Fault Management for EVPN Networks

draft-ietf-bess-evpn-bfd-02

Vengada Prasad Govindan, Mudigonda Mallik, Ali Sajassi – Cisco,
Gregory Mirsky – ZTE,
Donald Eastlake d3e3e3@gmail.com – Futurewei

EVPN OAM Framework

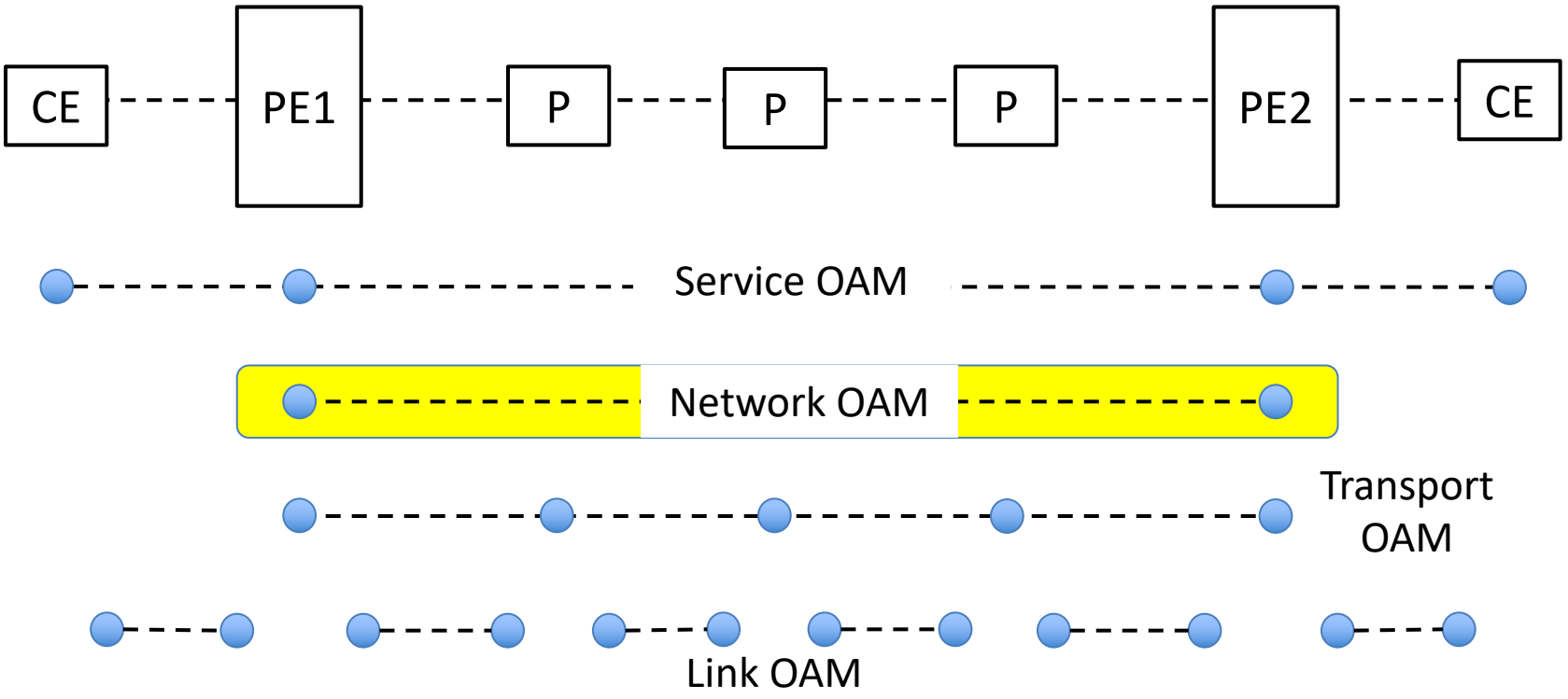
- The subject of this presentation is
  - draft-ietf-bess-evpn-bfd-02

  which provides the Network OAM layer described in
  - draft-ietf-bess-evpn-oam-req-frmwk-04

  which is in RFC Publication Requested state

EVPN OAM Framework

Layering



EVPN OAM Framework

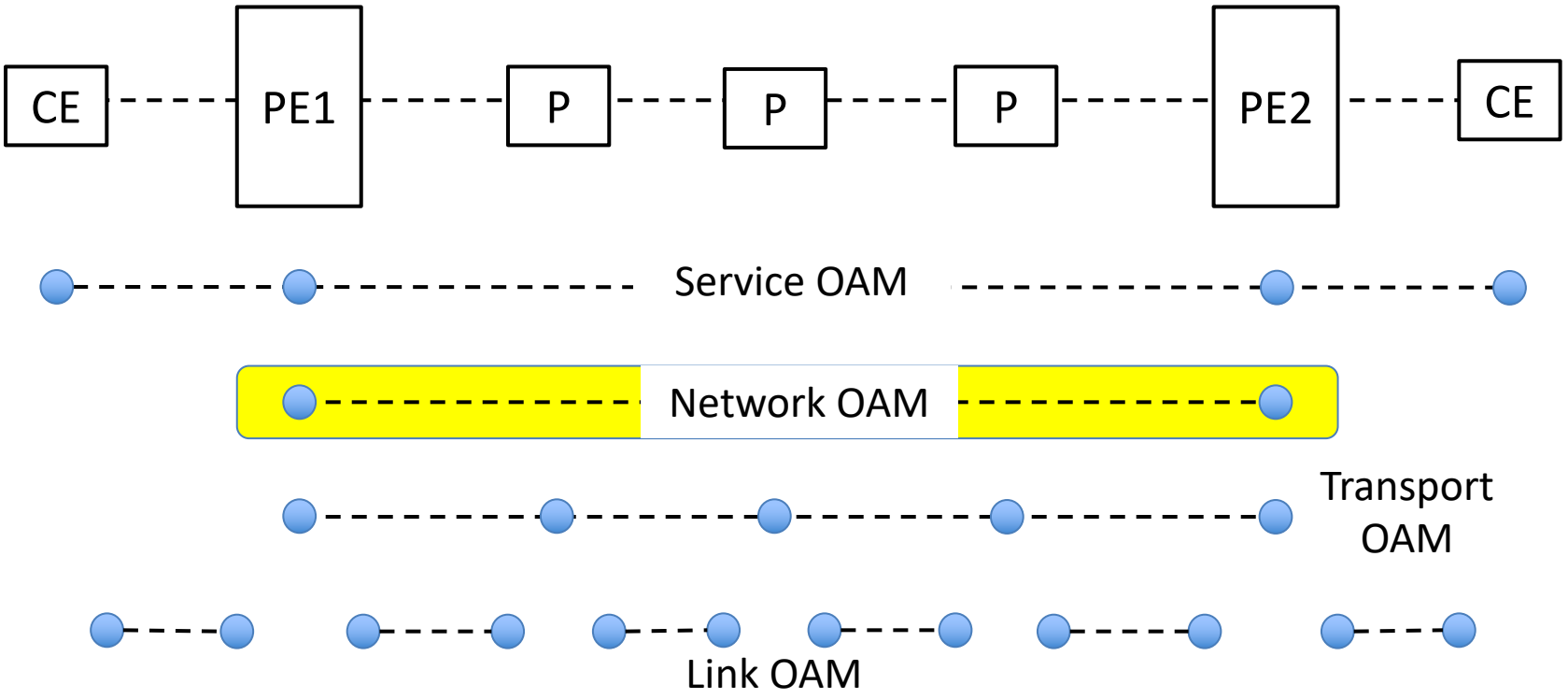
- Link OAM
  - Depends on link technology
    Ethernet could use IEEE Std 802.3 Clause 57
    "Operations, Administration, and Maintenance (OAM)"
- Transport OAM
  - Depends on transport technology
  - Mechanisms can include the following as appropriate
    - BFD
    - MPLS OAM
    - ICMP

EVPN OAM Framework

- Service OAM
  - CFM for Ethernet service
  - Visible to and exposes CEs and PEs
  - PEs MUST support MIP functions, SHOULD support MEP functions

EVPN OAM Framework

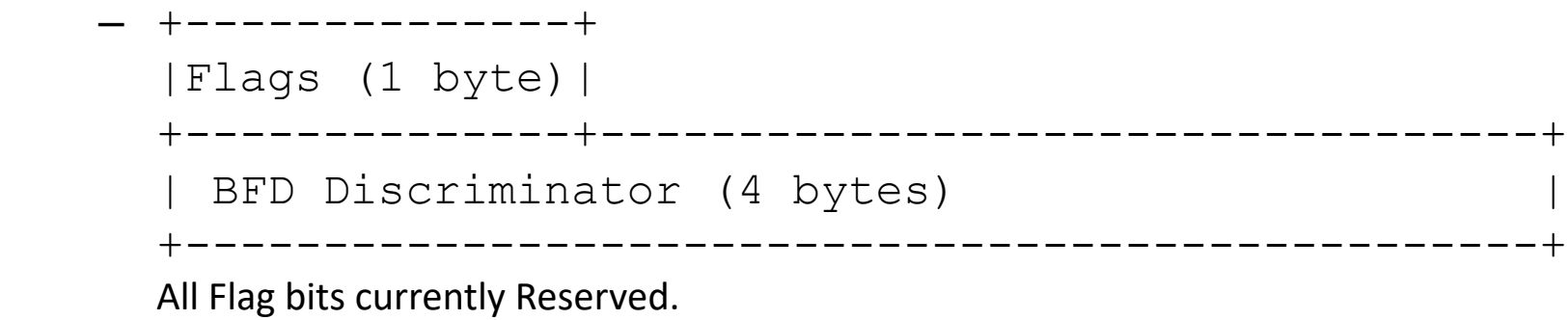
Layering



In the Current draft-ietf-bess-evpn-bfd-02 Draft

- Specifies BFD asynchronous mode proactive fault detection in RFC 7432 based EVPN networks using
  - MPLS or VXLAN encapsulation for
    - Unicast traffic
    - BUM traffic using MP2P
    - BUM traffic using P2MP (LSM)
  - Out of scope
    - Packet loss and delay measurement
    - MP2MP

Distribution of BFD Discriminators

- BFD discriminators are distributed using the BFD Discriminator Attribute specified in draft-ietf-bess-mvpn-fast-failover, in appropriate routes
- Attribute format:
  - 

    All Flag bits currently Reserved.

Primary Scope of Document

- Much of the current draft is devoted to specifying the encapsulations used in MPLS and VAXLAN for
  - Unicast traffic.
  - BUM traffic using Multi-point-to-Point (MP2P) tunnels (ingress replication).
  - BUM traffic using Point-to-Multipoint (P2MP) tunnels (Label Switched Multicast (LSM)).

Changes from -01 Draft Presented at IETF 103 to current -02 Draft

- Initial specification of routes in which BFD Discriminator Attribute appears, handling of withdrawal of such routes from the point of view of BFD sessions
- For P2MP, added reference to draft-mirsky-mpls-p2mp-bfd for the case where Head Notification without Polling is used
- Adjust IP addresses used in encapsulation based on IESG feedback on other drafts.
- Miscellaneous editorial improvements

Possible Future Additions

- PBB-EVPN [RF7623]
- Integrated Routing and Bridging (IRB) (draft-ietf-bess-evpn-inter-subnet-forwarding)
- Show traceability from requirements in draft-ietf-bess-evpn-om-req-frmwk
- Encapsulations other than MPLS and VXLAN

Next Steps

- Request Comments and Suggestions

END

FAULT MANAGEMENT FOR EVPN NETWORKS