

VPLS PE Model with E-Tree Support

draft-jiang-l2vpn-vpls-etree-pe-03.txt

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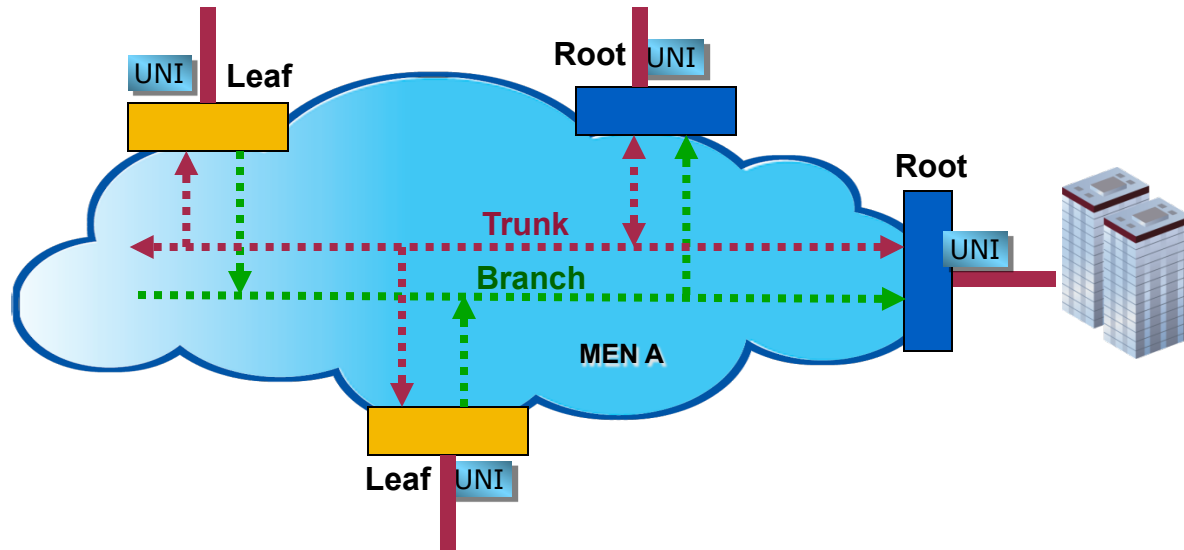
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Backgrounds

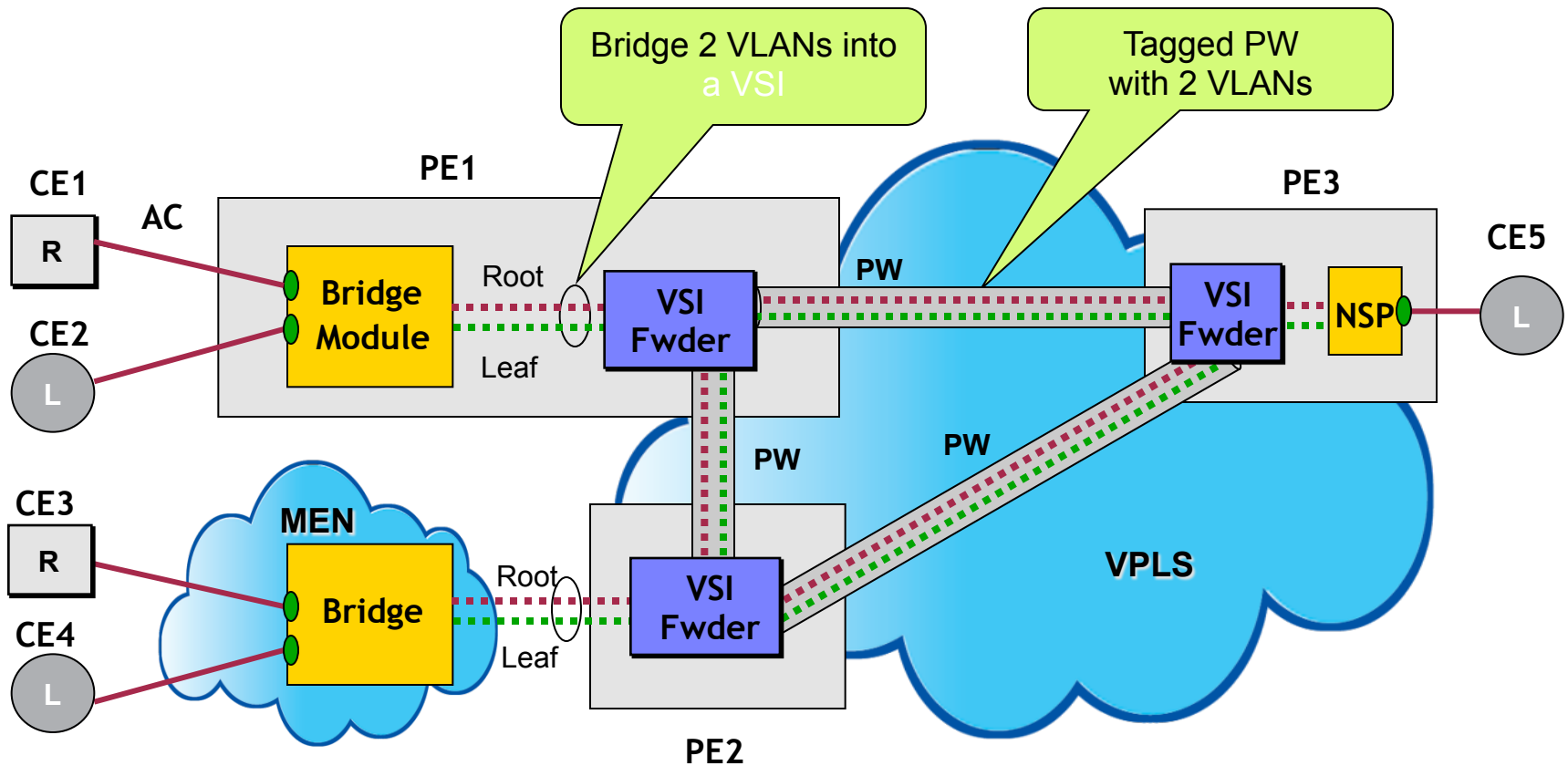
- E-Tree Requirements in multiple SDOs
 - Service Definition: MEF 6.1, MEF 10.2
 - Mobile backhaul: MEF 22
 - Broadband Network Architecture: BBF WT-145
 - MPLS in Mobile Backhaul: BBF WT-221
 - MPLS in Carrier Ethernet: BBF WT-224
- Lack of E-Tree support in VPLS standard
 - Non-standard mechanism for single root topology
 - Single VSI + extended split horizon mechanism
 - No VPLS support for generic multi-roots topology

E-Tree Solution in Ethernet



- IEEE uses a pair of SVLANs - Trunk SVLAN and Branch SVLAN to support generic E-Tree, which is incorporated in the latest IEEE 802.1Q standard

VLAN Based E-Tree Solution in VPLS



NSP: Native Service Processing

Extension of LDP Protocol

- A new E-Tree sub-TLV is defined
 - PEs negotiate the support of E-Tree when a PW is set up
 - Root VLAN ID and Leaf VLAN ID carried in the sub-TLV
 - P bit indicates that sender is attached with “Pure Leaves”
 - V bit indicates sender’s VLAN mapping capability
- Algorithm for PW negotiation of E-Tree service
 - Whether VLAN mapping is needed
 - If VLAN mapping is needed, a PE is selected to do the mapping
 - Whether Optimized mode or Compatible mode be enabled

Benefits

- Using Dual VLANs – the same flavor of E-Tree solution as Ethernet
 - ✓ A converged solution compatible with both Ethernet and VSI forwarding planes and applicable to diverse network scenarios
 - ✓ No change to VPLS architecture or PW layer semantics, standard work can be minimized
- Universality
 - ✓ Applicable to all known VPLS PE models and their interworking scenarios
 - ✓ Applicable to both LDP VPLS and BGP VPLS
- Scalability with only a single VSI and a single suite of PWs needed

Changes in draft-03

- Mapping/filtering behaviors in data plane
 - All Root/Leaf interworking scenarios are summarized into 3 typical PW processing modes
 - More details added for VLAN mapping/filtering
- Negotiation procedure
 - Control plane separated from data plane
 - Auto negotiate and choose a single PE to do VLAN mapping

Next Step

- Add BGP signaling for E-Tree
- Solicit feedbacks on the WG mailing list
- To be accepted as WG draft?

Thank You