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

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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 roof 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)!
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

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<tr>
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<th>Scenario-1</th>
<th>Scenario-2</th>
<th>Scenario-3</th>
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<tbody>
<tr>
<td>VPLS</td>
<td>Yes</td>
<td>Yes</td>
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<td>E-VPN</td>
<td>Yes</td>
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- 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