

The Root Canary

Measuring the (postponed) rollover of the Root KSK



Northeastern University

UNIVERSITY OF TWENTE.

Canary in the virtual coalmine



picture from academia.dk

<https://rootcanary.org/>

Canary in the virtual coalmine

- Goals:
 - **Track operational impact** of the root KSK rollover, act as a warning signal that validating resolvers are failing to validate with the new key
 - **Measure validation during the KSK rollover** from a global perspective **to learn from this type of event**

Measurement methodology

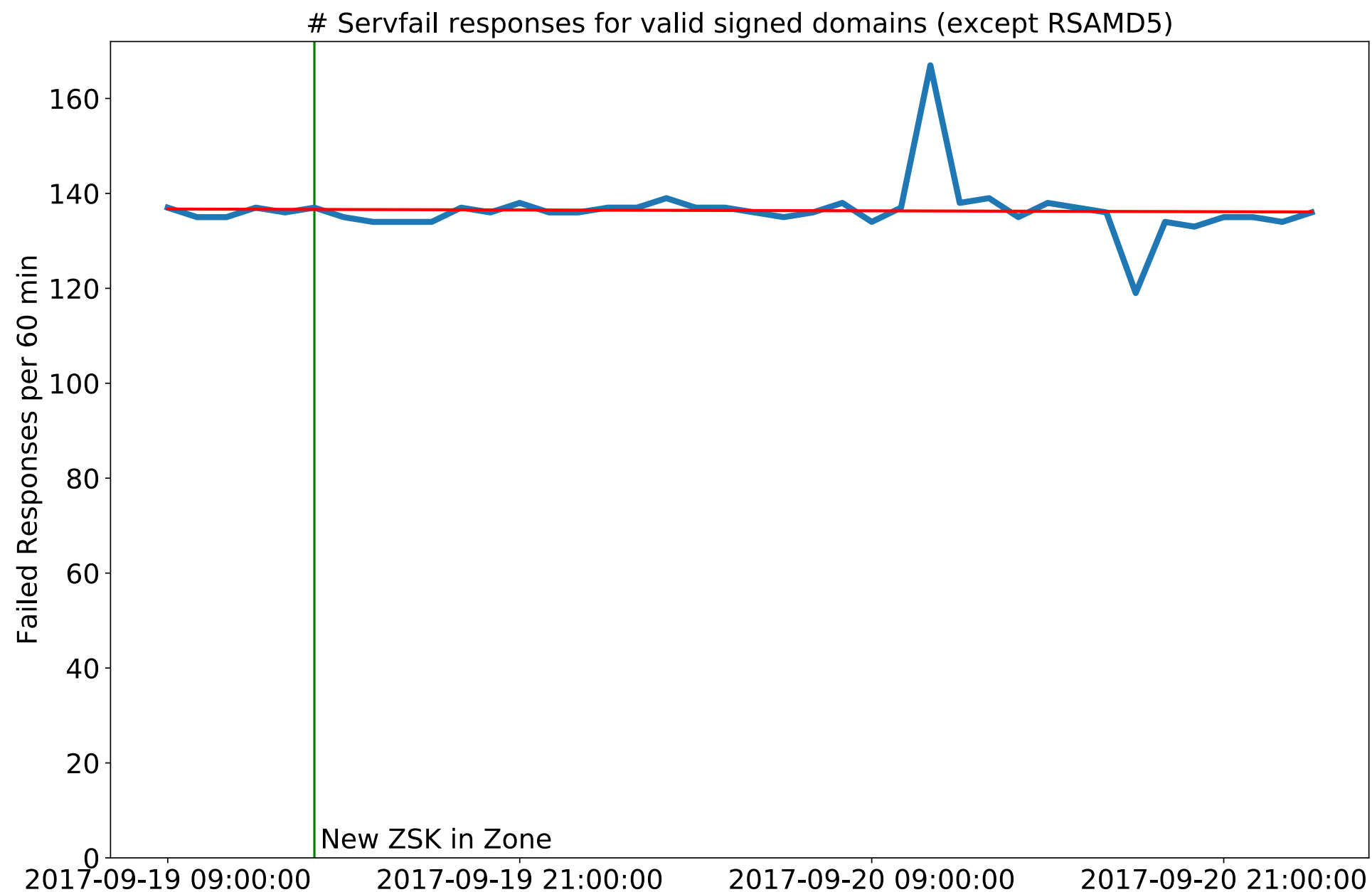
- Use four perspectives:
 - Online perspectives:
 - RIPE Atlas
 - Luminati
 - APNIC DNSSEC measurement
(current thinking: use data during evaluation)
 - “Offline” perspective (analysed after measuring)
 - Traffic to root name servers (multiple letters)

Measurement methodology

- We have **signed and bogus** records for **all algorithms** and **most DS algorithms**
- This gives us one of three outcomes:
 - Resolver **validates correctly**
 - Resolver **fails to validate** (SERVFAIL)
 - Resolver **does not validate**
 - (yes, there are **corner cases** probably **not covered** by these three options)

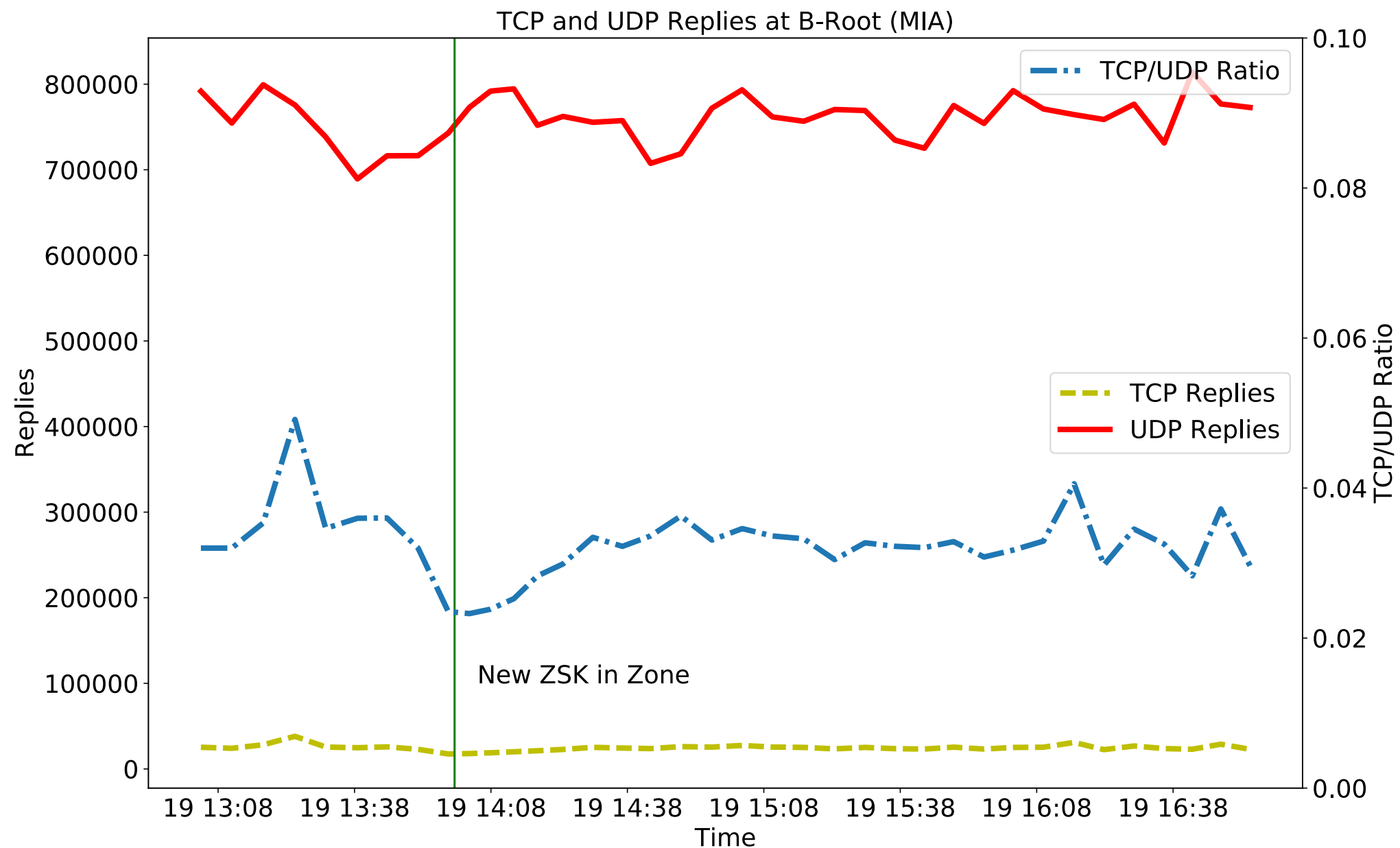
1414 byte DNSKEY

- Does it break stuff?



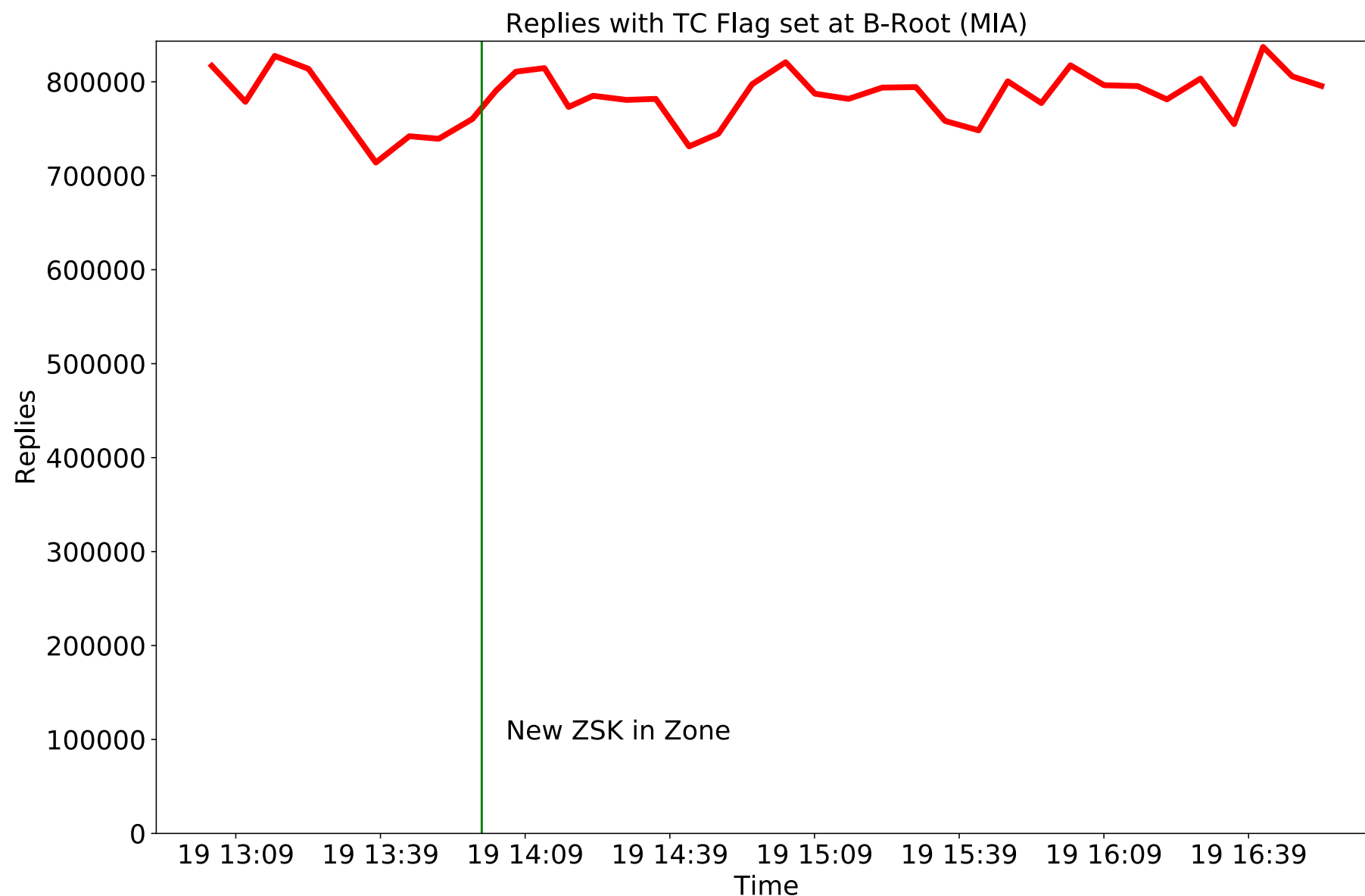
1414 byte DNSKEY

- From the perspective of the root servers



1414 byte DNSKEY

- From the perspective of the root servers



Improving our Measurements

- Would you be willing to help us improving our measurements?
- Proposal:
 - Run small shell scripts that uses *dig* to query our test domains from within your network
 - Using the default resolvers
 - Every hour or more frequently

<https://github.com/moritzcm/root-canary-custom-msm>

<https://rootcanary.org/>

More info

- Current results for RIPE Atlas-based measurement: **<https://portal.rootcanary.org/rcmstats.html>**
- Live feed for RIPE Atlas-based measurement: **<https://monitor.rootcanary.org/live.html>**
- BASH measurement script: **<https://github.com/moritzcm/root-canary-custom-msm>**
- moritz.muller@sidn.nl | @moritzcm_ | 