VXLAN DCI Using EVPN

draft-boutros-l2vpn-vxlan-evpn-01.txt

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• This is to provide intra-subnet connectivity at Layer 2 and control-plane separation among the interconnected VXLAN or NVGRE networks over the EVPN MPLS/IP network.

  – The scope is limited to data plane learning in this document.
Requirements

• Control Plane Separation among VXLAN/NVGRE Networks.

• Layer 2 Extension over the MPLS/IP Network for intra-subnet connectivity.

• Support for IRB for both inter-subnet routing and intra-subnet bridging for a given VNI/VSID.
Solution overview

Legend:
CP = Control Plane View
DP = Data Plane View
EVPN Routes

- BGP MAC/B-MAC Advertisement Route for EVPN/PBB-EVPN
- Ethernet Auto-Discovery Route for EVPN
- Per VPN Route Targets
- Inclusive Multicast Route to distribute the VNI information over the MPLS network.
  - Discovery of the PEs participating in a given VNI.
  - Stitching of the IP multicast trees, local to each VXLAN site, with the Label Switched Multicast (LSM) trees of the MPLS network.
Handling Unicast traffic

- Host MAC addresses will be learnt in data plane from the VXLAN network.

- Host MAC addresses will be learnt over the MPLS/IP core:
  - In control plane for EVPN.
  - In data plane [in case of PBB-EVPN].

- L2 Unicast traffic destined to the VXLAN network will be encapsulated with the IP/UDP header+Customer bridge VNI.

- L2 Unicast traffic destined to the MPLS/IP network will be encapsulated with the MPLS label.
Handling Mcast traffic

• Each VXLAN network independently builds its P2MP or MP2MP shared multicast trees for one or more VNIs.

• In the MPLS/IP network, multiple options are available for the delivery of multicast traffic:
  – Ingress replication
  – LSM Options.

• The stitching must ensure for MH VXLAN network:
  – No Packet Duplication
  – No Forwarding Loops
Multicast Stitching with Per-VNI Load Balancing

• PE nodes connected to multi-homed VXLAN network, perform BGP DF election to decide which PE node is responsible for forwarding multicast traffic associated with a given VNI.
Next steps

• Comments are appreciated.

Thank you