KSK Futures BoF

IETF 104, Prague

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Why we are here

- The process of rolling over KSK for the root zone was begun in 2015
- The new key was put into use on 11 October 2018, and the old key will be removed on 22 March 2019
- A lot of surprising things were found during the rollover process
- What have we learned about rolling over the KSK that we can apply to future rollovers?
  - There is already a wide variety of views expressed

What's already happening

- White paper covering the process
  - https://www.icann.org/review-2018-dnssec-ksk-rollover.pdf
- Discussion is already happening on the mailing list
  - Subscribe and review the archives at https://mm.icann.org/mailman/listinfo/ksk-rollover

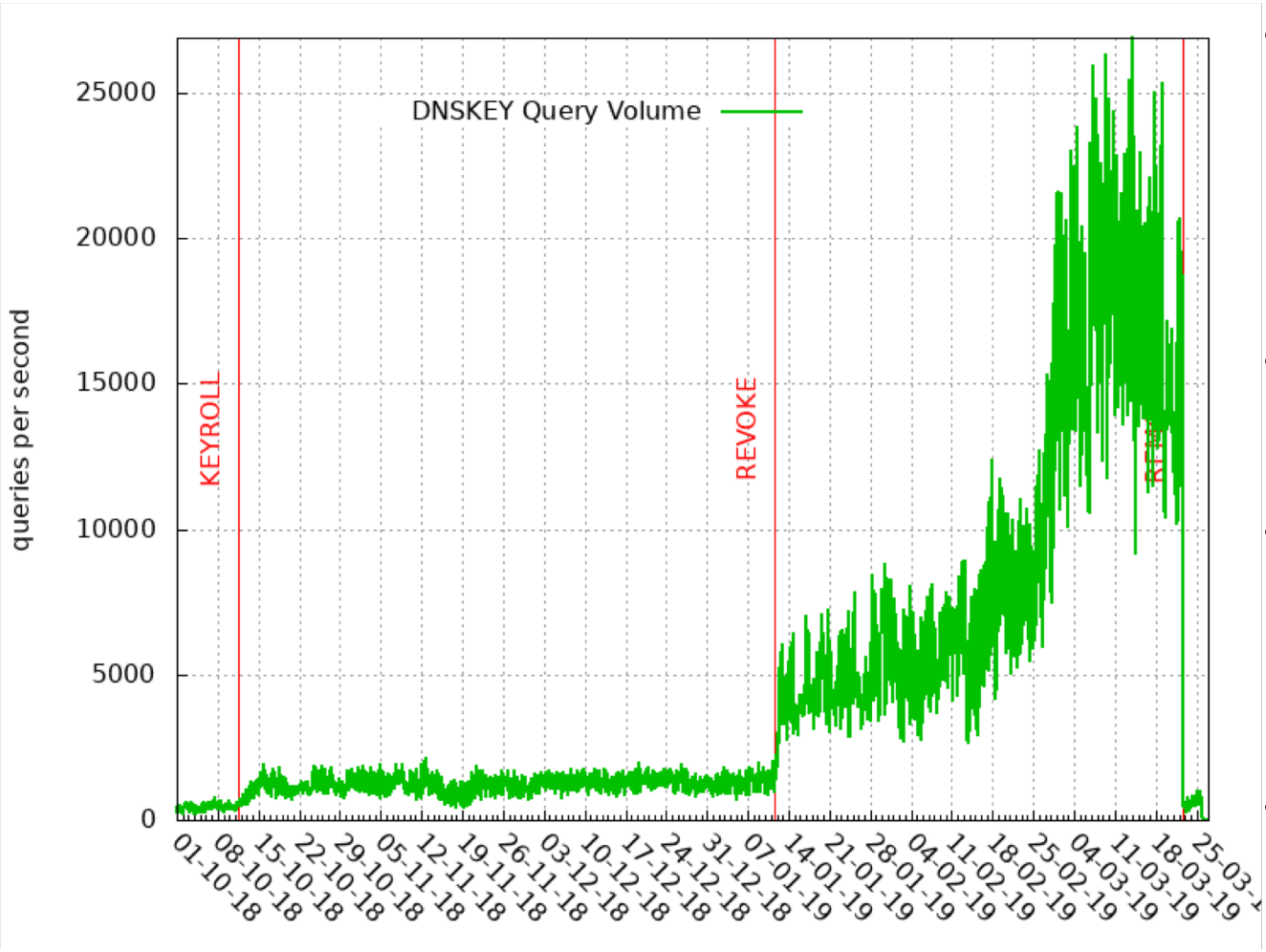
Next steps

- Saying things here today is definitely useful, but it will be even more useful if whatever you say is also brought to the mailing list so that a wider audience can see it and discuss it
  - This can be more about group discussion than individual's statements
- In the second half of 2019, IANA will review the discussion, evaluate the proposals, prepare a draft plan, and bring that plan to the community for public review

Validating resolvers and ./IN/DNSKEY

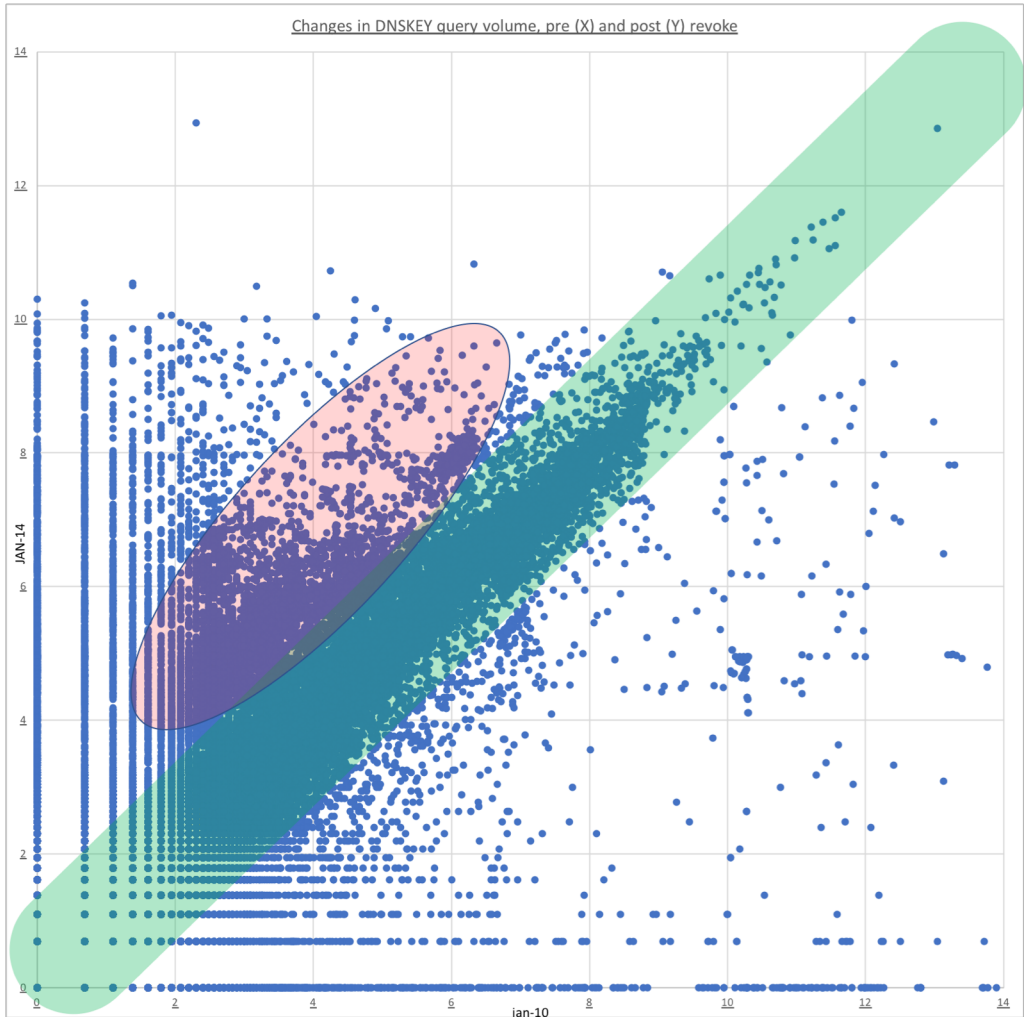
- A validating resolver needs to have the DNSKEY RRset for the root zone in order to validate
- This RRset expires after 48 hours, so all validating resolvers send a request for ./IN/DNSKEY to a root server at least every 48 hours
- If they get a response that cannot be validated against their trust anchor, they will retry the request

DNSKEY queries seen at most of the root servers



- Increases in the volume of root DNSKEY requests after the rollover, and again after the revocation
- No seeming impact: there have been no complaints
- Not clear if these systems have any users making queries or if they are just on autopilot
- 40,000 QPS is about 8% of the total query volume seen by the root servers

Before and after the revocation of KSK-2010



- This chart shows the change in root DNSKEY query rates before and after 11 January 2019
- The green band are hosts asking for the root DNSKEY at about the same rate before and after the revocation.
- There are a lot of hosts asking for the DNSKEY (pink area) that were not asking before, and only a few asking less frequently

Some of the previous comments (1)

- Why roll at all? What are the motivations?
- How often to roll?
  - Every *X* years
  - Wait until it is proven to be needed
  - Roll every year
    - Some vendors express concern about systems sitting on a shelf for more than a year
- Need better tools to say when resolvers are ready for an upcoming rollover

Some of the previous comments (2)

- Need better bootstrapping for the resolvers that are running up-to-date software
- Adding standby keys makes rollovers easier for systems using RFC 5011
  - Standby key is planned just for normal rollovers, not when the active key is lost or compromised
- Should there be standby keys? If so, what are the important considerations?
- Should the signing algorithm change? If so, what are the important considerations?

Today's discussion

- Make your proposal or ask your question, but also consider responding to earlier discussion
- It's OK to bring up something completely new
- Getting DNSSEC widely deployed has been difficult: will your suggestion cause it to be easier or harder to get more zones signing and more resolvers validating?
- Again: after this meeting, please take your ideas to the mailing list