EVPN Layer-3 Multi-Homing
load-balancing

draft-mackenzie-bess-evpn-l3mh,proto
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Overview

• Bring higher network availability and load balancing benefits of EVPN multi-homing toolset to various L3 services
  - No need for ICCP, LDP, or ICL Link between PEs
• Transparent to a CE device, and uses existing BGP L3 service control plane
• Signalling limited to the redundant service PEs sharing an ESI.
• Synchronization of ARP/ND, multicast Join/Leave, and customer IGP routes
L3 Service Sync

- Synchronization per layer-3 VRF
- The main interface is derived from the ESI
- The VLAN / sub-interface is derived from the AC-ID provided in the Attachment-Circuit-ID extended community
Route Types

• ARP/ND Sync
  – CE may hash ARP/ND response to single PE
  – Both PEs attracting traffic. Adjacency required for FWD
  – RT-2 IP/MAC (MAC only not needed)

• IGMP Sync
  – CE may hash IGP join to non-Multicast DR
  – RT-7, RT-8

• Customer IGP route Sync
  – CE IGP protocol will form adjacency with one PE
  – Cannot take advantage of other PE for remote LB
  – RT-5
No new signaling required

• EVI-RT Extended Community
  – I-D.ietf-bess-evpn-igmp-mld-proxy
• Attachment Circuit ID Extended Community
  – I-D.sajassi-bess-evpn-ac-aware-bundling
• Applicable to any sync route e.g., RT-2, RT-5, RT-7 and RT-8
Advantages

• Open standards based per interface all-active redundancy
  – Eliminates the need to run legacy solutions with ICCP and LDP.
• Benefits over legacy solutions
  – Fast convergence with mass-withdraw
• Removes the burden of requiring ICL link
• Agnostic of underlay technology (MPLS, VxLAN, SRv6)
• Agnostic of associated services (L3, L3-VPN)
• Signaling already defined in existing EVPN RFCs and drafts
  – RFC-9251 (igmp/mld routes)
  – RFC-9136 (prefix route)
  – I-D.sajassi-bess-evpn-ac-aware-bundling
Next Steps

- Request WG feedback and comments
- Further study into BGP PE to CE protocol support