

FAILURE

Your ISP (BENJOJONET, AS206924) does not implement BGP safely. It should be using RPKI to protect the Internet from BGP hijacks. [Tweet this →](#)

► Details

Twitter support reps hate them!

Learn this one weird trick to secure routing policy

Ben Cartwright-Cox / @benjojo12

www.youtube.com > watch

Measuring RPKI Adoption via the data-plane - NLNOG 2018



Measuring **RPKI** Adoption via the data-plane - Ben Cartwright-Cox - **NLNOG** 2018.

10 Sep 2018 - Uploaded by NLNOG

2019's: <https://blog.benjojo.co.uk/post/the-year-of-rpki-on-the-control-plane>

Sep 9 2019

The year of RPKI on the control plane

This post is a textual version of the talk I gave at NLNOG 2019, You can watch the recording of the talk on youtube below if that's your preferred medium:



The year of RPKI on the control plane - NLNOG 2019



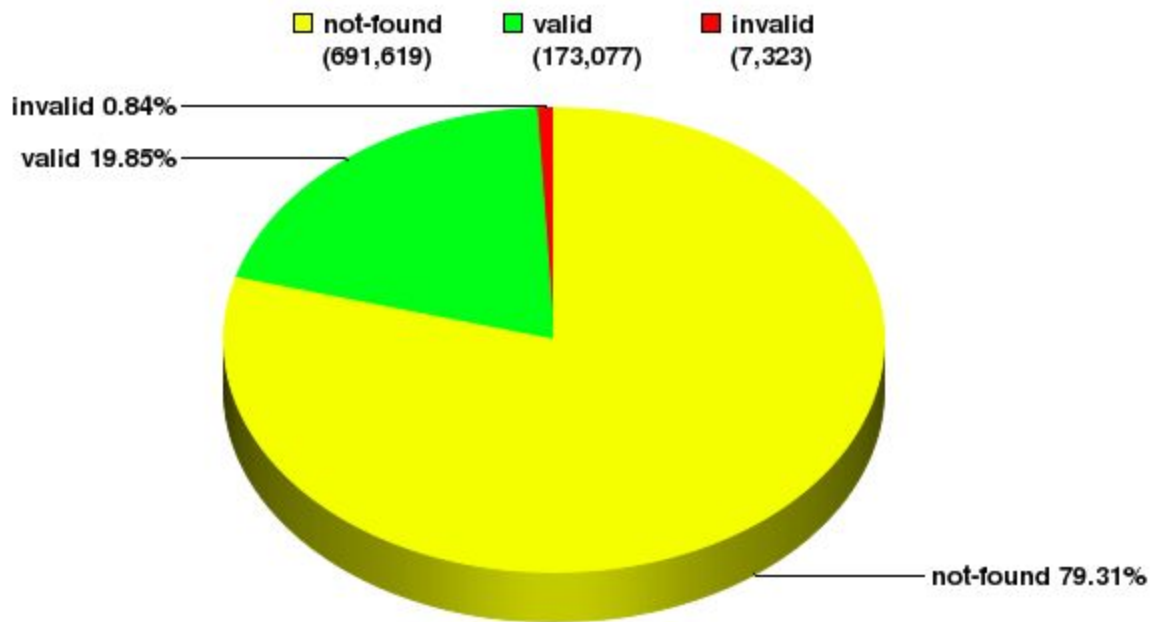
Watch later



Share

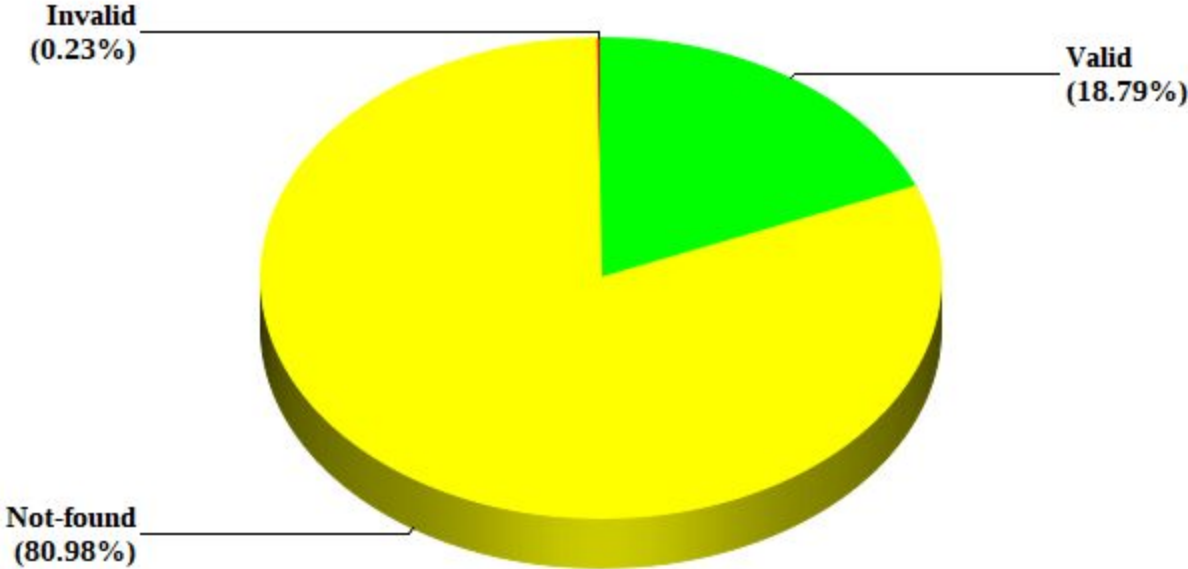
Global: Validation Snapshot of Unique P/O pairs

872,019 Unique IPv4 Prefix/Origin Pairs



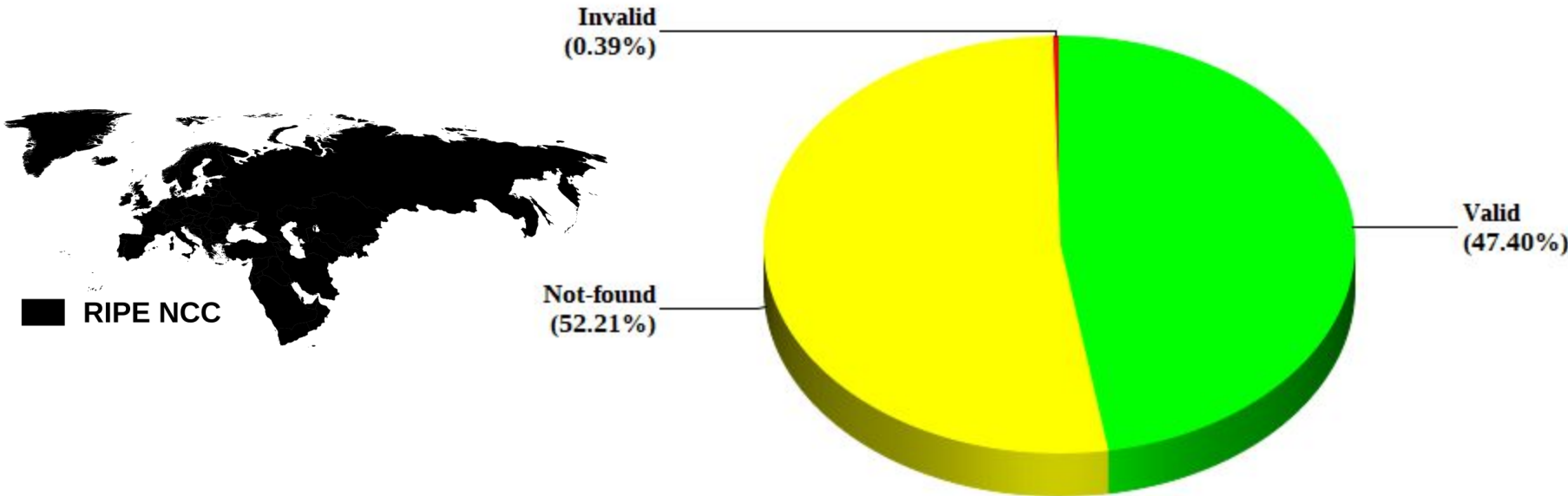
Global: Validation Snapshot of Address Space (/24s) in Unique P/O Pairs

Valid (2,941,979) Not-found (12,683,123) Invalid (36,069)



RIPE: Validation Snapshot of Address Space (/24s) in Unique P/O Pairs

Valid (1,641,410) Not-found (1,807,804) Invalid (13,595)



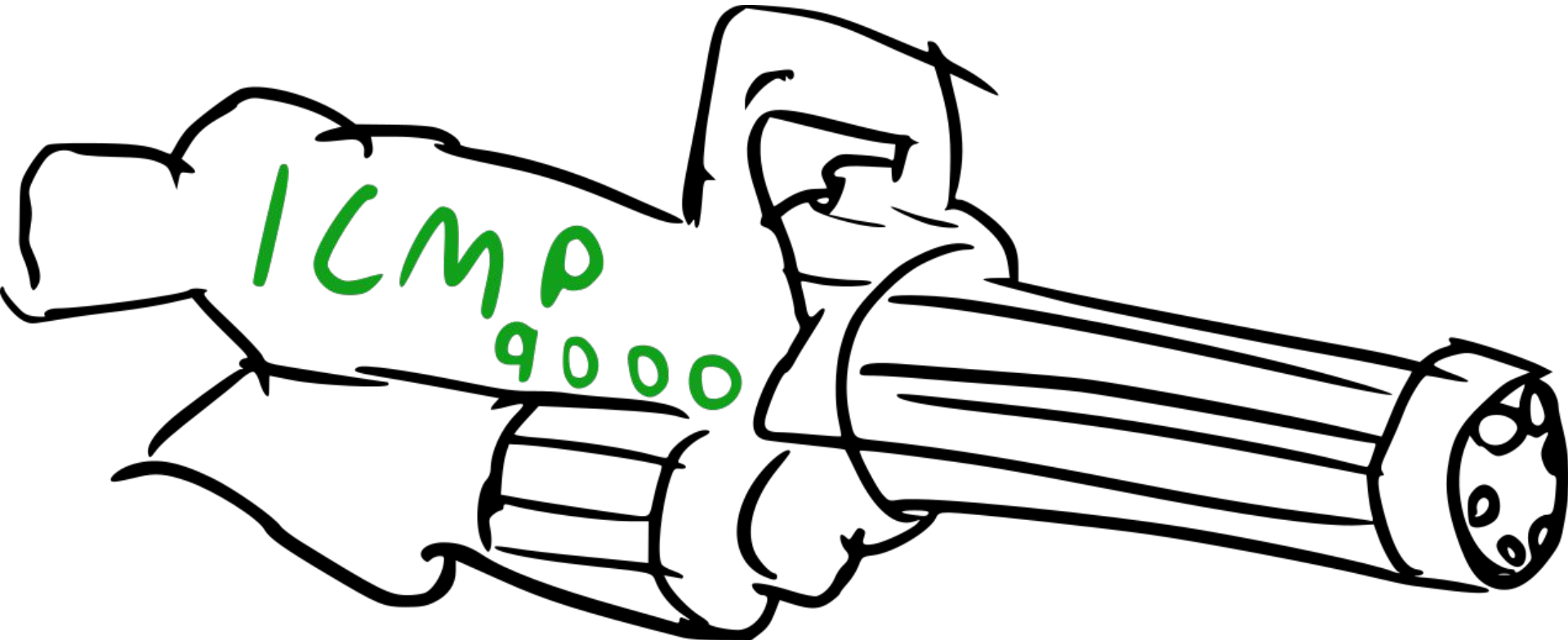
This is all well
and good

How is validation
adoption?

Assumptions

- Lots of people have default routes
- Lots of people are signing but not validating

Testing methodology



Testing methodology

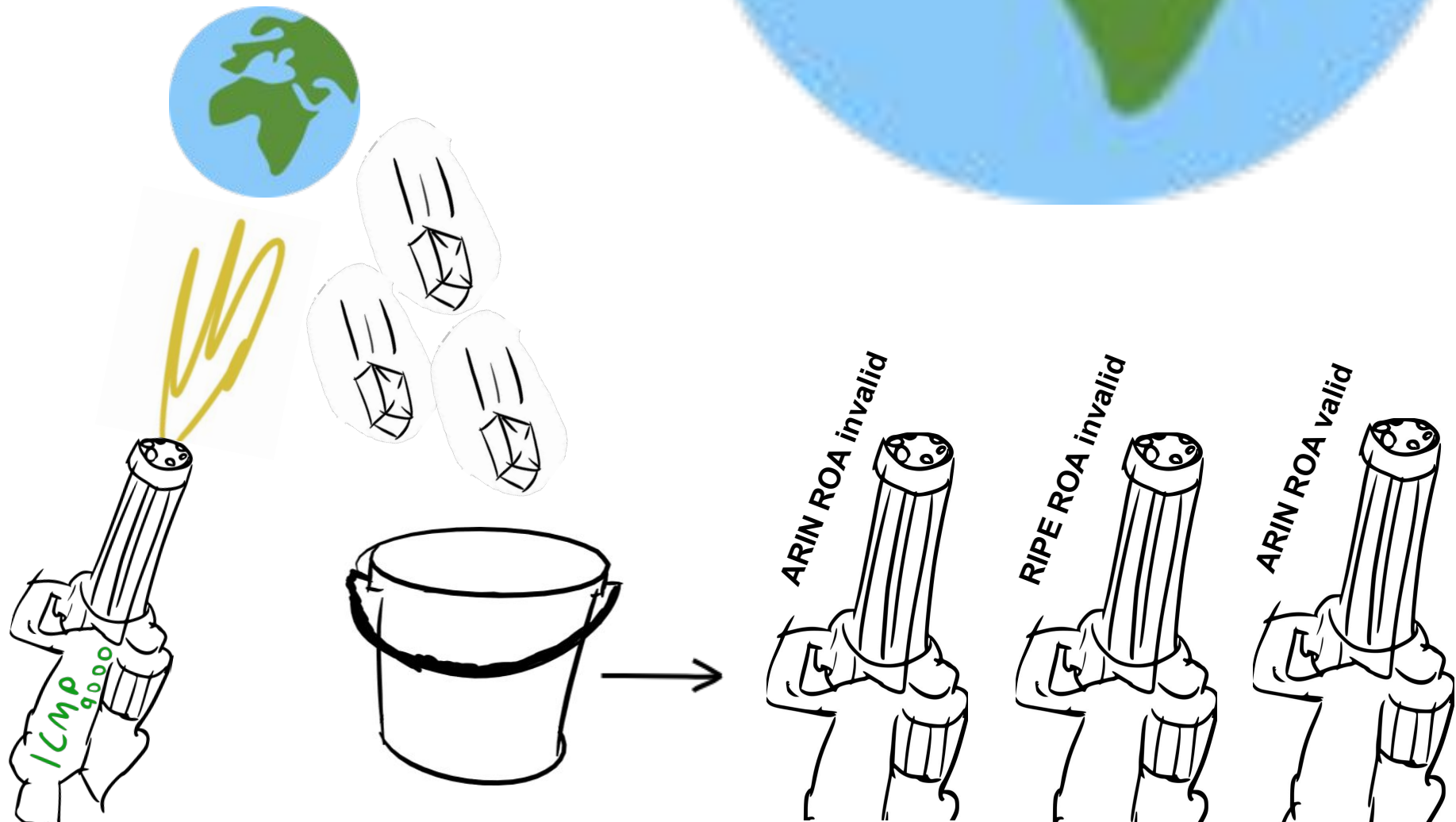
Prefix		Description	
<u>194.32.71.0/24</u>	 	NTT Europe Limited	
<u>209.24.0.0/24</u>	 	NTT America, Inc.	
<u>209.24.1.0/24</u>	 	NTT America, Inc.	

* This testing setup assumes the networks don't have default routes. Or outsourcing their ROA filtering to a upstream that has total ROA validation, Like NTT.





All 0.0.0.0/0 responses collected





RPKI Deployment Stats May-2020



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3406

	A	B	C	D	E	F	G
1	ASN	ValidCount	RIPEDrop	ARINDrop	RIPE Drop P	ARIN Drop P	Drop Vari
2	7922	21602854	13423	10858	0.06%	0.05%	0.01%
3	4837	16145151	325251	326105	2.01%	2.02%	0.01%
4	4134	9767043	188564	189498	1.93%	1.94%	0.01%
5	4766	9632094	301843	301332	3.13%	3.13%	0.01%
6	701	6122952	3533	2863	0.06%	0.05%	0.01%
7	16625	6086003	2483039	2523816	40.80%	41.47%	0.67%
8	5607	4748892	3141	3127	0.07%	0.07%	0.00%
9	9318	4583505	3493	3406	0.08%	0.07%	0.00%
10	8151	4371989	7049	6886	0.16%	0.16%	0.00%
11	3352	4224605	2295	2281	0.05%	0.05%	0.00%
12	3320	4126695	2805	2734	0.07%	0.07%	0.00%
13	3269	3917732	84342	77390	2.15%	1.98%	0.18%
14	3209	3838184	2599	2575	0.07%	0.07%	0.00%
15	209	3383028	5167	3367	0.15%	0.10%	0.05%
16	12322	2924915	1625	1646	0.06%	0.06%	0.00%
17	17858	2685092	1253	1201	0.05%	0.04%	0.00%
18	5089	2664252	1360	1354	0.05%	0.05%	0.00%
19	22773	2637369	3306	2418	0.13%	0.09%	0.03%
20	7713	2527838	2377	2341	0.09%	0.09%	0.00%
21	20115	2510070	2509731	2509718	99.99%	99.99%	0.00%
22	12389	2459039	2367	2272	0.10%	0.09%	0.00%
23	15557	2409820	1632	1630	0.07%	0.07%	0.00%
24	20001	2304796	2304796	2304796	100.00%	100.00%	0.00%
25	10796	2251026	2251026	2251026	100.00%	100.00%	0.00%
26	6830	2227870	1536	1462	0.07%	0.07%	0.00%
27	16509	2180630	266075	265520	12.20%	12.18%	0.03%
28	15169	2083516	1337	1178	0.06%	0.06%	0.01%
29	33363	2069557	2069530	2069529	100.00%	100.00%	0.00%



Bigger than 200 hosts

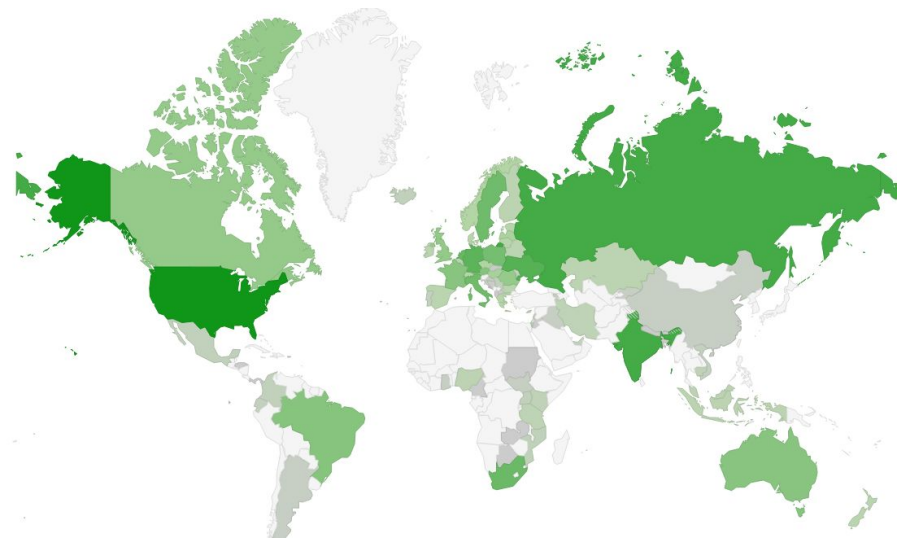
Everything





Graphs for decision makers

2598 ROA Validating ASNs

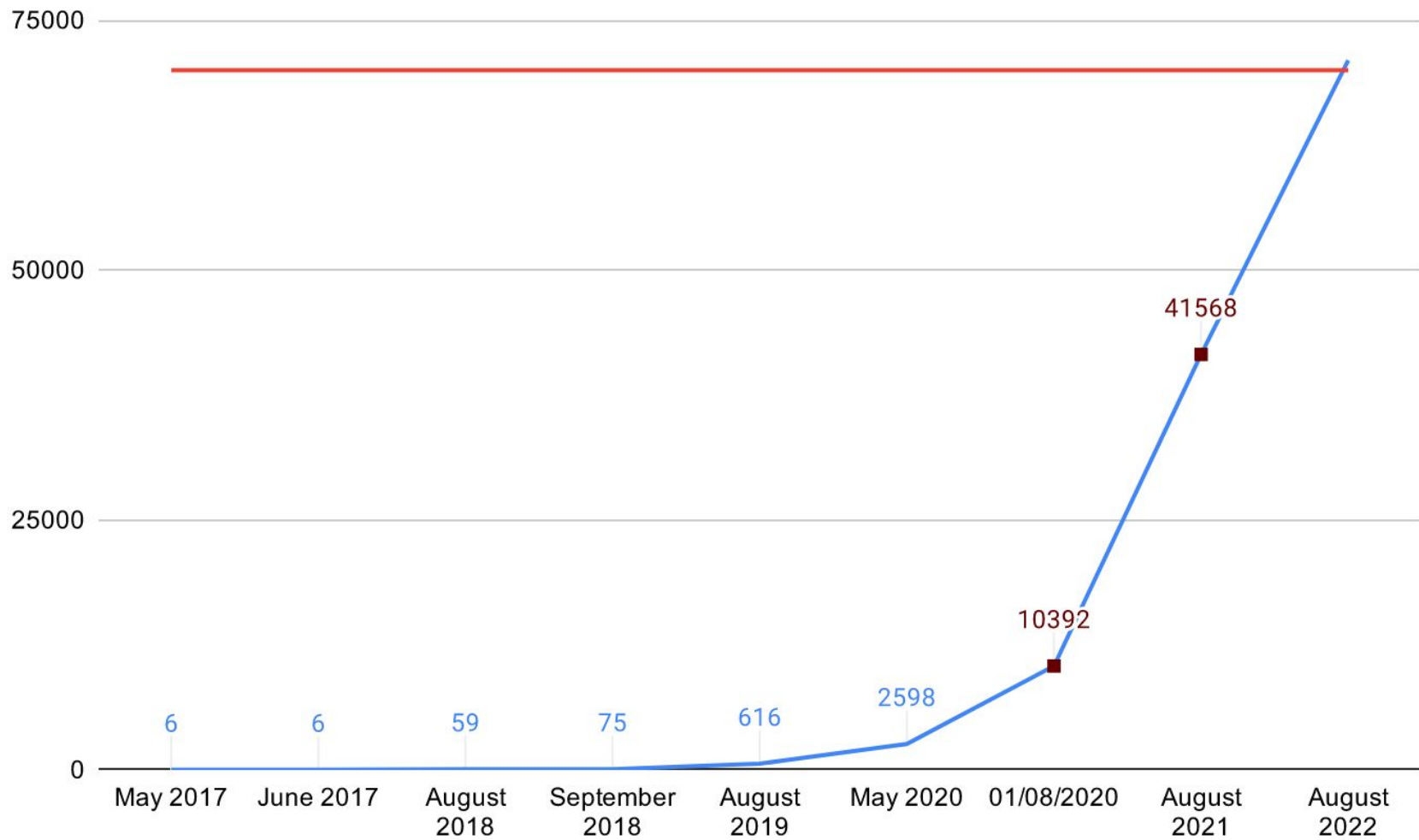


Top 10 ASN ROA Validating Countries

573	US
210	RU
210	IN
149	UA
132	DE
102	NL
99	ZA
91	IT
90	SE
81	PL

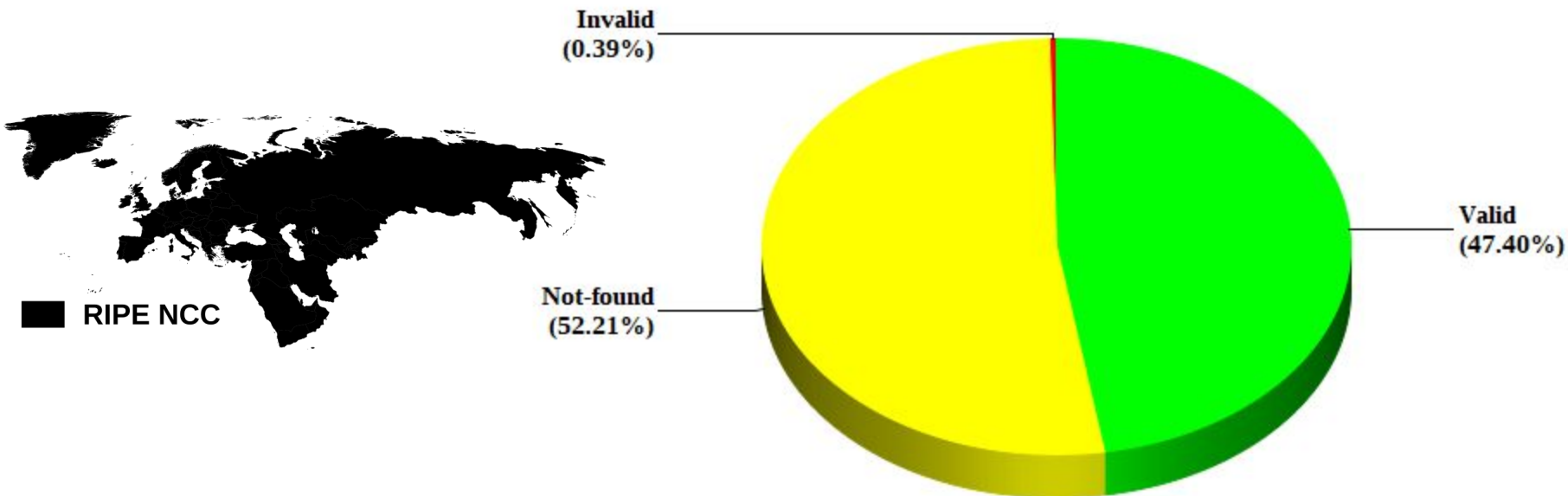


^ Link to full dataset

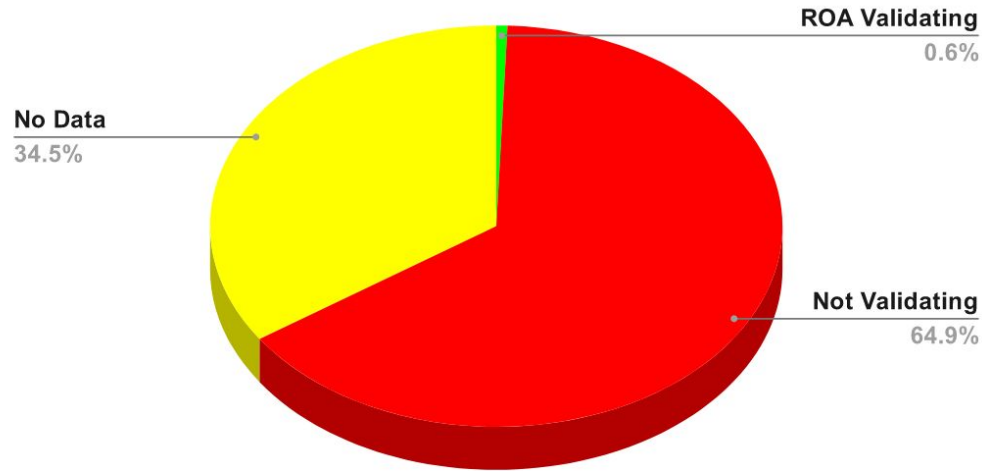


RIPE: Validation Snapshot of Address Space (/24s) in Unique P/O Pairs

Valid (1,641,410) Not-found (1,807,804) Invalid (13,595)

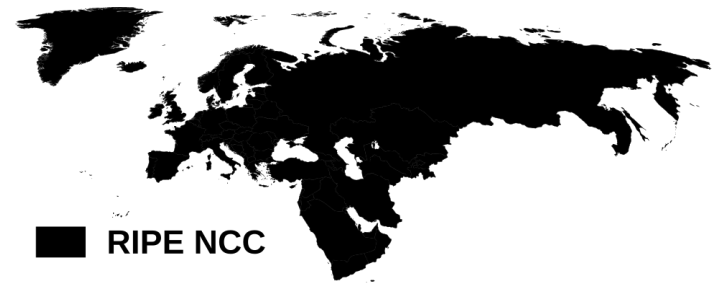


RIPE: ROA Validation of address space (/24s)

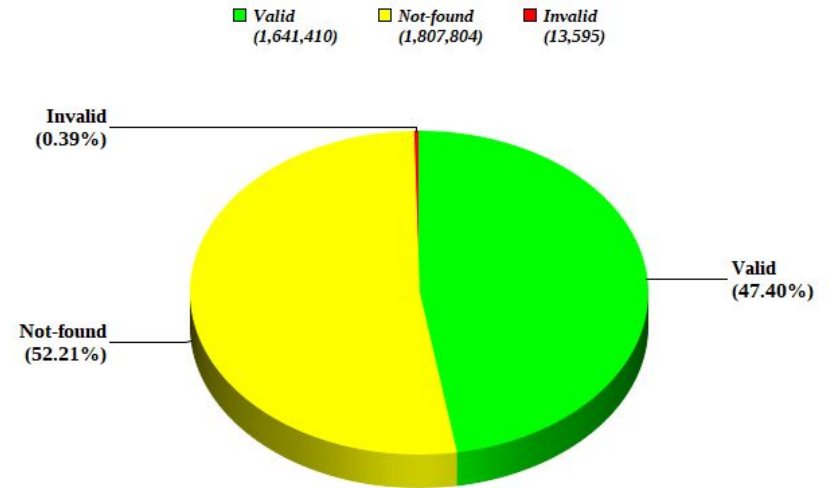


* No data means less than 4 IPs in the block responded to ICMP, So data is inconclusive

** This testing setup assumes the networks don't have default routes, or outsourcing their ROA filtering to a upstream (Like NTT) that has total ROA validation.



RIPE: Validation Snapshot of Address Space (/24s) in Unique P/O Pairs



@Benjojo12 / ben@benjojo.co.uk / \$whois as206924

Shout outs

- Huge thanks to Job for the 10GBE server and the helping with prefixes
- NTT Communications
 - For the ARIN and RIPE prefix

Questions to:

ripe80 @ benjojo.co.uk

Missed something? You can re-watch this on my twitter: <https://twitter.com/benjojo12>