RPKI ASPA rpki-rtr support

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rpki-rtr (1)

- RPKI: Resource Public Key Infrastructure
- rpki-rtr: for routers to retrieve RPKI data from RPKI validators

  - RFC 6810: version 0

  - RFC 8210: version 1

  - draft-ietf-sidrops-8210bis-12: version 2

rpki-rtr (2)

- Hackathon work
  - Origin validation
  - Version 0 support (v1 and v2 already done)
  - Version negotiation support
  - Client recovery from server-side data loss
  - Server support for multiple simultaneous clients
  - Interop testing against rtrlib, RTRTR, and stayrtr

- Next steps
  - Client support for multiple servers
    - ASPA merge
  - Interfacing with validators
  - More interop testing
  - Reporting issues back to WG

https://github.com/APNIC-net/rpki-rtr-demo

AS_PATH Verification Based on ASPA

- Implemented AS_PATH verification upstream and downstream algorithms in Rust as proof of concept according to draft-ietf-sidrops-aspa-verification-17.

- Logic was easy to implement with draft text as reference.

- Will formalize feedback for further draft text improvements.

- Implementation tested against multiple scenarios to validate correctness.

- Code not public yet

Fun Project

- Used rpki-rs to pull real ASPAs from Routinator.
- Pulled AS_PATHs from a RIPE RIS Collector 23 (Singapore).
- Routinator found 52 valid ASPAs to test with.
  - It seems there are more existing which are malformed.
- Checked everything with downstream algorithm
- 12,194,143 AS_PATHs
  - 1,162,735 valid paths
  - 2,878 invalid paths
  - Remaining 11,028,530 are unknown