Fault Management for EVPN Networks

draft-ietf-bess-evpn-bfd-02

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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

CE  --  PE1  --  P  --  P  --  P  --  PE2  --  CE

Service OAM

Network OAM

Transport OAM

Link OAM
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

CE — PE1 — P — P — P — PE2 — CE

Service OAM

Network OAM

Transport OAM

Link OAM

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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:

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

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