

DNSSEC Workshop

ICANN 66

Dan York, ISOC

06 November 2019



Program Committee

- ⊙ Mark Elkins, DNS/ZACR
- ⊙ Jean Robert Hountomey, AfricaCERT
- ⊙ Jacques Latour, CIRA
- ⊙ Russ Mundy, Parsons
- ⊙ Ondřej Filip, CZNIC
- ⊙ Yoshiro Yoneya, JPRS
- ⊙ Fred Baker, ISC
- ⊙ Dan York, Internet Society
- ⊙ Andrew McConachie and Kathy Schnitt, ICANN

DNSSEC Implementers Gathering

Sponsors

- ⊙ Afilias
- ⊙ .AU
- ⊙ .BR.
- ⊙ CIRA
- ⊙ Cloudflare
- ⊙ CORE
- ⊙ Donuts
- ⊙ GoDaddy
- ⊙ Google
- ⊙ PIR
- ⊙ SIDN
- ⊙ Verisign



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
Deploy360 Programme**



DNSSEC and Security Workshop Program
ICANN Meeting in Montreal, Canada
Montreal Convention Center
Room: 517C
Wednesday, 06 November 2019 - 1330 to 1645

DNSSEC and Security Workshop – Part I
1330-1345 – Presentation: Dan York, ISOC -- <i>DNSSEC Workshop Introduction, Program, Deployment Around the World – Counts, Counts, Counts</i>
1345-1405 – Daniel Migault, Ericsson and Dan York, ISOC – Internet Draft: Best Practices for DNSSEC-Validating Resolvers
1405-1425 – Russ Mundy, Parsons – RPKI Introduction
1425-1445 – Update on the next KSK Roll – Kim Davies, ICANN
14:45-15:00 – Yoshiro Yoneya, JRPS – Towards Detecting DNNSEC validation failure with passive measurements at TLD DNS Servers
1500-1515 -- Coffee Break
DNSSEC and Security Workshop – Part II
1515-1535 – Jaap Akkerhuis , NLnet Labs – Routing Security
1535-1555 – Dan York, ISOC – MANRS Observatory
1555-1615 – Marc Van Wesemael, EURid and Lieven Desemt, KU Leuven – Detection and prevention of domain name abuse in .eu.
1615-1645 – Workshop Summary

DNSSEC, DANE & RPKI Deployments Around the World

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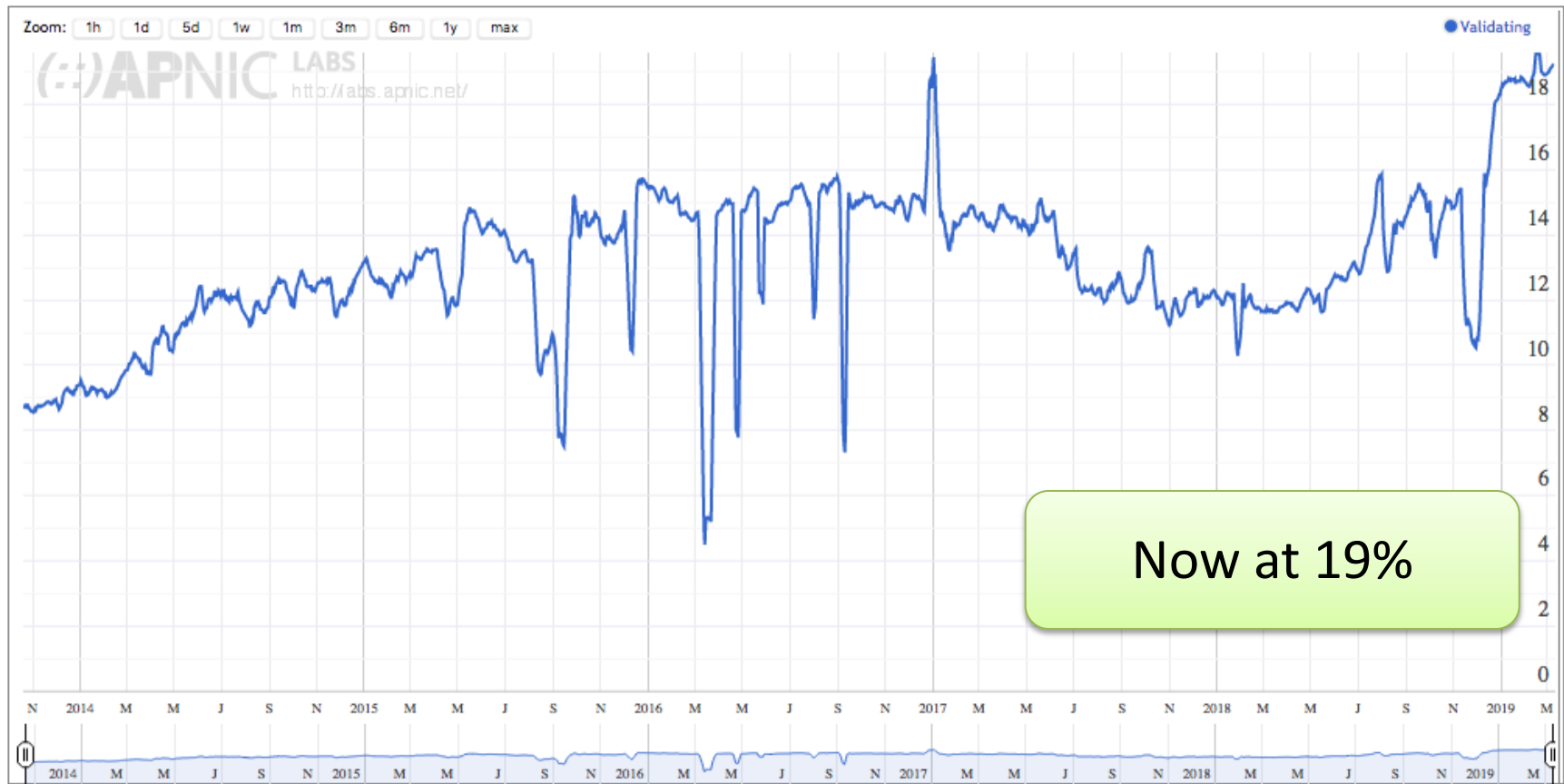
Dan York, ISOC

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DNSSEC Validation

Use of DNSSEC Validation for World (XA)



<http://stats.labs.apnic.net/dnssec/XA?c=XA&x=1&g=0&r=0&w=7&r=1>

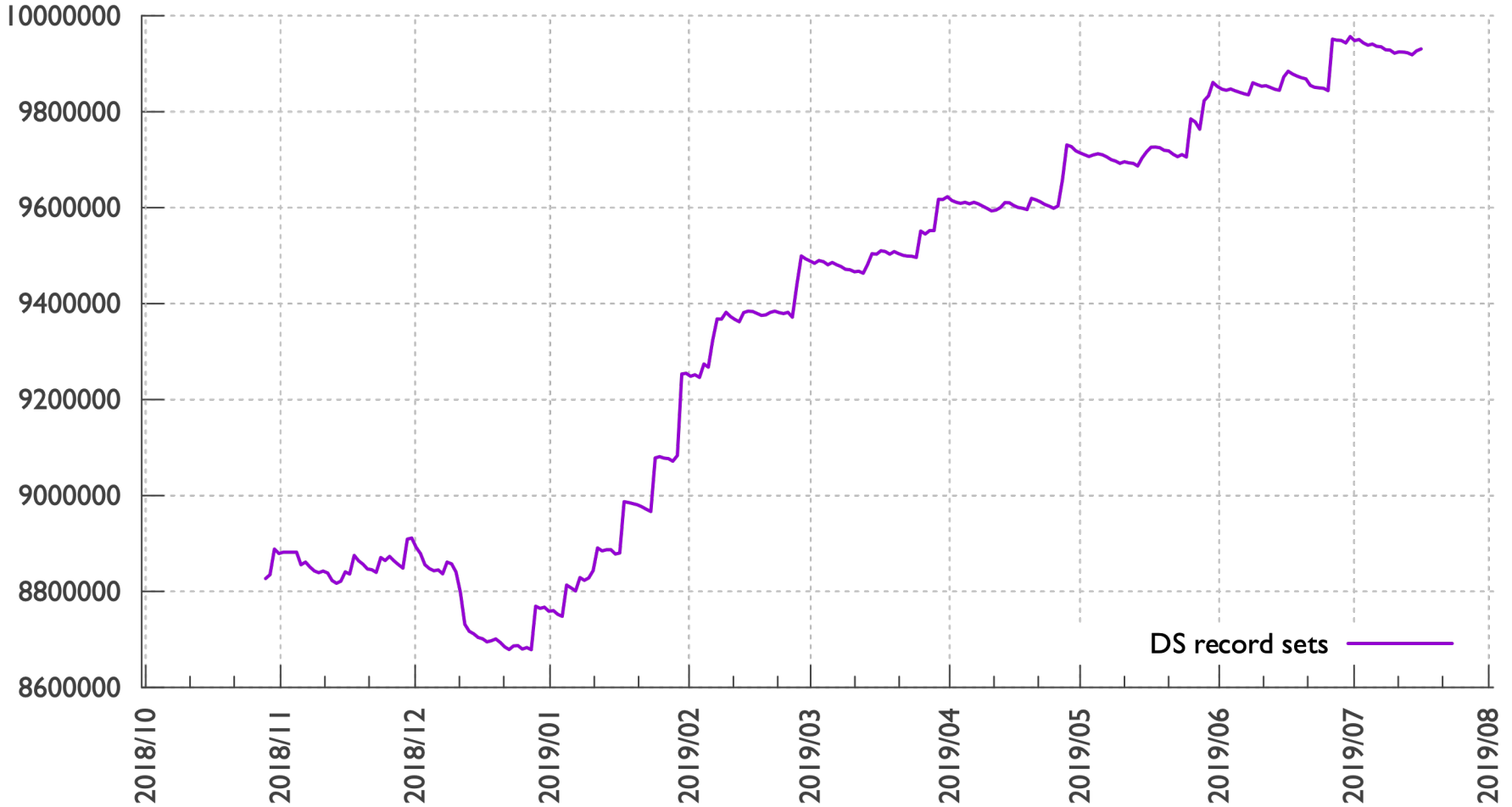
Code	SubRegion	DNSSEC Validates	Uses Google PDNS
QR	Micronesia, Oceania	66.46%	61.86%
QQ	Melanesia, Oceania	52.23%	53.31%
XK	Southern Africa, Africa	48.04%	16.25%
XR	Central Asia, Asia	39.75%	25.49%
XV	Western Asia, Asia	34.82%	12.18%
QO	Western Europe, Europe	33.55%	6.10%
XT	Southern Asia, Asia	32.15%	23.07%
QP	Australia and New Zealand, Oceania	29.24%	5.65%
XP	South America, Americas	26.98%	15.66%
QM	Northern Europe, Europe	24.94%	5.34%
XQ	Northern America, Americas	24.92%	6.45%
XN	Caribbean, Americas	22.86%	17.63%
XI	Middle Africa, Africa	22.53%	18.10%
XW	Eastern Europe, Europe	22.25%	12.17%
XH	Eastern Africa, Africa	19.08%	20.89%
XJ	Northern Africa, Africa	16.40%	19.79%
QN	Southern Europe, Europe	14.40%	9.07%
XU	South-Eastern Asia, Asia	12.88%	16.70%
XL	Western Africa, Africa	12.09%	30.99%
XO	Central America, Americas	8.55%	13.05%
QS	Polynesia, Oceania	6.17%	10.19%
XS	Eastern Asia, Asia	2.58%	6.86%

Low % of Google PDNS usage means more DNSSEC support by local ISPs.

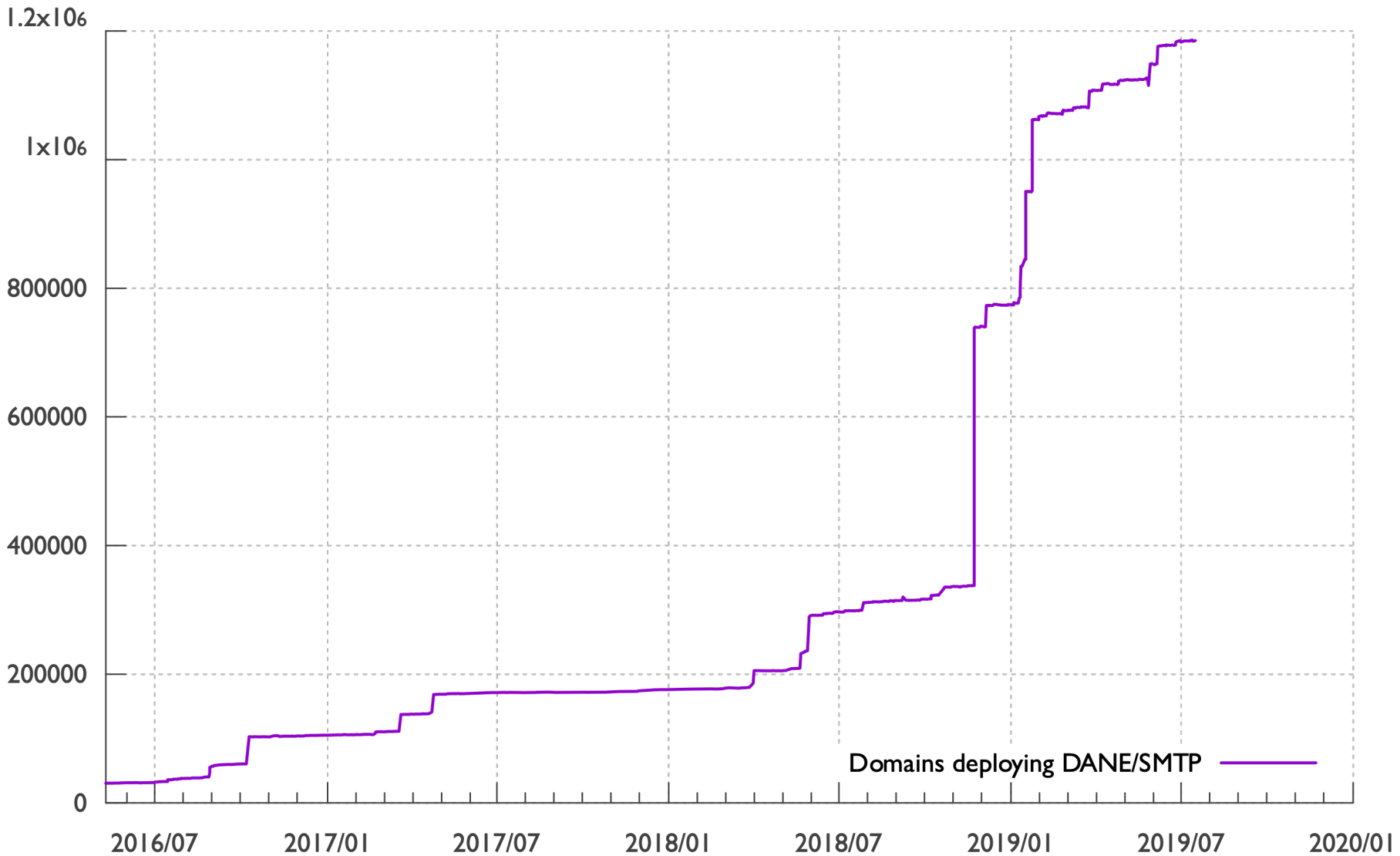
High % of Google PDNS usage means ISPs are using Google for DNS versus operating their own DNS servers.

<https://stats.labs.apnic.net/dnssec/XA?hc=XA&hx=1&hg=0&hr=1&w=30&g=1>

Observed DS Record Count Growth



Domains with signed MX and DANE records

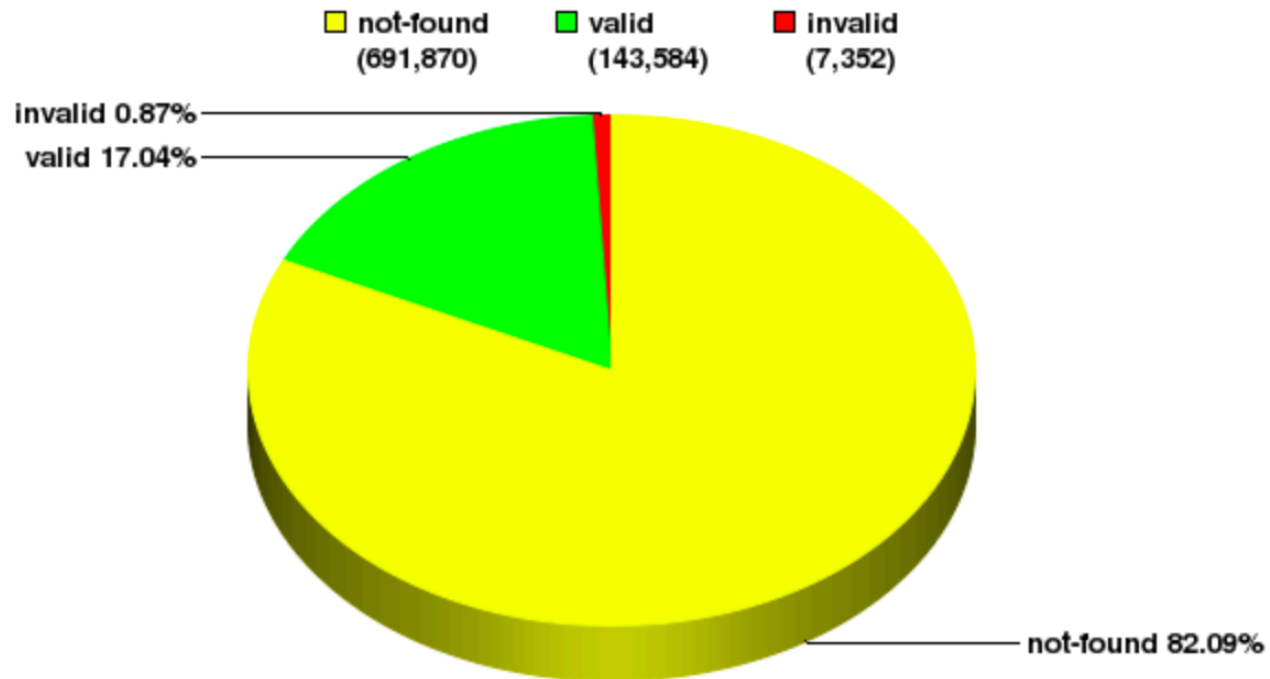


RPKI Global IPv4 Prefixes

Validation Results of Unique IPv4 Prefix/Origin Pairs using Global RPKI

Global: Validation Snapshot of Unique P/O pairs

842,806 Unique IPv4 Prefix/Origin Pairs



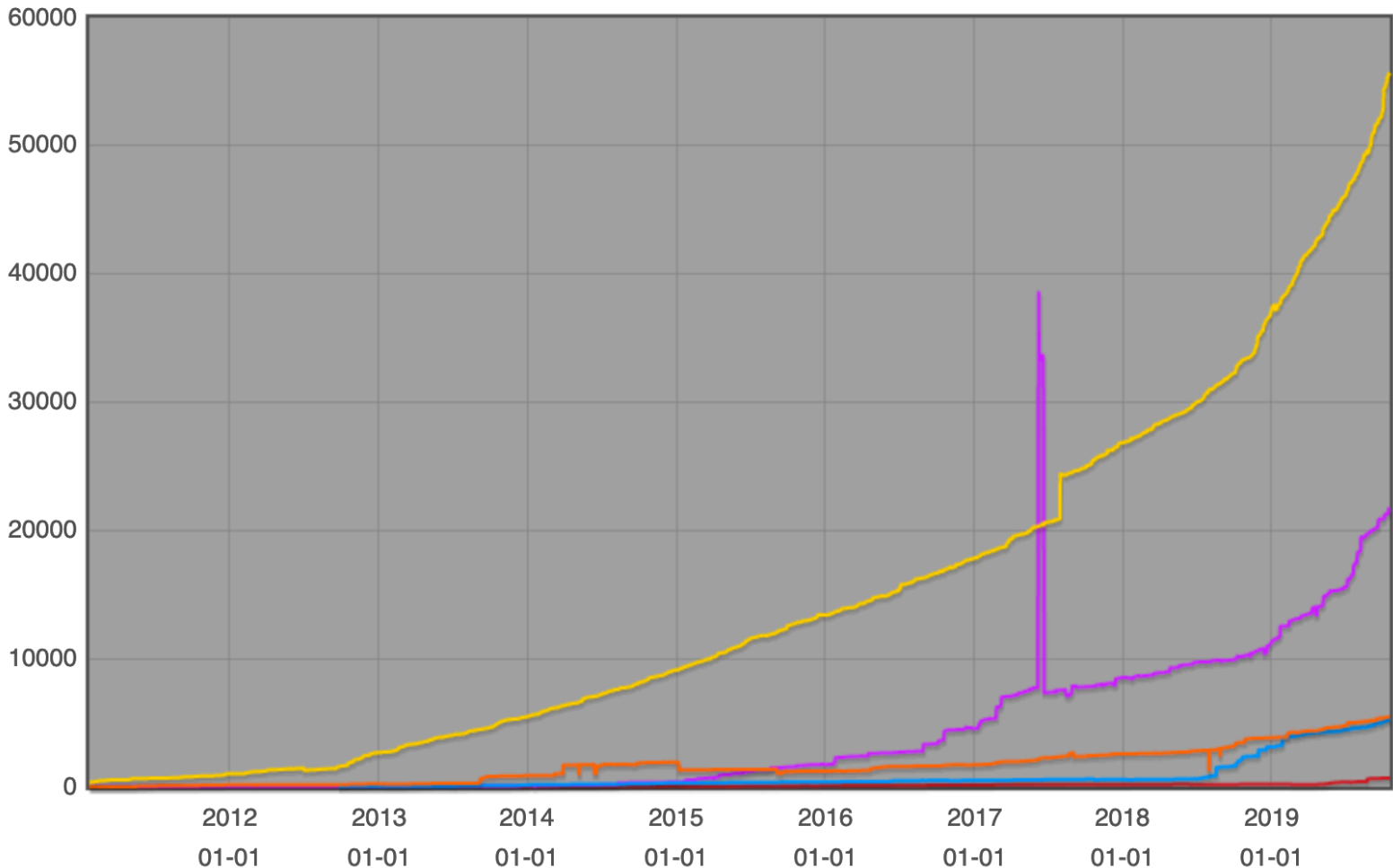
NIST RPKI Monitor 2019-10-17

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

RPKI Covered IPv4 Prefixes by RIR

IPv4 prefixes in ROAs AfriNIC APNIC ARIN LACNIC RIPE NCC

This graph shows the total amount of distinct IPv4 prefixes found in the ROAs



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

ccTLD DNSSEC Deployment Status

Stages of Deployment

Experimental – Internal experiments

Announced – Public commitment to deploy

Partial – Zone is signed but not in operation

DS in Root – DS record in root zone

Operational – Accepting signed delegations

New DNSSEC Deployments

Experimental

Anguilla, .AI, March 2019

Operational

Algeria, .DZ, Apr 2019

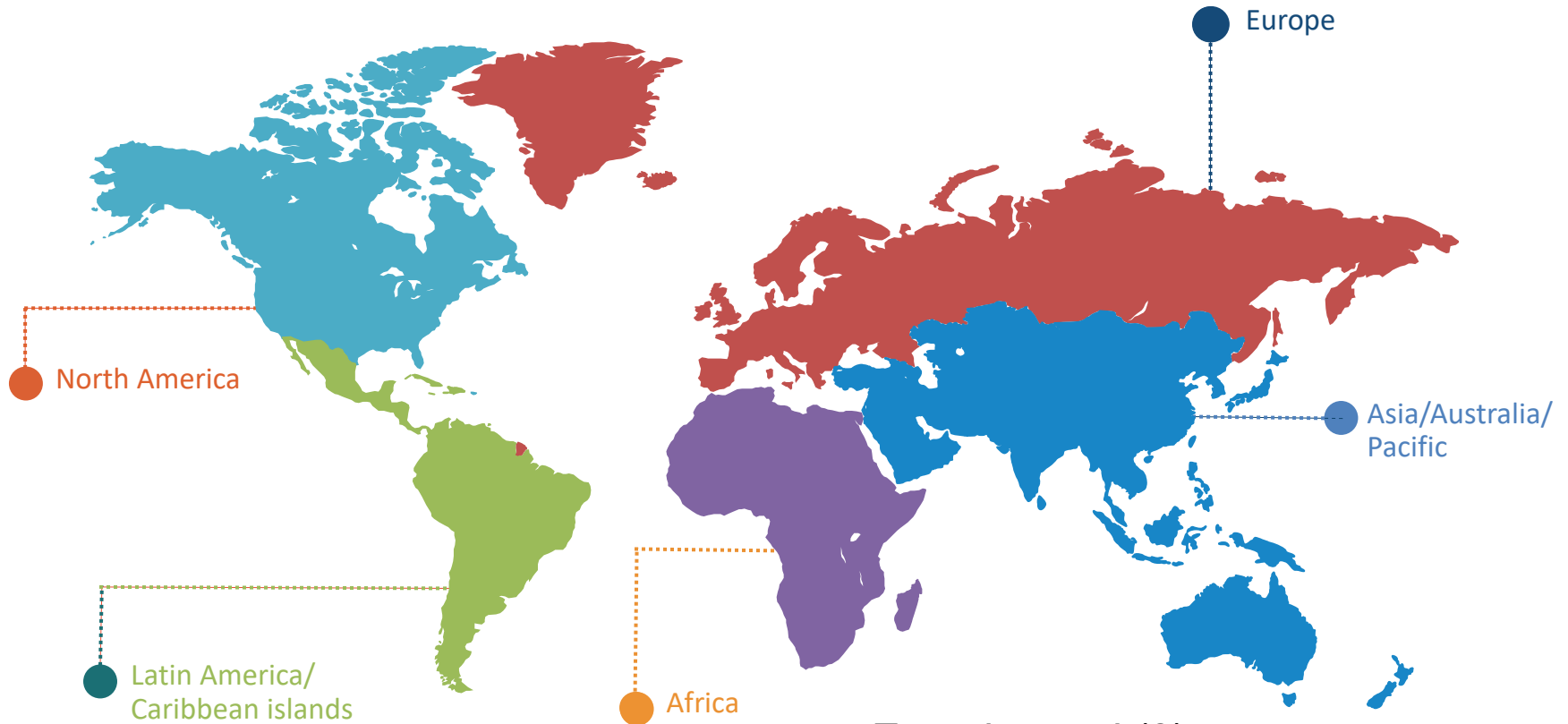
Kuwait, .KW, Mar 2019

Moldova, .MD, Mar 2019

Monaco, .MC, Jun 2019

Slovakia, .SK, Apr 2019

ccTLD DNSSEC Status 2019-06-23



Experimental (8)
Announced (4)
Partial (1)
DS in Root (53)
Operational (80)

Questions & Answers

DNSSEC Resources

www.internetsociety.org/deploy360/

www.dnssec-tools.org

www.dnssec-deployment.org

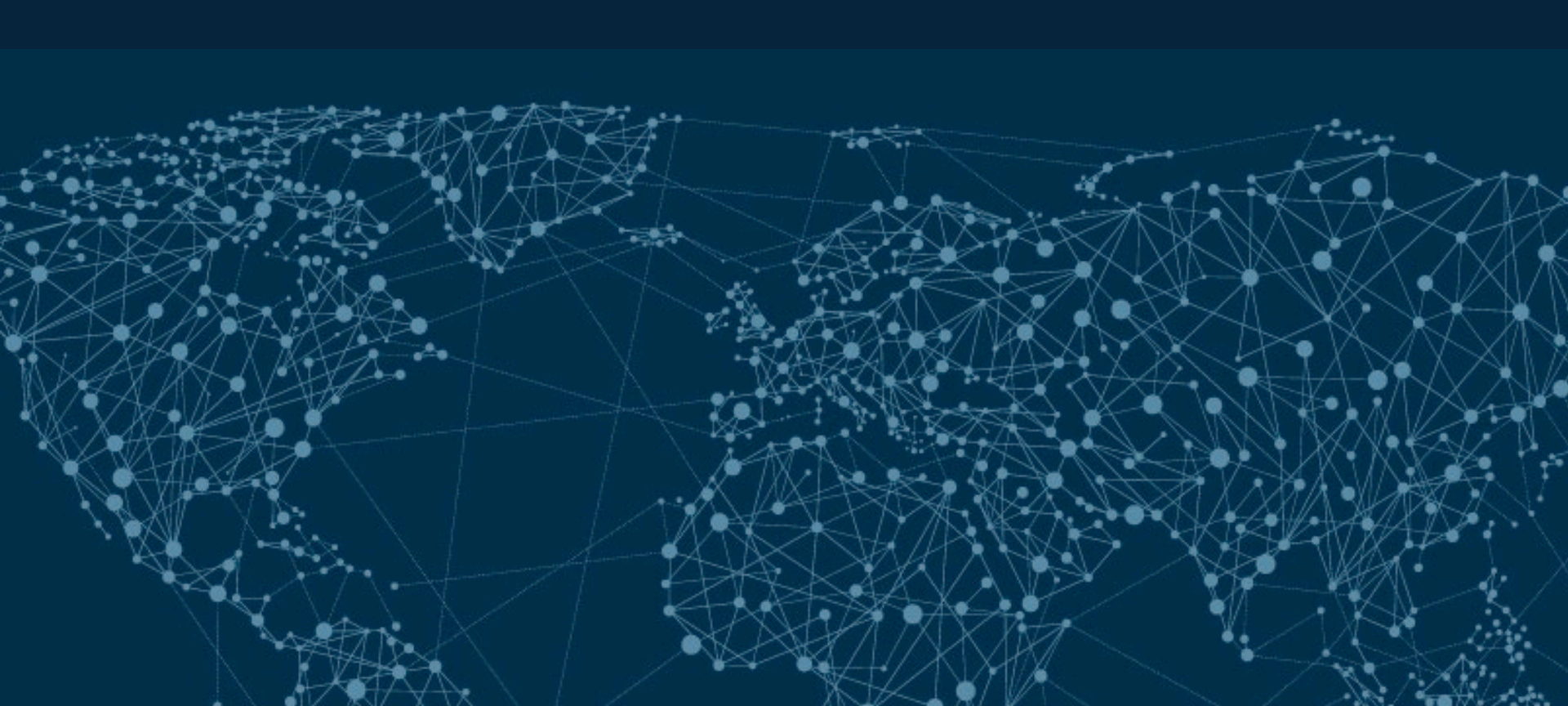
stats.labs.apnic.net/dnssec

RPKI Resources

rpki-monitor.antd.nist.gov

certification-stats.ripe.net

www.securerouting.net



Thank You

