Bidirectional Forwarding Detection (BFD) for EVPN Ethernet Segment Failover Use Case
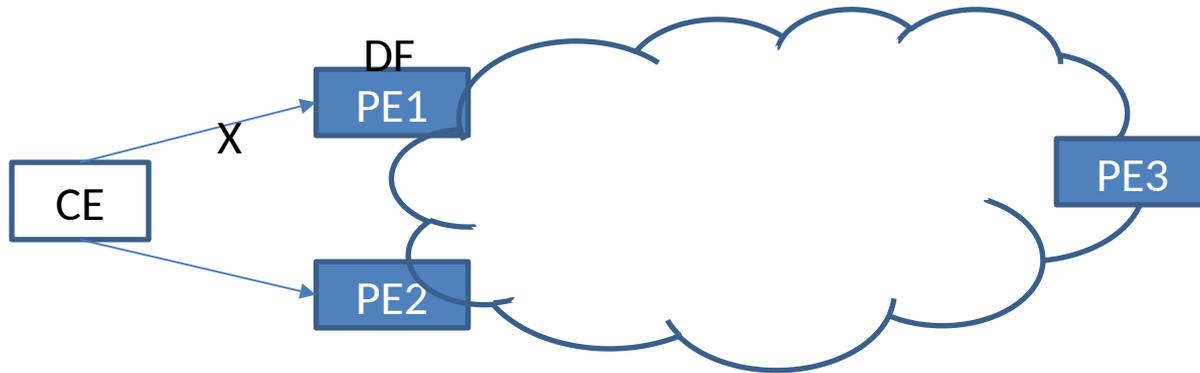### draft-zwm-bess-es-failover-01

BESS WG

IETF106# Singapore

Sandy Zhang

Yubao Wang

Greg Mirsky

Problem Statement

- The CE is multihomed to PE1 and PE2.
  - PE1 is elected as DF.
  - All BUM flows are forwarded by PE1 when the link between PE1 and CE is operational.
- When the link between PE1 and CE fails, PE1 advertises the change to other PEs by BGP.
- After receiving the BGP advertisement, PE2 starts the process of electing the new DF.
- After PE2 is elected as the new DF, PE2 starts to forward BUM flows.
- Before PE2 is elected as the new DF, the BUM flows are discarded.

Solution
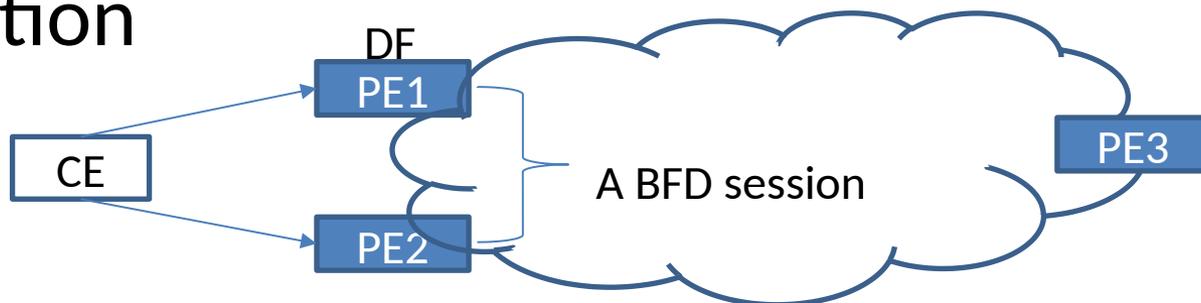
Mechanism defined in RFC5884 and sub-TLV defined in [I-D.ietf-bess-evpn-lsp-ping] are used :

- Backup DF (BDF) generates an LSP-Ping Echo request message to bootstrap a BFD session between BDF and DF.

- The EVPN Ethernet Auto-Discovery (AD) sub-TLV defined in [I-D.ietf-bess-evpn-lsp-ping] is carried in the LSP-Ping message.

- A local BFD Discriminator assigned by BDF is also carried in the message.

- DF responds with the BFD control packet with 'Your discriminator' set to the Discriminator value received in the Echo request message from the BDF.
  - If DF has a session created by BDF, as described above, it sets its bfd.State to AdminDown if its session to CE is Down.

- After the BFD session is built, BDF detects the fault between PE1 and CE by receiving a BFD control packet with the value of state field set to AdminDown or the detection timer expires for the established BFD session.

- BDF becomes DF quickly and will forward BUM flows to CE.

Solution

Duplicated DF

- The default bfd.multiplier value is 3.
- If the BFD multiplier is set too small (e.g. 1), one BFD packet lost may lead to the BDF switchover, then two DFs may exist and forward duplicate flows.

BDF changes

- When a new router which can become new BDF joins the network. The 'old' BDF must send BFD packet with the State set to AdminDown to DF. Then DF will remove the BFD session.
- DF will build a new BFD session with new BDF after it receives BFD request from 'new' BDF.

- Any comment ᐯ

Thanks!