

Fault Management for EVPN Networks

draft-gmsm-bess-evpn-bfd-03

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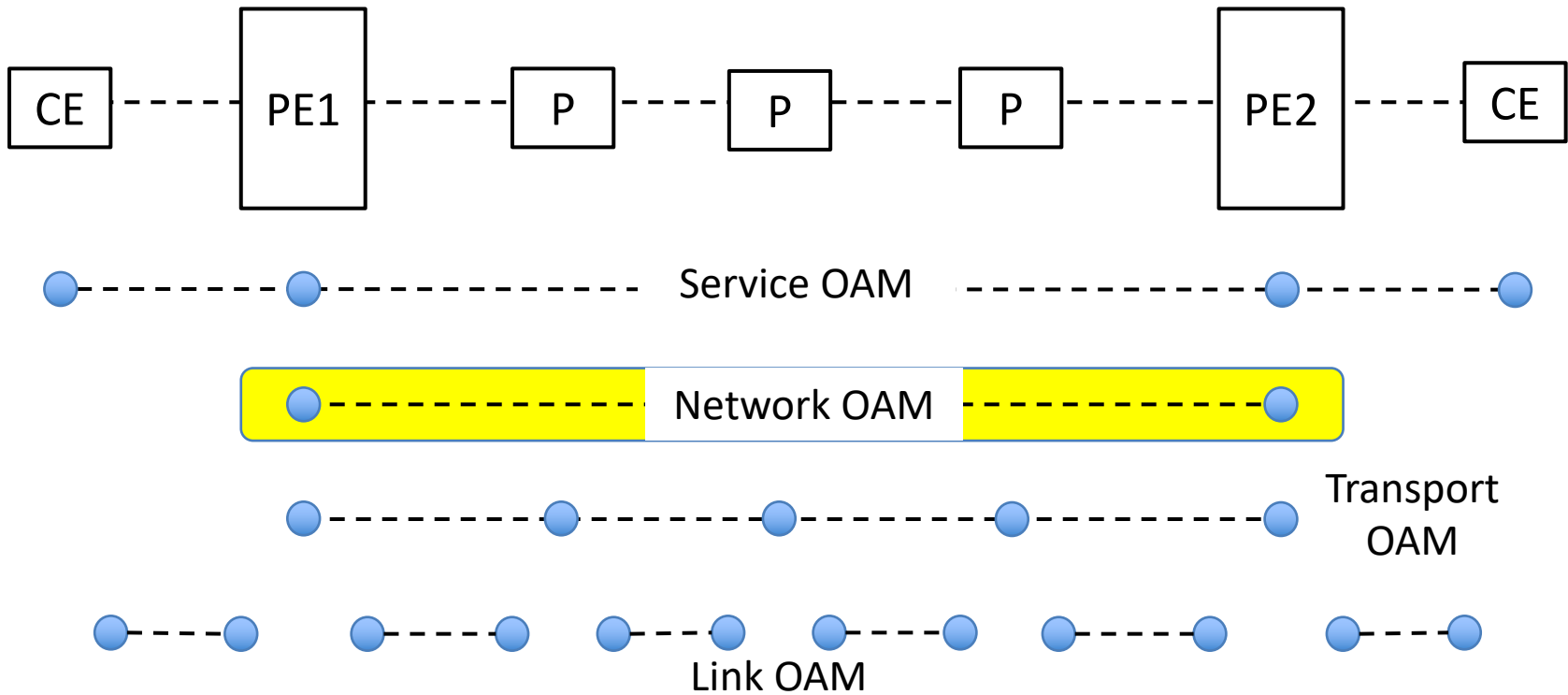
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EVPN OAM Framework

- The subject of this presentation is
 - draft-gmsm-bess-evpn-bfd-03which provides the Network OAM layer described in
 - draft-ietf-bess-evpn-oam-req-frmwk-01

EVPN OAM Framework

Layering



EVPN OAM Framework

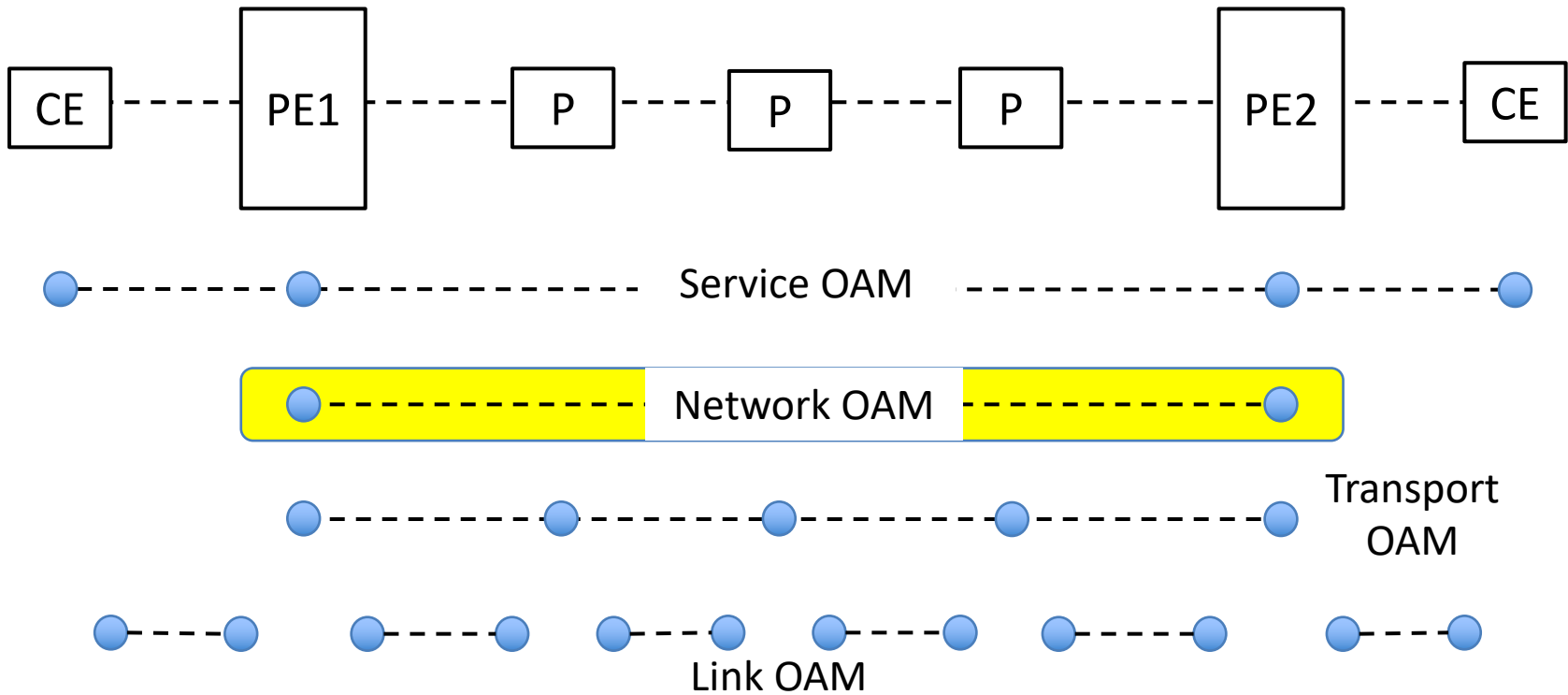
- Link OAM
 - Depends on link technology
 - Ethernet could use IEEE Std 802.3 Clause 57
- Transport OAM
 - Depends on transport technology
 - Mechanisms can include the following as appropriate
 - BFD
 - MPLS OAM
 - ICMP

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-gmsm-bess-evpn-bfd-03 Draft

- Specifies BFD asynchronous mode proactive fault detection in RFC 7432 based EVPN networks using
 - MPLS and VXLAN encapsulation for
 - Unicast traffic
 - BUM traffic using MP2P
 - BUM traffic using P2MP (LSM)
- Obtains BFD discriminators via BGP (references draft-ietf-bess-mvpn-fast-failover).

Changes from -01 Draft Presented at IETF 103

- Distribution of BFD discriminators via BGP
- Cover VXLAN encapsulation as well as MPLS
- Miscellaneous improvements including more diagrams

Distribution of BFD Discriminators

- BFD discriminators are distributed using the BGP-BFD Attribute as specified in draft-ietf-bess-mvpn-fast-failover

- Attribute format:

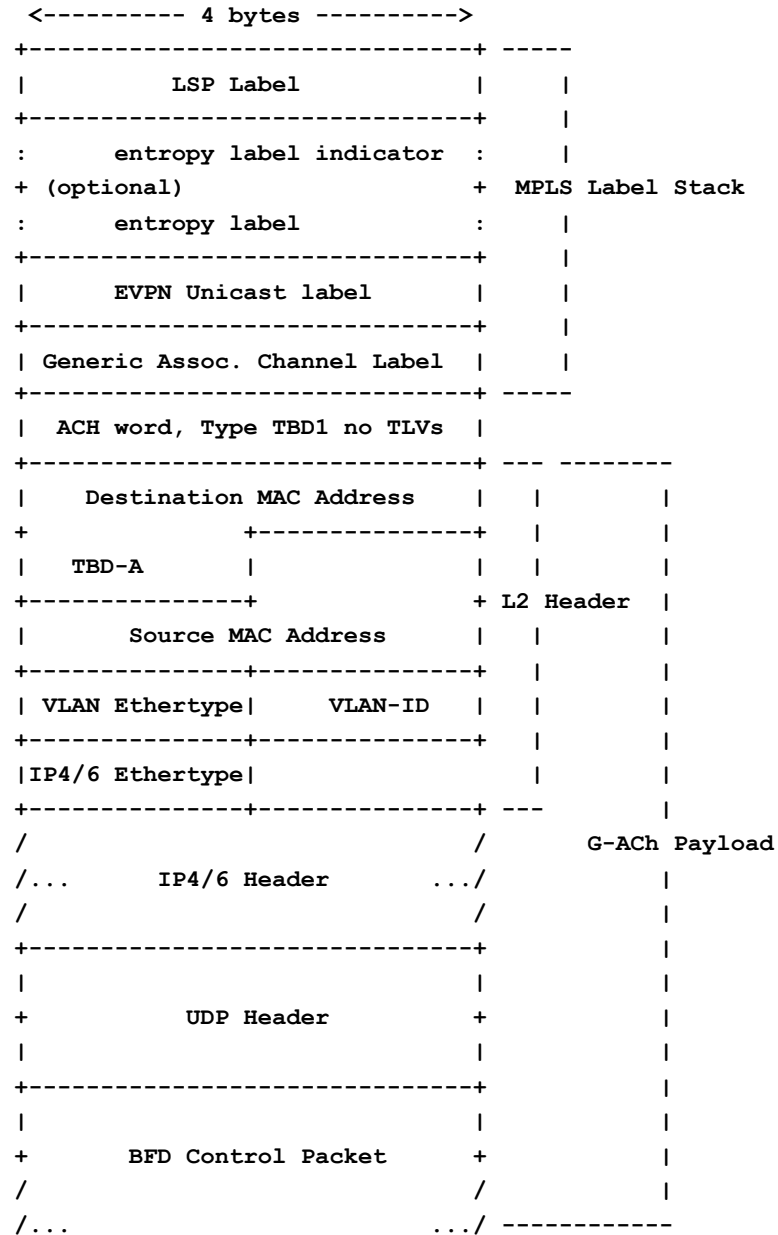
```
— +-----+
  |Flags (1 byte)|
+-----+-----+
  |BFD Discriminator (4 bytes)|
+-----+
```

All Flag bits currently Reserved.

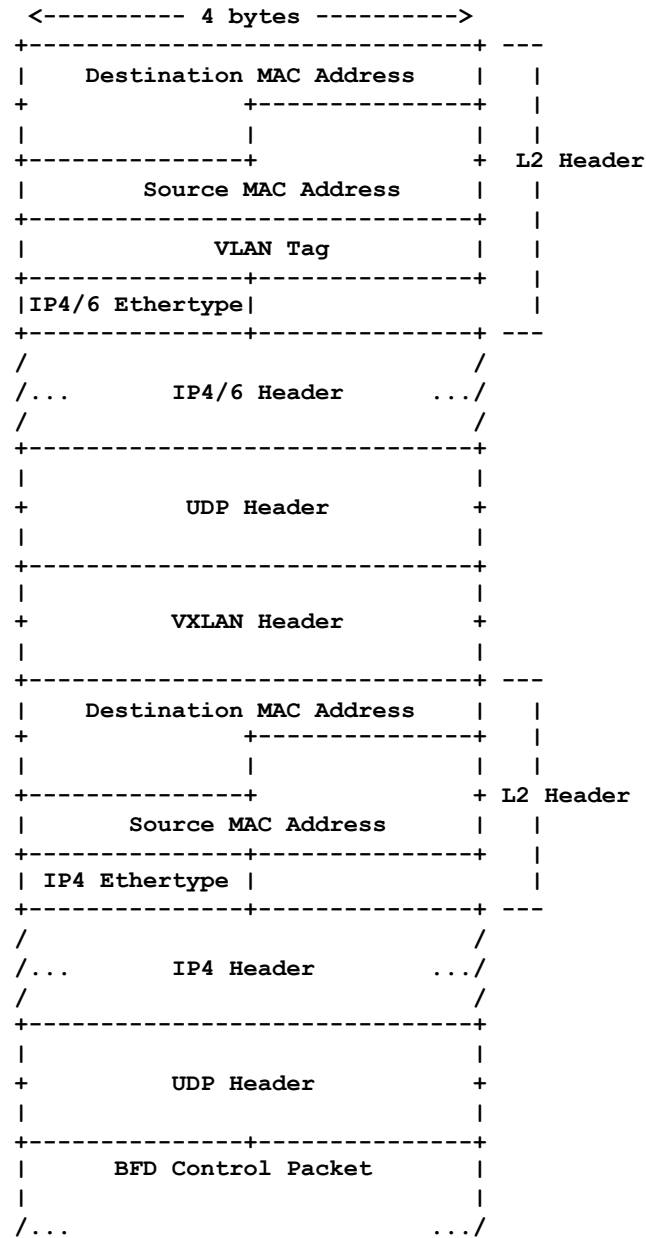
Primary Scope of Document

- The bulk of this draft is devoted to specifying the exact 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)).
- There are both text and diagrammatic descriptions of the encapsulations.

MPLS Unicast Encapsulation



VXLAN Unicast Encapsulation



Possible Future Additions

- PBB-EVPN [RF7623]
- Integrated Routing and Bridging (IRB)
(draft-ietf-bess-evpn-inter-subnet-forwarding)
- Encapsulations other than MPLS and VXLAN

Next Steps

- Request WG adoption

END

**FAULT MANAGEMENT
FOR EVPN NETWORKS**