A quick review of DNSSEC Validation in today's Internet

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What is being measured?

- Clients who will perform DNSSEC validation of a domain name
  - Using RSA/SHA-1 as the crypto algorithm
  - Who will not resolve a badly-signed domain name

- We are NOT measuring:
  - Validating resolvers
  - Signed domains
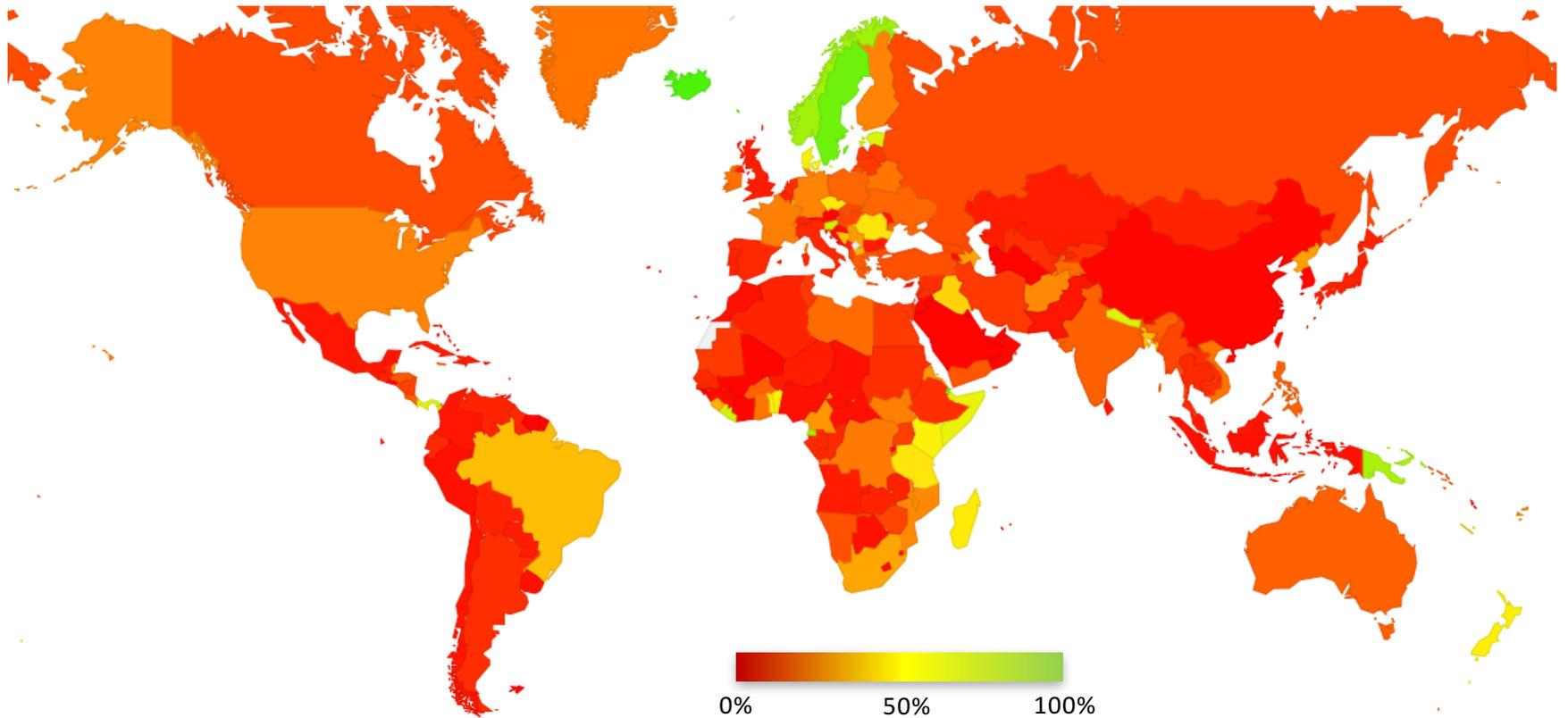
What is not being measured?

We are NOT measuring:

- Validating resolvers
  - Its actually quite a challenge to isolate the DNSSEC validation behaviour of a recursive resolver from query logs.
  - And if the aim is to measure the user impact here, then it makes more sense to measure the number of users who use DNSSEC validating resolvers rather than the resolvers themselves
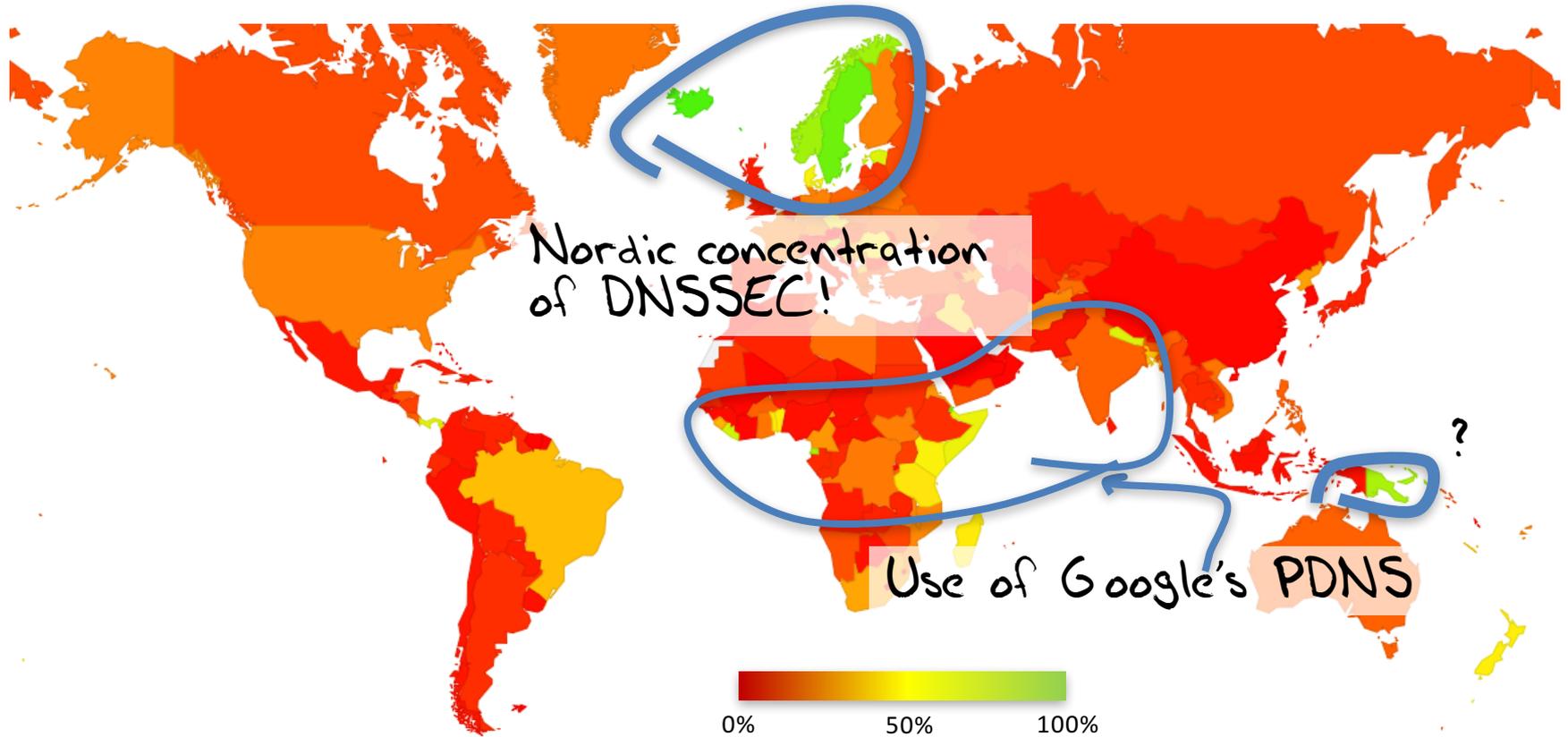
- Signed domains
  - This has its own challenges relating to zone enumeration in the DNS, and we are not undertaking that here!
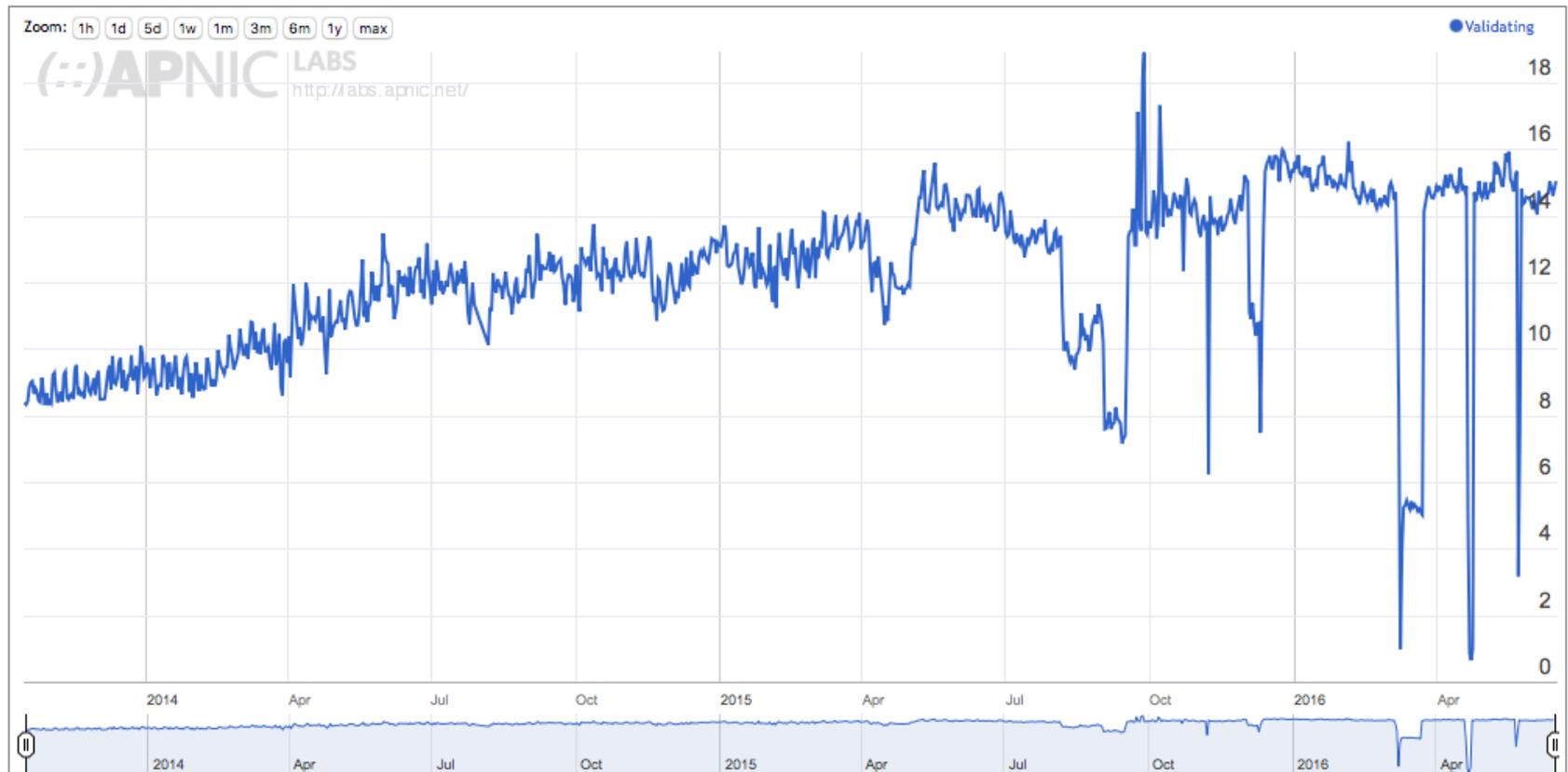
The Global Validation Picture

http://stats.labs.apnic.net/dnssec

The Global Validation Picture

Nordic concentration of DNSSEC!

?

Use of Google's PDNS

0%   50%   100%

÷ of users in a country that use DNSSEC validating resolvers
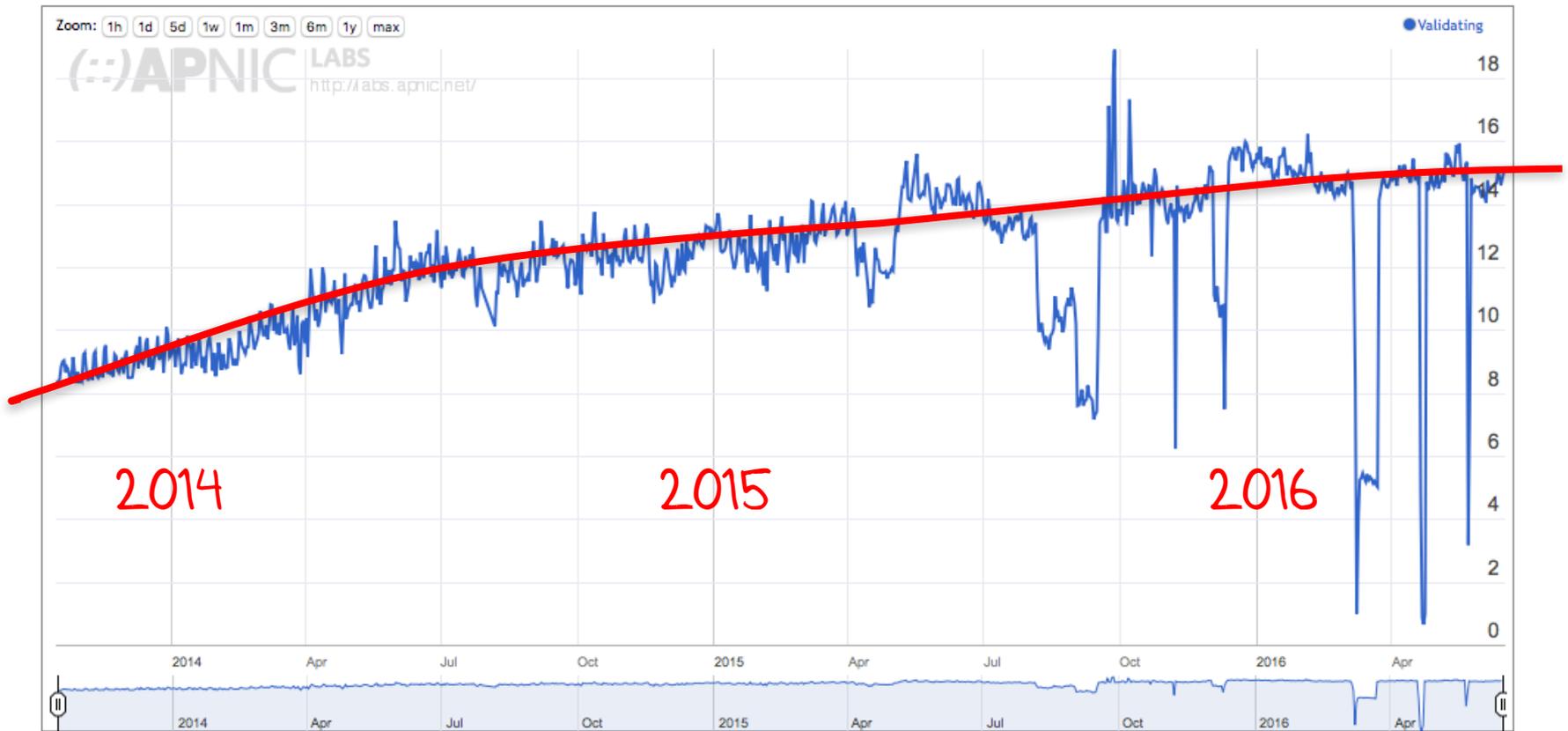
http://stats.labs.apnic.net/dnssec

The Global Picture
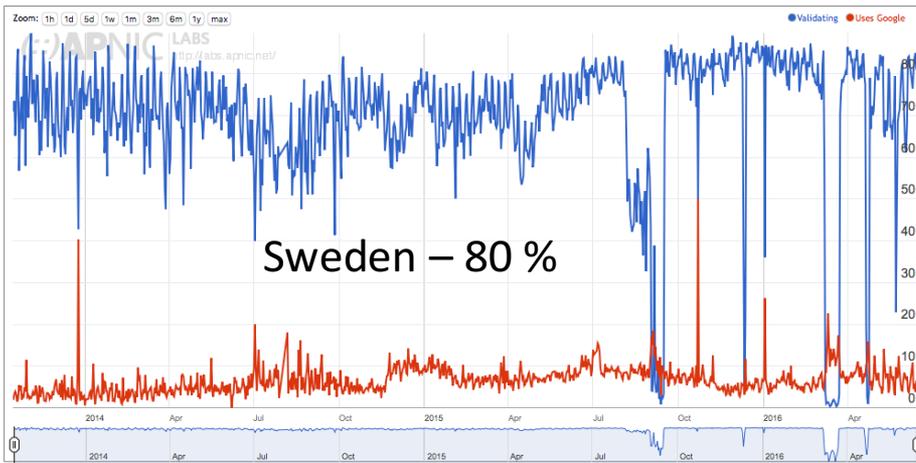

Use of DNSSEC Validation for World (XA)

The Global Picture

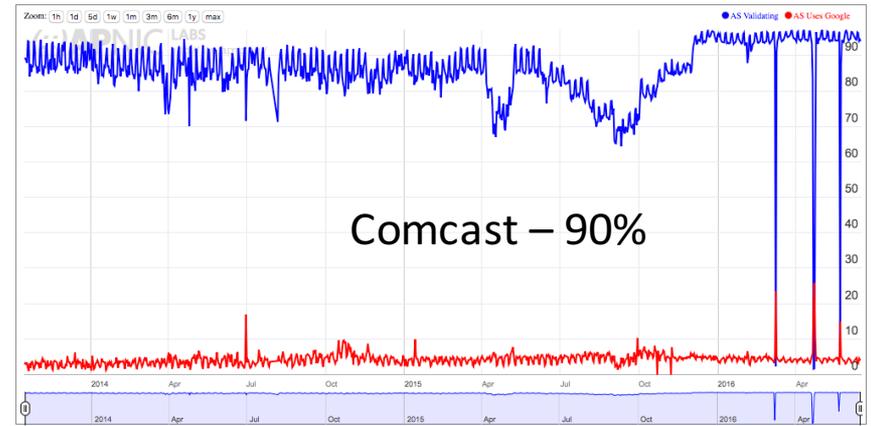Use of DNSSEC Validation for World (XA)
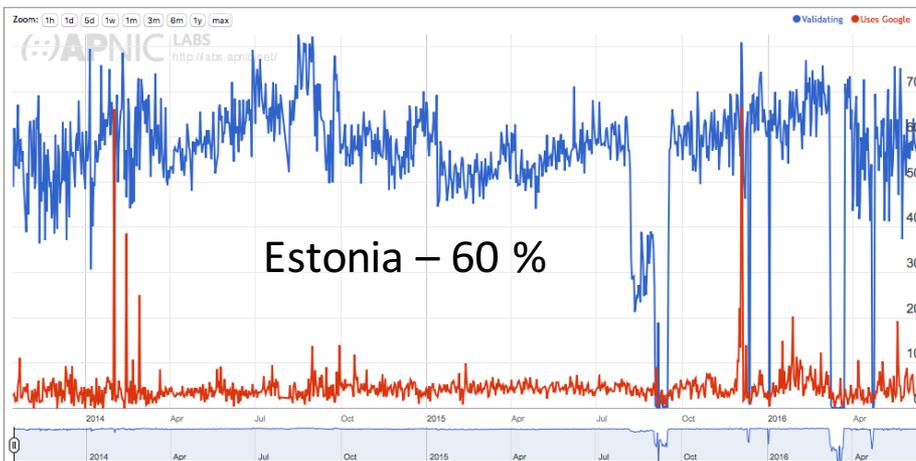
Some have been Validating for many years

Use of DNSSEC Validation for Sweden (SE)
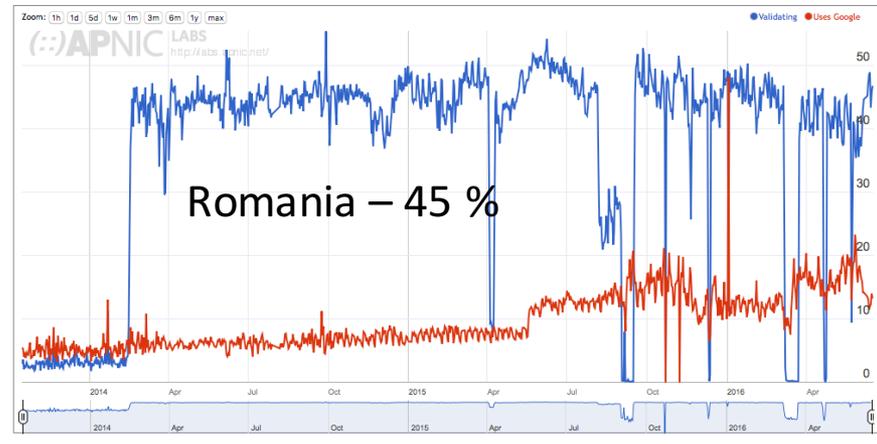
Sweden – 80 %

DNSSEC Per-Country Deployment for AS7922: COMCAST-7922 - Comcast Cable Communications, Inc., United States of America (US)

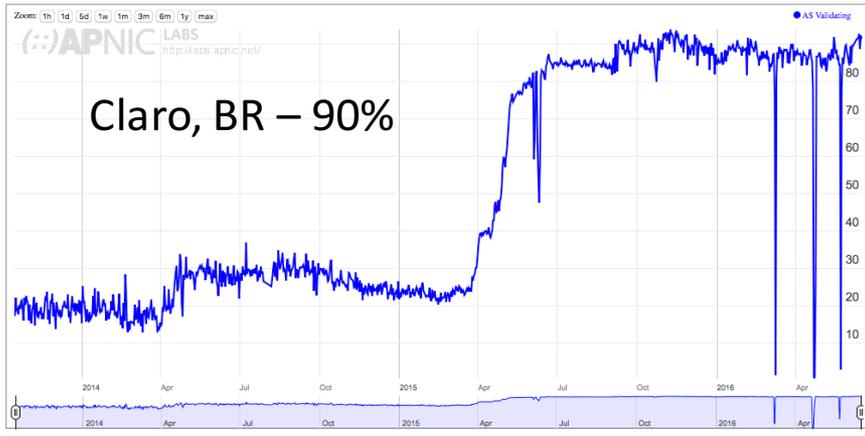Comcast – 90%

Use of DNSSEC Validation for Estonia (EE)

Estonia – 60 %

Use of DNSSEC Validation for Romania (RO)
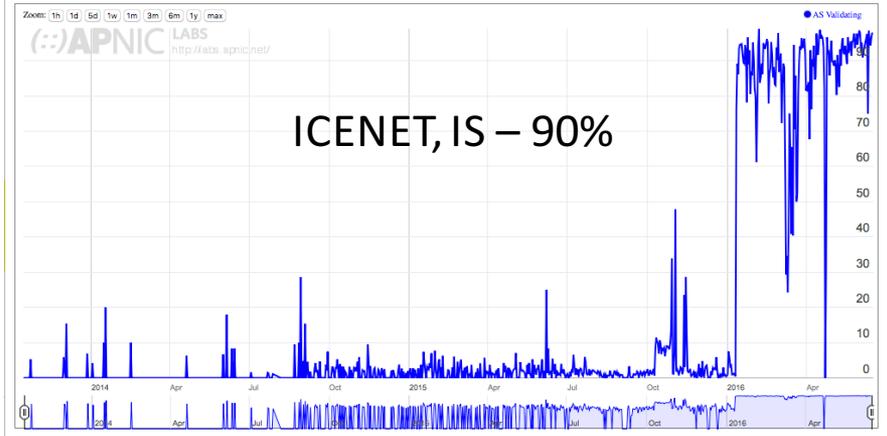
Romania – 45 %

Recent DNSSEC Validation
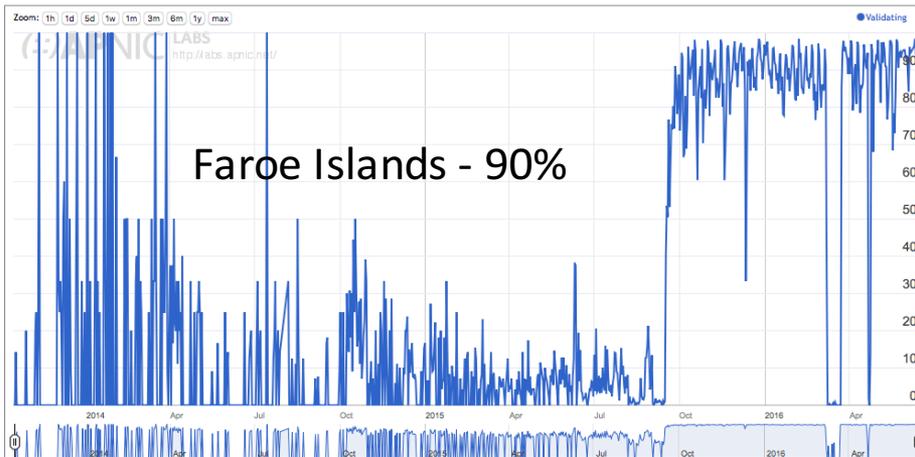
DNSSEC Per-Country Deployment for AS28573: CLARO S.A., Brazil (BR)

Claro, BR – 90%

DNSSEC Per-Country Deployment for AS6677: ICENET-AS1 Siminn hf, Iceland (IS)

ICENET, IS – 90%

Use of DNSSEC Validation for Faroe Islands (FO)

Faroe Islands - 90%

Use of DNSSEC Validation for New Zealand (NZ)

New Zealand - 50%
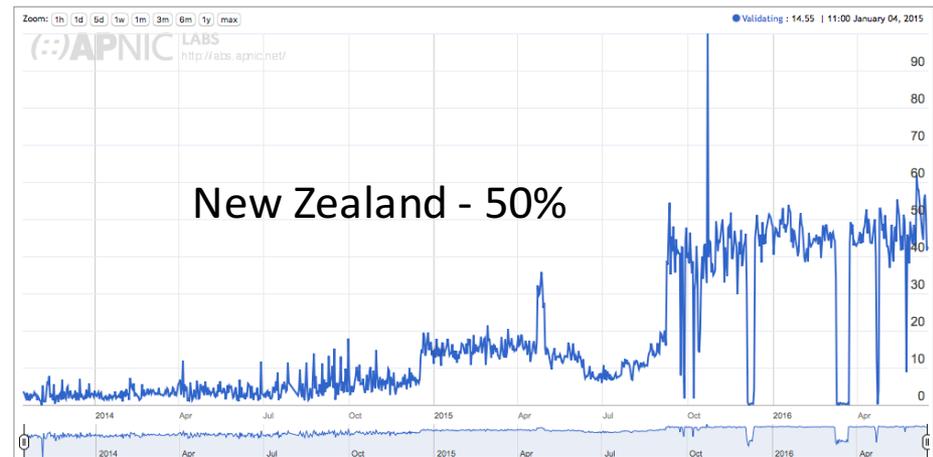
Finland

Use of DNSSEC Validation for Finland (FI)
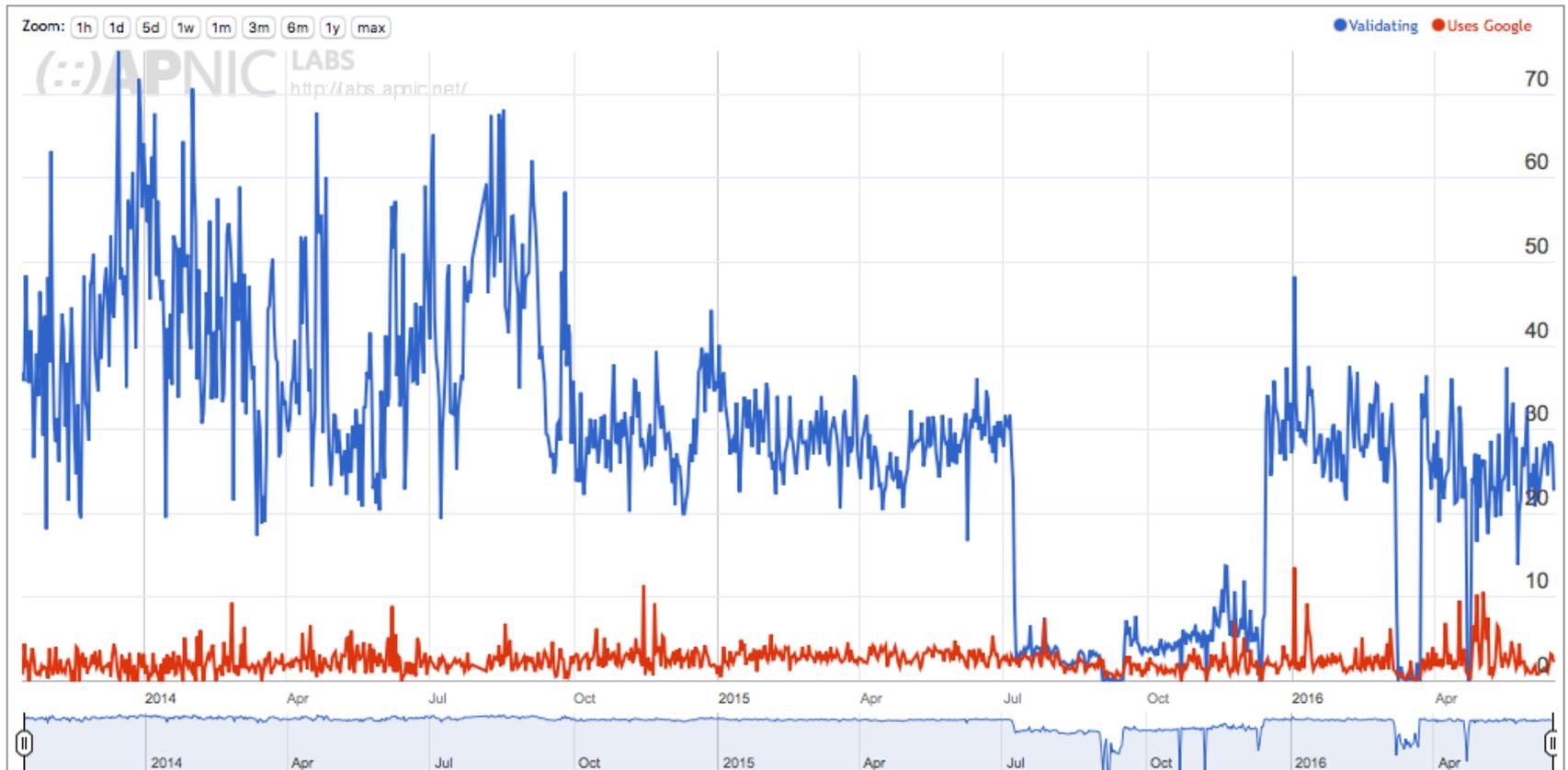
Finland - Top 10 ISPs

ASN	AS Name	DNSSEC Validates	Uses Google PDNS	Samples ▼
AS16086	DNA DNA Oy	0.86%	1.47%	315,616
AS719	ELISA-AS Elisa Oyj	0.61%	0.59%	271,716
AS1759	TSF-IP-CORE TeliaSonera Finland Oyj	95.40%	3.57%	246,397
AS790	EUNETFI Elisa Oyj	0.12%	0.21%	121,194
AS15527	ANVIA Anvia Oyj	23.06%	23.80%	12,730
AS1741	FUNETAS CSC - Tieteen tietotekniikan keskus Oy	31.17%	7.32%	8,581
AS29422	NBLNETWORKS-AS Nebula Oy	86.33%	14.27%	4,967
AS39699	SSPOY-AS Lounea Palvelut Oy	2.98%	4.26%	4,934
AS24751	MULTIFI-AS Jakobstadsnejdens Telefon Ab	85.11%	23.11%	4,400
AS3238	ALCOM Alands Datakommunikation Ab	37.23%	59.65%	4,392

The Bigger Picture

- Much of the African continent and parts of Asia still show high DNSSEC validation rates due to their use of Google's Public DNS service (which currently receives 12% of the Internet's query load)

- Comcast resolvers are a major validation system in North America and this resolver collection performs the second highest volume of validation

- Recent areas of switching on DNSSEC validation in DNS resolvers are in Iceland, Norway, Brazil, Nepal, New Zealand and Papua New Guinea

But

- Growth of validation deployment has slowed
  - **80%** of all current queries request DNSSEC credentials
  - **26%** of all current queries perform DNSSEC validation
  - **11%** of current queries turn to a non-validating resolver upon SERVFAIL
  - **15%** of current queries will perform validation and live with the outcome

Thanks!

DNSSEC Reports: http://stats.labs.apnic.net/dnssec