Signaling Prefix Origin Validation
Results from a Route-Server to Peers
NANOG

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Motivation

• Boost acceptance and usage of RPKI-based prefix origin validation
• Increase the security of the Internet routing system
• Increase data quality at IXP’s route-servers
IXP – Route-Server Architecture

IXP

EBGP

Route-Server
IXP – Prefix Origin Validation Support

Prefix Origin Validation

Prefix Origin Validation

EBGP

Route-Server

IXP
IXP – Prefix Origin Validation at the Route-Server
IXP – Prefix Origin Validation at the Route-Server

How to signal prefix origin validation results to peers?
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kklf-sidr-route-server-rpki-light: Defines Extended communities for signaling (for IBGP case)
IXP – Prefix Origin Validation at the Route-Server

Prefix Origin Validation

Prefix Origin Validation

Prefix Origin Validation

EBGP & kklf-sidr-route-server-rpki-light

Prefix Origin Validation

Route-Server
kklf-sidr-route-server-rpki-light

- Internet Draft (IETF)
- Joint work: DE-CIX, AMS-IX, France-IX
- Accepted as SIDR working group document
What Worked Well?

• Cooperation within the community (e.g. other IXPs)
• A lot of interest within the community – some do not like the concept (“Do not mess with my BGP”)
  – Deployment of RPKI is not very common (about 9% of all prefixes available at the Route-Server in DE-CIX Frankfurt are covered by a ROA)
• Prototyping is easy - hard part is to make is scale to 1000 route server peers
  – Software to prototype is available (e.g. Bird, rtrlib, RIPE NCC Validator)
  – Production-grade software is missing
Next Steps?

- Understand if the community adopts RPKI
  - Chicken-Egg-Problem
- Enhance prototype implementation:
  - More control
  - Better monitoring capabilities
  - Stable toolchain
- Release the “Prefix Origin Validation at the Route-Server” feature in 2016?