draft-malhotra-bess-evpn-irb-extended-mobility-03

N. Malhotra (Arrcus),

A. Sajassi (Cisco)

A. Pattekar (Cisco)

J. Rabadan (Nokia)

A. Lingala (AT&T)

J. Drake (Juniper)

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Draft Objective – host mobility extensions for advanced 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

Updates

- All comments so far addressed
- Expanded scope to include IP mobility for a Routed EVPN Overlay (based on RT-5)
    - Section 8 extends RFC7432 MAC mobility to RT-5 / IP routes
- Expanded scope to include detailed procedures for Duplicate Host Detection (section 9)
    - Includes procedures for Routed EVPN overlays
    - Duplicate MAC and duplicate IP detection across ALL IRB mobility scenarios included in this draft
    - Duplicate Host Recovery (section 9.4) behavior for ALL IRB mobility scenarios included in this draft
    - Duplicate Host Detection content reconciled with draft-ietf-bess-evpn-proxy-arp-nd-02

Solution Summary

<u>Mobility and Sequence Number Assignment Procedures (section 6 and 7):</u>

- 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

<u>Duplicate Host Detection and Recovery (section 9):</u>

- 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

Draft Status

- Ready for WG adoption

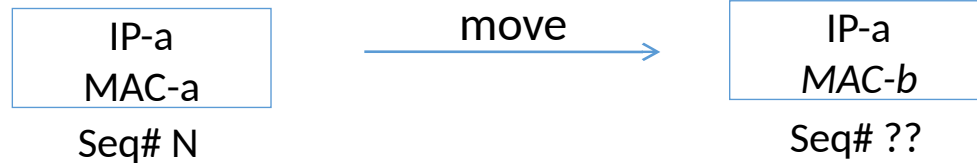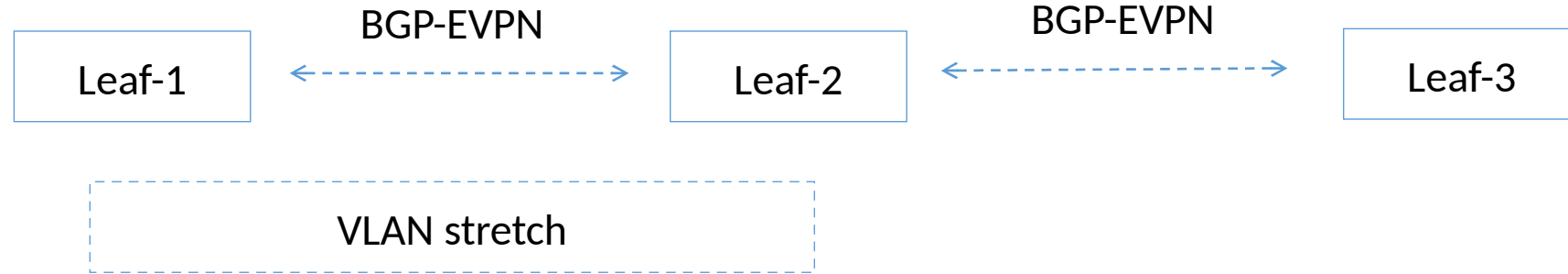# Extended Mobility Procedures for EVPN-IRB
(draft-malhotra-bess-evpn-irb-extended-mobility-03)

Thank You

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

Backup

Problem - Allow MAC-IP binding to change across move in EVPN-IRB

BGP-EVPN

BGP-EVPN

Leaf-1 ←- - - → Leaf-2 ←- - - → Leaf-3

VLAN stretch

IP-a
MAC-a
Seq# N

→ move →

IP-a
MAC-b
Seq# ??

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*

IP-a
MAC-a
Seq# N

→ move →

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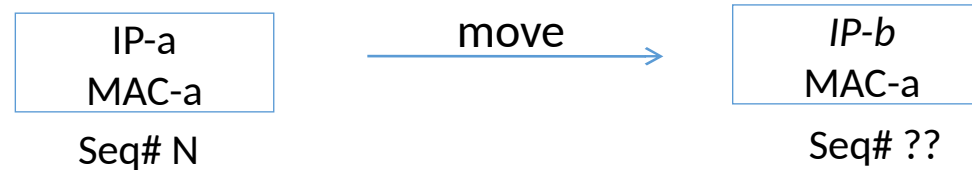
Scenario C: *Host MAC moves to a different IP binding*
- *How do we assign sequence number for new MAC-IP route [IP-b, MAC-a]?*
- *New sequence number 0 results in **MAC-a** move not taking effect*

MAC-IP sequence number assignment procedure needs to be defined further
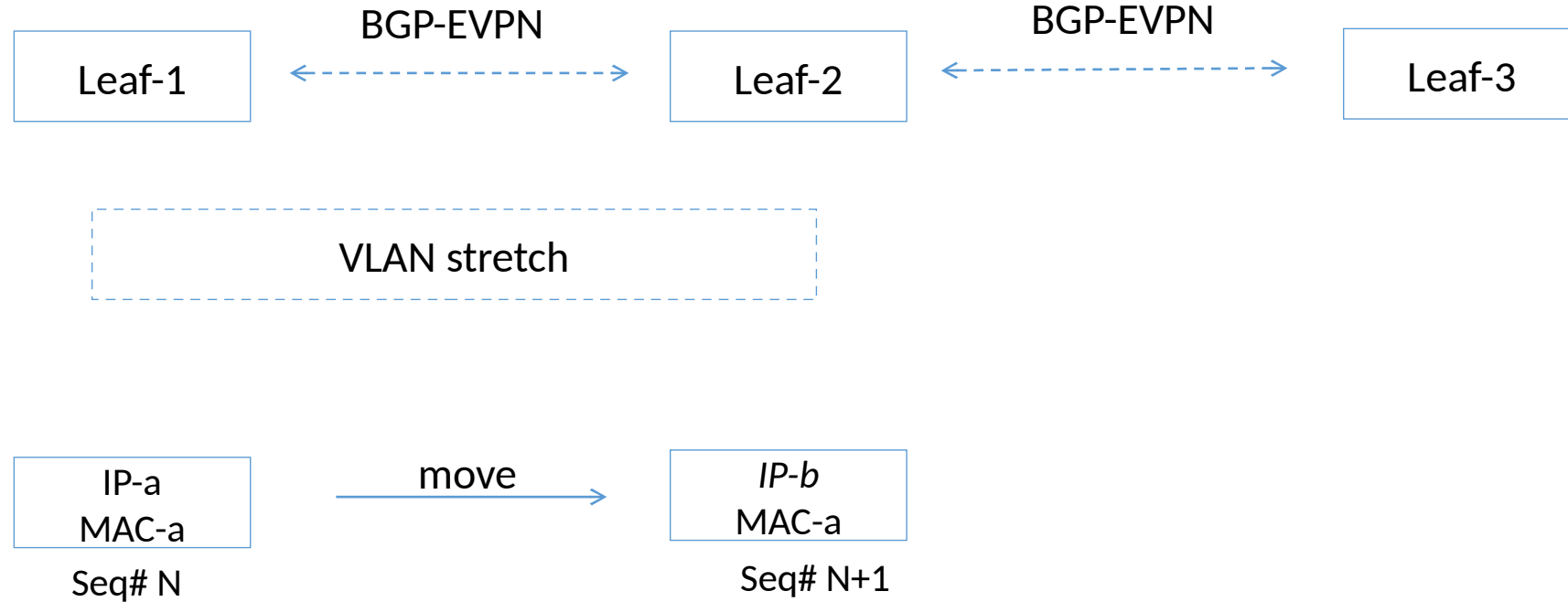
Scenario A: Fixed MAC – IP Binding
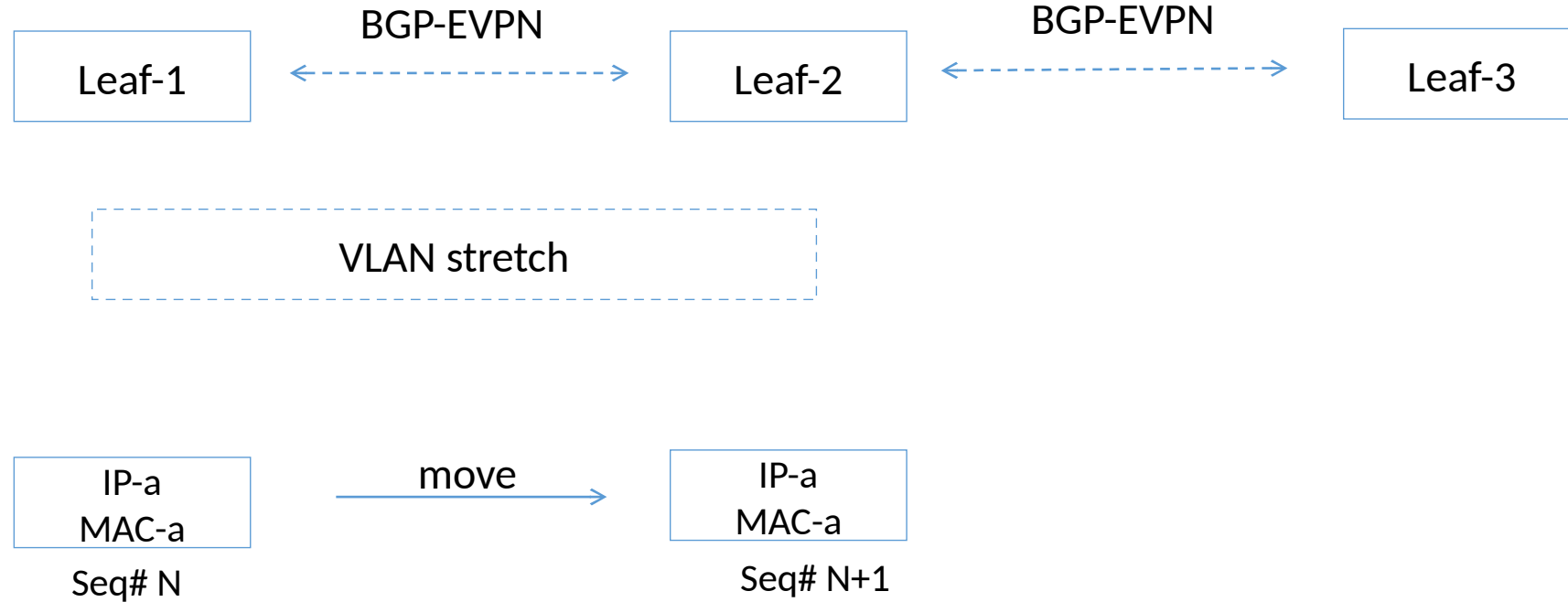
- ***Rule 1 applies*** *– Local MAC-a sequence number must be higher than existing Remote MAC-a sequence number "N"*
- *Local [IP-a, MAC-a] simply inherits Local MAC-x sequence number "N+1"*
- *[IP-a, MAC-a] can be probed out on Leaf-1*

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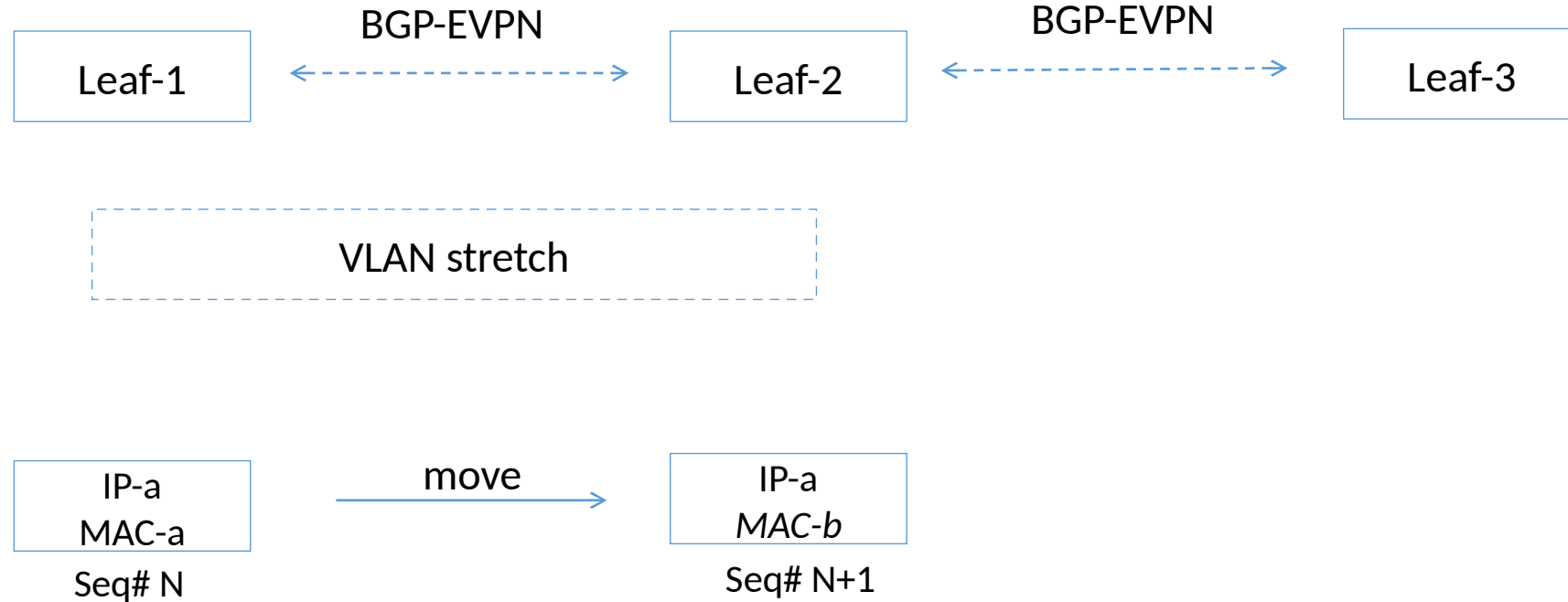
- **Rule 2 applies** – *if IP-a is associated with a different remote MAC-a, MAC-b sequence number MUST be higher than remote MAC-a sequence number*
- *Local [IP-a, MAC-b] simply inherits Local MAC-b sequence number "N+1"*
- *[IP-a, MAC-a] can be probed out on Leaf-1*

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*