EVPN Network Layer Fault Management

draft-ietf-bess-evpn-bfd-03

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EVPN OAM Framework

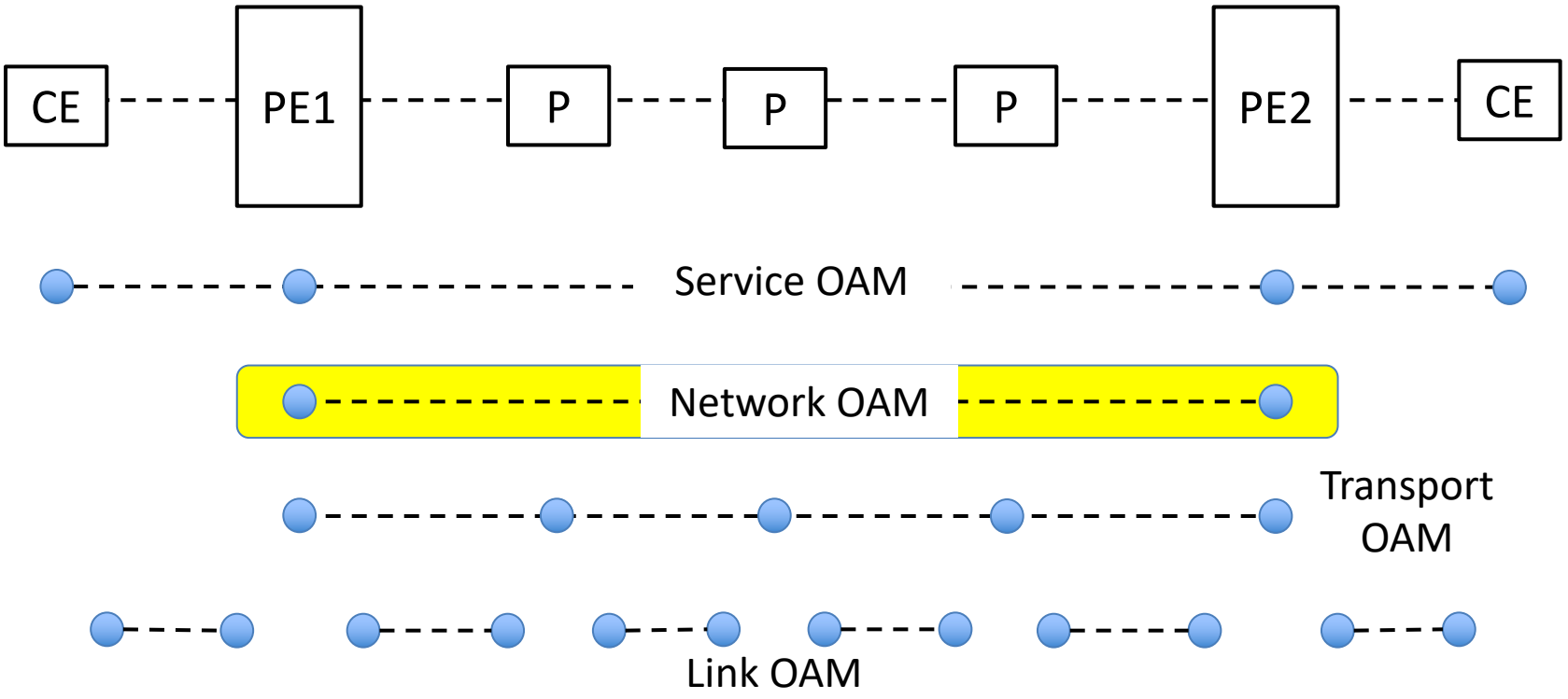
- The subject of this presentation is
  - draft-ietf-bess-evpn-bfd-03

  which provides fault management for the Network layer described in
  - draft-ietf-bess-evpn-oam-req-frmwk

  (which is in the RFC Editor's queue)

EVPN OAM Framework

Layering



EVPN OAM Framework

- Link OAM
  - Depends on link technology
  - Ethernet could use IEEE Std 802.3 Clause 57 "Operations, Administration, and Maintenance (OAM)"
- Transport OAM
  - Depends on transport technology
  - Mechanisms can include the following as appropriate
    - BFD
    - LSP Ping
- Service OAM
  - CFM for Ethernet service
  - Visible to and exposes CEs and PEs
  - PEs MUST support MIP functions, SHOULD support MEP functions

About the Current draft-ietf-bess-evpn-bfd-03 Draft

- Specifies BFD proactive fault detection in RFC 7432 based EVPN networks with BFD discriminators distributed via BGP for
  - MPLS and VXLAN encapsulation
  - Unicast traffic using P2P or MP2P
  - BUM traffic using MP2P
  - BUM traffic using P2MP (LSM)

About the Current draft-ietf-bess-evpn-bfd-03 Draft

- Out of scope
  - Packet loss and delay measurement
  - Other encapsulations
  - IRB (Integrated Routing and Bridging)
  - MP2MP
  - BFD Echo

Changes from -02 Draft to current -03 Draft

- Clarify scope
  - Previous version tended to speak of “OAM” or “Fault Management” without qualification. Wording clarified to “Network Layer Fault Management”.
- Extends BFD Discriminator Path Attribute
  - Existing Attribute only covered BFD Active Tails P2MP case. Added a BFD Discriminator Path Attribute mode for BFD P2P.
- Allocates a unicast MAC address as well as a multicast MAC address for use as an inner MAC address when needed.
- Minor tweaks and Editorial Clarifications

Distribution of BFD Discriminators

- BFD My Discriminator values are distributed using the BFD Discriminator Path Attribute specified in draft-ietf-bess-mvpn-fast-failover (in the RFC Editor queue)
- Attribute format:

```
+--------------+
| BFD Mode     |    (1 bytes)
+--------------+-----------------------------------+
| BFD Discriminator (4 bytes)                      |
+--------------------------------------------------+
| Optional TLVs     (variable)                     -
+--------------------------------------------------
```

  - The only mode specified in draft-ietf-bess-mvpn-fast-failover is “P2MP BFD Session”. This draft adds a “P2P BFD Session” mode.
  - The only BFD Discriminator Attribute TLV specified is the “Source IP Address” TLV. It is required to provide the IP address of the MultipointHead for a P2MP BFD session.

Next Steps

- Request Comments and Suggestions

- Plan to add PBB-EVPN and request WG Last Call before the July IETF Meeting

END

FAULT MANAGEMENT FOR EVPN NETWORKS