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# A Day in the Life of a Packet

## VXLAN BGP EVPN Fabrics

Lukas Krattiger, Distinguished Engineer
@CCIE21921


BRKDCN-2563

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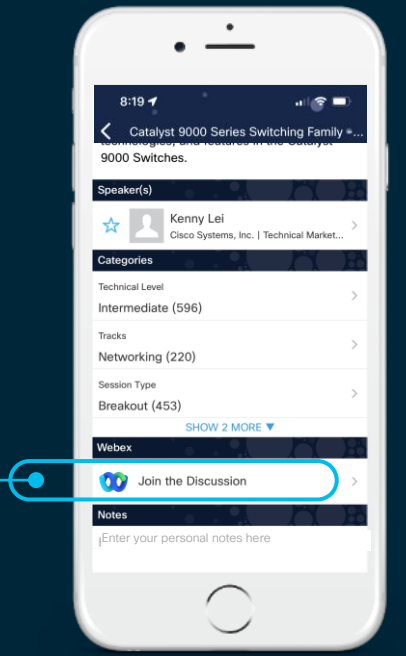


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# Abstract

A super long set of acronyms VXLAN EVPN, we want to get you the details to get you started. This session focuses on the Day in the Life of a VXLAN EVPN Packet. How we route, bridge and how multi-destination traffic (BUM) is handled. This session will help you to understand what happens on the ingress VTEP all the way to the egress VTEP and beyond.


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# Introduction

- We are going to cover all different kind of Packet Walks
- Route, Bridge, BUM and Silent Host Discovery
- A brief intro to VXLAN with EVPN
  - Sorry, not a VXLAN or VXLAN EVPN Intro Session


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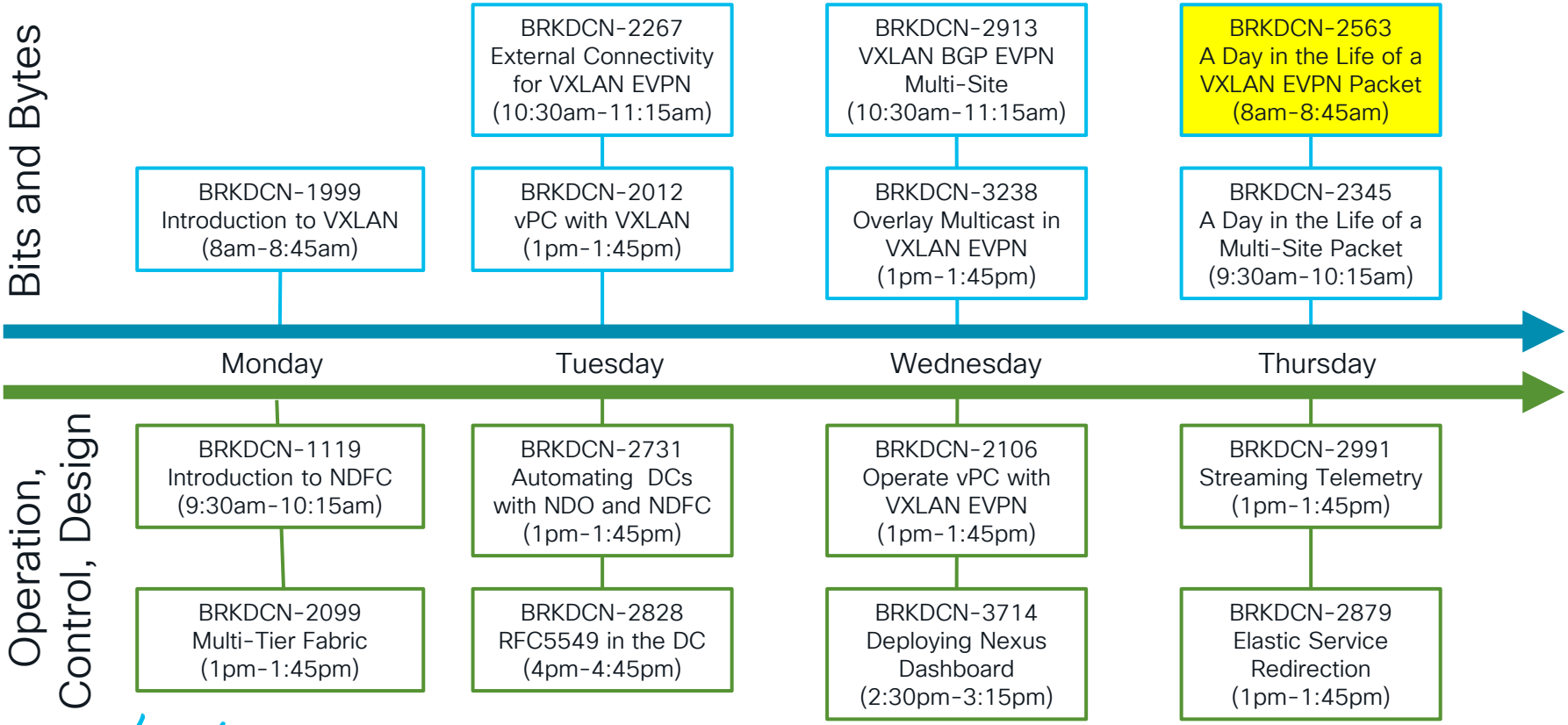
# Companion Sessions – Week at a Glance





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# Agenda

- Introduction to VXLAN EVPN
- Layer-3 Packet Walk
- Layer-2 Packet Walk
- BUM Packet Walk
- Silent Host Discovery
- Conclusion


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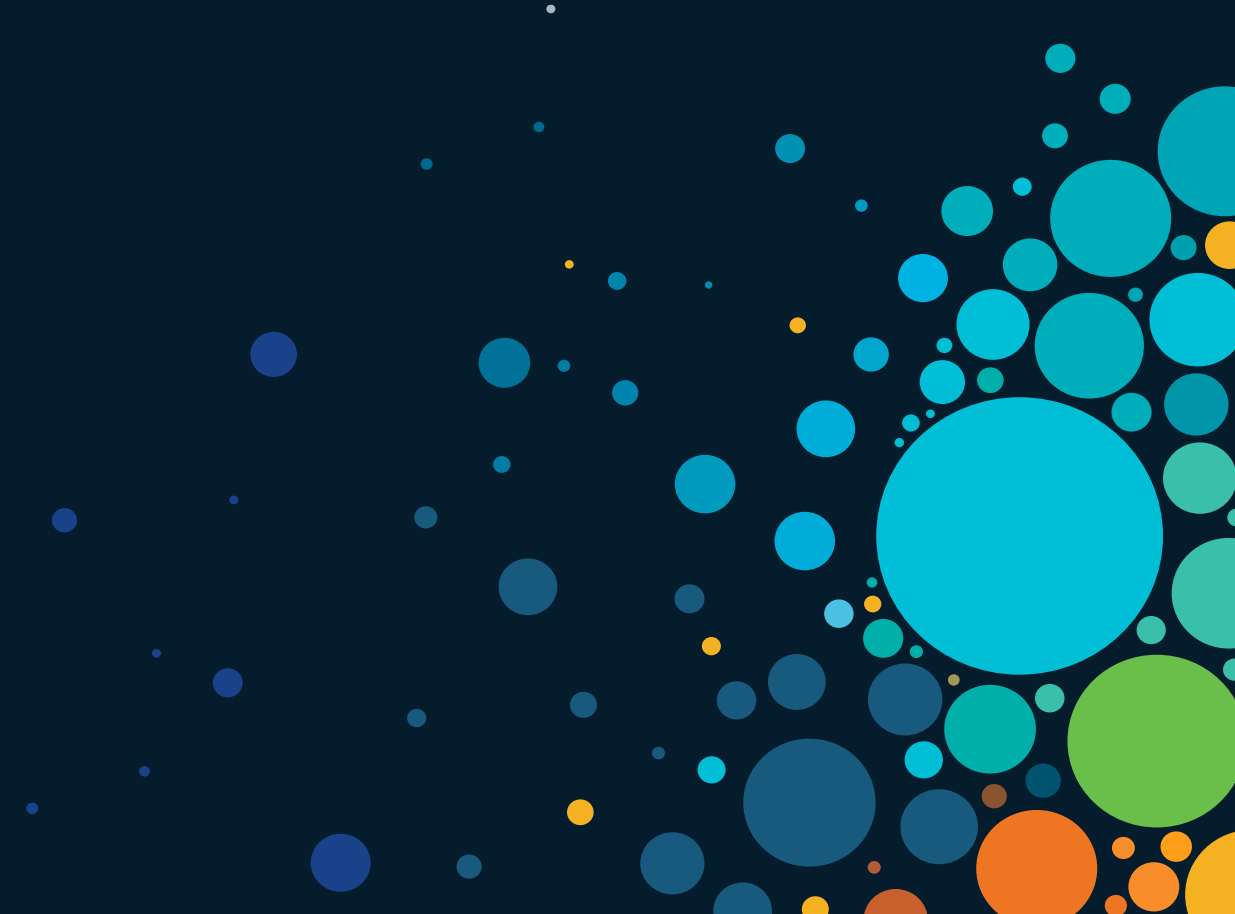
# Introduction



# What is VXLAN?

- Standards based Encapsulation
- RFC 7348
- Uses UDP-Encapsulation
- Transport Independent
- Layer-3 Transport (Underlay)
- Flexible Namespace
- 24-bit field (VNID) provides ~16M unique identifier
- Allows Segmentations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# What is EVPN?

- Standards based Control-Plane
- RFC 8365 (and RFC 7432)
- Uses Multiprotocol BGP
- Uses Various Data-Planes
- VXLAN (EVPN-Overlay), MPLS, Provider Backbone (PBB)
- Many Use-Cases Covered
- Bridging, MAC Mobility, First-Hop & Prefix Routing, Multi-Tenancy (VPN)


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# It all starts with a Network Device
## The Dating Network - When Control- meets Data-Plane



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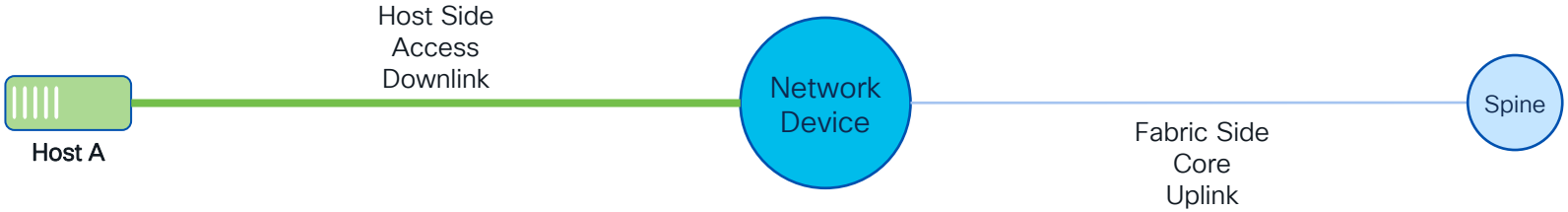
# It all starts with a Network Device
## The Dating Network - When Control- meets Data-Plane





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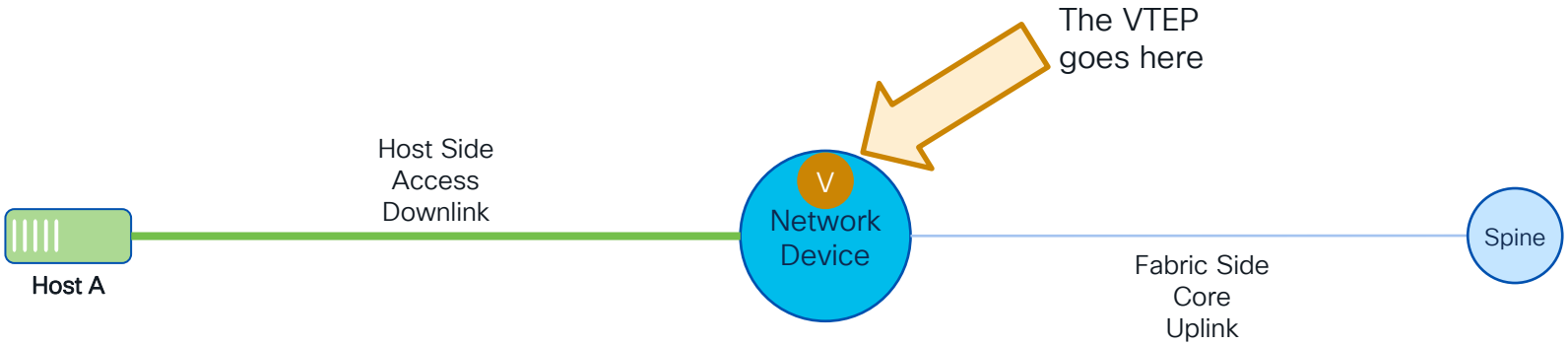
# It all starts with a Network Device

## The Dating Network - When Control- meets Data-Plane





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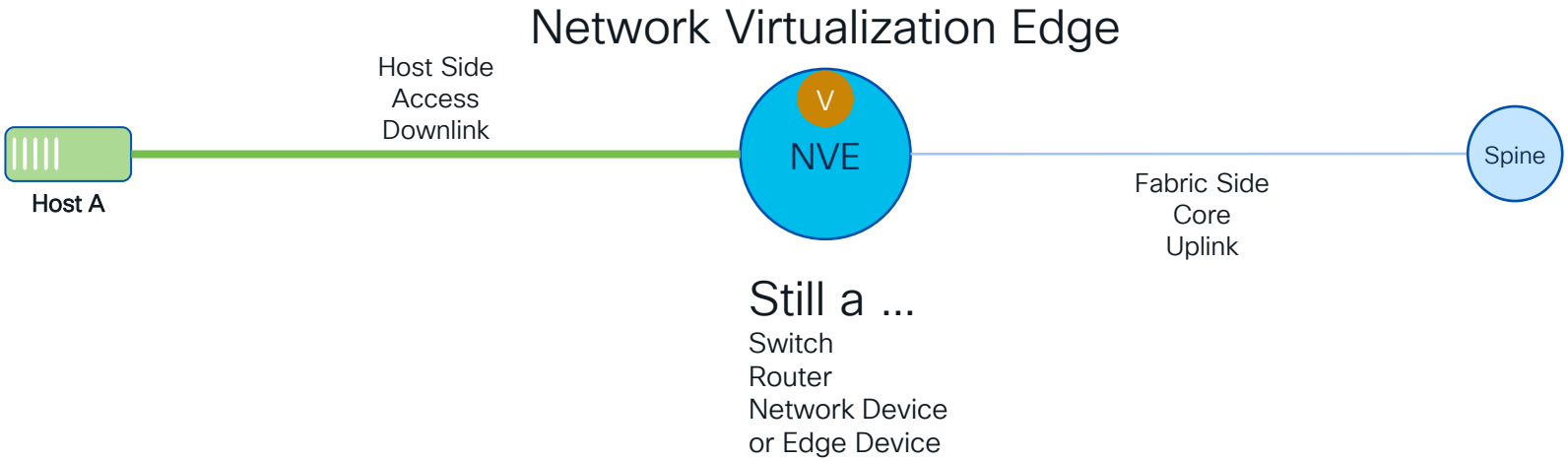
# Making the Network Device an NVE
## The Dating Network - When Control- meets Data-Plane





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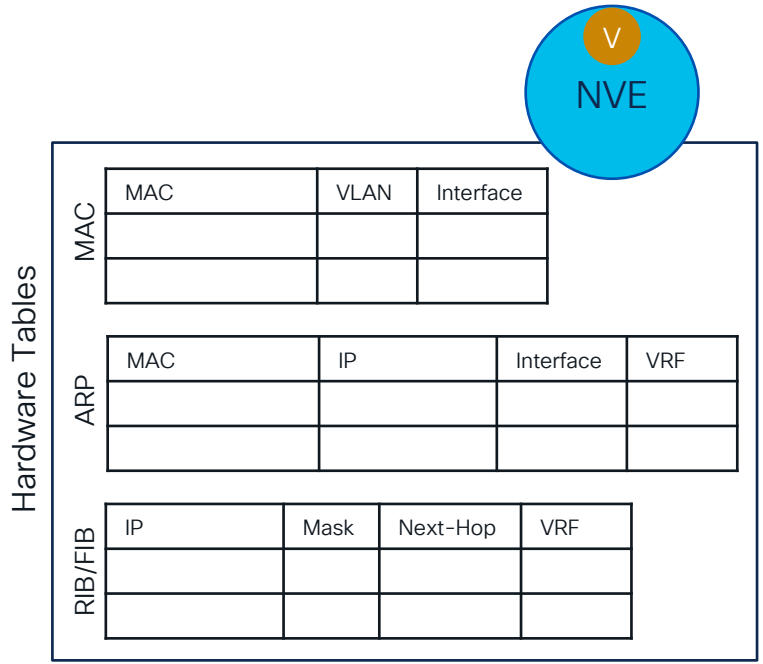
# The NVE and Some Important Table
## The Dating Network - When Control- meets Data-Plane





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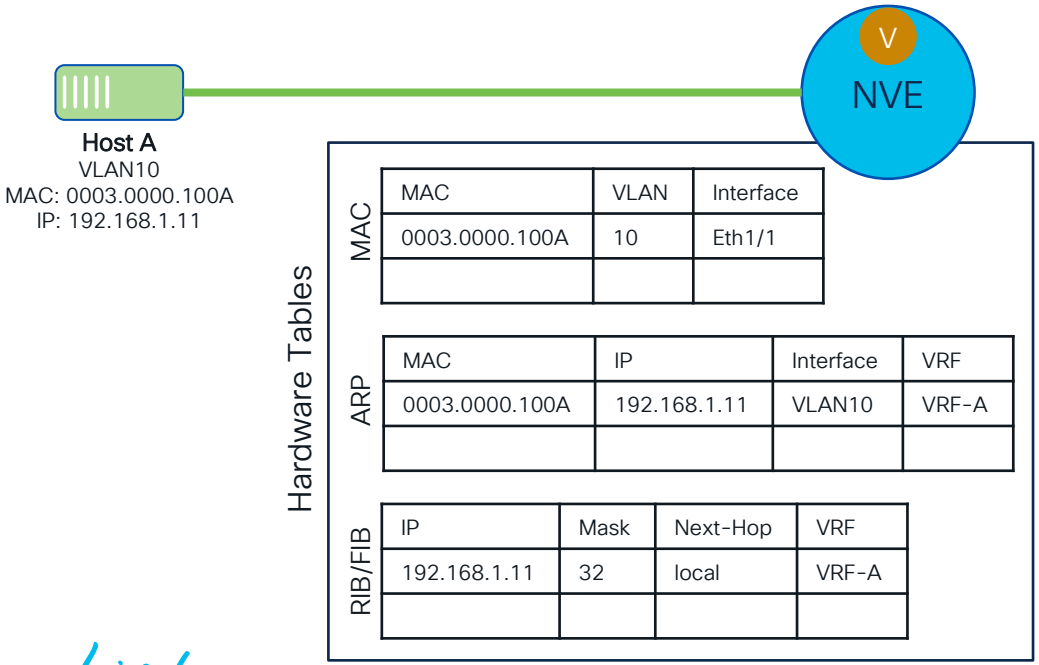
# Local Learning on the NVE
## The Dating Network - When Control- meets Data-Plane





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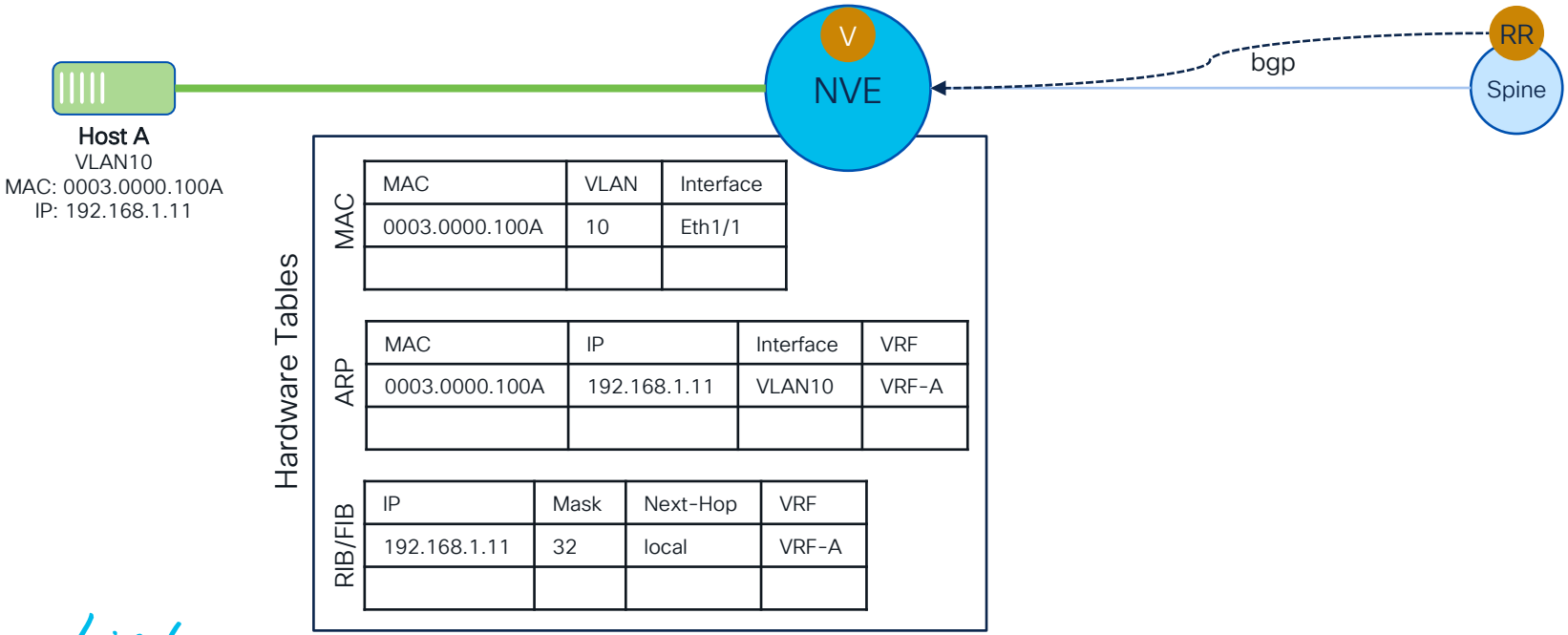
# Remote Learning from other NVE
## The Dating Network - When Control- meets Data-Plane





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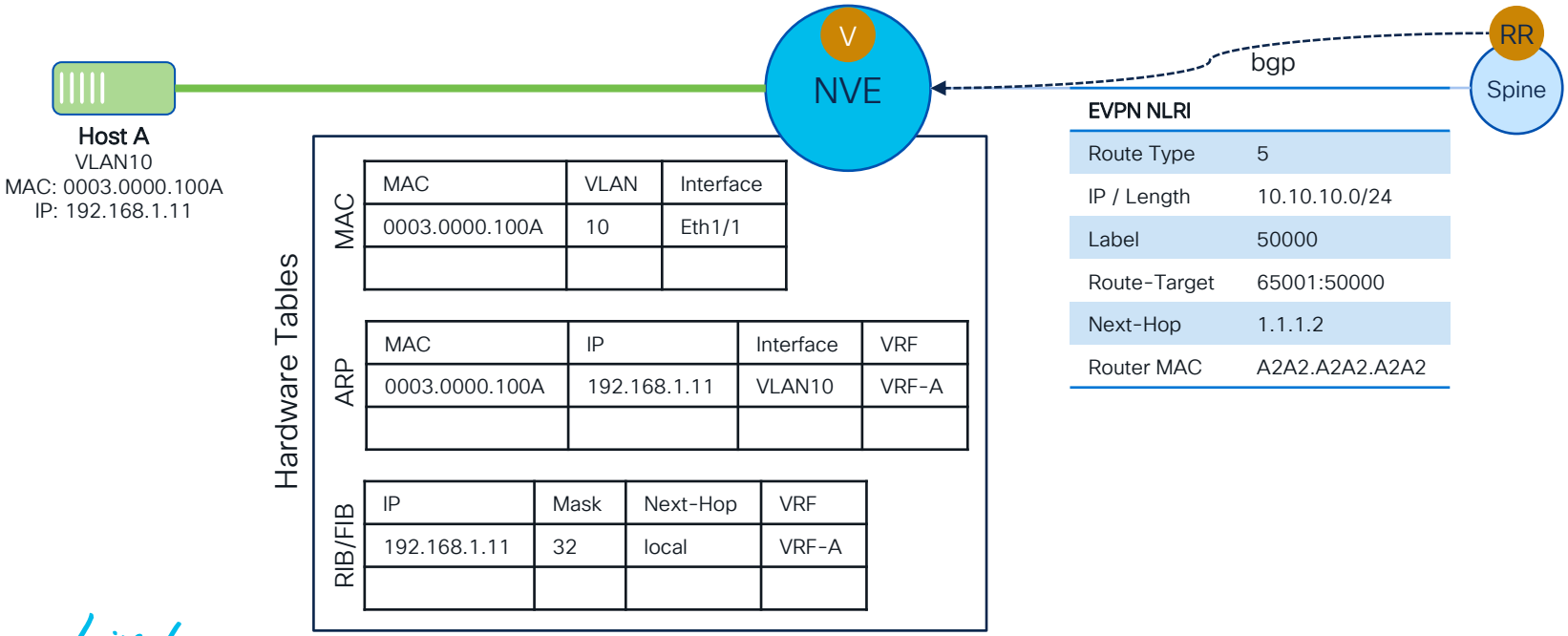
# Remote Learning from other NVE
## The Dating Network - When Control- meets Data-Plane





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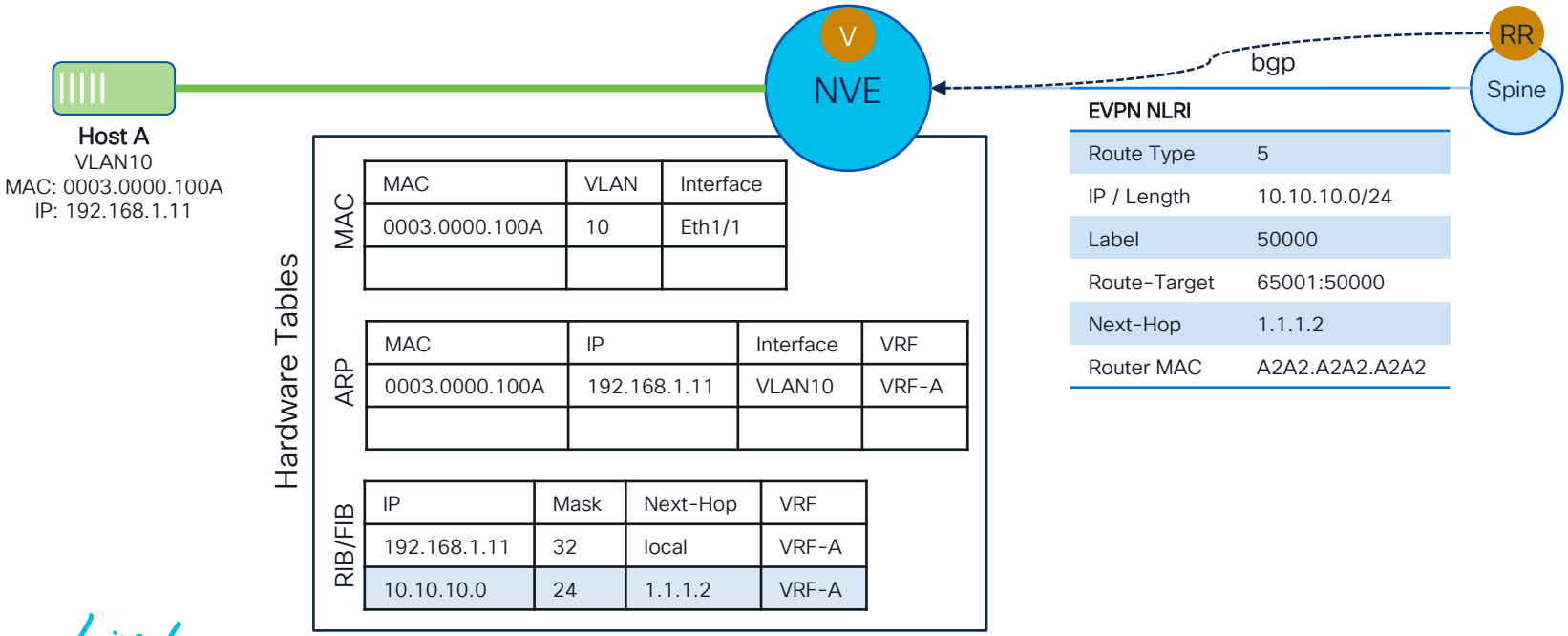
# Remote Learning from other NVE
## The Dating Network - When Control- meets Data-Plane





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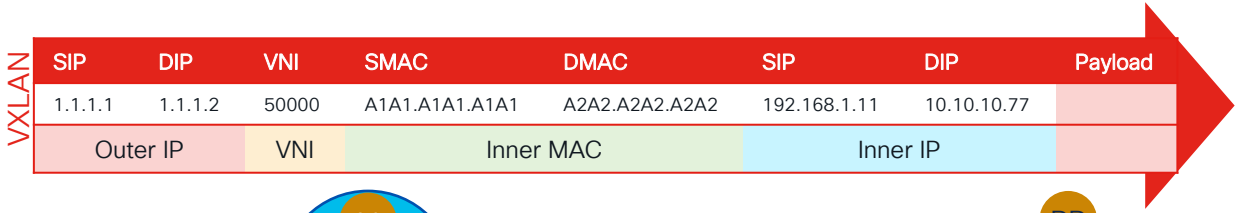
# Routing between NVE (based on VXLAN EVPN)
## The Dating Network - When Control- meets Data-Plane





**Host A**
VLAN10
MAC: 0003.0000.100A
IP: 192.168.1.11

Hardware Tables

MAC

| MAC | VLAN | Interface |
|---|---|---|
| 0003.0000.100A | 10 | Eth1/1 |
| | | |

ARP

| MAC | IP | Interface | VRF |
|---|---|---|---|
| 0003.0000.100A | 192.168.1.11 | VLAN10 | VRF-A |
| | | | |

RIB/FIB

| IP | Mask | Next-Hop | VRF |
|---|---|---|---|
| 192.168.1.11 | 32 | local | VRF-A |
| 10.10.10.0 | 24 | 1.1.1.2 | VRF-A |

**EVPN NLRI**

| | |
|---|---|
| Route Type | 5 |
| IP / Length | 10.10.10.0/24 |
| Label | 50000 |
| Route-Target | 65001:50000 |
| Next-Hop | 1.1.1.2 |
| Router MAC | A2A2.A2A2.A2A2 |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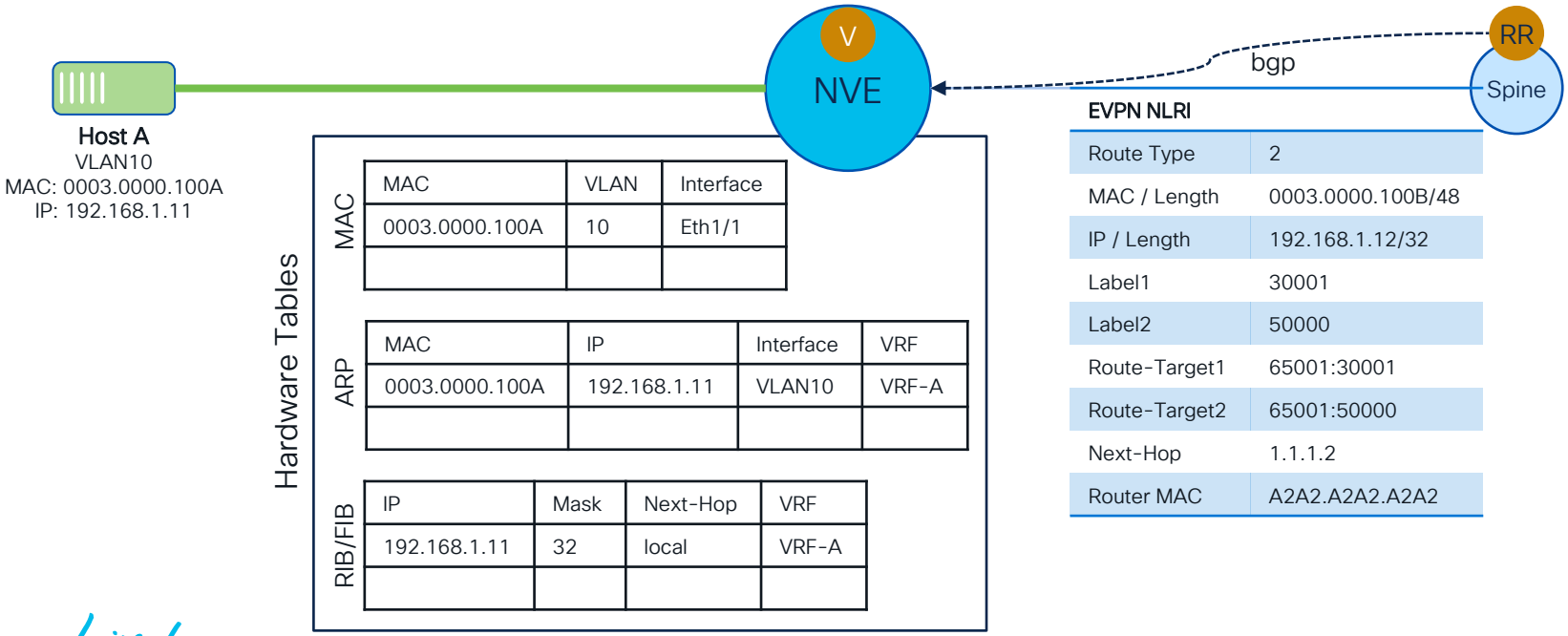
# Remote Learning from other NVE
## The Dating Network - When Control- meets Data-Plane





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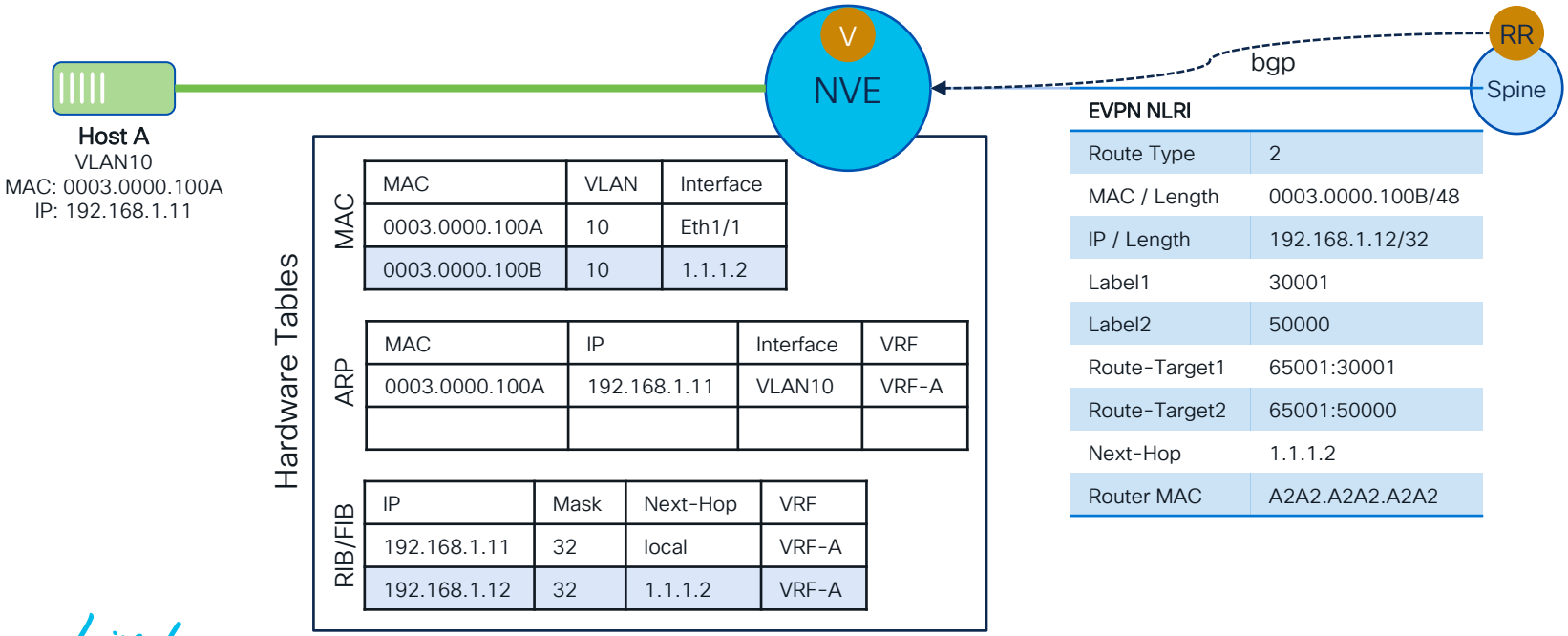
# Remote Learning from other NVE
## The Dating Network - When Control- meets Data-Plane





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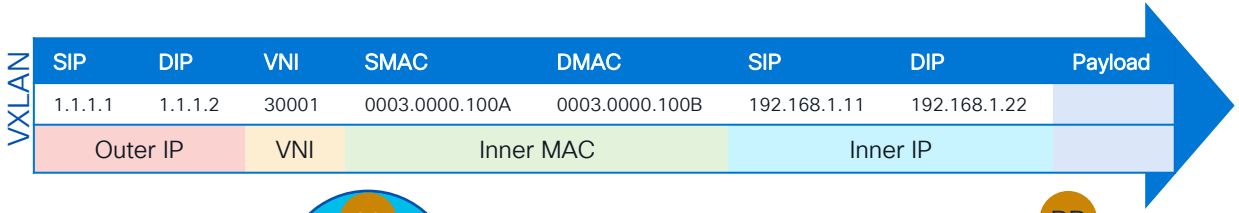
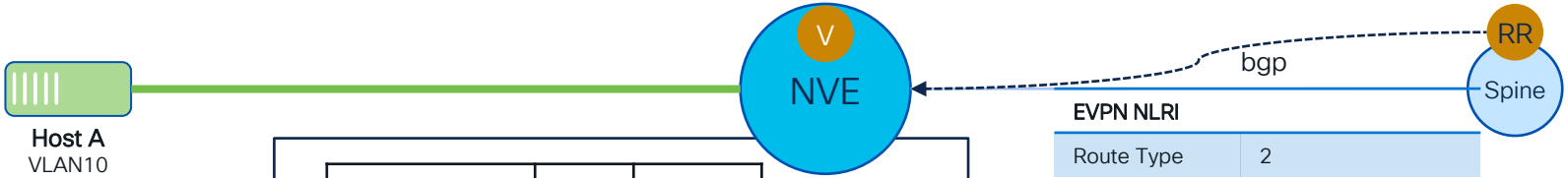
# Bridging between NVE (based on VXLAN EVPN)

## The Dating Network - When Control- meets Data-Plane




**Host A**
VLAN10
MAC: 0003.0000.100A
IP: 192.168.1.11

Hardware Tables

MAC

| MAC | VLAN | Interface |
|---|---|---|
| 0003.0000.100A | 10 | Eth1/1 |
| 0003.0000.100B | 10 | 1.1.1.2 |

ARP

| MAC | IP | Interface | VRF |
|---|---|---|---|
| 0003.0000.100A | 192.168.1.11 | VLAN10 | VRF-A |
| | | | |

RIB/FIB

| IP | Mask | Next-Hop | VRF |
|---|---|---|---|
| 192.168.1.11 | 32 | local | VRF-A |
| 192.168.1.12 | 24 | 1.1.1.2 | VRF-A |

**EVPN NLRI**

| | |
|---|---|
| Route Type | 2 |
| MAC / Length | 0003.0000.100B/48 |
| IP / Length | 192.168.1.12/32 |
| Label1 | 30001 |
| Label2 | 50000 |
| Route-Target1 | 65001:30001 |
| Route-Target2 | 65001:50000 |
| Next-Hop | 1.1.1.2 |
| Router MAC | A2A2.A2A2.A2A2 |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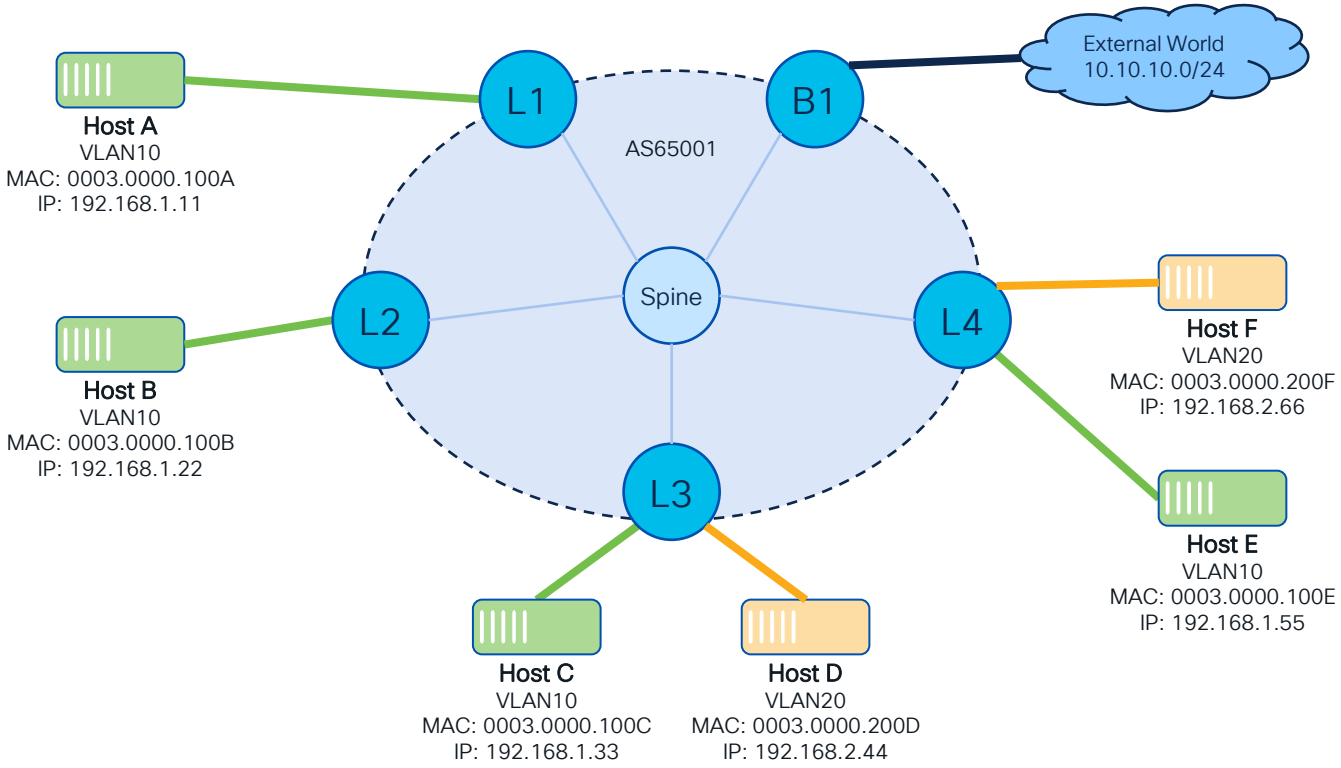
# Packet Walk: Layer-3 – Host to External World

# Topology Overview
## Layer-3 Packet Walk





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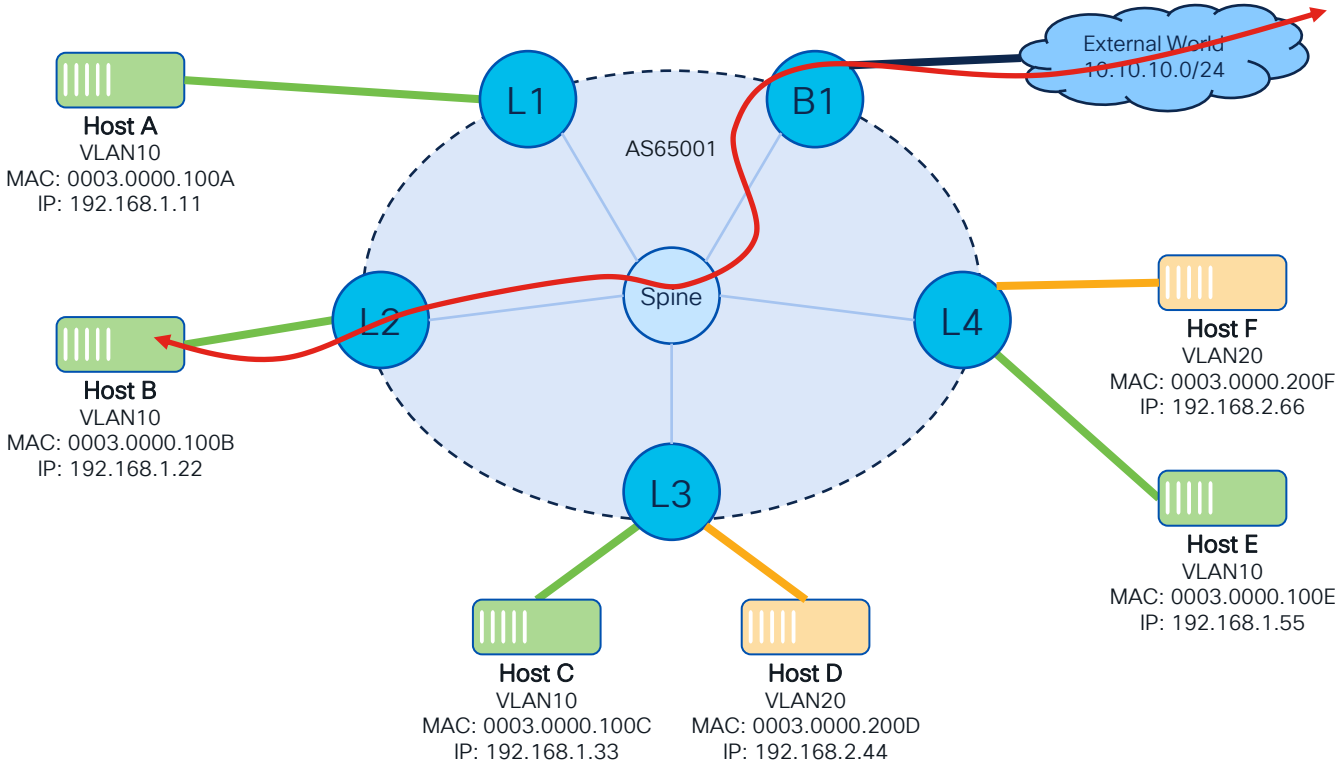
# Topology Overview
## Layer-3 Packet Walk





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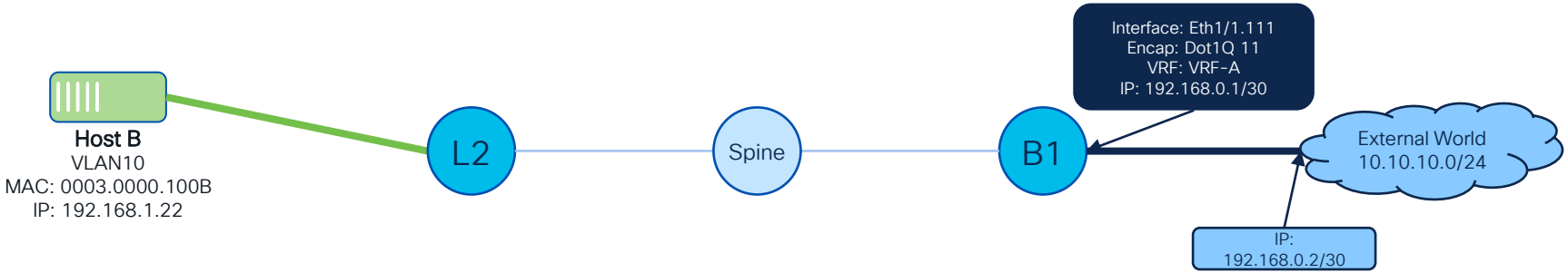
# Learning: External World to Leaf2





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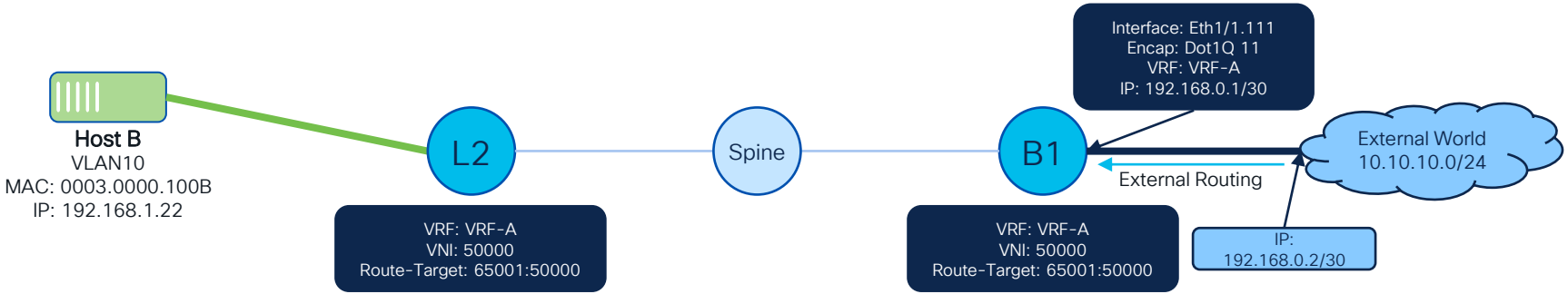
# Learning: External World to Leaf2





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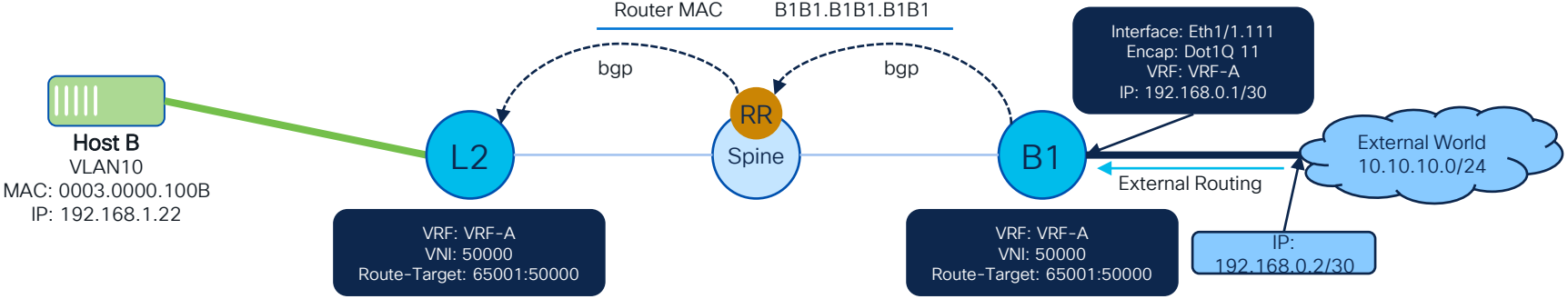
# Learning: External World to Leaf2

| EVPN NLRI | |
|---|---|
| Route Type | 5 |
| IP / Length | 10.10.10.0/24 |
| Label | 50000 |
| Route-Target | 65001:50000 |
| Next-Hop | B1 |
| Router MAC | B1B1.B1B1.B1B1 |





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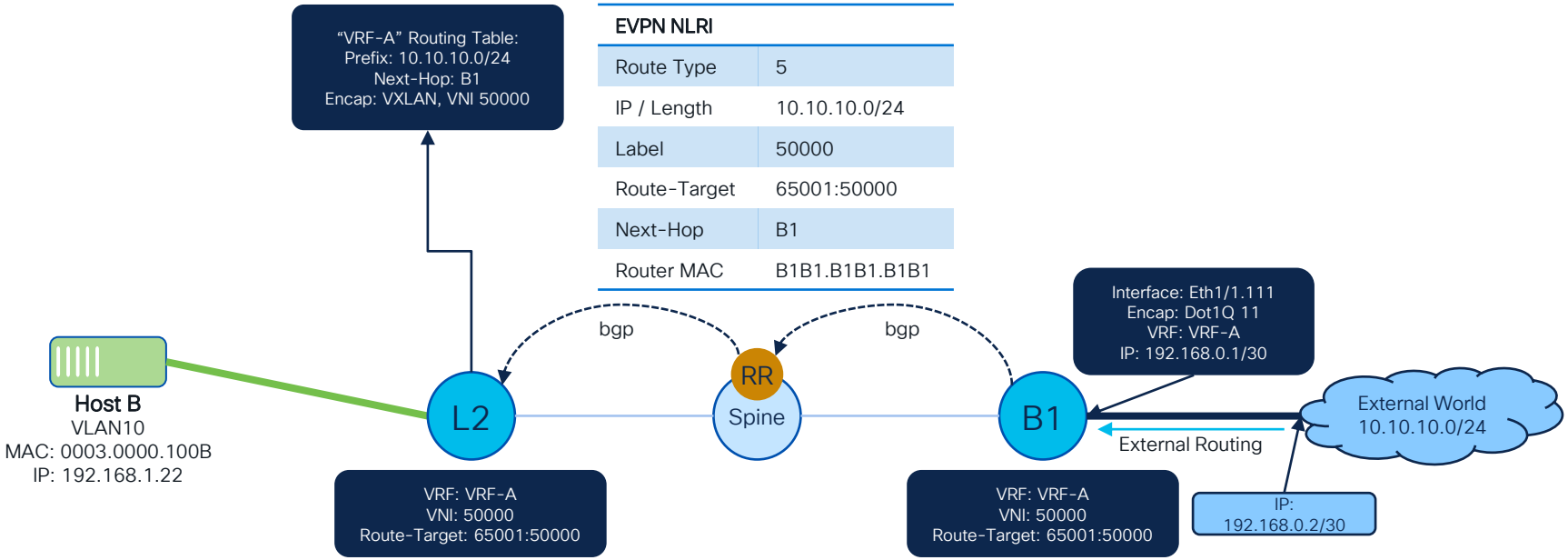
# Learning: External World to Leaf2





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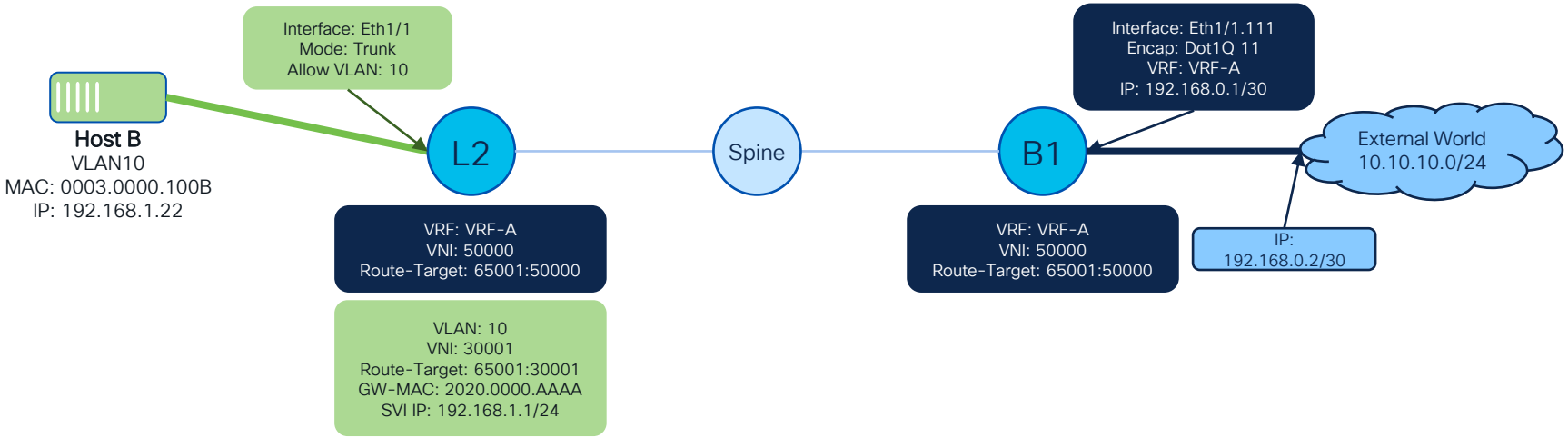
# Learning: HostB to External World





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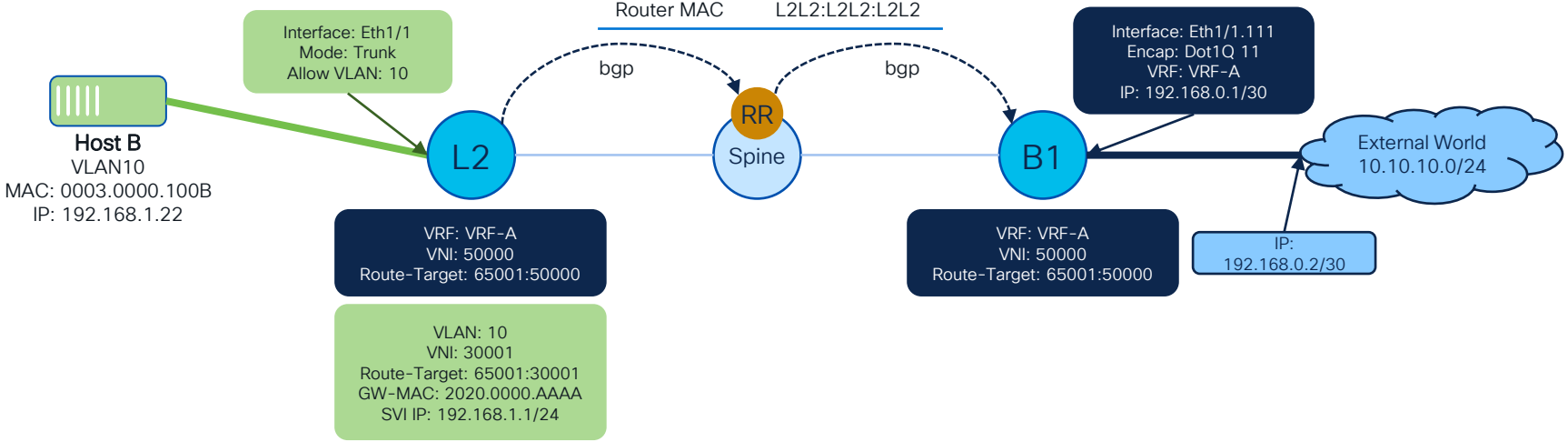
# Learning: HostB to External World

| EVPN NLRI | |
|---|---|
| Route Type | 5 |
| IP / Length | 192.168.1.0/24 |
| Label | 50000 |
| Route-Target | 65001:50000 |
| Next-Hop | L2 |
| Router MAC | L2L2:L2L2:L2L2 |





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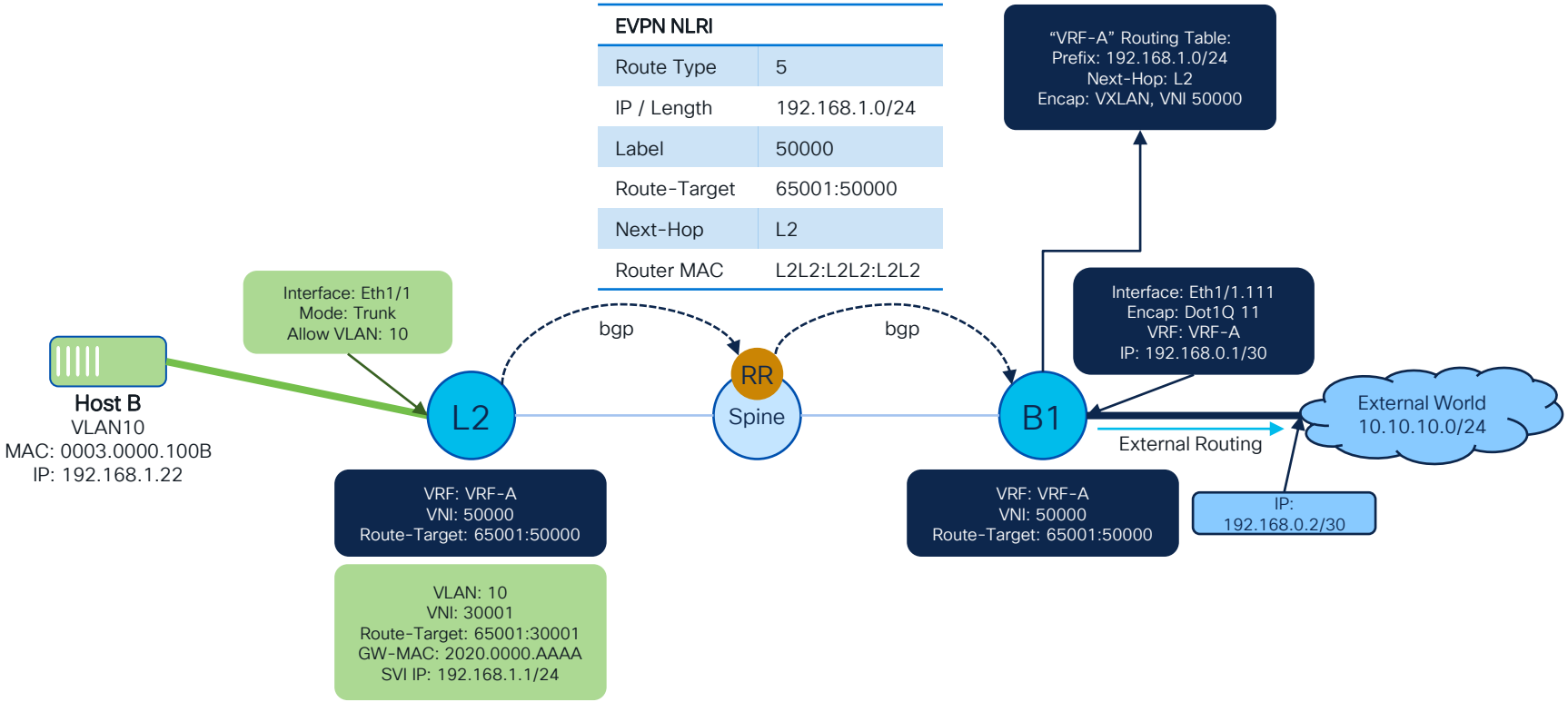
# Learning: HostB to External World





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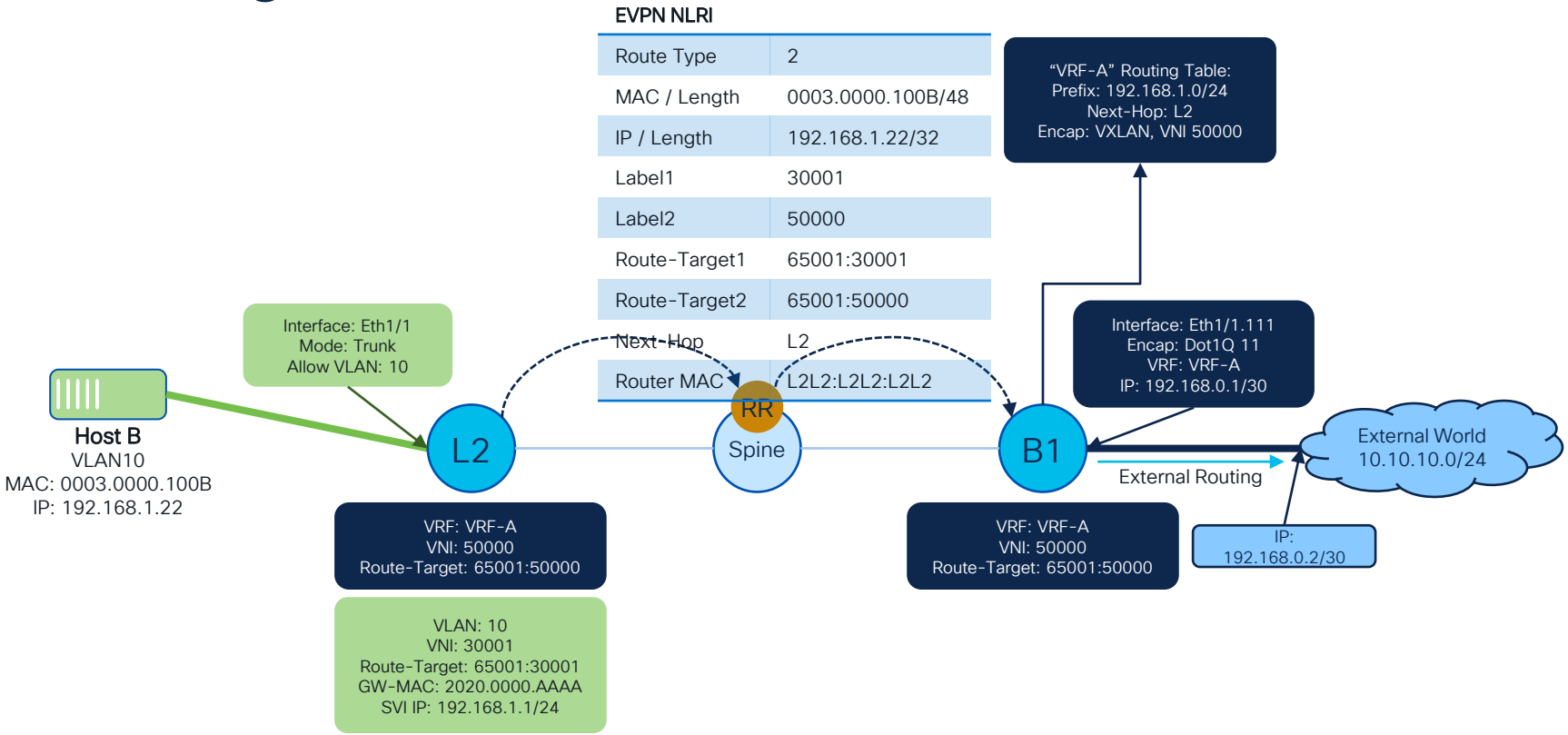
# Learning: HostB to External World





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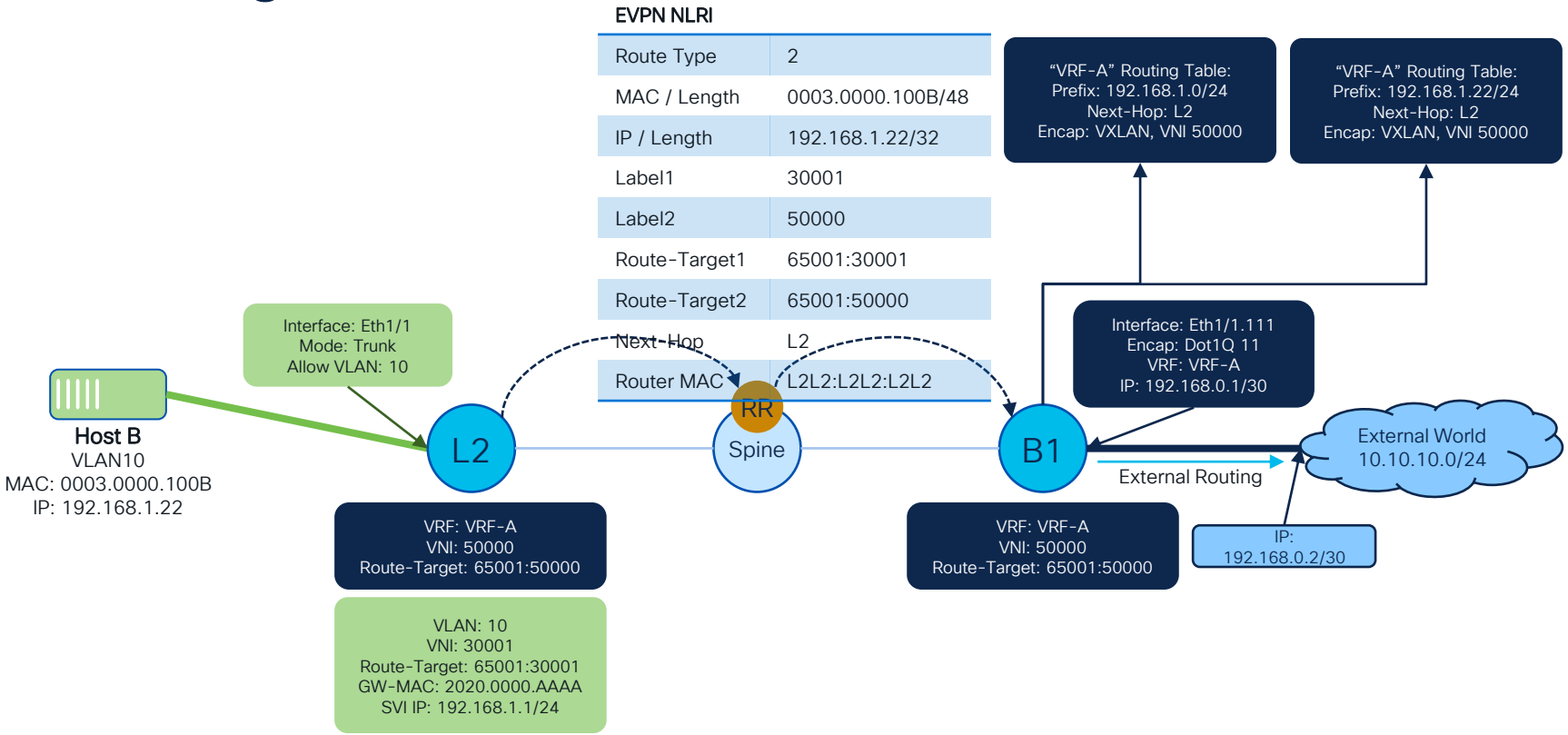
# Learning: HostB to External World





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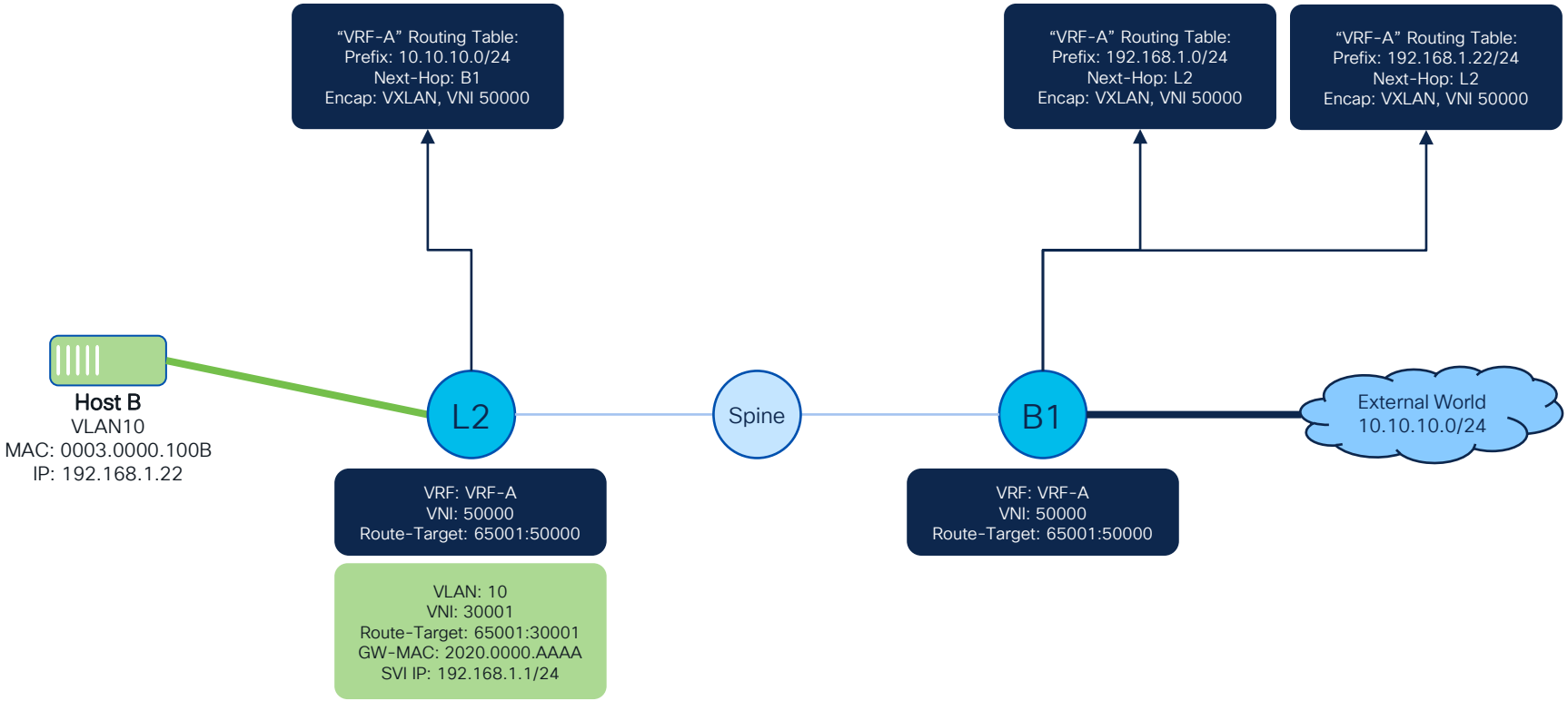
# Overview: Forwarding Tables





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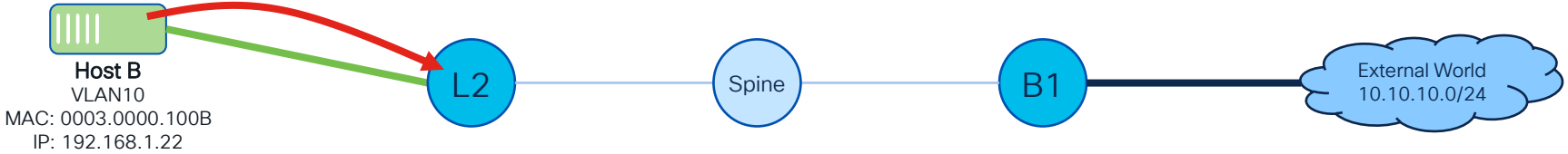
# HostB to External World

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| 0003.0000.100B | 2020.0000.AAAA | 10 | 192.168.1.22 | 10.10.10.77 | |





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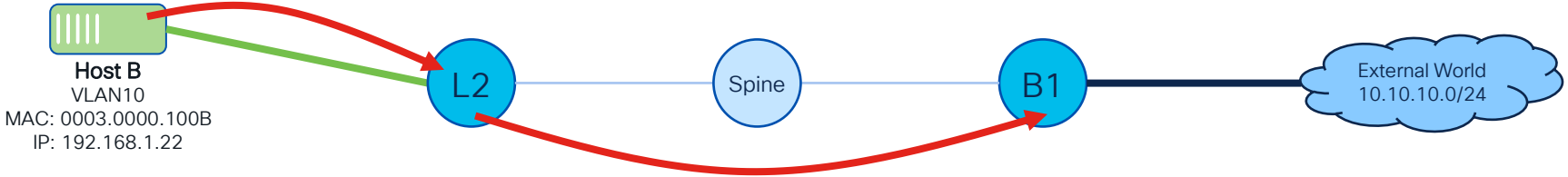
# HostB to External World

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| 0003.0000.100B | 2020.0000.AAAA | 10 | 192.168.1.22 | 10.10.10.77 | |




| SIP | DIP | VNI | SMAC | DMAC | SIP | DIP | Payload |
|---|---|---|---|---|---|---|---|
| L2-IP | B1-IP | 50000 | L2-RMAC | B1-RMAC | 192.168.1.22 | 10.10.10.77 | |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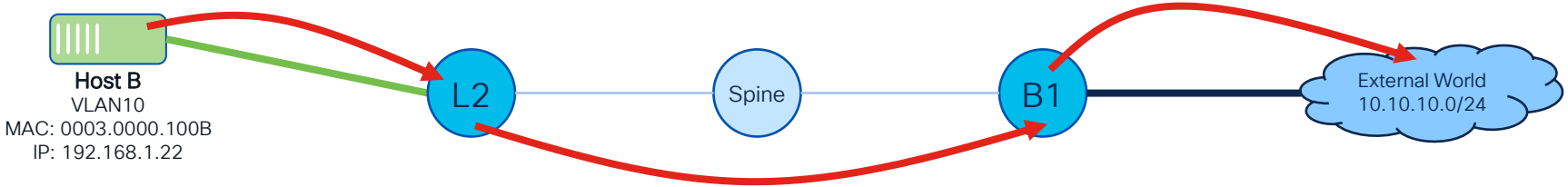
# HostB to External World

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| 0003.0000.100B | 2020.0000.AAAA | 10 | 192.168.1.22 | 10.10.10.77 | |

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| B1-MAC | EW-MAC | 10 | 192.168.1.22 | 10.10.10.77 | |




| SIP | DIP | VNI | SMAC | DMAC | SIP | DIP | Payload |
|---|---|---|---|---|---|---|---|
| L2-IP | B1-IP | 50000 | L2-RMAC | B1-RMAC | 192.168.1.22 | 10.10.10.77 | |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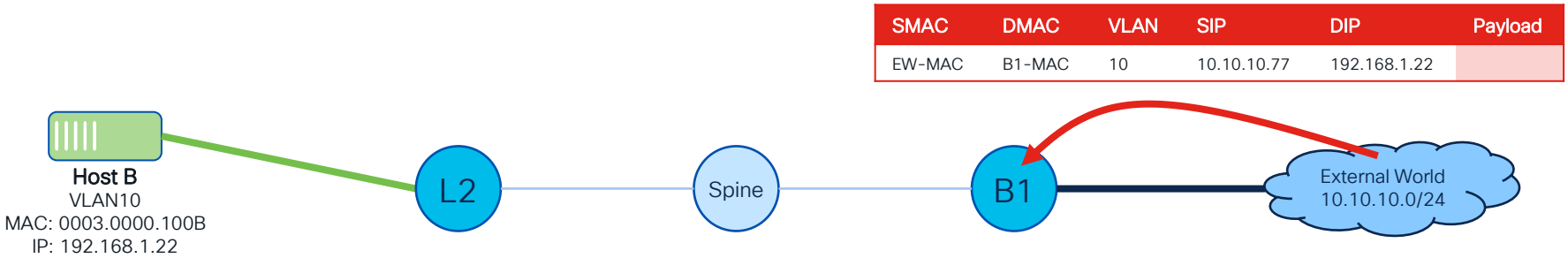
# External World to HostB





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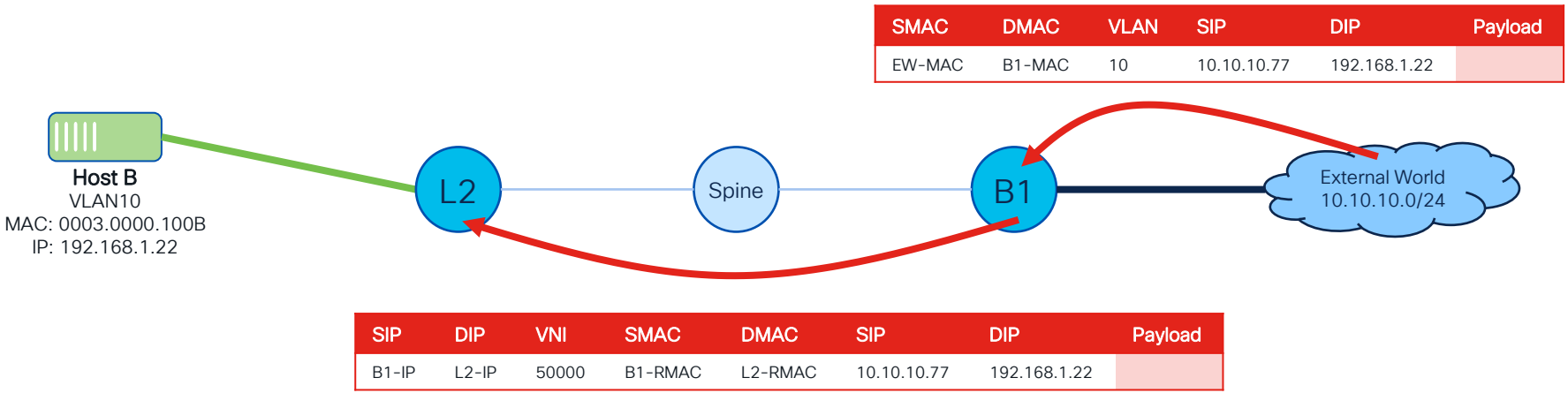
# External World to HostB





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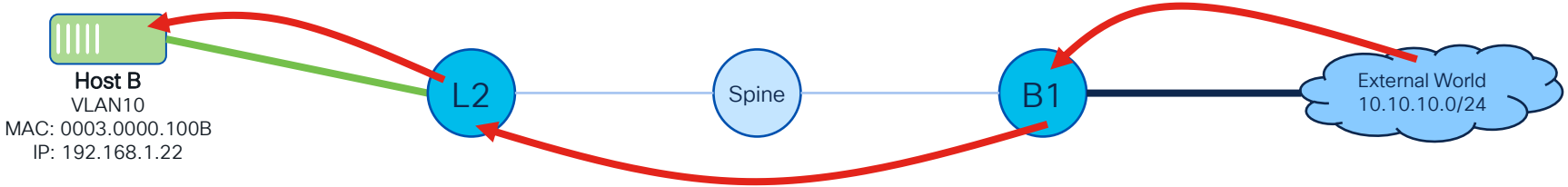
# External World to HostB

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| 2020.0000.AAAA | 0003.0000.100B | 10 | 10.10.10.77 | 192.168.1.22 | |

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| EW-MAC | B1-MAC | 10 | 10.10.10.77 | 192.168.1.22 | |




| SIP | DIP | VNI | SMAC | DMAC | SIP | DIP | Payload |
|---|---|---|---|---|---|---|---|
| B1-IP | L2-IP | 50000 | B1-RMAC | L2-RMAC | 10.10.10.77 | 192.168.1.22 | |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# *How to Talk to the Rest of the World – External Connectivity for VXLAN EVPN Fabrics*

BRKDCN-2267


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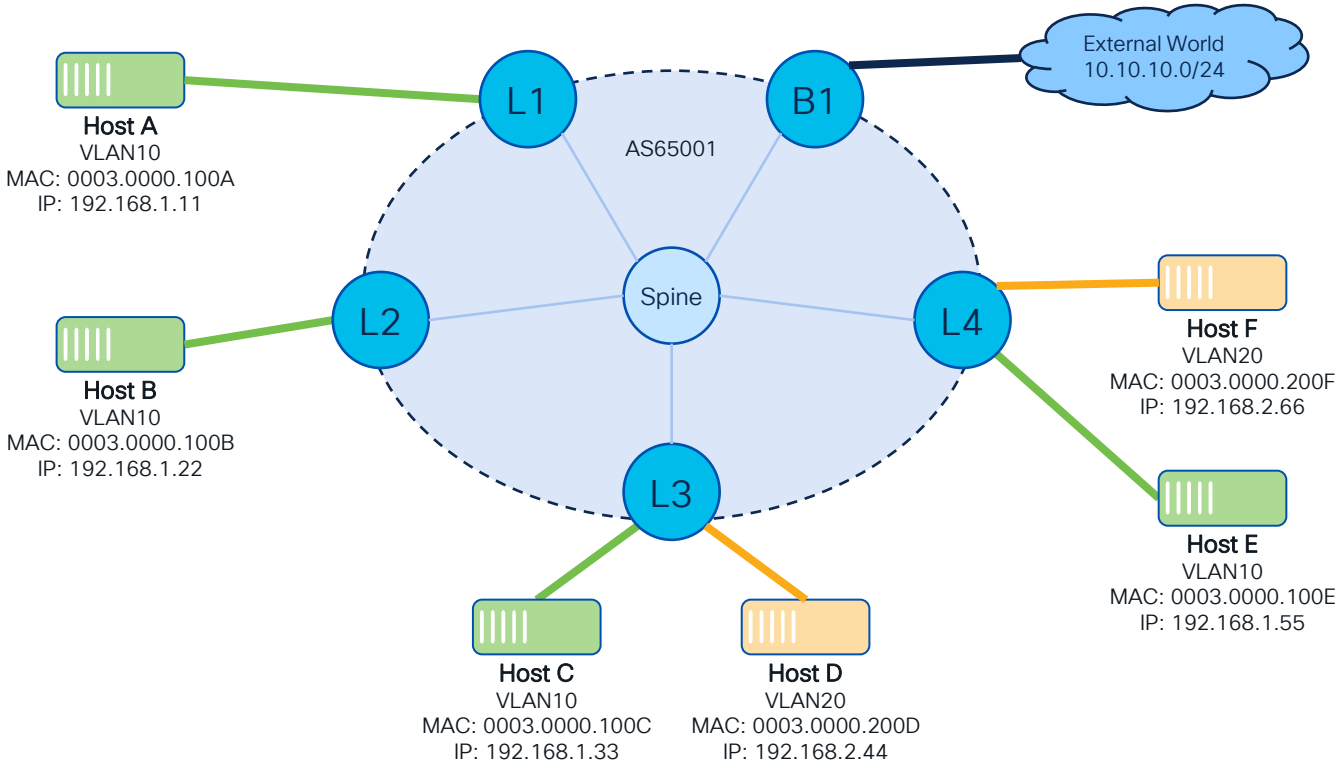
# Packet Walk: Layer-3 – Host to Host

# Topology Overview
## Layer-3 Packet Walk





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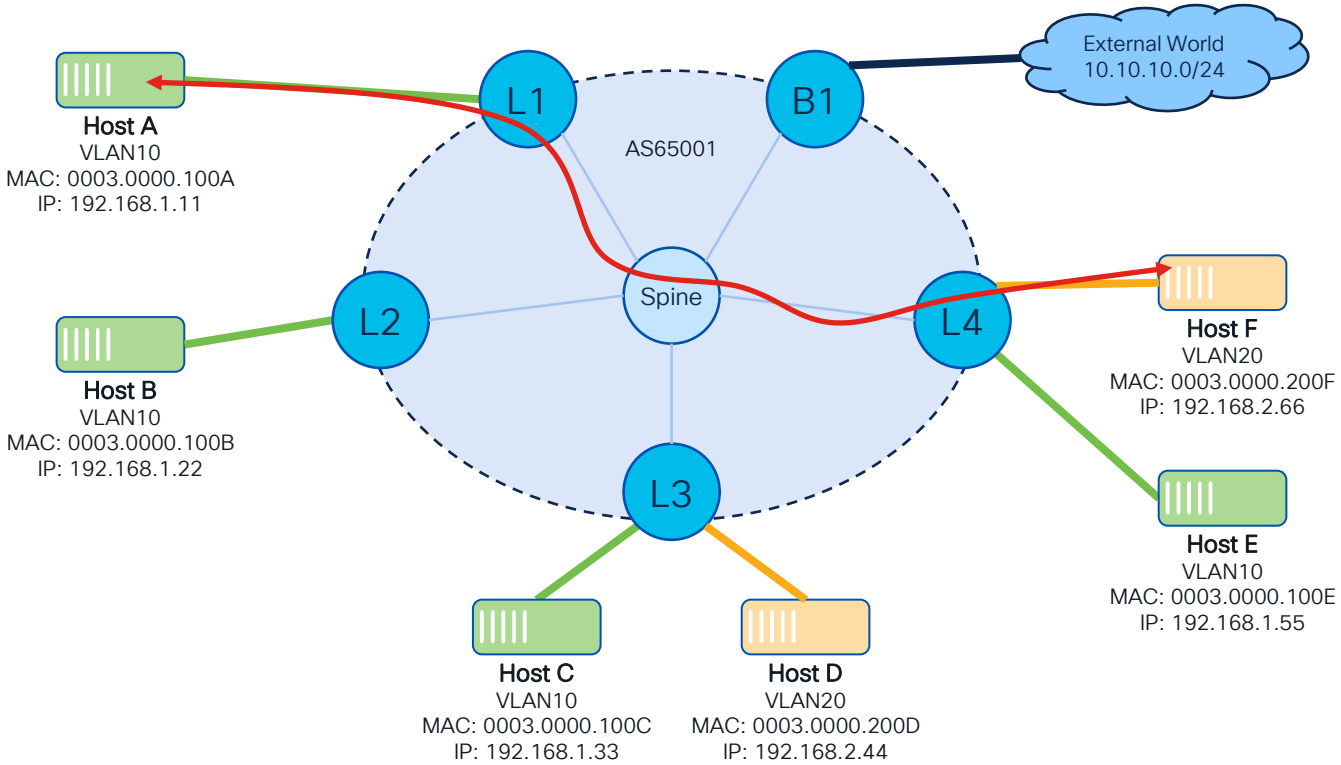
# Topology Overview
## Layer-3 Packet Walk





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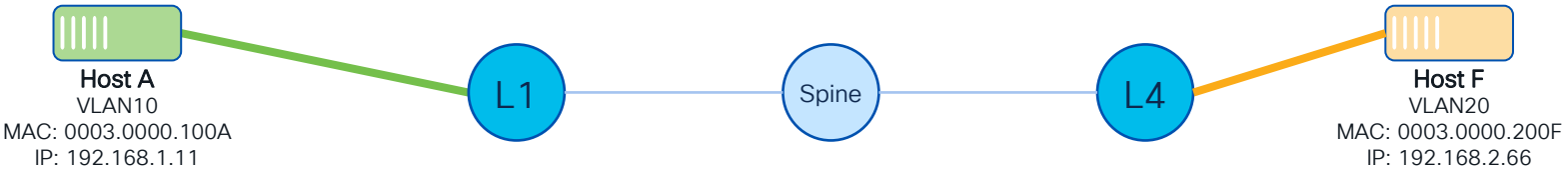
# Learning: HostF to Leaf1





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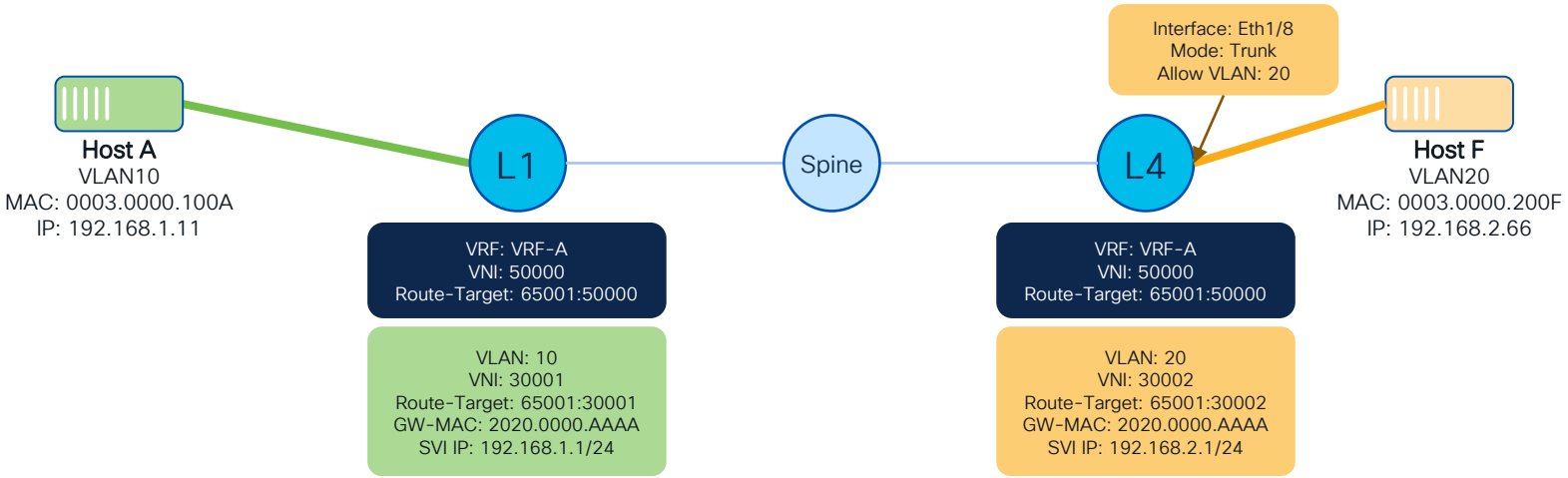
# Learning: HostF to Leaf1





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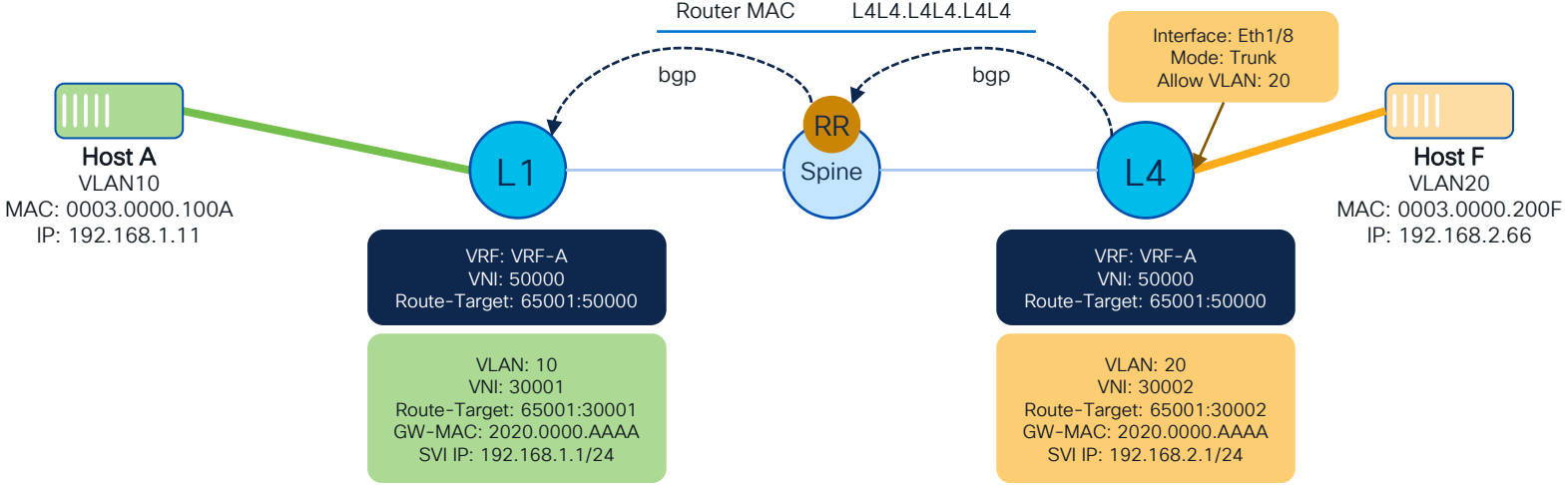
# Learning: HostF to Leaf1

| EVPN NLRI | |
|---|---|
| Route Type | 5 |
| IP / Length | 192.168.2.0/24 |
| Label | 50000 |
| Route-Target | 65001:50000 |
| Next-Hop | L4 |
| Router MAC | L4L4.L4L4.L4L4 |





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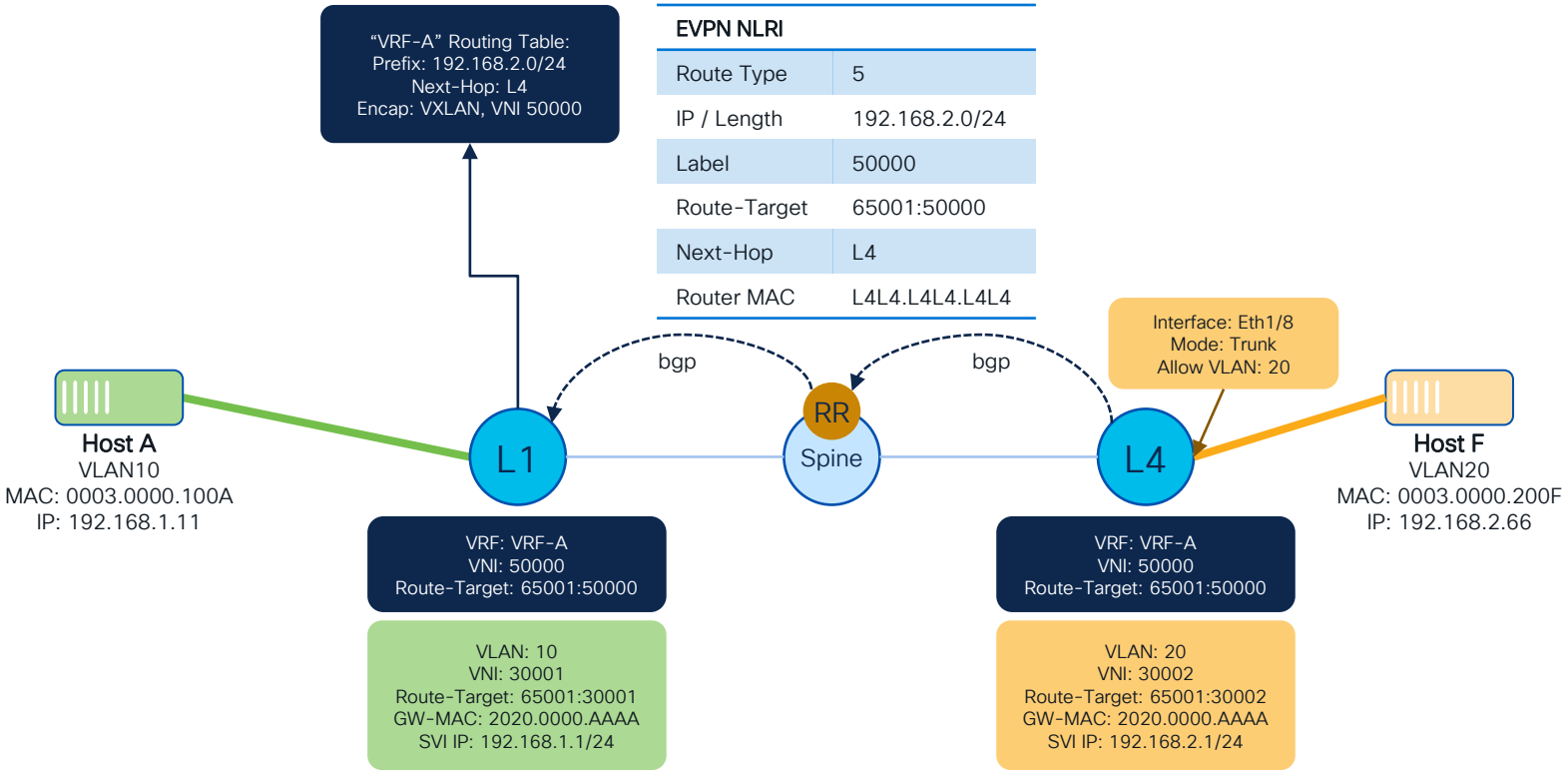
# Learning: HostF to Leaf1





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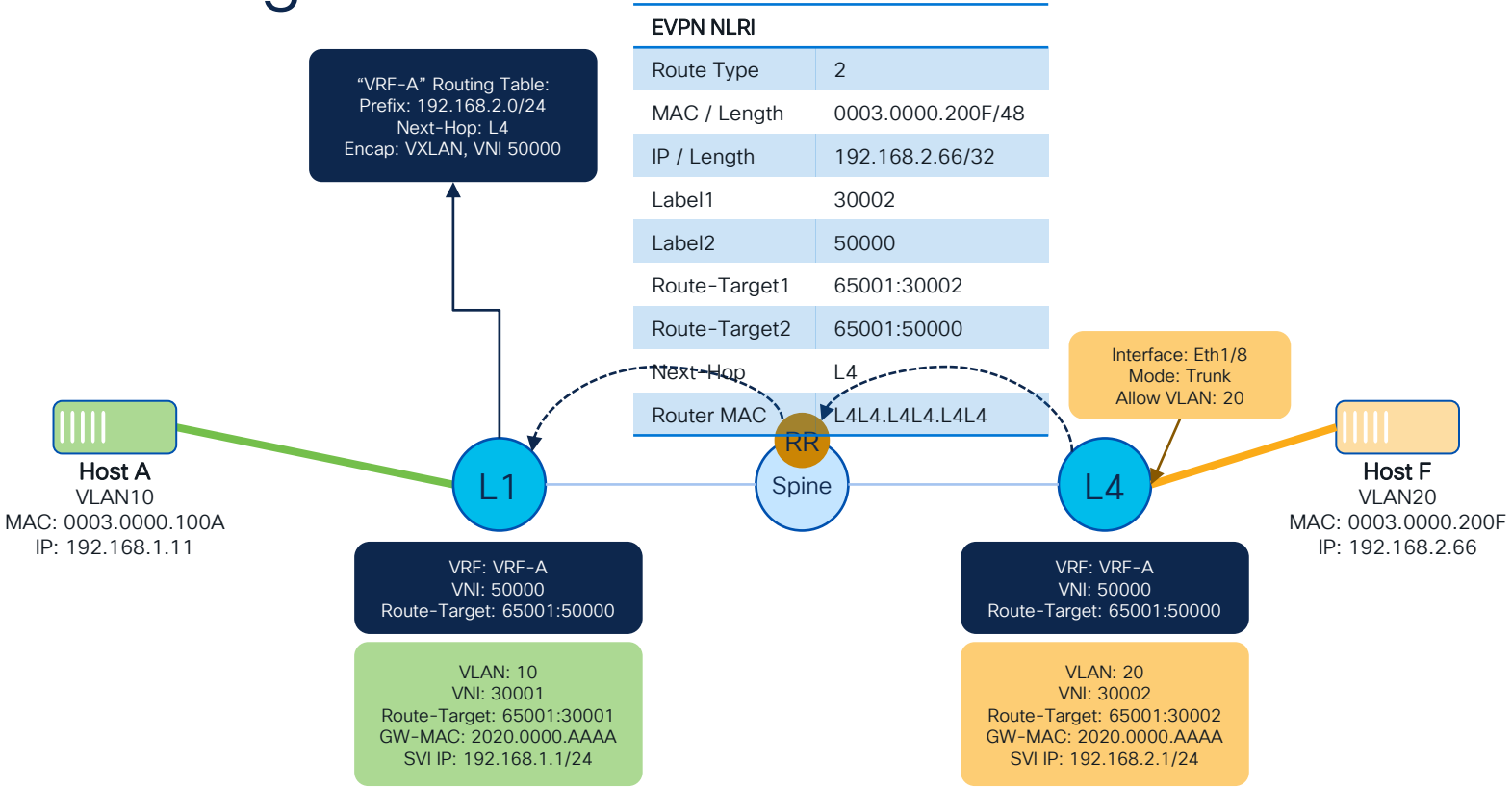
# Learning: HostF to Leaf1





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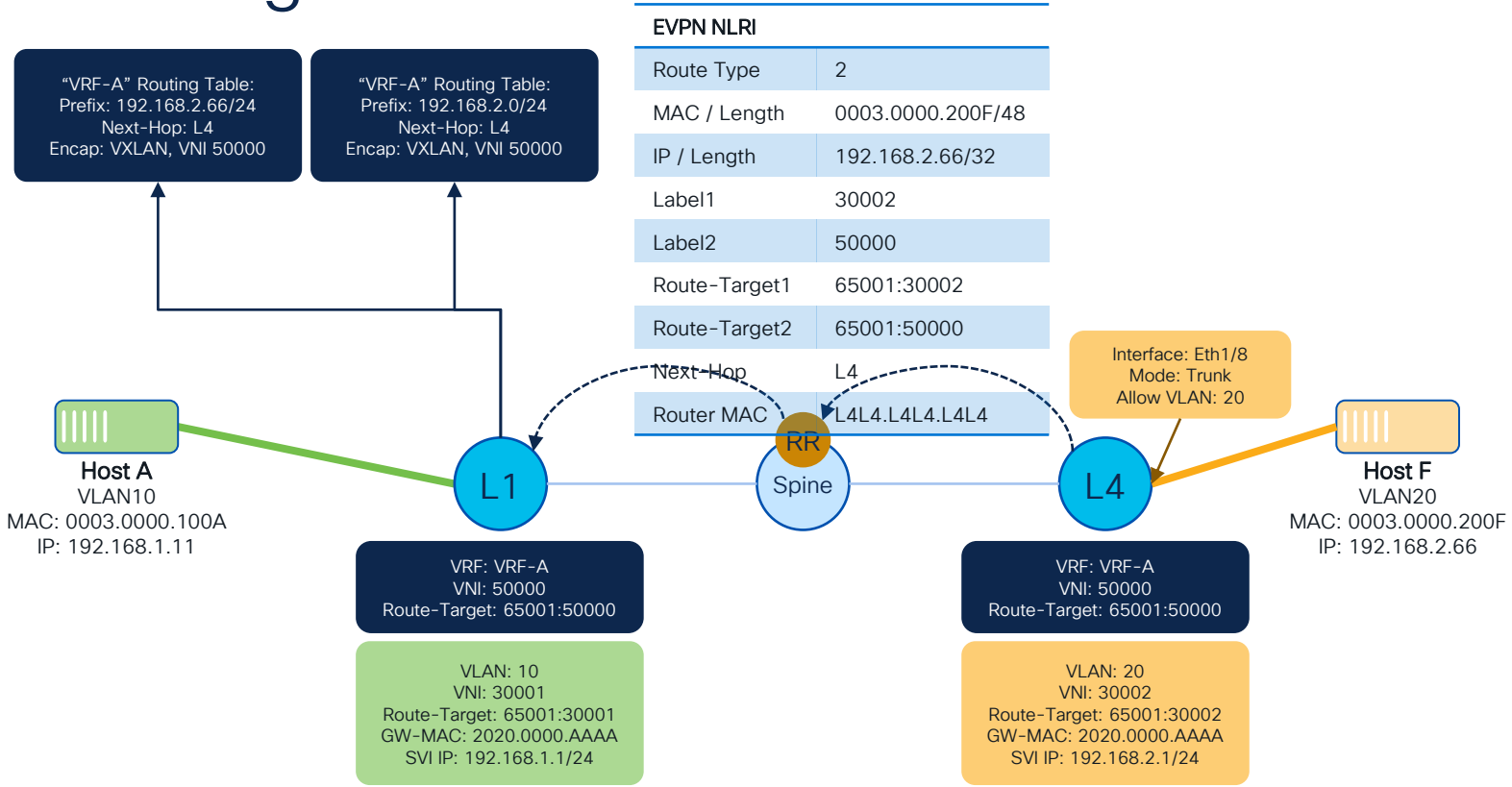
# Learning: HostF to Leaf1





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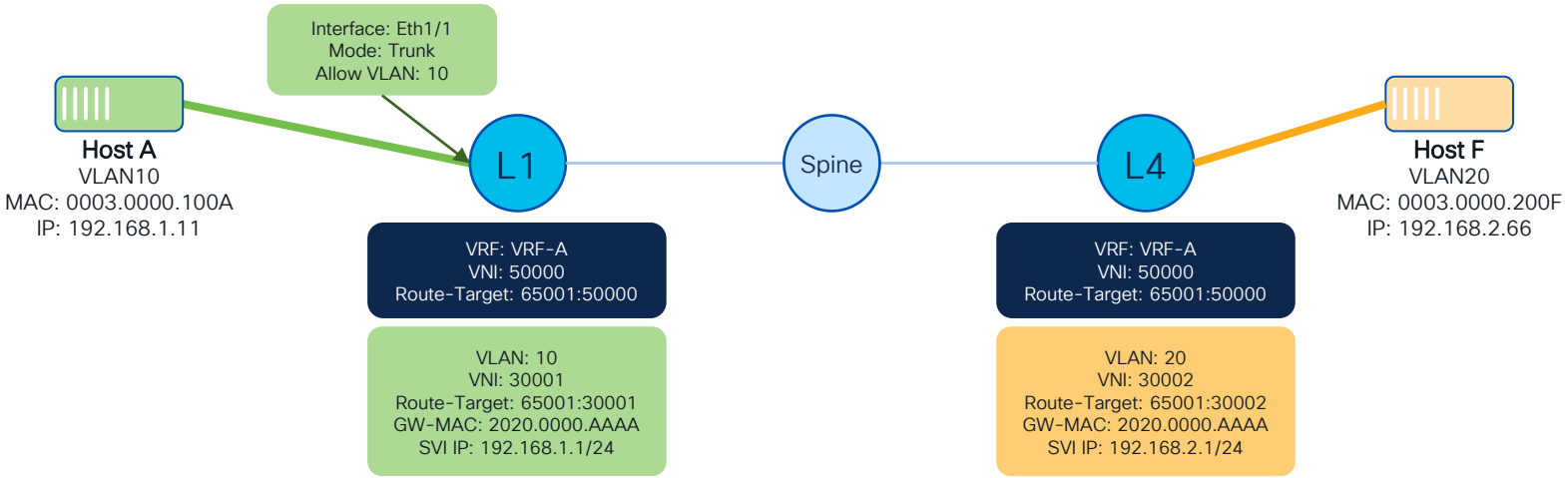
# Learning: HostA to Leaf4





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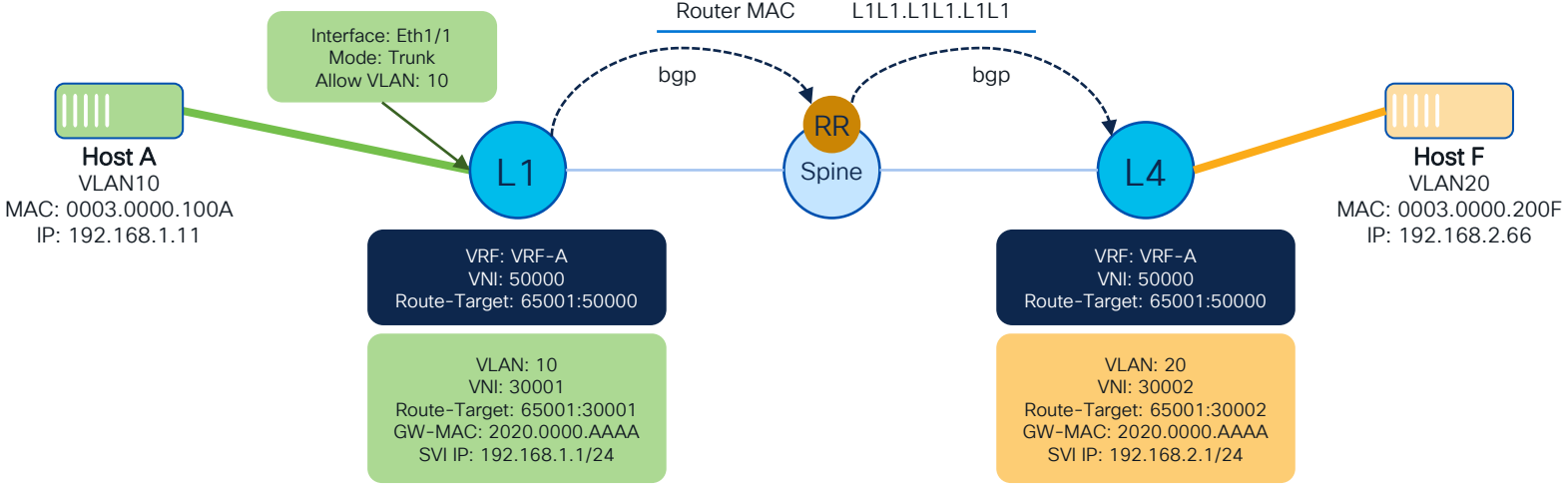
# Learning: HostA to Leaf4

| EVPN NLRI | |
|---|---|
| Route Type | 5 |
| IP / Length | 192.168.1.0/24 |
| Label | 50000 |
| Route-Target | 65001:50000 |
| Next-Hop | L1 |
| Router MAC | L1L1.L1L1.L1L1 |





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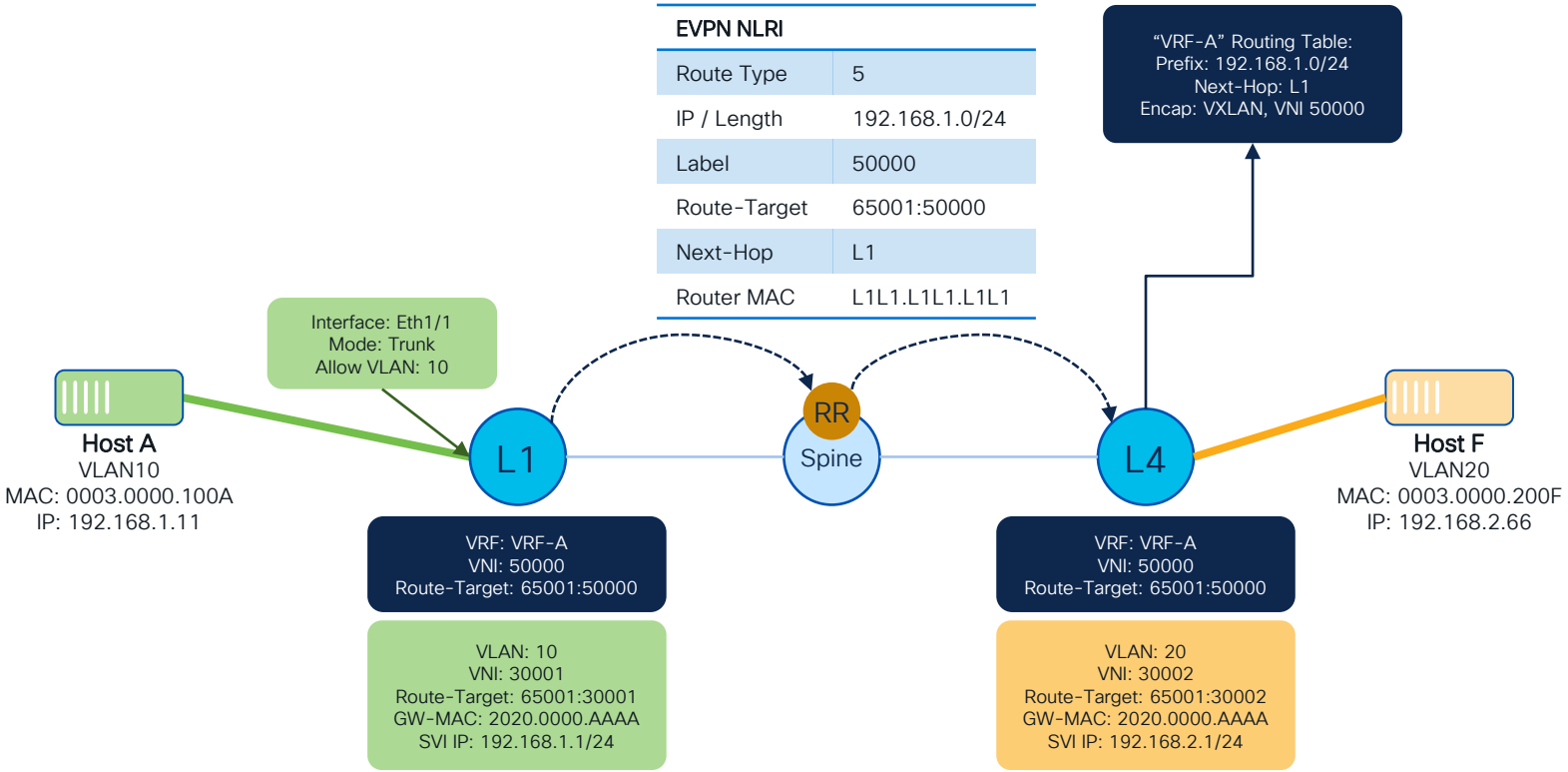
# Learning: HostA to Leaf4





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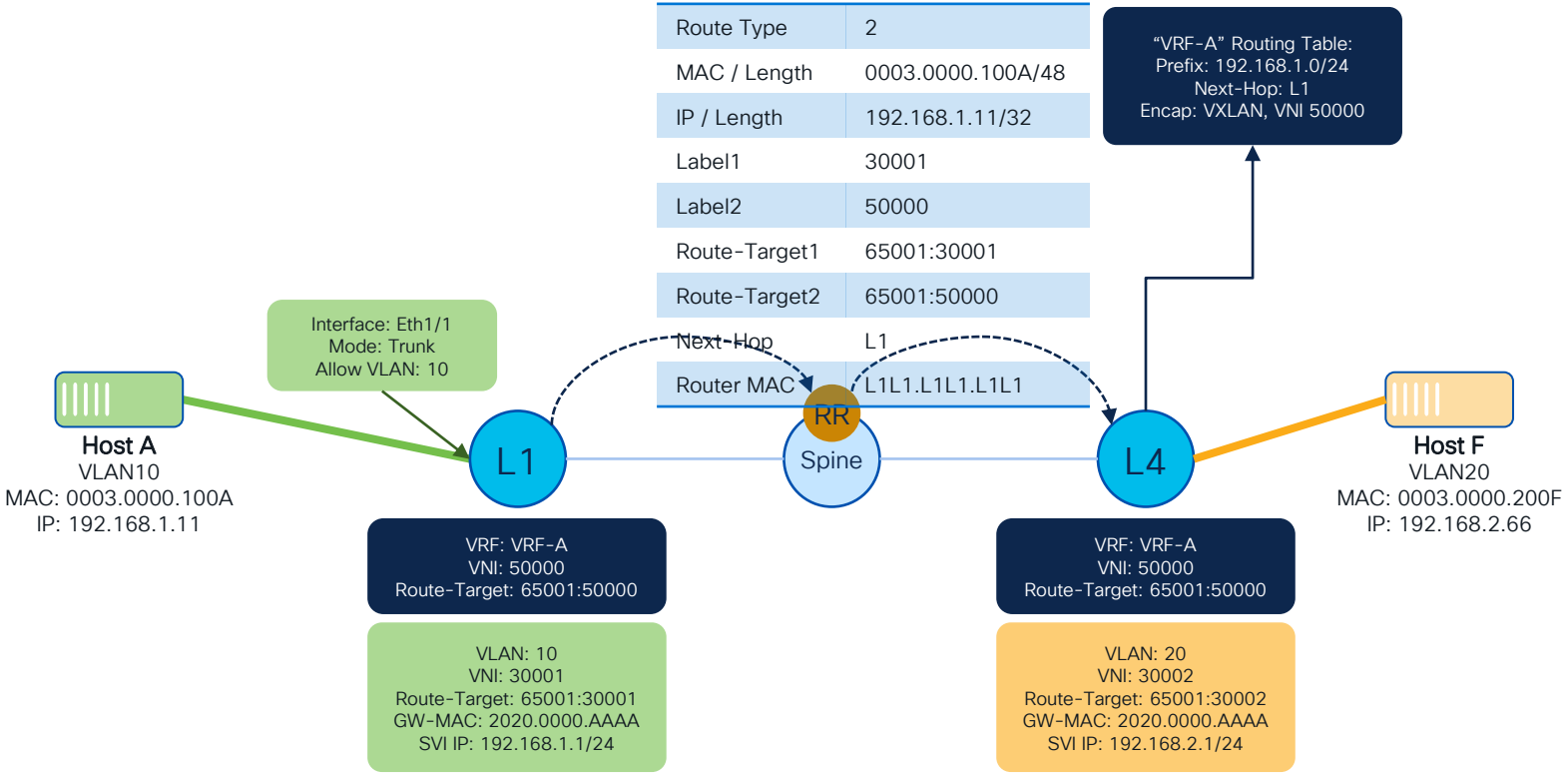
# Learning: HostA to Leaf4

| EVPN NLRI | |
|---|---|
| Route Type | 2 |
| MAC / Length | 0003.0000.100A/48 |
| IP / Length | 192.168.1.11/32 |
| Label1 | 30001 |
| Label2 | 50000 |
| Route-Target1 | 65001:30001 |
| Route-Target2 | 65001:50000 |
| Next-Hop | L1 |
| Router MAC | L1L1.L1L1.L1L1 |





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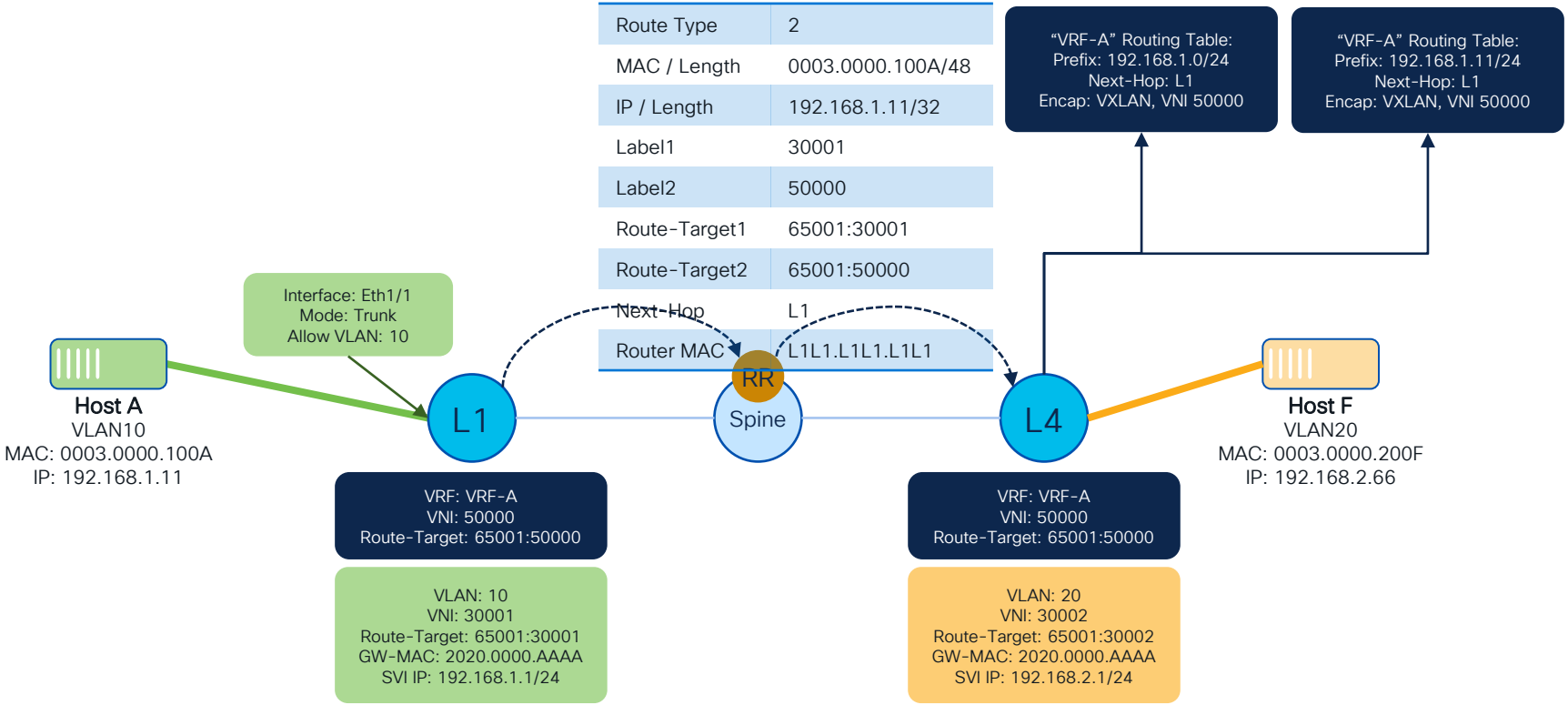
# Learning: HostA to Leaf4

| EVPN NLRI | |
|---|---|
| Route Type | 2 |
| MAC / Length | 0003.0000.100A/48 |
| IP / Length | 192.168.1.11/32 |
| Label1 | 30001 |
| Label2 | 50000 |
| Route-Target1 | 65001:30001 |
| Route-Target2 | 65001:50000 |
| Next-Hop | L1 |
| Router MAC | L1L1.L1L1.L1L1 |





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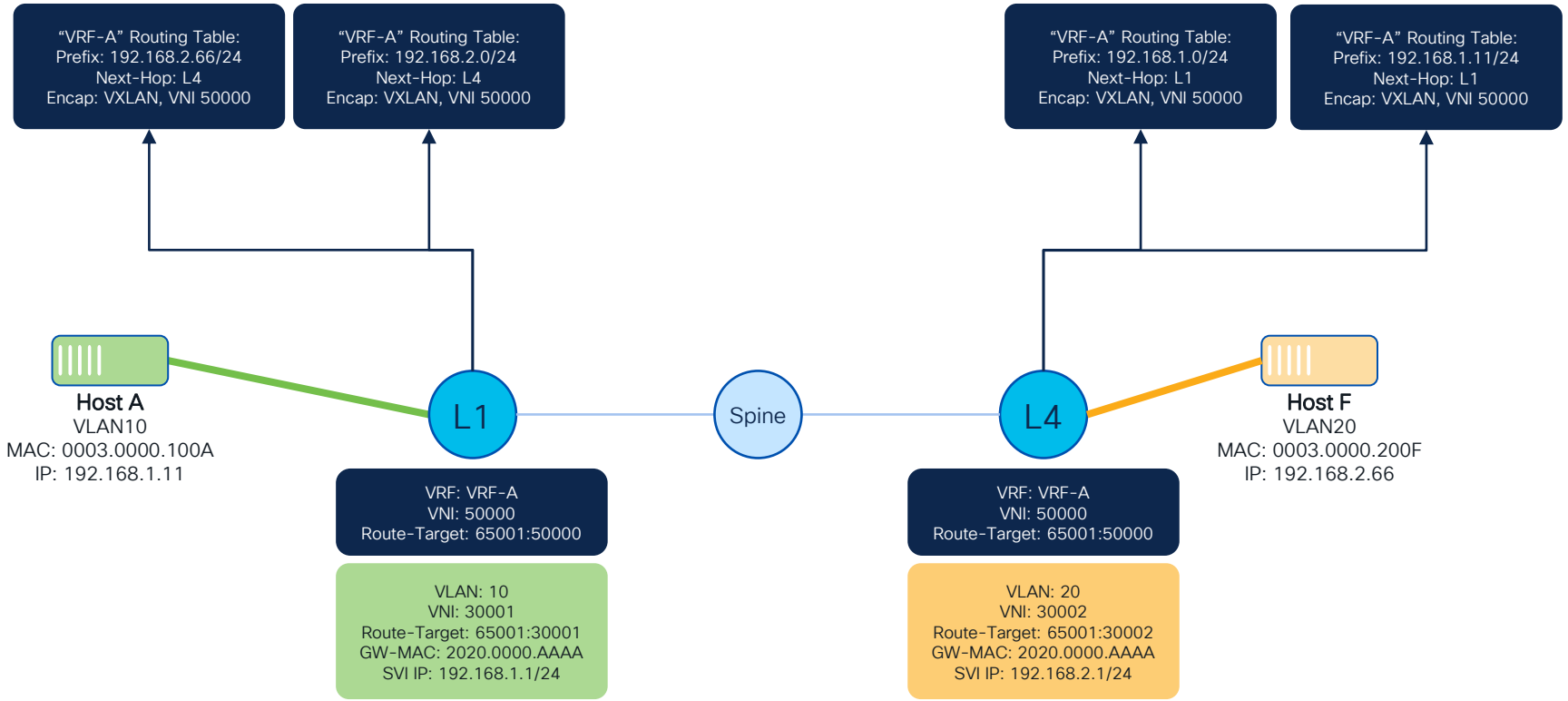
# Overview: Forwarding Tables





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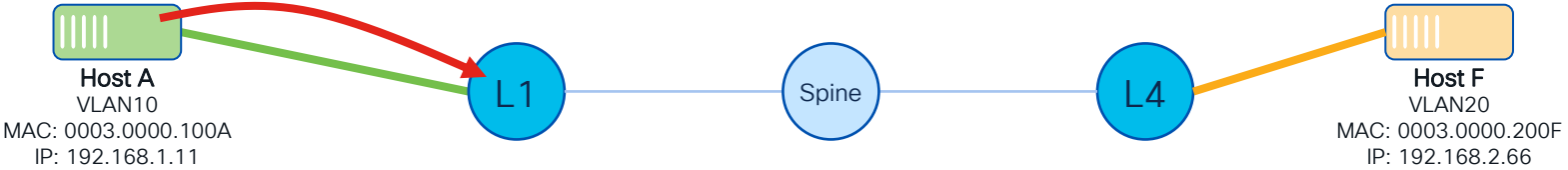
# HostA to HostF

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| 0003.0000.100A | 2020.0000.AAAA | 10 | 192.168.1.11 | 192.168.2.66 | |





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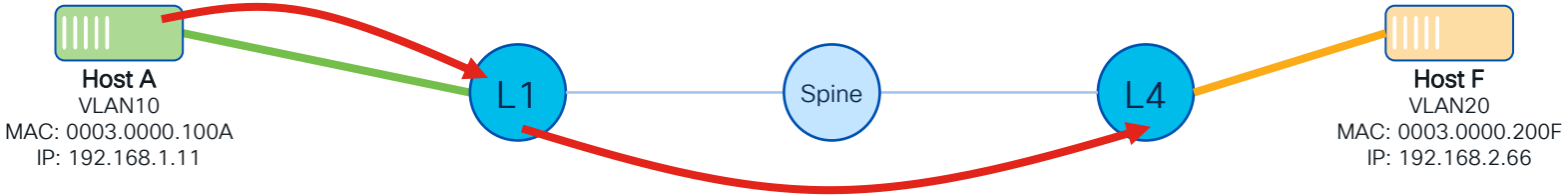
# HostA to HostF

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| 0003.0000.100A | 2020.0000.AAAA | 10 | 192.168.1.11 | 192.168.2.66 | |




| SIP | DIP | VNI | SMAC | DMAC | SIP | DIP | Payload |
|---|---|---|---|---|---|---|---|
| L1-IP | L4-IP | 50000 | L1-RMAC | L4-RMAC | 192.168.1.11 | 192.168.2.66 | |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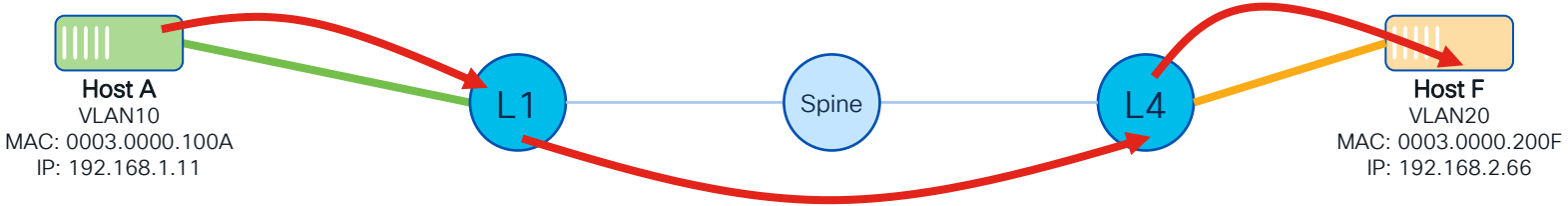
# HostA to HostF

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| 0003.0000.100A | 2020.0000.AAAA | 10 | 192.168.1.11 | 192.168.2.66 | |

| SMAC | DMAC | VLAN | SIP | DIP | P |
|---|---|---|---|---|---|
| 2020.0000.AAAA | 0003.0000.200F | 20 | 192.168.1.11 | 192.168.2.66 | |




| SIP | DIP | VNI | SMAC | DMAC | SIP | DIP | Payload |
|---|---|---|---|---|---|---|---|
| L1-IP | L4-IP | 50000 | L1-RMAC | L4-RMAC | 192.168.1.11 | 192.168.2.66 | |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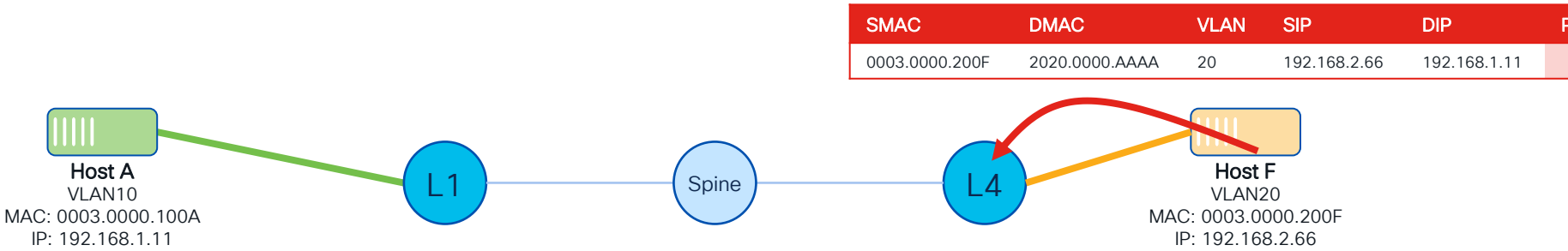
# HostF to HostA





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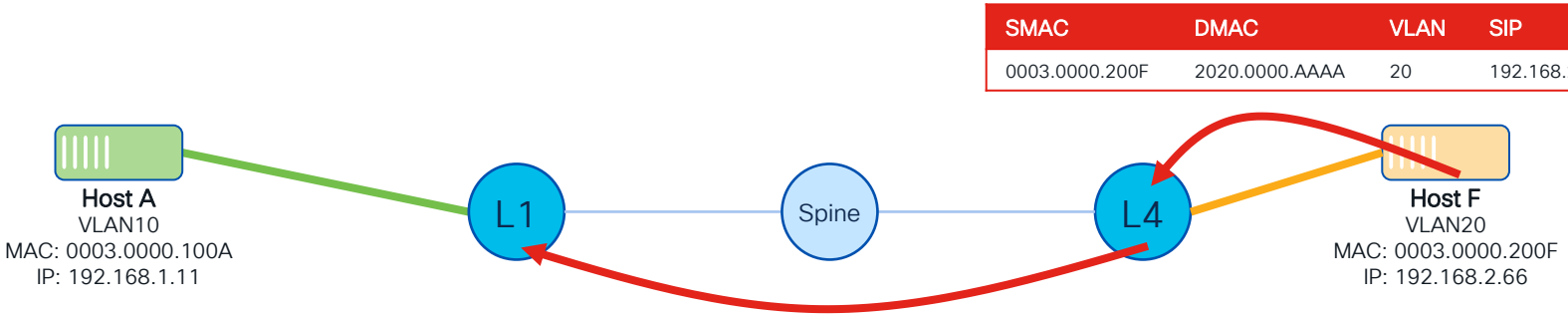
# HostF to HostA





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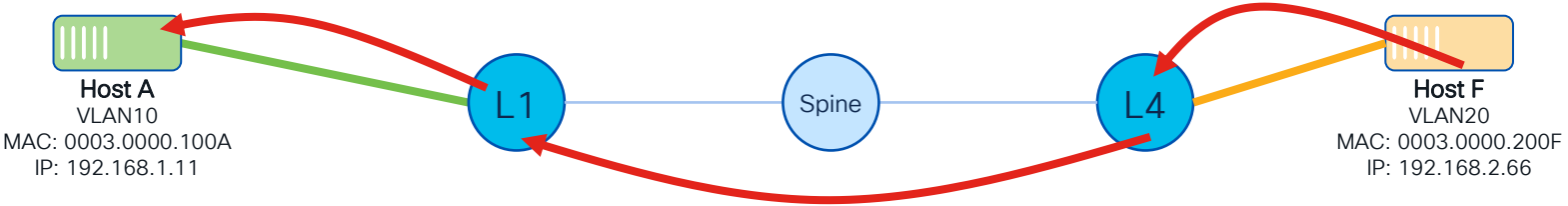
# HostF to HostA

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| 2020.0000.AAAA | 0003.0000.100A | 10 | 192.168.2.66 | 192.168.1.11 | |

| SMAC | DMAC | VLAN | SIP | DIP | P |
|---|---|---|---|---|---|
| 0003.0000.200F | 2020.0000.AAAA | 20 | 192.168.2.66 | 192.168.1.11 | |




| SIP | DIP | VNI | SMAC | DMAC | SIP | DIP | Payload |
|---|---|---|---|---|---|---|---|
| L4-IP | L1-IP | 50000 | L4-RMAC | L1-RMAC | 192.168.2.66 | 192.168.1.11 | |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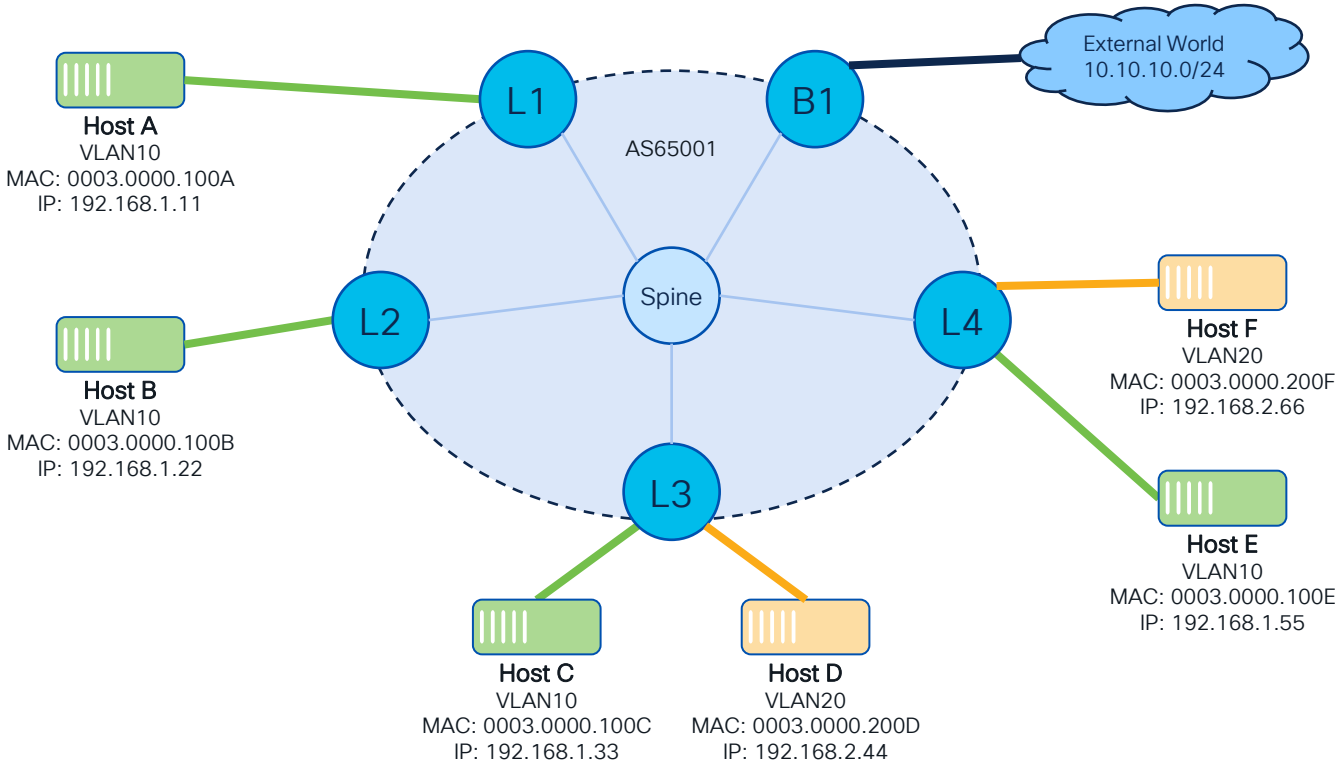
# Packet Walk: Layer-2

# Topology Overview
## Layer-2 Packet Walk





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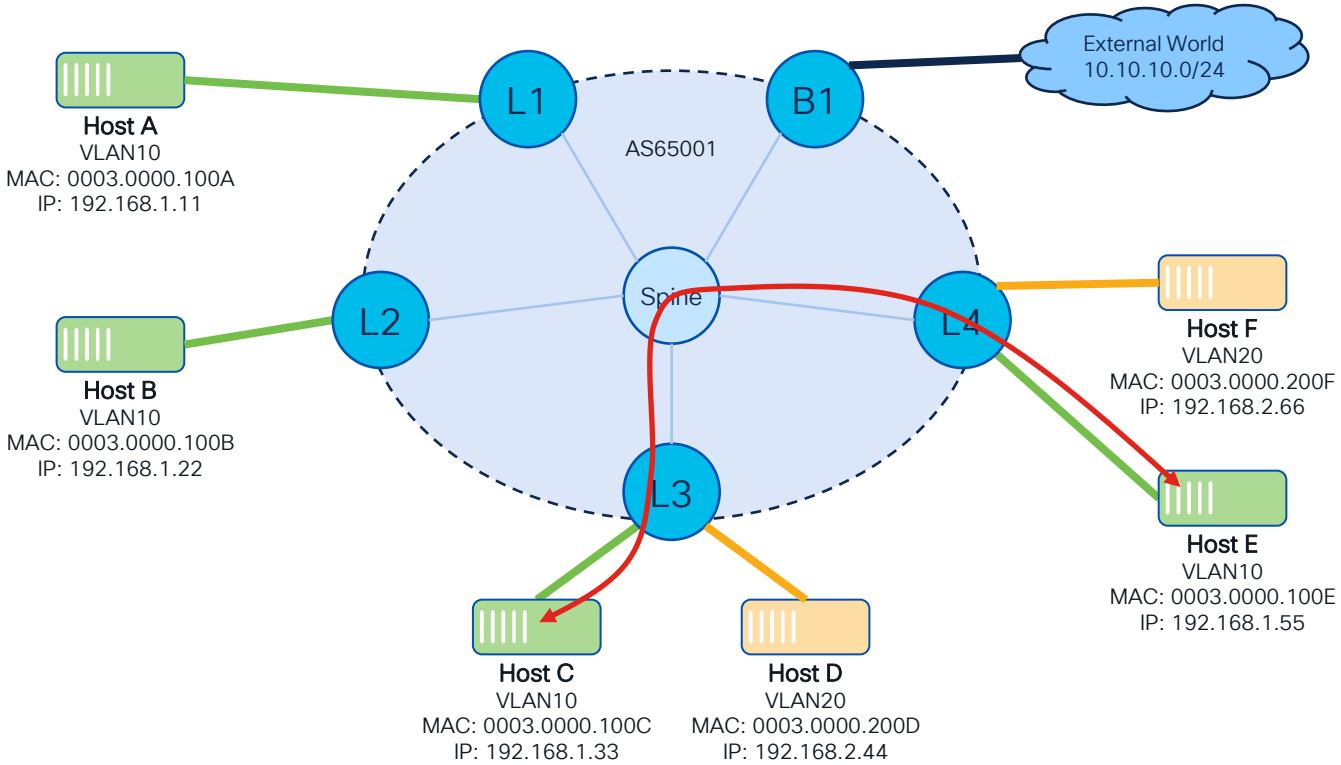
# Topology Overview
## Layer-2 Packet Walk





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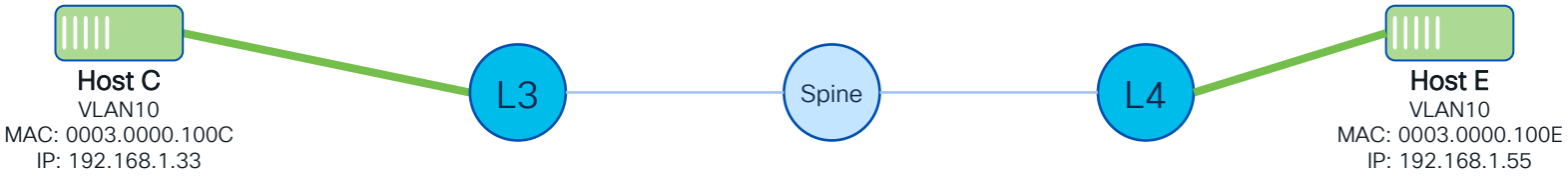
# Learning: HostE to Leaf3





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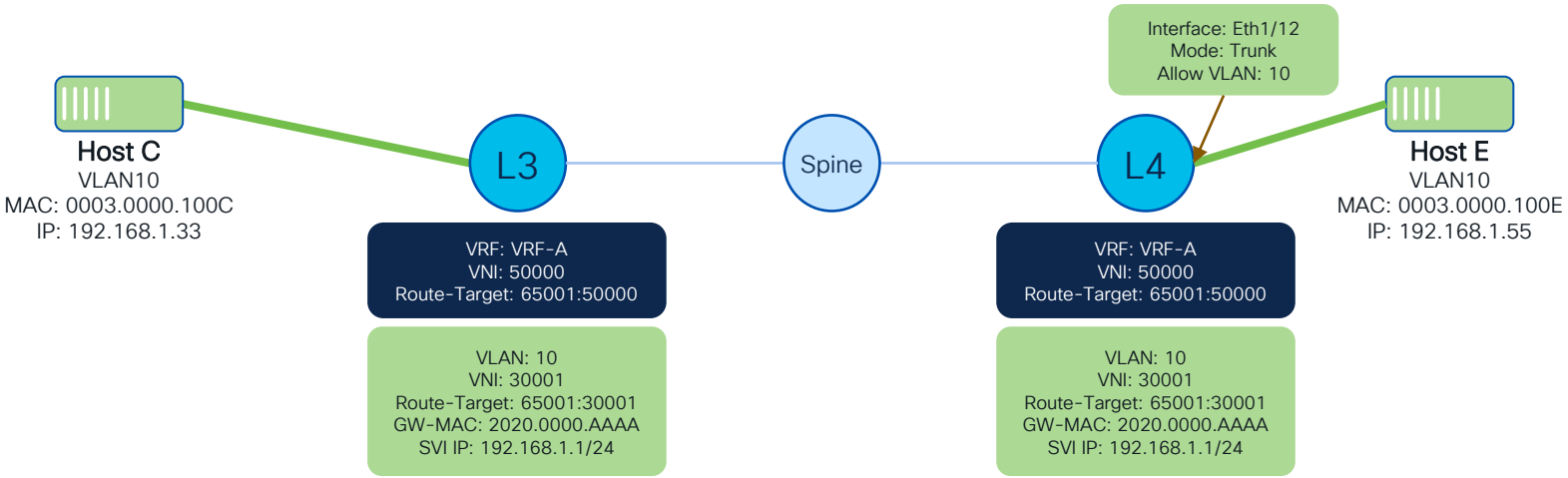
# Learning: HostE to Leaf3





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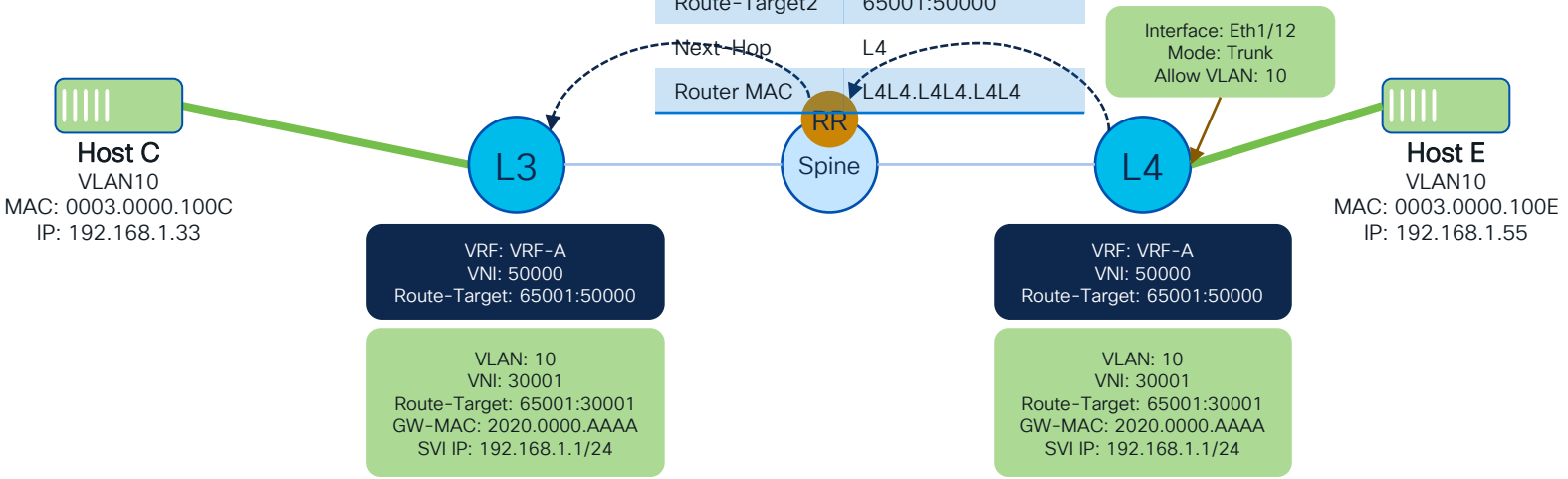
# Learning: HostE to Leaf3

| EVPN NLRI | |
|---|---|
| Route Type | 2 |
| MAC / Length | 0003.0000.100E/48 |
| IP / Length | 192.168.1.55/32 |
| Label1 | 30001 |
| Label2 | 50000 |
| Route-Target1 | 65001:30001 |
| Route-Target2 | 65001:50000 |
| Next-Hop | L4 |
| Router MAC | L4L4.L4L4.L4L4 |





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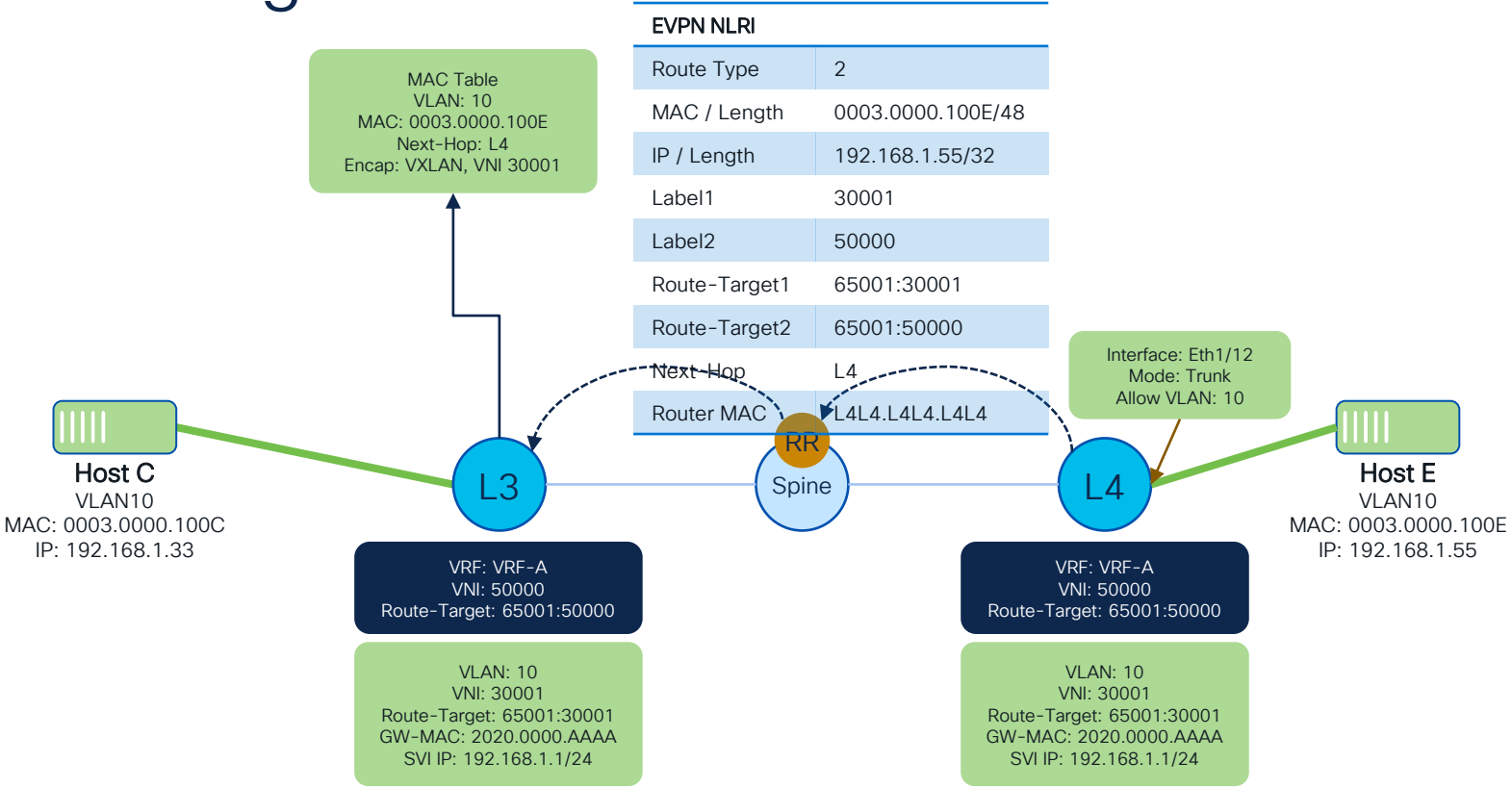
# Learning: HostE to Leaf3





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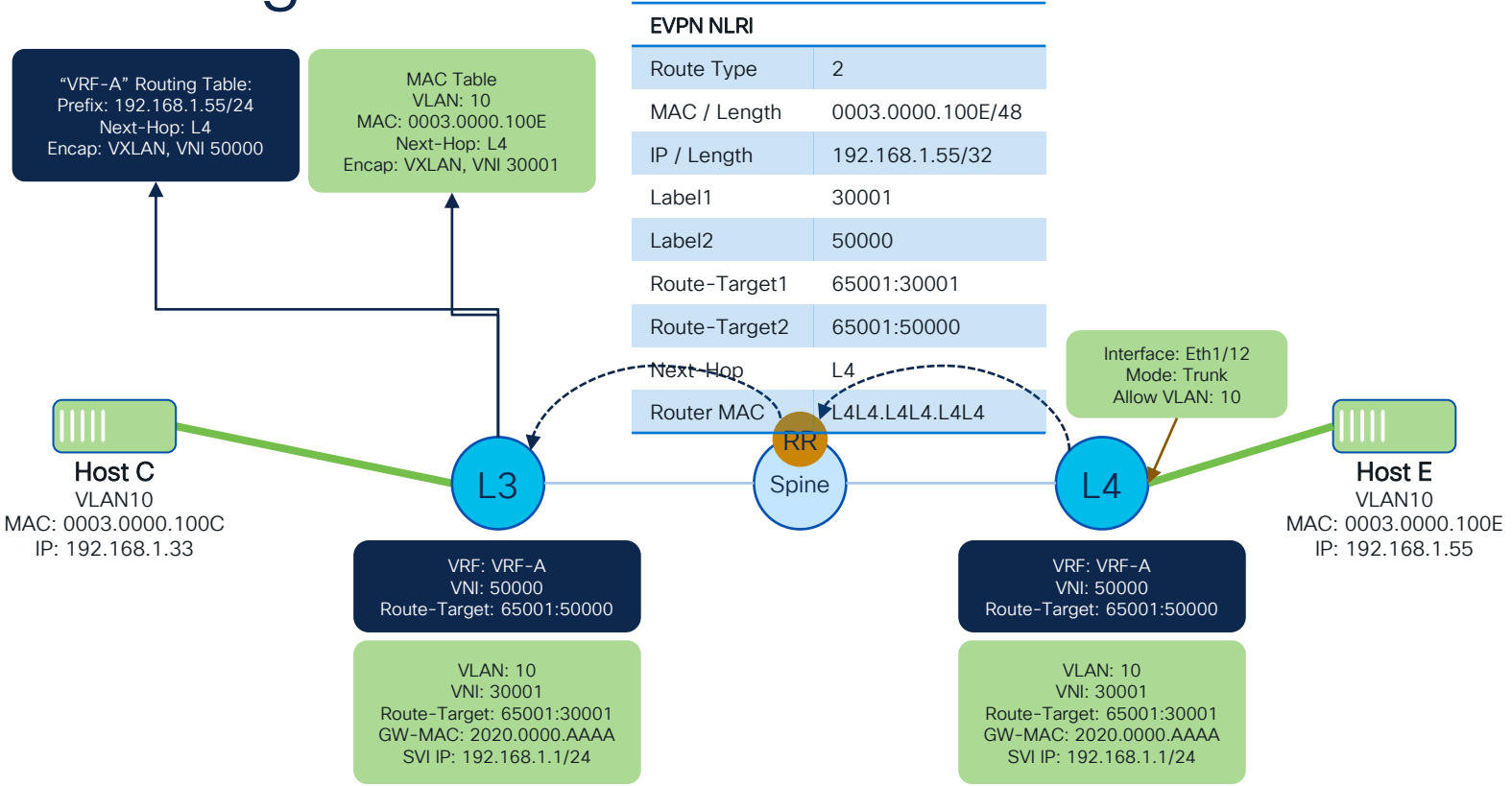
# Learning: HostE to Leaf3





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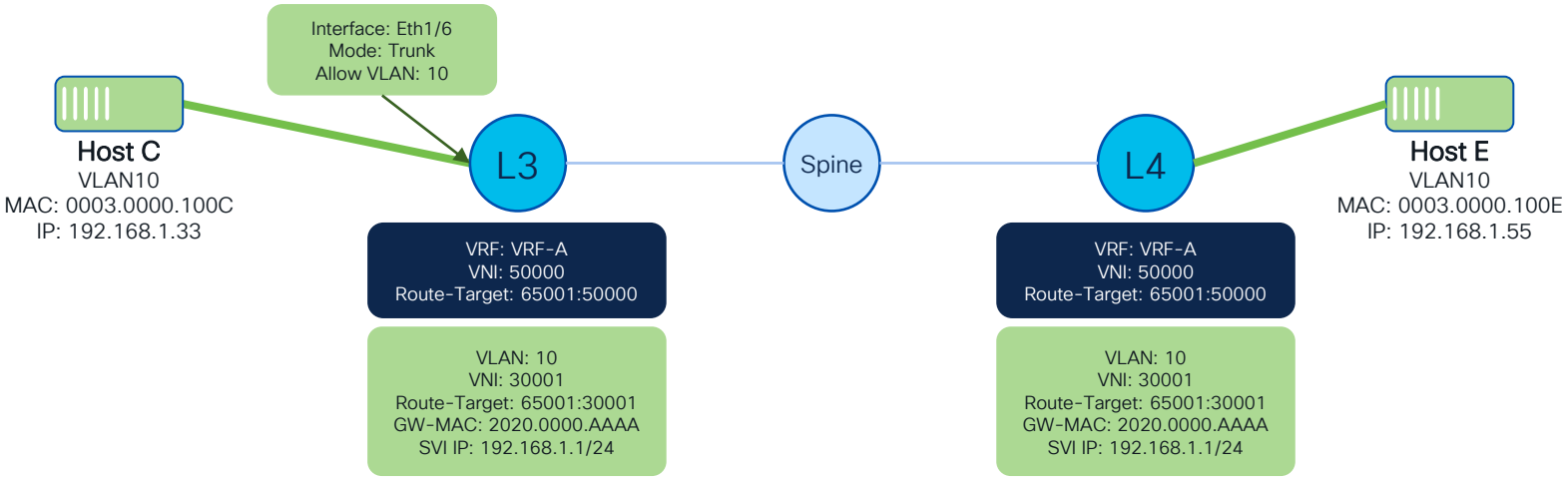
# Learning: HostC to Leaf4





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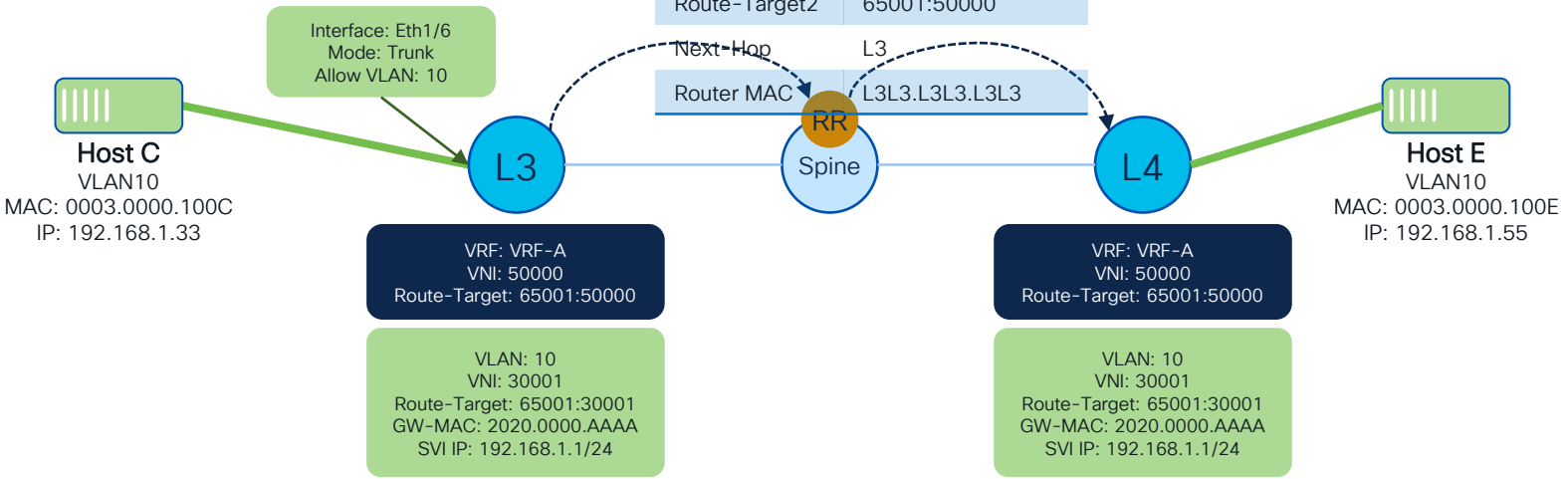
# Learning: HostC to Leaf4

| EVPN NLRI | |
|---|---|
| Route Type | 2 |
| MAC / Length | 0003.0000.100C/48 |
| IP / Length | 192.168.1.33/32 |
| Label1 | 30001 |
| Label2 | 50000 |
| Route-Target1 | 65001:30001 |
| Route-Target2 | 65001:50000 |
| Next-Hop | L3 |
| Router MAC | L3L3.L3L3.L3L3 |





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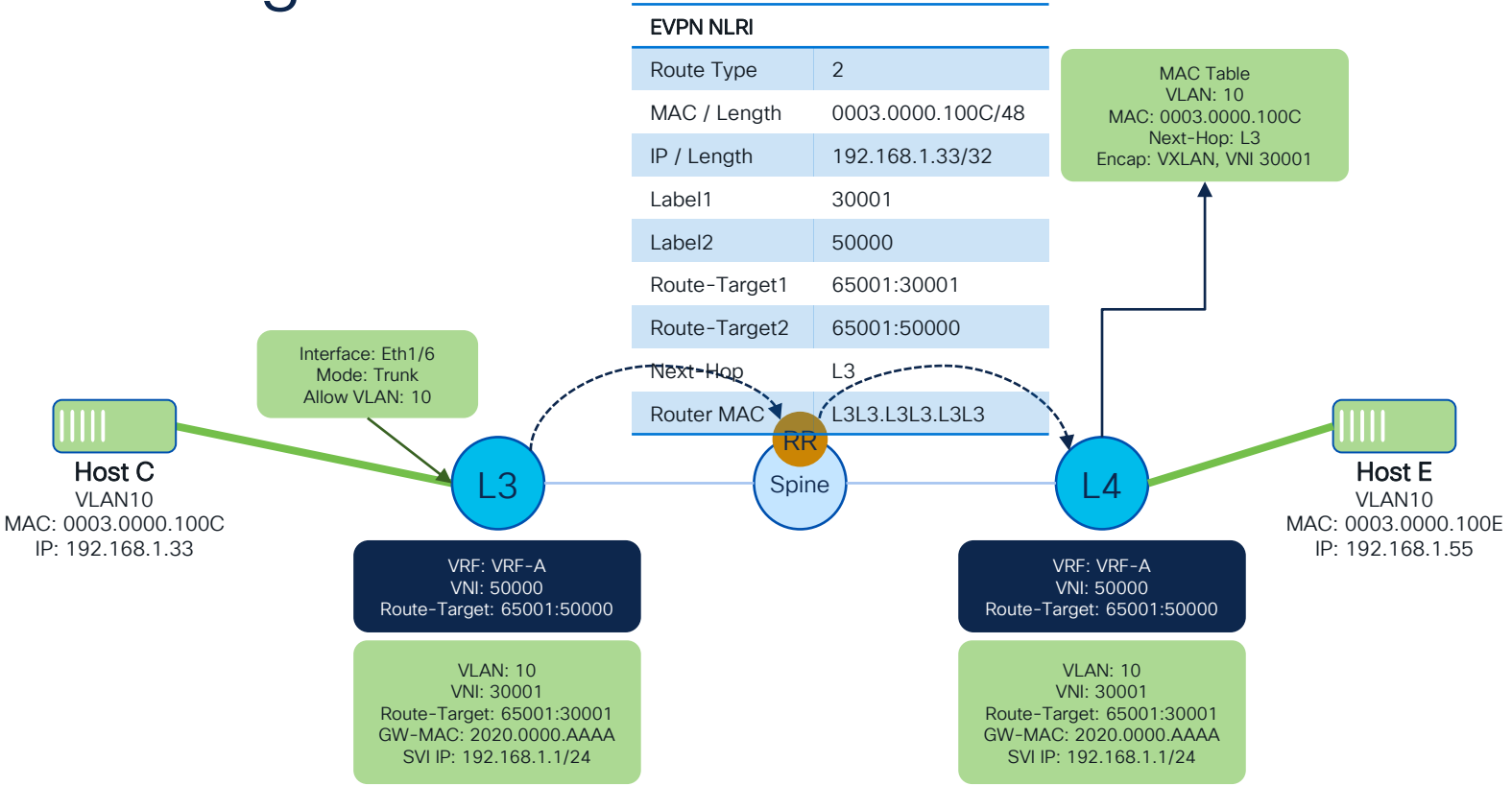
# Learning: HostC to Leaf4





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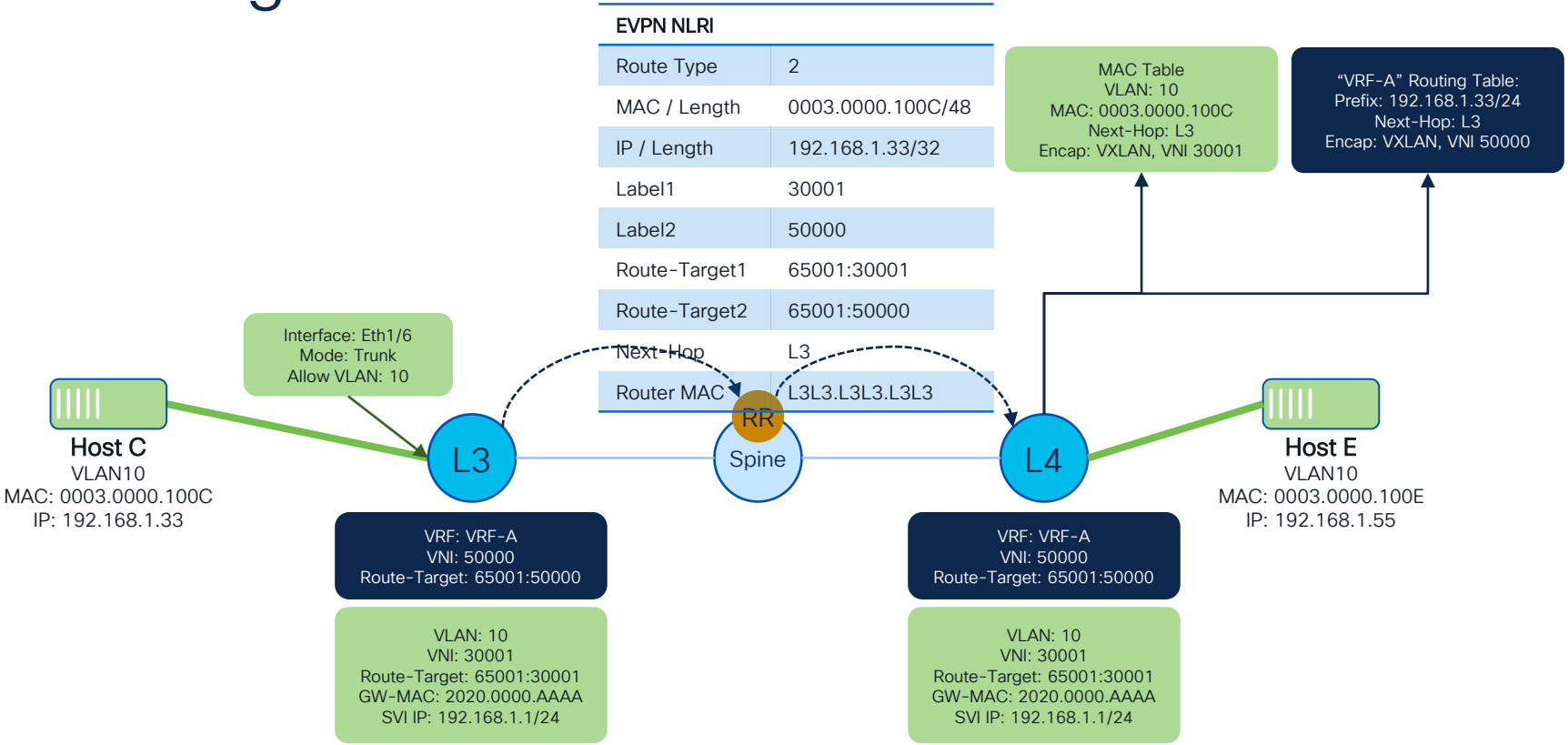
# Learning: HostC to Leaf4





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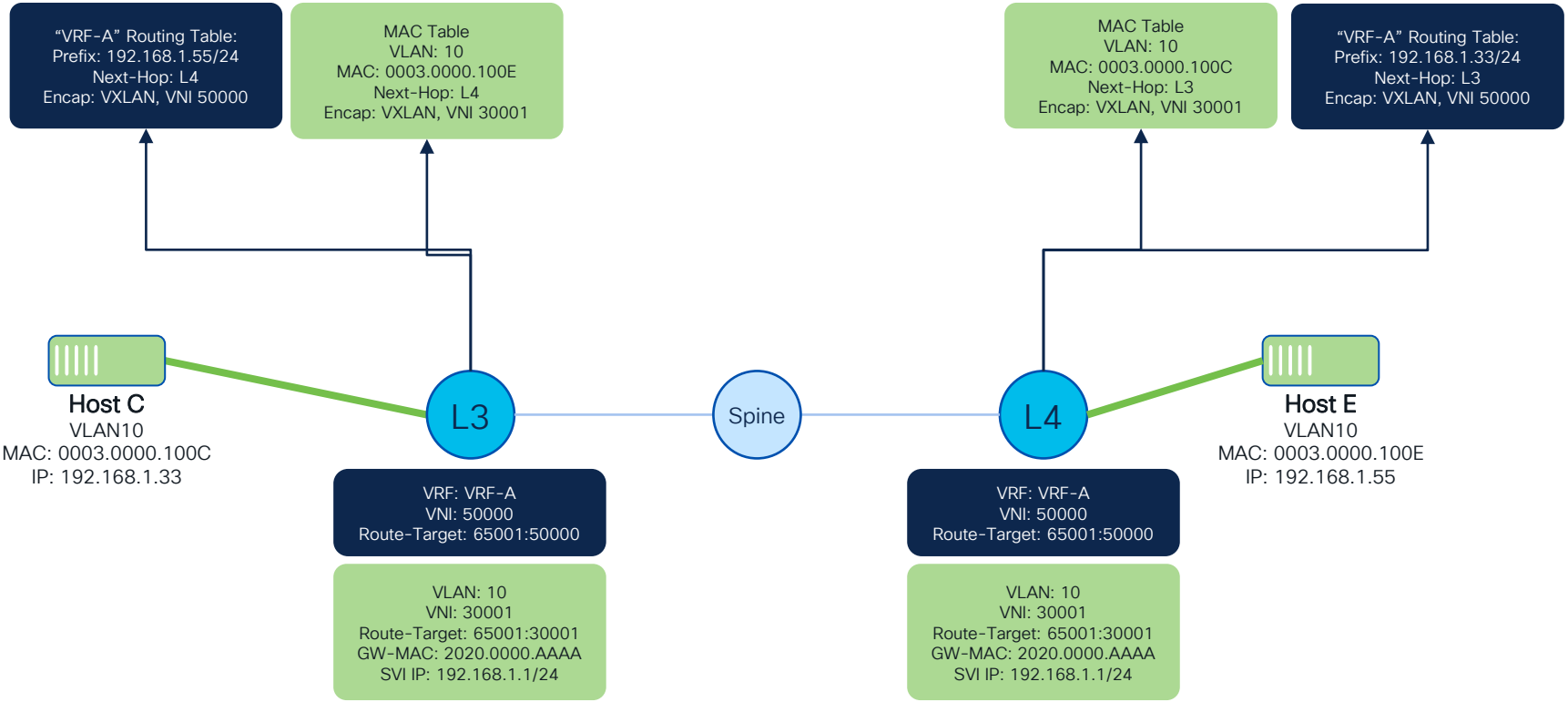
# Forwarding Tables





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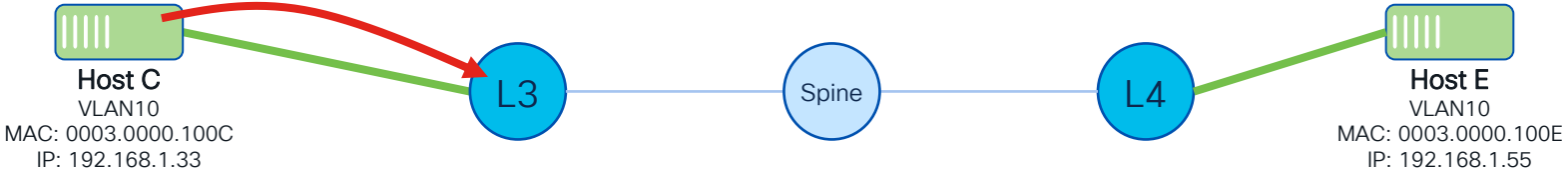
# HostC to HostE

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| 0003.0000.100C | 0003.0000.100E | 10 | 192.168.1.33 | 192.168.1.55 | |





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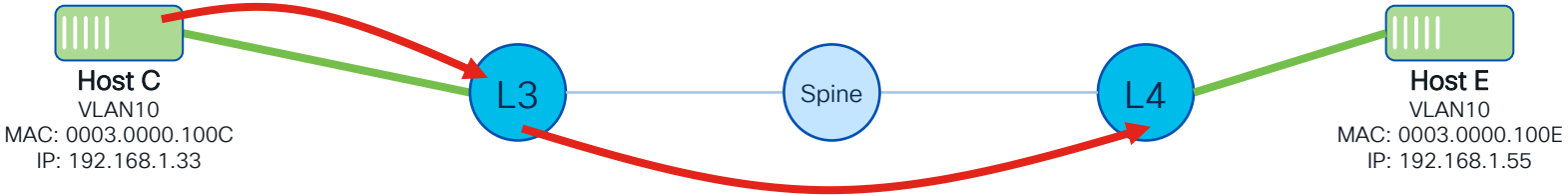
# HostC to HostE

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| 0003.0000.100C | 0003.0000.100E | 10 | 192.168.1.33 | 192.168.1.55 | |




| SIP | DIP | VNI | SMAC | DMAC | SIP | DIP | Payload |
|---|---|---|---|---|---|---|---|
| L3-IP | L4-IP | 30001 | 0003.0000.100C | 0003.0000.100E | 192.168.1.33 | 192.168.1.55 | |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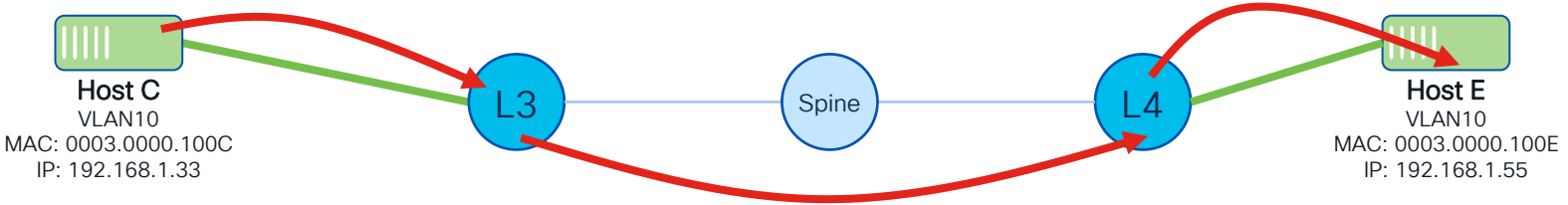
# HostC to HostE

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| 0003.0000.100C | 0003.0000.100E | 10 | 192.168.1.33 | 192.168.1.55 | |

| SMAC | DMAC | VLAN | SIP | DIP | P |
|---|---|---|---|---|---|
| 0003.0000.100C | 0003.0000.100E | 10 | 192.168.1.33 | 192.168.1.55 | |




| SIP | DIP | VNI | SMAC | DMAC | SIP | DIP | Payload |
|---|---|---|---|---|---|---|---|
| L3-IP | L4-IP | 30001 | 0003.0000.100C | 0003.0000.100E | 192.168.1.33 | 192.168.1.55 | |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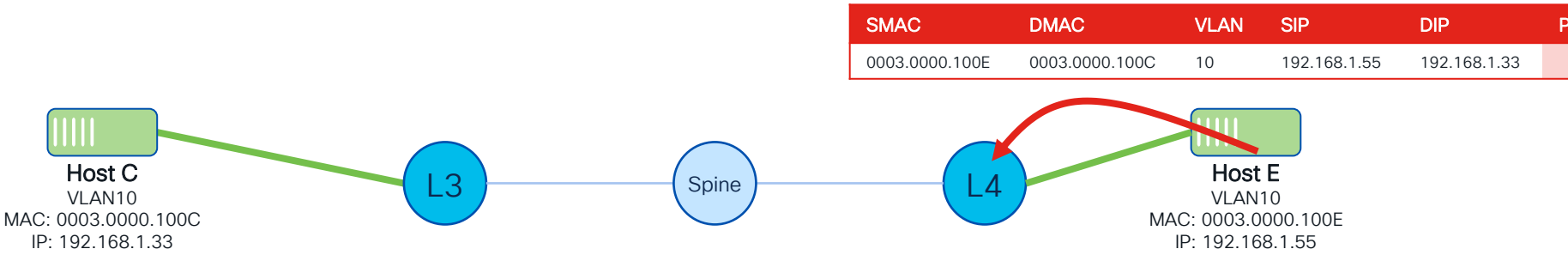
# HostE to HostC





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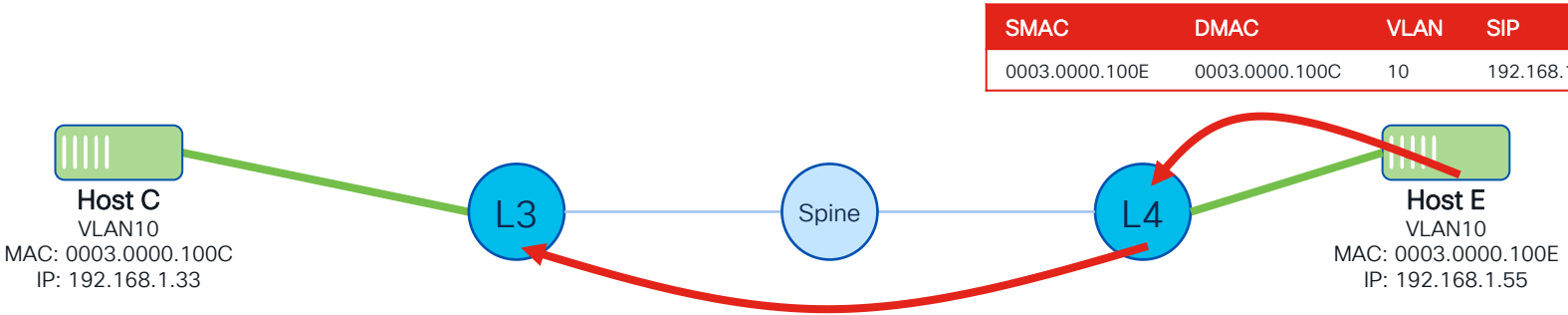
# HostE to HostC





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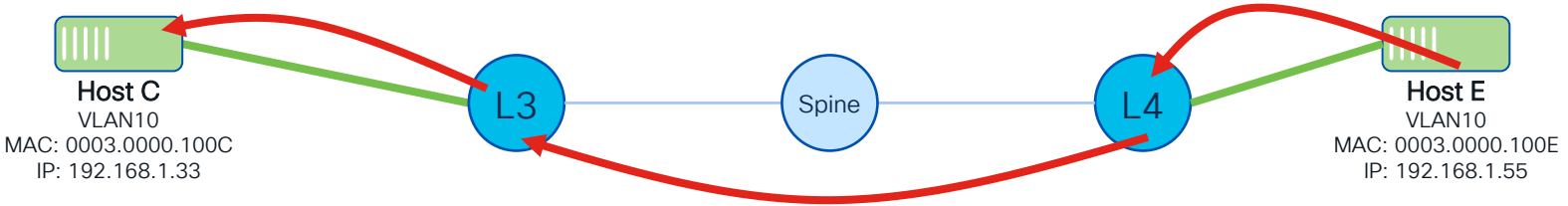
# HostE to HostC

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| 0003.0000.100E | 0003.0000.100C | 10 | 192.168.1.55 | 192.168.1.33 | |

| SMAC | DMAC | VLAN | SIP | DIP | P |
|---|---|---|---|---|---|
| 0003.0000.100E | 0003.0000.100C | 10 | 192.168.1.55 | 192.168.1.33 | |




| SIP | DIP | VNI | SMAC | DMAC | SIP | DIP | Payload |
|---|---|---|---|---|---|---|---|
| L4-IP | L3-IP | 30001 | 0003.0000.100E | 0003.0000.100C | 192.168.1.55 | 192.168.1.33 | |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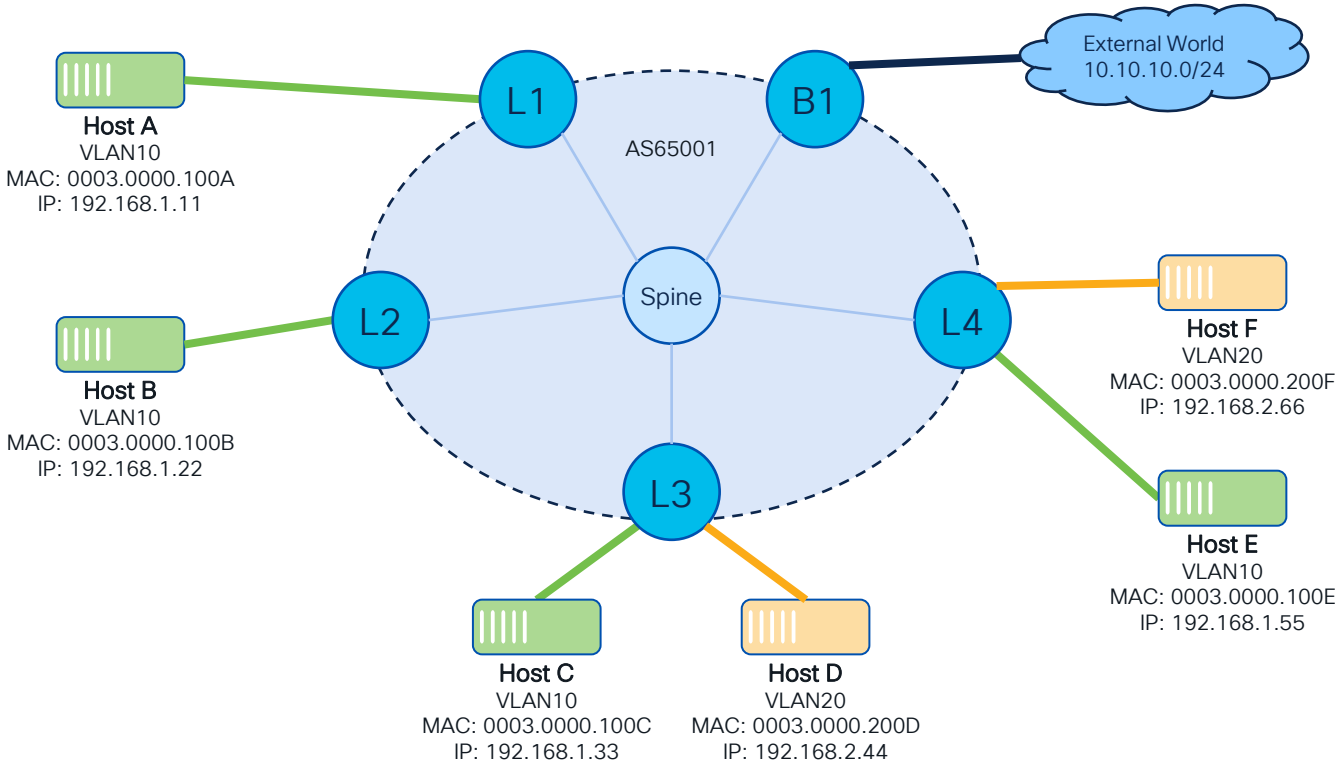
# Packet Walk: BUM

# Topology Overview
## BUM Packet Walk





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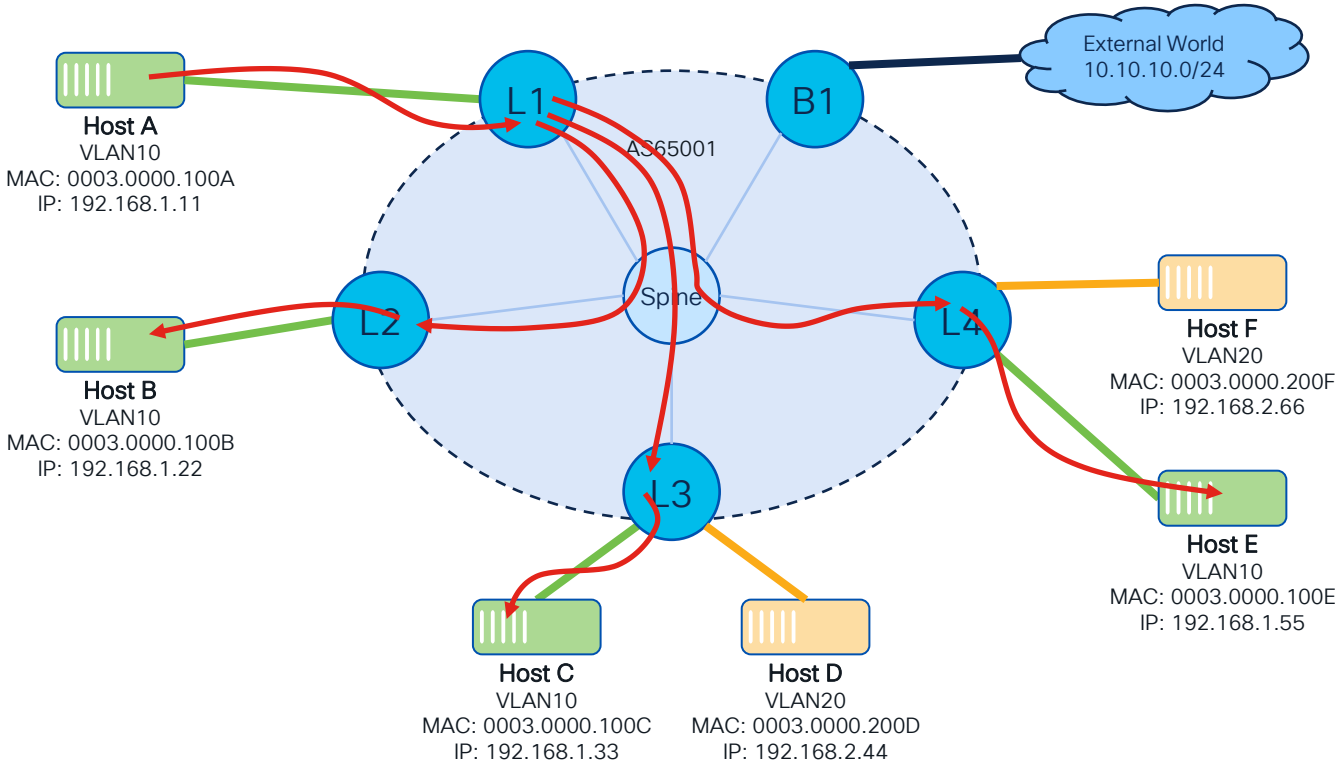
# Topology Overview
## BUM Packet Walk (Ingress Replication)





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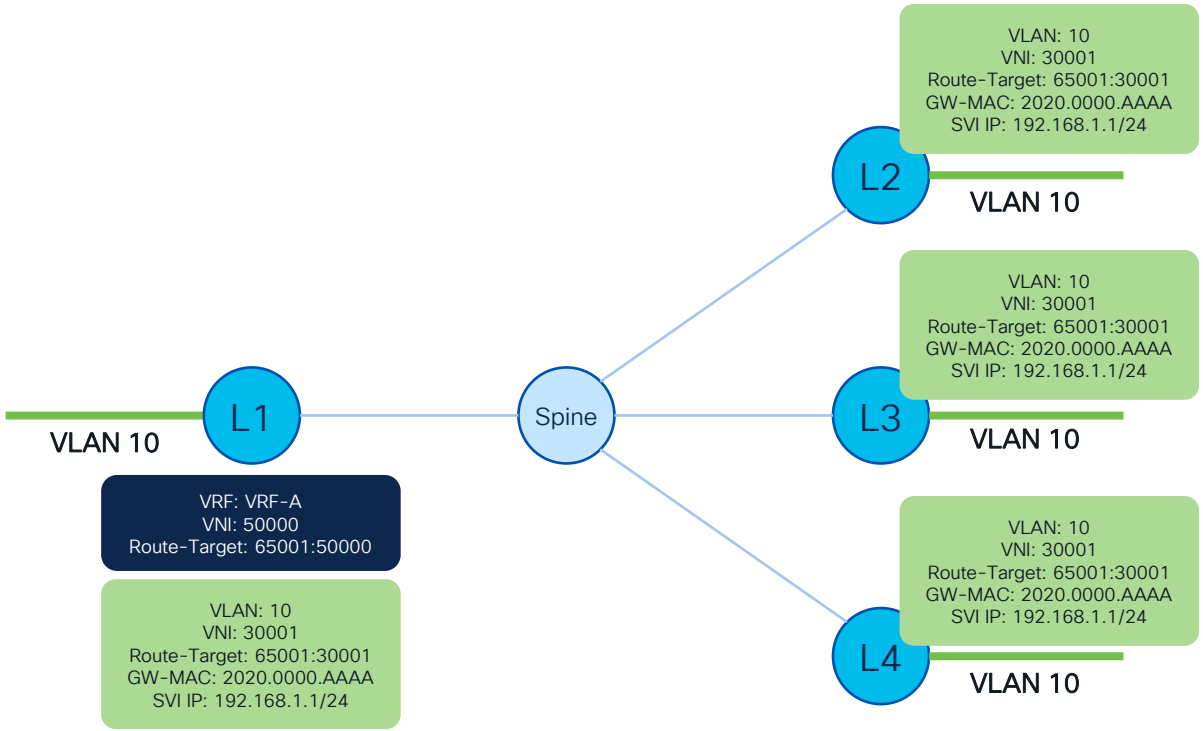
# Learning: VNI 30001 Participation (IR)





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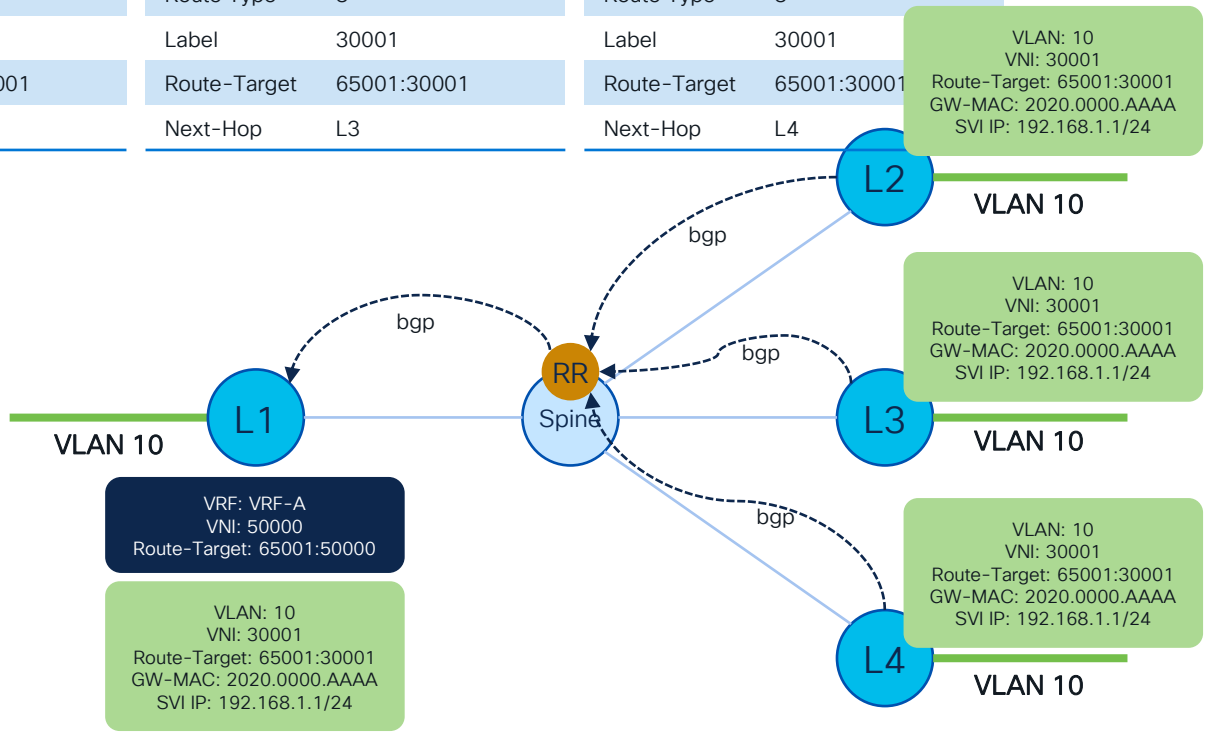
# Learning: VNI 30001 Participation (IR)

| EVPN NLRI | |
|---|---|
| Route Type | 3 |
| Label | 30001 |
| Route-Target | 65001:30001 |
| Next-Hop | L2 |

| EVPN NLRI | |
|---|---|
| Route Type | 3 |
| Label | 30001 |
| Route-Target | 65001:30001 |
| Next-Hop | L3 |

| EVPN NLRI | |
|---|---|
| Route Type | 3 |
| Label | 30001 |
| Route-Target | 65001:30001 |
| Next-Hop | L4 |





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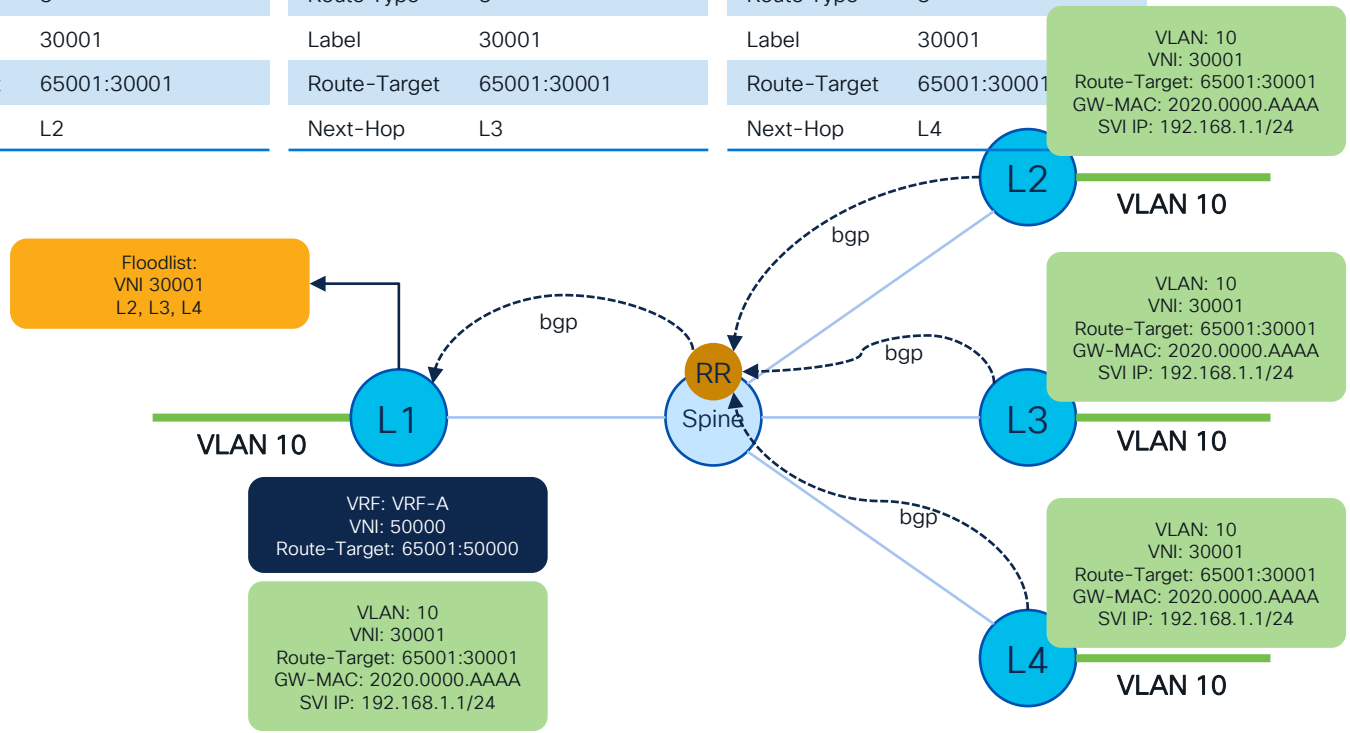
# Learning: VNI 30001 Participation (IR)

| EVPN NLRI | |
|---|---|
| Route Type | 3 |
| Label | 30001 |
| Route-Target | 65001:30001 |
| Next-Hop | L2 |

| EVPN NLRI | |
|---|---|
| Route Type | 3 |
| Label | 30001 |
| Route-Target | 65001:30001 |
| Next-Hop | L3 |

| EVPN NLRI | |
|---|---|
| Route Type | 3 |
| Label | 30001 |
| Route-Target | 65001:30001 |
| Next-Hop | L4 |





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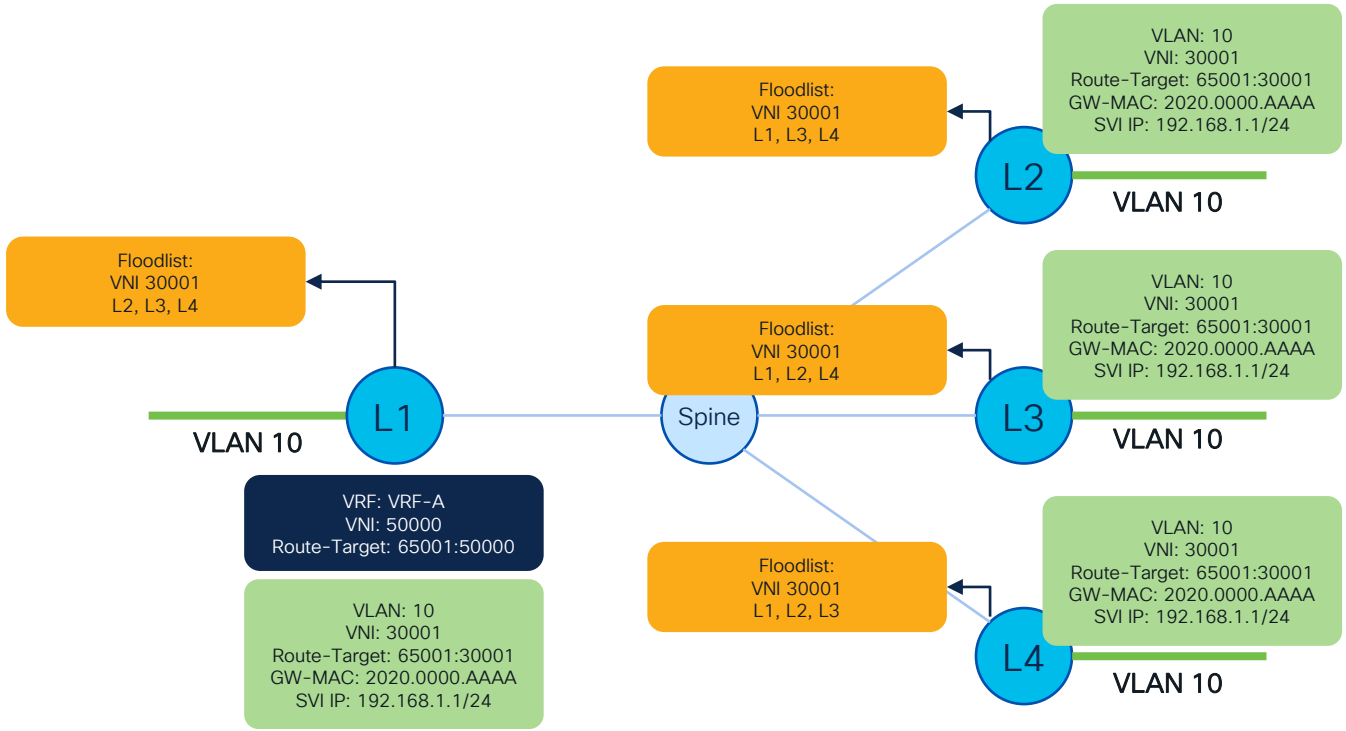
# Forwarding Tables (IR)





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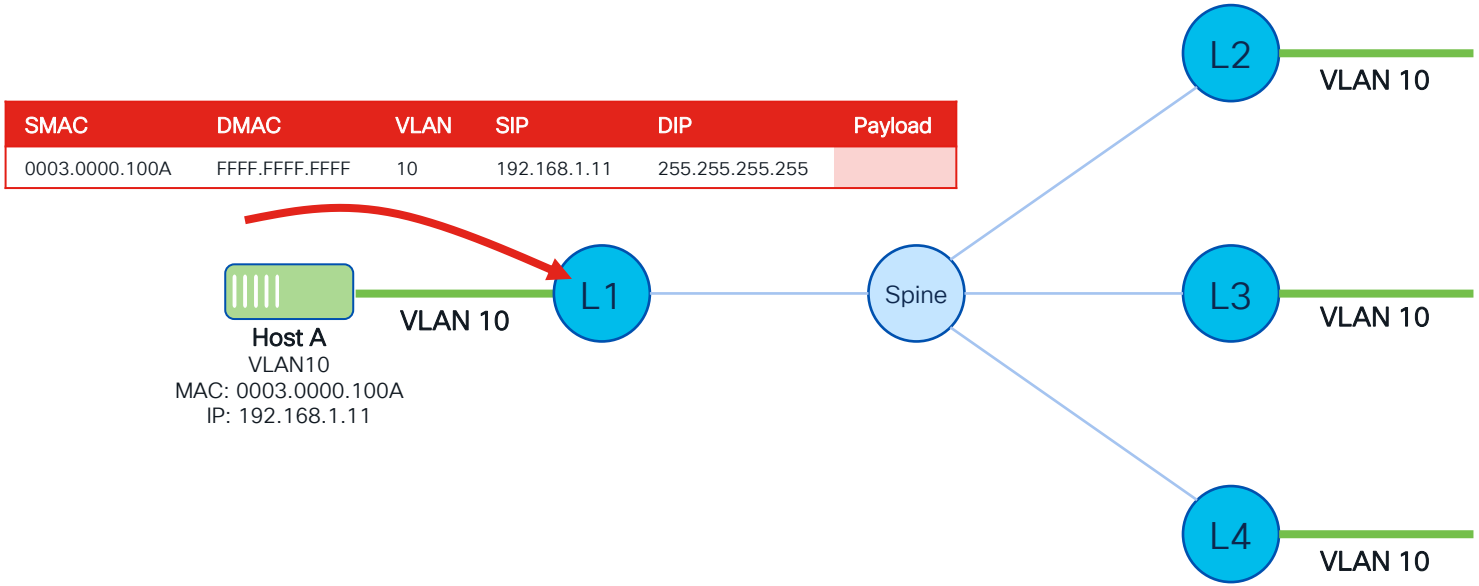
# HostA sends BUM (IR)





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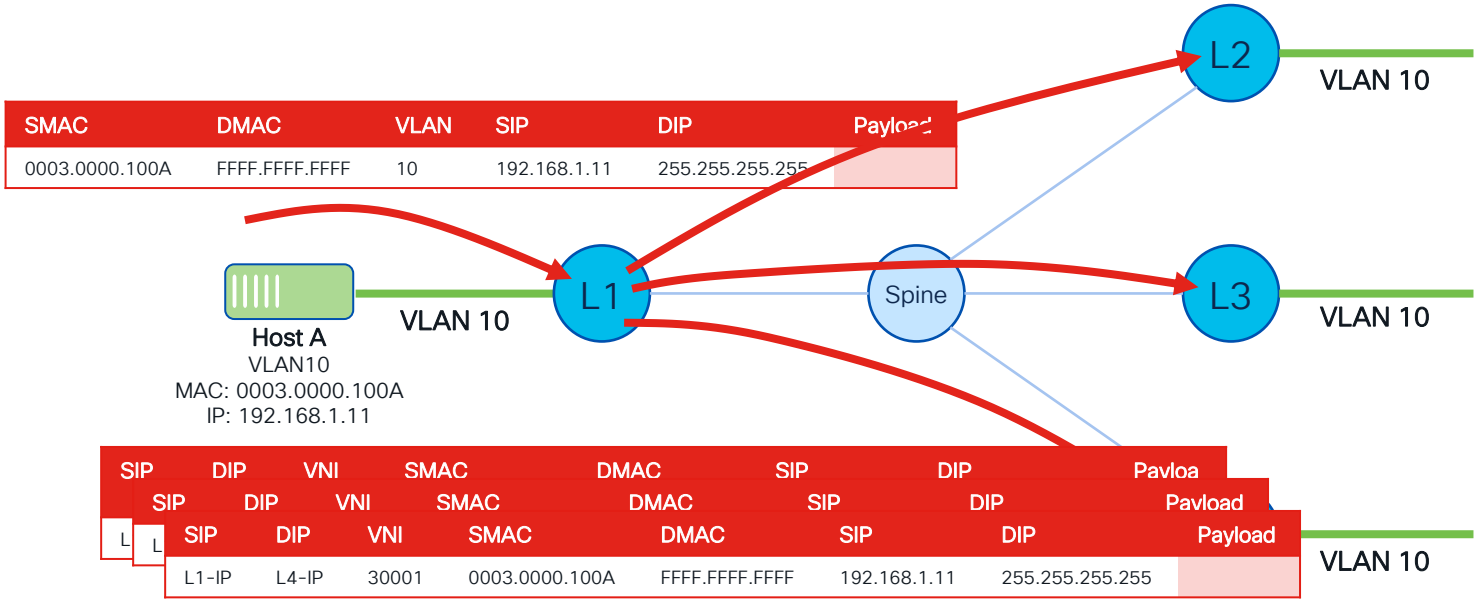
# HostA sends BUM (IR)





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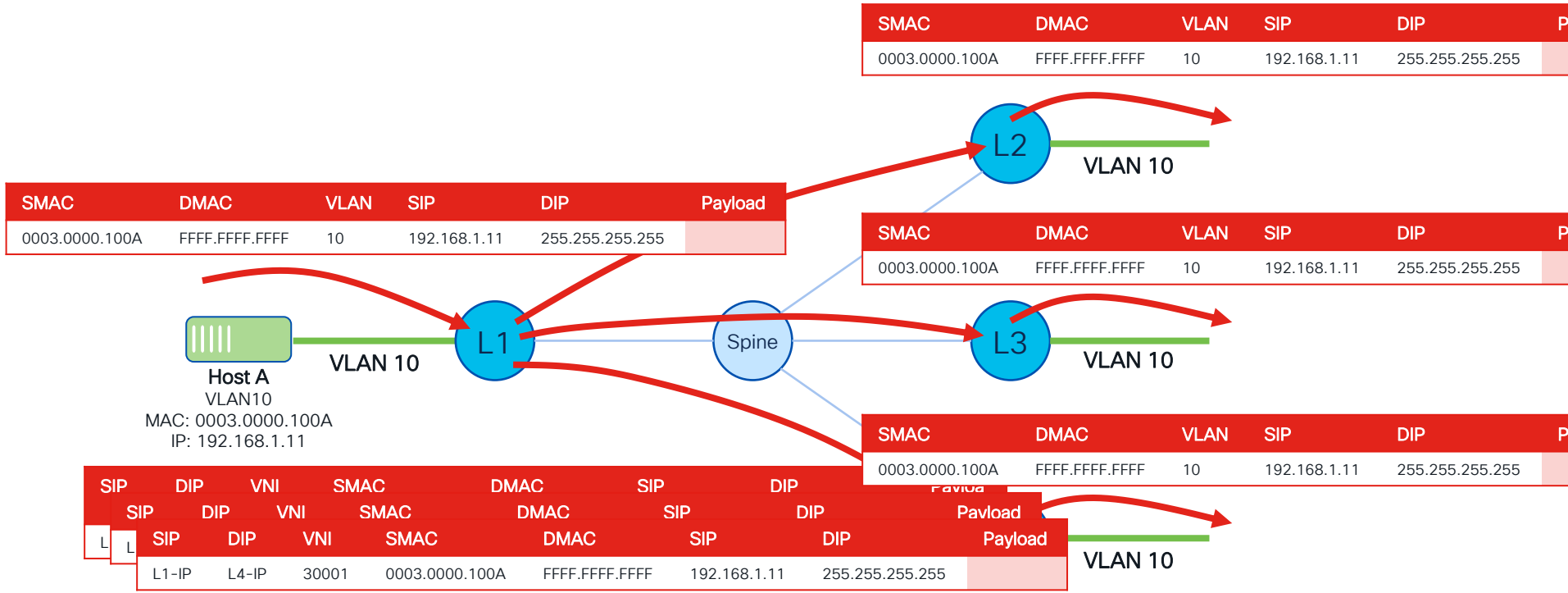
# HostA sends BUM (IR)





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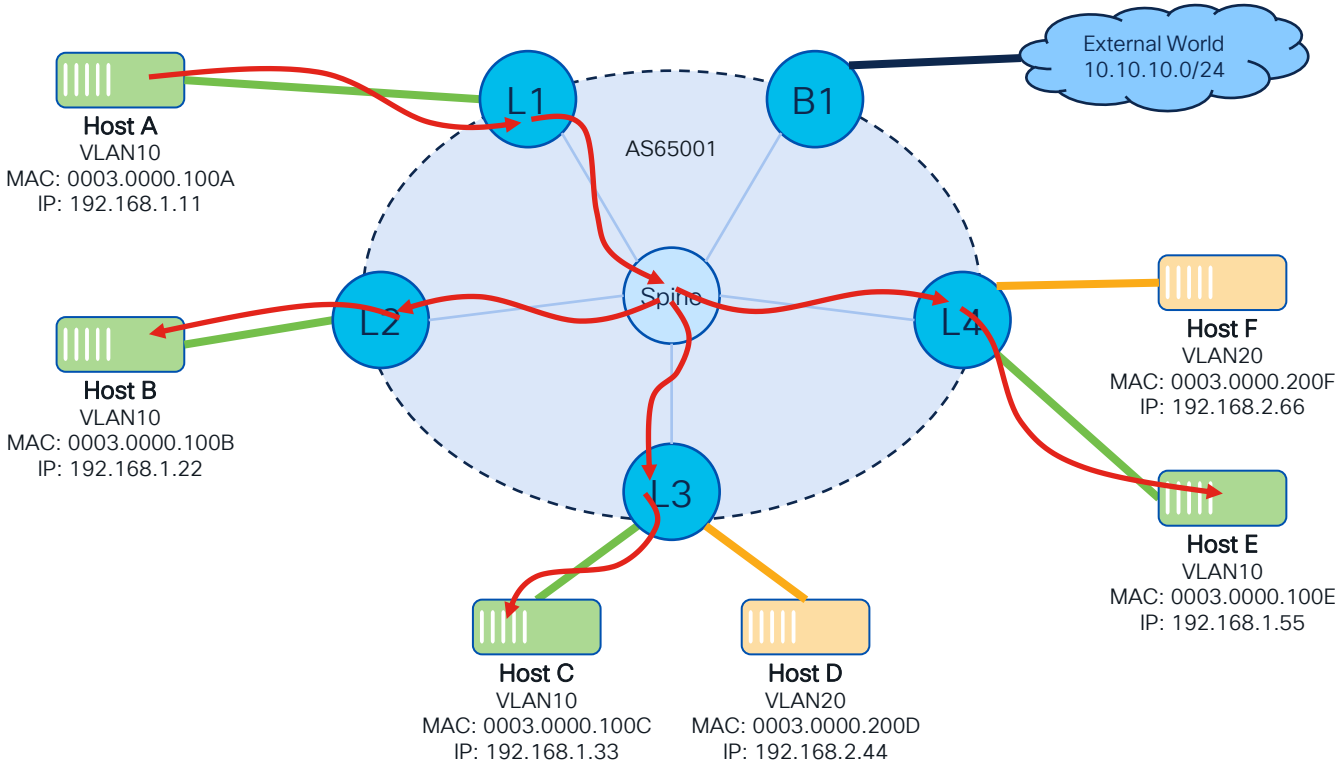
# Topology Overview
## BUM Packet Walk (Multicast)





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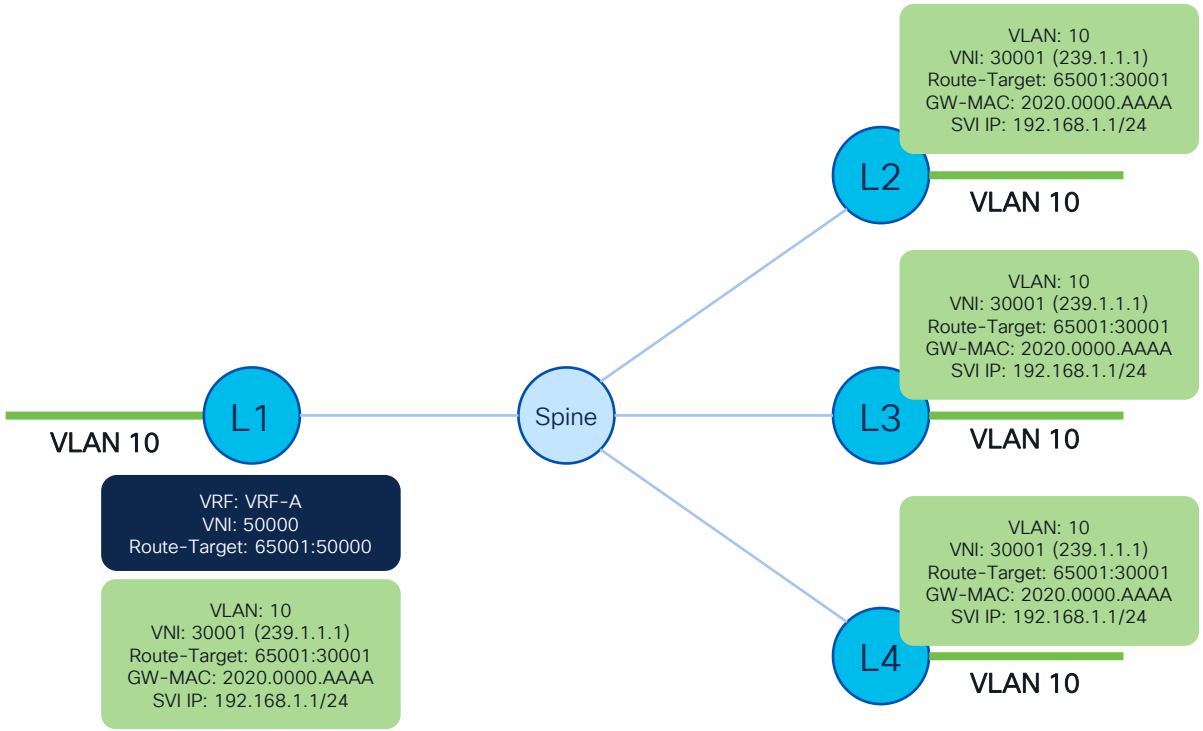
# Learning: VNI 30001 Participation (MCAST)





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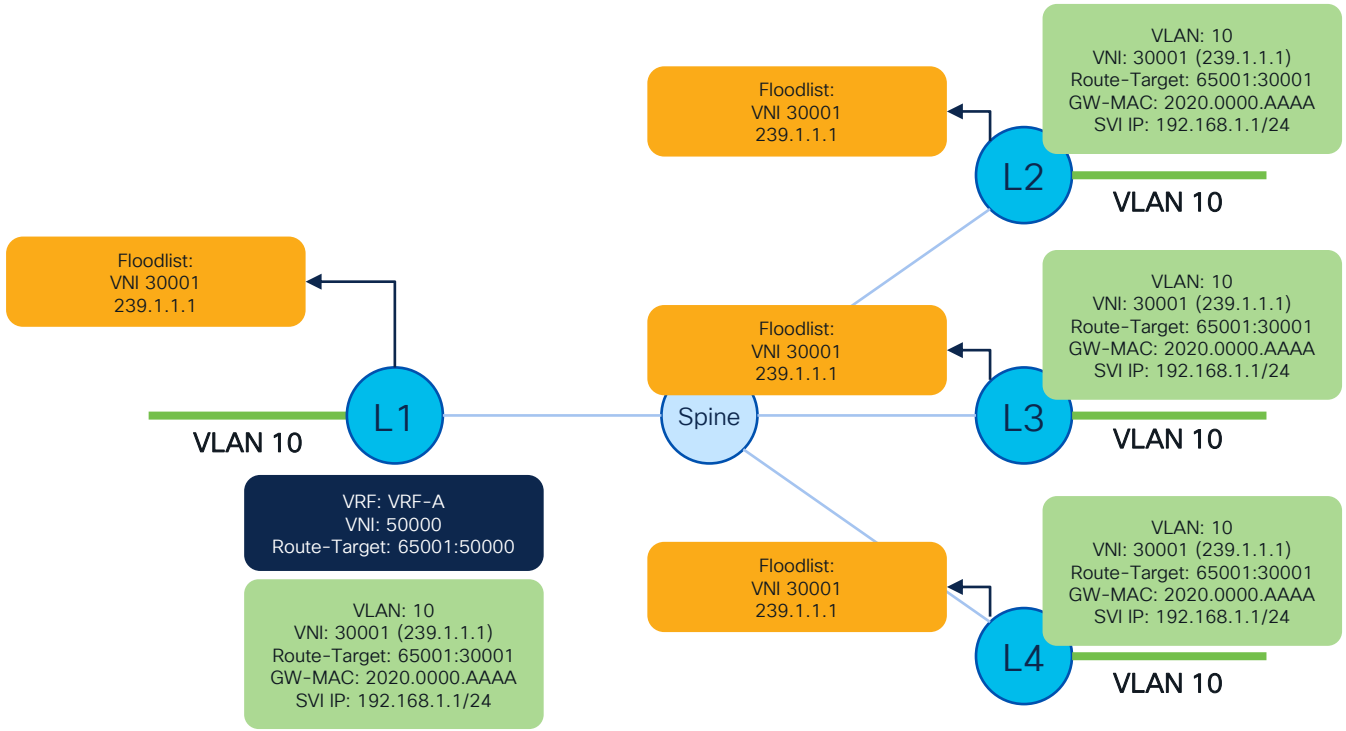
# Forwarding Tables (MCAST)





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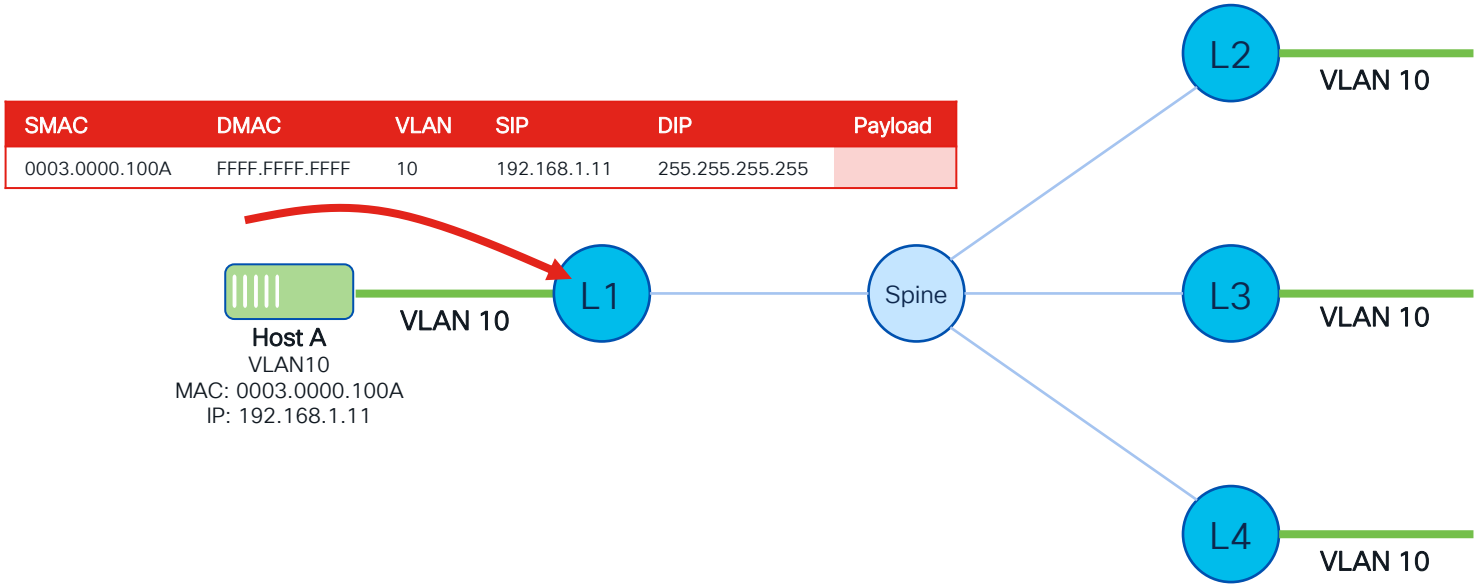
# HostA sends BUM (MCAST)

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| 0003.0000.100A | FFFF.FFFF.FFFF | 10 | 192.168.1.11 | 255.255.255.255 | |





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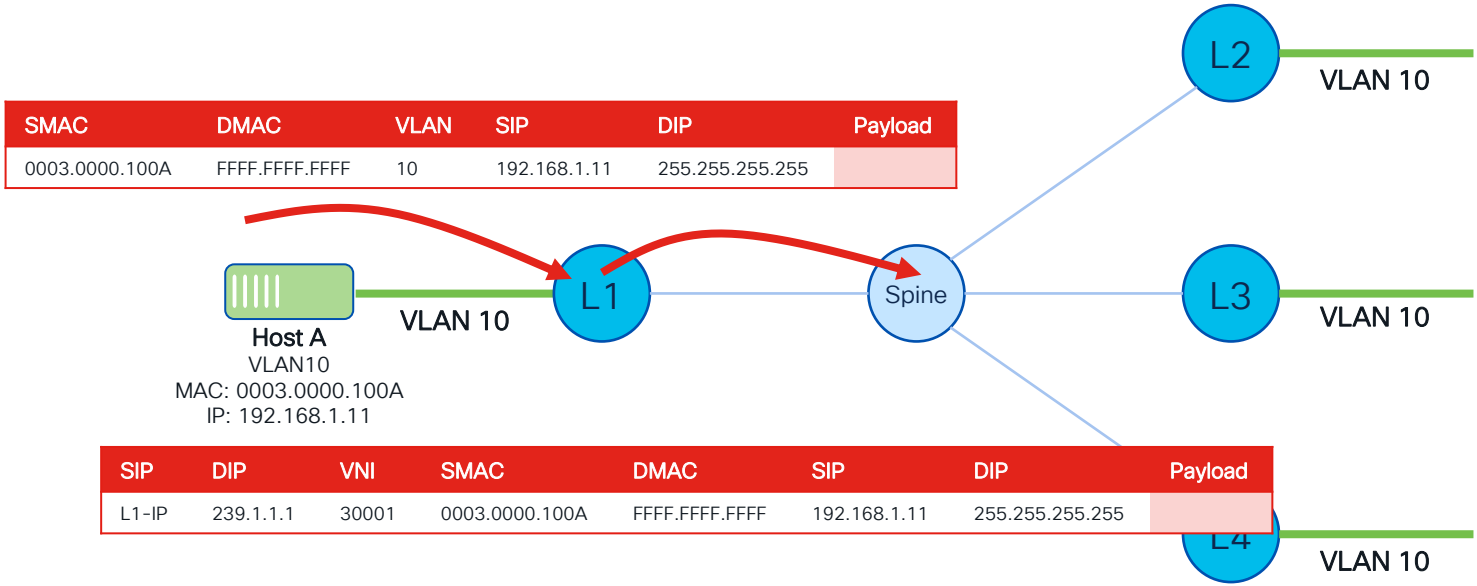
# HostA sends BUM (MCAST)





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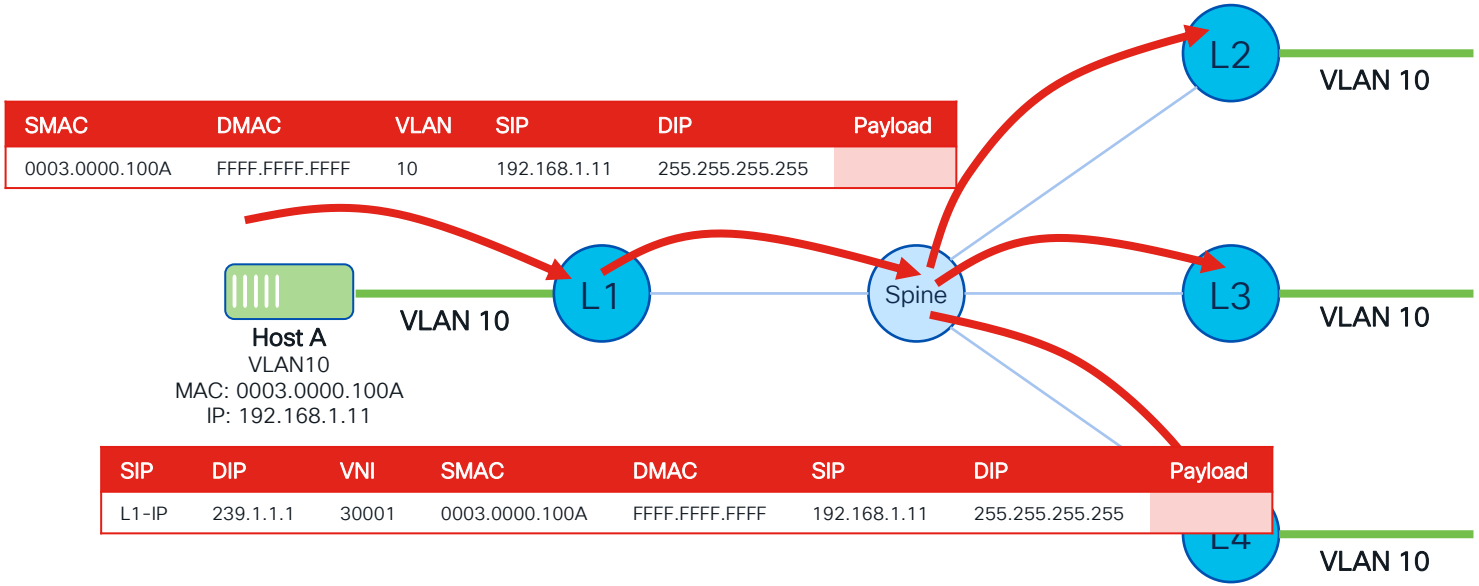
# HostA sends BUM (MCAST)





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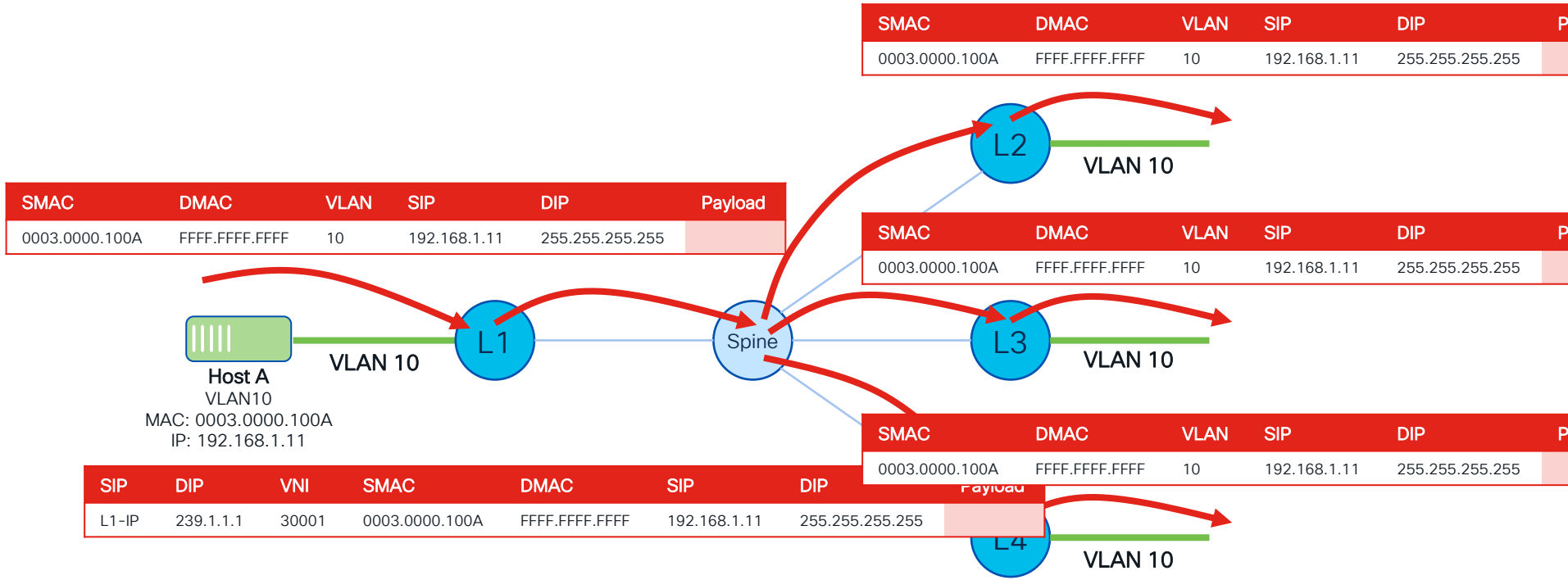
# HostA sends BUM (MCAST)





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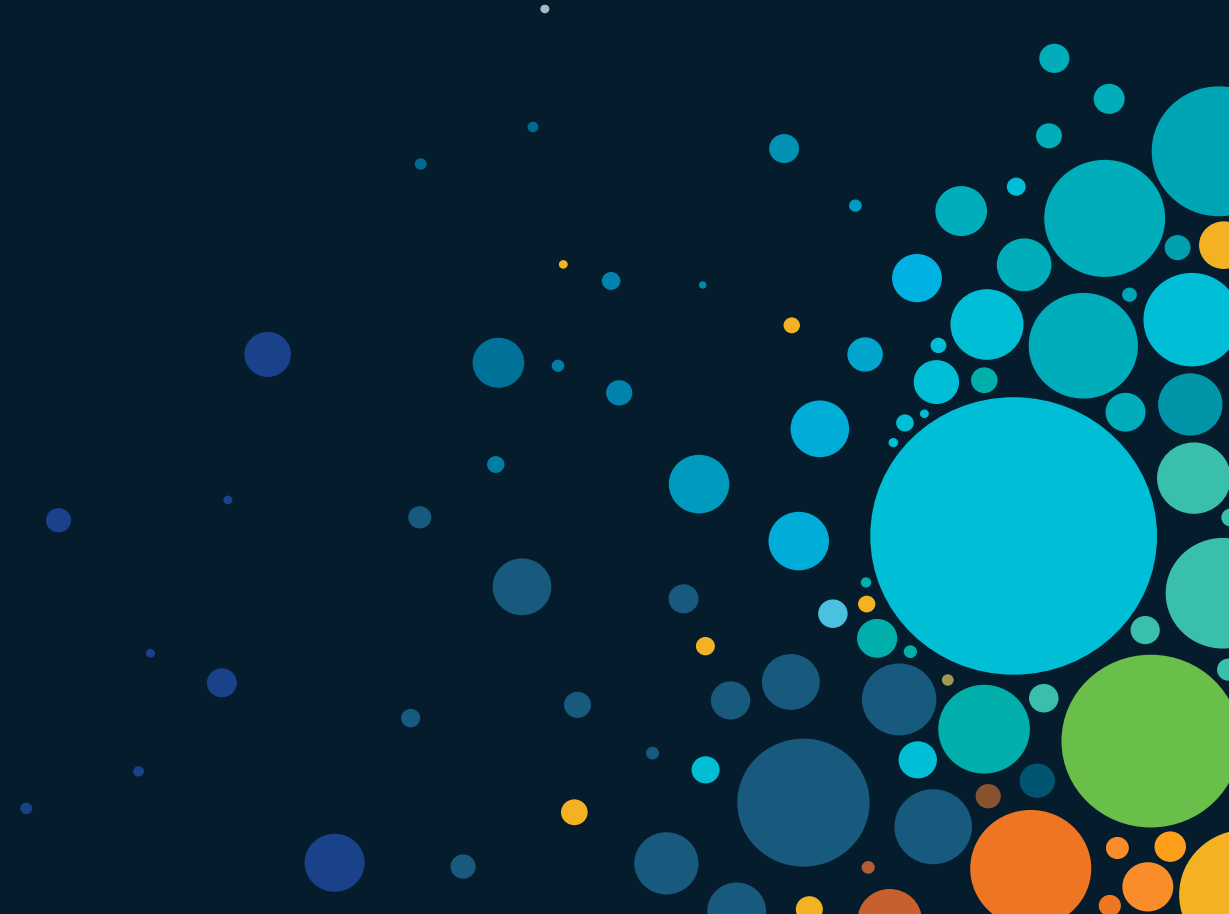
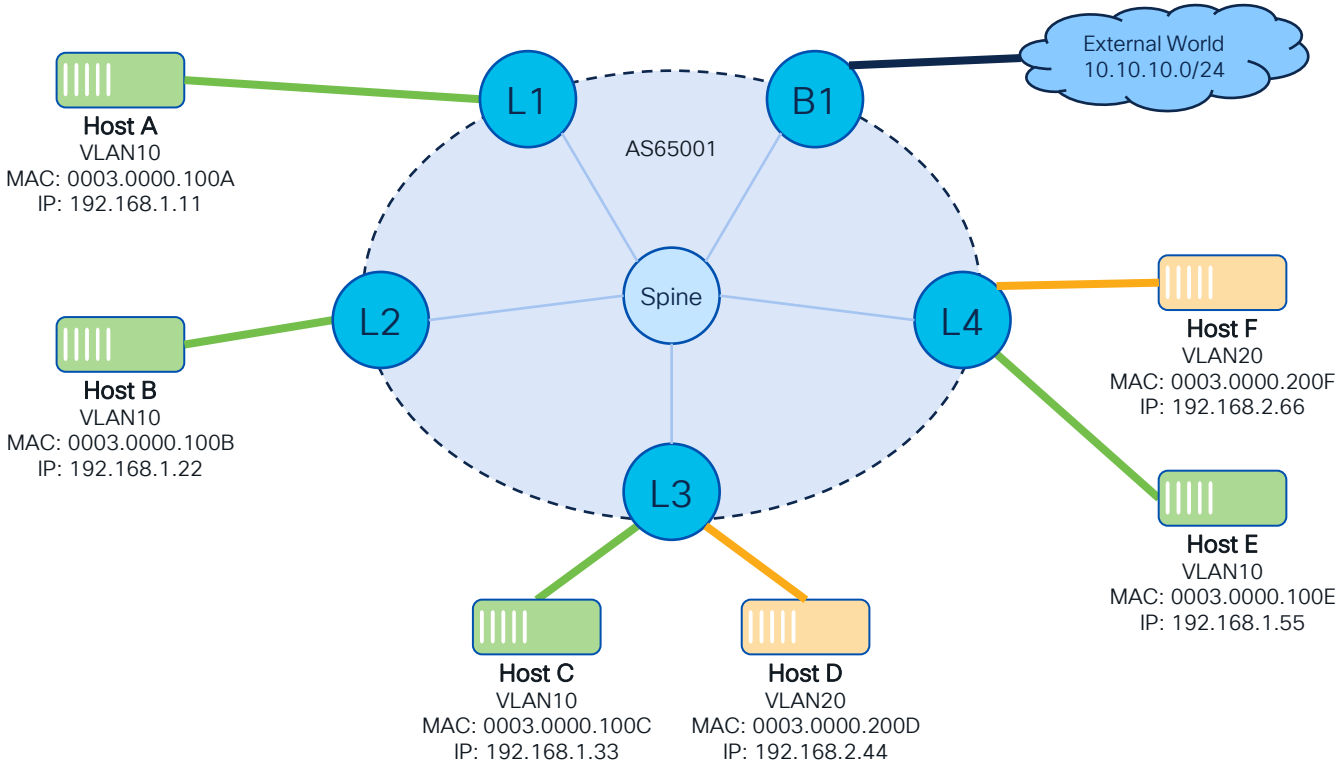
# Silent Host Discovery



# Topology Overview
## Silent Host Discovery





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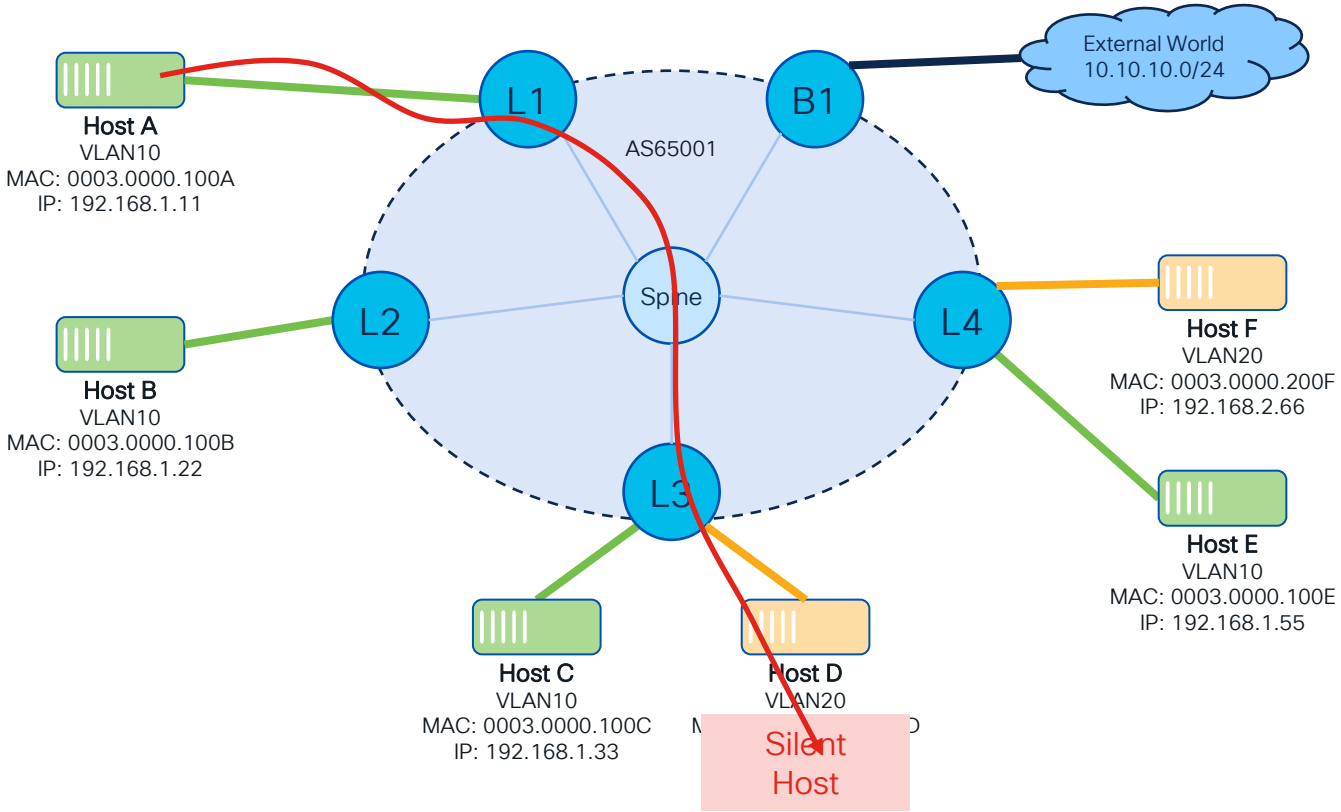
# Topology Overview
## Silent Host Discovery





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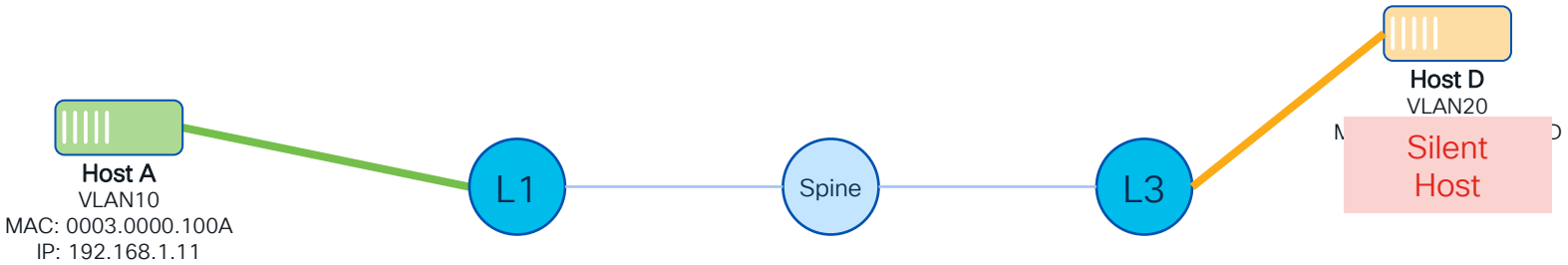
# Learning: HostD to Leaf1





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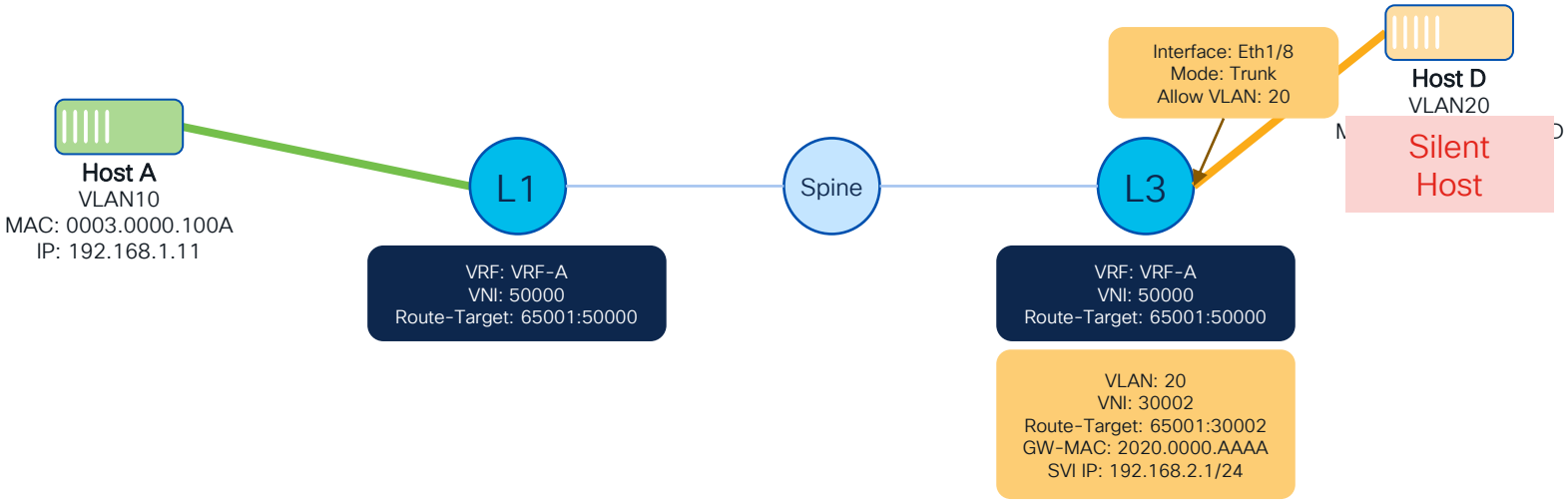
# Learning: HostD to Leaf1





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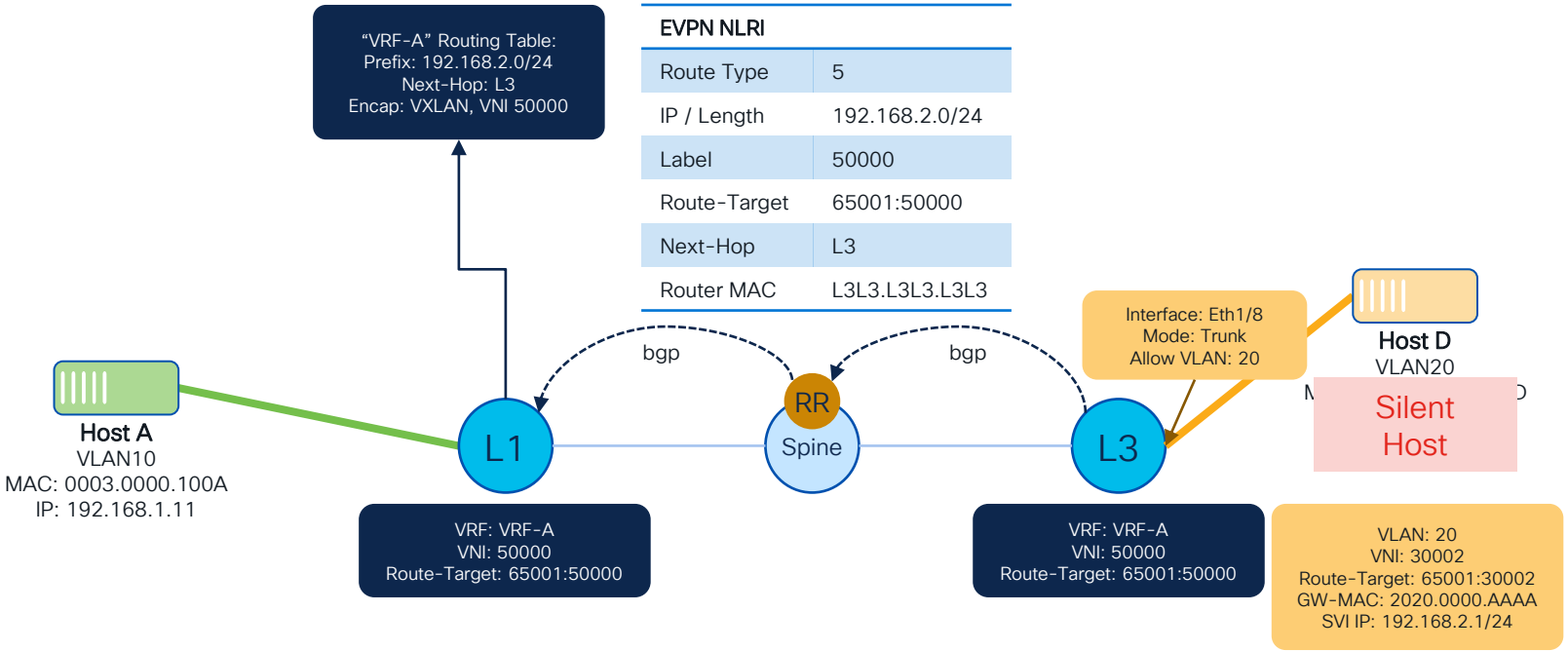
# Learning: HostD to Leaf1





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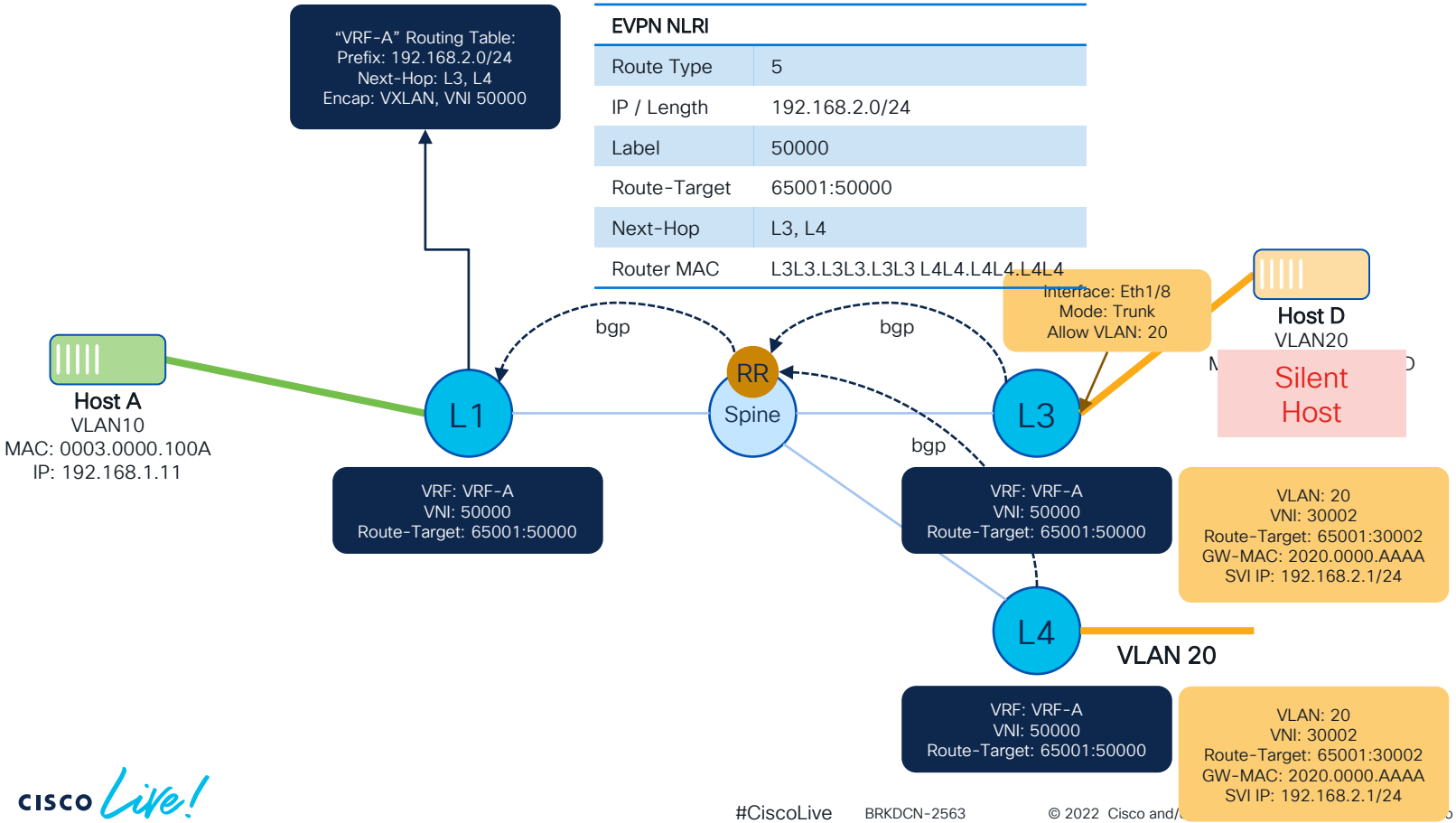
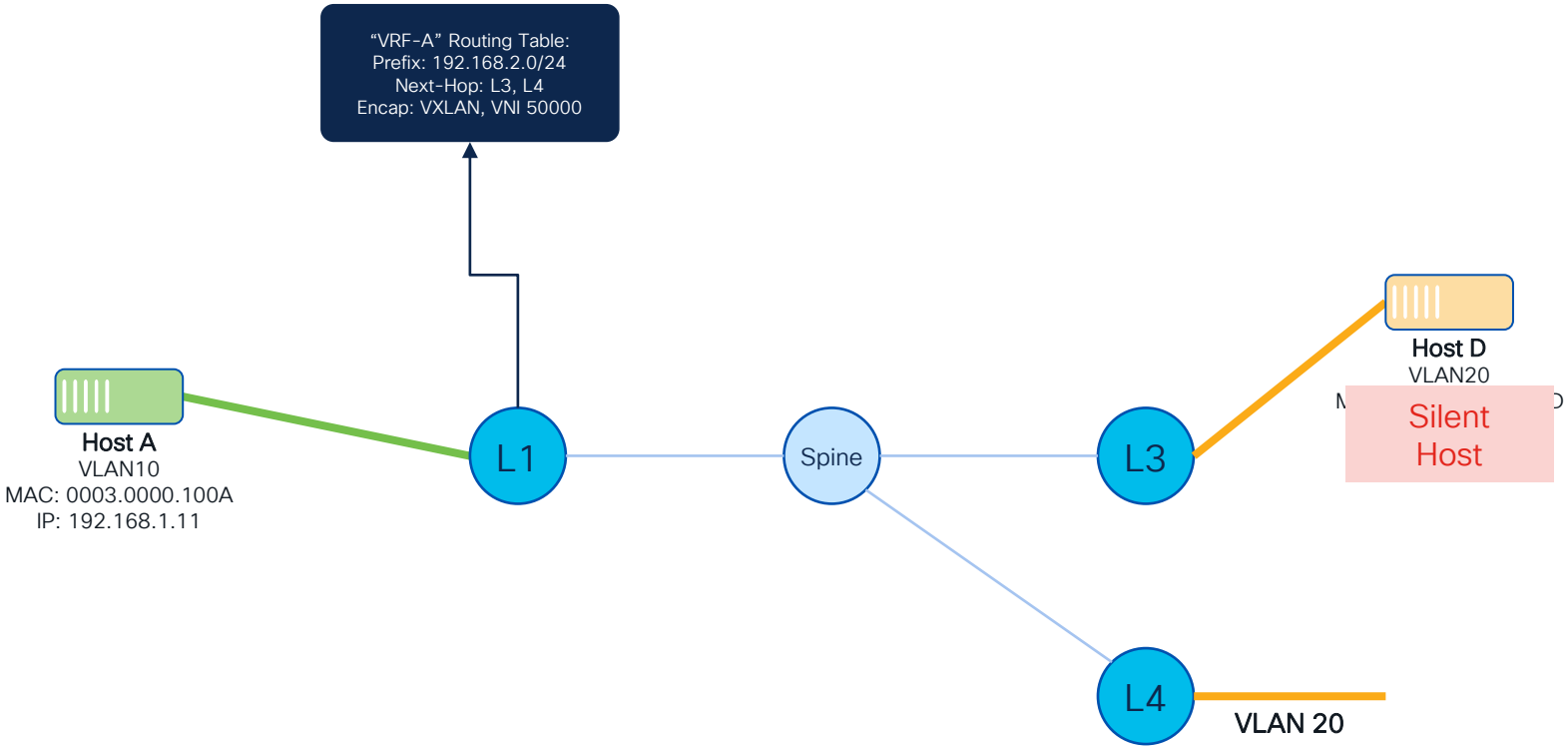
# Learning: HostD to Leaf1



# Forwarding Tables





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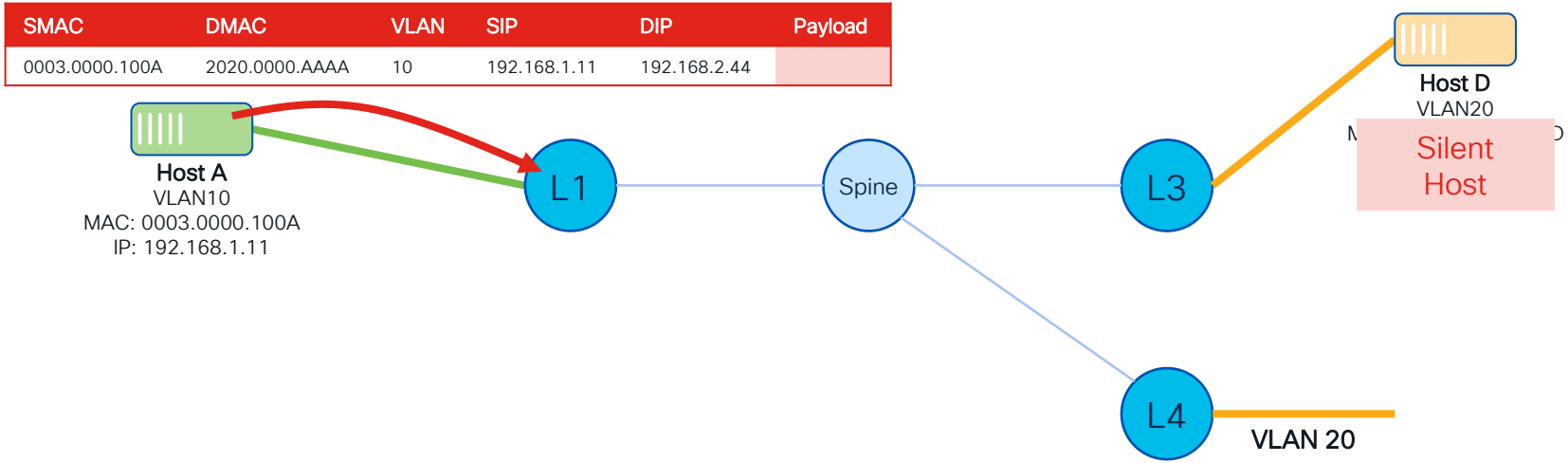
# HostA to HostD

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| 0003.0000.100A | 2020.0000.AAAA | 10 | 192.168.1.11 | 192.168.2.44 | |





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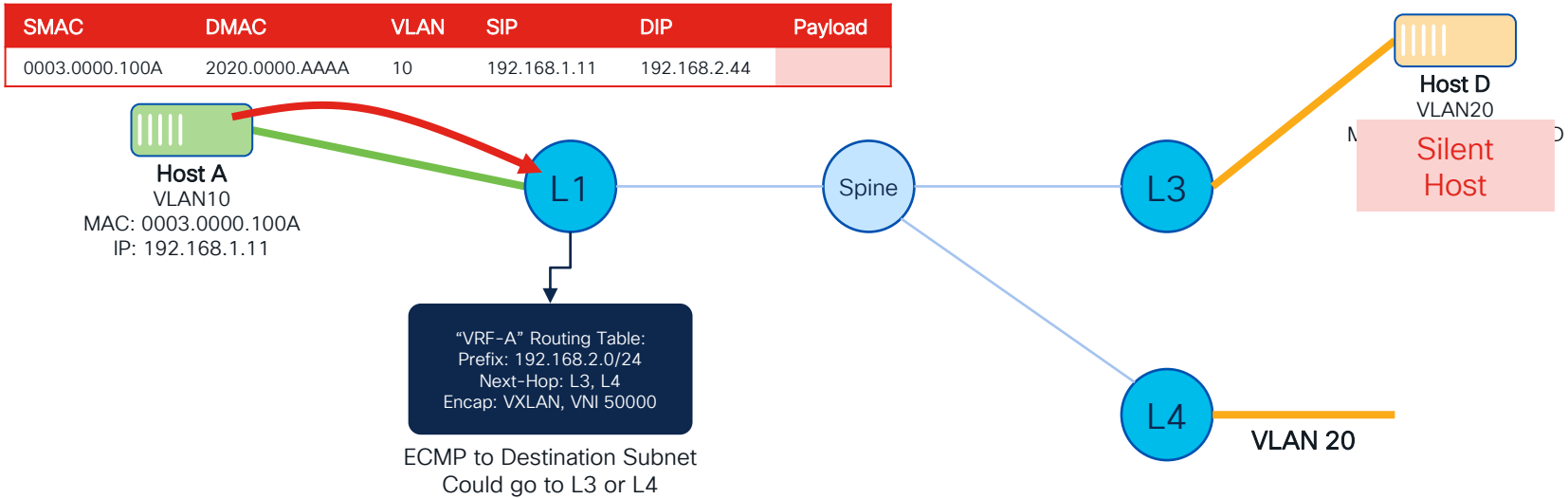
# HostA to HostD





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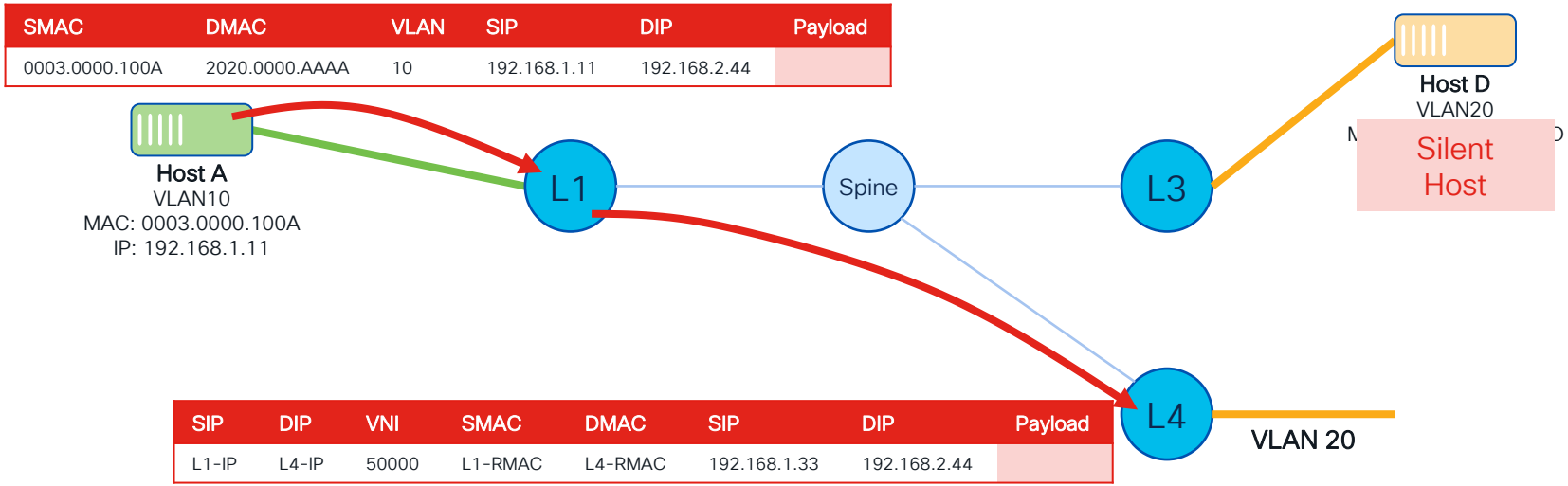
# HostA to HostD





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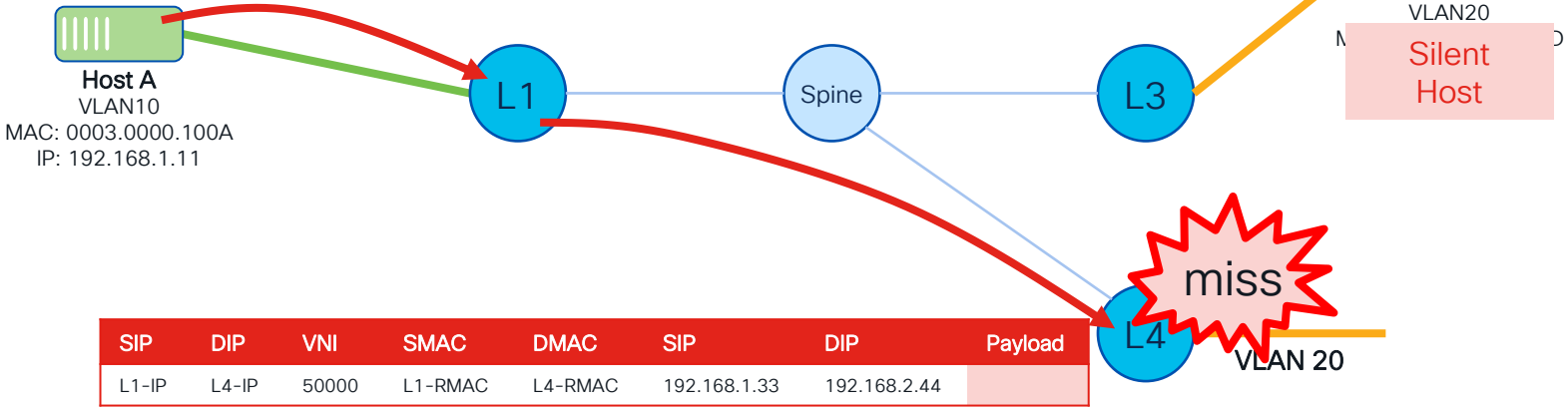
# HostA to HostD

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| 0003.0000.100A | 2020.0000.AAAA | 10 | 192.168.1.11 | 192.168.2.44 | |




| SIP | DIP | VNI | SMAC | DMAC | SIP | DIP | Payload |
|---|---|---|---|---|---|---|---|
| L1-IP | L4-IP | 50000 | L1-RMAC | L4-RMAC | 192.168.1.33 | 192.168.2.44 | |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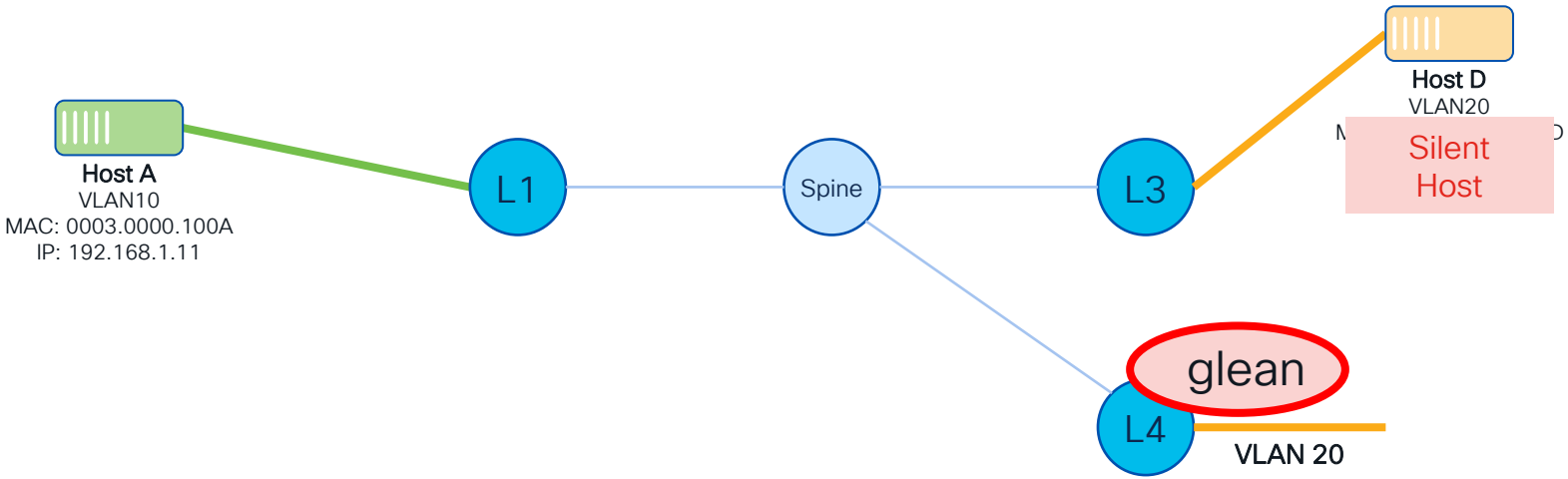
# HostA to HostD





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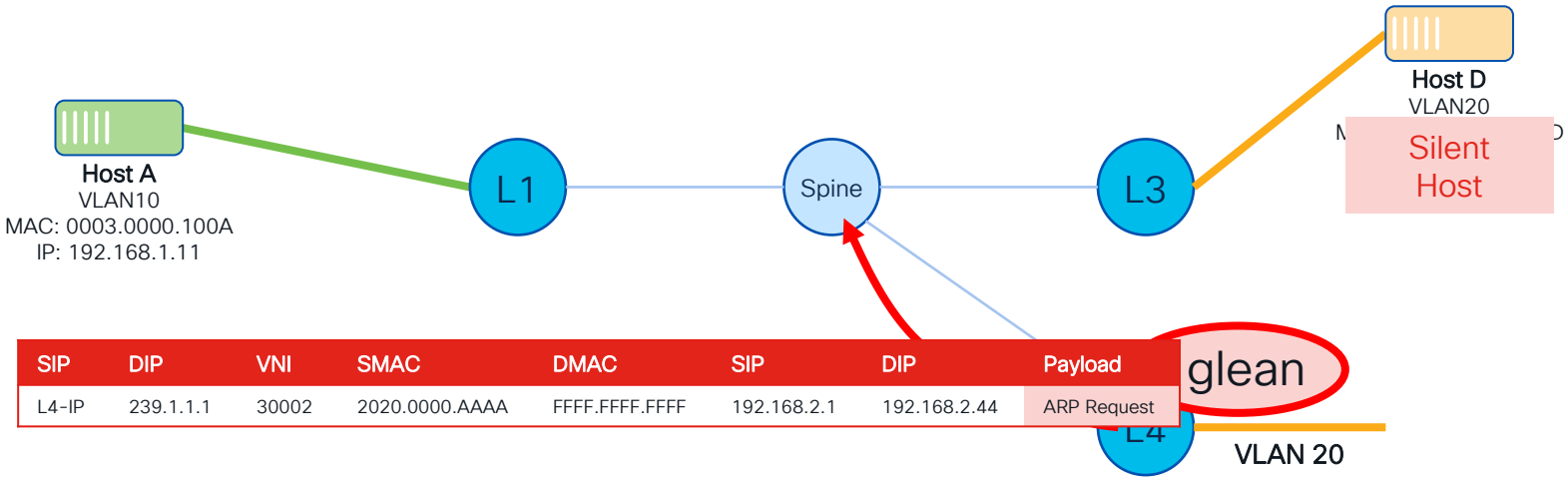
# HostA to HostD




| SIP | DIP | VNI | SMAC | DMAC | SIP | DIP | Payload |
|---|---|---|---|---|---|---|---|
| L4-IP | 239.1.1.1 | 30002 | 2020.0000.AAAA | FFFF.FFFF.FFFF | 192.168.2.1 | 192.168.2.44 | ARP Request |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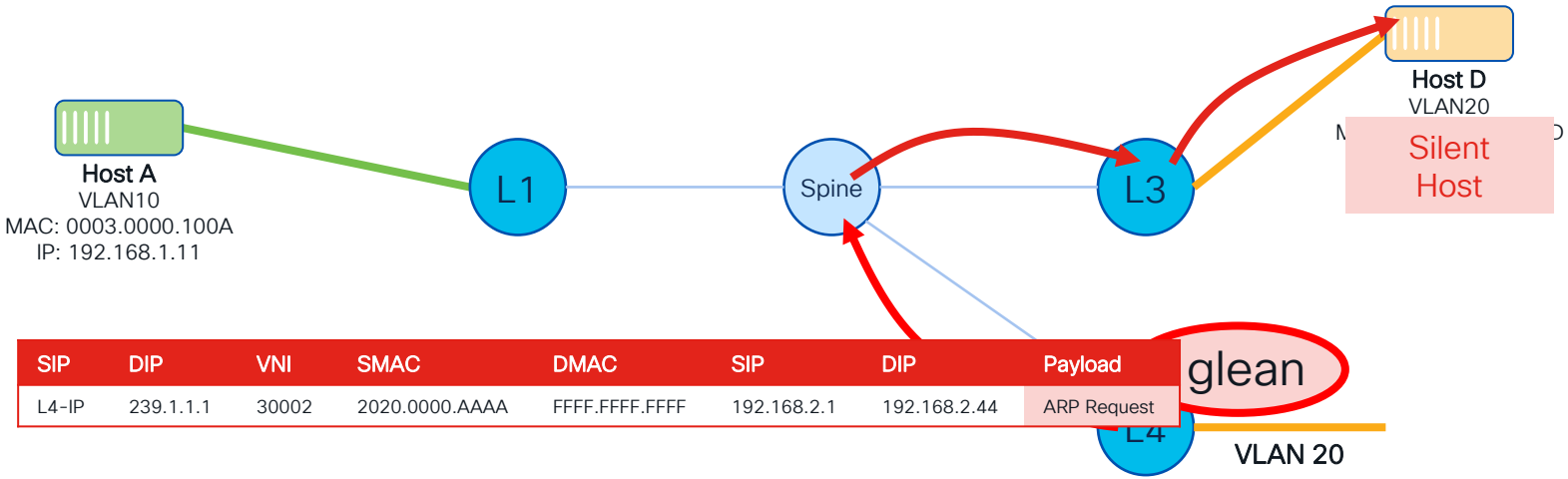
# HostA to HostD




| SIP | DIP | VNI | SMAC | DMAC | SIP | DIP | Payload |
|---|---|---|---|---|---|---|---|
| L4-IP | 239.1.1.1 | 30002 | 2020.0000.AAAA | FFFF.FFFF.FFFF | 192.168.2.1 | 192.168.2.44 | ARP Request |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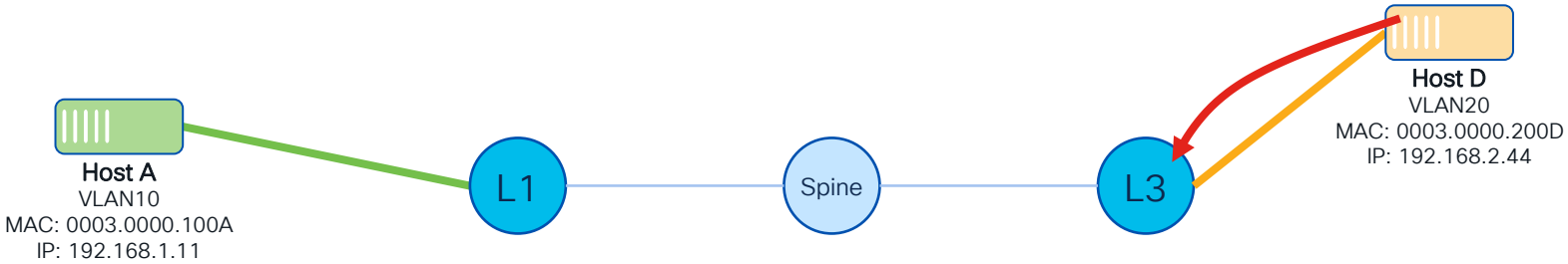
# HostA to HostD

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| 0003.0000.200D | 2020.0000.AAAA | 20 | 192.168.2.44 | 192.168.2.1 | ARP Response |





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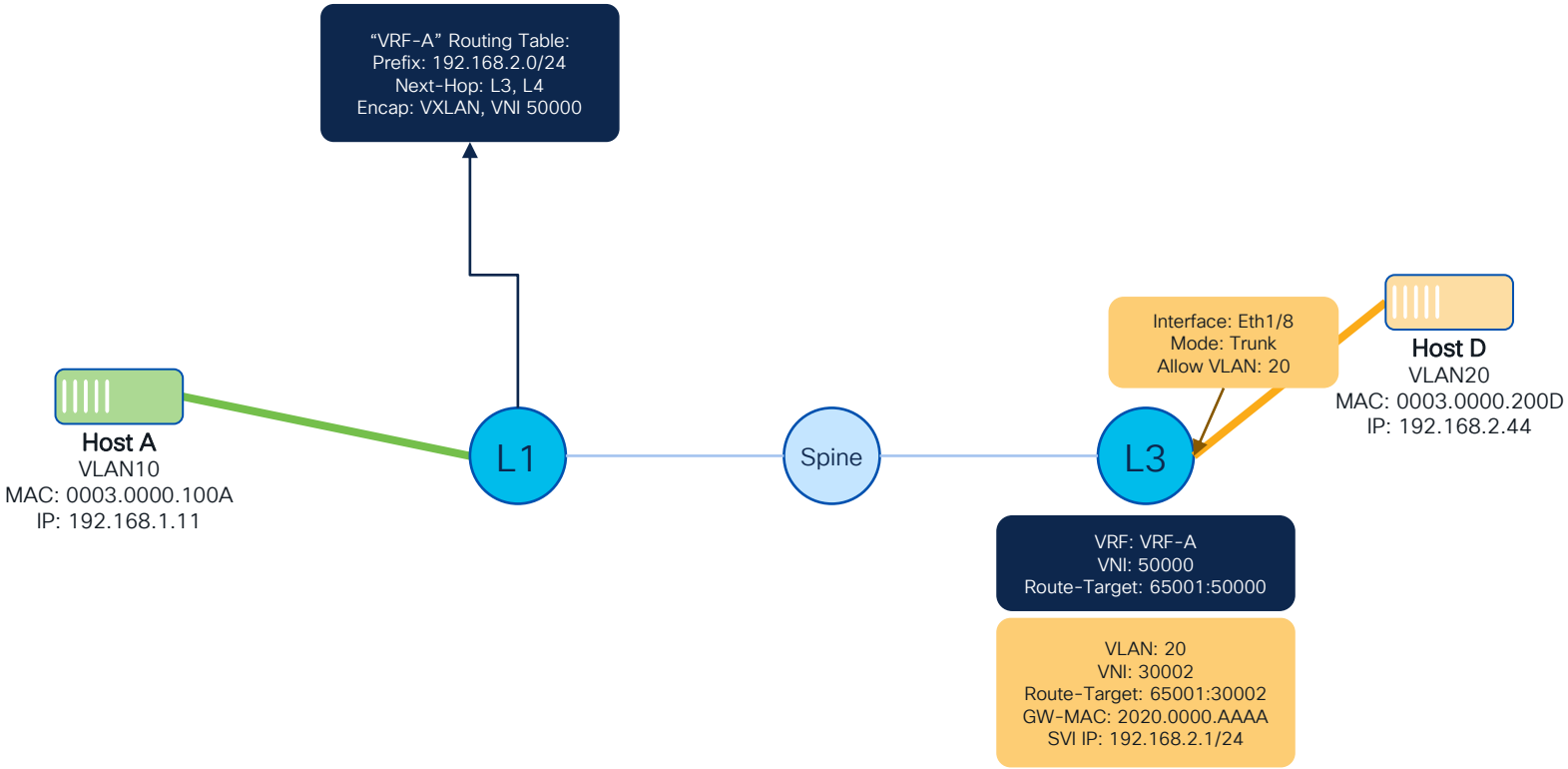
# Learning: HostD to Leaf1





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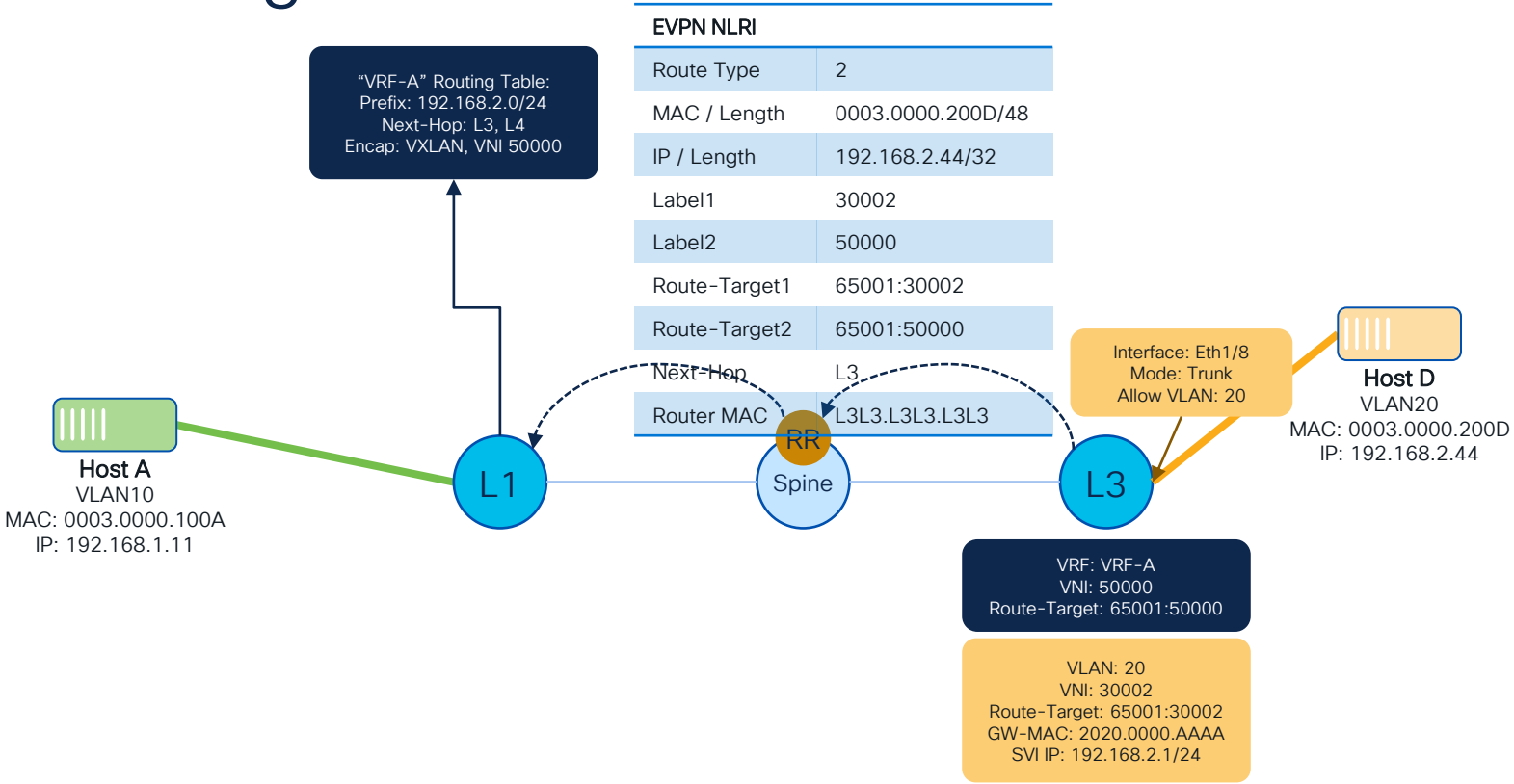
# Learning: HostD to Leaf1





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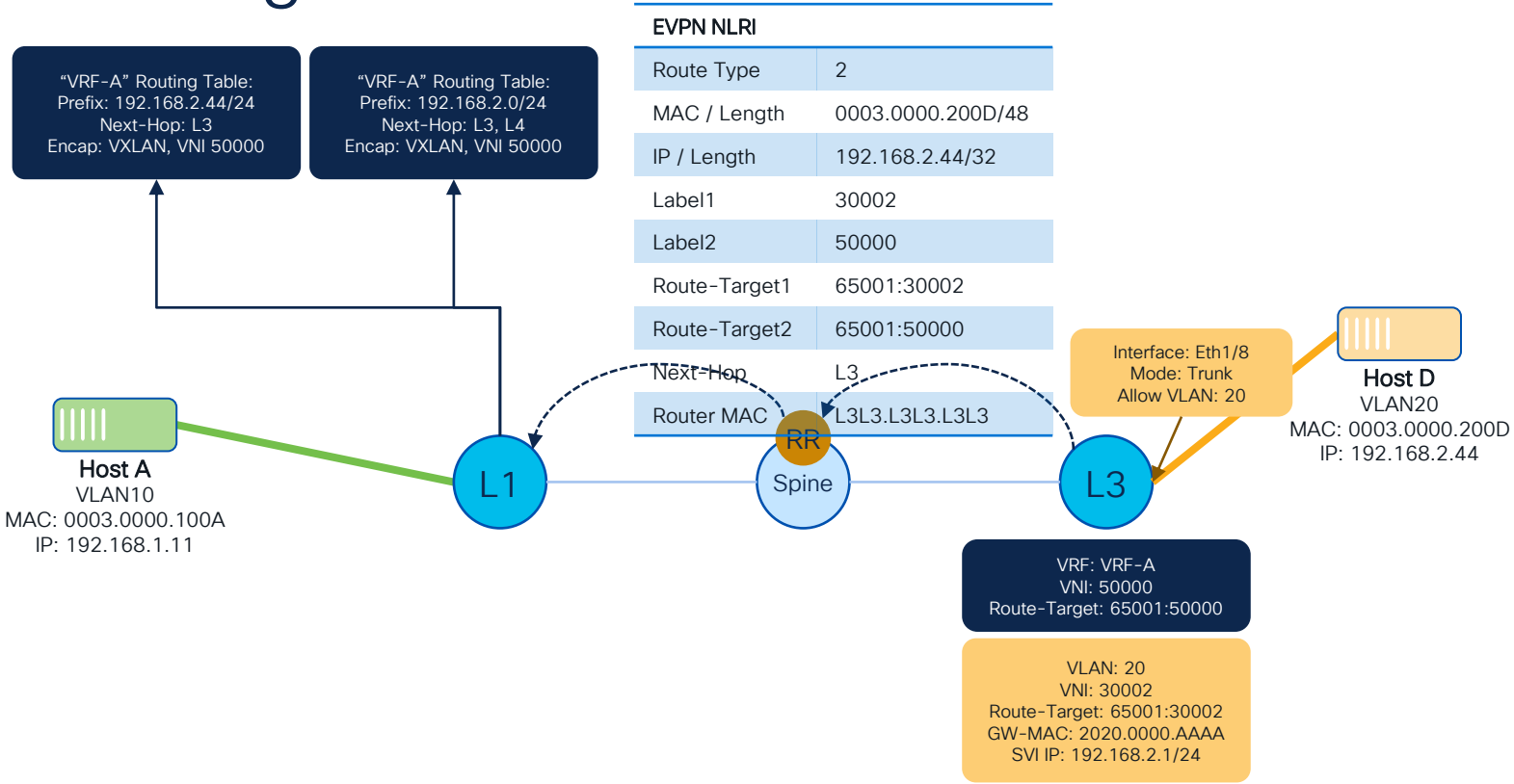
# Learning: HostD to Leaf1





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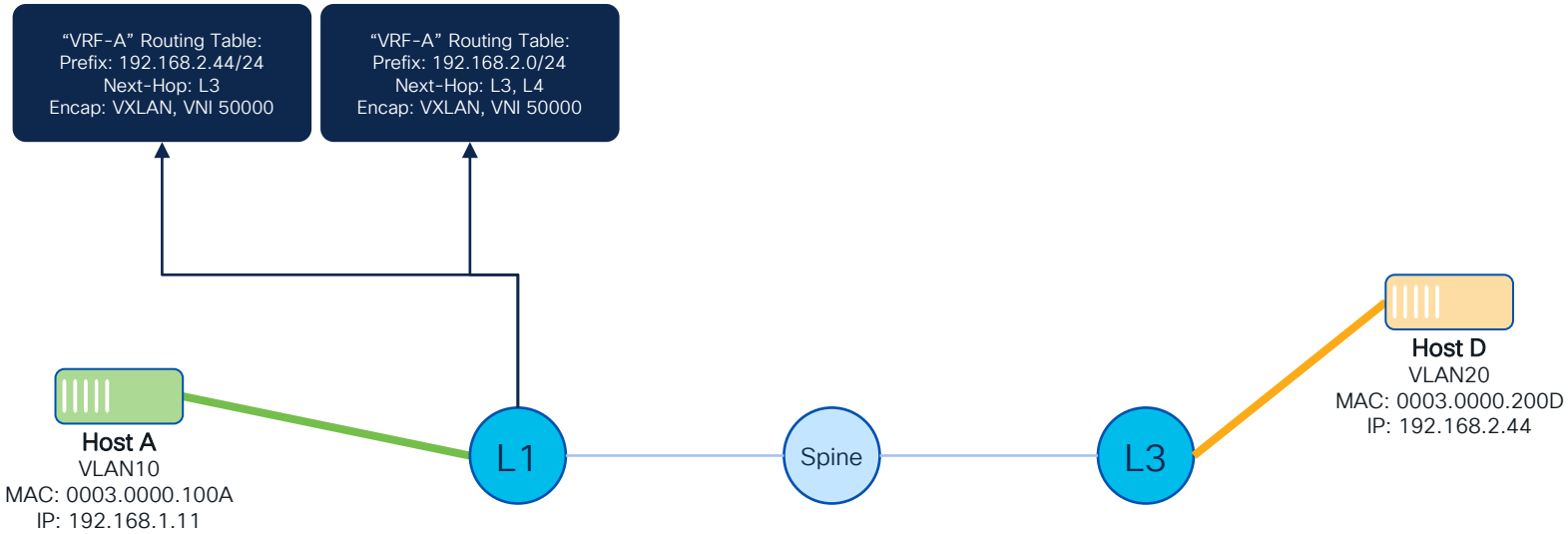
# Forwarding Tables





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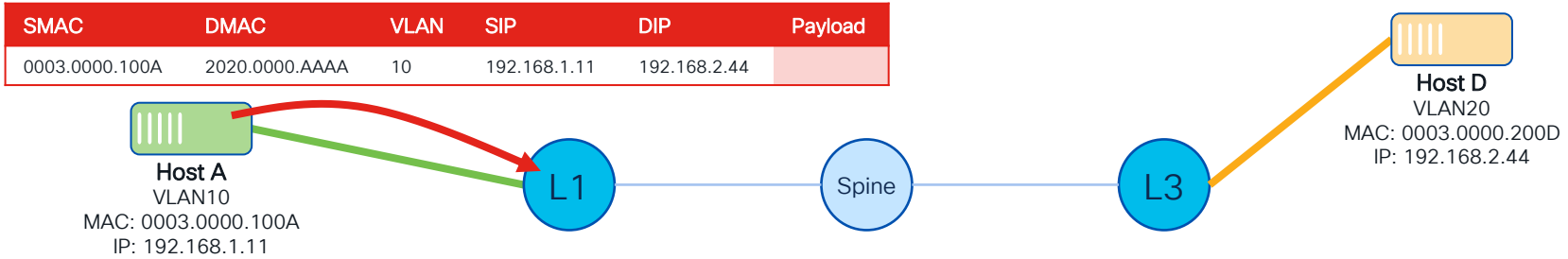
# HostA to HostD

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| 0003.0000.100A | 2020.0000.AAAA | 10 | 192.168.1.11 | 192.168.2.44 | |





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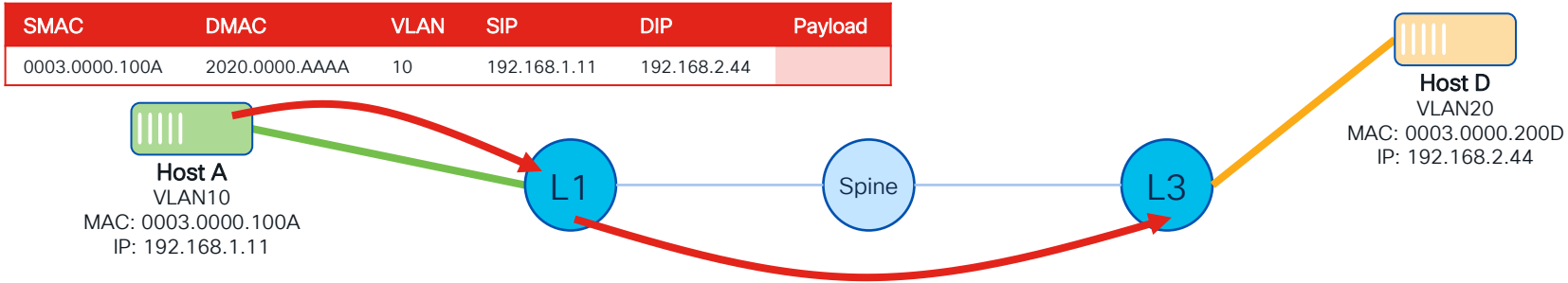
# HostA to HostD

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| 0003.0000.100A | 2020.0000.AAAA | 10 | 192.168.1.11 | 192.168.2.44 | |




| SIP | DIP | VNI | SMAC | DMAC | SIP | DIP | Payload |
|---|---|---|---|---|---|---|---|
| L1-IP | L3-IP | 50000 | L1-RMAC | L3-RMAC | 192.168.1.11 | 192.168.2.44 | |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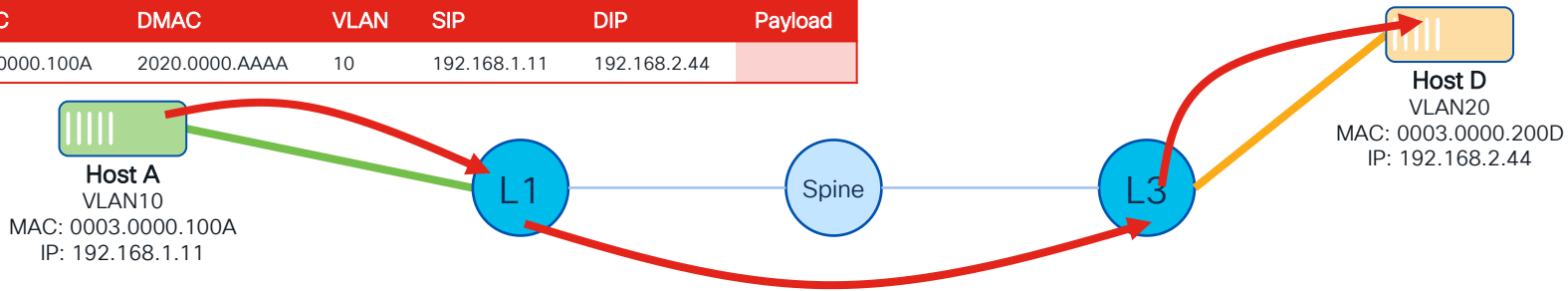
# HostA to HostD

| SMAC | DMAC | VLAN | SIP | DIP | Payload |
|---|---|---|---|---|---|
| 0003.0000.100A | 2020.0000.AAAA | 10 | 192.168.1.11 | 192.168.2.44 | |

| SMAC | DMAC | VLAN | SIP | DIP | P |
|---|---|---|---|---|---|
| 2020.0000.AAAA | 0003.0000.200D | 20 | 192.168.1.11 | 192.168.2.44 | |




| SIP | DIP | VNI | SMAC | DMAC | SIP | DIP | Payload |
|---|---|---|---|---|---|---|---|
| L1-IP | L3-IP | 50000 | L1-RMAC | L3-RMAC | 192.168.1.11 | 192.168.2.44 | |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# Conclusion

# Conclusion

- Did you have enough Packet Walks?
- We covered
  - Host to External Network (RT-5 based routing)
  - Host to Host in different Subnet (RT-2 based routing)
  - Host to Host in same Subnet (RT-2 based briding
  - BUM – Broadcast, Unknown Unicast and Multicast (bridged)
    - We looked at Ingress / Head-End Replication and Multicast
    - Note: EVPN works well with BUM forwarding in Multicast (efficiency)
  - Silent Host Discovery (integrated forward and learn)


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