Next Generation IX Route Servers

Job Snijders

(Affiliations: RSSF, Fastly, OpenBSD, PeeringDB, RIPE NCC)

hello@rssf.nl

LINX 116

Agenda

- Recap: purpose of route servers
- Overcoming an industry-wide challenge: lack of diversity
- Structure of RSSF
- Accomplishments within the RSSF project
- Future outlook
- Questions?

Why do Route Servers exist?

- Rendezvous point for existing and new networks
- Lowers barrier to entry (which in turn also benefits non-RS-participants)
- Outsource provisioning/decommissioning of new sessions to the IX operator
- Benefit from centralized expertise (BGP filtering, Monitoring)

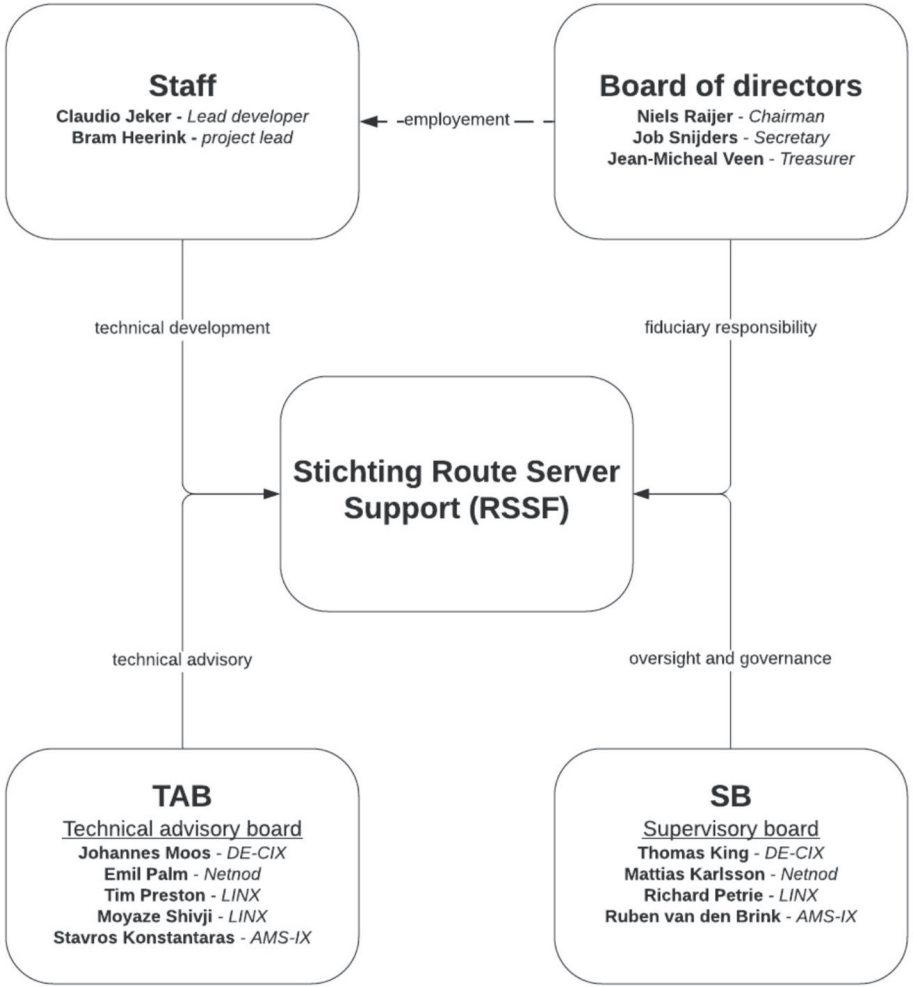
Route Servers are mission-critical service for IXPs!

Industry challenge: lack of diversity for carrier-grade RS

- Thousands of BGP sessions landing on single implementation
- Business need for diversification: less pressure for absolutely flawless operation of a single implementation
- A BGP *UPDATE-OF-DEATH* could disrupt Internet at European scale
- Friendly competition has a healthy effect on both projects: copy good ideas

Recommended model: 2 route servers per IX - active/active (BIRD + OpenBGPD)

RSSF: Unique collaboration between world's largest IXPs


Staff
Claudio Jeker - Lead developer
Bram Heerink - project lead
employement
Board of directors
Niels Raijer - Chairman
Job Snijders - Secretary
Jean-Micheal Veen - Treasurer
technical development
fiduciary responsibility
Stichting Route Server Support (RSSF)
technical advisory
oversight and governance
TAB
Technical advisory board
Johannes Moos - DE-CIX
Emil Palm - Netnod
Tim Preston - LINX
Moyaze Shivji - LINX
Stavros Konstantaras - AMS-IX
SB
Supervisory board
Thomas King - DE-CIX
Mattias Karlsson - Netnod
Richard Petrie - LINX
Ruben van den Brink - AMS-IX

Ensuring project success through stringent Quality Control

1. Developers are equiped with synthetic workload environments
2. Disciplined peer review within OpenBSD project: four eyes principle
3. Regression testing framework within OpenBSD project
4. Third party: ARouteserver is an OSS Route Server configuration generator
    - New releases of BIRD and OpenBGPD run through extensive routing policy regression pipelines
    - Two objectives: Confirm functionality in black box, and feature parity between BIRD/OpenBGPD

Achievements 2020-2022

- Solution to Path hiding (RFC 7947 section 2.3.1)
- Support for RPK-To-Router (RTR, RFC 6810) protocol
- Support for SendHoldTimer (draft-spaghetti-idr-bgp-sendholdtimer)
- Enhanced Route Refresh (RFC 7313)
- JSON formatted management outputs (for integration with Alice LG)
  - Non-blocking
- Extended Alice LG to support OpenBGPD
- Preliminary ADD_PATH support
- Ability to honor transitive RPKI expiration timers
  - (in conjunction with *rpki-client*)

Future outlook

- Performance improvements (Possibly through multi-processor architecture)
- SNMP for monitoring management (RFC 4273)
- BMP capabilities
- BGP Open Policy (RFC 9234)
- …

OpenBGPD @ LINX - its happening! :-)

Scotland IX - June 20th, 2022

Wales - June 23rd, 2022

Other LINX platforms will convert after a “soaking” period, small steps!

Questions?

Now at the microphone?

or

hello@rssf.nl

Annual 2020-2021 report available at https://www.rssf.nl/