

rssac002.root-servers.org

Andrew McConachie
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RSSAC002 Data

- Each root server operator reports data independently
- Collected over a 24-hour period
- Measurements
 - Counts of queries and responses (udp/tcp, v4/v6)
 - Counts of RCODEs responded with
 - Counts of unique IP sources seen
 - Query and response size distribution
 - Latency in the publication of the root zone
- Formatted in YAML
- Currently on version 4
- RSSAC Caucus has a helpful Github repository of RSSAC002 data
 - <https://github.com/rssac-caucus/RSSAC002-data>

RSSAC002 Web API and Charts

- Consists of two parts
 - RSSAC002 Web API
 - Website hosting charts that use the API
- Everything is open source
- Many thanks for the feedback I received while building
 - Fred Baker, Ray Bellis, Anand Buddhev, Paul Hoffman, Ken Renard, Brad Verd, Duane Wessels
- I'm still interested in feedback
 - Please raise any issues on Github or contact me directly
 - andrew.mcconachie@icann.org

RSSAC002 Web API

- HTTPS interface to RSSAC002 data
- <https://rssac002.root-servers.org/api/v1/>
 - Returns JSON formatted data
- Data from January 2017
- Uses the data from the RSSAC Caucus RSSAC002 Git repository
- Updates every day
- Calls to API read serialized data structures from disk and serve via HTTP
- Written in PHP
- Source code & documentation
 - <https://github.com/rssac-caucus/rssac002-web-api>

RSSAC002 Charts

- Interactive charts at <https://rssac002.root-servers.org>
- Pulls data from the RSSAC002 Web API in JSON
- Charts data from 2017-01-02 to 21 days before today
- Charts generated on-the-fly (AJAX)
 - All charts can be manipulated in the browser
- Mostly time-series with some exceptions
- Written in Javascript
- Source code
 - <https://github.com/rssac-caucus/rssac002-charts>

Chromium Queries in RSSAC002 Data

- Chromium is the open source engine for Google Chrome and Microsoft Edge
- Chromium used to generate DNS queries for random strings between 7-15 characters
 - Was implemented to detect NXDomain hijacking
- Change introduced on November 4, 2020 to no longer send these queries

- We're interested in what we see in RSSAC002 data
- For more information:
 - <https://blog.apnic.net/2020/08/21/chromiums-impact-on-root-dns-traffic/>
 - <https://blog.apnic.net/2021/02/04/how-chromium-reduces-root-dns-traffic/>

Question?

- What can we see of the Chromium queries in RSSAC002 data?
 - RSSAC002 data is very coarse, basically just incrementing counters
 - Can we spot any big systemic trends?
- Fix to Chromium rolled out on November 4, 2020
- Traffic to RSS peaked on November 4, 2020*
- Two 12-month periods for comparison
 - November 4, 2019 - November 4, 2020
 - February 1, 2021 - February 1, 2022
 - 3 month gap in-between to allow for change to be deployed

Queries Received by-week (billion) (daily average)



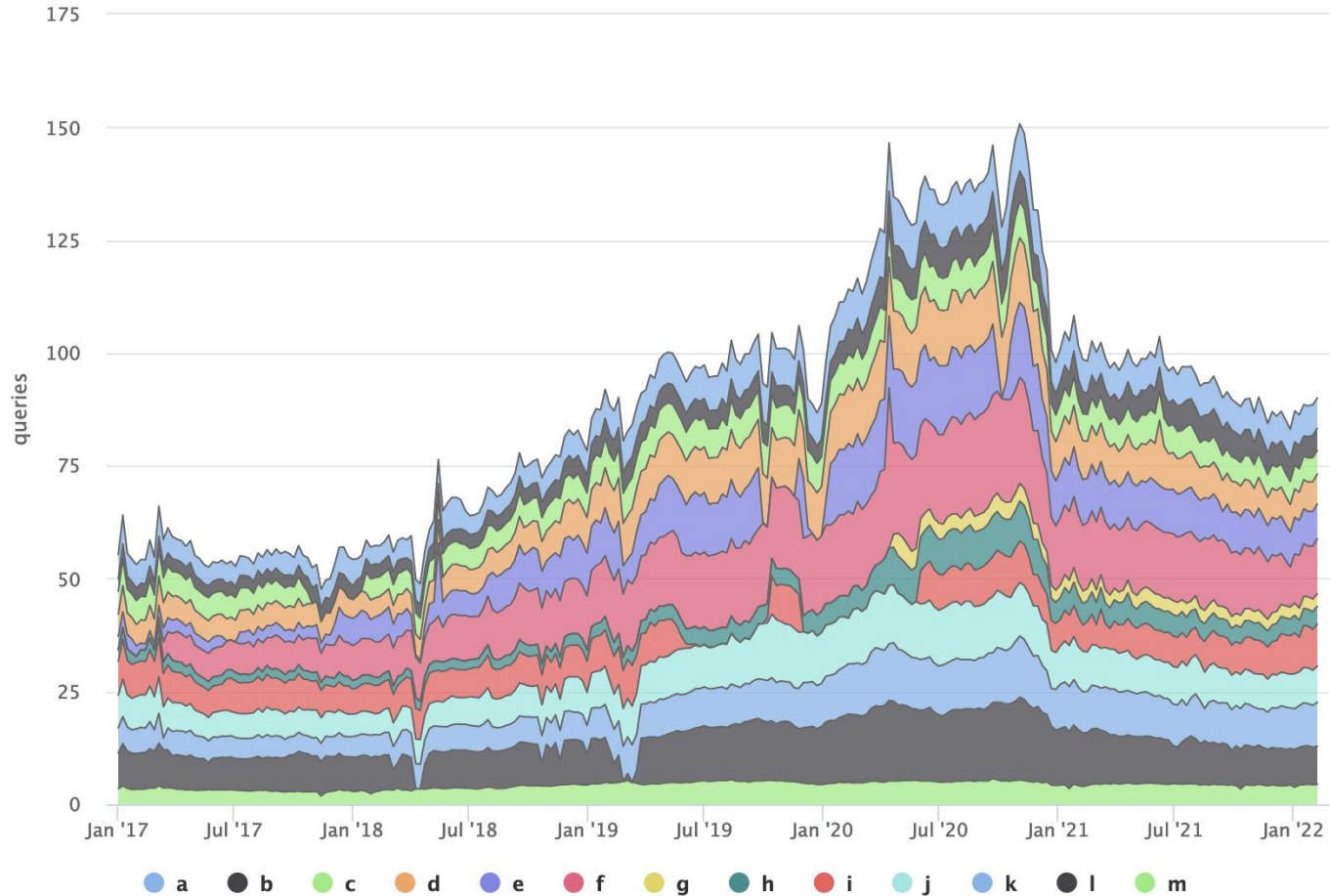
Source: RSSAC002 Data



Queries Received by-week (billion) (daily average)

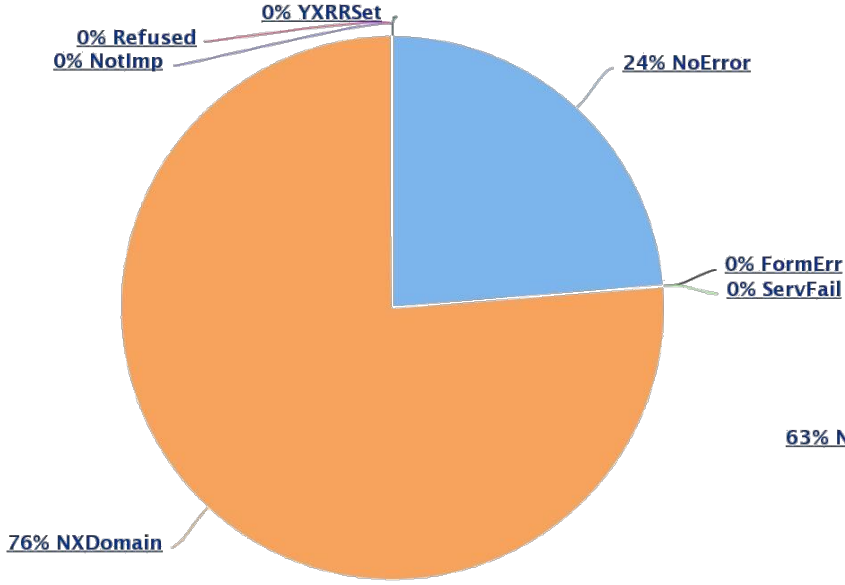


Source: RSSAC002 Data



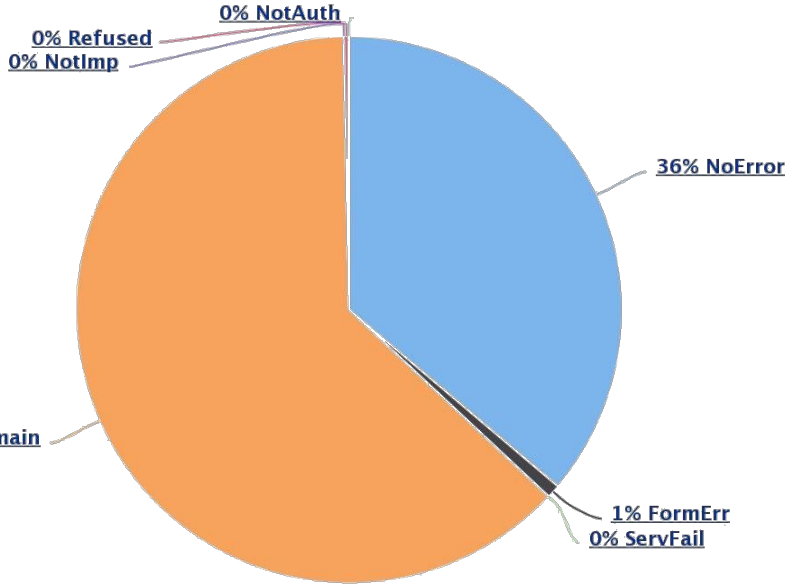
rcode-volume 2019-11-04 - 2020-11-04

Source: RSSAC002 Data



rcode-volume 2021-02-01 - 2022-02-01

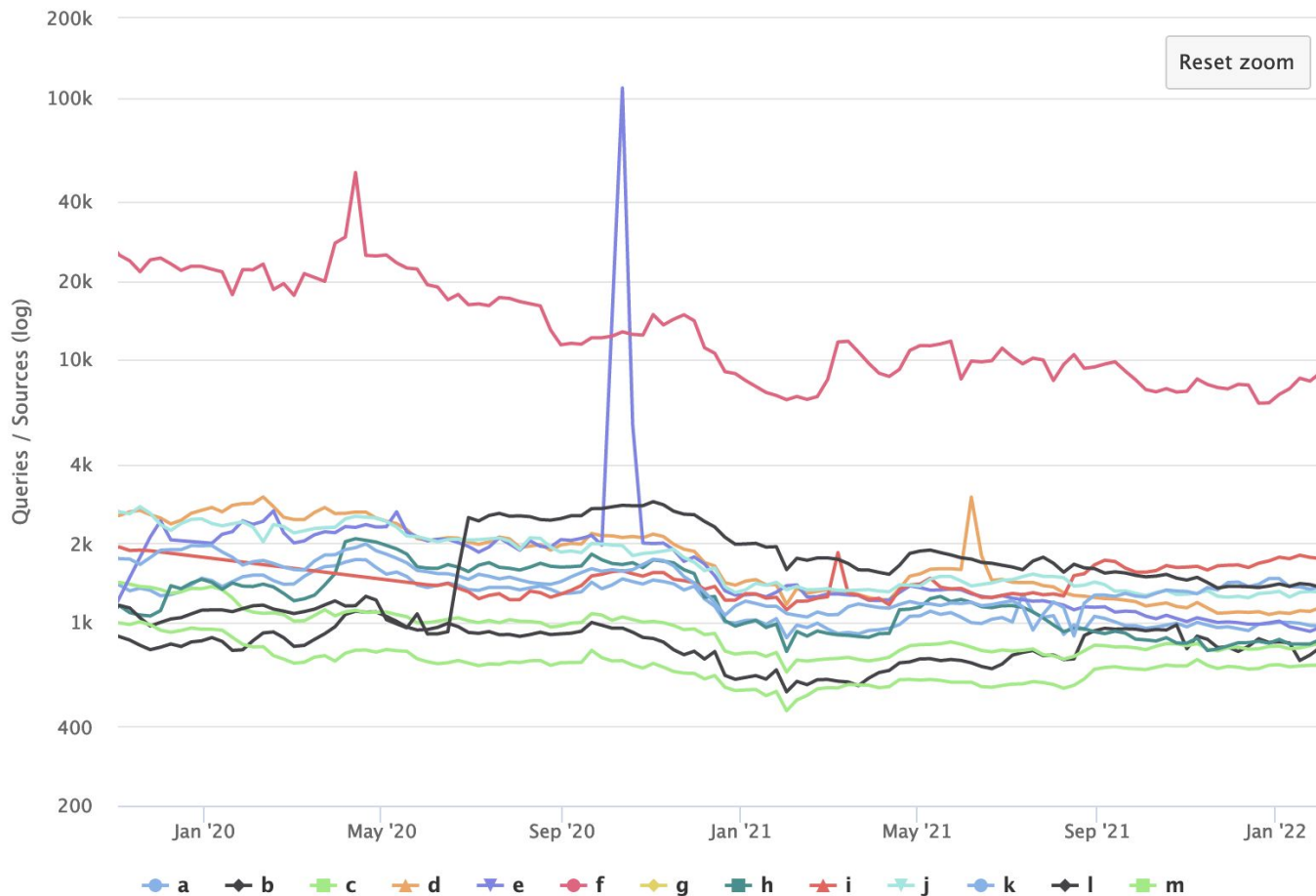
Source: RSSAC002 Data



IPv4 Queries Received / Unique IPv4 Sources by-week (daily average)

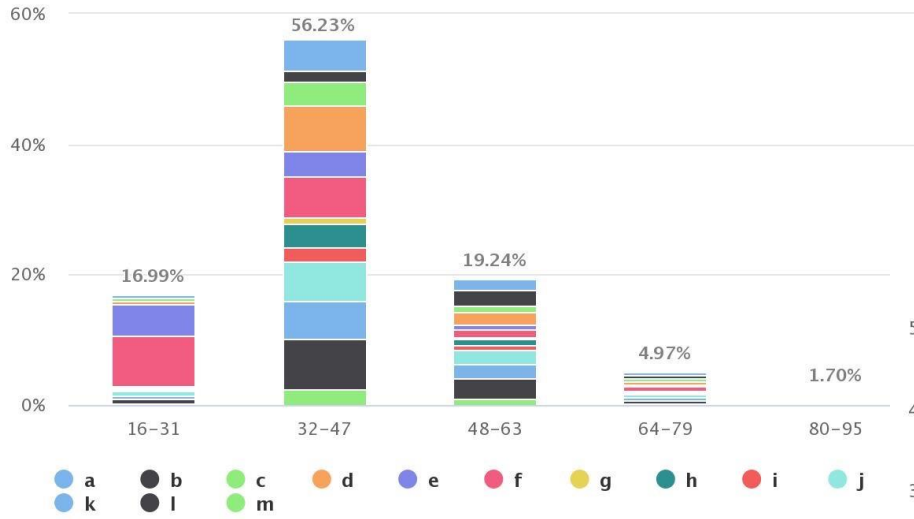


Source: RSSAC002 Data



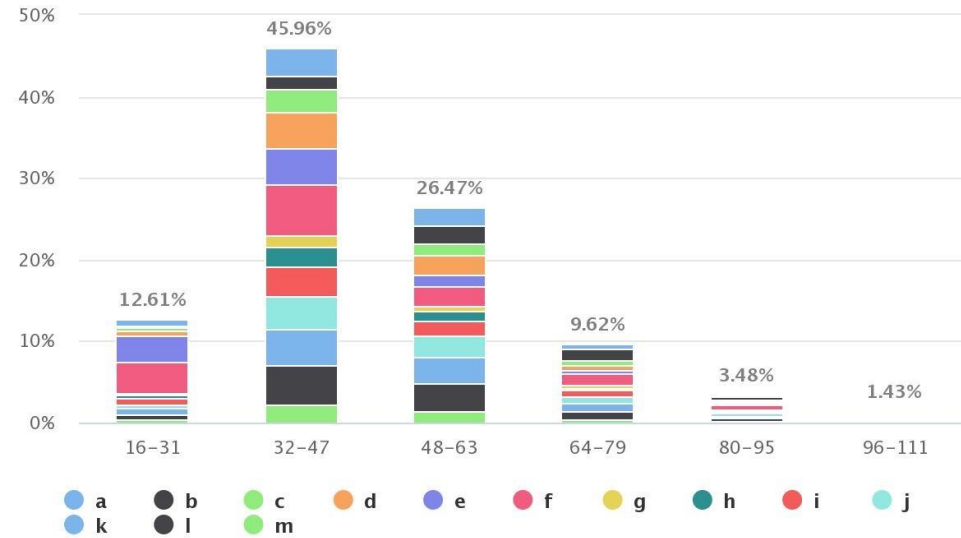
2019-11-04 / 2020-11-04 udp-request-sizes

Source: RSSAC002 Data



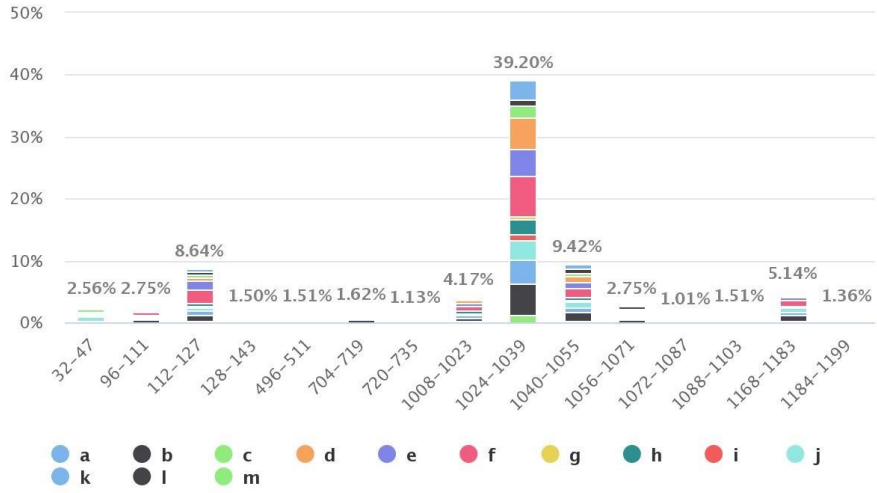
2021-02-01 / 2022-02-01 udp-request-sizes

Source: RSSAC002 Data



2019-11-04 / 2020-11-04 udp-response-sizes

Source: RSSAC002 Data



2021-02-01 / 2022-02-01 udp-response-sizes

Source: RSSAC002 Data

