OpenBGPD for IXP route-servers

OpenBGPD at IXP

Running OpenBGPD as a route-server with full filters is too slow

Old RIB design shows troubles with scaling
    Config reload block updates and withdraw until finished

At a small IXP like YYCIX the configuration requires 370'000 filter rules and
    reloading the config takes 1h to finish

As a result most IXP route-server run a bird monoculture

    It is important to make OpenBGPD a viable alternative again

A major effort is required

Solving the issue

Have a full time developer working on OpenBGPD funded by

Community Projects Fund

and

OpenBGPD in 6.4

- RFC8212 compliance (default deny policy)
  Be careful when updating from 6.3 to 6.4.
- RPKI ROA support (static table, no RTR support)
- Sets for prefixes, ASnum and origins (prefix + source-as)
  Replace large amount of filters with a single fast lookup
- Background soft-reconfiguration on config reload
  On reload new withdraws and updates are now processed
- 154 commits since 6.3 (close to 8% of all commits)

Results

YYCIX (Calgary Internet Exchange) using arouteserver to generate config

6.3: generated config consists of 370'000 filter rules

6.4: with as-set, prefix-set and origin-set ruleset is now below 6000 rules

Background soft-reconfiguration no longer blocks update processing during a config reload. Even with the big config in place reloads were no longer that bad.

After a restart the system converges in around 2 minutes and a regular configuration reload normally is done in less than 10 seconds.

OpenBGPD in 6.5 (May 2019)

Better community filtering

Matching more than one community per filter rule
Faster set and delete of communities

More filter refinements and tuning

Further RIB refactoring, make multiple RIB support faster

Resurrect portable version and keep it alive (like OpenSSH and LibreSSL)
No FIB support for now

Future Projects

Multi-thread support in the RDE for filtering and maybe some other tasks

In the portable version add FIB support for other BSDs and Linux

New features (ADD_PATH, BGP multipath, BMP, RTR)

To make these projects happen further funding is needed.

Thanks

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Questions?