Multicast in L3VPN
Signaled by EVPN Type-5 Routes

draft-zzhang-bess-mcast-in-evpn-signaled-l3vpn-00

Zhaohui Zhang, Wen Lin
Jorge Rabadan

IETF105, Montreal
L3VPN signaled by EVPN Type-5

• Traditionally, L3VPNs are signaled by BGP "MPLS-labeled VPN address" SAFI and use MPLS tunnels
  • RFC2547/4364
  • Multicast is per RFC6514/6514
• [ietf-bess-evpn-prefix-advertisement] specifies another way of l3vpn signaling - via EVPN SAFI Type-5 routes
  • Good for where EVPN is also needed
  • Allows use of VXLAN tunnels
    • May be used even if EVPN is not used at all
    • Though RFC2547/4364 signaling could be augmented with Tunnel Encapsulation Attribute for use of other tunnel types
  • Multicast is not yet specified – hence this document
Option 1: Optimized Inter-Subnet Multicast

- L3VPN signaled by EVPN Type-5 is used for EVPN DCI
  - Some EVPN BDs are not stretched across DCs
- Use OISM, with SBD stretched across DCs
- Advantages
  - All-EVPN solution
  - No RP procedures needed for ASM
Option 2: Reuse RFC6514 Procedures

• Existing RFC6514 procedures, plus:
  • EVPN Type-5 routes used for UMH selection
  • PEs at C-S/C-RP sites attach VRF Route Import EC and Source AS EC to EVPN Type-5 routes

• Applicable scenarios
  • Pure L3VPN, no EVPN
  • EVPN, with some source/receiver sites connected to non-EVPN PEs
    • OISM can not extend to those non-EVPN PEs
    • OISM could be used, but there is concern with stretching SBD

• This may not be desired for some operators
  • MCAST-VPN SAFI defeats one of the purposes of L3VPN with EVPN signaling
Option 3: Adapting RFC6514 Procedures

• RFC6514 procedures with EVPN signaling

<table>
<thead>
<tr>
<th>MVPN</th>
<th>EVPN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type  Name</td>
<td>Type  Name</td>
</tr>
<tr>
<td>----  ----</td>
<td>----  ----</td>
</tr>
<tr>
<td>1     Intra-AS I-PMSI</td>
<td>3     IMET</td>
</tr>
<tr>
<td>2     Inter-AS I-PMSI</td>
<td>9     Per-Region I-PMSI</td>
</tr>
<tr>
<td>3     S-PMSI</td>
<td>10    S-PMSI</td>
</tr>
<tr>
<td>4     Leaf</td>
<td>11    Leaf</td>
</tr>
<tr>
<td>5     Source Active</td>
<td>TBD  Source Active (added in this spec)</td>
</tr>
<tr>
<td>6     (*,G) C-Multicast</td>
<td>6     SMET</td>
</tr>
<tr>
<td>7     (S,G) C-Multicast</td>
<td>6     SMET</td>
</tr>
</tbody>
</table>

• Enhancements
  • SMET/C-multicast routes with optional Leaf Tracking semantics
  • Targeted SMET routes (just like RFC6514 C-multicast routes)

• “re-inventing the wheel”
  • Only for operators who insists on EVPN SAFI only yet can’t use OISM in all scenarios
Next steps

• Seeking comments
• Add specification details
• Will seek adoption after a couple of more revisions