Using BGP between PE and CE in EVPN
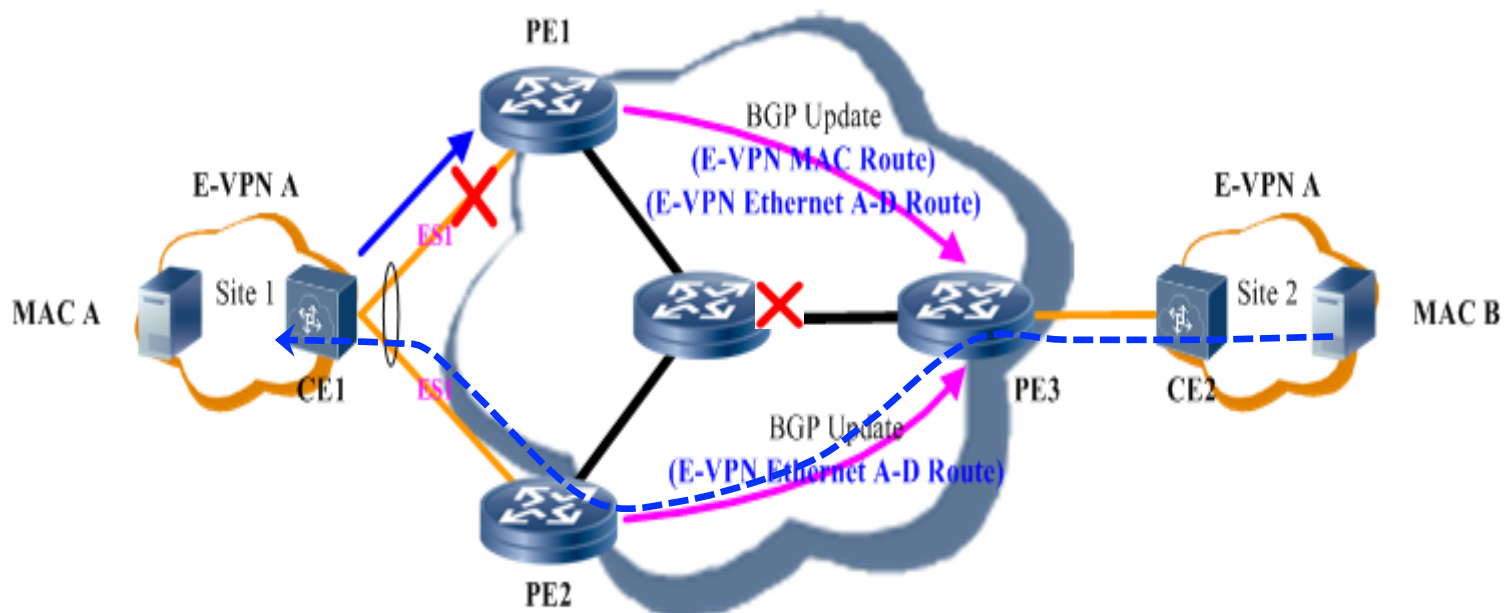
draft-li-l2vpn-evpn-pe-ce

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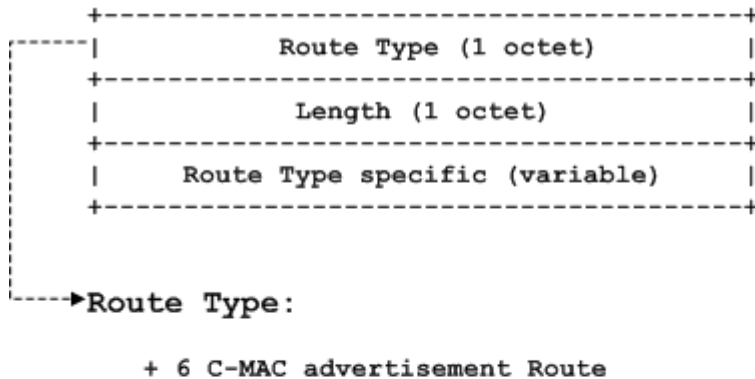IETF 88, Vancouver, BC, Canada

Introduction

- This draft is to introduce BGP between PE and CE in EVPN to complete the learning of local MAC addresses
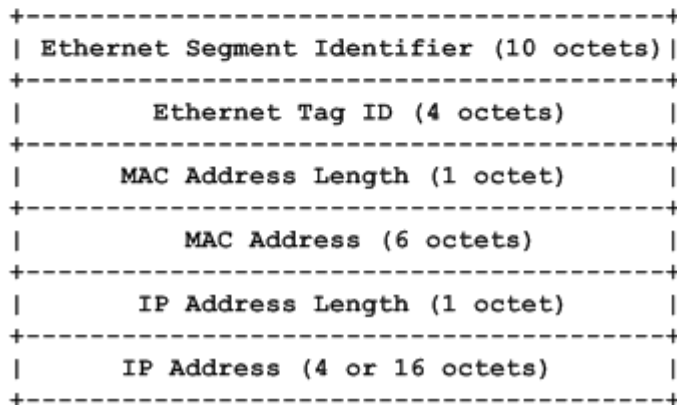
Applications – Fast Convergence

- T1- When the MAC Advertisement Route from PE1 and the Ethernet A-D routes per ESI from PE1 and PE2 are received, PE3 can forward traffic destined to MAC A to both PE1 and PE2.

- T2- After T1, when the ES1 connected to PE1 fails, PE1 MUST withdraw its Ethernet A-D route per ESI, then PE3 forwards traffic destined to MAC A to PE2 only.

- T3- After T2, PE1 MUST also withdraw the MAC advertisement routes (MAC A) that are impacted by the failure. Before PE2 learns MAC A and advertises a MAC route for MAC A, PE3 will treat traffic to MAC A as unknown unicast. If the behavior is to drop the unknown unicast based on administrative policy, the traffic to MAC A on PE3 will be interrupted.

Applications – Fast Convergence (Cont.)

- If the specific MAC (MAC A) can also be learned by PE2 using BGP and PE2 also advertises the MAC route for MAC A before PE1 withdraws its MAC route, PE3 would continue forwarding traffic destined to MAC A.

Solution: The C-MAC Advertisement Route

```
+-------------------------------------------+
|              Route Type (1 octet)         |
+-------------------------------------------+
|              Length (1 octet)             |
+-------------------------------------------+
|          Route Type specific (variable)   |
+-------------------------------------------+
```

Route Type:

      + 6 C-MAC advertisement Route

C-MAC Advertisement Route Specific Content

```
+-------------------------------------------+
| Ethernet Segment Identifier (10 octets)|
+-------------------------------------------+
|          Ethernet Tag ID (4 octets)       |
+-------------------------------------------+
|        MAC Address Length (1 octet)       |
+-------------------------------------------+
|          MAC Address (6 octets)           |
+-------------------------------------------+
|        IP Address Length (1 octet)        |
+-------------------------------------------+
|        IP Address (4 or 16 octets)        |
+-------------------------------------------+
```

- Originating MAC Route at the CE:
  - When a CE learns MAC addresses in the data plane in a given VLAN which is in the setting of VLANs across the Ethernet links attached to a given PE

- Receiving a MAC Route by the PE:
  - The PE SHOULD install forwarding state for the associated MAC addresses based on the Ethernet Segment and VLAN inferred from the MAC route.
  - the PE SHOULD advertises the MAC addresses it learns from CE in the control plane, to all the other PEs in the associated EVPN instance

Next Step

- Solicit comments and feedbacks
- Revise the draft