draft-sajassi-bess-evpn-vpls-seamless-integ-00.txt

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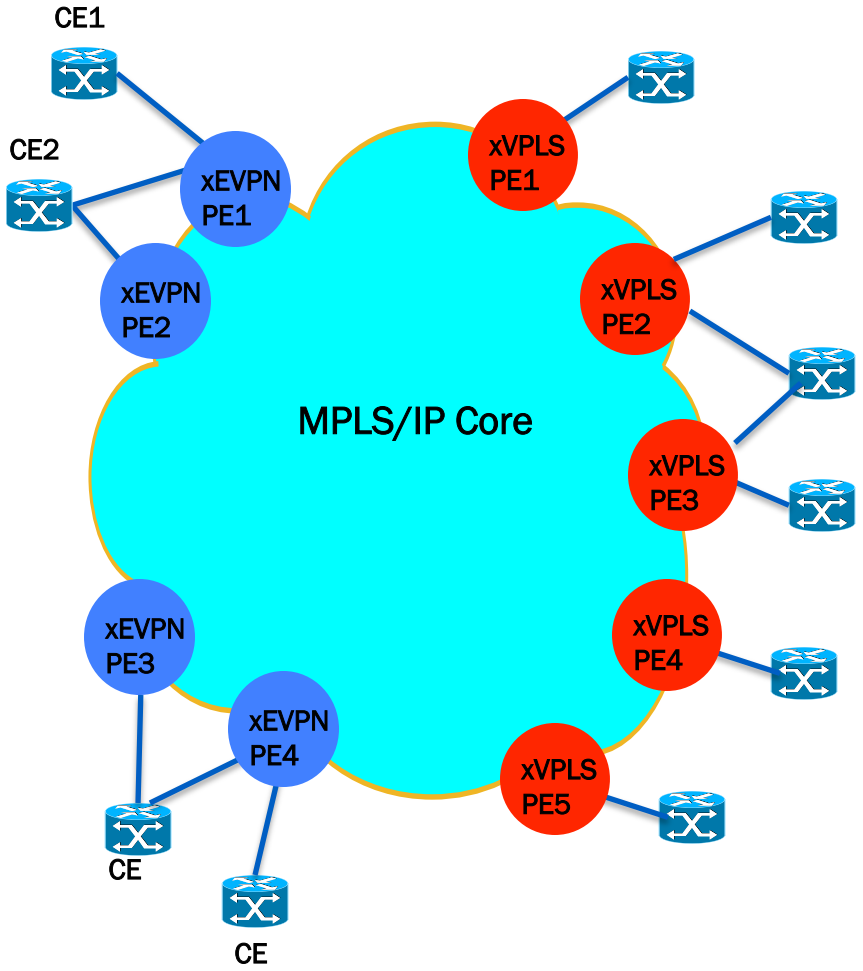
History

- draft-sajassi-l2vpn-evpn-vpls-integration-00 was presented at IETF 88 (Nov/2013) in Vancouver
- Added a few clarifications
- For this IETF, it is republished as draft-sajassi-bess-evpn-vpls-seamless-integ-00

Scenario

Seamless insertion of xEVPN into brown-field xVPLS deployment



Requirements

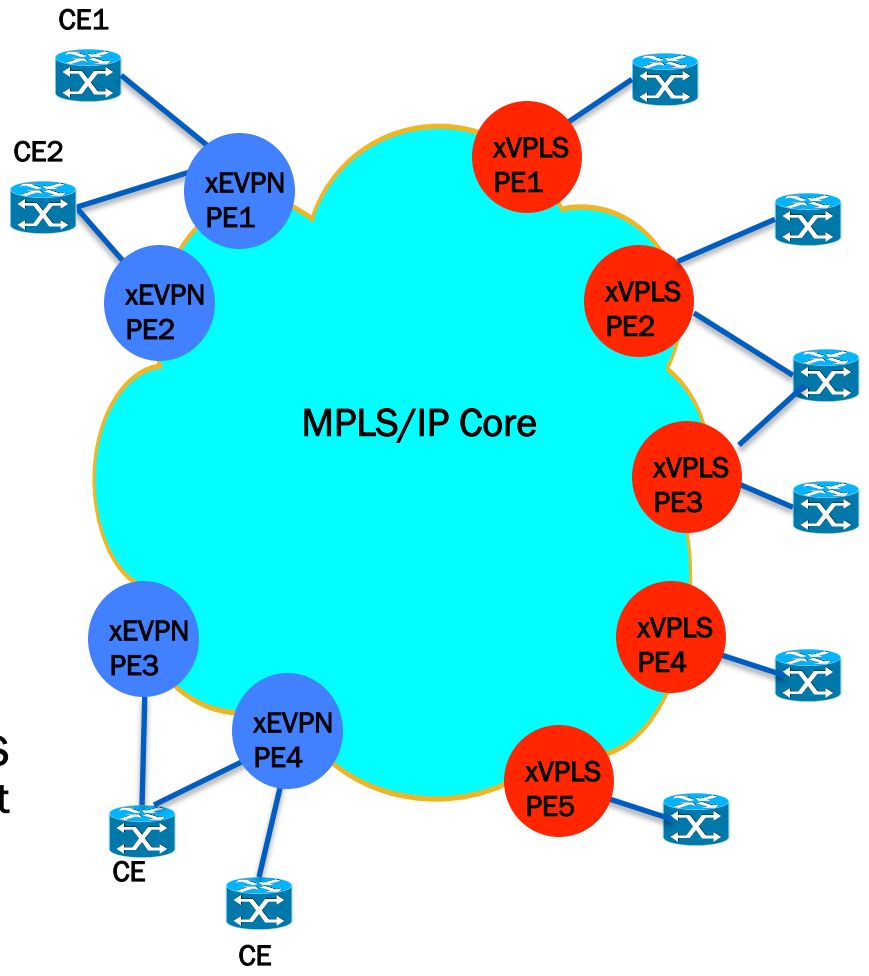
1. The solution MUST allow for staged migration towards (PBB-)EVPN on a site-by-site basis per VPN instance - e.g., new EVPN sites to be provisioned on (PBB-)EVPN PEs.
2. The solution MUST require no changes to existing VPLS or PBB-VPLS PEs, not even a software upgrade.
3. The solution MUST allow for the coexistence of PE nodes running (PBB-)EVPN and (PBB-)VPLS for the same VPN instance and single-homed segments.
4. The solution MUST support single-active redundancy of multi-homed networks and multi-homed devices for (PBB-)EVPN PEs.
5. In case of single-active redundancy, the participant VPN instances MAY span across both (PBB-)EVPN PEs and (PBB-)VPLS PEs as long as single-active redundancy is employed by (PBB-)EVPN PEs.

Requirements – Cont.

6. The solution SHOULD support all-active redundancy of multi-homed networks and multi-homed devices for (PBB-)EVPN PEs.
7. In case of all-active redundancy, the participant VPN instances SHOULD be confined to (PBB-)EVPN PEs only.
8. In case of all-active redundancy, the participant VPN instances MAY span across (PBB-)EVPN and (PBB-)VPLS PEs.

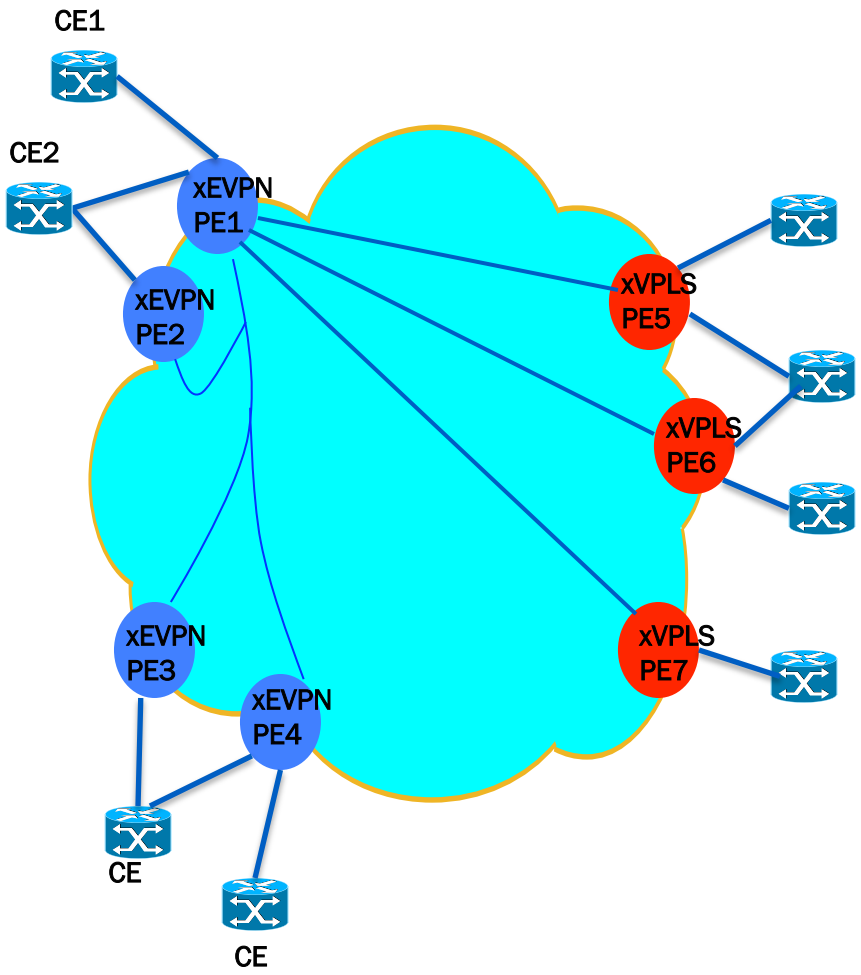
Capability Discovery

- (PBB)-EVPN PEs are assumed to be bilingual in such seamless interop scenario and speak both EVPN & VPLS languages
- (PBB)-VPLS PEs only advertise BGP VPLS AD route
- (PBB)-EVPN PEs advertise both BGP EVPN AD (IM) route and BGP VPLS AD route
- When a VPLS PE receives BGP EVPN routes, it ignore them (if one RT is used)
  - Operator may use two RTs and use RT constrain mechanism to prevent PBB-VPLS PEs from receiving routes from PBB-EVPN PEs
- When a EVPN PE receives both EVPN and VPLS routes from the same peer for the same VPN, it gives precedence to EVPN AD route



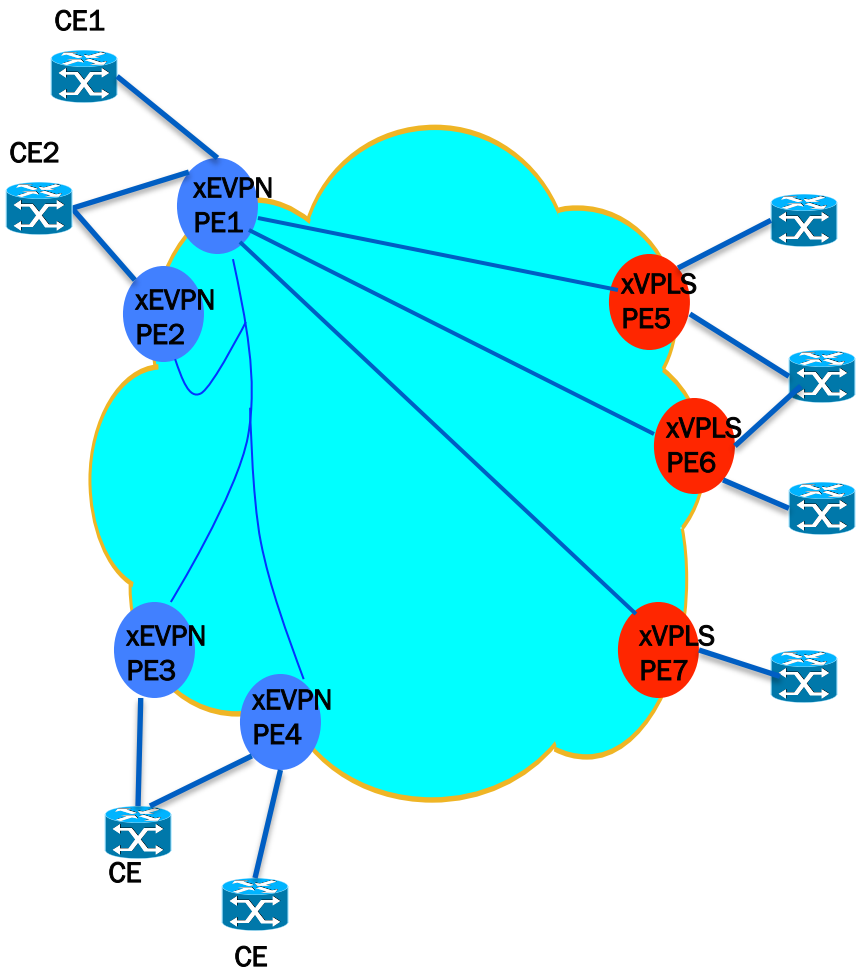
PW and LSP Setup

- Consider PW & LSP setup on PE1
- PE1 establishes PW with any remote PE that has only advertise VPLS AD route
- PE1 establishes MP2P VPN FEC to any remote PE that has advertised EVPN AD route
- PE1 learns BMACs in data plane via established PWs (from VPLS PEs) – this is analogous to dynamic learning in IEEE bridges



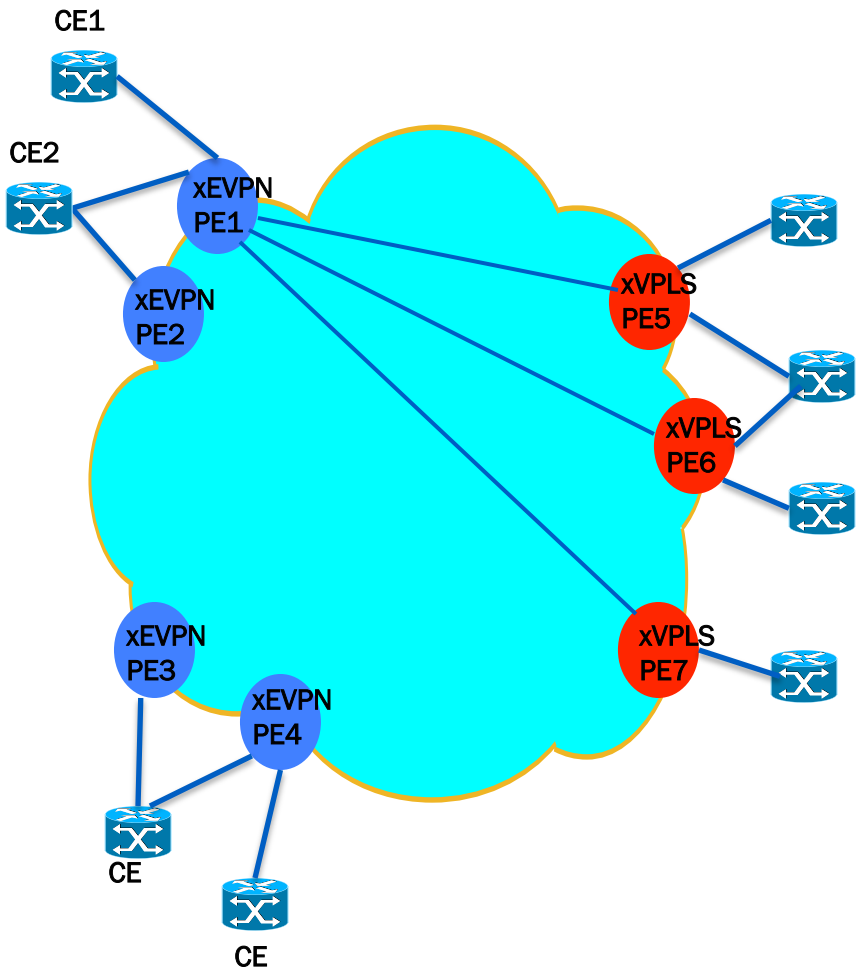
Unicast Operation

- PE1 learns MACs in control plane via BGP MAC advertisements from xEVPN PEs
- PE1 learns MACs in data plane over PWs from xVPLS PEs
- PE1 updates its MAC table accordingly – A MAC can only be learned either in data plane or control plane but never both



Multicast Operation

- Consider Multicast operation on PE1
- First, PE1 needs to form a new multicast pruned list per VPN instance which is union of the pruned PW set (or MP LSP) + pruned MP2P tunnels (or MP LSP) (using EVPN IM route)
  - Pruned PW set is obtained from MMRP application for PBB-VPLS
  - Pruned MP2P set is obtained from EVPN IM route per I-SID
- Second, PE1 needs to enable its split-horizon filtering over the core using the above new list – across both PWs and MP2P tunnels (or both MP LSPs)



Next Step

- WG adoption ?