



Blackhole strategies with RPKI on Internet Exchanges

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About UEPG IX

- Regional IXP
 - Maintained and operated by our University
 - Non-commercial
 - MANRS participant in the IXP program
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Blackhole strategies with RPKI

- As an IXP operator we are currently evaluating a few strategies to deploy blackhole with RPKI
- 4 strategies are being considered to accept those prefixes
- What to do after accept?

1 - RPKI strict validation

- Standard RPKI validation
- Requires publication of ROAs by ASNs with appropriate max length
 - AS 64501 2001:DB8::/32 max length 48
"Default"
 - AS 64501 2001:DB8::/49 max length 128
Additional ROA for BH

2 - RPKI *loose* validation

- Strict validation for non-blackhole prefixes
- For BH prefixes validates the origin ASN but ignores ROA max length
- Example:

AS 64501 2001:DB8::/32 max length 48

If any prefix is announced as BH it would be validated as:

AS 64501 2001:db8::/32 max length 128

3 - Accept RPKI invalid if marked as blackhole

- Strict RPKI validation filtering only for non-blackhole prefixes
- Accept prefixes with RPKI Invalid if marked as blackhole
 - Fallback to IRRDB validation

4 - Blackhole validation before RPKI

- Do not use RPKI for blackhole prefixes
- Need another reliable source to validate prefixes
 - IRRDB
 - RDAP
 - nicbr_autnum
 - lacnic_originAutnum
 - arin_originas0_originautnums

How to apply the BH?

- “The common way”
 - Change next-hop on route-servers
 - This next-hop is blackholed on peering fabric
 - To accomplish this participants must accept larger prefixes for blackhole
 - This can be a problem, BH may not be fully applied

WIP

- Accept prefixes with **RPKI *loose* validation**
- Apply L3 filters on peering fabric
 - Involves hardware support and integration (API)
 - Participants do not need to take any action

Questions?

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