Extended Mobility Procedures for EVPN-IRB

draft-ietf-bess-evpn-irb-extended-mobility-01

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Objective – Host Mobility Extensions for EVPN IRB Scenarios

• Mobility procedures for advanced EVPN-IRB scenarios:
  • Fixed MAC <-> IP binding across host moves (baseline)
  • Host IP moves to a different MAC binding
  • Host MAC moves to a different IP binding
  • Routed Overlay – IP mobility
• Duplicate Address Detection for advanced EVPN-IRB scenarios:
  • Duplicate MAC detection (baseline)
  • Duplicate IP detection with different MAC bindings (no duplicate MAC)
  • Duplicate IP detection in a routed overlay (no MAC advertisements)
• Duplicate Host Recovery for above scenarios
Minor updates since last version

- Section 7.7 added to address Wen's comment on a possible race condition with MAC sharing
- Fixed terminology through the document for consistency with other EVPN documents (for e.g., ‘PE’ instead of ‘GW’).
- Minor edits, updated references and updated terminology section
Status / Next Steps

- Multiple Vendor Implementations.
- Ready for WGLC
Thank You

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Backup
Solution Summary

Mobility and Sequence Number Assignment Procedures (section 6 and 7):

- Sequence number is ONLY assigned and managed on local MAC route
- Local MAC-IP route simply inherits corresponding MAC route’s sequence number
- Extended Rules for local MAC route sequence number assignment:
  - Rule 1 - MUST be higher than existing remote MAC route, as per RFC 7432.
  - Rule 2 - If IP is associated with a different remote MAC, MUST be higher than remote MAC sequence number
- Routed Overlay: Mobility EXT-COMM and handling extended to IP only RT-5

Duplicate Host Detection and Recovery (section 9):

- Duplicate IP detection criteria (independent of MAC binding) clarified on top of draft-ietf-bess-evpn-proxy-arp-nd
- CLI based route unfreezing behavior clarified for these advanced scenarios
Problem - Allow MAC-IP binding to change across move in EVPN-IRB

**Scenario B:** Host IP moves to a different MAC binding
- How do we assign sequence number for new MAC-IP route [IP-a, MAC-b]?
- New sequence number 0 results in IP-a move not taking effect

**Scenario C:** Host MAC moves to a different IP binding
- How do we assign sequence number for new MAC-IP route [IP-b, MAC-a]?
- New sequence number 0 results in MAC-a move not taking effect

MAC-IP sequence number assignment procedure needs to be defined further
Scenario A: Fixed MAC – IP Binding

- Rule 1 applies – Local MAC-a sequence number must be higher than existing Remote MAC-a sequence number “N”
- Local [IP-a, MAC-a] simply inherits Local MAC-x sequence number “N+1”
- [IP-a, MAC-a] can be probed out on Leaf-1
Scenario B: Host IP moves to a different MAC binding

- **Rule 2 applies** – if IP-a is associated with a different remote MAC-a, MAC-b sequence number MUST be higher than remote MAC-a sequence number.
- Local [IP-a, MAC-b] simply inherits Local MAC-b sequence number “N+1”.
- [IP-a, MAC-a] can be probed out on Leaf-1.
**Scenario C:** Host MAC moves to a different IP binding

- **Rule 1 applies** – Local MAC-x sequence number must be higher than existing Remote MAC-a sequence number “N”
- Local [IP-b, MAC-a] simply inherits Local MAC-a sequence number “N+1”
- [IP-a, MAC-a] can be probed out on Leaf-1