

# Active-active access in NVO3 network

draft-hao-l2vpn-evpn-nvo3-active-active-00

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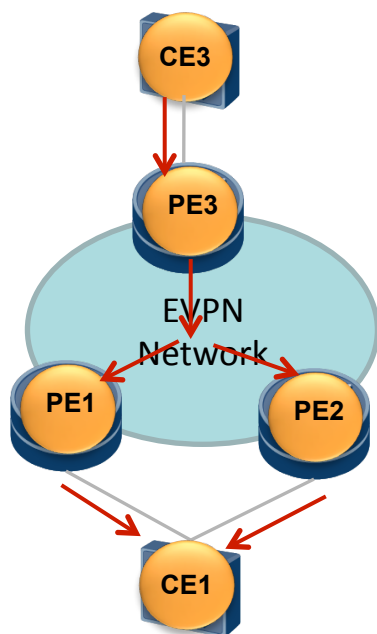
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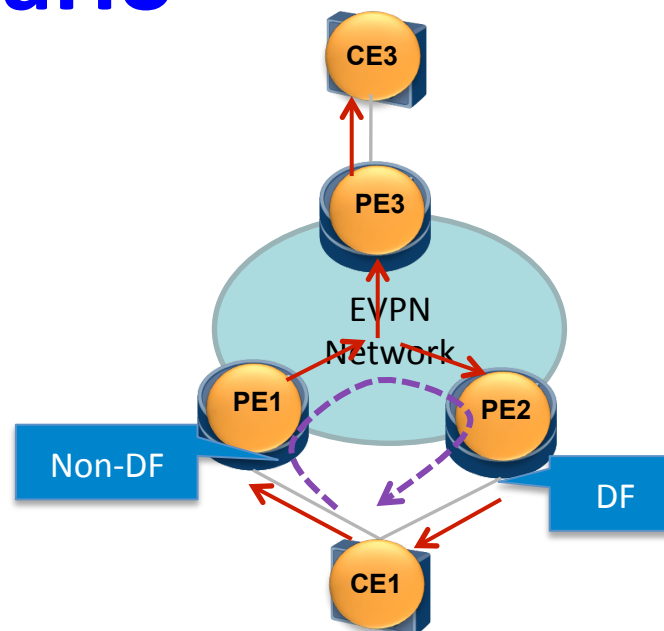
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# Two Problems in Active-Active access scenario



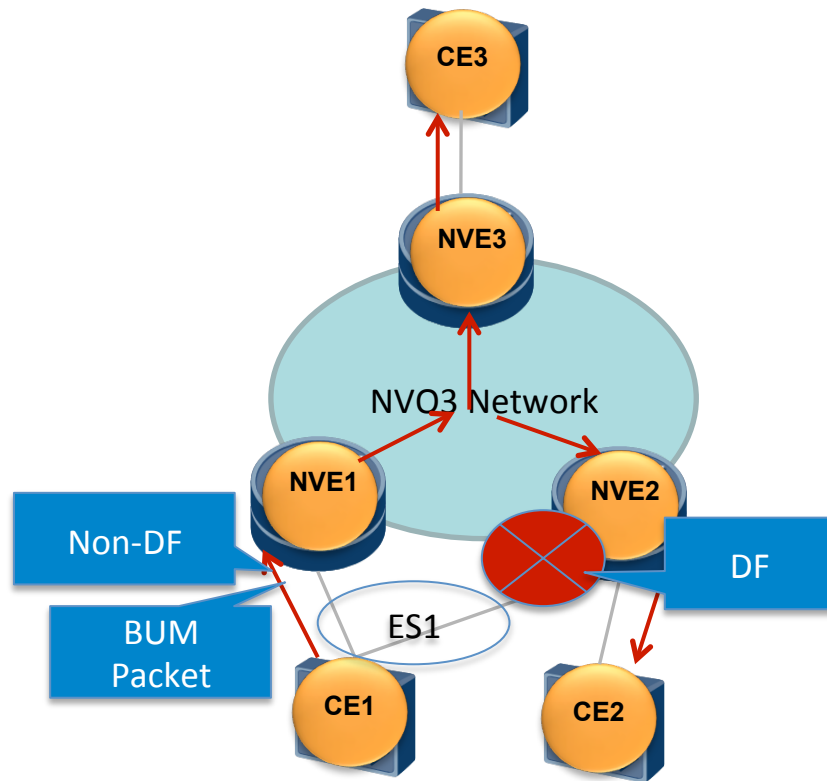
Duplicate delivery of flooded traffic to CE1



Loop & Echo Forwarding among multi-homed PE1 and PE2

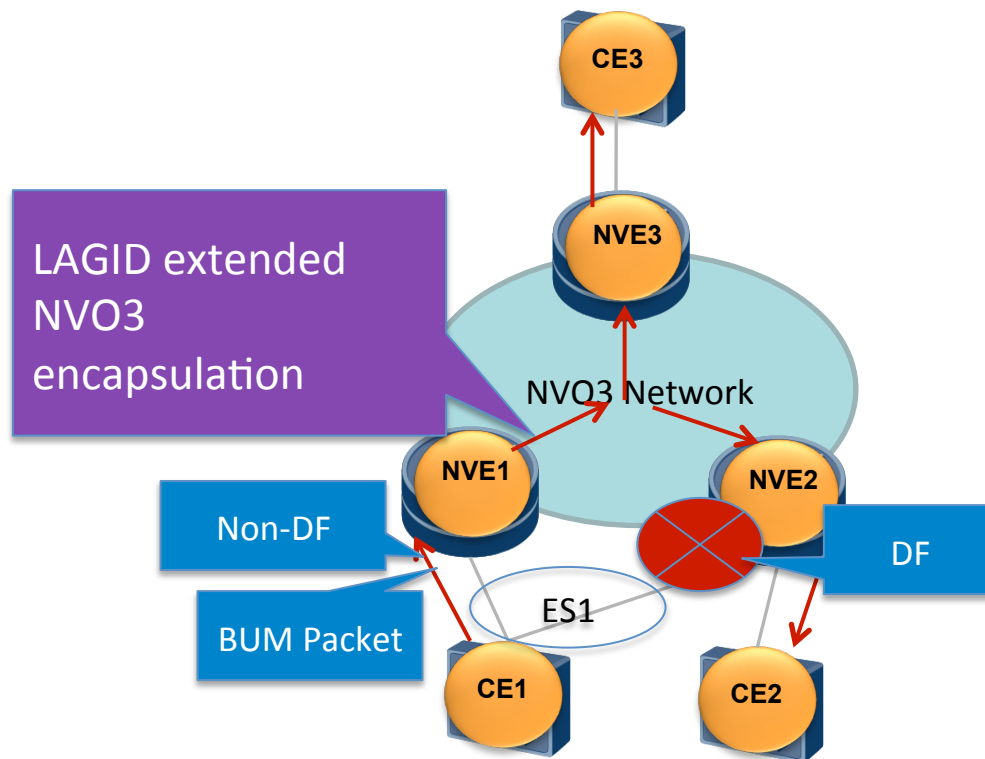
- 1, Duplicate delivery of flooded traffic. Designated Forwarder (DF) election mechanism can be used to prevent duplicate copies of flooded traffic from remote PE.
  - 2, Loop & Echo Forwarding among multi-homed PEs. "Split horizon" filtering mechanism can be used to avoid loop & echo forwarding. In MPLS-based network, ESI MPLS Label is relied on to perform "split horizon" filtering function.
- This document mainly focuses on split horizon filtering mechanism in NVO3 (VXLAN/NVGRE) network.

# Source IP based solution to perform split-horizon filtering



- When NVE2 receives the multicast frame from NVO3 network, it checks the source IP address of NVO3 tunnel and filters out the frame on all local interfaces connected to Ethernet Segments(ES) that are shared with the ingress NVE.
- The solution has **IP address allocation scalability issue**, as each NVE needs to allocate an IP address per Ethernet Segment.

# LAGID extension solution proposed



- LAGID is used to identify each Ethernet segment on an NVE, the role of LAGID in NVO3 **network is similar to** ESI MPLS Label in MPLS based EVPN network.
- The reserved bits in VXLAN/NVGRE header can be used to carry the LAGID for each Ethernet segment.
- Egress DF NVE relies on the value of the LAGID to determine whether or not a BUM frame is allowed to egress a specific Ethernet segment.
- For ingress replication, LAGID in VXLAN/NVGRE header is assigned by egress NVE. For point-to-multipoint, LAGID is assigned by ingress NVE.

# VXLAN/NVGRE data plane extension

## VXLAN header extension:

L	R	R	R	I	R	R	R	<b>LAGID (optional)</b>		Reserved	
VXLAN Network Identifier (VNI)										Reserved	

## NVGRE header extension:

```

+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|C| |K|S|L| Reserved0 | Ver |      Protocol Type 0x6558      |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
| Checksum (optional) | LAGID(optional) |      Resv      |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
| Virtual Subnet ID (VSID) |      Reserved      |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+

```

# Next Steps

- Seek some comments and feedbacks.