BMP (BGP Monitoring Protocol) Seamless Session

Optional BMP session lifecycle extension to prevent data duplication of previously exported messages when TCP session is re-established.

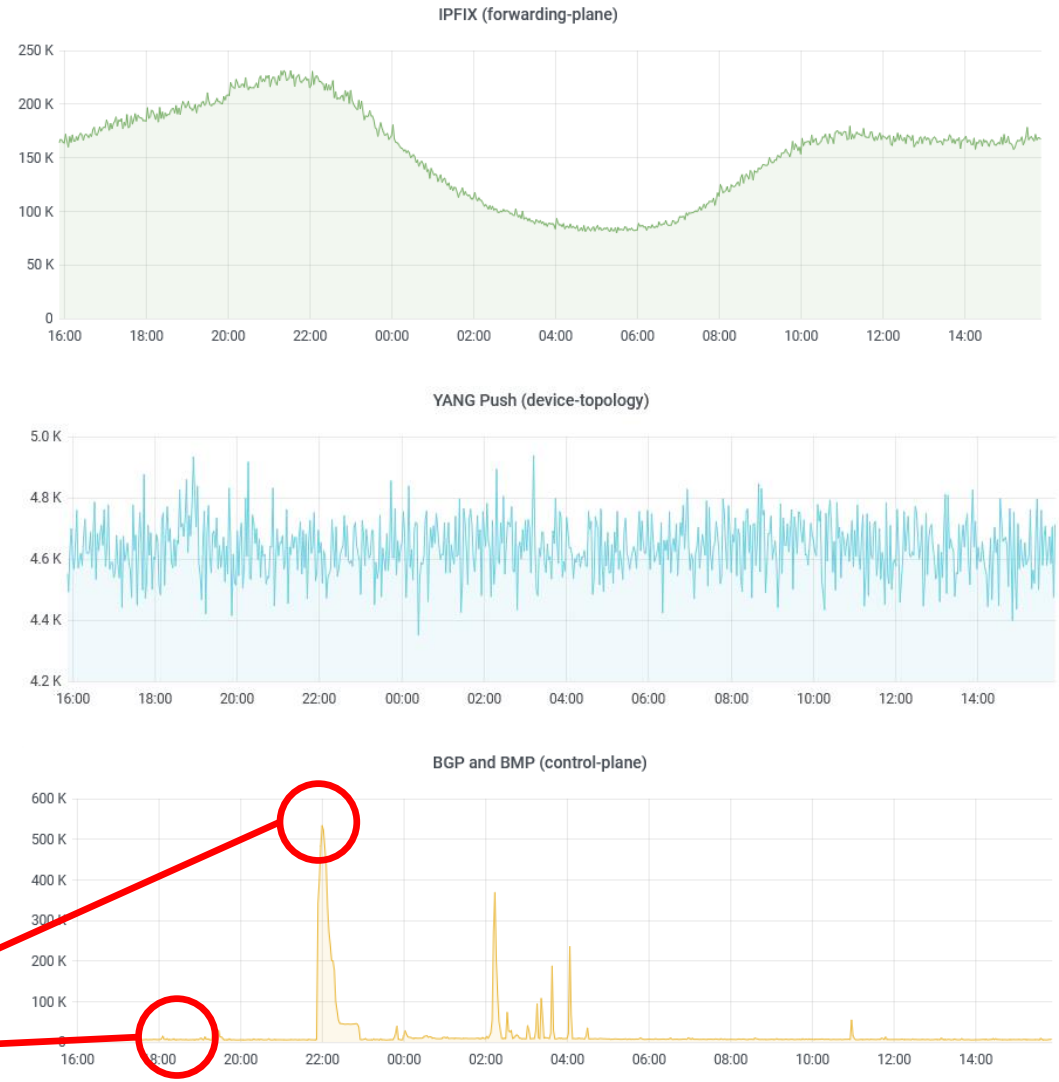
thomas.graf@swisscom.com

8. March 2021

BMP Seamless Session

Network Operator Status

- **By end of 2020**, Swisscom collected from 2500 devices up to 1'000'000 Network Telemetry (BMP, IPFIX, YANG Push) messages per second.
- **By end of 2021**, Swisscom forecasts up to 40'000 devices with 10'000'000 messages per second. 38'000 of them with BMP enabled.
- **BMP Adj-RIB IN is bursty** and accounts with 300 devices and 67'000 peers for 600'000 messages per second peak and 8'000 in average.



BMP Seamless Session

Why data duplication happens

- Data duplication challenges the scalability of BMP with
  - the increase of BMP route-monitoring messages due to BGP path increase or BMP RIB coverage
  - the increase of TLV's for peering, RIB and route-policy contexts

- Most of the BMP session re-establishment are related to
  - Brief loss of connectivity between BMP client and server
  - Maintenance of BMP server

BMP Seamless Session

Where it comes from

- Section 3.3 of RFC 7854 describes that BMP sessions is established and closed with TCP session.

- Section 5.0 of RFC 7854 describes that initial RIB dump is performed with route-monitoring messages every time, **regardless if a BMP session is established or re-establish.**

BMP Seamless Session

How to solve it

- TCP Fast Open, RFC 7413, enables a fast re-establishment of a TCP session. Distinguishes between an initial and a re-established TCP session.
- BMP session lifecycle is extended with a timeout which delays the closing of the BMP session until TCP is re-established.
- BMP client buffers messages between TCP re-establishment.
- BMP session is declared terminated when buffer is full, or timeout is reached.

BMP Seamless Session

Don't re-invent the wheel

- **Preserves the key principles** of BMP to be an unidirectional collection protocol.
- **Optional extensions to BMP session** lifecycle based on established TCP Fast Open TCP session setup enhancement.
- **Requires BMP buffer** which is described in section 6.0 of RFC 7854 and being used in most BMP implementations.

BMP Seamless Session

Draft Status

- -00 version.
- Awaiting feedback from the GROW mailing list.
- **Does the draft have merit?**
- BMP session identifier in an additional TLV in the BMP init message vs. TCP Fast Open.
- Inputs for improvement. Comments?

thomas.graf@swisscom.com

8. March 2021