

# draft-sajassi-l2vpn-evpn-etree-00.txt

A. Sajassi (Cisco), S. Samer (Cisco)

IETF 84, July 2012

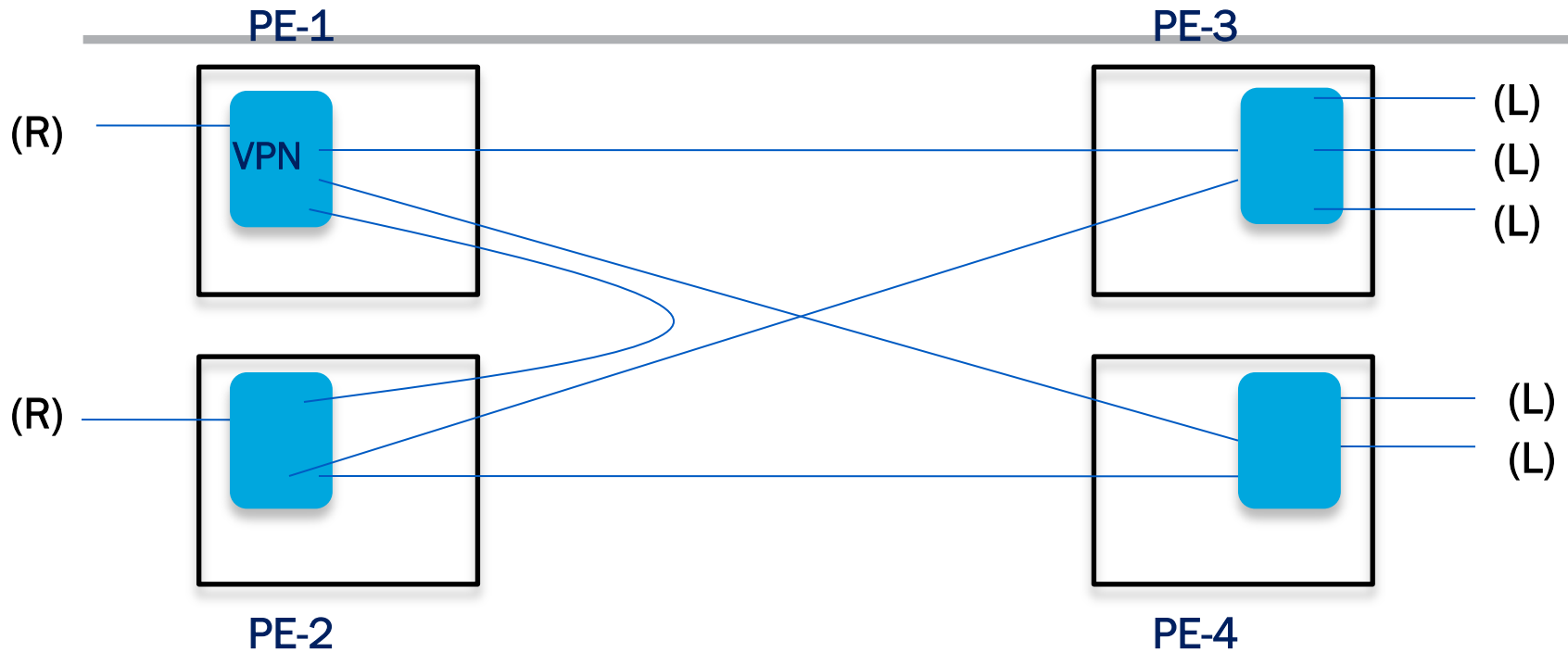
Vancouver

# E-TREE Scenarios of Interest

---

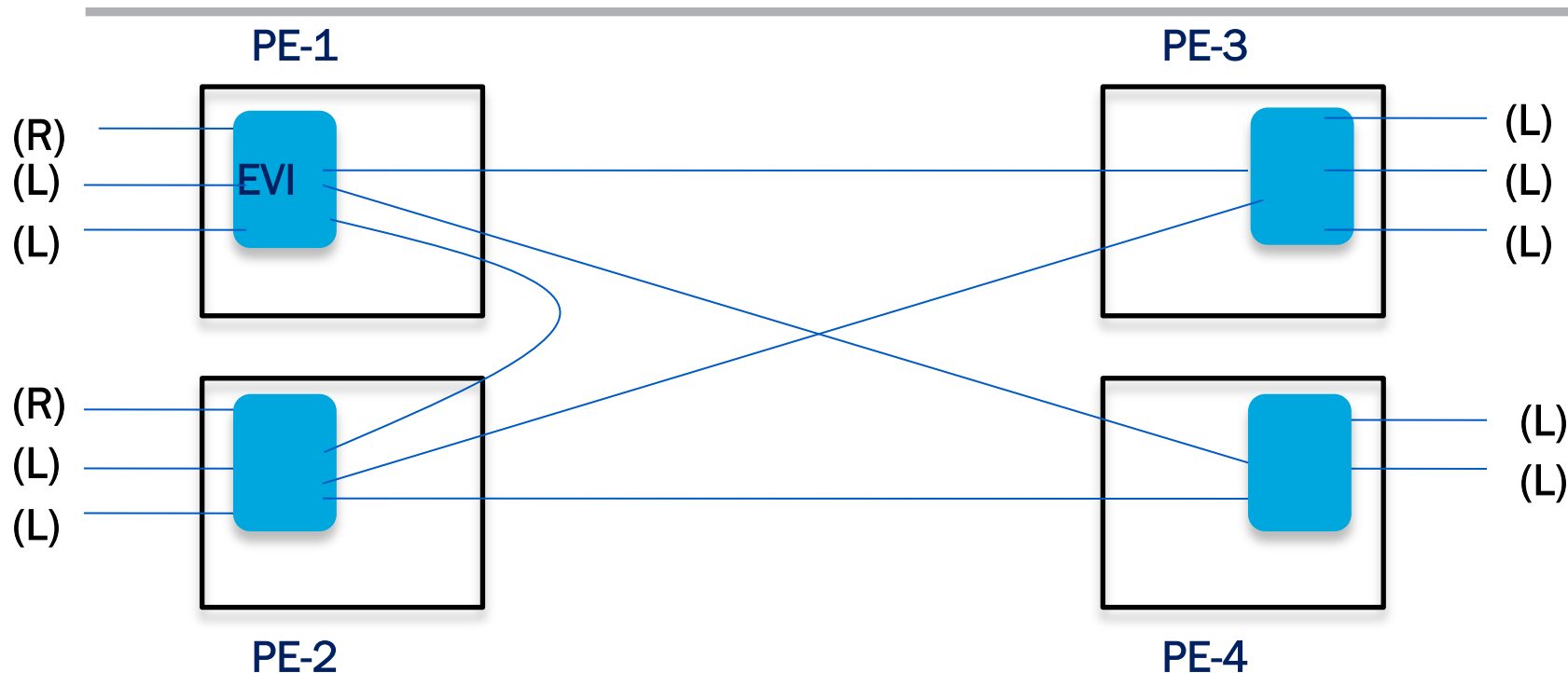
1. Leaf OR Root site(s) per PE
2. Leaf AND Root site(s) per PE
3. Leaf AND Root site(s) per Ethernet Segment

# Scenario-1



- This scenario can be addressed by using RT to constrain topology
- This requires two RTs per VPN
- This can be done with current VPLS as well => it is not a big deal !!

# Scenario-2



- In this scenario an AC (Ethernet Site) can be either root OR leaf (but not both)
- The packets originated from a site, will need to carry site's root or leaf indication (e.g., policy needs to be applied per site basis)
- Egress PE must use the root/leaf indication in the packet to perform appropriate filtering

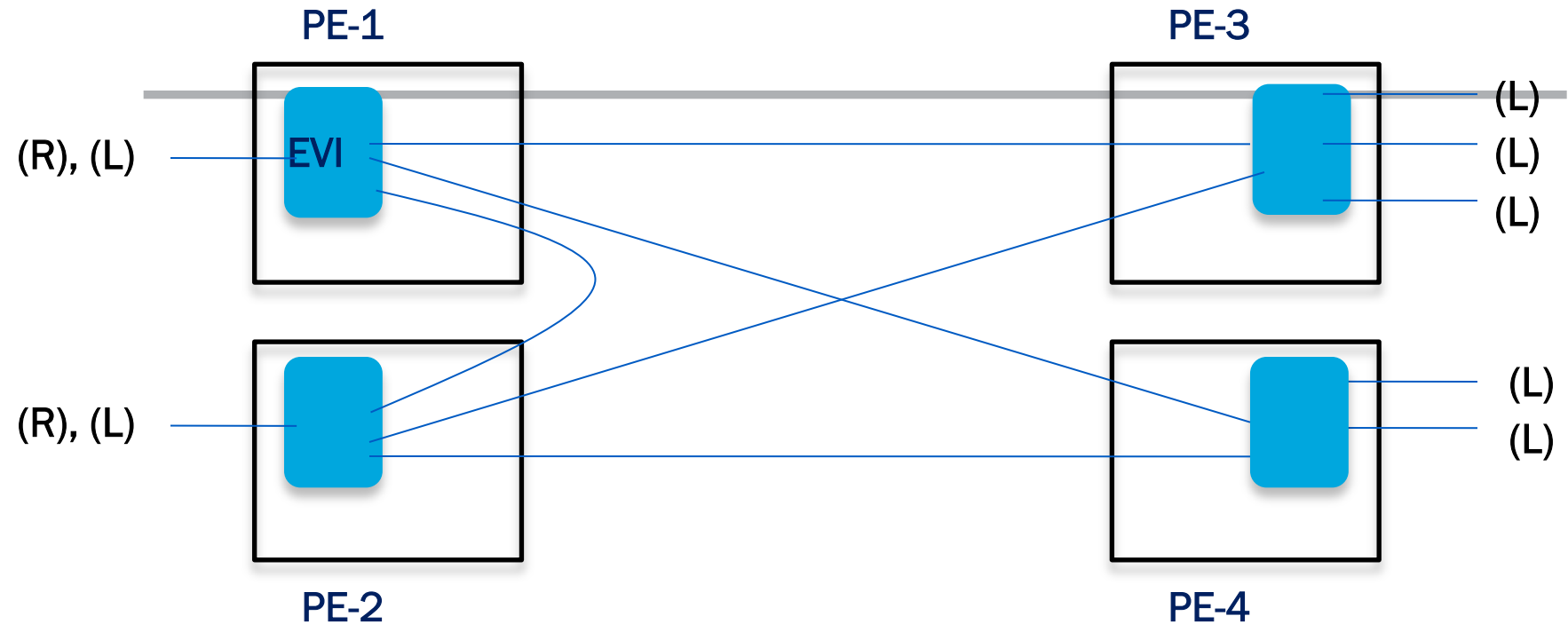
➔ This scenario in E-VPN is addressed by using per-AC (per-site) policy

# Scenario-2 – cont.

---

- E-VPN already supports a BGP route that identifies a site (ESI)
  - This route is used for Split-Horizon Filtering and mass-withdraw of multi-homed sites
  - All we need to do is to color this route with root/leaf indication and use ESI label for both unicast & mcast traffic
  - This coloring is done by using a reserved bit of “ESI MPLS label Extended Community” to indicate leaf/root
  - Egress filtering can be done per ESI label as before
- ⇒ no changes in data-plane !
- ⇒ very little changes in control plane (no need to define any new BGP routes or attributes) !

# Scenario-3



- In this scenario an AC (Ethernet Site) can be both root AND leaf
- Each packet originated from a site, will need to carry site's root or leaf indication (e.g., policy needs to be applied per MAC address basis)
- Egress PE must use the root/leaf indication in the packet to perform appropriate filtering

➔ This scenario in E-VPN is addressed by using per-MAC policy

# Scenario-3 – cont.

---

- MAC policy of E-VPN can be used to address this scenario very easily
  - In this scenario, each multi-homed sites is assigned two MPLS labels instead of one – leaf and root
  - As in scenario-2, each PE advertises two special labels to be used for single-homed sites – one for leaf and another for root (but both can be applied to the same site)
  - Based on source MAC address, the ingress PE uses either a root or leaf ESI label when forwarding each packet
  - Egress filtering can be done per ESI label as before
- ⇒ no changes in data-plane !
- ⇒ no need to define any new BGP routes or attributes!

# Summary

---

	Scenario-1	Scenario-2	Scenario-3
VPLS	Yes	Yes	No
E-VPN	Yes	Yes	Yes

- E-VPN has inherent capability to do per-site and per-MAC policy because of its MHN/MHD capabilities
- E-TREE service can be supported rather easily w/o any changes to data-plane processing and w/ very little changes in control plane



# Next Step

---

- Inviting comments on this draft