BIER Prefix Redistribute

draft-zwzw-bier-prefix-redistribute-00

BIER WG

IETF101# London

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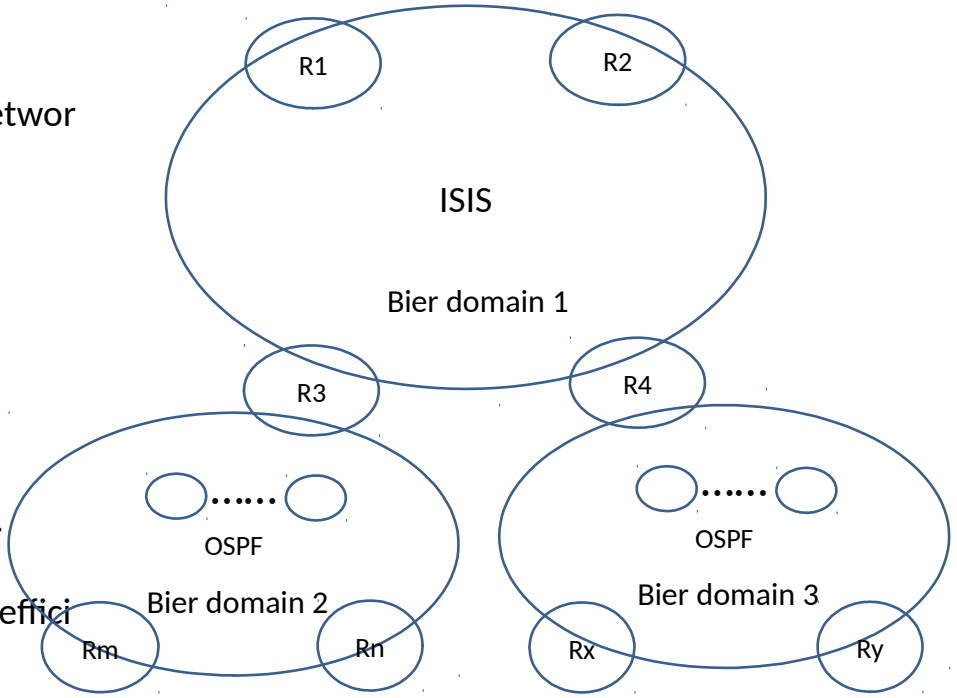
Problem Statement

- Hybrid Network: different routing protocols run in di fferent regions.
- Not many routers in some regions. There is only one hop forwarding in some other regions.
- Multicast services are provided in this hybrid networ k by using PIM currently.

If we deploy a BIER domain in each IGP region:

- Border router needs to maintain overlay state.
- Border router must convert BIER encapsulation.
- Multiple BIER encap/decap functions lead to ineffici ent forwarding.

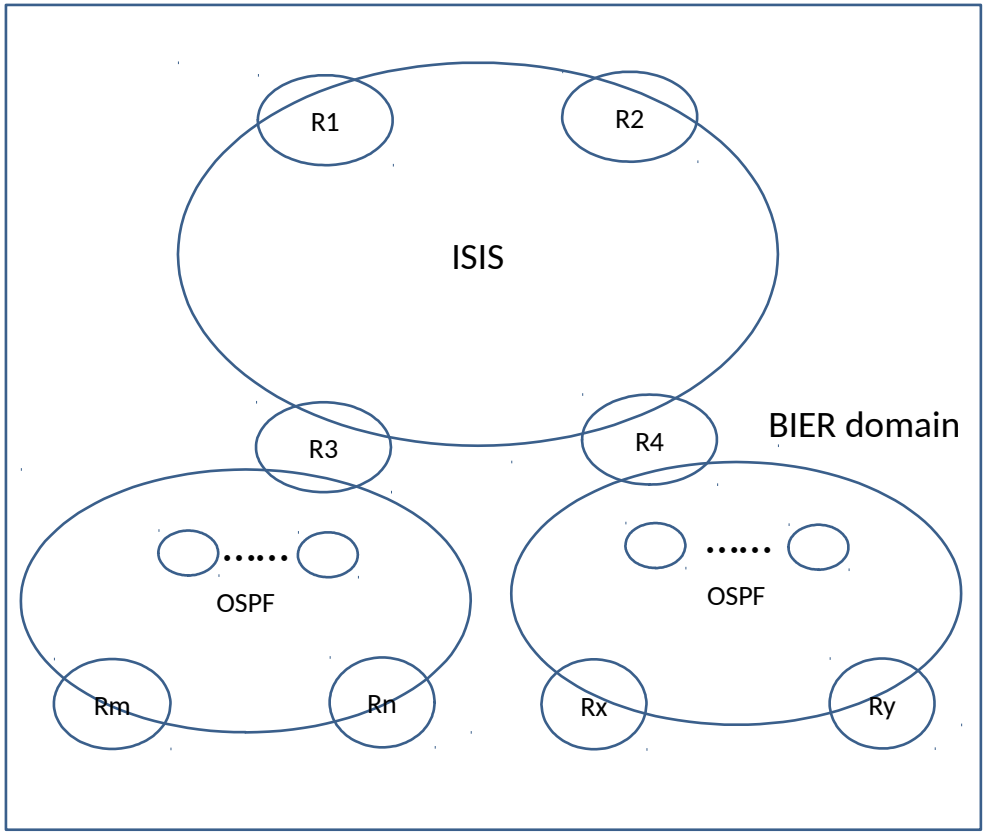


Problem Statement

What if we have one BIER domain spanning all the regions?

- No overlay state on border routers
- No BIER decap/encap on border routers

But how to signal across multiple routing regions?

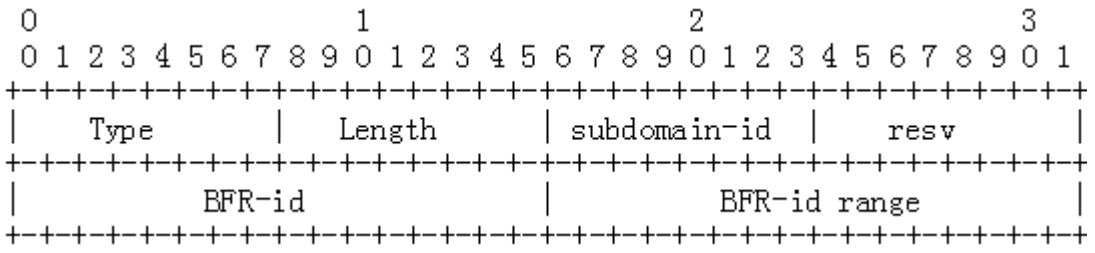


Solution 1/2

- BIER sub-TLV re-advertised with BIER Prefix redistributed by border routers from one routing region to another
  - Throughout the whole BIER domain across multiple regions, allowing each node to build forwarding state
  - Just like OSPF inter-area case
- BIER MPLS Encapsulation sub-TLV may be included but not needed in the re-advertised BIER sub-TLV
  - Needed only if an internal BFR may send BIER packets directly to an external BFR

Solution 2/2

- Individual BIER Prefixes may be summarized into summary/aggregation/default routes by the border routers.
  - A single summary/aggregation/default route may cover many BFR-IDs
- BIER Proxy Range sub-TLVs are attached to the summary/aggregation/default prefix advertisement.



  - Multiple BIER proxy range sub-TLVs may be used if the BFR-ids covered by the prefix are allocated from different ranges.
- No more one-to-one mapping between individual BIER Prefixes and BFR-IDs
  - Multicast Overlay needs to include BFER-IDs when signaling to BFIRs

- Any comment is welcomed ^^

Thanks!