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

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

--- Service OAM

--- Network OAM

--- Transport OAM

--- Link OAM

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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