BIER Prefix Redistribute
draft-zwzw-bier-prefix-redistribute-01

BIER WG

IETF103# Bangkok

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Problem Statement

- Different routing protocols/areas run in different regions.

- Hybrid Network

- There are tens of routers in some regions. There is only one hop forwarding in some other regions.

- Multicast services are provided in this hybrid network by using protocol independent feature of PIM currently.

If we deploy BIER in this network:

- BIER is deployed in each IGP region.

- Border router needs to maintain overlay state.

- Border router must convert BIER encapsulation.

- Multiple BIER encap/decap functions lead to inefficient forwarding.
In order to improve forwarding efficiency:
• Merge several regions into one BIER domain.
• Remove overlay state in border router.
• Decrease the times of BIER encap/ decap.

But how to build BIER forwarding across multiple routing regions?
Solution

• BIER info advertisement associates with prefix redistribution in border router.
• BIER node information spreads in the whole BIER domain across multiple regions.
• The advertisement is aligned with the existed IGP/BGP definition.
• MPLS encapsulation has local significance. We need not, but MAY, advertise it to next routing area.
• Every node in the domain can build BIER forwarding plane.
Solution

• Because some prefixes in one region may be hidden when border router does prefix distribution function. Such as summarized / aggregated route, default route.

• A new extension is added for summarized/ aggregated prefix advertisement.

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• The BFR-ids associated with the summarized prefix can be advertised individually in the BIER range sub-TLV.

• BIER proxy range sub-TLV can be used to improve advertisement efficiency if the BFR-ids are continuous.

• Multiple BIER proxy range sub-TLVs may be used if the BFR-ids covered by the prefix are allocated from different ranges. Necessary policy should be provided to guide the range generation of BFR-ids.
• Any comment is welcomed ^
• WG adoption?

Thanks!