

Aggregated BMP Route Monitoring Message

draft-liu-grow-bmp-rm-aggregated-01

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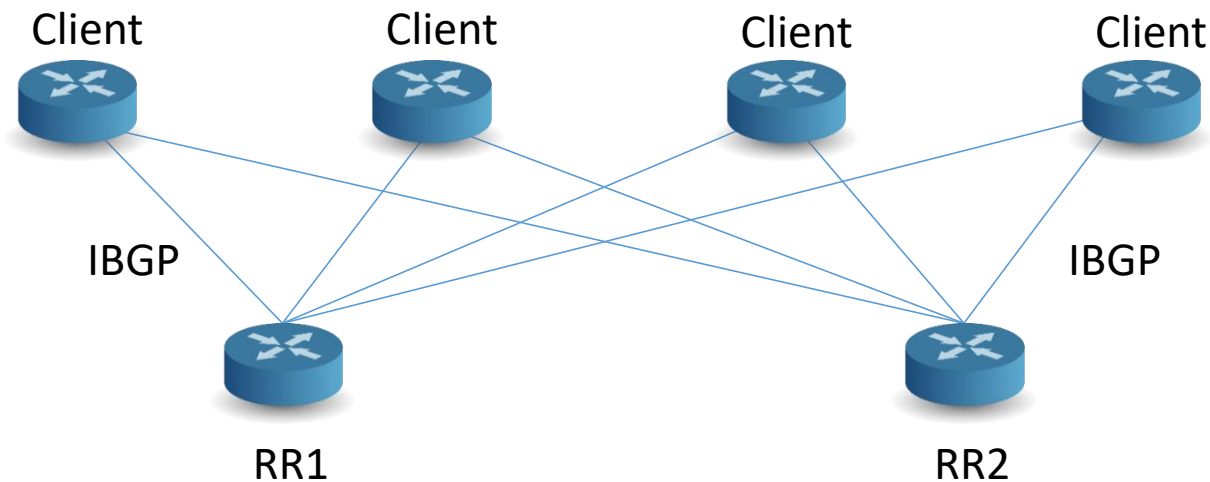
Brief Introduction

- BMP Route Monitoring (RM) message is used to send incremental BGP routes advertised and withdrawn by peers to the monitoring station
- According to the implementation of BGP group packing, proposing a new type of aggregated BMP RM message
- Compressing multiple BMP RM messages into one aggregated BMP RM message and reducing the amount of reported BMP RM messages
- Update RFC 7854 by adding the new BMP Messages type (Aggregated BMP RM message)

Background : BGP Group Packing-1

- RRs with multiple clients need to send routes to a large number of BGP client peers, and most of the client peers have the same configuration
- BGP group packing technology treating all BGP peers with common configurations as a packing group
- Each route to be sent is packaged only once and then sent to all neighbors in the packing group

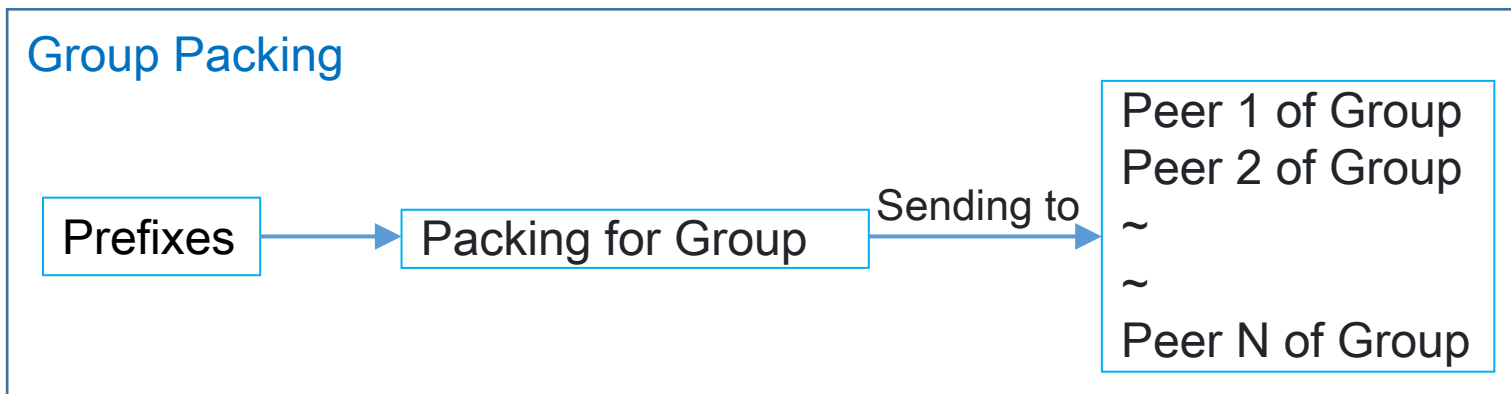
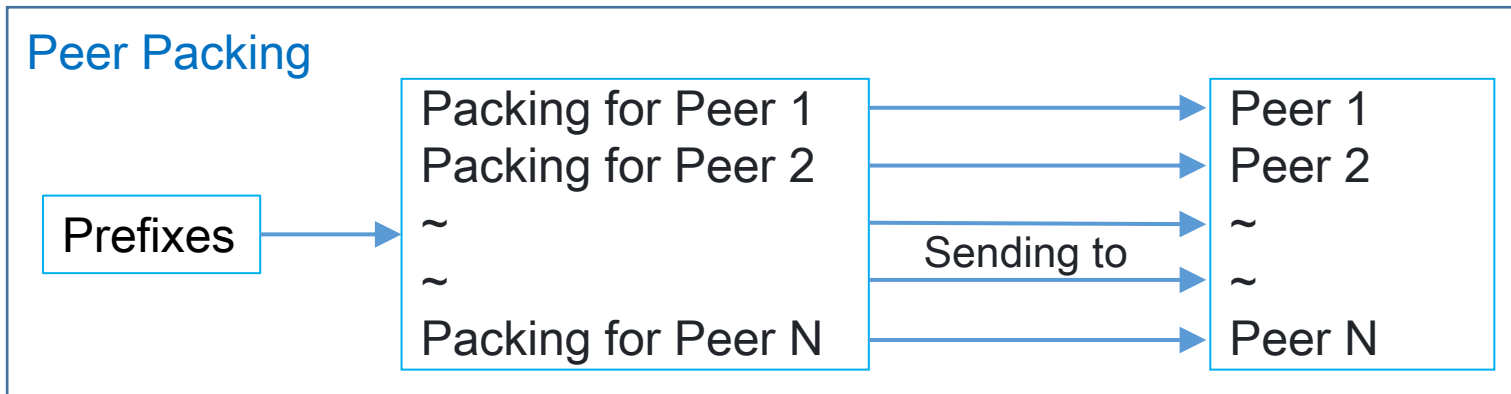
Suppose an RR has 100 clients and 100,000 routes to be reflected. If each neighbor is packaged separately, the total number of times all routes are packaged is $100,000 \times 100$



Typical application scenarios for group packing

Background : BGP Group Packing-2

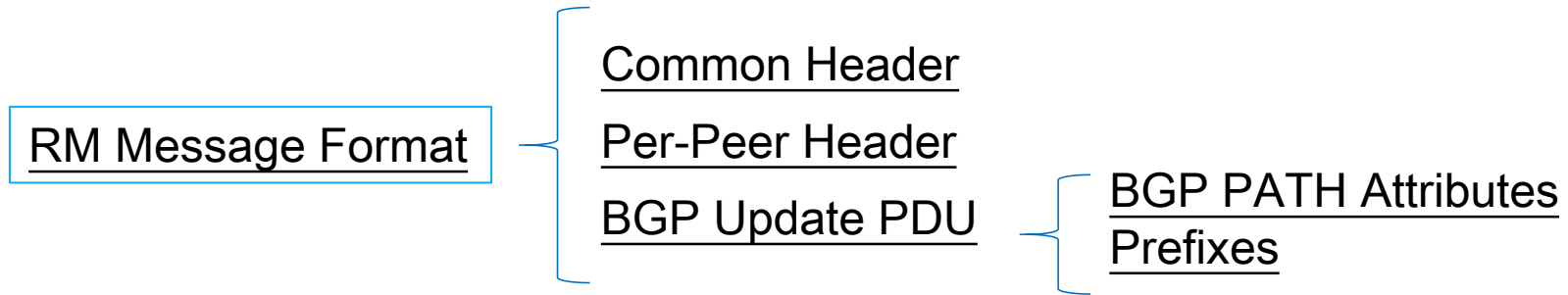
If Prefixes are same, when there are N peers that need to be sent, and Prefixes has the same attribute.



Comparison of Two Packing Methods

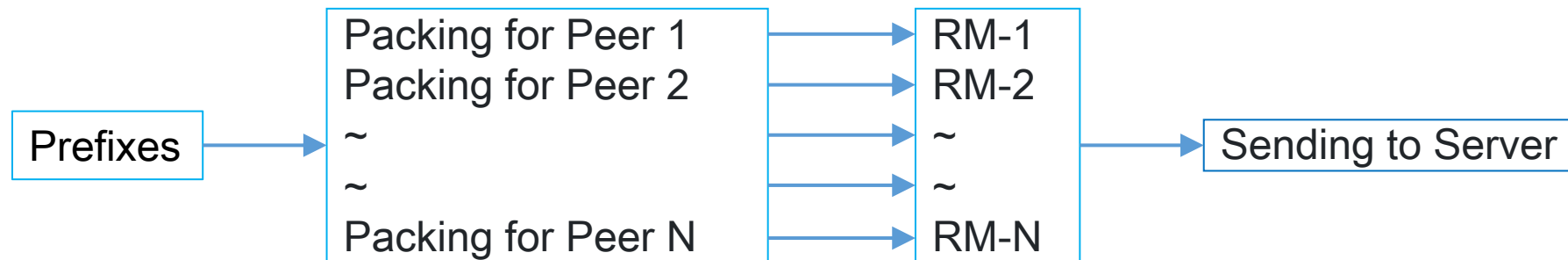
Encapsulation by Peer	Encapsulation by Peer Packing Group
N Peers	N Peers of Peer Packing Group
N Times Packing	1 Time Packing
N Times Sending	N Times Sending

BMP Route Monitoring Message

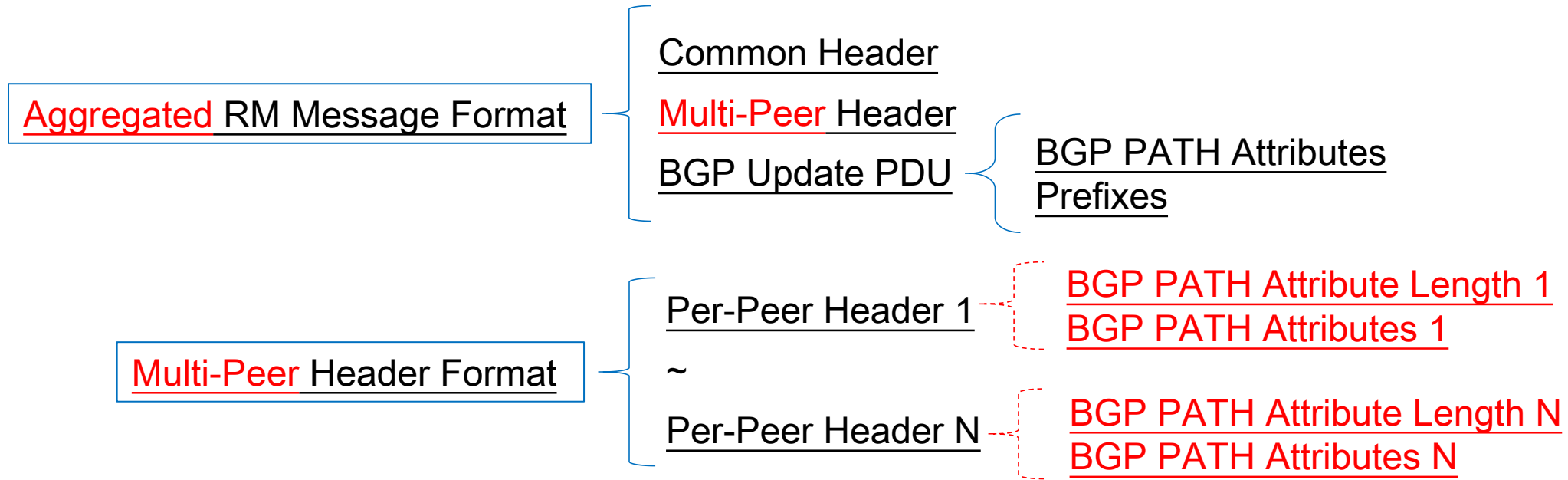


Packing example:

If Prefixes are same, when there are N peers, it may need to package N times and assemble N RM messages.



Aggregated BMP Route Monitoring Message



Each Per-Peer Header could carry the unique BGP PATH attribute of the corresponding peer route. If no BGP PATH attribute is carried, the corresponding BGP PATH attribute length must be 0.

Packing example:

If Prefixes are same, when there are N peers, it may need to package 1 time and assemble 1 Aggregated RM message



Compared with BMP RM Message

If Prefixes are same, when there are N peers and BGP PATH Attributes are slightly different for each peer.

Packing times	Common Header	Per-Peer Header	Unique BGP PATH Attributes for Per-Peer	Same BGP PATH Attributes	Prefixes
RM Message * N	N	N	N	N	N
Aggregated RM Message * 1	1	N	N	1	1

Payloads	Common Header	Per-Peer Header	Unique BGP PATH Attributes for Per-Peer	Same BGP PATH Attributes	Prefixes
RM Message * N	N	N	N	N	N
Aggregated RM Message * 1	1	N	N	1	1

By Comparison, For Common Header, Same BGP PATH Attributes and Prefixes, **the Packing times and Payloads are reduced by N-1.**

Next Steps

- Seeking for feedback from WG
- Welcome more questions and comments

Thanks!