Remote Replication issue of EVB using E-channel

Multicast Remote Replication problem

- Source filtering scheme works well when each end station occupies one E-channel
- When EVB is used, multiple VMs share one E-channel, one VM of the E-channel may NOT be able to receive multicast data from another VM which uses the same E-channel.

One End Station per E-channel

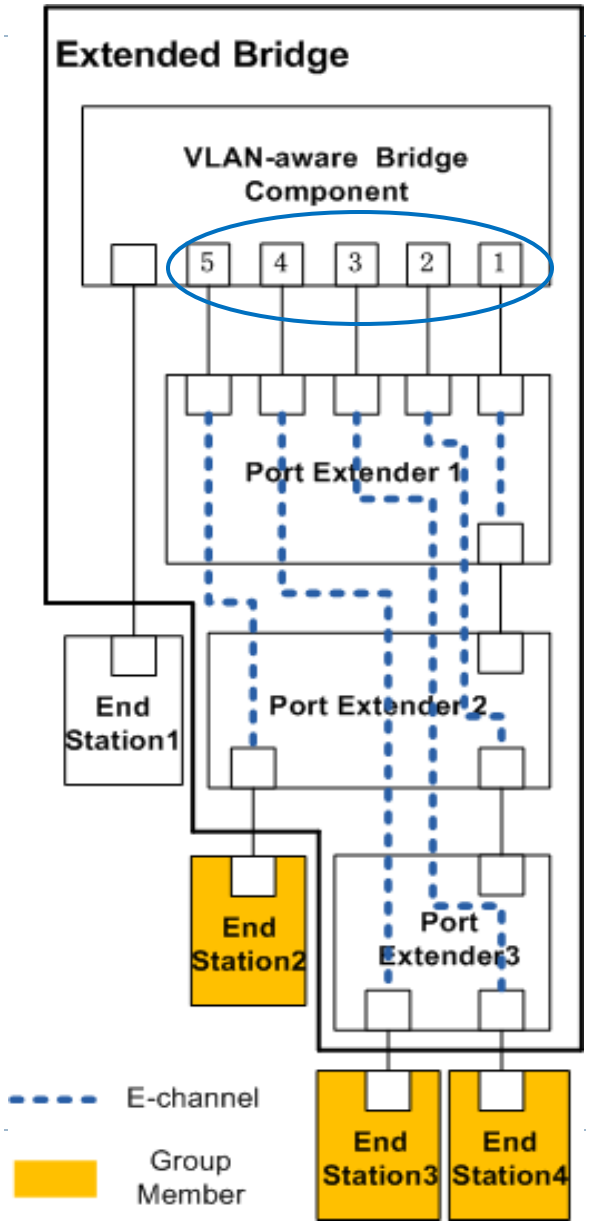
- Each End Station consumes one E-channel
- Support Remote Replication when multicast

Replication Group

Ports in VLAN-aware Bridge Component connected to one Port Extender(PE1)

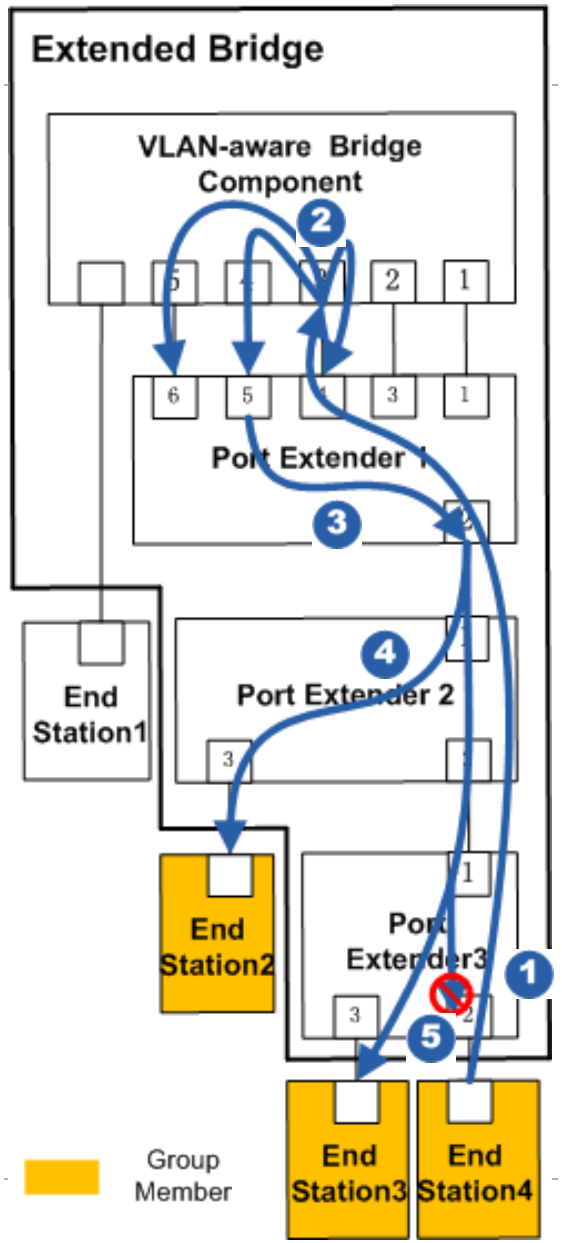
Suppose:

- End Station2,3,4 construct a multicast group
- End Station4 sends frames to other members of this group



Multicast of One End Station per E-channel

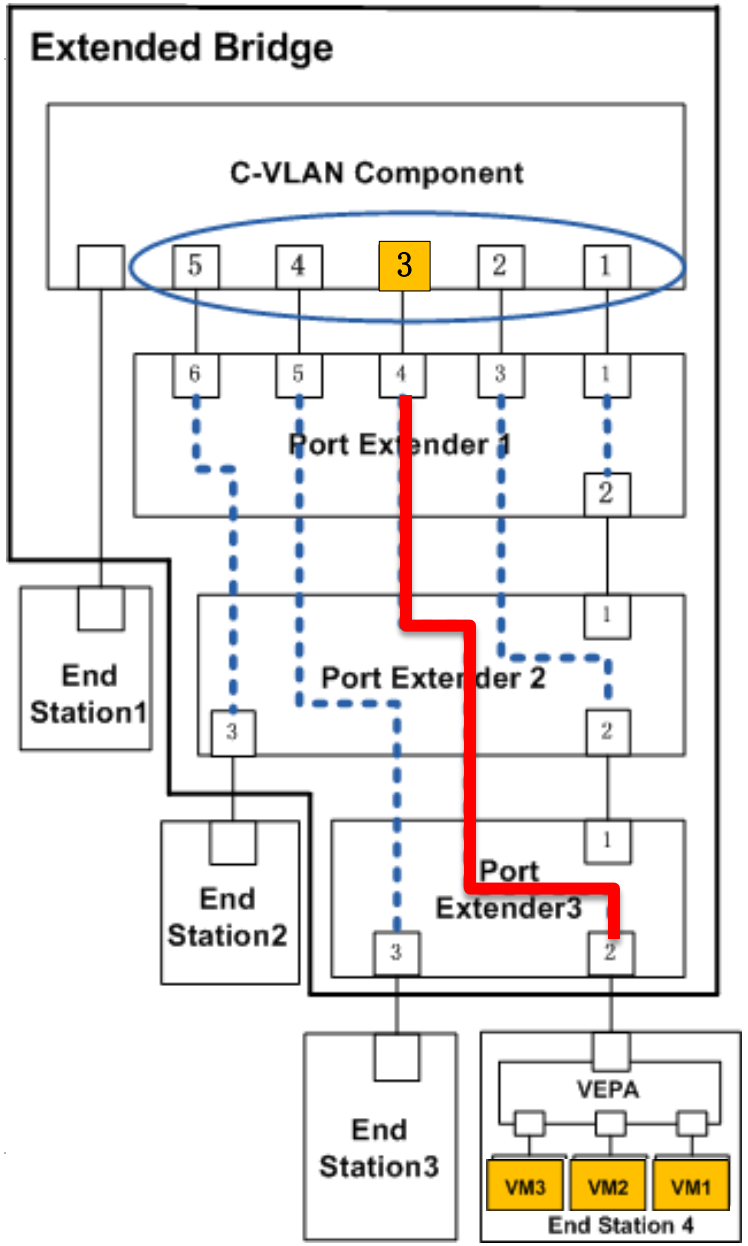
1. Data is forwarded to VLAN-aware bridge component by PEs.
2. VLAN-aware Bridge Component determines egress ports and E-CID, and forwards the data to egress ports with E-CID. Ingress port 3 and egress ports 3,4,5 are in the same Replication Group, so Ingress E-CID is also sent to PE1.
3. PE1 generates E-tag according to E-CID, Ingress E-CID sent from VLAN-aware Bridge Component.
4. PEs forward frames according to the E-tag.
5. Extended ports compare Ingress_E-CID and PCID of themselves. If match, filter the frame from this port.



Multiple end stations in one E-channel

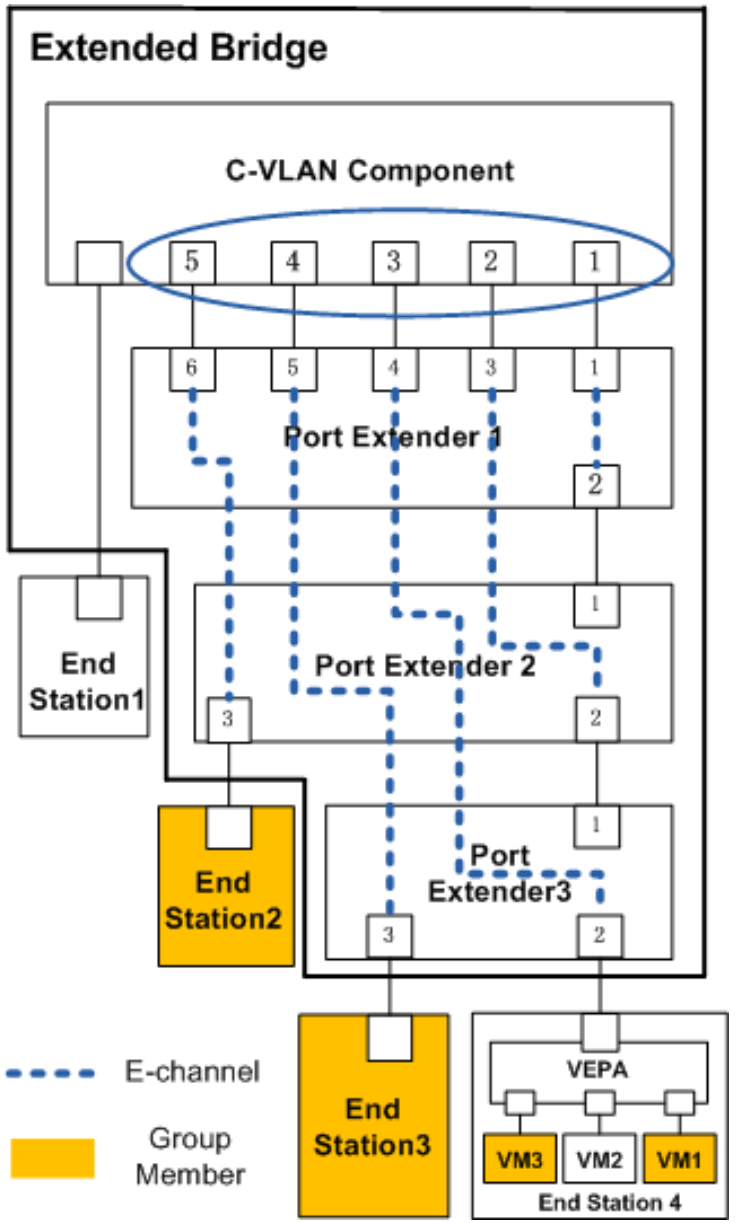
There are situations that one E-channel carries data from multiple End Stations

- VM1,2,3 share one E-channel allocated to PE3 port2
- Port3 on VLAN-aware Bridge Component corresponding to the E-channel should enable Reflective Relay function. It supports VM1,2,3 communicate to each other



Multicast of Multiple end stations in one E-channel

- End Station 2, End Station 3, and VM1, VM3 in End Station 4 construct a multicast group
- When VM1 sends multicast frames to other group members, End station2 and End station3 will receive the frames. How about VM3?



Multicast of Multiple end stations in one E-channel (Cont.)

Step 1: ……

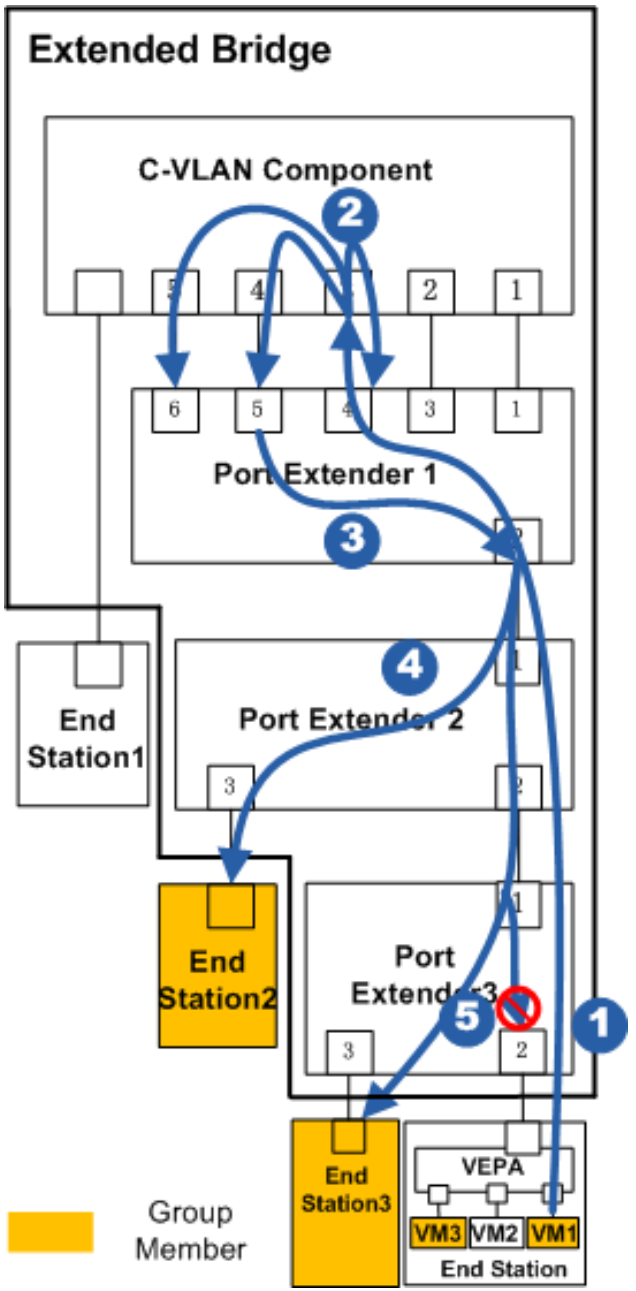
Step 2: Ingress port (P3) and egress ports(P3, P4, P5) are in the same Replication Group. C-VLAN Component passes Ingress E-CID to PE1.

Step 3: PE1 puts ingress E-CID in E-tag Ingress_E-CID field

Step 4: ……

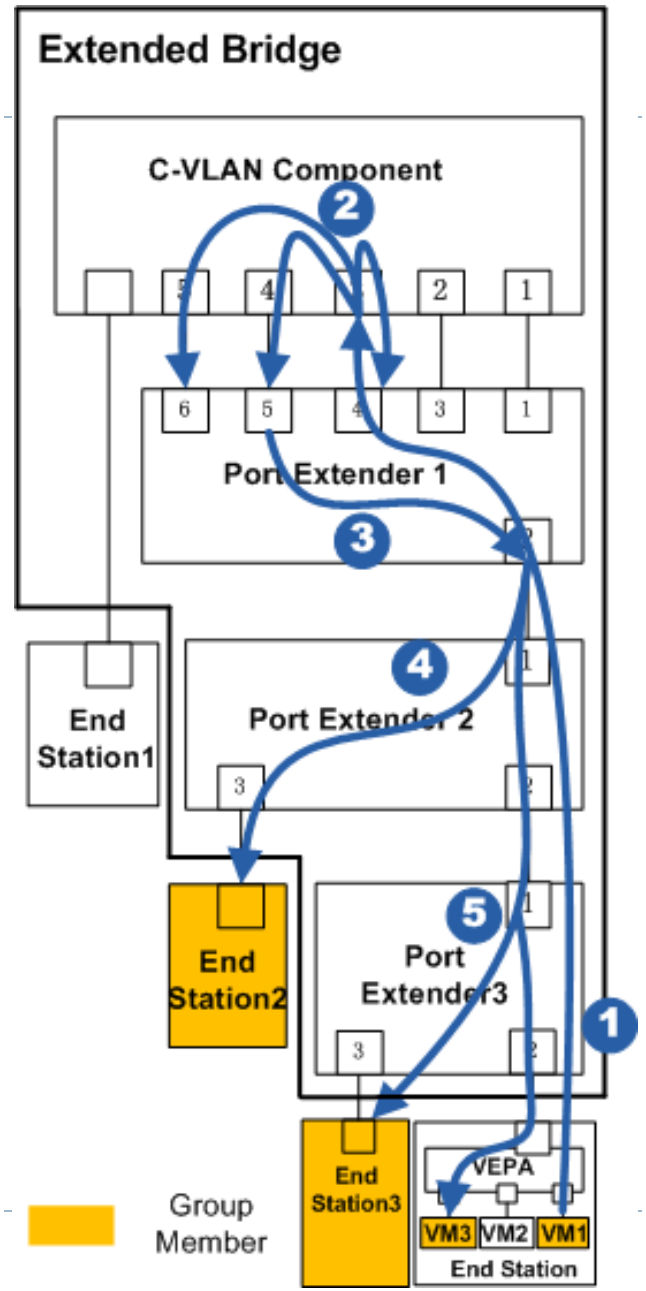
Step 5: PE3 finds out Ingress_E-CID value is the same with P2's PCID. The multicast frames are filtered on P2

VM3 can't receive multicast frames from VM1!



Solution

- Propose：C-VLAN Component does not pass Ingress_E-CID to internal PE if:
  - Ingress and egress ports are in the same Replication Group, and
  - One of the egress ports is the ingress port, and it has enabled Reflective Relay function.
- Ingress E-CID is not passed to PE1, so Ingress_E-CID field in E-tag is 0. P2 of PE3 will not filtering this frame. VEPA will filter data to VM1.
- VM3 will receive multicast frames from VM1!



Thank you