Proxy IP->MAC Advertisements in EVPN

draft-rbickhart-evpn-ip-mac-proxy-adv-00

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Problem

• IP->MAC bindings of hosts connected to multihomed sites in EVPNss may be locally learned in the data plane only on a subset of attached multihoming PEs
• Other PEs learn the IP->MAC through the control plane only
Problem

• If PE1 or the link from PE1 to the multihomed site fails, all traces of the IP->MAC binding are lost from the EVPN

• However, the MAC and IP are still reachable through PE2 ... PEn
Solution – MH PE Behavior

• Upon receiving the control plane learned IP->MAC, PE2 ... PEn also originate their own advertisements for type-2 route: IP->MAC marked with a proxy indication

• EVPN ARP/ND Extended Community:

```
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
| Type=0x06     | Sub-Type=0x08 |Reserved |P|O|R|   Reserved=0  |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
| Reserved=0                        |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

Bit Name:    P  ->  Proxy IP->MAC advertisement
Solution – Remote PE Behavior

• Remote PEs receive the proxy IP->MACs and give them standard treatment because the remote PEs are not connected to the IP->MAC’s ESI
Solution - Failure Handling

- If all non-proxy IP->MAC sources are withdrawn, a PE originating proxy IP->MAC keeps advertising it, but starts aging timer.

- If IP->MAC learned from non-proxy source (DP or CP) before aging timer expires, aging timer cancelled.

- When aging timer expires, proxy IP->MAC advertisement is withdrawn.

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• When aging timer expires, proxy IP->MAC advertisement is withdrawn.
Conclusion and Next Steps

• Close the gap between the link / node failure and the subsequent relearning of the IP->MAC on one of the remaining multihoming PEs.

• Avoid unnecessary churn in the network

• Would like to seek feedback from WG