

Routing policies vs. BGP

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Data collection

- Started in March 2012
 - BGP
 - RIPE DB snapshots
- Analysis compiled in July 2015
 - Limited to RIPE DB / RIPE NCC service region
- OSS analysis tool written in Python
<https://github.com/tmshlvck/bgpcrunch>



Data analysis

- Volumetric and “quality” stats from BGP
 - BGP origin to route{,6} objects → stats & text
 - AS-paths
 - aut-num objects for each AS in AS-path
 - import & export filters
- statistics & detailed text output

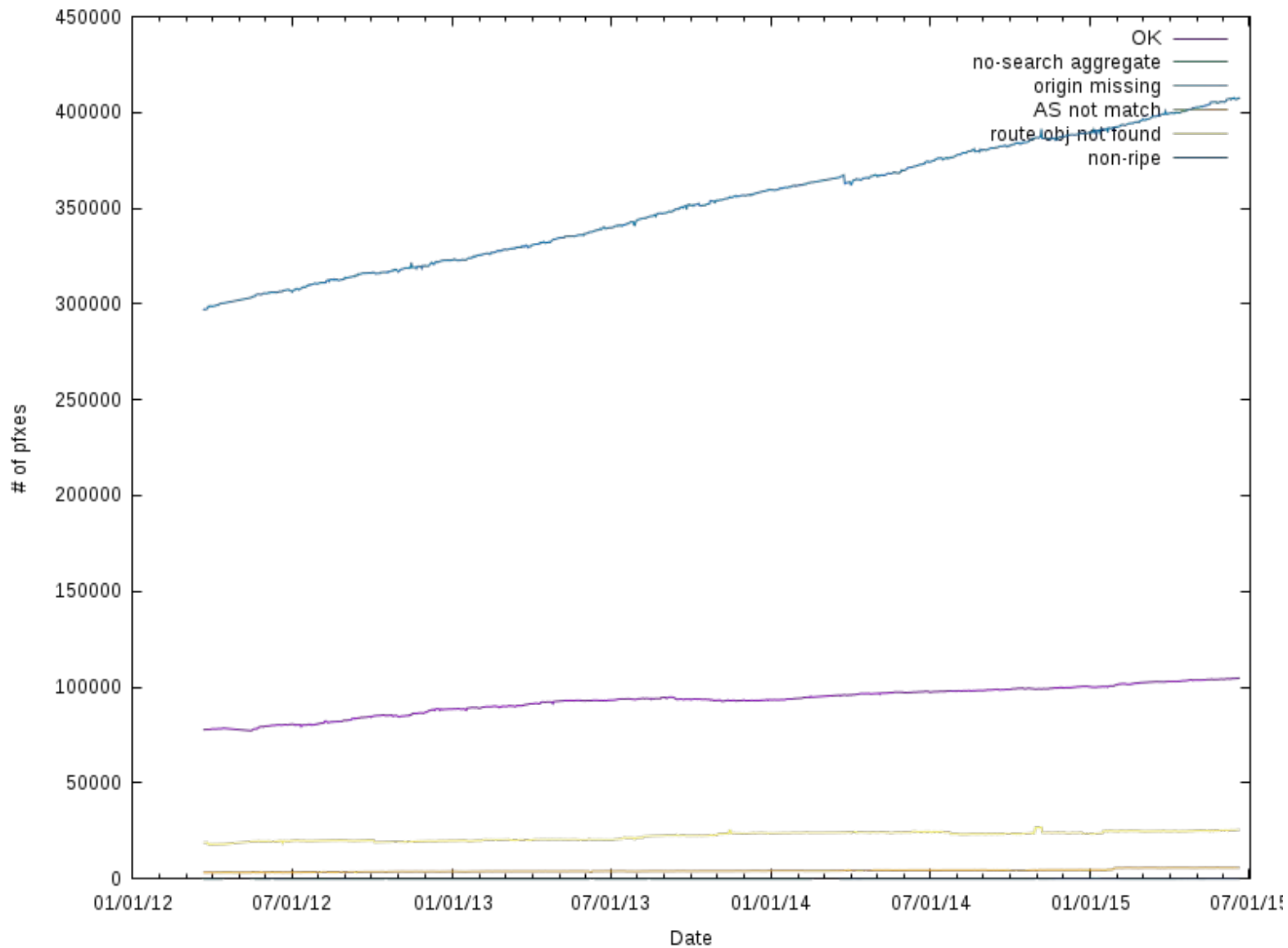


Origin validation – IPv4 (2015-06-21)

- OK: 104 778 (77.0%)
- route obj not found: 25 555 (18.8%)
- AS not match: 5778 (4.2%)
- non-ripe: 407 049



Origin validation - IPv4



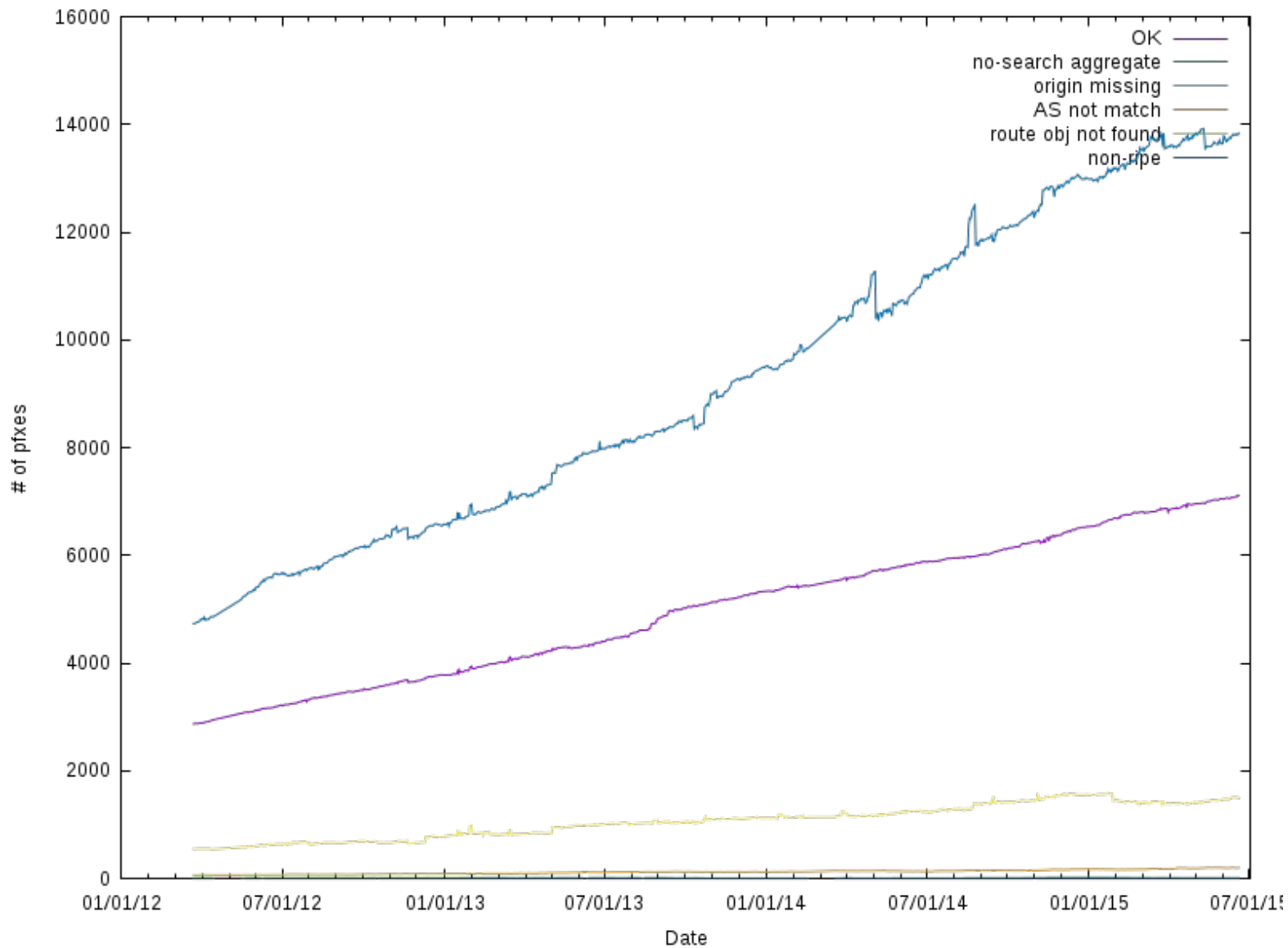
Origin validation – IPv6 (2015-06-21)

- OK: 7113 (80.7%)
- route obj not found: 1498 (17.0%)
- AS not match: 204 (2.3%)

- non-ripe: 13 837



Origin validation - IPv6

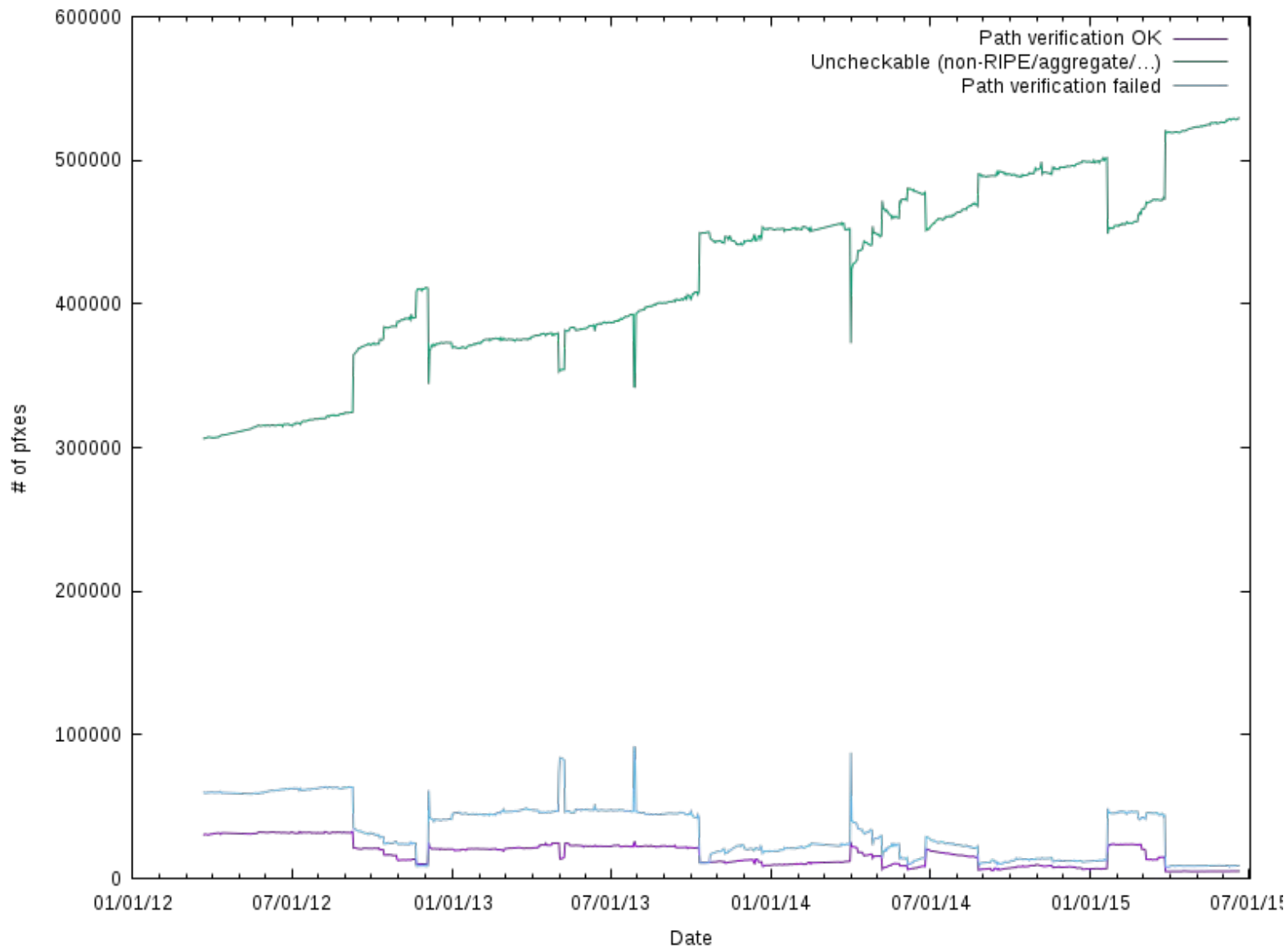


AS-path check – IPv4 (2014-06-21)

- Path verification OK: 8443 (37.3%)
- Path verification failed: 14168 (62.7%)
- N/A (non-RIPE/aggregate/...): 476 982



AS-path validation timeline - IPv4

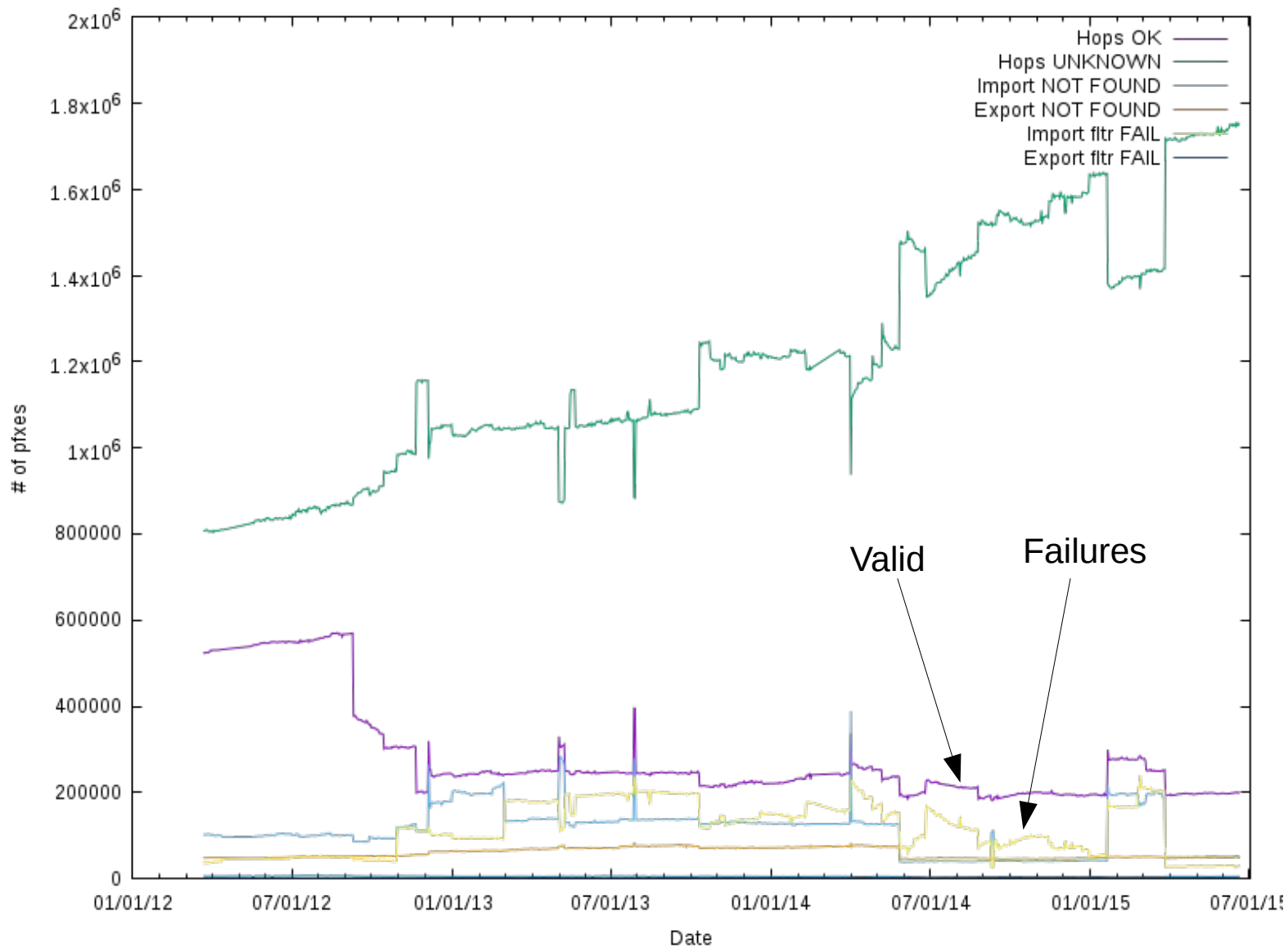


Hops in AS-paths – IPv4 (2014-06-21)

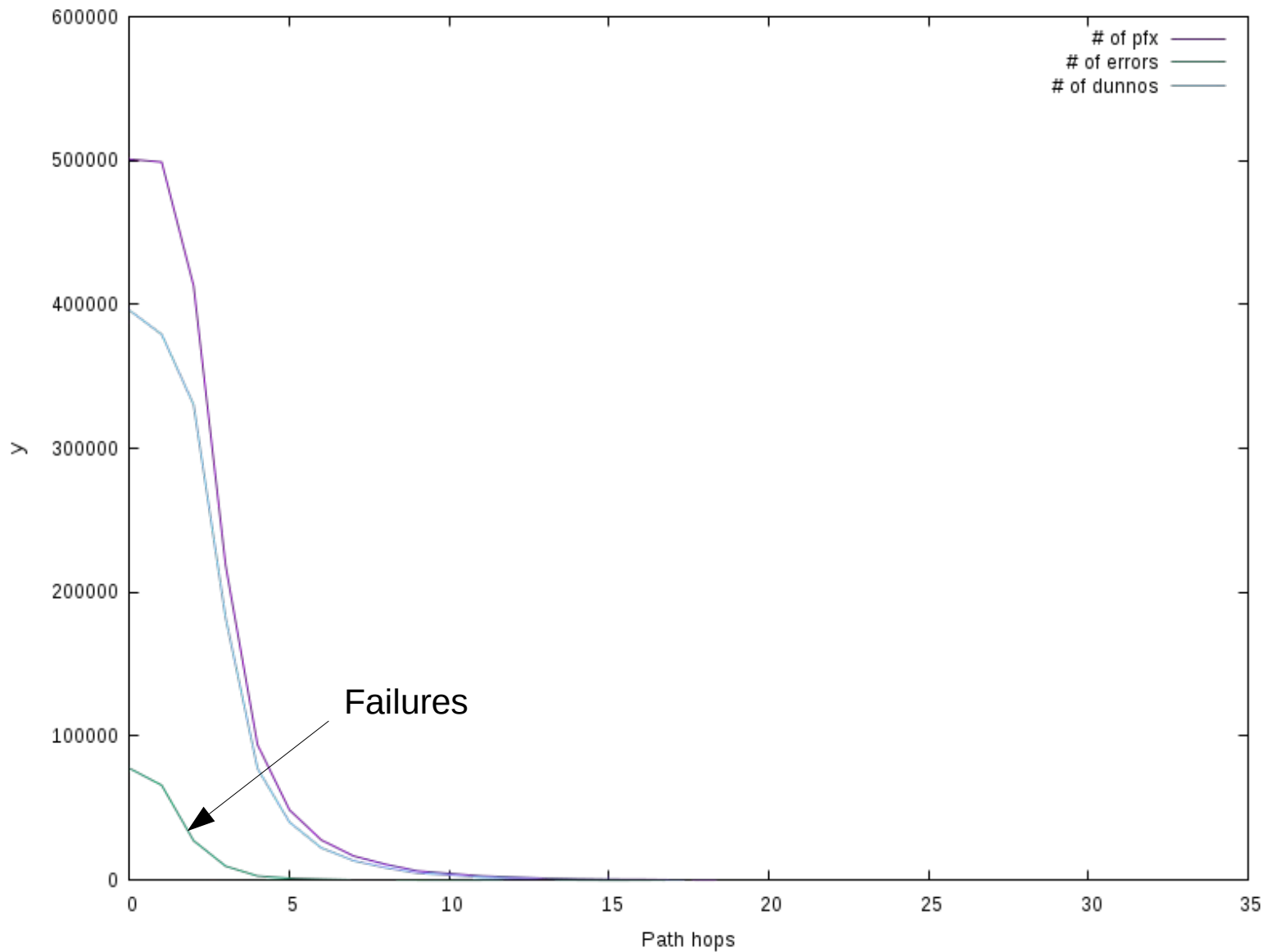
- Hops valid: 199 390 (51.2%)
- Total errors: 189 759 (48.8%)
 - import filter not-found: 40 118 (10.3%)
 - import filter failed: 99 608 (25.6%)
 - export filter not-found: 46 162 (11.9%)
 - export filter failed: 3 871 (1.0%)
- Unknown (non-RIPE/...): 1 455 575



Validation of hops - IPv4



Validation of hops - IPv4

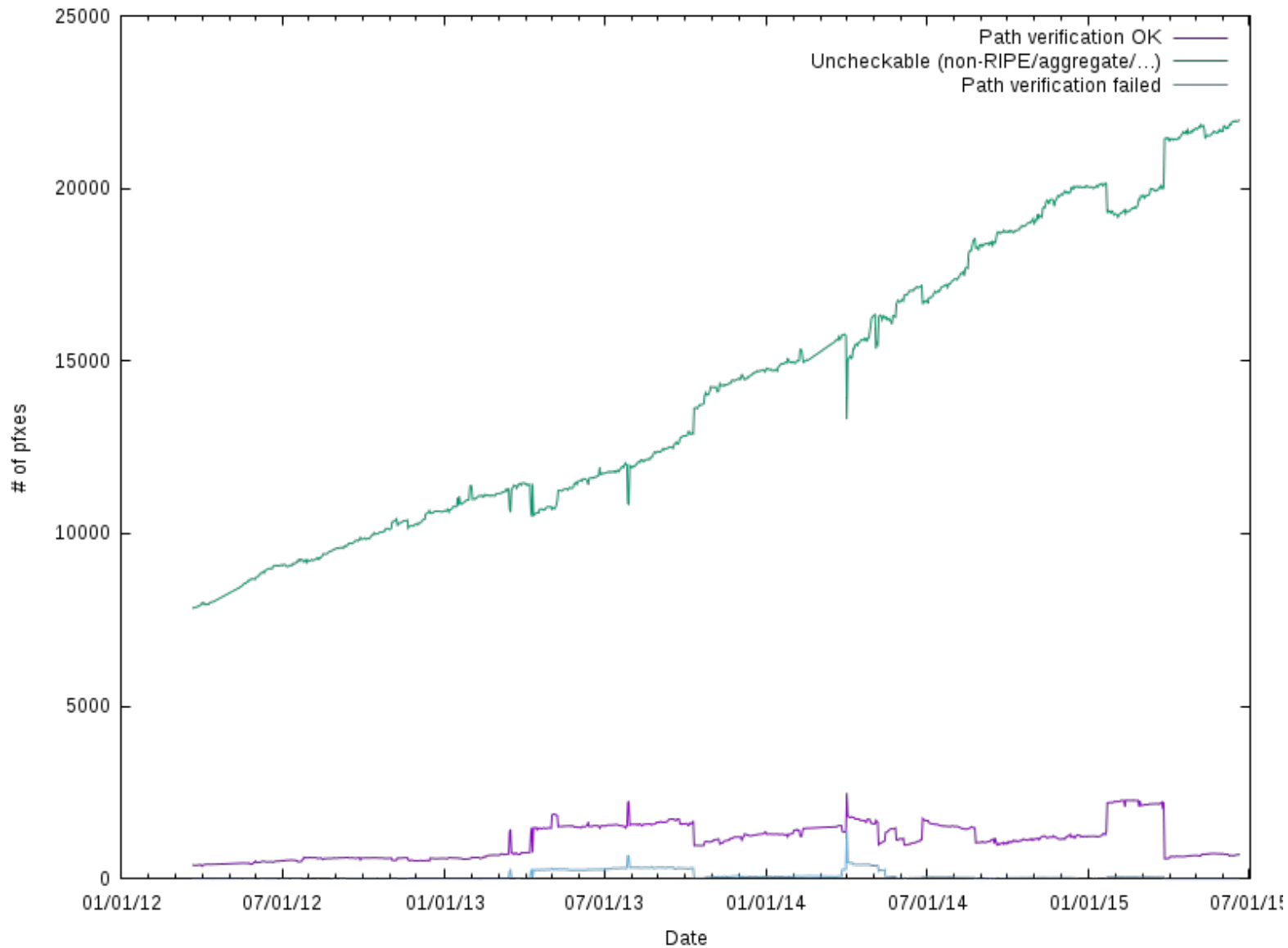


AS-path check – IPv6 (2014-06-21)

- Path verification OK: 1080 (98.2%)
- Path verification failed: 20 (1.8%)
- N/A (non-RIPED/aggregate/...): 17 147



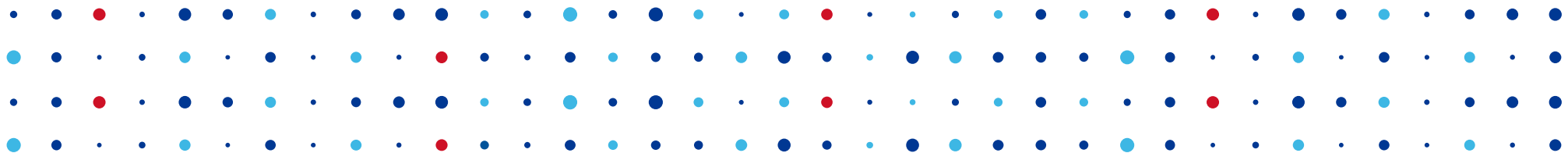
AS-path validation timeline - IPv6



Conclusion

- Complete results reveal much more interesting facts!
- Would the overall result be different with all IRRs and the whole DFZ?
- What can we do to make the situation better?
 - More software?
 - More documentation?
 - RDL?





Thank You

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Complete results



<http://bgpcrunch.labs.nic.cz/>

