

# Extended Mobility Procedures for EVPN-IRB

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

N. Malhotra (Arccus)

A. Sajassi (Cisco)

A. Pattekar (Cisco)

J. Rabadan (Nokia)

A. Lingala (AT&T)

J. Drake (Juniper)

IETF 105, July 2019  
Montreal

# 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

# Extended Mobility Procedures for EVPN-IRB

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

# Thank You

Neeraj Malhotra (Arccus), Ali Sajassi (Cisco), Aparna Pattekar (Cisco)  
Avinash Lingala (AT&T), J. Rabadan (Nokia), J. Drake (Juniper)

Backup

# Solution Summary

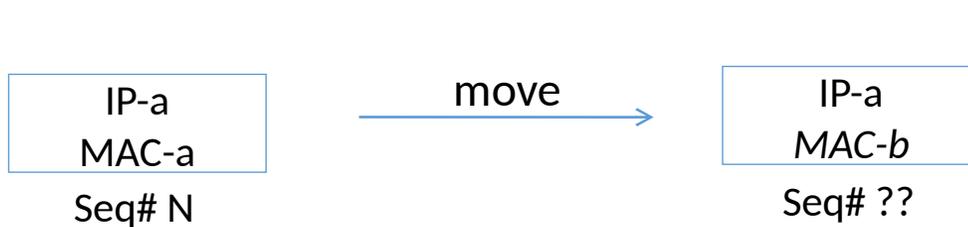
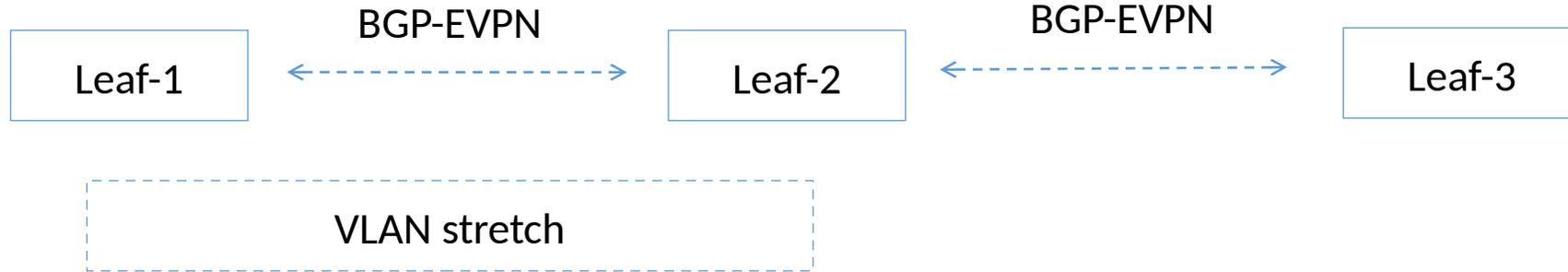
## **Mobility and Sequence Number Assignment Procedures (section 6 and 7):**

- 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):**

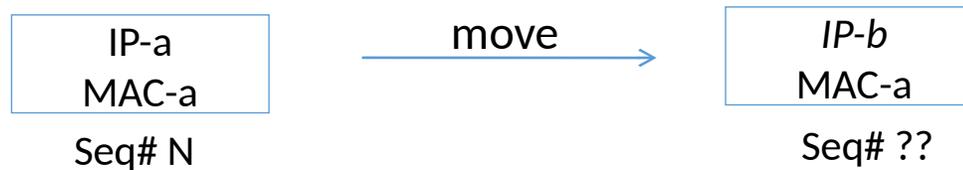
- Duplicate IP detection criteria (independent of MAC binding) clarified on top of *draft-ietf-bess-evpn-proxy-arp-nd*
- CLI based route unfreezing behavior clarified for these advanced scenarios

# 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

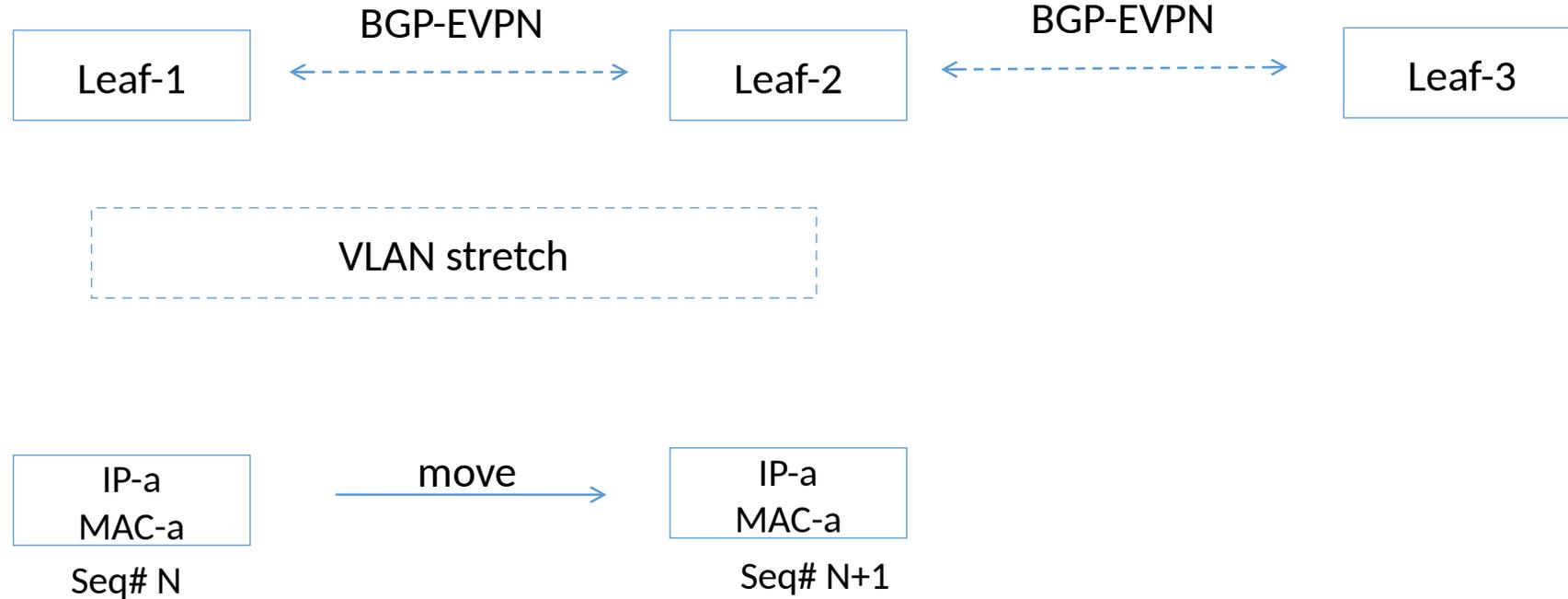


**Scenario C:** Host MAC moves to a different IP binding

- 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

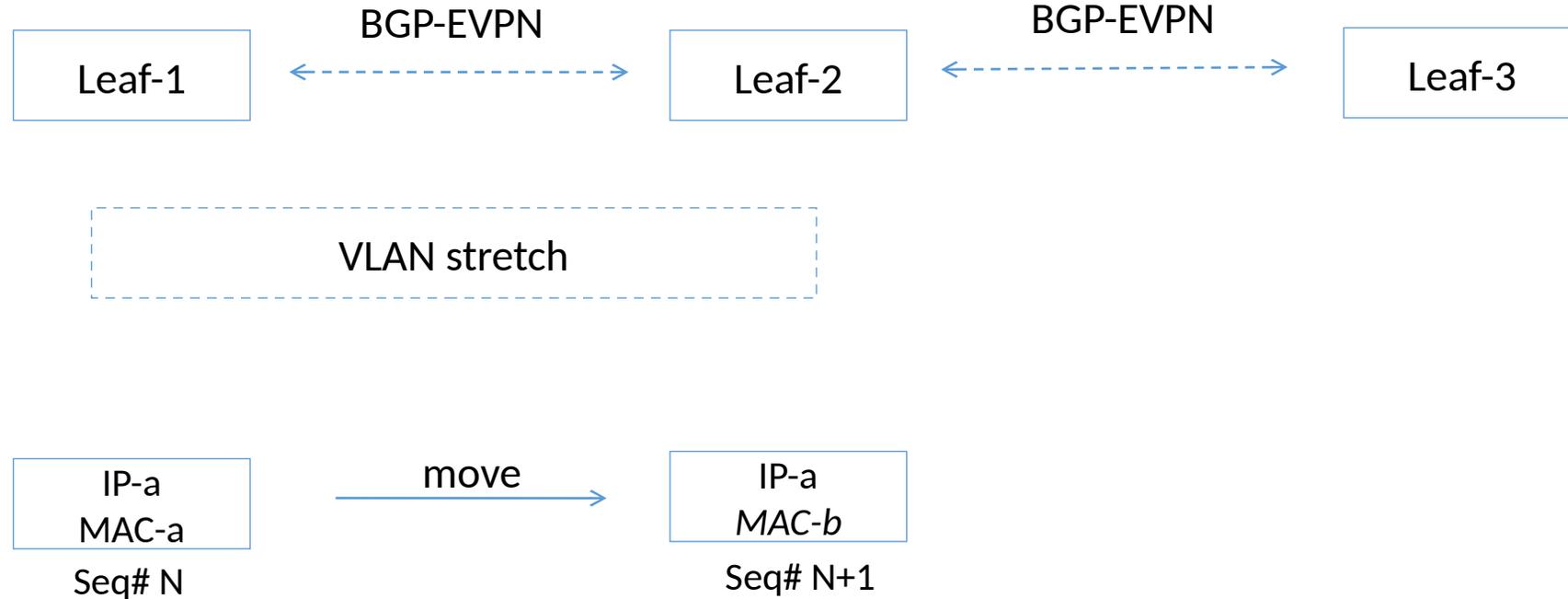
**MAC-IP sequence number assignment procedure needs to be defined further**

## Scenario A: Fixed MAC – IP Binding



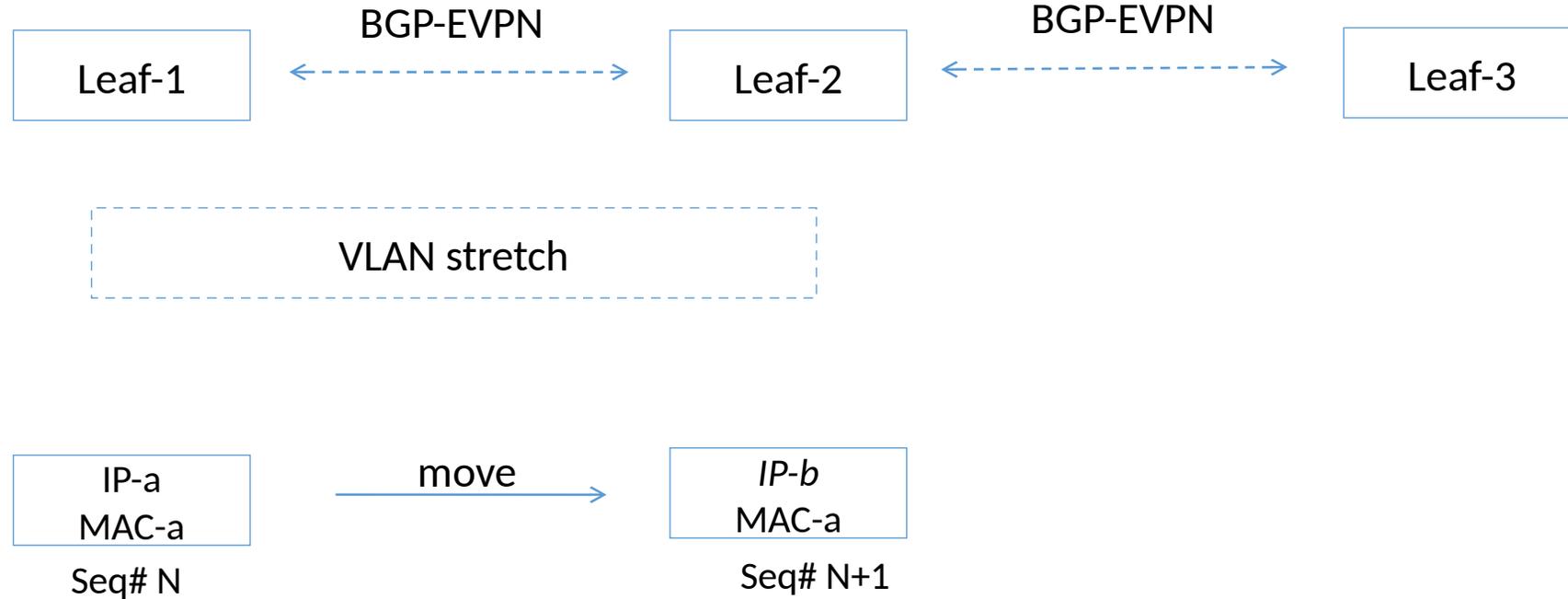
- **Rule 1 applies** – Local MAC-a sequence number must be higher than existing Remote MAC-a sequence number “N”
- Local [IP-a, MAC-a] simply inherits Local MAC-x sequence number “N+1”
- [IP-a, MAC-a] can be probed out on Leaf-1

## 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