Root Zone KSK Rollover update

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# The KSK rollover happened over a month ago!

- ⊙ The KSK rollover occurred on time as planned at 1600 UTC on 11 October 2018 with the publication of a root zone with KSK-2017 signing the root zone DNSKEY RRset for the first time.

Timeline of events (UTC) on 11 October 2018

- ⊙ 13:00 Root Zone Management Partners join conference bridge

- ⊙ 13:00 Verisign generates root zone file

- ⊙ 13:15 Verisign inspects root zone file

- ⊙ 13:30 Verisign sends root zone file to ICANN

- ⊙ 13:30 ICANN inspects root zone file

- ⊙ 15:30 ICANN Go/No-go call

- ⊙ 15:45 ICANN approves the zone for publication

- ⊙ 15:45 Verisign reminds root server operators of scheduled zone push

- ⊙ **16:00 Verisign approves root zone file push**

- ⊙ 16:05 Verisign informs root server operators zone file has pushed

Amsterdam team
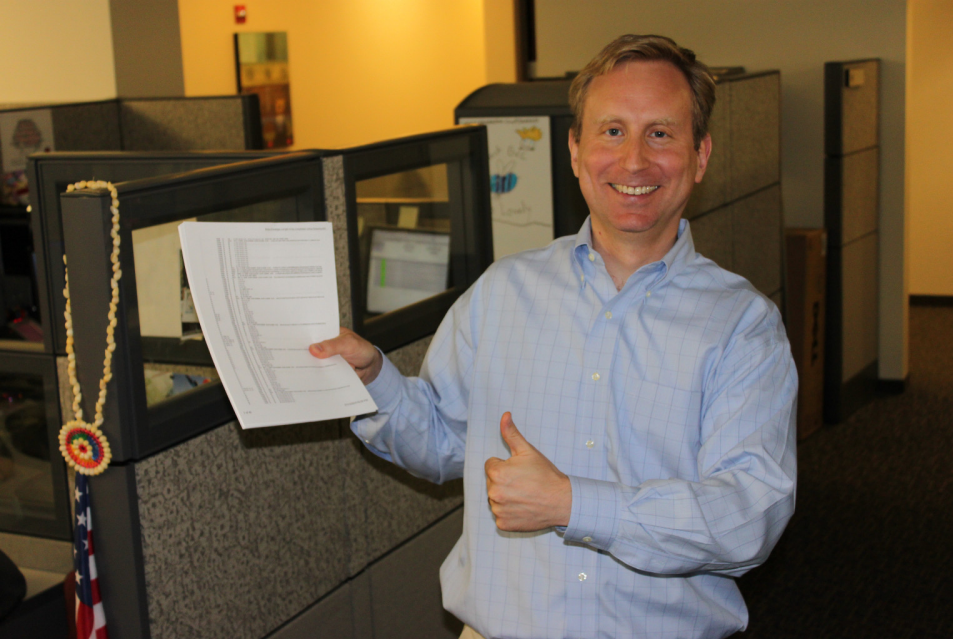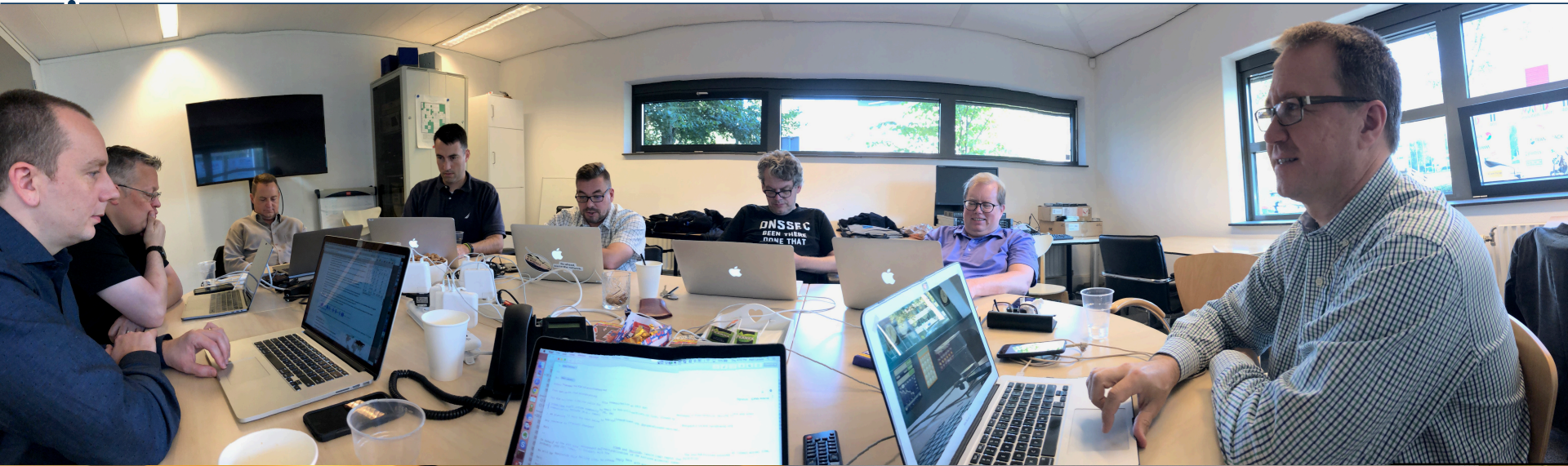
Analysis of DNSKEY queries

- When a validating resolver no longer has a good trust anchor, it starts to send a lot of queries to the root servers for the root's DNSKEY records
  - This was well-known before the rollover

- ICANN's active monitoring compared DNSKEY query behavior before and after the roll
  - October 10 and 14

- As expected, the root servers saw a greatly increased number of queries for the root's DNSKEY records

- The increase has subsided, but there are still a lot of resolvers that can no longer validate anything that are sending these queries
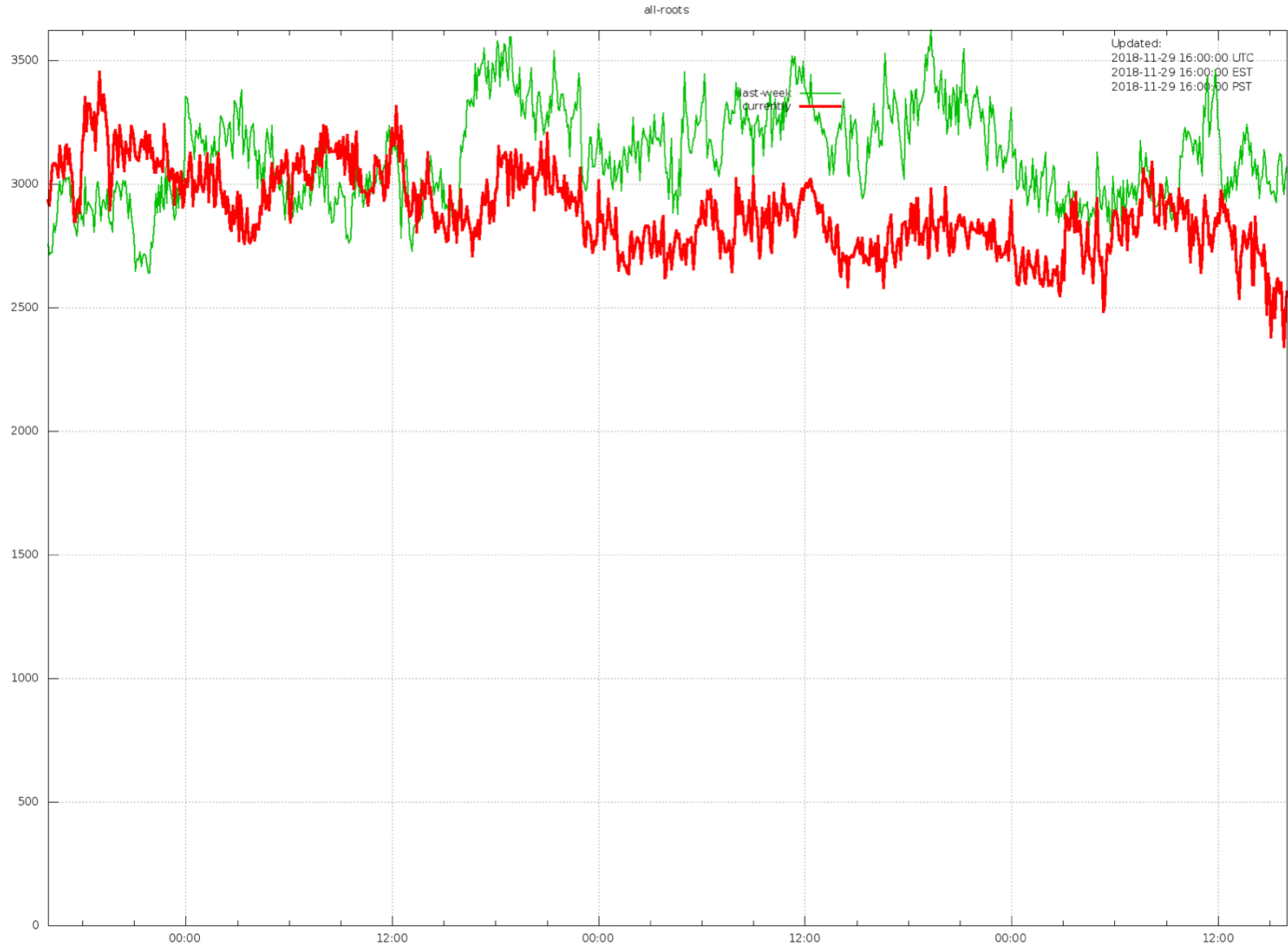 - These must be resolvers that no one is using or even managing

Root DNSKEY queries at the root operators, just before the rollover

all-roots

last-week
currently

Updated:
2018-10-11 15:55:00 UTC
2018-10-11 15:55:00 EDT
2018-10-11 15:55:00 PDT

Root DNSKEY queries at the root operators, during the rollover
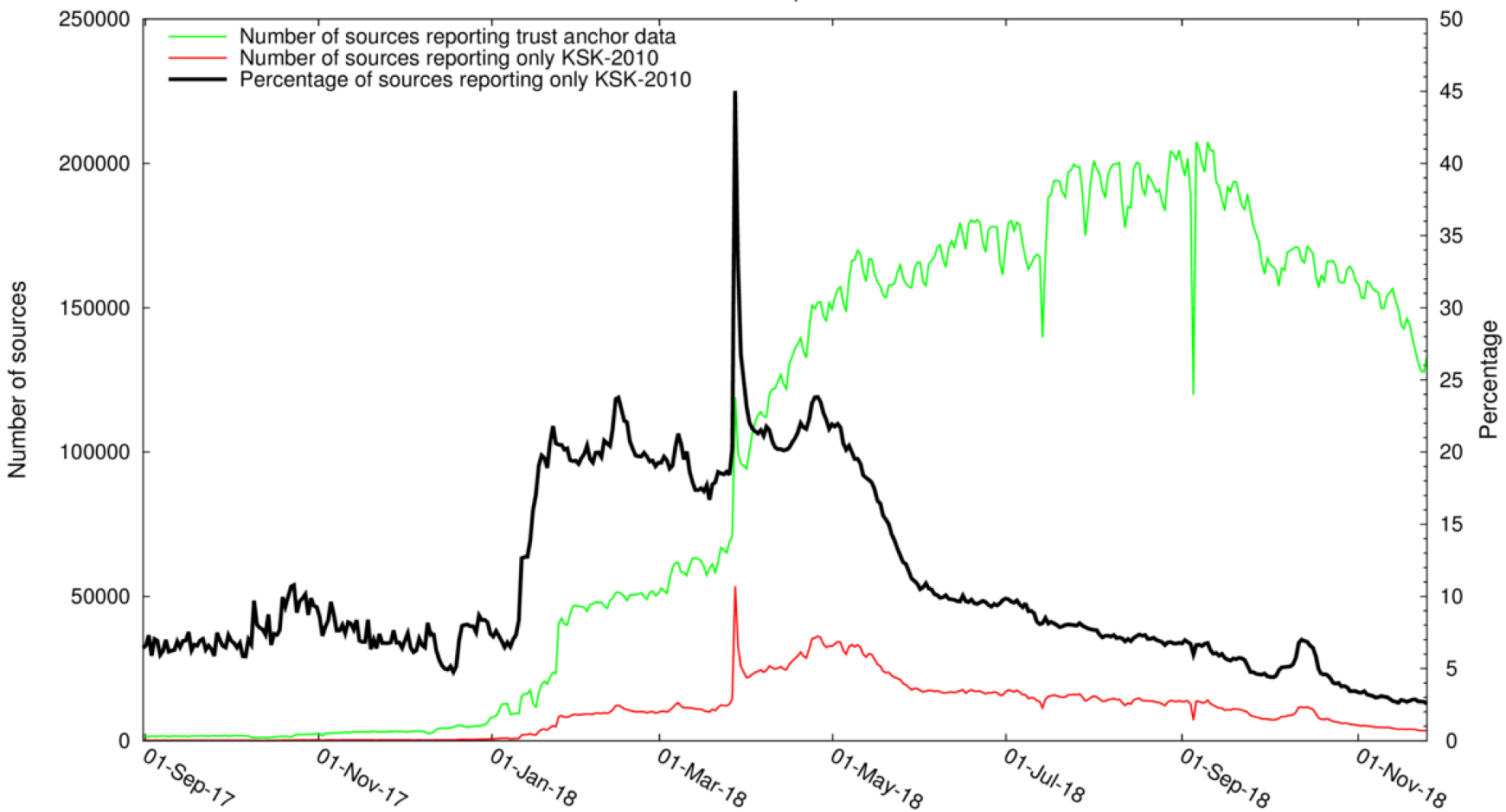
Root DNSKEY queries at the root operators, recently

Other data that ICANN is monitoring

- ⊙ The next slide shows the current graph from root-trust-anchor-reports.research.icann.org

- ⊙ The data comes from almost all the root servers, but is highly erratic and has some unexplainable bumps.

Trust Anchor reports

RFC8145 Trust Anchor Reports for All Root Servers

Legend:
- Number of sources reporting trust anchor data
- Number of sources reporting only KSK-2010
- Percentage of sources reporting only KSK-2010

Known issues

- ⊙ Only one very minor report of trouble to ICANN

- ⊙ A small number of reports of issues (<10) via Twitter, mailing lists and operational forums
  - ⊙ Mostly individual administrators relating minor issues
  - ⊙ No reports of significant number of issues affected

- ⊙ Two outages may potentially be the result of the KSK rollover. We are trying to reach the ISPs involved to get more information.
  - ⊙ eir (Irish ISP): https://www.rte.ie/news/2018/1013/1002966-eir-outage/
  - ⊙ Consolidated Communications (Vermont, US ISP): https://www.wcax.com/content/news/Consolidated-Communications-scrambles-to-fix-Vt-internet-outage-497030071.html

Upcoming milestones

- ⊙ 11 January 2019
  - ⊙ The root zone is published with the RFC 5011 revoke bit set on KSK-2010
  - ⊙ Systems that use RFC 5011 will consider KSK-2010 unusable

- ⊙ 22 March 2019
  - ⊙ The root zone is published without KSK-2010 for the first time
  - ⊙ Only KSK-2017 remains published

- ⊙ Q3 Root KSK Ceremony
  - ⊙ KSK-2010 is deleted from the HSMs in the U.S. East Coast Key Management Facility

- ⊙ Q4 Root KSK Ceremony
  - ⊙ KSK-2010 is deleted from the HSMs in the U.S. West Coast Key Management Facility

Engage with ICANN

Thank You and Questions?

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