BMP

BGP Monitoring Protocol
GROW WG

IETF 106
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HACKATHON

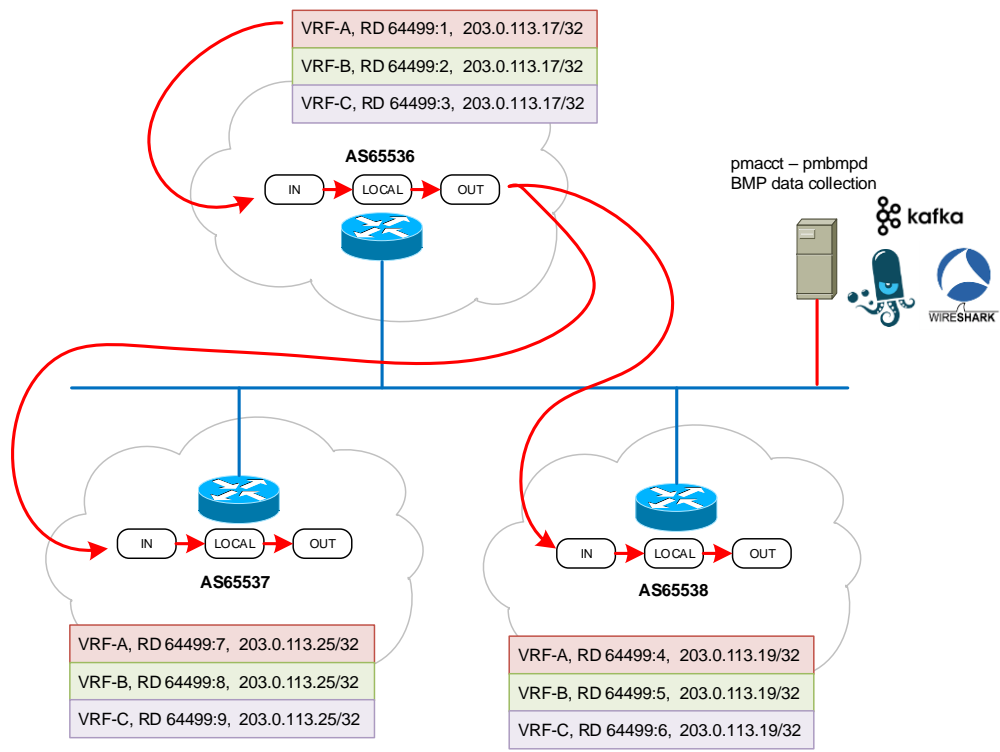<IETF 106 / Singapore>

Hackathon Plan

- Test Interoperability between router and data-collection for route monitoring and peer up/down message type extensions defined in
  - draft-ietf-grow-bmp-local-rib (BGP Local RIB)
  - RFC 8671 (BGP Adj-RIB Out)
- By using Wireshark BMP dissector and pmacct pmbmpd Apache AVRO messages

Topology - Test Setup

VRF-A, RD 64499:1, 203.0.113.17/32
VRF-B, RD 64499:2, 203.0.113.17/32
VRF-C, RD 64499:3, 203.0.113.17/32

AS65536

IN → LOCAL → OUT

pmacct – pmbmpd
BMP data collection

kafka

WIRESHARK

AS65537

IN → LOCAL → OUT

VRF-A, RD 64499:7, 203.0.113.25/32
VRF-B, RD 64499:8, 203.0.113.25/32
VRF-C, RD 64499:9, 203.0.113.25/32

AS65538

IN → LOCAL → OUT

VRF-A, RD 64499:4, 203.0.113.19/32
VRF-B, RD 64499:5, 203.0.113.19/32
VRF-C, RD 64499:6, 203.0.113.19/32

http://www.swisscom-ietf.net/ietf106/

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Gaps identified (1)

- BGP withdraw in Adj-RIB In does show in packet capturing but not in pmbmpd Kafka AVRO message.
- RFC 4271 doesn't specify BGP next-hop attribute for local originated routes in BGP local RIB. Propose to add recommendation in draft-ietf-grow-bmp-local-rib BMP (127.0.0.1 vs. 0.0.0.0?)

Gaps identified (2)

- When BMP Adj-RIB Out and/or post policy is configured on router, one or multiple BMP peer up messages with different peer header (O and L bit set) are seen in packet capture.
- Due to this ambiguity, Wireshark BMP dissector shows peer up notifications under update message and pmbmpd duplicated peer up message types.
- We like to collect at GROW WG how other vendors implemented peer up.

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	192.0.2.17	192.0.2.1	BGP	212	OPEN Message, OPEN Message
2	0.001141	192.0.2.19	192.0.2.1	BGP	212	OPEN Message, OPEN Message
3	0.002082	192.0.2.17	192.0.2.1	BGP	606	UPDATE Message

> Frame 3: 606 bytes on wire (4848 bits), 606 bytes captured (4848 bits)
> Ethernet II, Src: HuaweiTe_90:ff:ec (d0:c6:5b:90:ff:ec), Dst: Vmware_1b:75:4d (00:0c:29:1b:75:4d)
> Internet Protocol Version 4, Src: 192.0.2.17, Dst: 192.0.2.1
> Transmission Control Protocol, Src Port: 51354, Dst Port: 1790, Seq: 159, Ack: 1, Len: 552
> BGP Monitoring Protocol, Type Peer Up Notification
> BGP Monitoring Protocol, Type Peer Up Notification
> BGP Monitoring Protocol, Type Peer Up Notification
> BGP Monitoring Protocol, Type Route Monitoring

What we learned

- Good
  - Dedicated BMP Hackathon lab environment's (Internet & VPN) are working fine.

- Bad
  - Tests take longer than expected. Need automated test environment (CI, continuous integration).

Next Step for 107 Hackathon

- Understand different BMP implementations and support found gaps before next hackathon.
- Define BGP RIB state changes and their intendent results.
- Develop test script which performs BGP configuration changes and validate results at data collection.
- Import BMP metrics with schema into TSDB and make it accessible with Web UI.
- Implement the following drafts for router and data collection

  - draft-ietf-grow-bmp-tlv
  - draft-cppy-grow-bmp-path-marking-tlv
  - draft-xu-grow-bmp-route-policy-attr-trace

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