AC-influenced DF Election for (PBB-)EVPN

draft-rabadan-bess-evpn-ac-df-01

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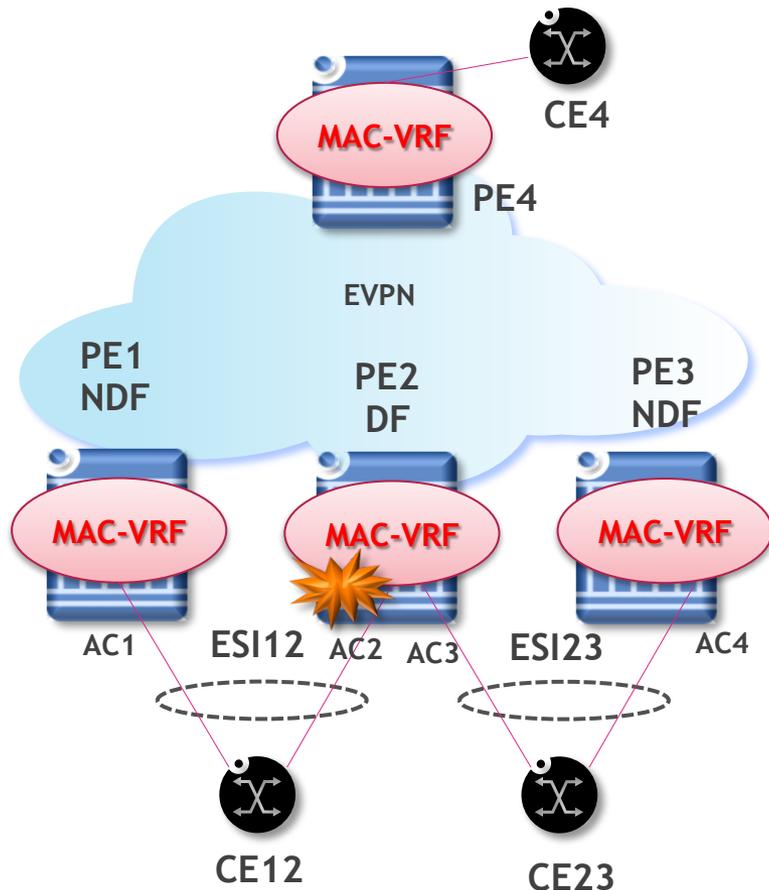
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Problem statement
The EVPN DF election algorithm does not solve "logical" failures

- Service-carving for a given ESI, is based on (V mod N)= i
  - Ordered list of IPs - from ES routes
  - V = ethernet-tag
  - N = number of Pes

- Provides a local DF election of a PEi at <ESI, EVI> level for EVPN and at <ESI, ISID> level for PBB-EVPN.

- Provides protection against link/node failures but not against "logical failures":
  - E.g. AC2 goes down or not provisioned yet
  - E.g. PE2's MAC-VRF shutdown or not provisioned yet

- VPLS BGP Multi-homing can protect these failures.
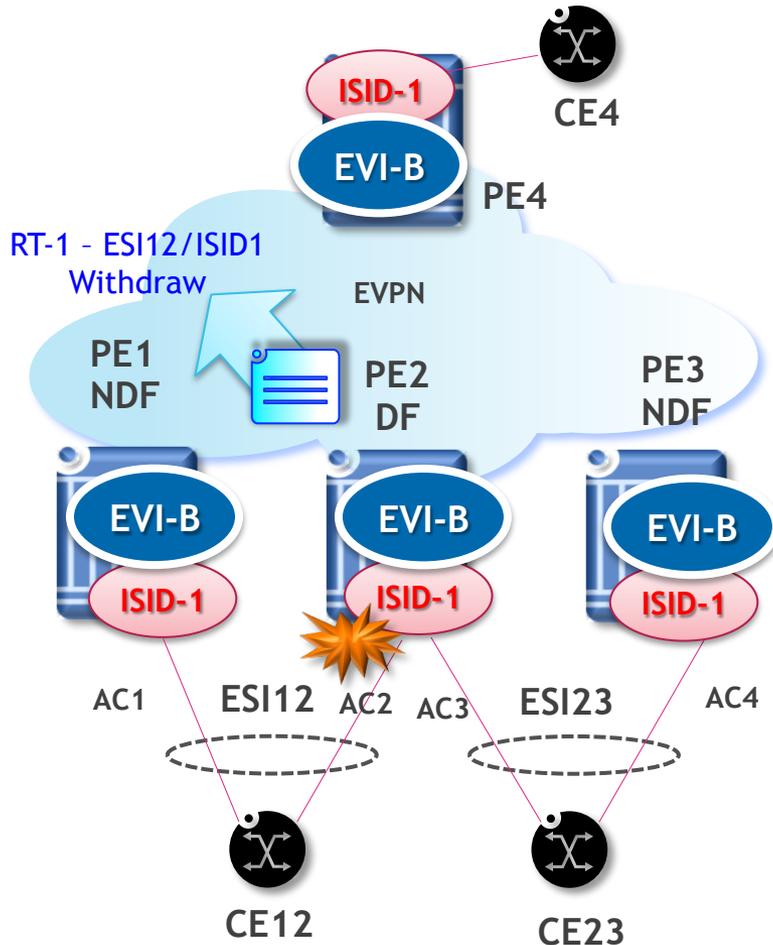
Solution for EVPN
Remove PEs from the candidate list based on the ACS
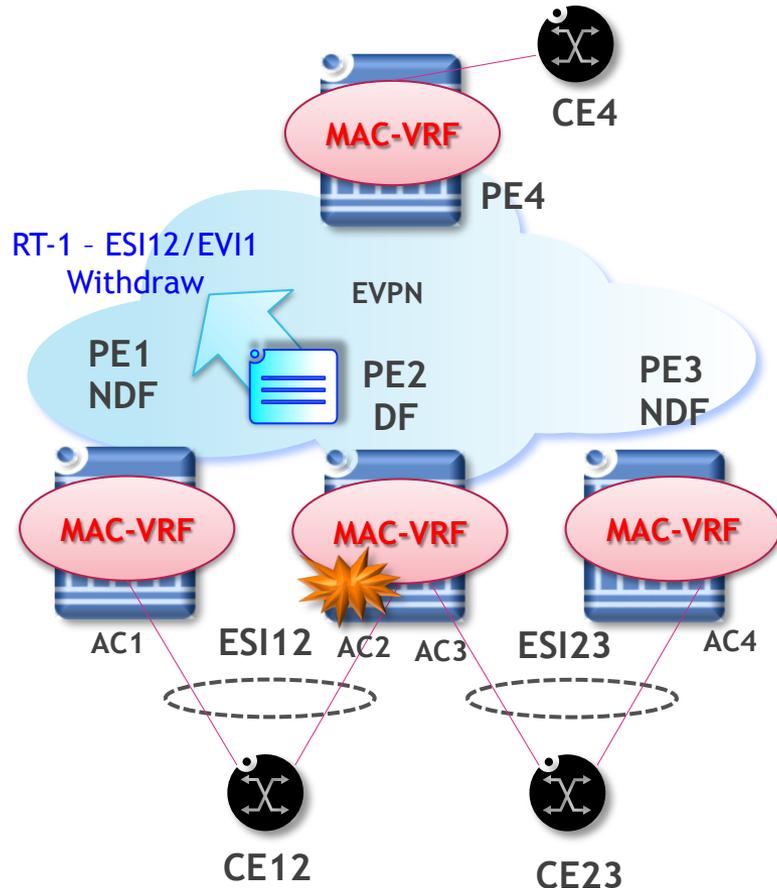
- The Ethernet A-D per EVI update/withdraw route is an indication of a remote ACS (Attachment Circuit Status) for the receiving PE

- When electing the DF for a given EVI, a PE will not be considered candidate until an Ethernet A-D per EVI route has been received from that PE.

  – E.g. PE-1 will not consider PE-2 as candidate for DF election for <ESI12, EVI-1> until an Ethernet A-D per EVI route is received from PE-2 for <ESI12, EVI-1>

- Note that this procedure does not modify the existing EVPN control plane whatsoever. It only modifies the candidate list.

Solution for PBB-EVPN
Remove PEs from the candidate list based on the ACS

- Ethernet A-D routes are not used in PBB-EVPN, hence the existing PBB-EVPN procedures must be extended.

- Ethernet A-D per ISID update/withdraw routes will be used as an indication of a remote ACS (Attachment Circuit Status) for the receiving PE

Ethernet A-D per ISID route (route type 1) E.g.:

RD = EVI-B RD
ESI = ESI12
Ethernet Tag = ISID1
MPLS label = 0

Route-target = ES-Import Route Target used by the ES12 route

Conclusions and next steps

- This draft describes some issues in the current (PBB-)EVPN DF election and proposes solutions:

  - EVPN: Existing procedures, ACS UP candidate list

  - PBB-EVPN: optional A-D per ISID route

- WG feedback requested

THANKS!