DNSSEC Workshop

Dan York, Internet Society | ICANN 55 | March 2016

Remote Participation

Slides and audio streams at:

- **https://meetings.icann.org/en/marrakech 55/schedule/wed-dnssec**

Live video stream via YouTube at:

- **http://bit.ly/dnssec55am**

- **http://bit.ly/dnssec55pm**

Program Committee

- Steve Crocker, Shinkuro, Inc.
- Mark Elkins, DNS/ZACR
- Cath Goulding, Nominet
- Jean Robert Hountomey, AfricaCERT
- Jacques Latour, CIRA
- Xiaodong Lee, CNNIC
- Luciano Minuchin, NIC.AR
- Russ Mundy, SPARTA, A Parsons Company
- Ondřej Surý, CZNIC
- Yoshiro Yoneya, JPRS
- Dan York, Internet Society
- Julie Hedlund and Kathy Schnitt, ICANN

Luncheon Sponsors

- Afilias
- CIRA
- Dyn
- SIDN

- Opportunity for a fifth sponsor!

DNSSEC Implementer's Gathering Sponsors

The Program Committee held a DNSSEC Implementers Gathering on 07 March sponsored by:

DNSSEC Implementer's Gathering

Thanks to:

Afilias℠

Who can sponsor the gathering at ICANN 56?

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**

Program

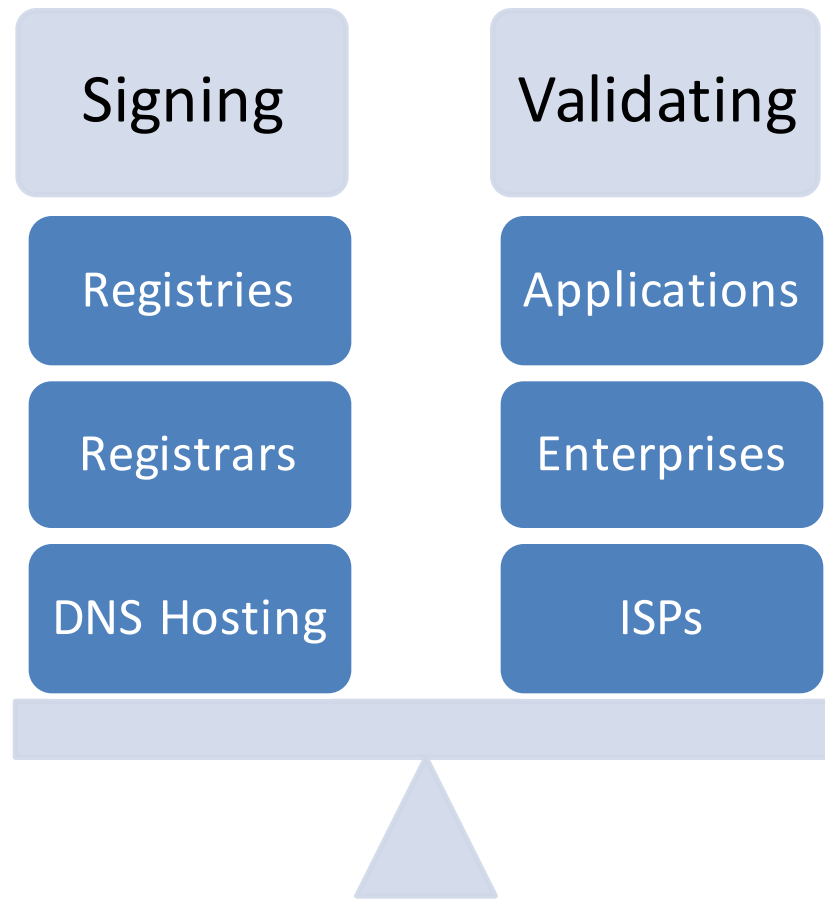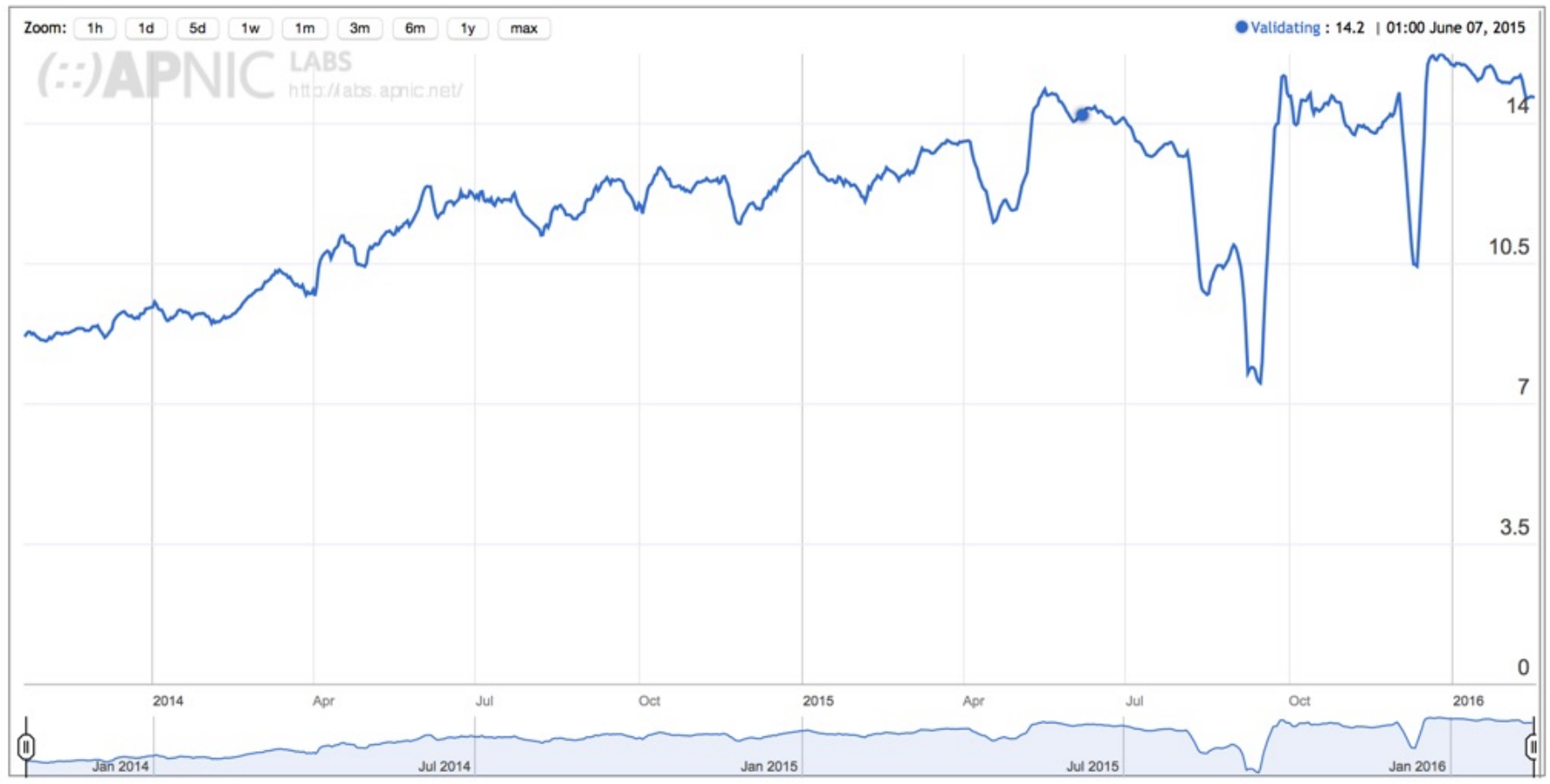| Time	Session
0900-0915 – Presentation: Dan York, Internet Society – *DNSSEC Workshop Introduction, Program, Deployment Around the World – Counts, Counts, Counts*
0915-0930 – Presentation: *Update on the 'Sunset' of the DNSSEC Look-aside Validation Registry (DLV)*
0930-1030 – Panel Discussion: DNSSEC Activities in the African Region
1030-1045 – *Coffee Break*
1045-1115 – Presentation: *Open DNSSEC SIGNER Switchover Experience*
1115-1145 – Presentation: *DNSSEC At Scale*
1145-1200 – *Great DNS/DNSSEC Quiz*
1200-1315 – *Lunch Break in Grand Bleu*
1315-1415 – Panel Discussion: *DNSSEC and Elliptic Curve Cryptography*
1415-1500 – Panel Discussion: *DNSSEC Root Key Signing Key (KSK) Rollover*
1500-1515 – Presentation: *DNSSEC - How Can I Help?*

The Two Parts of DNSSEC

Signing	Validating
Registries	Applications
Registrars	Enterprises
DNS Hosting	ISPs

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	Samples	Weight	Weighted Samples
XH	Eastern Africa, Africa	34.28%	27.04%	2216200	6.06	13429228
XK	Southern Africa, Africa	29.65%	14.62%	588998	6.37	3752131
QO	Western Europe, Europe	27.86%	12.71%	15135564	1.45	21919390
XQ	Northern America, Americas	24.03%	7.24%	70333632	0.6	42303797
QP	Australia and New Zealand, Oceania	22.59%	4.16%	2327677	1.44	3349046
XW	Eastern Europe, Europe	22.08%	13.98%	34637931	0.67	23036101
XP	South America, Americas	21.97%	14.68%	24927585	1.31	32533300
QQ	Melanesia, Oceania	21.68%	38.23%	284691	0.51	145800
QM	Northern Europe, Europe	21.58%	4.27%	15397387	0.8	12374707
XT	Southern Asia, Asia	21.06%	23.99%	24779421	2.78	68944502
QN	Southern Europe, Europe	13.66%	11.88%	50114651	0.26	13140560
QR	Micronesia, Oceania	13.63%	28.93%	284546	0.09	24826
XV	Western Asia, Asia	12.70%	11.43%	40415667	0.4	16178636
XU	South-Eastern Asia, Asia	11.80%	17.35%	54384548	0.55	29697163
XI	Middle Africa, Africa	11.72%	32.71%	485510	3.22	1562601
XJ	Northern Africa, Africa	11.38%	15.11%	52480672	0.24	12699652
XN	Caribbean, Americas	10.72%	13.35%	4753346	0.48	2275088
XO	Central America, Americas	6.85%	14.40%	11271695	0.91	10302031
XL	Western Africa, Africa	6.34%	27.85%	1639360	8.97	14698046
XR	Central Asia, Asia	5.04%	8.56%	1910662	1.92	3675213
XS	Eastern Asia, Asia	3.08%	4.55%	34298808	3.41	116870344
QS	Polynesia, Oceania	1.84%	8.08%	275816	0.12	33446

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

Code	Region	DNSSEC Validates	Uses Google PDNS	Samples	Weight	Weighted Samples
XA	World	15.10%	13.16%	442945727	1	442945727
XB	Africa	17.87%	23.11%	57410740	0.8	46141656

Code	SubRegion	DNSSEC Validates	Uses Google PDNS	Samples	Weight	Weighted Samples
XH	Eastern Africa, Africa	34.28%	27.04%	2216200	6.06	13429228
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http://stats.labs.apnic.net/dnssec/XB?o=cXHw7x1g1r1

CC	Country	DNSSEC Validates	Uses Google PDNS	Samples	Weight	Weighted Samples
YT	Mayotte, Eastern Africa, Africa	95.80%	98.37%	4049	4	16213
DJ	Djibouti, Eastern Africa, Africa	60.43%	59.49%	152295	0.08	11893
SO	Somalia, Eastern Africa, Africa	56.46%	72.92%	432983	0.05	23554
MG	Madagascar, Eastern Africa, Africa	51.87%	8.86%	205666	12.02	2472301
LR	Liberia, Western Africa, Africa	49.24%	72.39%	27316	1.03	28232
KE	Kenya, Eastern Africa, Africa	46.60%	26.71%	417461	10.47	4371559
GQ	Equatorial Guinea, Middle Africa, Africa	40.41%	52.92%	5988	3.32	19860
TG	Togo, Western Africa, Africa	38.55%	62.65%	77449	0.62	47829
BJ	Benin, Western Africa, Africa	33.92%	20.65%	75032	2.33	175135
ER	Eritrea, Eastern Africa, Africa	32.12%	57.67%	1930	21.77	42006
BF	Burkina Faso, Western Africa, Africa	31.85%	86.32%	30948	4.24	131133
CD	Democratic Republic of the Congo, Middle Africa, Africa	30.87%	65.07%	65102	3.57	232670
ZA	South Africa, Southern Africa, Africa	30.66%	14.79%	494939	7.27	3595753
SL	Sierra Leone, Western Africa, Africa	28.72%	64.18%	27108	0.55	14920
TZ	United Republic of Tanzania, Eastern Africa, Africa	28.42%	34.01%	214271	5.23	1119589
MW	Malawi, Eastern Africa, Africa	27.96%	45.08%	91962	18.06	1660475
LS	Lesotho, Southern Africa, Africa	27.38%	39.65%	9299	1.55	14431
SS	South Sudan, Northern Africa, Africa	22.32%	43.10%	18041	0	0
LY	Libya, Northern Africa, Africa	21.27%	9.53%	691205	0.27	184616
CM	Cameroon, Middle Africa, Africa	19.98%	22.36%	208132	0.98	203620
BI	Burundi, Eastern Africa, Africa	18.12%	42.05%	13635	5.5	75051
TN	Tunisia, Northern Africa, Africa	15.35%	22.31%	3355564	0.21	702418
GM	Gambia, Western Africa, Africa	15.22%	38.88%	38542	1	38433
TD	Chad, Middle Africa, Africa	13.84%	51.30%	5390	9.63	51907
ZW	Zimbabwe, Eastern Africa, Africa	13.63%	32.69%	70656	11.67	824304
MZ	Mozambique, Eastern Africa, Africa	13.35%	22.98%	133655	1.69	225362
MR	Mauritania, Western Africa, Africa	13.31%	21.45%	91669	0.79	72043
EG	Egypt, Northern Africa, Africa	13.29%	11.98%	11952274	0.55	6616944
CG	Congo, Middle Africa, Africa	12.53%	28.29%	36417	1.14	41593
SD	Sudan, Northern Africa, Africa	10.59%	21.01%	505358	2.84	1435392
DZ	Algeria, Northern Africa, Africa	10.49%	45.01%	47545723	0.02	909686
UG	Uganda, Eastern Africa, Africa	10.04%	29.01%	138939	12.35	1716321

http://stats.labs.apnic.net/dnssec/XB?o=cXHw7x1g1r1

https://rick.eng.br/dnssecstat/
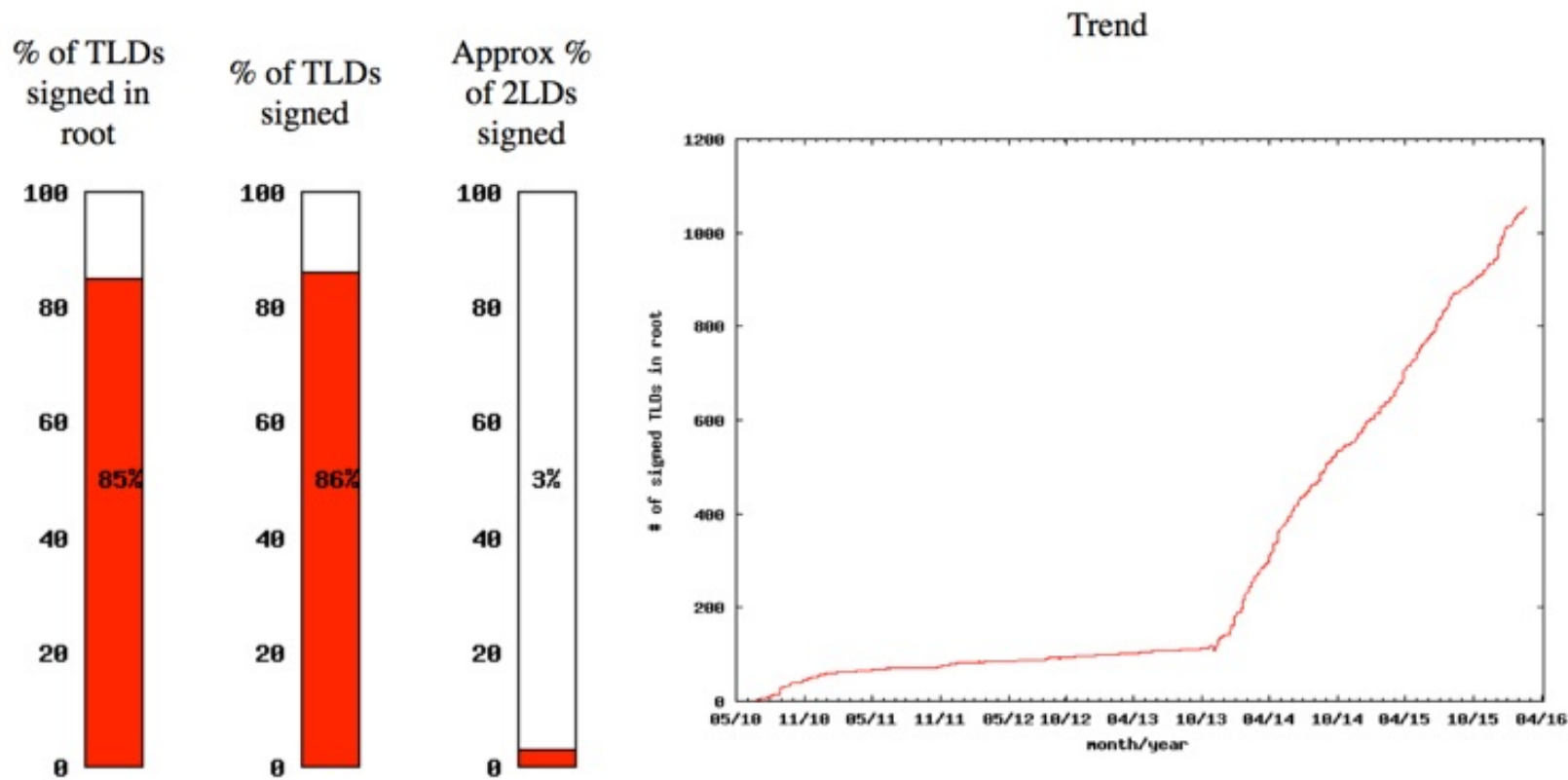
TLD		Description	DS Date	% Signed	Signed/Total
nl.		SIDN (Stichting Internet Domeinregistratie Nederland)	11-NOV-2010	44.12	2476868/5614413
br.		Comite Gestor da Internet no Brasil	23-JUN-2010	22.92	863373/3766866
se.		The Internet Infrastructure Foundation	27-AUG-2010	51.45	641915/1247642
com.		VeriSign Global Registry Services	31-MAR-2011	0.45	558067/125119259
cz.		CZ.NIC, z.s.p.o	24-JUN-2010	63.24	484112/765532
net.		VeriSign Global Registry Services	9-DEC-2010	0.63	98603/15621823
org.		Public Interest Registry (PIR)	22-JUL-2010	0.53	57539/10912808
ovh.		OVH SAS	19-JUN-2014	48.85	20842/42664
info.		Afilias Limited	4-SEP-2010	0.34	18766/5479473
biz.		Neustar, Inc.	7-AUG-2010	0.74	17313/2351639
webcam.		dot Webcam Limited	20-MAR-2014	11.31	9007/79669
xyz.		XYZ.COM LLC	19-FEB-2014	0.26	6505/2549035
amsterdam.		Gemeente Amsterdam	25-DEC-2014	25.49	6162/24173
frl.		FRLregistry B.V.	31-AUG-2014	30.33	4042/13325
bank.		fTLD Registry Services, LLC	9-JAN-2015	100.00	3138/3138
paris.		City of Paris	19-APR-2014	15.32	3047/19887
top.		Jiangsu Bangning Science & Technology Co.,Ltd.	4-AUG-2014	0.17	2734/1616178
name.		VeriSign Information Services, Inc.	24-JAN-2014	0.87	1484/169874
win.		First Registry Limited	25-MAR-2015	0.13	1066/819132
immo.		Auburn Bloom, LLC	27-AUG-2014	9.19	982/10689
website.		DotWebsite Inc.	30-MAY-2014	0.64	936/146703

Note: Only includes the TLDs for which Rick Lamb can get statistics. (Example, .GOV is not listed.)

https://rick.eng.br/dnssecstat/

TLD DNSSEC Implementation Status

Experimental – internal experiments

Announced – Public commitment to deploy

Partial – Zone is signed but not in operation

DS in Root

Operational – Accepting signed delegations

Note About Operational Status

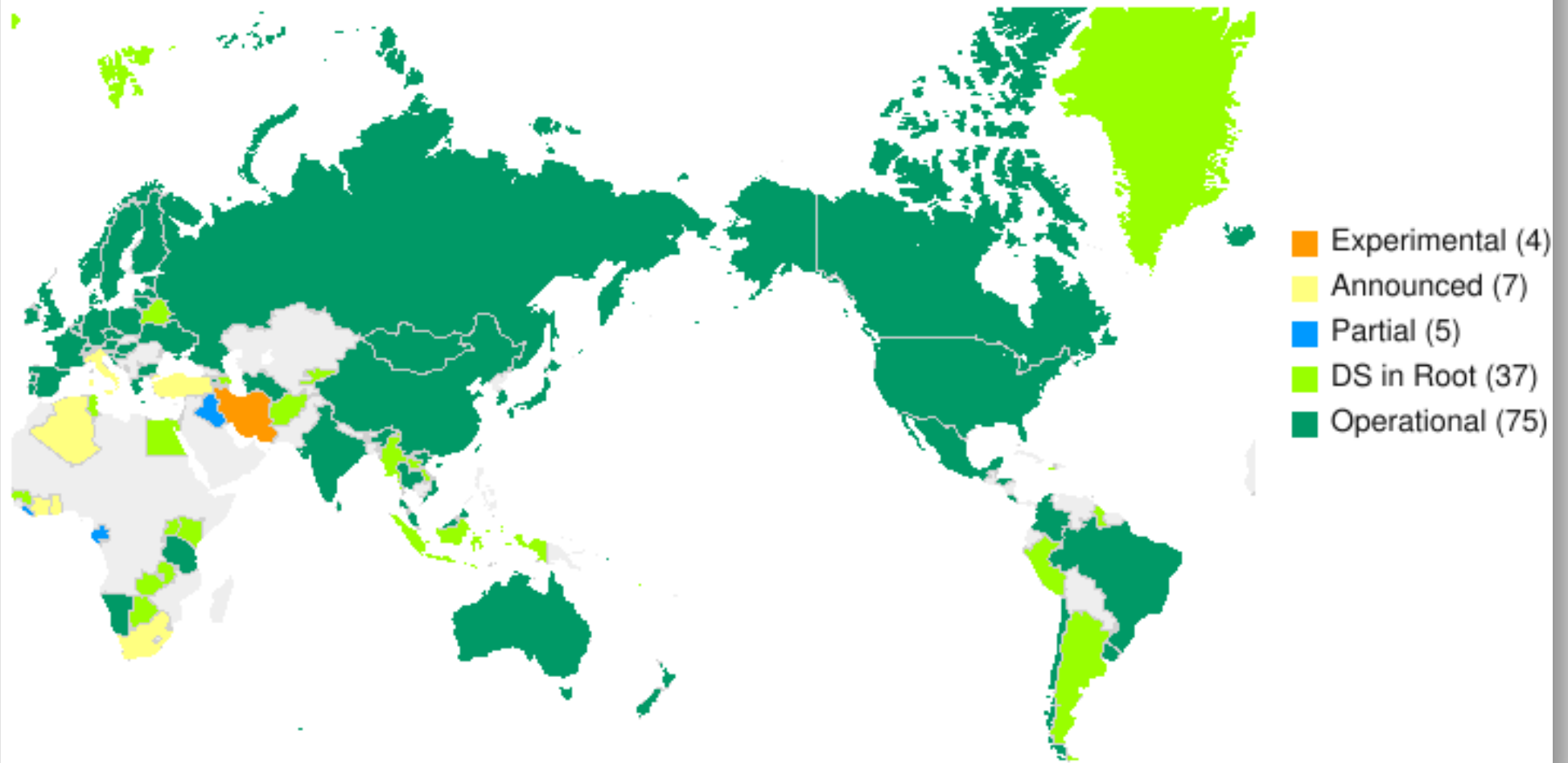**Please let Dan York know if your ccTLD is now "Operational":**

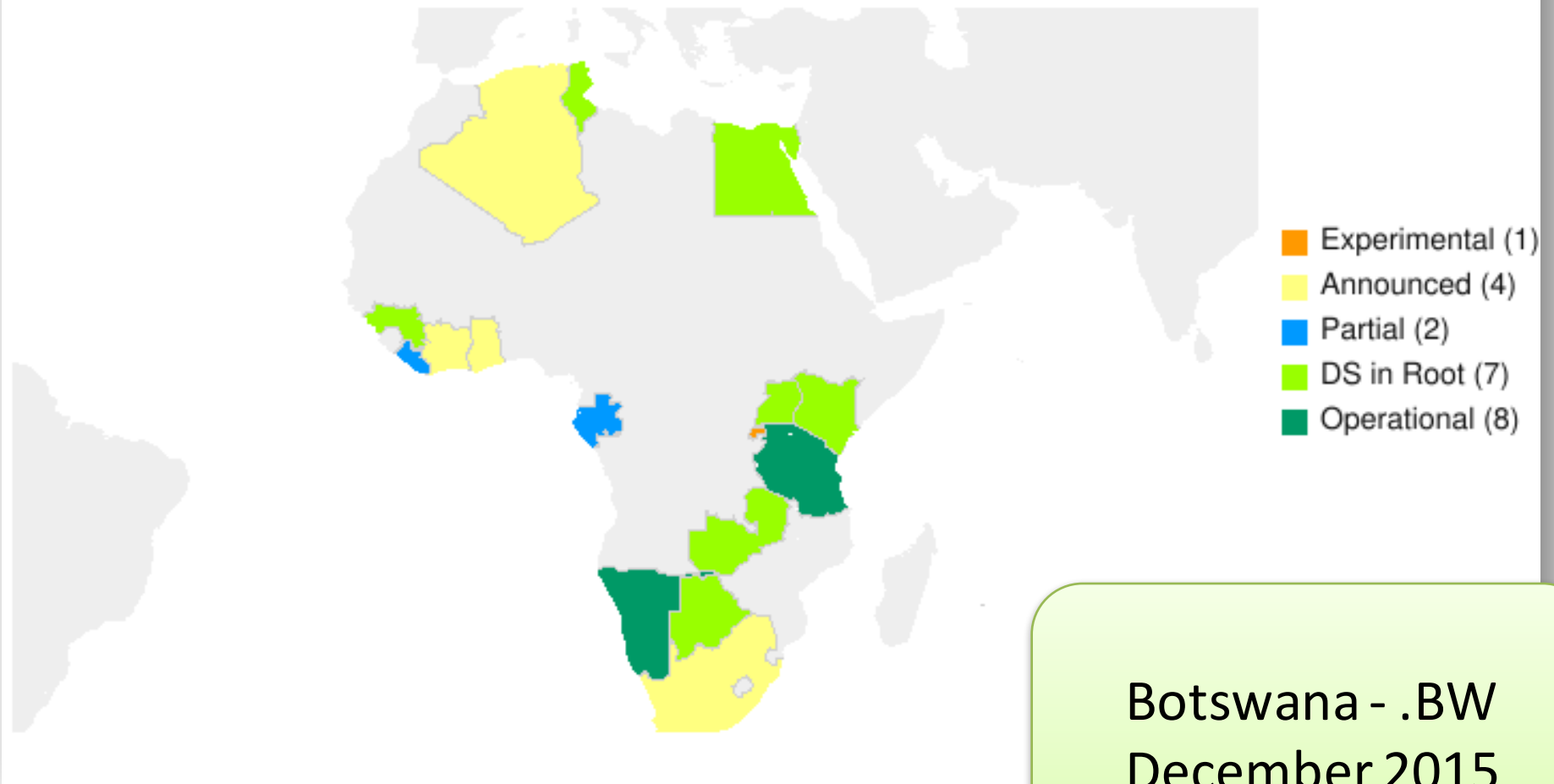- **Accepting DS records from signed zones**

Send updates to **york@isoc.org**

Need your help as we have no automated way of knowing Operational status.

ccTLD DNSSEC Status on 2016-02-15
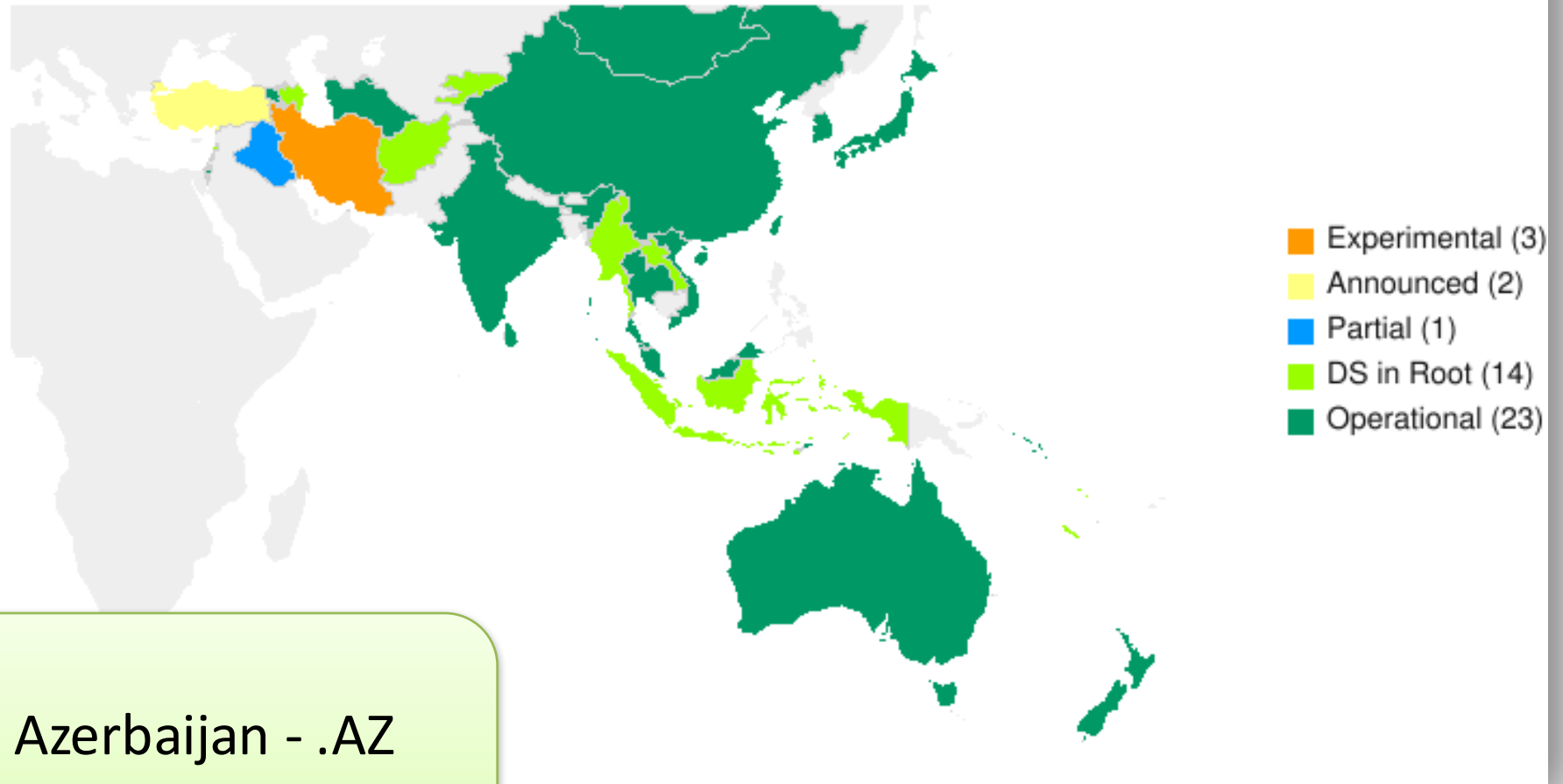
Experimental (4)
Announced (7)
Partial (5)
DS in Root (37)
Operational (75)

AF ccTLD DNSSEC Status on 2016-02-15

Legend:
- Experimental (1)
- Announced (4)
- Partial (2)
- DS in Root (7)
- Operational (8)

Botswana - .BW
December 2015

AP ccTLD DNSSEC Status on 2016-02-15

Legend:
- Experimental (3)
- Announced (2)
- Partial (1)
- DS in Root (14)
- Operational (23)

Azerbaijan - .AZ
January 2016

EUR ccTLD DNSSEC Status on 2016-02-15

Experimental (0)
Announced (1)
Partial (0)
DS in Root (5)
Operational (30)

LAC ccTLD DNSSEC Status on 2016-02-15

Experimental (0)
Announced (0)
Partial (2)
DS in Root (10)
Operational (11)

NA ccTLD DNSSEC Status on 2016-02-15

Experimental (0)
Announced (0)
Partial (0)
DS in Root (1)
Operational (3)
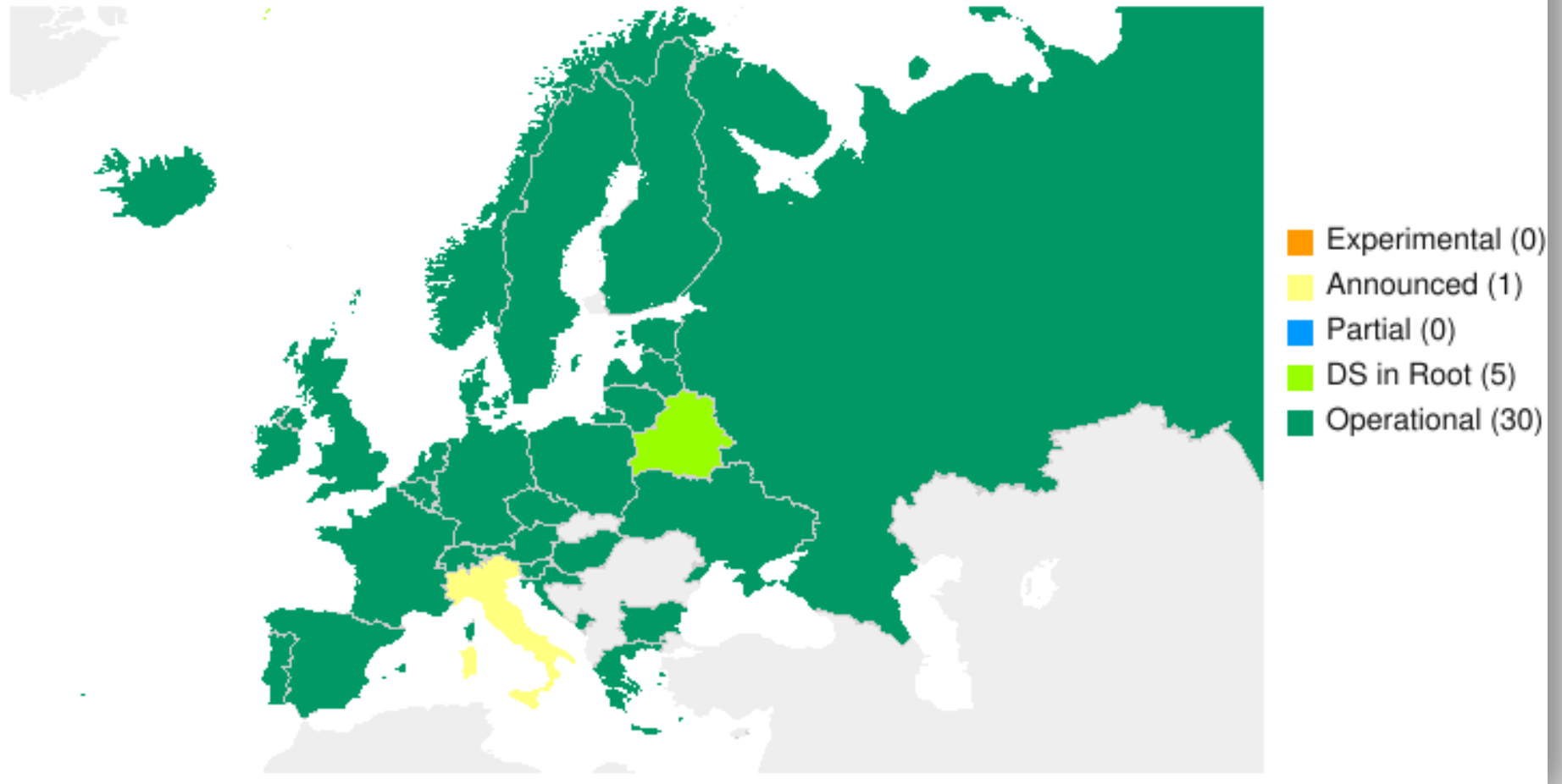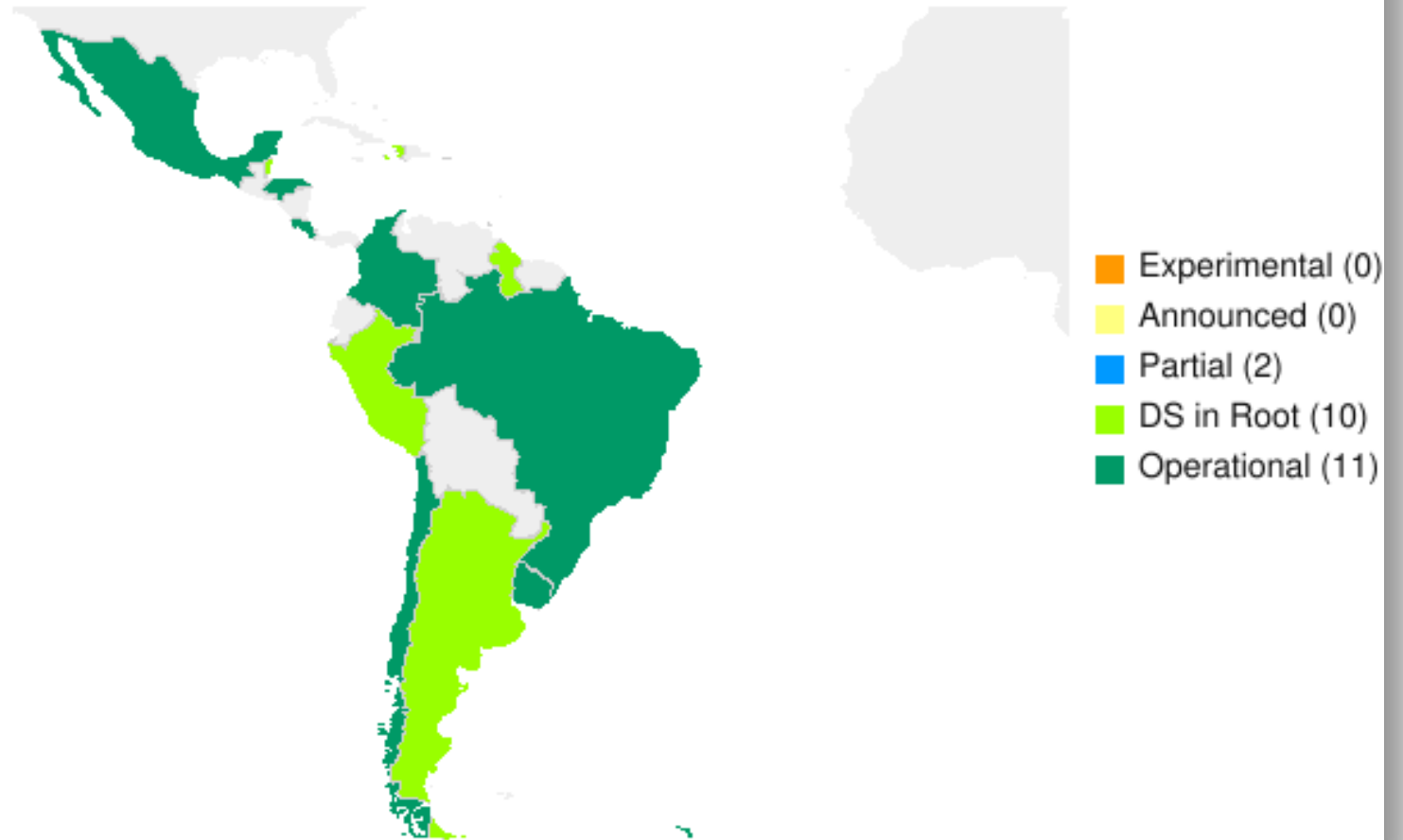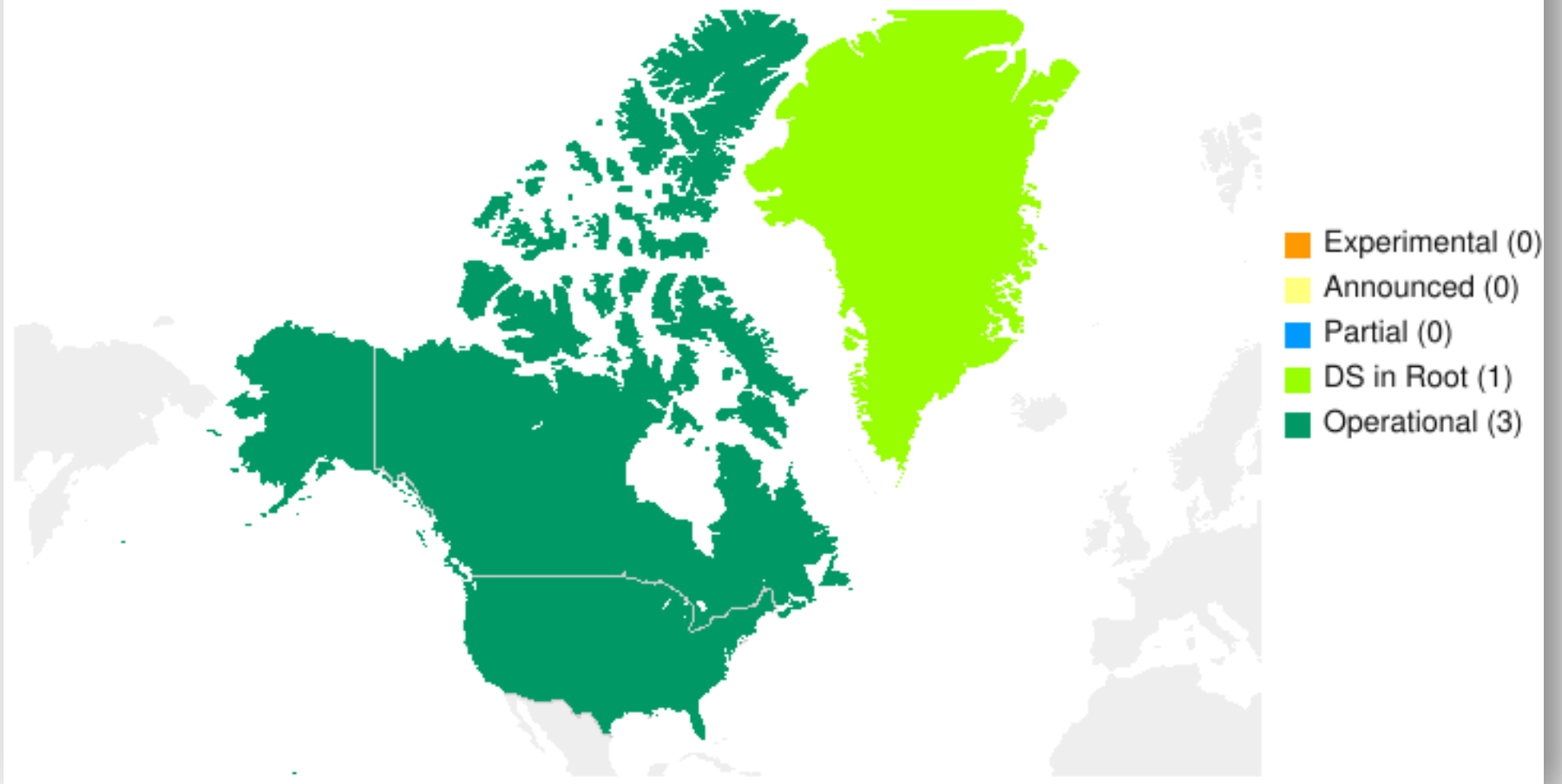
Receiving the DNSSEC Deployment Maps

The DNSSEC Deployment Maps are published via email every Monday morning through the Internet Society Deploy360 Programme.
To subscribe, visit:

www.internetsociety.org/deploy360/dnssec/maps/

DNSSEC Event Calendar

New calendar to track DNSSEC/DANE-related events. Two views – event listing:

https://www.dnssec-deployment.org/events/

Calendar view:

http://www.dnssec-deployment.org/calendar/

Send event submissions to york@isoc.org

IETF 95 Hackathon

Sat/Sun, Apr 2/3 – Buenos Aires – IETF 95

- https://www.ietf.org/hackathon/95-hackathon.html

- https://www.ietf.org/registration/MeetingWiki/wiki/95hackathon

- Opportunity to work on new tools or services for DNSSEC / DANE / DNS Privacy

- Join us!

DNSSEC History Project

The DNSSEC History Project is an ongoing project to collect and record the history of the work that went into bringing about the deployment of DNSSEC. To view – or to contribute – please see:

https://wiki.tools.isoc.org/DNSSEC_History_Project

Thank you and Questions

Dan York, Internet Society | ICANN 55 | March 2016