

Using BGP between PE and CE in EVPN

draft-zhuang-bess-evpn-pe-ce-00

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Introduction

- This document identifies the possible applications which can benefit from MAC learning through the control plane between PEs and CEs.

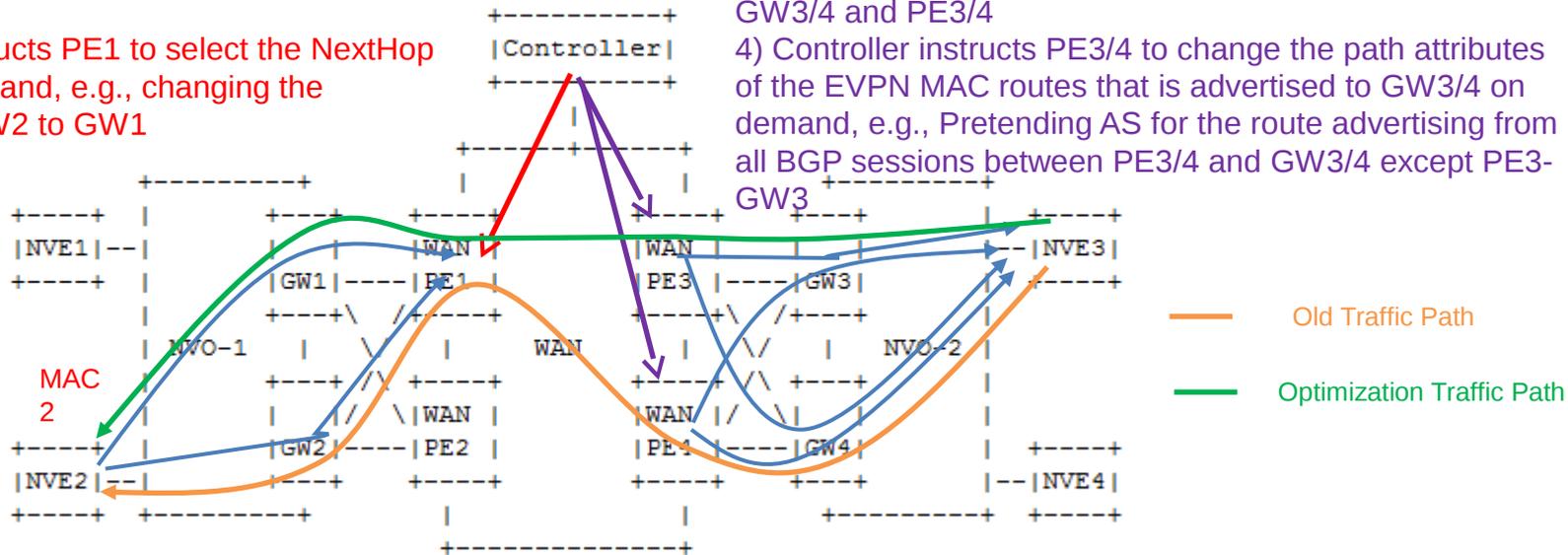
History Review and Updates

- History Review
 - Presented in IETF 90 Toronto
 - Previous is draft-li-l2vpn-evpn-pe-ce-02
- Updates
 - Refine EVPN Inter-AS Option A & Fast Convergence Use Case
 - Add DCI Traffic Optimization Use Case

Usecase 1: DCI Traffic Optimization

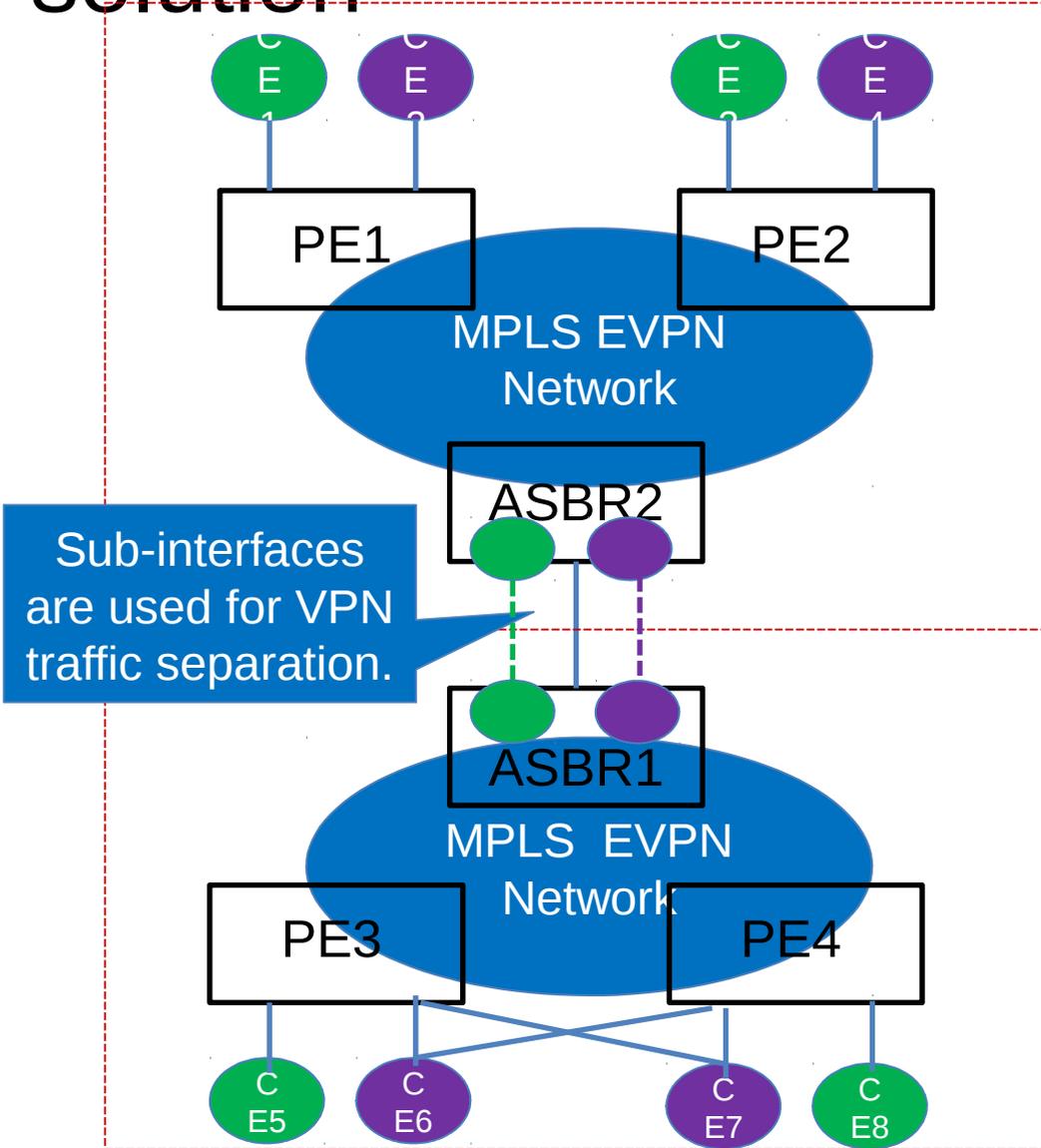
- 1) PE1 Learns MAC2 via BGP from both GW1 and GW2
- 2) Controller instructs PE1 to select the NextHop for MAC2 on demand, e.g., changing the NextHop from GW2 to GW1

- 3) NVE3 can visit MAC2 through different links between GW3/4 and PE3/4
- 4) Controller instructs PE3/4 to change the path attributes of the EVPN MAC routes that is advertised to GW3/4 on demand, e.g., Pretending AS for the route advertising from all BGP sessions between PE3/4 and GW3/4 except PE3-GW3



- Using BGP EVPN between GWs and WAN PEs
- Outbound Traffic Control:
 - Controller controls the multiple paths to the same destination which are receiving from different GWs and decide which MAC route to be used for outbound traffic.
- Inbound Traffic Control:
 - Controller controls the path attributes of the EVPN MAC route that is advertised to the different GWs and steer the inbound traffic.

Usecase 2: Inter-AS EVPN Option-A solution



Inter-AS EVPN Option-A solution:

- Using BGP between ASBRs.
 - Learning of MAC Addresses can be controlled via Peer-Based Policy between ASBRs;
 - MP-BGP is always adopted for Inter-AS L3VPN Option-A. Unified Control-Plane for MAC routing information.

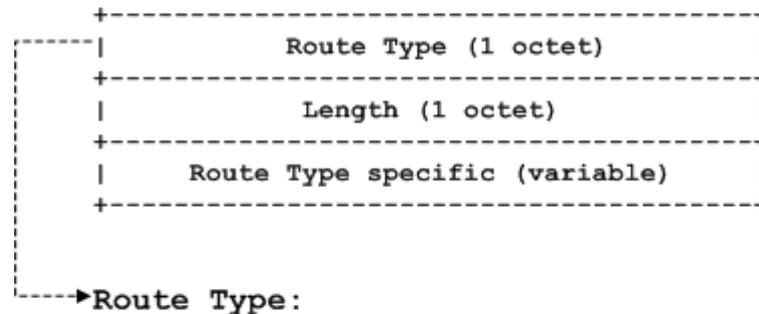
Usecase 3: Fast Convergence

- Fast Convergence
- The network convergence time is not dependent of the local MAC learning and advertisement of MAC addresses learned by the PE any more.

Options of Protocol Extensions

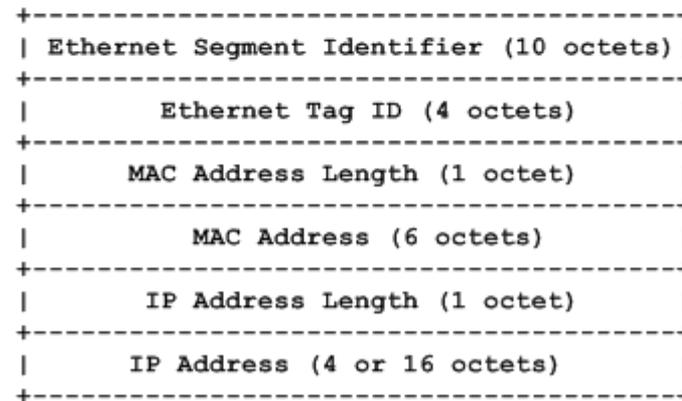
- Option 1: Add one new type of EVPN route, C-MAC Advertisement Route.
- Option 2: Reuse EVPN MAC/IP Advertisement Route (Type 2) for public MAC/IP route.

Option 1: C-MAC Advertisement Route



+ 6 C-MAC advertisement Route

C-MAC Advertisement Route Specific Content



Option 2: Reuse EVPN MAC/IP Advertisement Route

- Reusing EVPN MAC/IP Advertisement Route defined in [RFC7432] to exchange MAC/IP route information between CE and PE.
 - In this case RD, MPLS Label1 and MPLS Label2 fields MUST be set as 0.
 - In addition, the RT for the route MUST also be set as 0.

Next Step

- Solicit comments on options of protocol extensions.
- Propose protocol extensions for the type 5 route based on the well accepted option.
- Revise the draft.