IP Prefix Advertisement in EVPN

draft-rabadan-l2vpn-evpn-prefix-advertisement-01

Jorge Rabadan
Wim Hendericks
Florin Balus
Senad Palislamovic
Aldrin Isaac

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The prefix-advertisement route (route-type 5)

Route-type 5 specific content

- RD (8 octets)
- Ethernet Segment Identifier (10 octets)
- Ethernet Tag ID (4 octets)
- IP Address Length (1 octet)
- IP Address (4 or 16 octets)
- GW IP Address (4 or 16 octets)
- MPLS Label (3 octets)

Route-types:

1. Ethernet A-D route
2. MAC-advertisement route
3. Inclusive Multicast route
4. Ethernet Segment route
5. IP Prefix route (OPTIONAL)

- RT 2 (MAC-advertisement) used for advertising MACs and MAC-IP for ARP resolution
  - Also used for MAC Mobility
- RT 5 (IP-prefix) used to advertise Prefixes independently of the mac-advertisement routes
- Possible Prefix next-hops in the overlay topology
  - ESI, IRB IP address, Floating IP address
Use-case #1: TS IP address next-hop use-case

SN1

TS2 (VA)

NVE2

FW-2

EVI-10

VM

TS2 (VA)

IP2/M2

VXLAN/ NVGRE

SN1

TS3 (VA)

NVE3

FW-3

EVI-10

IRB2

DGW-2

ESI=0

VNI=1

M3 / IP3

evpn RT=2

DGW-1

EVI-10

IRB1

VRF

EVI-10

VRF

WAN

GW IP=IP3

ESI=0

VNI=1

SN1 /24

SN1 /24

evpn RT=5
Use-case #2: floating IP address use-case

- **TS2 (VA) (ACTIVE)**
  - NVE2
  - EVI-10
  - IP2/M2
  - vIP23 (floating)
  - GW IP = IP23
  - ESI = 0
  - VNI = 1

- **TS3 (VA)**
  - NVE3
  - EVI-10
  - IP3/M3

- **SN1**
  - FW-2
  - FW-3

- **WAN**
  - DGW-1
  - DGW-2
  - IRB1
  - IRB2
  - VRF

- **VXLAN/ NVGRE**
  - VNI = 1
  - ESI = 0
  - GW IP = IP23
  - evpn RT = 5

- **VM**

**Notes:**
- Use of ESI and VNI to distinguish between VNIs.
- Floating IP address vIP23 is used for communication between TS2 and TS3.
Use-case #3: IRB IP next-hop use-case
Use-case #4: “bump-in-the-wire” use-case (new)
The prefix-advertisement route benefits

• Clean identification of a prefix
• NVEs running EVPN but not supporting the OPTIONAL prefix-advertisement route can easily identify it an ignore it without processing the route
• No MAC information is compared by BGP when selecting routes
• Flexible overlay next-hop (IRB, floating IP, ESI) addressing different end-point types
• Decouples prefix-advertisement from mac mobility procedures
• Supports VA resiliency procedures
Next steps

• Feedback from WG