

Pv6 & RPKI at FPT Telecom

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FPT TELECOM OVERVIEW



NO.1 STORAGE SERVICE IN VIETNAM

NO.1 INTERNET TV SERVICE IN VIETNAM

TOP 3 ISP IN VIETNAM

3,5 million broadband subscribers. Services:

- High-speed Internet access
- IPLC
- Internet TV service
- Camera
- Cloud
- OTT Services
- IoT products

Website: https://www.fpt.vn

IPv6 MILESTONES AT FPT TELECOM













~2,64M IPv6 subscribers~600Gbps IPv6 Traffic



RPKI MILESTONES AT FPT TELECOM



DEPLOY RPKI



TOPOLOGY



- We employ two separate validators for our backup software
 - Routinator (by NLnetLabs)
 - OctoRPKI (by Cloudflare)
- Validator was placed behind the firewall to safeguard and manage connections.
- Almost edge routers setup 2 to 4 RTR session with validator





RPKI-ROV Analysis: APNIC

25 Autonomous Systems with the most BGP observed Prefixes VALID by RPKI-ROV in APNIC (IPv4)



NIST's RPKI Monitor

8







CASE STUDY 1



Bypass RTBH Prefixes with RPKI

CASE STUDY 1 – Bypass RTBH Prefixes with RPKI



CASE STUDY 1 – Bypass RTBH Prefixes with RPKI

SOLUTION

Customer advertised profives	Check RPKI	
Customer advertised prefixes	admin@edge-router-01# run show route 103.156.32.0/24 all	
/24 (IPv4) or <= /48 (IPv6)	<pre>inet.0: 26 destinations, 26 routes (26 active, 0 holddown, 0 hidden) + = Active Route, - = Last Active, * = Both</pre>	
BGP Customer	103.156.32.0/24 *[BGP AS > to 103.156.32.0/32 *[BGP	/170] 00:24:37, localpref 100, from 118.70.0.137 path: 18403 I, validation-state: valid 118.70.2.8 via ge-1/0/9.0 /170] 00:01:04, localpref 100, from 118.70.0.137
	AS > to	path: 18403 I, validation-state: unverified 118.70.2.8 via ge-1/0/9.0
Customer advertised black hole prefixes(RTBH) with mask length > /24(IPv4) or >/48 (IPv6)	<pre>[edit] admin@edge-router-01# run show bgp neighbor 118.70.0.137 match imp Export: [BBB] Import: [RTBH-IPv4-Import RPKI-Policy-Import]</pre>	
	<pre>[edit] admin@edge-router-01# sh term 1 { from {</pre>	ow policy-options policy-statement RTBH-IPv4-Import
	family inet; protocol bgp; as-path 18403; route-filter 103 } then accept;	.156.32.0/24 prefix-length-range /32-/32;

Conclusion





RPKI is a mechanism to prevent BGP hijacking
 A few suggestions for RPKI implementation

- Edge routers at least two RTR sessions
- Use at least two different validator software
- Database synchronization between Validator and RIR.
- Bug OS router
- Capacity router
- Bypass RTBH Prefixes with RPKI



THANKS FOR WATCHING

HAVE A NICE DAY