

# Routing Security SIG RPKI status report

George Michaelson  
Registry Product Manager  
ggm@apnic.net



# RPKI status as of 1 March 2021

- Active (ROA creating) delegations
- % IP space covered by ROAs (by economy of region)
- NIRs
- Usage
- AS0 status

# Active (ROA creating) delegations

	Active	Total	%
Direct Members	2,852	10,163	28%
NIR Members	2,232	10,649	21%
Total	5,084	20,812	24%

# % coverage

- % of allocated and assigned IPv4 that is covered by at least one ROA
- Maximally aggregated, compared to maximally aggregated delegations from APNIC, by economy
- Across all APNIC, ROA coverage
  - 20% of allocated or assigned IPv4 space
  - 15% of assigned IPv6 space
- Coverage in BGP differs: this is from allocation data not routing.

# % Coverage by Economy

cc	ipv4	ipv6	cc	ipv4	ipv6	cc	ipv4	ipv6	cc	ipv4	ipv6	cc	ipv4	ipv6
<b>IO</b>	100.00%	-	<b>WS</b>	83.00%	25.00%	<b>KH</b>	47.00%	24.00%	<b>PF</b>	11.00%	20.00%	<b>PW</b>	-	-
<b>MH</b>	100.00%	100.00%	<b>PH</b>	82.00%	28.00%	<b>HK</b>	43.00%	14.00%	<b>KI</b>	10.00%	-	<b>TK</b>	-	-
<b>MN</b>	99.00%	67.00%	<b>MY</b>	80.00%	40.00%	<b>AF</b>	39.00%	8.00%	<b>AS</b>	9.00%	-	<b>TV</b>	-	-
<b>BT</b>	99.00%	100.00%	<b>VU</b>	79.00%	-	<b>FJ</b>	34.00%	40.00%	<b>VN</b>	9.00%	3.00%	<b>WF</b>	-	-
<b>PK</b>	96.00%	36.00%	<b>SG</b>	78.00%	71.00%	<b>TL</b>	33.00%	50.00%	<b>GU</b>	9.00%	29.00%	<b>BN</b>	-	-
<b>MV</b>	95.00%	75.00%	<b>NC</b>	77.00%	56.00%	<b>AU</b>	28.00%	48.00%	<b>CN</b>	2.00%	-	<b>KR</b>	-	-
<b>NP</b>	94.00%	42.00%	<b>SB</b>	73.00%	-	<b>NZ</b>	25.00%	25.00%	<b>FM</b>	-	-	<b>MO</b>	-	14.00%
<b>TO</b>	93.00%	33.00%	<b>MM</b>	73.00%	24.00%	<b>PG</b>	23.00%	25.00%	<b>KP</b>	-	-			
<b>TW</b>	93.00%	93.00%	<b>LA</b>	72.00%	31.00%	<b>JP</b>	21.00%	32.00%	<b>MP</b>	-	-			
<b>LK</b>	92.00%	62.00%	<b>TH</b>	57.00%	23.00%	<b>NR</b>	20.00%	-	<b>NF</b>	-	-			
<b>BD</b>	85.00%	49.00%	<b>IN</b>	50.00%	68.00%	<b>ID</b>	18.00%	18.00%	<b>NU</b>	-	-			

# NIRs

- Four NIRs (CNNIC, IDNIC, JPNIC, TWNIC) operate their own self-hosted RPKI system
- Three NIRs use MyAPNIC to manage RPKI on their members behalf
- All NIR membership should be able to get ROA coverage, (although some indirectly)

CN	JP	KR	ID	IN	TW	VN
2%	21%	<1%	18%	50%	93%	9%

# Usage

- 1,009 total ASNs reading the APNIC RPKI data every day
  - 902 distinct ASNs collecting using RRDP protocol (<https>)
  - 927 distinct ASNs collecting via rsync
- Geoff Huston's measurements are more revealing of how it affects BGP

# Self-Hosted

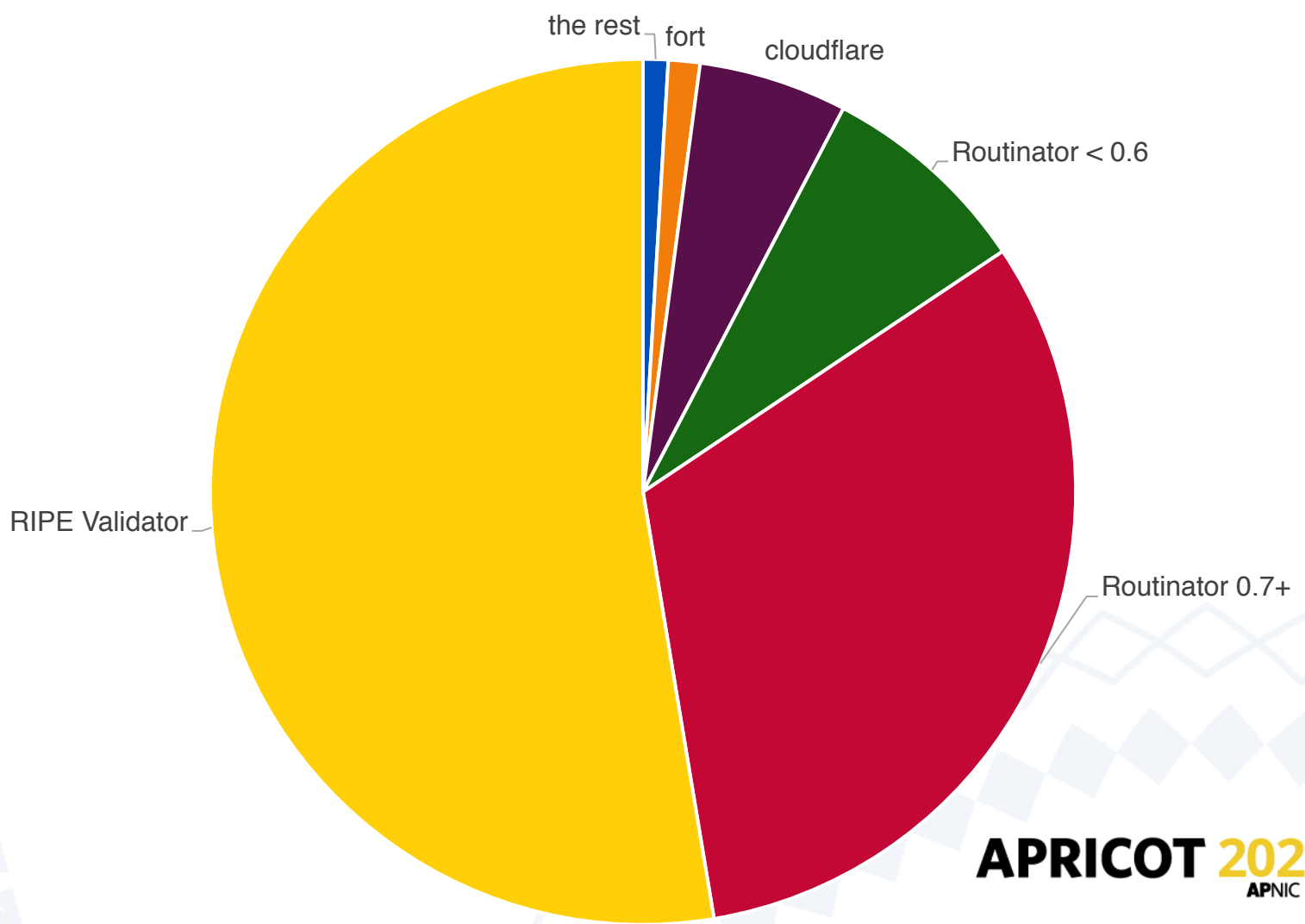
- APNIC now has five self-hosted clients operating ‘under’ our main RPKI system (aside from the four NIRs)
- Of these, four are multi-homed under other RIRs
  - We now have a single context, consistent cross-RIR API boundary that is operational for RPKI
- Self hosted permits use of emerging technology such as RTA or RSC
  - Code available in Krill, work-in-progress scripts from others





# How are people fetching the data?





#apricot2021

# > 50% observed RPs use RIPE Validator

- Count by IP is crude, but this is a large number
  - RIPE v3 is going to be deprecated in 2021
  - Clients should select another validator
- An overview of open source projects that support RPKI:
  - <https://rpki.readthedocs.io/en/latest/tools.html#doc-tools>

# AS0 status

- ~ 69,500 prefixes Origin-AS AS0 (it varies with allocations and returns)
- Usage by Origin AS (last month)
  - 296 unique AS, bulk of requests from smaller set.
  - 1200+ ip addresses, consistently
    - 35 ASNs, 101 unique ip addresses in rsync
  - Many single-hitters

# RPKI resilience: our roadmap to 2022

- In planning or underway in 2021
  - CPS review (underway now)
  - RPKI platform re-engineering (Q3/4)
  - RPKI systems monitoring improvements
  - Publication improvements: RRDP and rsync distribution
- Community Benefit: Funding TA/HSM integration for Krill
- Proposals under consideration (2022)
  - Additional routing hardening/redundancy to the TA and publication points
  - Certificate transparency processes, oversight: is this for the Routing Security SIG?
  - TA HSM redundancy



# Questions?



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