Scenario of Interest: A site with both Root and Leaf Acs – from IETF 85

- 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
Discussions on the mailing list – from IETF 85

- Many exchanges on the mailing list – both public and private
- Public: Application of Split-Horizon filtering capability of EVPN for E-TREE application was not clear to some
- Private: Some argue that we should NOT mandate the use of SH filtering for all scenarios
Current Proposal

Current proposal leverages existing split-horizon filtering mechanism and provides a good foundation to built on:

- E-VPN already supports a BGP route that identifies a site (ESI)
- This route is used for Split-Horizon Filtering
- Color this route with root/leaf indication using ESI Label Extended Community for both known unicast & BUM traffic
- 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)!
But it can be improved

- To work for PBB-EVPN in addition to EVPN
- To eliminate additional overhead for known unicast traffic by not requiring SH MPLS label to be sent
- To eliminate additional processing overhead on the egress PE by not requiring processing of SH label for known unicast traffic
Enhancement for EVPN

- Color the BUM traffic as before with root/leaf indication using SH label
- For known unicast traffic, advertise a root/leaf indication along with each MAC
- For known unicast traffic, use this root/leaf indication to perform the filtering on the ingress PE (instead of egress PE)
- For BUM traffic, use SH label to perform the filtering on the egress PE as before (ingress filtering cannot be done for BUM traffic)
Enhancement for EVPN – Cont.

- For Inter PE forwarding of known unicast
  - On the ingress PE, after performing a lookup on the CMAC DA, if it indicates that the CMAC DA belong to a leaf and the AC or ES is also associated with a leaf, then don’t forward the packet

- For Intra PE forwarding
  - Put all the leaf ports for a given E-TREE (given VPN) in its split-horizon group and perform SH filtering internal to the box
For PBB-EVPN

- For both BUM and known unicast traffic, advertise a root/leaf indication along with each BMAC – e.g., color each BMAC with root/leaf indication
- For known unicast traffic, use this root/leaf indication on BMAC DA to perform the filtering on the ingress PE
- For BUM traffic, use this root/leaf indication on BMAC SA to perform the filtering on the egress PE (as done in baseline PBB-EVPN)
  - Filtering on egress PE is done using BMAC SA solely (no need to use any flag in DP)
For PBB-EVPN – Cont.

- For Inter PE forwarding of known unicast
  - On the ingress PE, after performing a lookup on the CMAC DA, and getting corresponding BMAC DA, if it indicates that the BMAC DA belong to a leaf and the AC or ES is also associated with a leaf, then don’t forward the packet
  - Filtering on ingress PE is done using root/leaf flag in DP (just like EVPN)

- For Intra PE forwarding
  - Put all the leaf ports for a given E-TREE (given VPN) in its split-horizon group and perform SH filtering internal to the box
Next Step

- Would like to ask for WG call