

VXLAN DCI Using EVPN
draft-boutros-l2vpn-vxlan-evpn-04.txt

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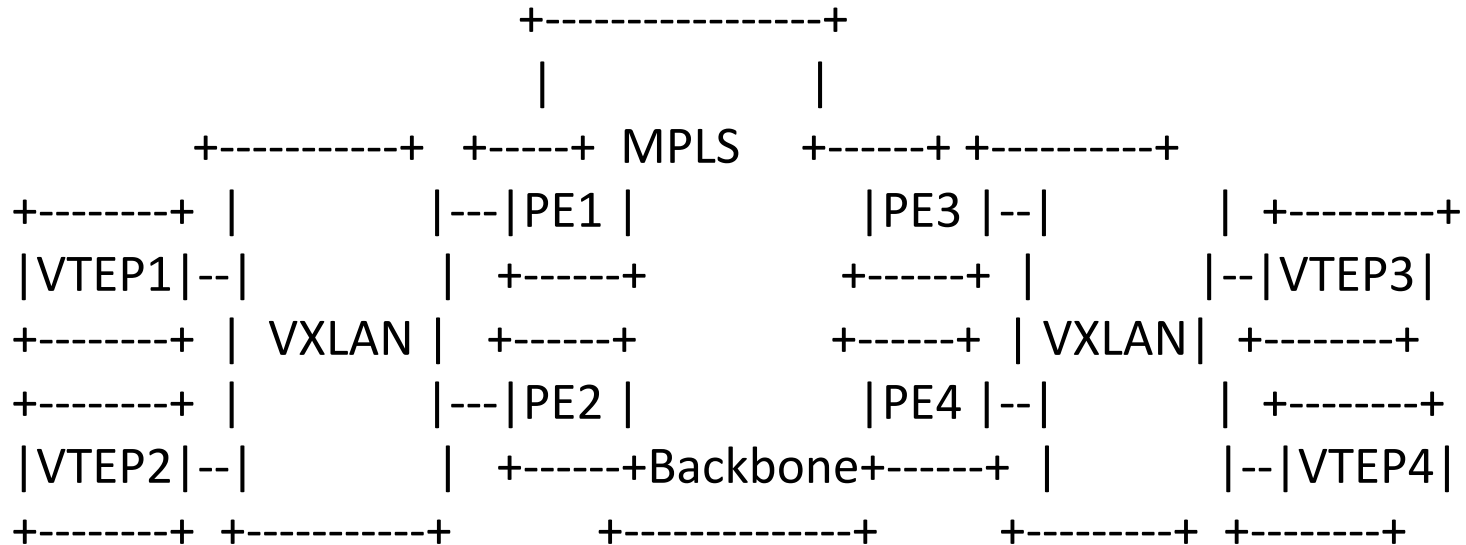
VXLAN DCI Using EVPN

- 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



|<----- IGP ----->|<-----BGP----->|<----- IGP ----->| CP

|<----- VXLAN ----->|<EVPN/PBB-EVPN>|<----- VXLAN ----->| DP
 |<-----MPLS----->|

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

Changes From 02 → 04

- Added Use Cases
- Homogeneous Network DCI interconnect
 - VNI Base Mode EVPN Service Use Case.
 - VNI Bundle Service Use Case Scenario
 - VNI Translation Use Case.
- Heterogeneous Network DCI.
 - VXLAN VLAN Interworking Over EVPN

Next steps

- Authors believe that document is ready for WG adoption.

Thank you