



RIPE NCC

RIPE NETWORK COORDINATION CENTRE

Internet Data Analysis with RIPE RIS

RIS

Emile Aben | 2022 | TMA PhD School

Lab Exercise



- Deep dive into an important Internet outage
 - Cloudflare, 21 June 2022
 - <https://blog.cloudflare.com/cloudflare-outage-on-june-21-2022/>

03:56 UTC: We deploy the change to our first location. None of our locations are impacted by the change, as these are using our older architecture.

06:17: The change is deployed to our busiest locations, but not the locations with the MCP architecture.

06:27: The rollout reached the MCP-enabled locations, and the change is deployed to our spines. **This is when the incident started**, as this swiftly took these 19 locations offline.

06:32: Internal Cloudflare incident declared.

06:51: First change made on a router to verify the root cause.

06:58: Root cause found and understood. Work begins to revert the problematic change.

07:42: The last of the reverts has been completed. This was delayed as network engineers walked over each other's changes, reverting the previous reverts, causing the problem to re-appear sporadically.

08:00: Incident closed.

The criticality of these data centers can clearly be seen in the volume of successful HTTP requests we handled globally:

Step 1: Avoiding Data Overload!



- Distill a small dataset to work on
 - How would you do this?
 - How much time will this take you?
- Can you use RIS live?
- Bviews? Updates?

Some background



With Pre-filtering already done



- My choice: Only using 3 RIS peers (ie. 3 vantage points)
 - ("rrc01","195.66.227.163"), # Telia, AS1299
 - ("rrc25","130.117.255.1"), # Cogent, AS174
 - ("rrc01","195.66.224.138"), # NTT, AS2914
- Why these peers?
- What is the location of these peers?
- Does it matter?
- <https://github.com/emileaben/event-as13335-2022-06-21>

Now: Insights!



- What insights can you get from this small dataset
 - How many prefixes were withdrawn?
 - Do all peers see the same prefixes withdrawn?
 - Was public DNS (1.1.1.1) affected?
 - Pick a prefix that was withdrawn
 - Time between first sign of trouble and withdrawal?
 - Does it matter? Why (not)?
 - Is there a difference between the 3 vantage points?

- Goodie for coolest insight?