



84

ANNUAL
GENERAL
MEETING



DNSSEC and Security Workshop

29 October 2025

DNSSEC and Security Workshop

ICANN84

Eric Osterweil, Distinguished Scientist

29 October 2025

Program Committee

- Gautam Akiwate
- Steve Crocker, Shinkuro
- Mark Elkins
- Layal Jebran, Moubarmij
- Russ Mundy, Parsons
- Ram Mohan, Identity Digital
- Peter Thomassen, deSEC
- Yoshiro Yoneya
- Dan York, Internet Society
- Daniel Gluck and Kathy Schnitt, ICANN Org

Support

The DNSSEC Workshop and associated activities at ICANN are an organized activity of the:

- ICANN Security and Stability Advisory Committee (SSAC)



With additional assistance from the:

- Internet Society



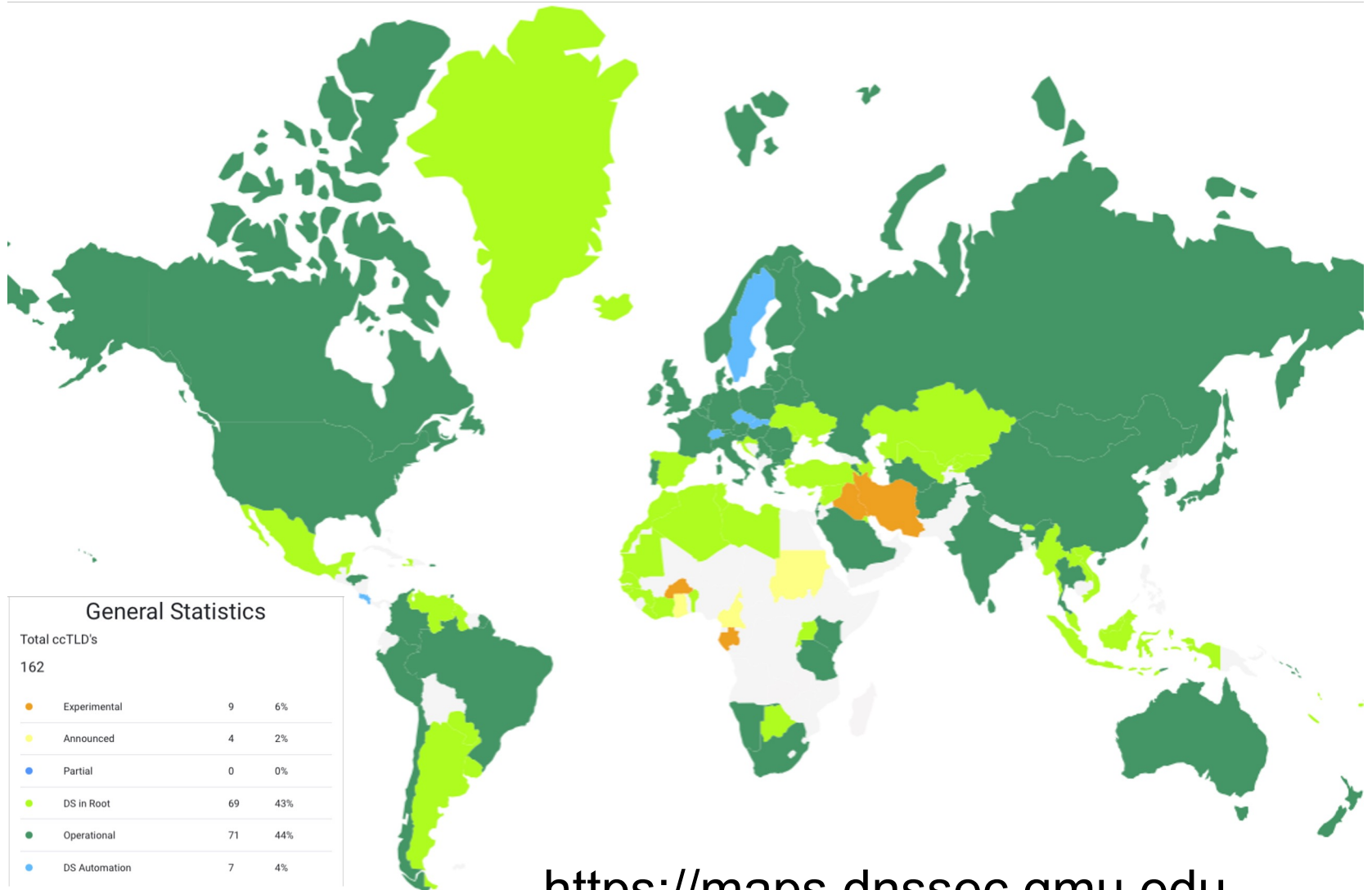
DNSSEC, DANE & RPKI Deployments Around the World

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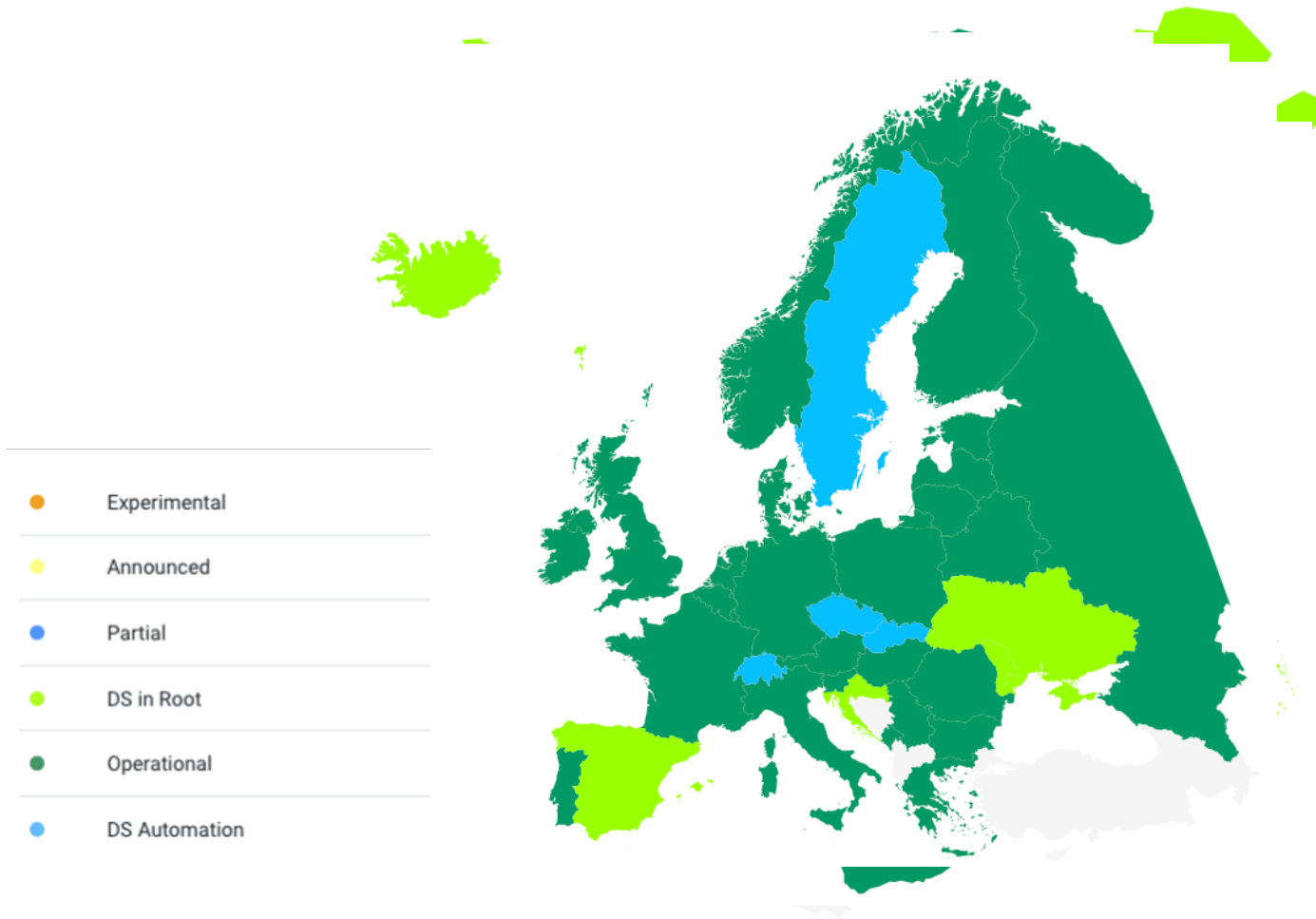
29 October 2025

DNSSEC Deployment Maps



<https://maps.dnssec.gmu.edu>

DNSSEC Deployment Maps



A View of Our Progress

Select Region
World

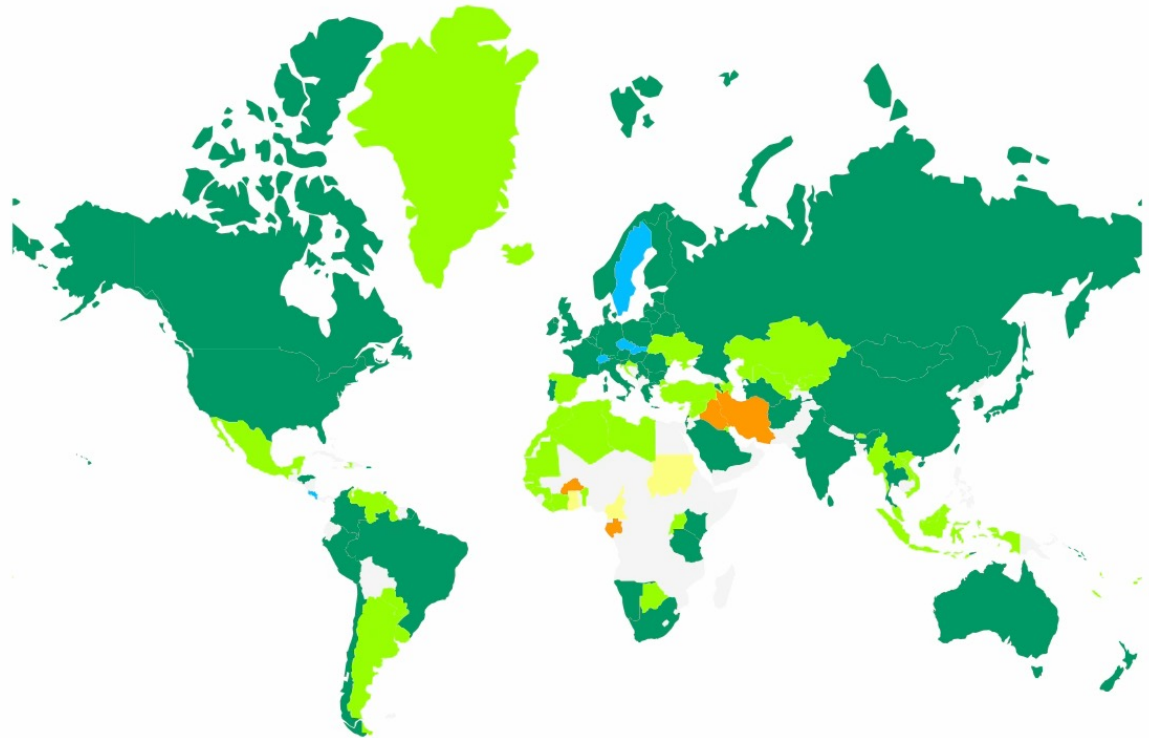


General Statistics

Total ccTLD's

162

Experimental	9	6%
Announced	4	2%
Partial	0	0%
DS in Root	69	43%
Operational	71	44%
DS Automation	7	4%



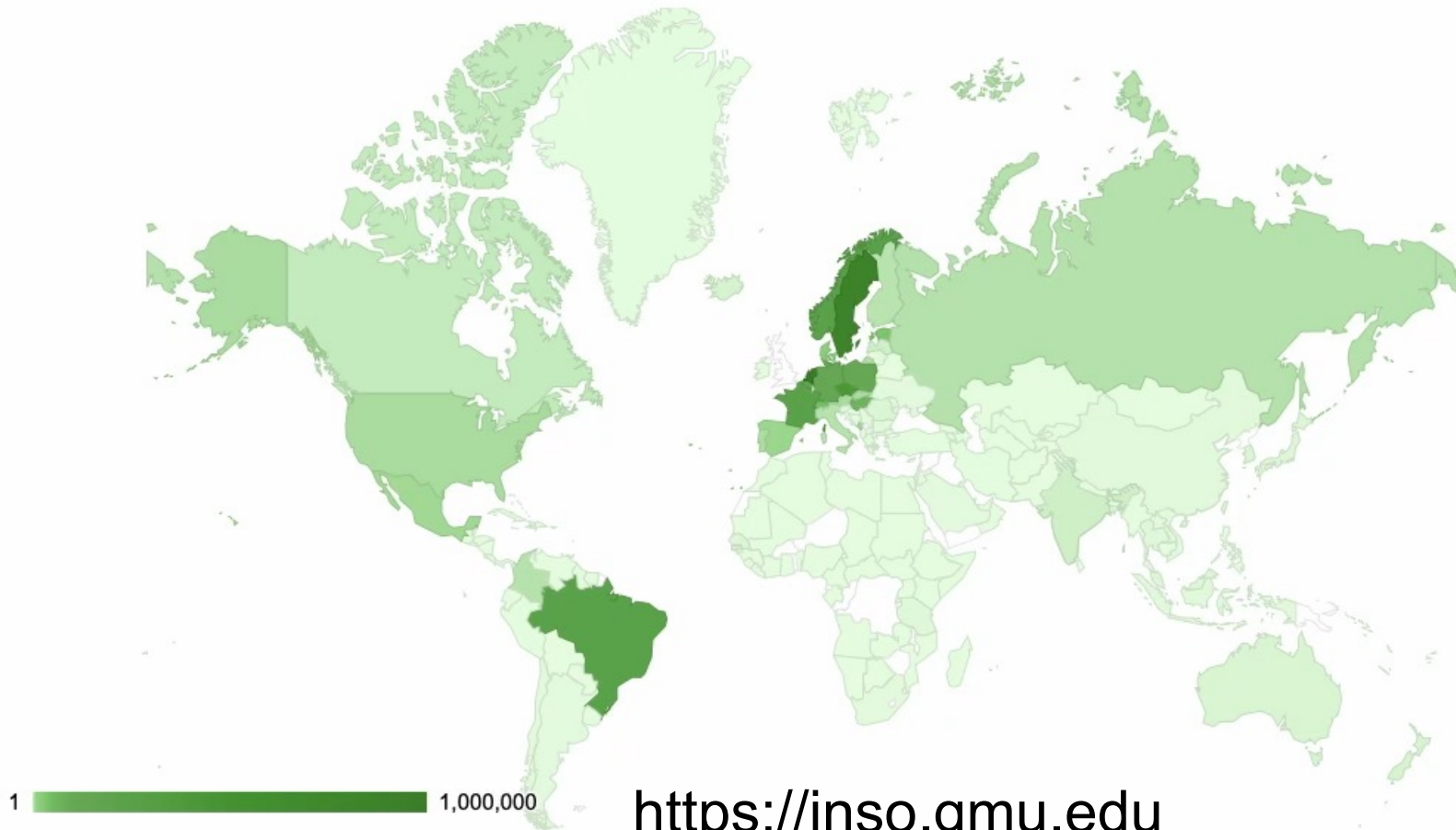
An Alternate View of Our Progress

2025

Animate

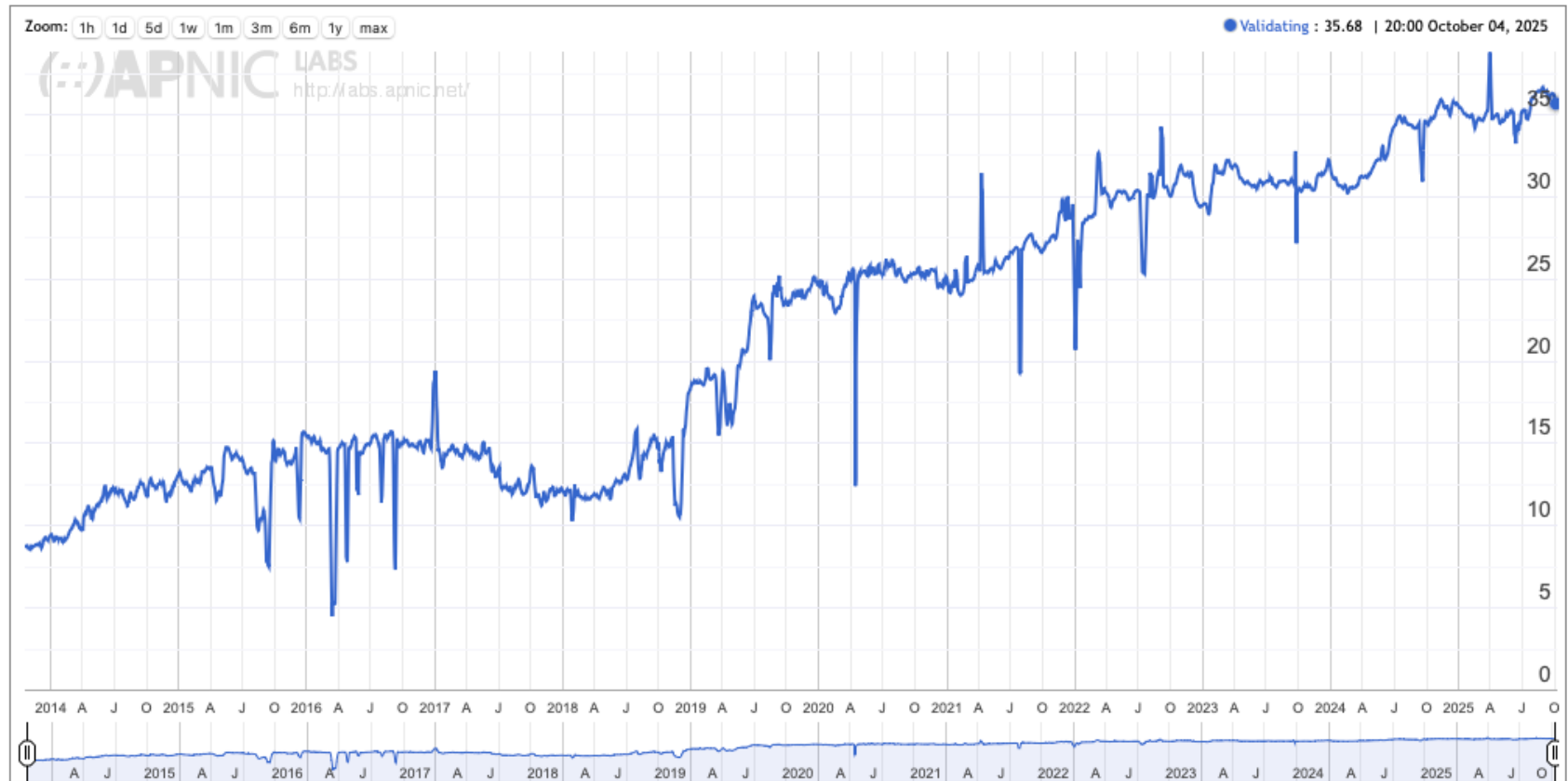
Stop

Heatmap of DNSSEC zones by ccTLD



<https://inso.gmu.edu>

DNSSEC Validation



<https://stats.labs.apnic.net/dnssec/XA?hc=XA&hx=0&hv=1&hp=0&hr=1&w=7>

DNSSEC Validation

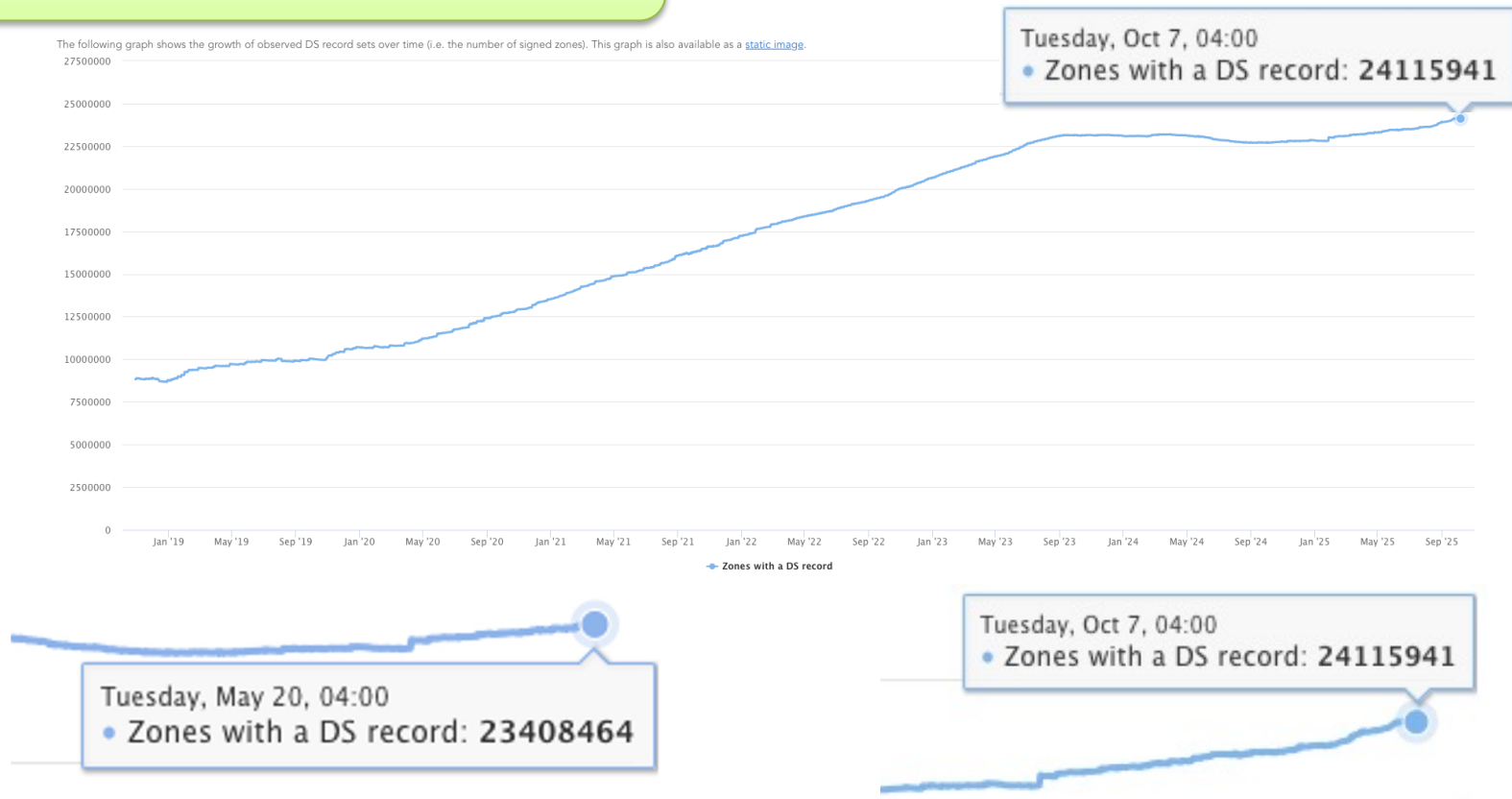
Code	Region	DNSSEC Validates	Samples	Weight	Weighted Samples
XA	World	35.41%	19,565,263	1	19,565,263
XG	Unclassified	100.00%	24,273	0	9
XF	Oceania	53.90%	149,352	0.98	146,393
XB	Africa	46.28%	2,147,303	0.97	2,074,616
XE	Europe	44.15%	2,242,458	1.24	2,791,019
XC	Americas	36.47%	5,579,994	0.63	3,499,589
XD	Asia	30.58%	9,446,141	1.17	11,053,634

~838 thousand more samples in
October 2025 than May 2025

<https://stats.labs.apnic.net/dnssec/XA?hc=XA&hx=0&hv=1&hp=1&hr=1&w=7&p=0>

Observed DS Record Count Growth

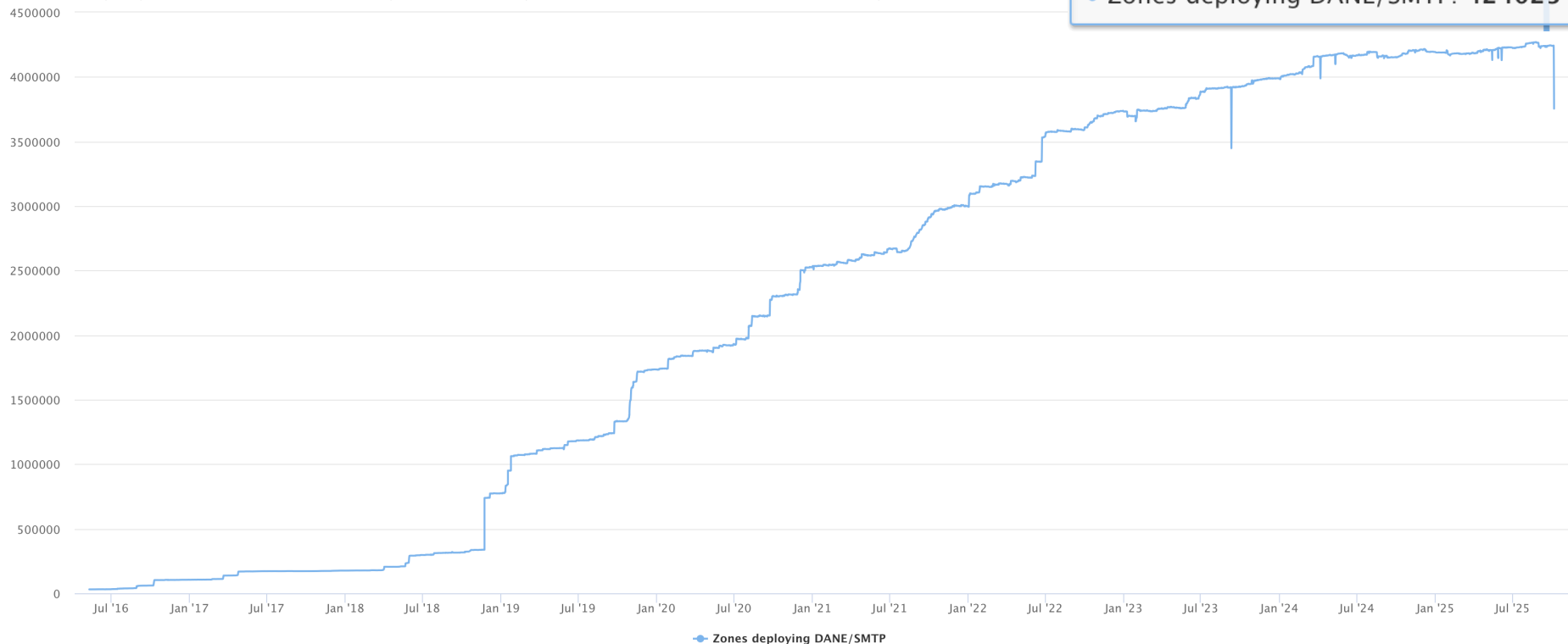
Increase of 707,477 since May 2025
(from 5/20/2025 to 10/7/2025)



<https://stats.dnssec-tools.org/>

Zones with Signed MX and DANE Records

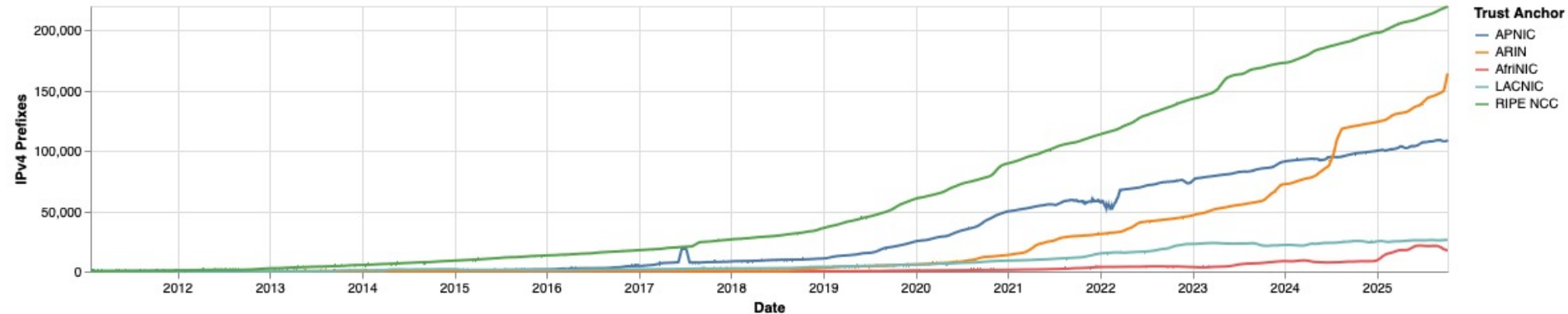
The following graph depicts the number of domains that have deployed DANE/SMTP. Specifically, these zones are signed and their MX records all point to hosts that have corres



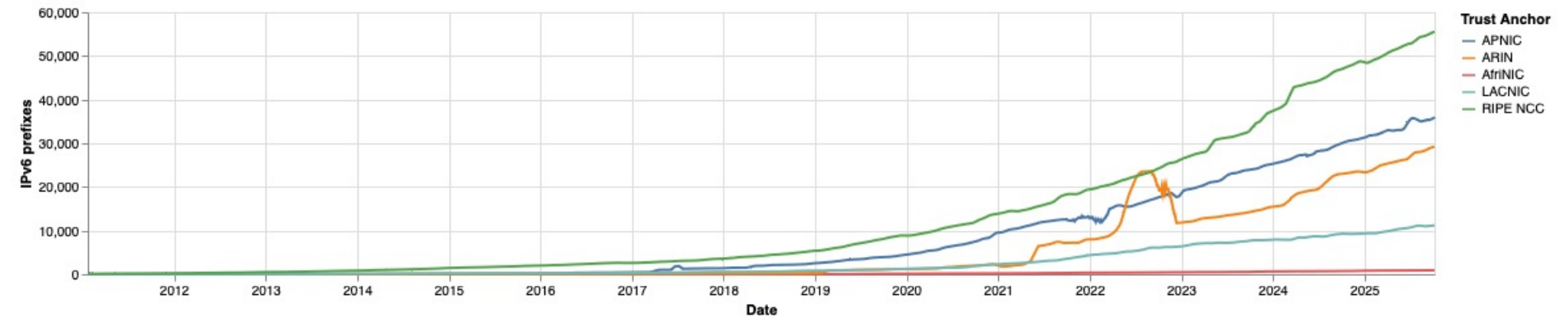
<https://stats.dnssec-tools.org/>

Prefixes by RPKI ROAs, by RIR

IPv4 prefixes in ROAs



IPv6 prefixes in ROAs



<https://certification-stats.ripe.net/>

Questions?

Resources

DNSSEC

- <https://inso.gmu.edu/>
- <https://maps.dnssec.gmu.edu>
- <https://www.dnssec-tools.org>
- <https://stats.dnssec-tools.org>
- <https://stats.labs.apnic.net/dnssec>
- <https://secspider.net>

RPKI

- <https://rpki-monitor.antd.nist.gov>
- <https://certification-stats.ripe.net>
- <https://www.securerouting.net>

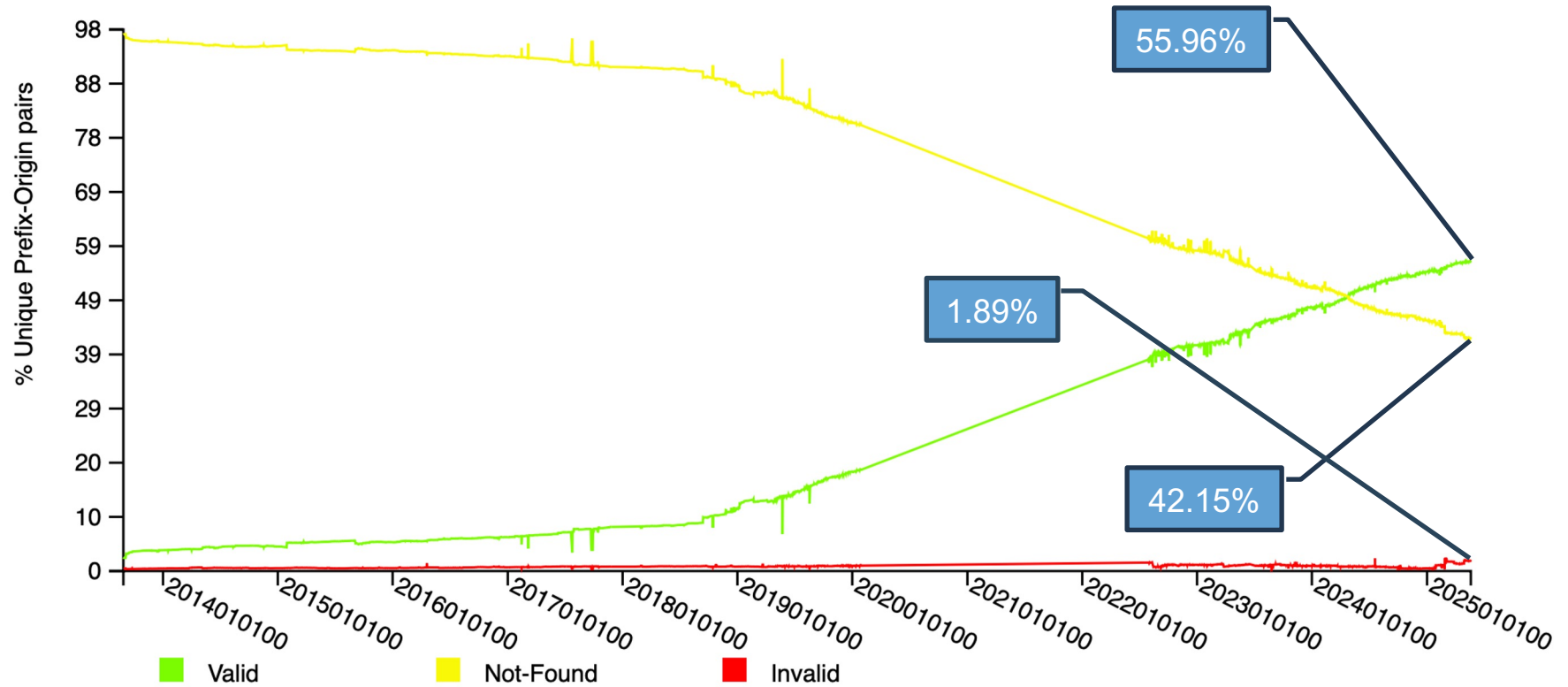


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Appendix

RPKI Global IPv4 Prefixes

RPKI-ROV History of Unique Prefix-Origin Pairs (IPv4)



NIST RPKI Monitor:RPKI-ROV Analysis

Protocol: IPv4

RIR:All

URL: <https://rpki-monitor.antd.nist.gov/ROV#div2>

<https://rpki-monitor.antd.nist.gov/>