

Extension to VPLS for E-Tree

draft-key-l2vpn-vpls-etree-02

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This Internet Draft

MEF E-LAN

- No communication restriction between UNIs
- Current standard VPLS is working well

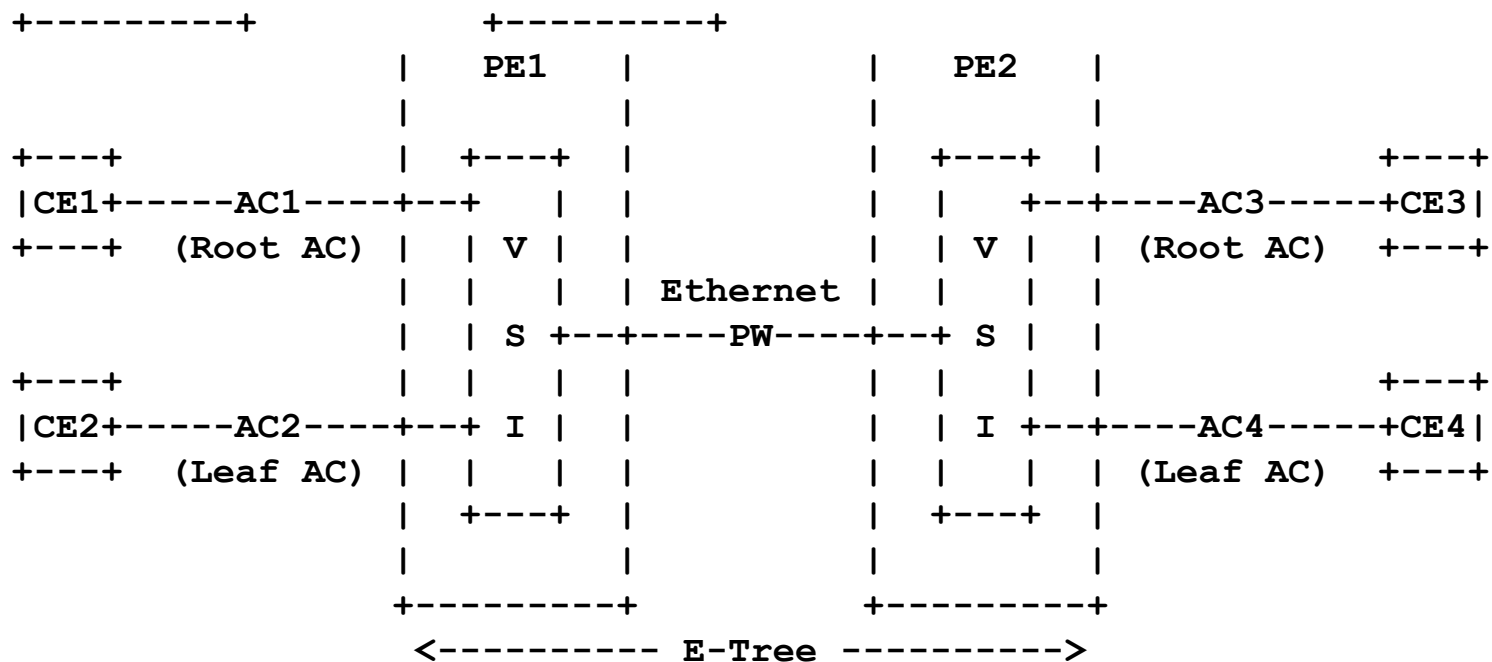
MEF E-Tree

- Leaf is not allowed to communicate with other Leafs
- Current standard VPLS is not sufficient

This Internet draft proposes a minimal extension to the current standard VPLS in order to fulfill the additional requirement of E-Tree.

The proposed extension is applicable to both BGP-VPLS [RFC4761] and LDP-VPLS [RFC4762].

The Problem



- When PE2 receives a frame from PE1 via the Ethernet PW
- PE2 not know whether it is from AC1 or AC2
 - PE2 not know whether it is from Leaf AC or Root AC
 - PE2 can't decide whether it can be forwarded to AC4

Example: Broadcast frame from CE2

Extension to VPLS

AC Type

This is a new per-AC attribute

- Each AC MUST have an AC Type attribute
- Either Leaf AC or Root AC
- Default value MUST be Root AC

Locally configured on a PE

No signaling required between PEs

Extension to VPLS Control Word

A PE MUST be capable of sending and receiving the Control Word on Ethernet PW.

Use of Control Word on Ethernet PW MUST be PREFERRED.

The procedure for negotiating the use of Control Word as per current standard is sufficient and MUST be followed.

Extension to VPLS

Data Forwarding

Set Control L-bit

- If the frame is received from a local Leaf AC
 - Set the Control Word L-bit to 1, when forward a payload frame on a PW

Forward or Drop

- When PE forward a payload frame to a local Leaf AC,
drop the frame if
 - received from a local Leaf AC; or
 - received from a PW and Control Word L-bit = 1

These actions are in addition to and performed after

- MAC-based forwarding decision as per current standards
- Loop free VPLS "split horizon" rule as per current standards

Backward Compatibility

AC Type

- For a PE not supporting the proposed extension
 - AC is functionally equivalent to a Root AC

Control Word

- Use of Control Word on Ethernet PW is not mandatory.
- If the PE on the other end prefers not to use Control Word or does not support Control Word:
 - Then Control Word will not be used on Ethernet PW.

Data Forwarding

- A PE not supporting the proposed extension can participate in an E-Tree construct, but only Root ACs can be connected to such PE.
- Lack of Control Word L-bit between a PE supporting the proposed extension and a PE not supporting does not result in any problem.

Other Sections

Section 6 - Optional Enhancement for Leaf-only PE.

Section 7 - Hierarchical VPLS

Appendix A - Control Word Scenarios

Appendix B - Data Forwarding Scenarios

Workgroup Draft?

The authors would like to request this to be accepted as a WG Draft.

Please post questions & comments on workgroup mailing list, or talk/email to the authors directly.

Thank You Very Much