BGP Specific Route Refresh

draft-lin-idr-refresh-enhance-00

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Motivation

1. A peer will send update message of all routes associated with the specified address family, when receiving a BGP refresh message.
2. Maybe have redundant routing transmissions and increase network load when there is no need to send all routes.

Usecase 1: Specified Type Filtering

When a peer receives all types of EVPN routes in an EVPN network, it filters all IP Prefix Routes by applying a route policy. When the route policy is disabled or changed, the peer may only need to request the speaker to send all IP Prefix Advertisement Routes.

Usecase 2: Operations Scenario, Minimal Impact on Existing Operations

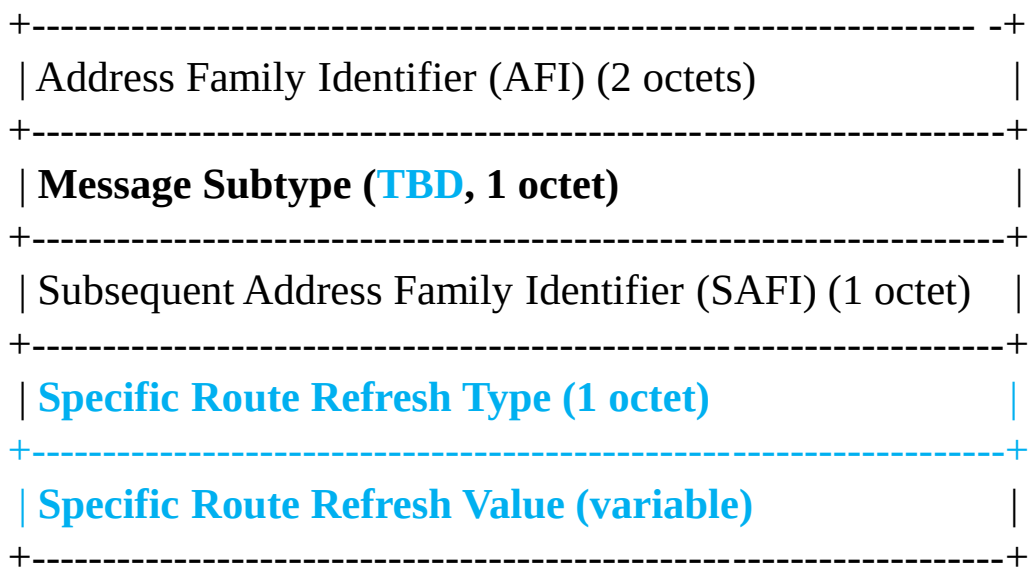
In an operations scenario, such as when BGP routes on some devices are incorrect, to ensure network stability, the user may require minimal impact on the existing network and does not want all routes to be refreshed. It is necessary to control the scope and impact of BGP route refreshes.

How to do the specific route refresh?

- **A new Route-Refresh message subtype is defined, called 'Specific Route-Refresh‘, according to the " BGP Route Refresh Subtype" defined by RFC 7313.**
  - 0 -- Normal route refresh request [RFC2918] with/without Outbound Route Filtering (ORF) [RFC5291].
  - 1 -- Demarcation of the beginning of a route refresh (BoRR) operation.
  - 2 -- Demarcation of the ending of a route refresh (EoRR) operation.
  - TBD -- Specific route refresh request.
  - 255 -- Reserved.

- **A new BGP capability is defined, called 'Specific Route Refresh Capability'.**
  - Capability code : TBD
  - Capability length : 0

The Format of The Specific Route Refresh Message

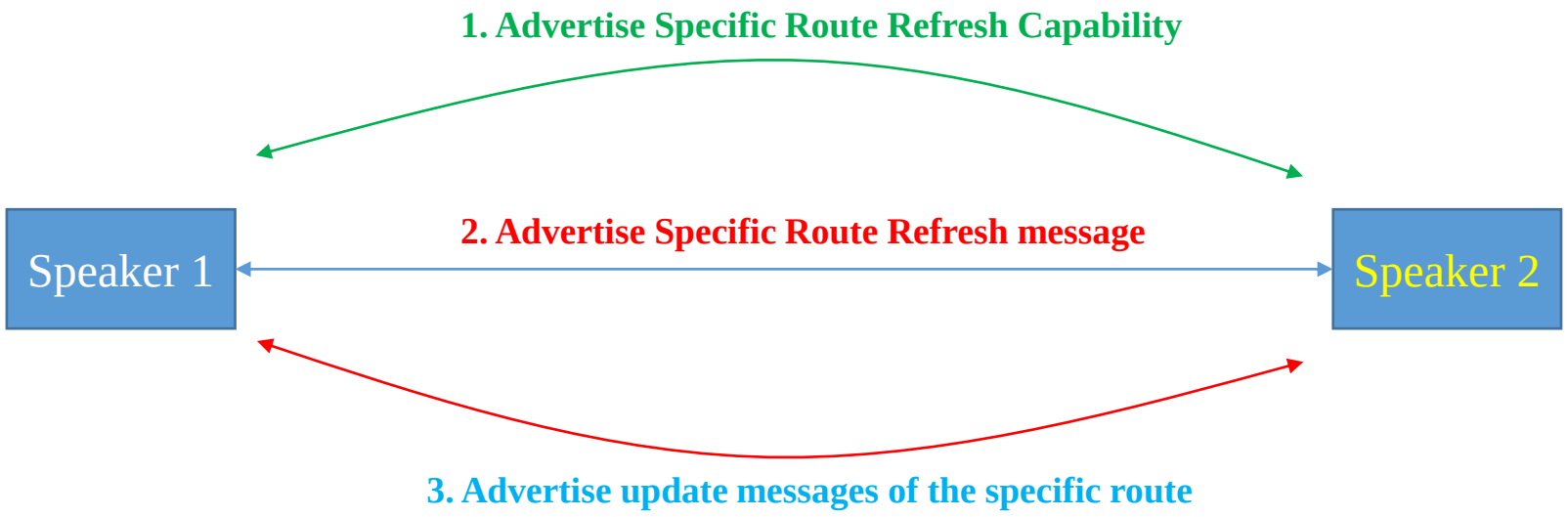


- **Specific Route Refresh Type = 1 :** Specific Route Type of the corresponding AFI/SAFI
  - **Specific Route Refresh Value : 1-octet route type** of the corresponding AFI/SAFI, such as EVPN Route Type [RFC7432] and MVPN Route Type [RFC6514].
- **Specific Route Refresh Type = 2 :** Specific Route Prefix of the corresponding AFI/SAFI
  - **Specific Route Refresh Value : variable-octet BGP NLRI** of the corresponding AFI/SAFI, such as Unicast NLRI [RFC4760] and EVPN NLRI [RFC7432].

Operation

- Should advertise the " Specific Route Refresh Capability ", when a BGP speaker supports the Specific Route Refresh message.

- When receiving the specific route refresh request, the BGP speaker send the routes of corresponding route type or prefix to its peer via update messages.



Next Steps

- **Request more review to improve the draft**.
- **Any comments welcomed.**

Thanks!