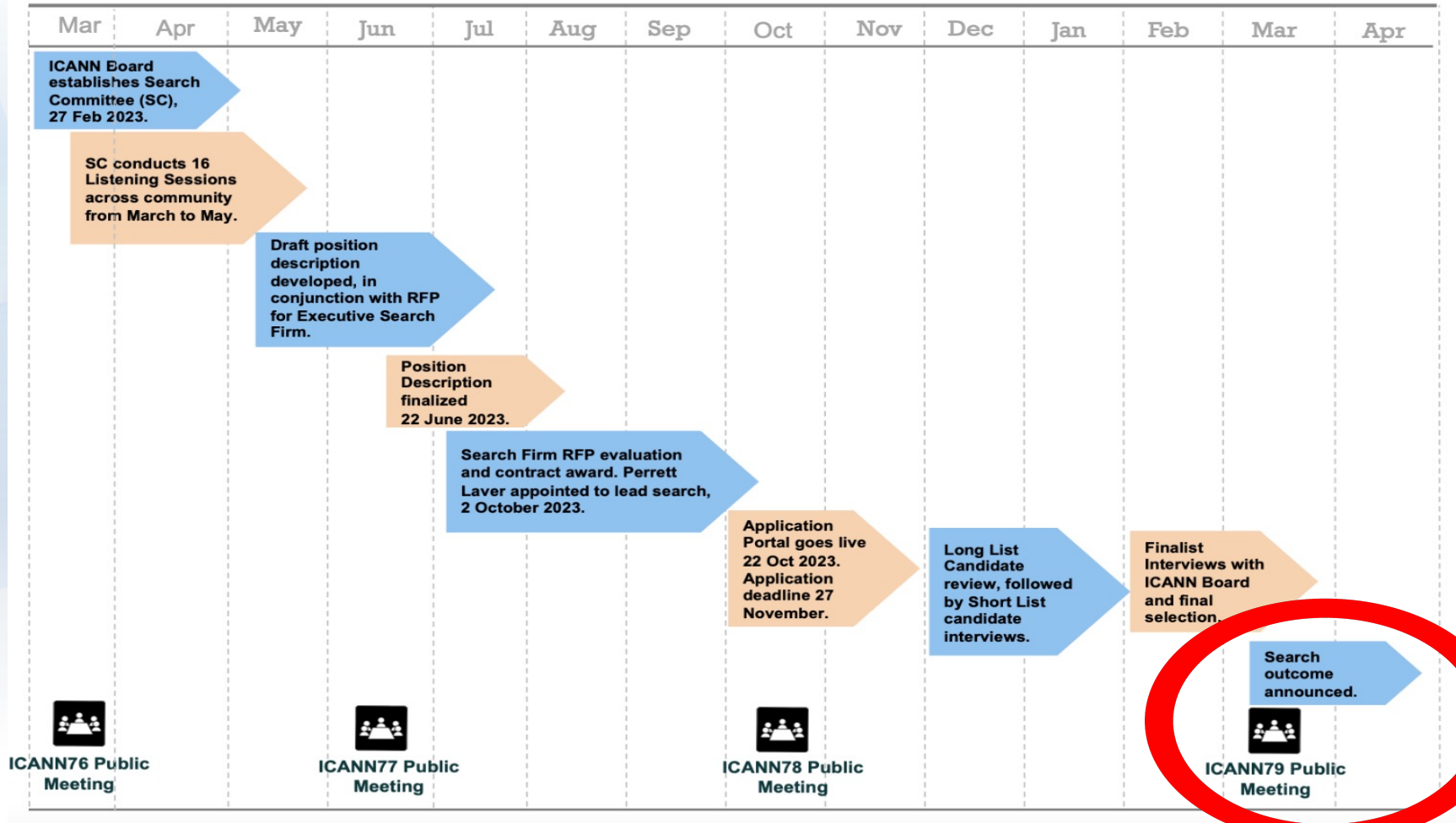
If granted, data disclosure will take place directly between the registrar and the requestor via the method the registrar chooses.

Domain Metrica

- New measurement platform
- Eventual replacement of the Domain Abuse Activity Reporting (DAAR) project
 - Will cover more detail than DAAR, and not limited to abuse data
- Initially measures reported abuse in domains, covering:
 - Phishing
 - Malware
 - Spam (as a delivery mechanism for other abuse)
 - Command and control domains
- Dynamic dashboard with relevant statistics and visuals
- Anyone with an ICANN account will have access; registries or registrars will get detailed breakdown information;
- First version planned to be released in third quarter of 2024, will evolve in the future
- Will run in parallel with the DAAR system in the beginning

CEO Search

2023 - 2024 ICANN President and CEO Search



Regional Email list & Newsletter

Regional email list: nordics-join@icann.org

ICANN org Regional Newsletters: <https://info.icann.org/LP---Regional-Newsletter.html>

Engage with ICANN



Thank You!

chris.mondini@icann.org



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linkedin/company/icann



soundcloud/icann



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KINDNS

An Initiative to Promote DNS Operational Best Practices

January 2024

Adiel A. Akplogan
VP, Technical Engagement, ICANN

What Is It?

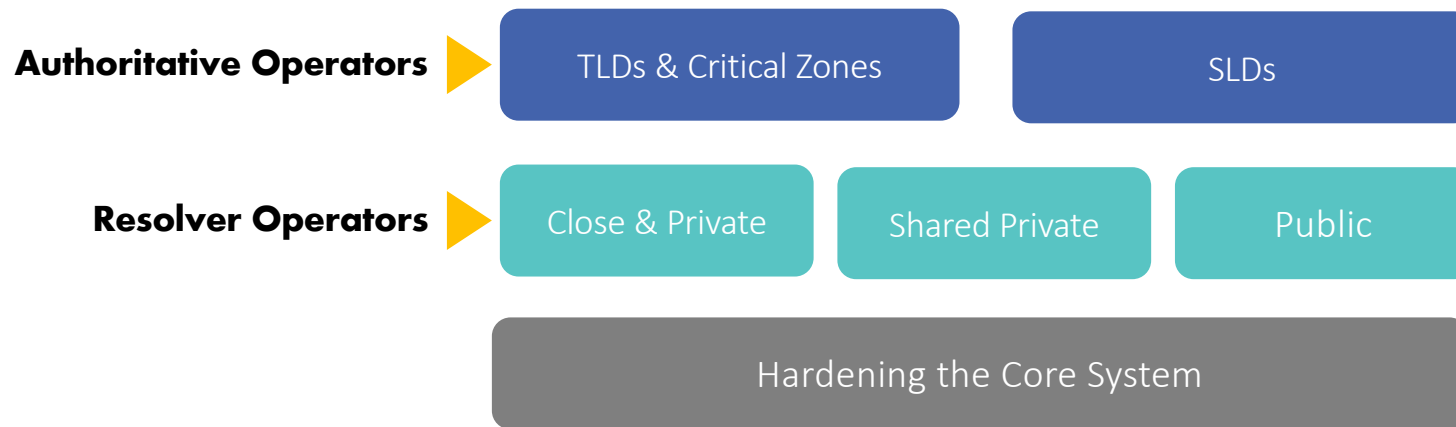
Knowledge-sharing and Instantiating **N**orms for **D**NS
(Domain Name System) and **N**aming **S**ecurity

A simple framework that can help a wide variety of DNS operators, from small to large, to follow both the evolution of the DNS protocol and the best practices that the industry identifies for better security and more effective DNS operations.

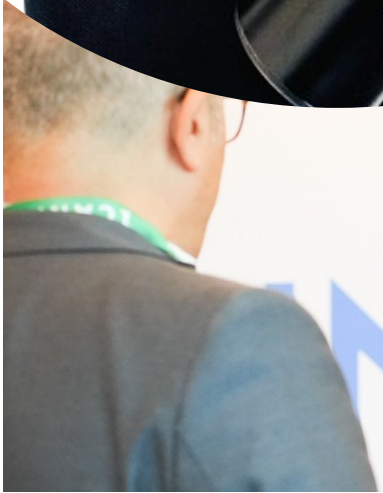
..... is pronounced "**kindness**"



Targeted Operators



- Each category has 6-8 practices that we will encourage operators to implement. See www.kindns.org, for more details
- By joining KINDNS, DNS operators are voluntarily committing to adhere to these identified practices and act as “goodwill ambassadors” within the community.



Participation/Enrollment *(as of Jan 2024)*

KINDNS Participants

Operators who voluntarily agreed to implement the KINDNS framework can formally join the initiative by filling out the enrollment form. As a member, you are showing your commitment to implementing the practices promoted by KINDNS in your DNS operation and your support for a robust DNS operation generally.

The following organizations and operators have already joined the initiative, either as supporters or as implementers in the different categories.

TLD & Critical Zone Operators	Date Joined	Other SLD Operators		Private Resolver Operators			Shared Private Resolver Operators		Public Resolver Operators	
		Practice-1	Practice-2	Practice-3	Practice-4	Practice-5	Practice-6	Practice-7		
IB Digital Brazil	17 Nov 2022	✓	✓	✓	✓	✓	✓	✓	✓	✓
RNP Brazil - EduDNS	22 Nov 2022	✓	✓	✓	✓	✓	✓	✓	✓	✓
Brazil Teclpar	22 Nov 2022	✓	✓	✓	✓	✓	✓	✓	✓	✓
PowerNet Solutions	07 Dec 2022	✓	✓	✓	✓	✓	✓	✓	✓	✓
Intercel Brazil	18 May 2023	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tempus Group, Paraguay	19 Aug 2023	✓	✓	✓	✓	✓	✓	✓	✓	✓

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KINDNS Participants

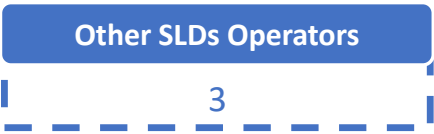
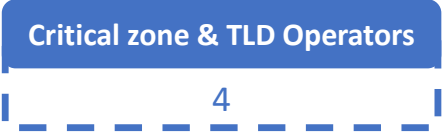
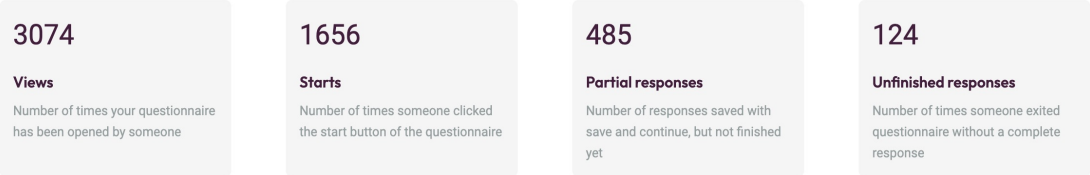
TLD & Critical Zone Operators	Date Joined	Other SLD Operators		Private Resolver Operators			Shared Private Resolver Operators		Public Resolver Operators	
		Practice-1	Practice-2	Practice-3	Practice-4	Practice-5	Practice-6	Practice-7		
TR (for .edu.za)	03 Oct 2022	✓	✓	✓	✓	✓	✓	✓	✓	✓
	06 Oct 2022	✓	✓	✓	✓	✓	✓	✓	✓	✓
	28 Oct 2022	✓	✓	✓	✓	✓	✓	✓	✓	✓
	11 Sept 2023	✓	✓	✓	✓	✓	✓	✓	✓	✓

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Some Numbers *(Jan 2024)*

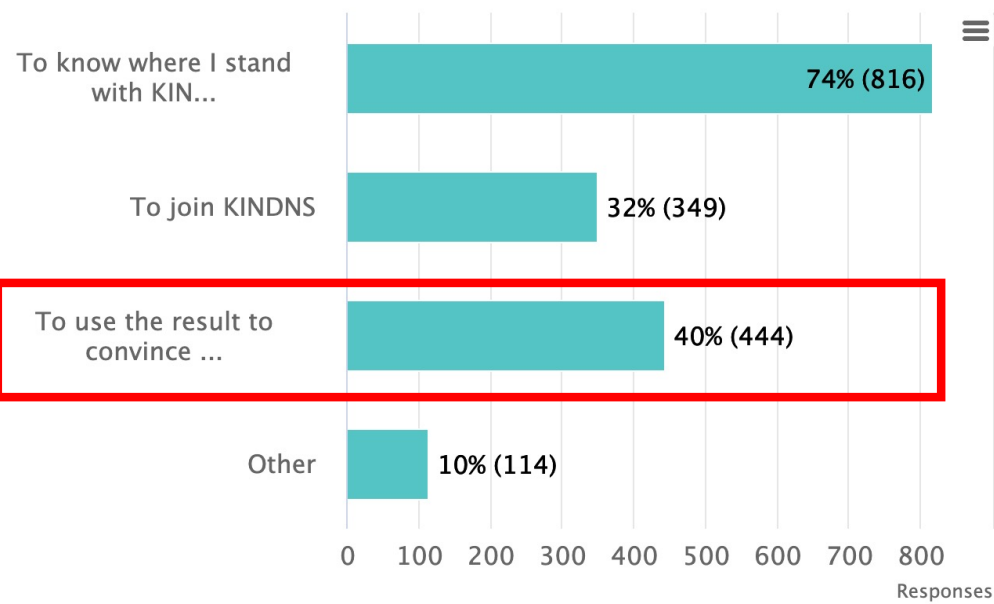


High uptake for Self-assessment



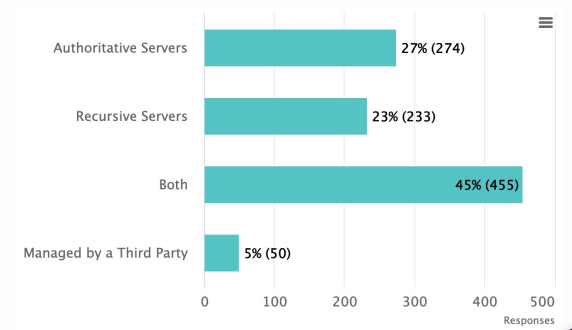
Why are you taking this self-assessment?

Bar chart



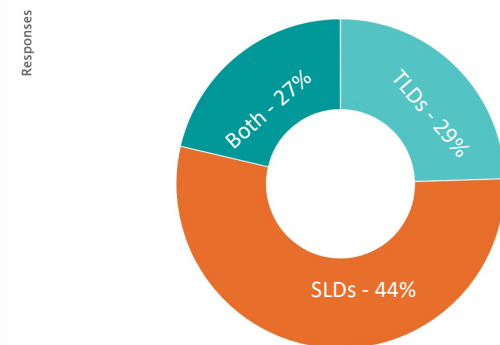
Part 1 Core DNS Operation Practices Assessment – Which component(s) of the DNS do you run?

Bar chart



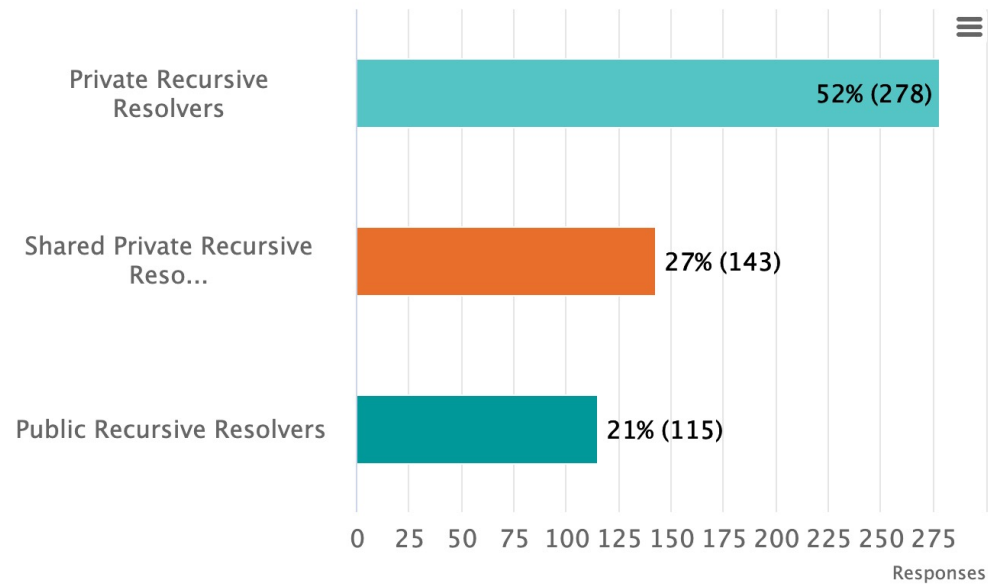
What Type of Authoritative Zone Do You Manage? – Type(s) of authoritative zone that you manage

Donut chart



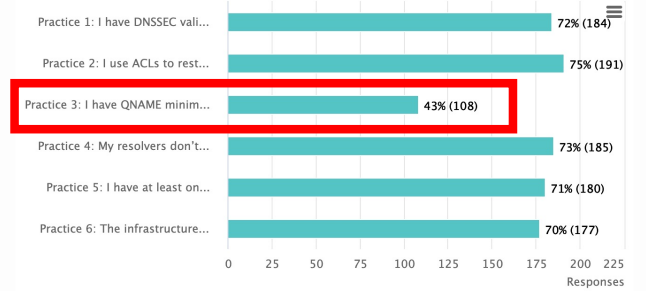
What type of Recursive Resolver do you run? – Type of recursive resolvers you run

Bar chart ▾



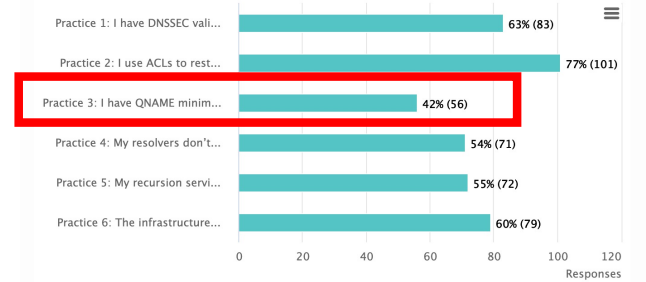
As a Private Recursive Resolver operator, I implement and adhere to the following practices:

Bar chart ▾



As a Shared Private Recursive Resolver operator, I implement or adhere to the following practices:

Bar chart ▾



What type of Recursive Resolvers you run

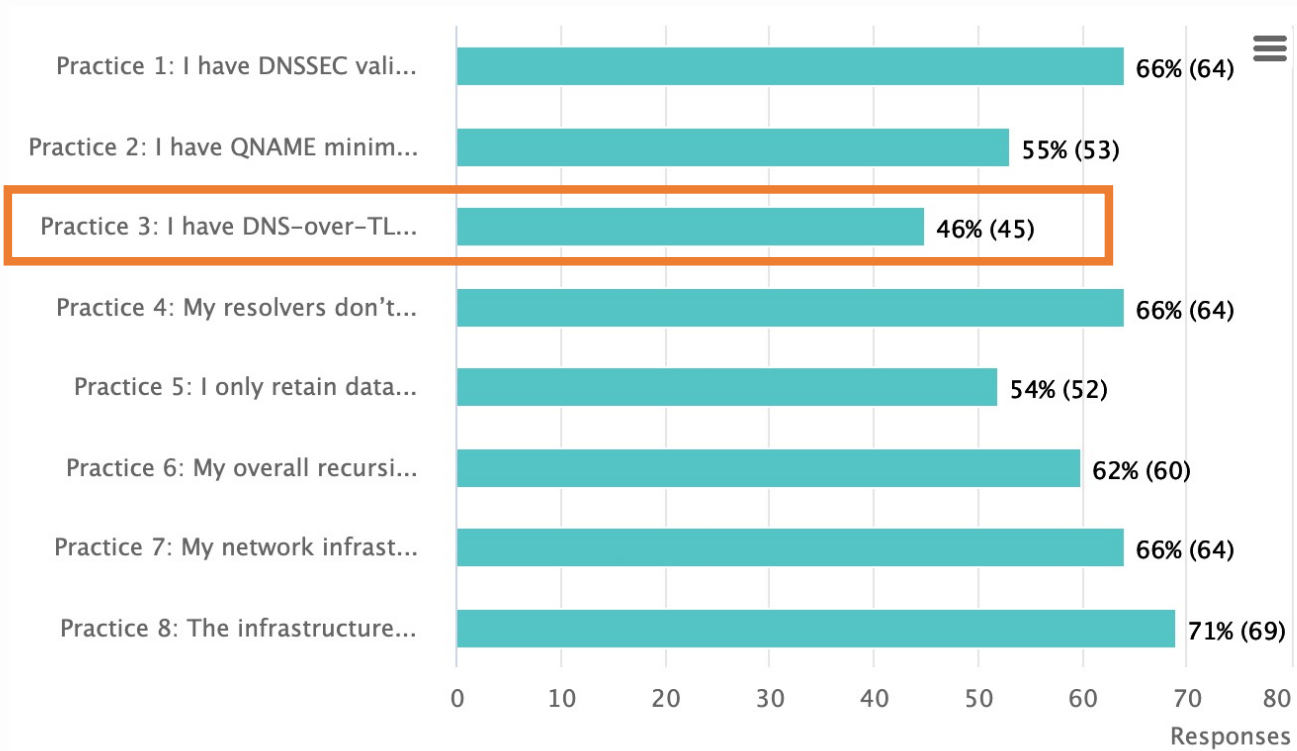
Private Recursive Resolvers

Shared Private Resolvers

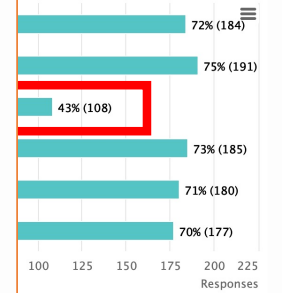
Public Recursive Resolvers

As operator of a Public Recursive Resolver, I implement or adhere to the following practices :

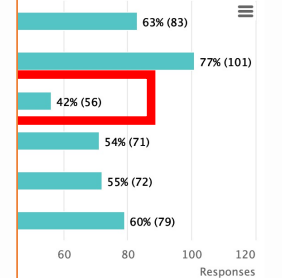
Bar chart



Implement and adhere



Implement or



Need for More Outreach

Support for More Uptake in EU

⦿ LAC region success story

- 70% of enrollment requests comes from LAC region
- More than 20 distinct dedicated KINDNS events in the LAC region last year.
- KINDNS adopted by **CGI.br** as DNS security framework for the country.
- Volunteers from the community to help translate KINDNS

⦿ *What do we need*

- Use KINDNS as the framework for DNS Ecosystem security practices engagement.
- Present KINDNS at technical events (ISPs, DNS Operators, ...).
- When and were possible organize **KINDNS Clinics**
- Plan training around the implementation of KINDNS practices
- Help develop the KINDNS community (Mailing list, soon to be launched Ambassador program, etc...)

 KINDNS



KINDNS Clinics

Do you manage a DNS infrastructure?
Or do you have any questions or challenges related to implementing the KINDNS (Knowledge-sharing and Instantiation Norms for DNS and Naming Security) best practices?



If you replied yes, scan this QR code or follow the URL to schedule a private meeting with the KINDNS technical team during this ICANN meeting.

<https://kindnsclinics.sched.com/>

MORE ABOUT KINDNS
(pronounced "kindness")

kindns.org

KINDNS Clinics at ICANN79



KINDNS v.2 - Discussion Points

1. **Adding Response Rate Limiting (RRL)** to Authoritative Servers' practice
 - ccTLD and critical Zone Operators
 - Other SLDs too?
2. **Addressing 'Split' responsibilities** for Authoritative servers' operation:
 - Zone file content is controlled by a third party. i.e Root server operators and the root zone itself.
3. **Access reliability:** Reachability over IPv6, RPKI for the prefix used for the DNS servers.
4. **Steering Committee and Community review team:**
 - Volunteers to help steer the evolution KINDNS as framework and coordinate the initiative.

Current Focus: Phase 2

◎ **Font-end**

- Re-Activate the full **enrollment form**
- **Translate** the website and the tools into other languages
- **Evolve the Self-assessment** tool to technically measure/assess how operators implement the practices.
 - Two views: Internal & External
 - Ability to measure implementation by collecting anonymized data from the self-assessment tool.
 - Integrate a Zonemaster version for Authoritative servers

◎ **Back-end**

- *Integrate the KINDNS server to ICANN E&I monitoring service*
- *Implement a ticketing system to better track interactions with the public.*
- *Improve the security fence around WordPress*
- *Deploy an integrated enrollment management tool (a WP plugin)*
- *Renew ICANN infosec assessment.*
- *Directly link self-assessment to enrollment*
- *Develop an integrated tool to simplify/automate Operator compliance assessment*

Current Focus: Phase 2 (con't)

◉ Community engagement

- ◉ Continue to encourage operators to get onboard to **contribute and support** the framework:

- *Direct 1:1 Engagements (KINDNS Clinics)*
- *Encourage more operators to join*
- *Workshops & webinars to raise awareness on KINDNS practices as part of our overall DNS ecosystem security awareness program.*
- DNSAthon around KINDNS practices
- Develop partnerships with programs such as MANRS and Pulse, internet.nl, etc ...

◉ Communication

- ◉ A more active communication plan to further promote KINDNS
 - Translate the web site and the self assessment form in other languages
 - Publish a series of DNS best practices dedicated blogs
 - Develop toolkits to help operators engage with internal decision-makers

Stay Informed and Contribute



- | | |
|---------------------|--|
| Website | www.kindns.org |
| Twitter | https://twitter.com/4KINDNS |
| E-Mail | info@kindns.org |
| Mailing list | kindns-discuss@icann.org |

Global Legislative Initiatives to be aware of

Nora Mari, ICANN
Government and IGO Engagement

ISNIC/ICANN Meeting with Icelandic Internet Community

March 2024



The Geopolitical Landscape



- Geopolitical instability and tensions playing out on the Internet (including DNS, identifiers)
- Digital Sovereignty policies (incentive for local tech; more stringent requirements on procurements; data localization requirements)
- Legislation that has extraterritorial effect (China, the EU)
- Digital divide / Connectivity

Risks



- Politicization of the identifiers
- Challenges the multistakeholder model of governance of the Internet
- Eroding 'trust' in the current Internet governance system

Engage with ICANN



Thank You and Questions

Visit us at <https://www.icann.org/resources/pages/ssad-odp-2021-04-29>
Email: ODP-SSAD@icann.org



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linkedin/company/icann



soundcloud/icann



instagram.com/icannorg

Social cybersecurity

Ásta Guðrún Helgadóttir
March 12th 2024

Contact: astagh@hi.is

Bit of a background

Join Master's Program and
Research



- Following the establishment of Eyvör - National Cybersecurity Coordination Center of Iceland.
- Need to analyse the cybersecurity education and skill gap in Iceland.
- Establishment of a joint Master's program in cybersecurity between RU and UoI.
- There, requirement to pay attention to cybersecurity laws, ethics, and society.

Cybersecurity

- Cybersecurity is in essence about about securing networks, computers and the programs that run it.
- Relies on the cooperation of individuals, institutions, companies, and countries.
- Not an easy task and causes tension.



Cybersecurity tension



To simplify the main cybersecurity tension on a high level it is possible to identify two main “tensions” when it comes to cybersecurity governance in practice.

- **“Nationalistic” cybersecurity** - where cybersecurity is considered to be a tool in a larger toolsets to ensure national security.
Example: Using a vulnerability exploit instead of fixing it.
- **“Ecosystem” cybersecurity** - where good cybersecurity practices is considered to secure the cybersecurity ecosystem as a whole.
Example: Reporting a vulnerability instead of exploiting it.

This does not address the tension that is between the people - users - and cybersecurity.

Social Cybersecurity

- An emerging research area that combines cybersecurity with social sciences and psychology.
- The aim is to get better understanding of impact of cybersecurity on and in society and the influence social behaviours and cultures has on cybersecurity.



Why?

- Different sources identify somewhere around 80-90% of cybersecurity breaches to be because of human error.



But also...

- Cybersecurity, much like anything connected to the Internet, is intertwined with society.
- We all use passwords, just like we use keys.
- We all have to use digital services to conduct business and pleasure.
- Viewing cybersecurity from a sociological and psychological standpoint is becoming ever more important.



Researches

- Cybersecurity skills and employment needs in Iceland.
- Governance of the Internet Course.
- Values and cybersecurity.
- Cybersecurity and people with disabilities.
- Cybersecurity and the elderly.



Cybersecurity skills and employment

Eyvör NCC-IS



- Organizations need the employees with right skill sets and knowledge of cybersecurity.
- Research on the experiences in hiring and retaining cybersecurity experts in Iceland.
- Example: Is Icelandic immigration laws a hindrance when recruiting cybersecurity specialists?

Governance of the Internet

Course



- Part of the curriculum for the joint master's program in cybersecurity.
- Knowledge about the laws and regulations important when dealing with cybersecurity.
- Additionally, understanding the various governance structures that make those laws.

Values and cybersecurity

Research



- Research on what values people in Iceland have with regards to cybersecurity.
- Is it important? Are people nonchalant? Is it maybe something that's just irritating?
- Iceland is a good place to conduct researches like these considering our relative isolation and homogenous society.

Vulnerable groups of people and cybersecurity

- There isn't much research on vulnerable groups, such as people with disabilities or the elderly and cybersecurity.
- In the past 10-15 years, there has become much more reliance on digital solutions for everything from health to banking to social interactions.
- Vulnerable groups of people are also more likely to be victims of phishing frauds.



Authentication applications

Example



- Iceland relies on centralized authentication application, Auðkenni, to access various essential services.
- For various groups of people this can be difficult:
 - Timing for entering the code is short, making it difficult for people with arthritis respond in time.
 - Confusing change for people who have always done their banking on site.
- Similar issues with two factor authentication.

Cybersecurity Training and Awareness

Example



- Most training and awareness raising concerning cybersecurity happens within the workplace.
- What about people that don't have a workplace?
 - People on disability
 - Elderly people
- Large groups of people that need training and awareness but don't get it because their lack of a workplace.
- That is a social cybersecurity issue - and how do we fix that?

Social Cybersecurity



- Cybersecurity is a very interdisciplinary field of studies, but yet it has mostly been focused on the technical aspects of it.
- Is a way to frame the different non-technical or operational aspects of cybersecurity.
 - Laws and regulations
 - Values and social norms
 - Disability studies
 - Psychology
 - Human-computer interaction
 - And more

Questions?



Thank you!



DNSSEC

A high level overview

Yazid Akanho

ICANN Office of the CTO

March 2024



What Is DNSSEC ?

DNSSEC stands for **Domain Name System (DNS) Security Extensions**.



- ⦿ A protocol that is being deployed to secure the DNS.
- ⦿ Adds security to the DNS by incorporating public key cryptography into the DNS hierarchy.
- ⦿ Result of over a decade of community-based, open standards development.

— DOMAIN NAME SYSTEM SECURITY EXTENSIONS —
HELP SECURE DNS INFORMATION YOU SEND VIA THE INTERNET

What Is DNSSEC ?



Domain Name System Security Extensions (DNSSEC) allow registrants to **digitally sign** information they put into the Domain Name System (DNS). This protects consumers by ensuring DNS data that has been corrupted, either accidentally or maliciously, doesn't reach them.

Does DNSSEC worth deploying ?

BENEFITS OF DEPLOYING DNSSEC



Helps to protect the Internet, end users, companies, organizations, and governments.



Decreases vulnerability to attacks.



Fosters innovation. DNSSEC verifies and protects DNS data, which enables data to be trusted in applications beyond the DNS.

How it works?

DNSSEC IN ACTION



Two sides of DNSSEC must be enabled for it to work.

Registrants, who are responsible for publishing DNS information, must **ensure their DNS data is DNSSEC-signed.**

Network operators need to **enable DNSSEC validation on their resolvers** that handle DNS lookups for users.

More details at: <http://go.icann.org/DNSSEC>

Who benefits from DNSSEC ?



Deploy DNSSEC



- ⦿ DNSSEC Policy and Practice Statement (DPS)
- ⦿ Operational Processes:
 - ⦿ Follow documented procedures and checklists.
 - ⦿ Maintain logs, records, and reports of each action.
 - ⦿ Audit processes – ICANN uses a key ceremony.
 - ⦿ Involve stakeholders in processes and deployment, including participation in ceremonies – invite external witnesses.
 - ⦿ Establish a policy management authority.

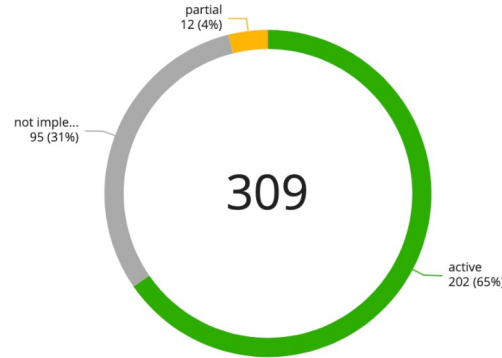
DNSSEC deployment Guidebook:

<https://www.icann.org/en/system/files/files/octo-029-12nov21-en.pdf>

State of DNSSEC Deployment (signing)

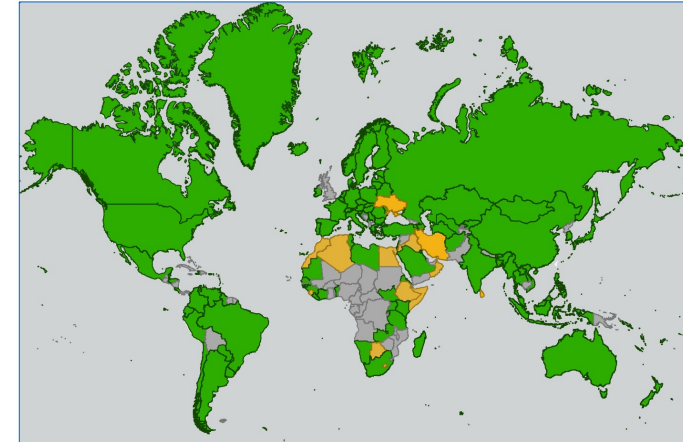
DNSSEC status distribution for selected ccTLDs

Green: DNSSEC operational (DNSKEY in TLD zone + DS in root zone)
Yellow: Partial signed (DNSKEY in TLD zone without DS in root zone)
Grey: No DNSSEC (No DNSKEY in TLD zone)
 Number of involved ccTLDs in the chart center

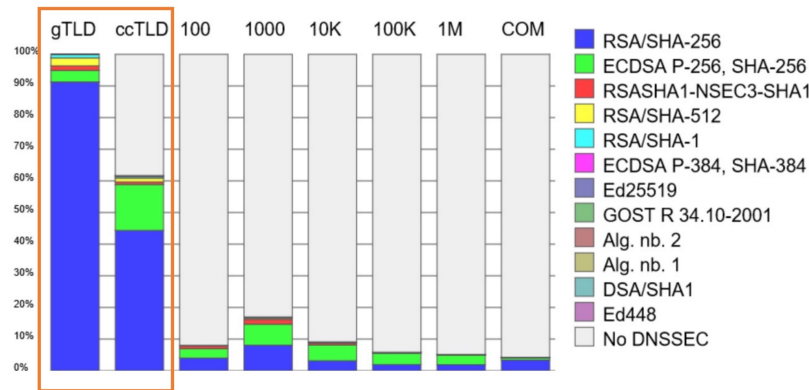


DNSSEC status (world map) of selected ccTLDs

Green: DNSSEC operational (DNSKEY in TLD zone + DS in root zone)
Yellow: Partial signed (DNSKEY in TLD zone without DS in root zone)
Grey: No DNSSEC (No DNSKEY in TLD zone)



DNSSEC Deployments, August 2023



Source: <https://ithi.research.icann.org/graph-m11.html>

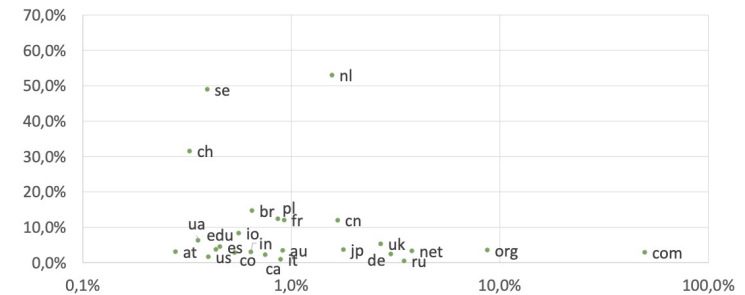
For reference, DNSSEC deployment at TLD level

More details at:

- <https://www.icann.org/en/system/files/files/presentation-measuring-dnssec-deployments-30sep23-en.pdf>
- <https://www.icann.org/octo/publications>

Where does .IS stand in ?

Top 25 TLD present in list of top 1M domains: %DNSSEC versus %domains



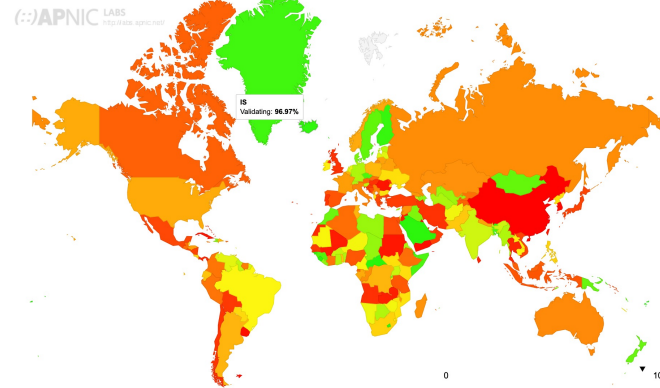
State of DNSSEC Deployment (validation)

More details at:

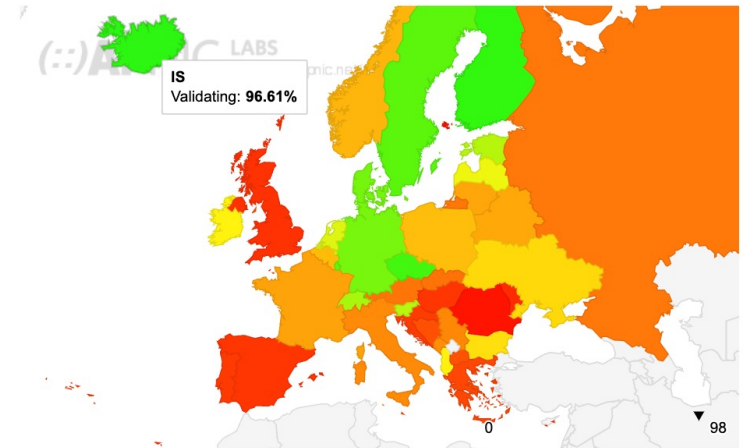
<https://stats.labs.apnic.net/dnssec/>

DNSSEC Validation Rate by country (%)

Click here for a zoomable map
 Remember current choice for 7 days



Region Map for Europe (150)



Region	DNSSEC Validates
World	30.52%
Oceania	42.16%
Europe	35.44%
Africa	34.19%
Americas	33.77%
Asia	27.41%
Unclassified	6.35%

ASN	AS Name	DNSSEC Validates
AS6677	ICENET-AS1	98.81%
AS12969	VODAFONE_ICELAND	98.52%
AS44735	SIP-ASN	98.92%
AS51896	HRINGDU-AS	99.28%

DNSSEC: latest developments



- ⦿ New root zone KSK generation in April 2024 at [KSK ceremony 53](#)
 - ⦿ Process started last year but got suspended
 - ⦿ New key pre-publish in Jan. 2025; activation in late 2026
 - ⦿ New key will follow same parameters as current one
- ⦿ Study of root zone DNSSEC algorithm rollover report: <https://itp.cdn.icann.org/en/files/domain-name-system-security-extensions-dnssec/draft-report-root-zone-dnssec-algorithm-rollover-study-19-10-2023-en.pdf>
- ⦿ [Observing DNSSEC Key Lifecycles](#): OCTO 035, July 2022
- ⦿ [DNSSEC Algorithm Use in 2022](#): OCTO 033, April 2022

ISNIC DNSSEC

2013-2024

Einar B. Halldórsson

!SNIC

Brief history of DNSSEC at ISNIC

- .is zone was signed in October 2013 and DS records added to the root zone
- Shortly thereafter registrants could sign their own zones and add DS records to .is zone
- One signer, running OpenDNSSEC, signed the zone and distributed to the public primary nameserver
- Outage in January 2016 when attempting to migrate to new signer
- Migration to new design finished in February 2022 after more than 1 year of planning

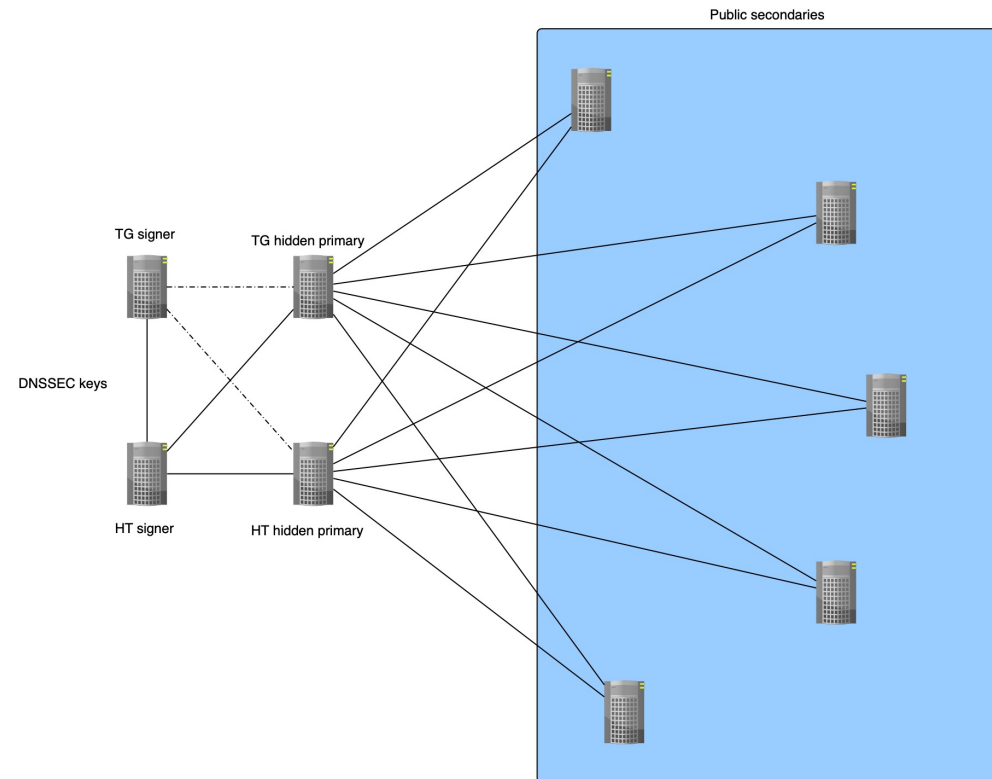
Criteria for new design

- Redundancy
- Automations and documented processes
- Stay up-to-date
- Redundancy

New signers

- OpenDNSSEC wasn't the best fit for us anymore
- We started evaluating BIND and Knot DNS
- Knot DNS was selected as our new DNSSEC signing software
 - Developed by a fellow ccTLD (nic.cz)
 - Configuration that is easy to automate with ansible
 - Very active community

New design



New design

- Two signers in different datacenters
- Keys are generated on primary signer and copied to secondary signer
- Two hidden primaries receive zone from signers and notify public secondaries
- Failover of signers tested
- KSK rollover one a year

Future ideas

- Replace RSA keys with elliptic curve
- CSK (combine KSK and ZSK in one key)
- CDS/CDNSKEY
 - Automatic key rollovers for child zones

Spurningar

How Quad9 helps protect Internet users around the world

Michał “rysiak” Woźniak
Senior Operations Engineer

About Quad9

Founded 2016

Primary Mission: Provide a basic level of immunity to all Internet connected endpoints, with a focus on developing economies.

Secondary Mission: Enhance the overall cybersecurity ecosystem to make the Internet safer for all users.

About Quad9

Founding Organizations:



About Quad9

Additional Sponsors:

SWITCH

 Global Secure Layer


i3D.net


edgeuno



About Quad9

Partners:



About Quad9

Open resolver **with integrated threat feed** — not for profit.

Varied user demographic:

individual, academic, government, ISP, SMB, enterprises.

Roughly **2%** week-on-week growth.

May 2021 Sample: **34%** of endpoints had at least one incident*.

*) Sample size: ~170,000 residential/SMB endpoints

About Quad9

238 locations, in 119 countries and territories

About 400mIn blocks per day globally

Record so far: well over 1bIn blocks per day globally

Case study: Malawi

Deployed: November 2023

Rolled out **directly to users** via DHCP by local ISPs

Case study: Malawi

Over 300mln block events in first three weeks

Ratio of blocked to legitimate queries is often more than 4%

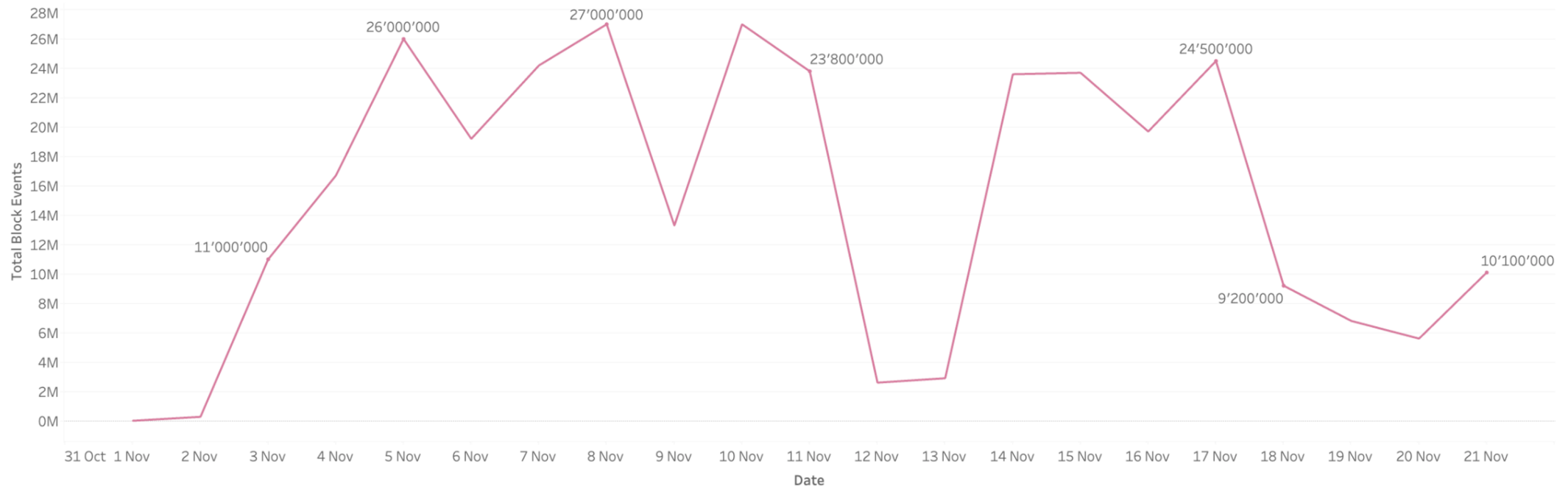
- substantially higher than elsewhere
- sometimes by two orders of magnitude

https://quad9.net/uploads/Quad9_Cyber_insights_Malawi_dbb9c0acfc.pdf

Case study: Malawi

Malawi Blocked Queries

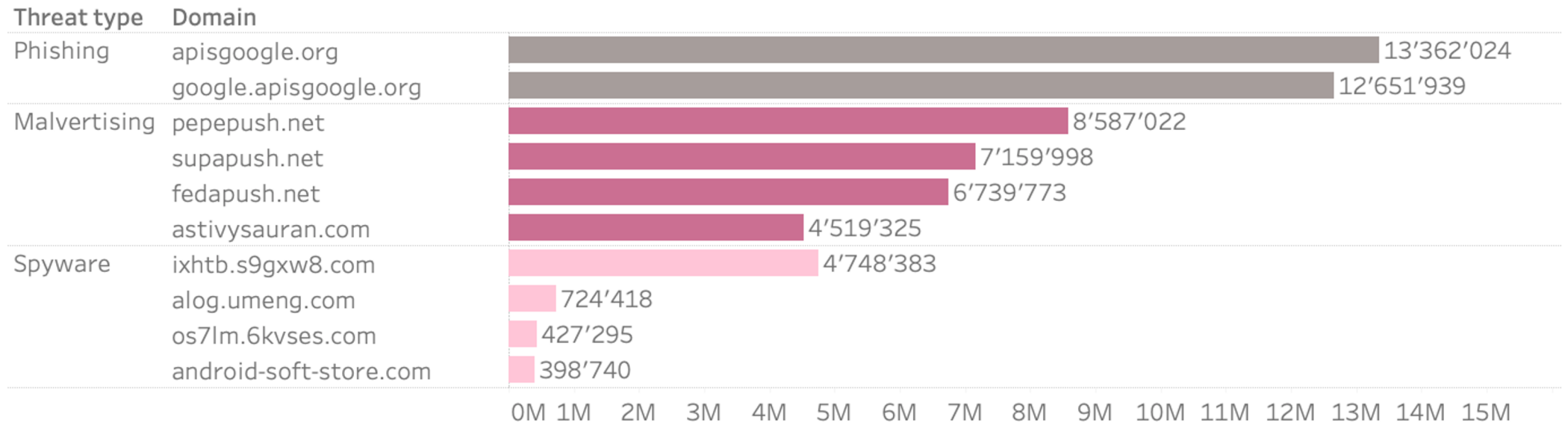
Between the 1st and the 21st Nov



Case study: Malawi

Top 10 Blocked Domains in Malawi

Between the 1st Nov and the 21st Nov 2023



Case study: Malawi

From the perspective of operators of malware with a DNS component, Malawi effectively... disappeared.

Questions?

Closing Remarks & Thank you!