



# HPE Synergy and Cisco ACI Networking Interop Overview

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HPE Synergy Technical Enablement

V1.2

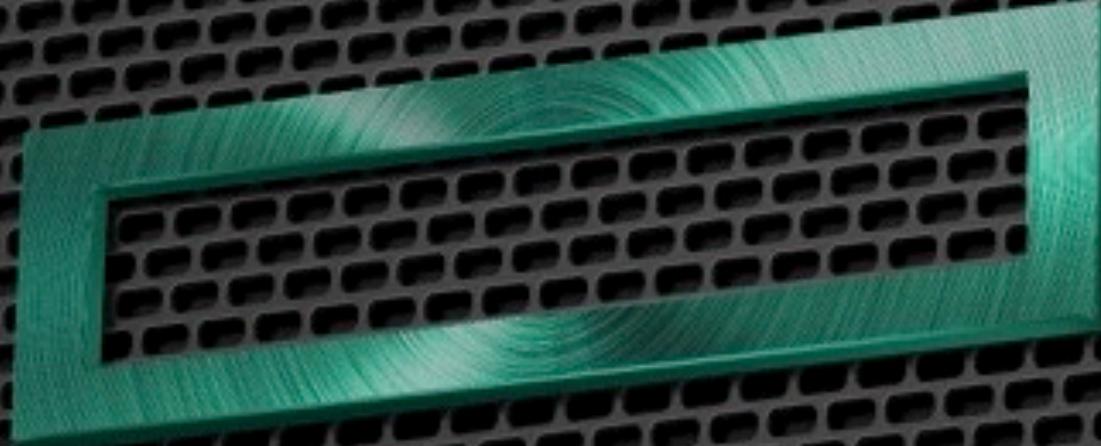
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# **Agenda**

- Synergy Networking Overview**
- Synergy Networking with Cisco ACI**
- OneView 5.0 Synergy Networking Features**



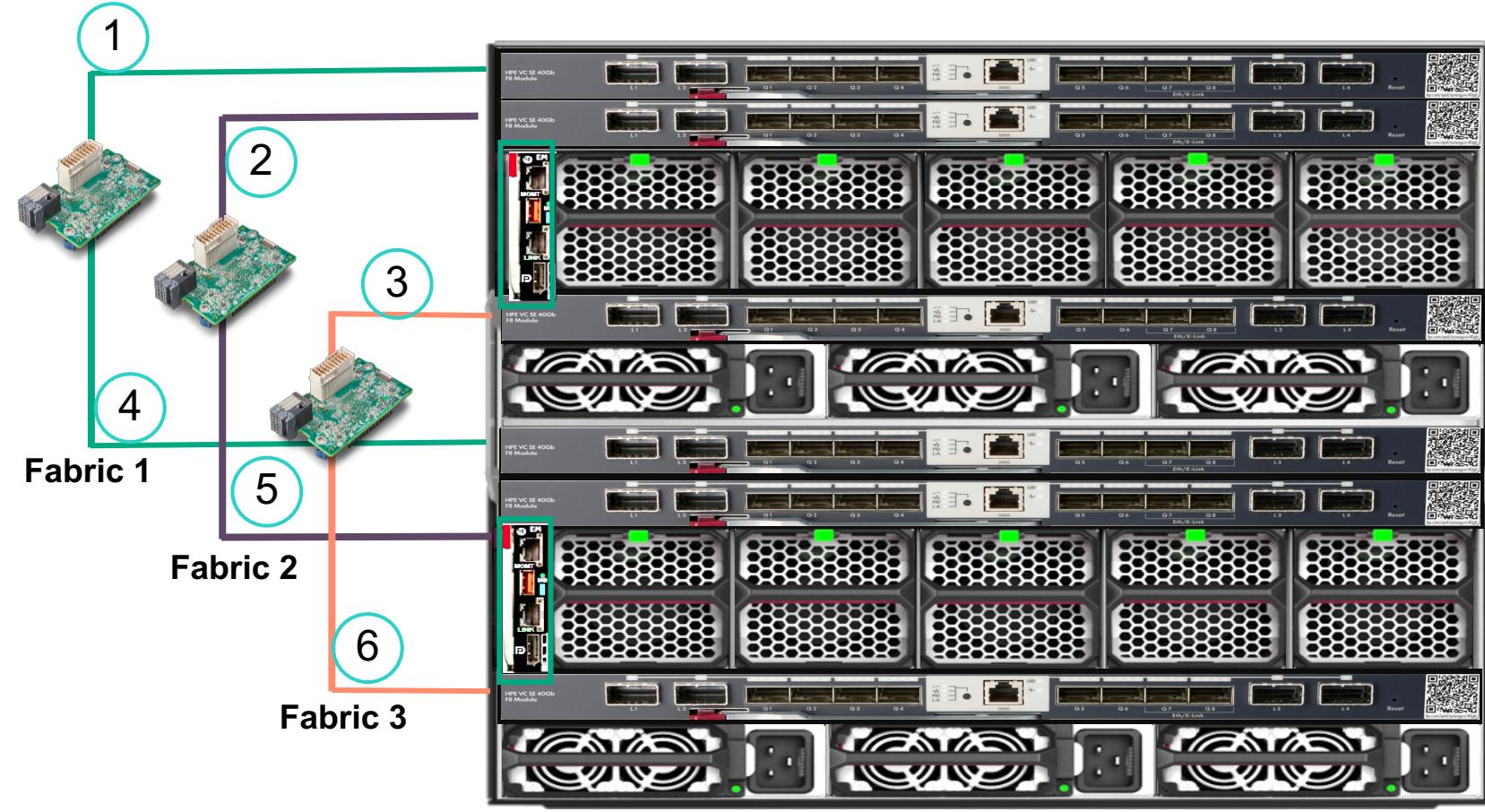
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# Synergy Networking Overview

# Synergy Fabric Layout

Synergy supports three redundant fabrics



Interconnect Bay 1

Interconnect Bay 2

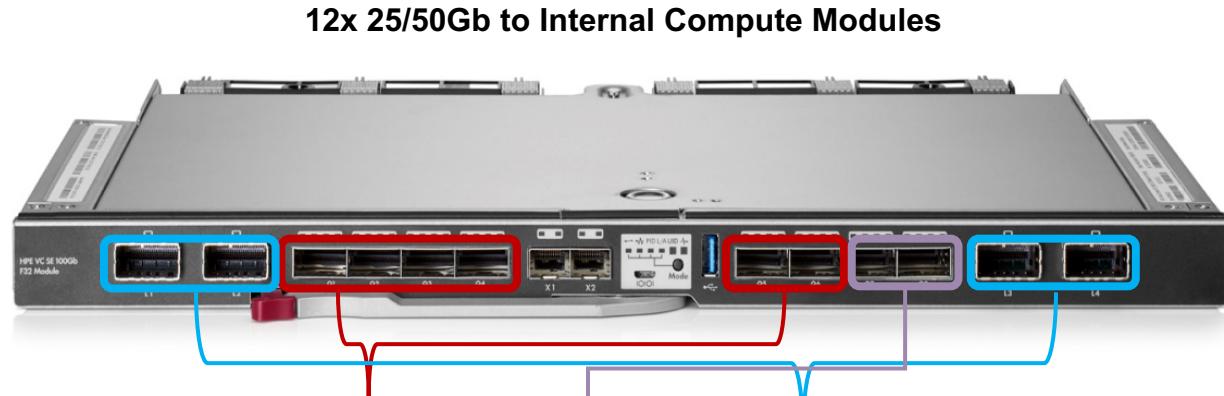
Interconnect Bay 3

Interconnect Bay 4

Interconnect Bay 5

Interconnect Bay 6

# Synergy Virtual Connect SE 100Gb F32 Module



**– 6x 100Gb uplink ports**  
– Q1-Q6: 100/40Gb,  
4x 10Gb or 4x25Gb  
Eth/FCoE  
– 4x 8/16/32Gb FC

**– 2x 100Gb cluster ports**  
– Q7-Q8:  
100Gb ICM  
cluster ports

**– 4x 300Gb Interconnect Link ports**  
– AOC ICM cables (3m,  
7m and 15m)  
– DAC cables (1.1m, 1.6m  
and 2.1m)

- High performance, low latency
  - 6.40 Tbps switching capacity
  - 300 ns sec for port to port latency
- Converged and resilient fabrics
  - Ethernet, FCoE, FC, RDMA and iSCSI
  - M-LAG for resilient fabric
- Multi-frame composable
- Paired with full-featured currently shipping and new adapters



4820C @ 25 Gb/s

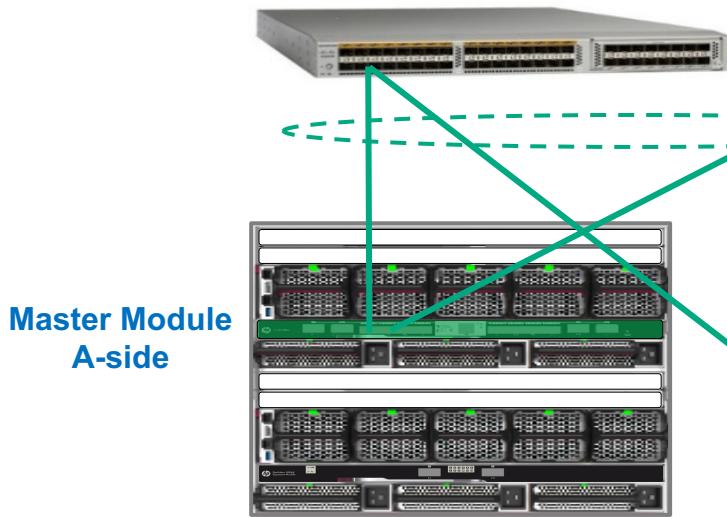


6820C @ 25/50 Gb/s

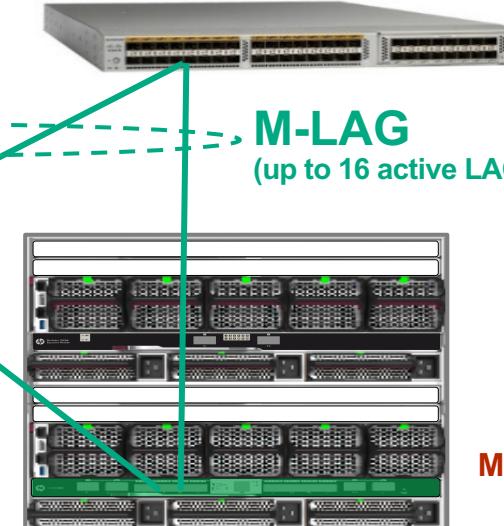
# Multi-Module Link Aggregation For Resilient Fabric

## Synergy Network Uplink Topology

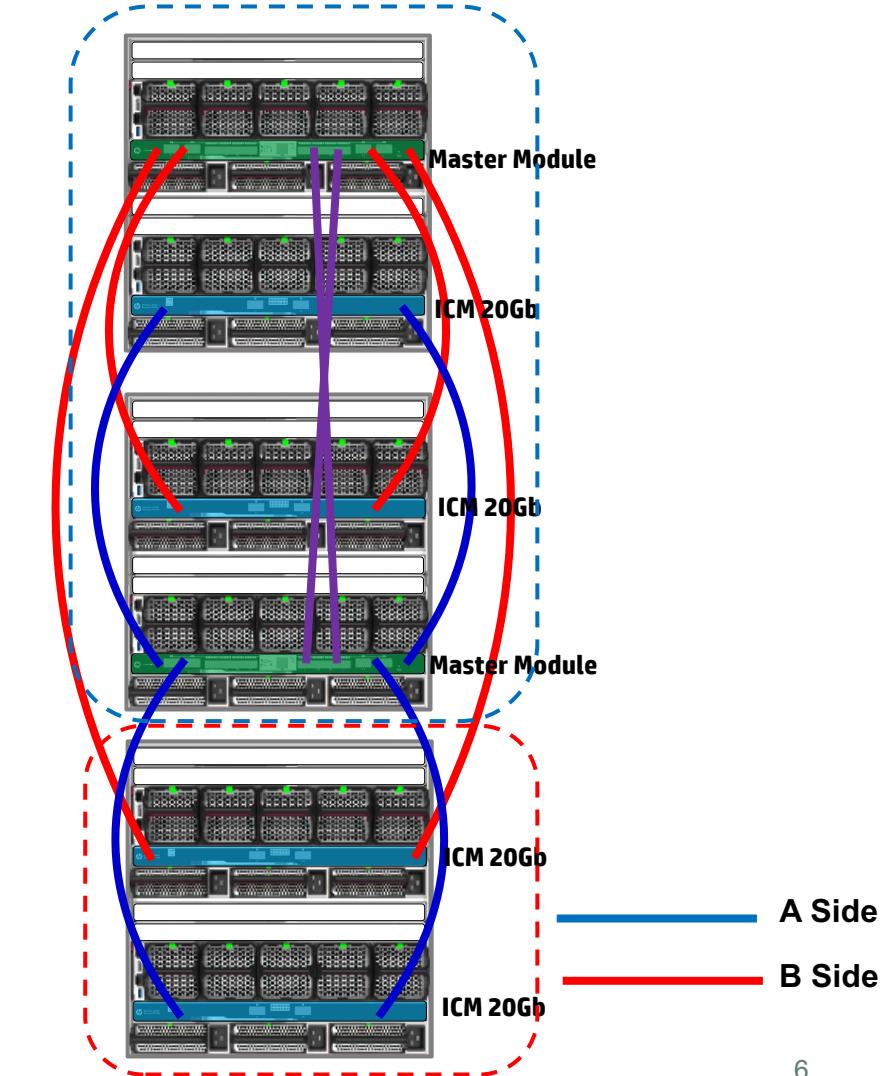
Cisco/Arista/Juniper...

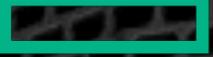


Cisco/Arista/Juniper...

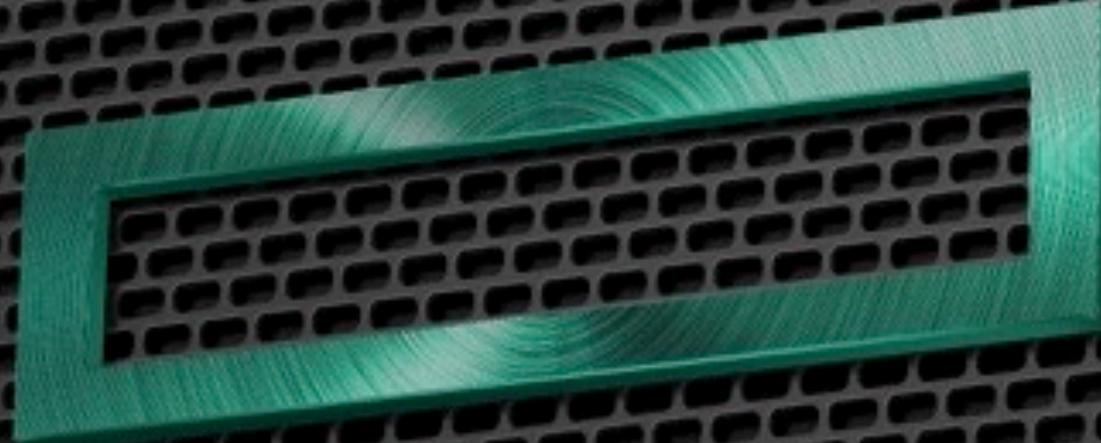


## Synergy Interconnect Topology Across Frames



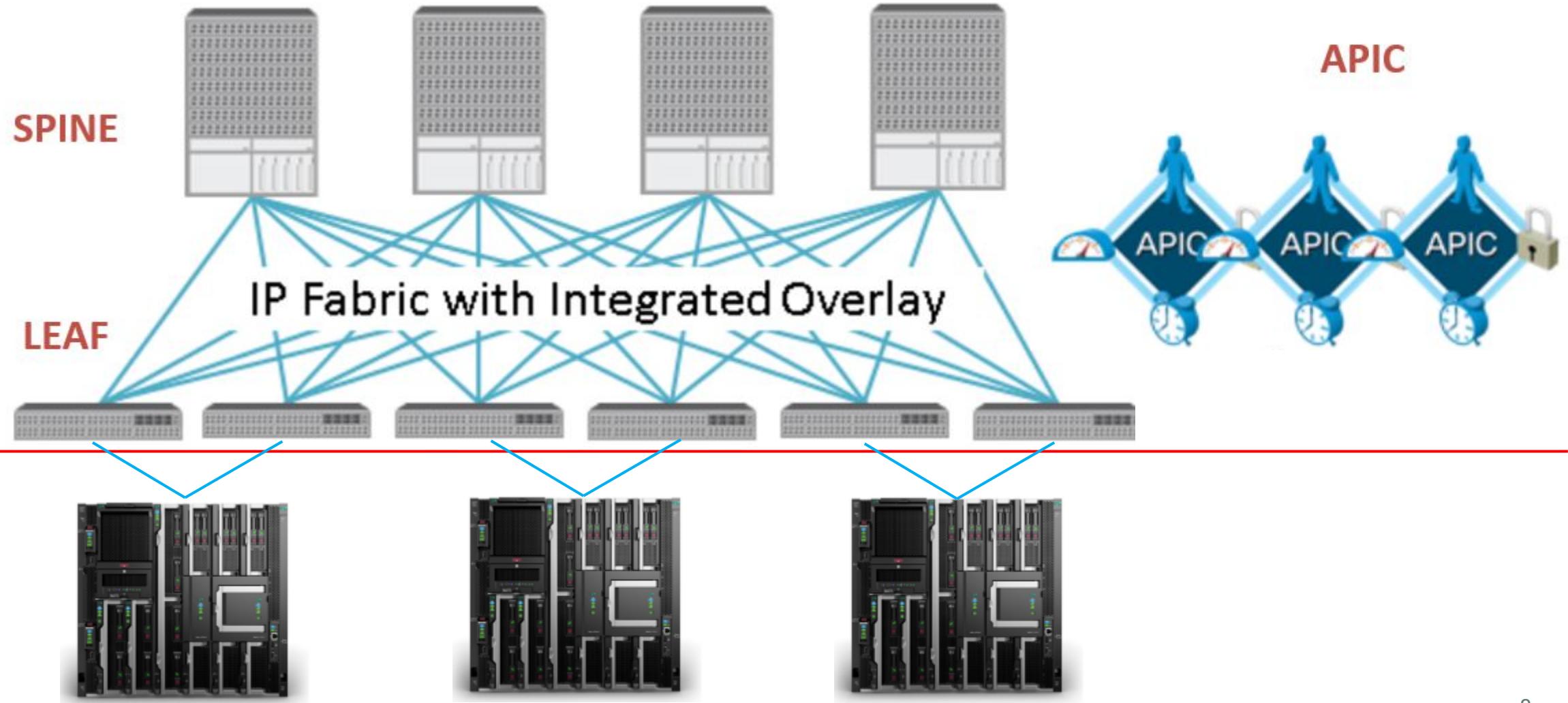


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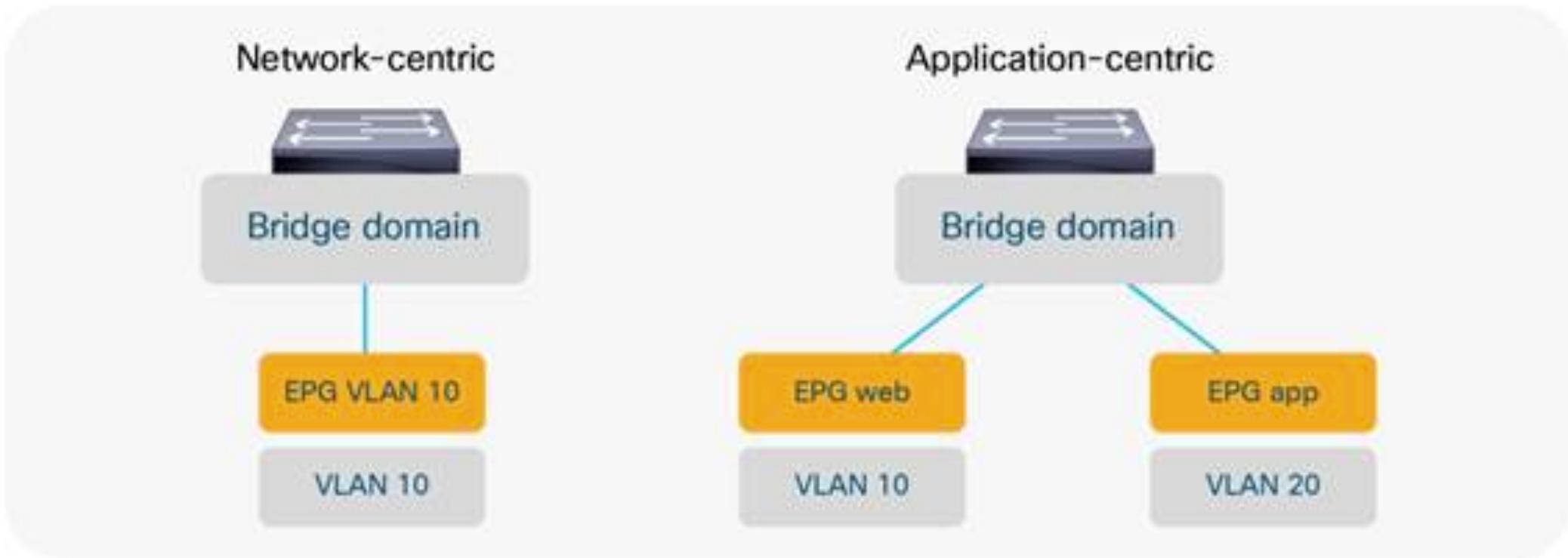


**Synergy Networking with Cisco ACI**

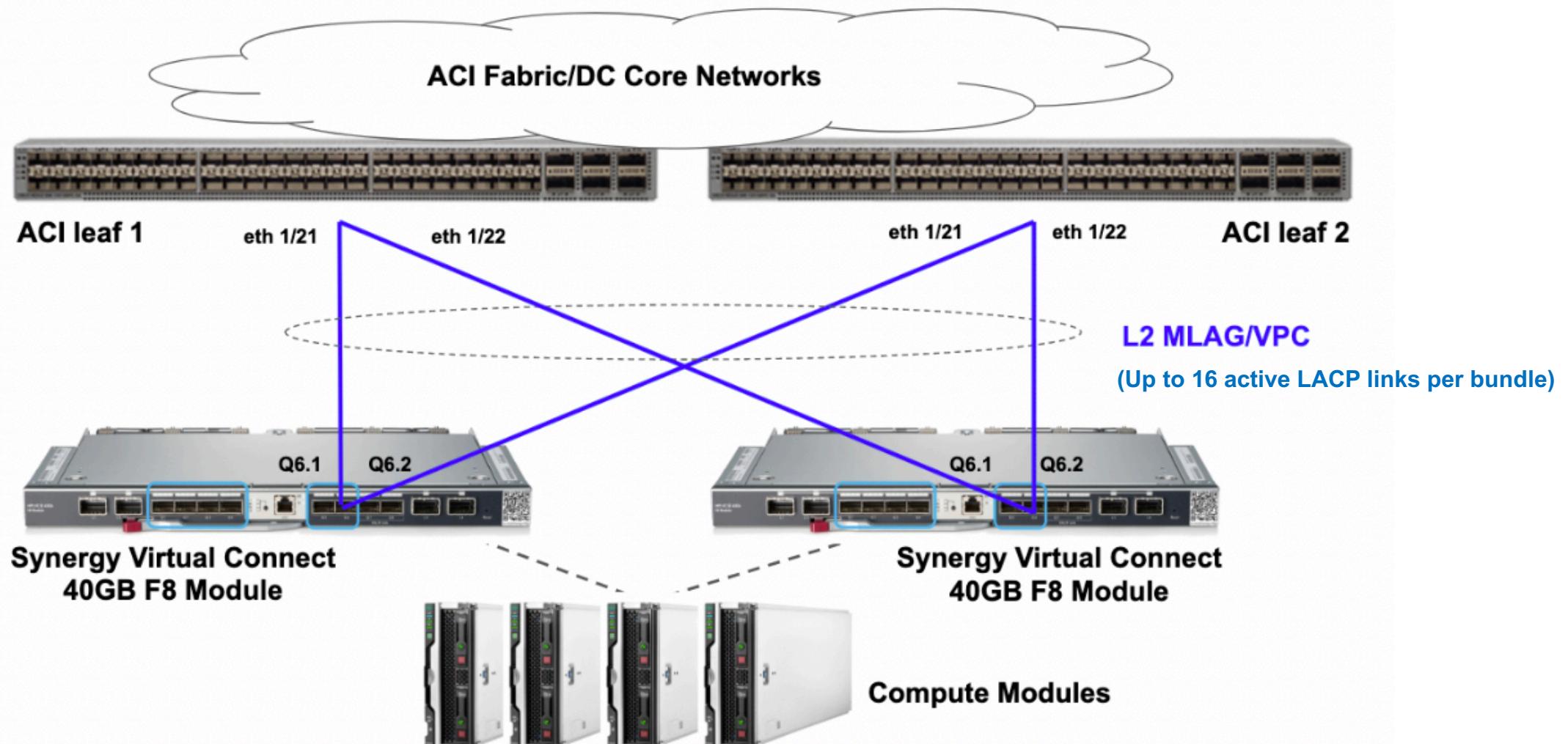
# Cisco Application Centric Infrastructure



# Cisco ACI Endpoint Connectivity



# Synergy and Cisco ACI Sample Topology



# Synergy Uplink Ports to Cisco ACI

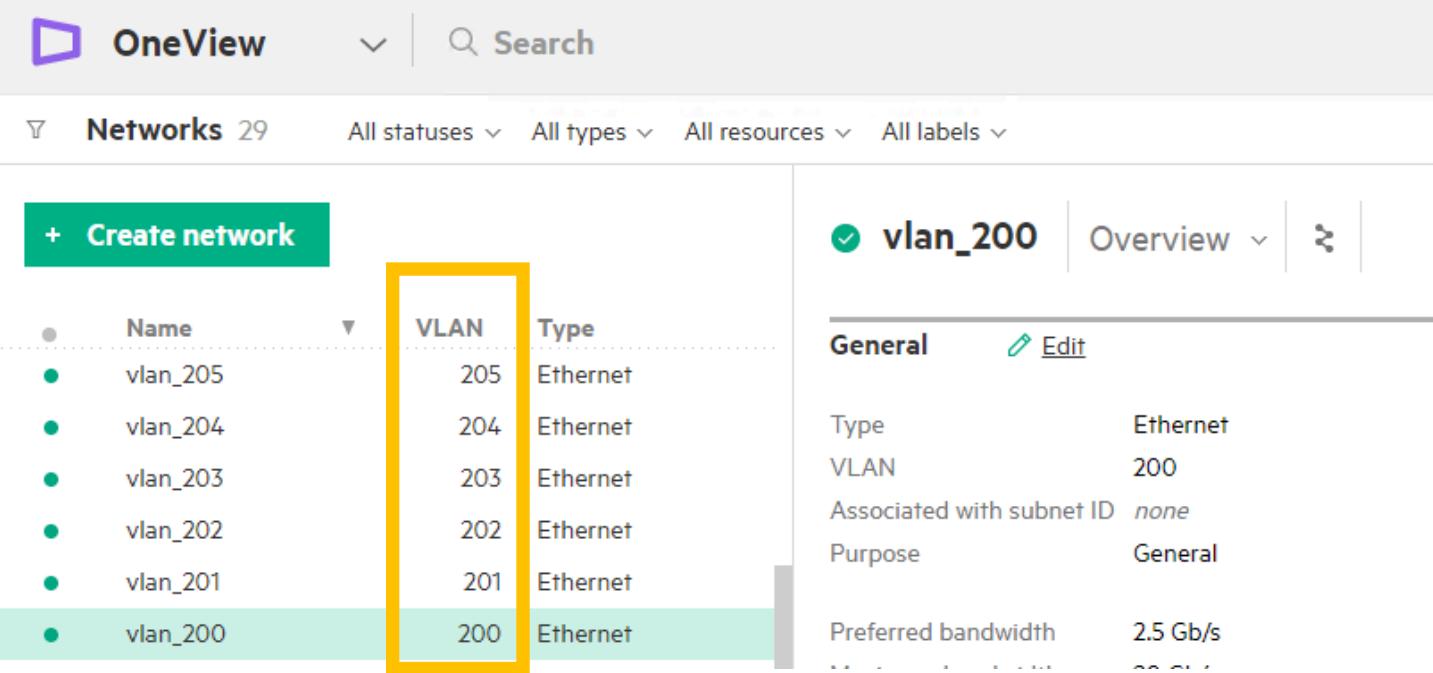


**6 x 100Gb QSFP28 uplink ports**

**Eth/FCOE: 100Gb, 40Gb, 4x25Gb or 4x10Gb**

**FC: 4x32/16/8Gb**

# Synergy Network Configuration (Tagged or Tunnel)



OneView

Networks 29

All statuses ▾ All types ▾ All resources ▾ All labels ▾

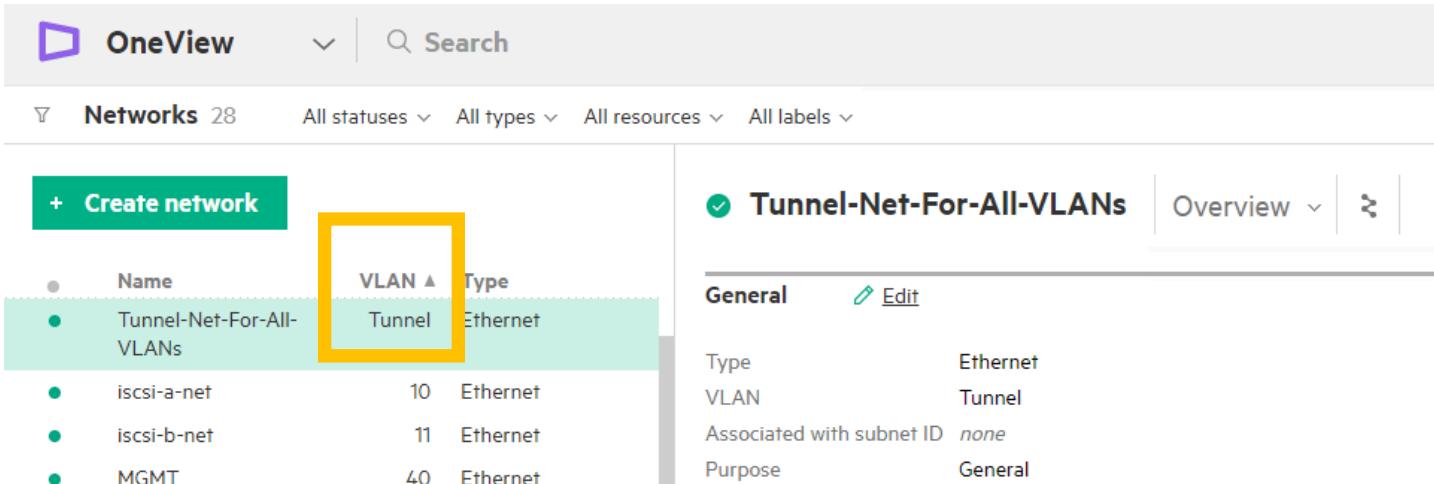
+ Create network

Name	VLAN	Type
vlan_205	205	Ethernet
vlan_204	204	Ethernet
vlan_203	203	Ethernet
vlan_202	202	Ethernet
vlan_201	201	Ethernet
<b>vlan_200</b>	<b>200</b>	<b>Ethernet</b>

vlan\_200 | Overview ▾

General Edit

Type	Ethernet
VLAN	200
Associated with subnet ID	none
Purpose	General
Preferred bandwidth	2.5 Gb/s
Last updated: 2023-09-01 10:00:00	



OneView

Networks 28

All statuses ▾ All types ▾ All resources ▾ All labels ▾

+ Create network

Name	VLAN	Type
Tunnel-Net-For-All-VLANs	Tunnel	Ethernet
iscsi-a-net	10	Ethernet
iscsi-b-net	11	Ethernet
MGMT	40	Ethernet

Tunnel-Net-For-All-VLANs | Overview ▾

General Edit

Type	Ethernet
VLAN	Tunnel
Associated with subnet ID	none
Purpose	General

# Synergy Uplink Configuration with Tagged Networks

The screenshot displays the HPE OneView interface for managing Logical Interconnects. On the left, the 'Logical Interconnects' list shows three entries: 'EG-DCA-Synergy-01-LIG-SAS-Switch-1', 'EG-DCA-Synergy-01-LIG-VC' (selected), and 'EG-DCA-Synergy-01-LIG-VC-FC-16Gb-1'. The main panel shows the configuration for the selected 'leaf-101-102-uplinkset'.

**General**

Name	leaf-101-102-uplinkset
Type	Ethernet
Connection mode	Automatic
LACP timer	Short (1s)
LACP load balancing	Source & Destination MAC Address

**Networks**

Name	Type	VLAN ID	Native
external-access-mgmt	Ethernet	170	<input type="checkbox"/>
pvlan-910	Ethernet	910	<input type="checkbox"/>
pvlan-911	Ethernet	911	<input type="checkbox"/>
pvlan-1035	Ethernet	1035	<input type="checkbox"/>
pvlan-1036	Ethernet	1036	<input type="checkbox"/>

**Uplink Ports**

Interconnect Module	Port	Capability
Frame 01 Bottom, interconnect 3	Q5:1	Ethernet + FCoE

# Synergy Uplink Configuration with Tunnel Networks

The screenshot shows the HPE OneView interface for managing Logical Interconnects. On the left, a list of logical interconnects is displayed, with one item selected: "EG-DCA-Synergy-01-LIG-VC". On the right, the configuration details for this selected interconnect are shown.

**General**

Name	leaf-103-104-uplink
Type	Tunnel
Connection mode	Automatic
LACP timer	Short (1s)
LACP load balancing	Source & Destination MAC Address

**Networks**

Network	Tunnel-Net-For-All-VLANs
---------	--------------------------

**Uplink Ports**

Interconnect Module	Port	Capability	X
Frame 01 Bottom, interconnect 3	Q6:1	Ethernet + FCoE	X
Frame 01 Bottom, interconnect 3	Q6:2	Ethernet + FCoE	X
Frame 02 Middle, interconnect 6	Q6:1	Ethernet + FCoE	X
Frame 02 Middle, interconnect 6	Q6:2	Ethernet + FCoE	X

**Actions**

- Add uplink ports
- Remove uplink ports
- Remove all

# Synergy Uplink Configuration Overview

The screenshot shows the HPE OneView interface for managing Logical Interconnects. The left sidebar lists three logical interconnects: EG-DCA-Synergy-01-LIG-SAS-Switch-1, EG-DCA-Synergy-01-LIG-VC (selected), and EG-DCA-Synergy-01-LIG-VC-FC-16Gb-1. The main panel displays the 'Logical Interconnect' configuration for EG-DCA-Synergy-01-LIG-VC. It shows a list of uplink sets: Internal (4 networks), streamer-... (1 network, 4 uplink ports), openshift-... (7 networks, 2 uplink ports), leaf-101-1... (5 networks, 2 uplink ports), leaf-103-1... (1 network, 4 uplink ports), and leaf101-10... (1 network, no uplink ports). The leaf-101-1... and leaf-103-1... uplink sets are highlighted with yellow boxes. An 'Add uplink set' button is located at the bottom right. Below this, the 'Frame 01 Bottom' section shows two interconnects: interconnect 3 (Virtual Connect SE 40Gb F8 Module for Synergy) and interconnect 6 (Synergy 20Gb Interconnect Link Module). Both are configured.

**Logical Interconnect**

- Internal: 4 networks
- streamer-...: 1 network, 4 uplink ports
- openshift-...: 7 networks, 2 uplink ports
- leaf-101-1...**: 5 networks, 2 uplink ports
- leaf-103-1...**: 1 network, 4 uplink ports
- leaf101-10...: 1 network, no uplink ports

**Add uplink set**

**Frame 01 Bottom**

- Frame 01 Bottom, interconnect 3**  
State: Configured  
Expected: Virtual Connect SE 40Gb F8 Module for Synergy  
Actual: Virtual Connect SE 40Gb F8 Module for Synergy
- Frame 01 Bottom, interconnect 6**  
State: Configured  
Expected: Synergy 20Gb Interconnect Link Module  
Actual: Synergy 20Gb Interconnect Link Module

# Synergy Server Connection Configuration

The screenshot shows the HPE OneView interface. On the left, the 'Server Profiles' list includes items like 'esxi-vlan170-01' through 'esxi-vlan170-04', 'hj-esx65-dvs-18', 'hj-esx65-dvs-19', 'hj-esxi-aye-01', 'hj-esxi-ave-02', 'openshift-worker-01', and 'openshift-worker-02'. The 'hj-esx65-dvs-18' profile is selected. A modal window titled 'Edit Connection' is open, showing the 'General' tab. In this tab, the 'Name' field is set to 'mgmt1' and the 'Function type' is set to 'Ethernet'. The 'Network' dropdown is open, displaying a search bar and a list of available networks. The list includes 'unassigned' (Total 13), 'iscsi-a-net' (VLAN 10), 'iscsi-b-net' (VLAN 11), 'mgmtnet' (VLAN 140), 'pxeboot' (VLAN 160), 'streamer-isci' (VLAN 1234), and 'Tunnel-Net-For-All-VLANs' (Tunnel). A red callout bubble labeled 'Required' points to the 'Network' dropdown.

Network	VLAN
unassigned	Total 13
iscsi-a-net	VLAN 10
iscsi-b-net	VLAN 11
mgmtnet	VLAN 140
pxeboot	VLAN 160
streamer-isci	VLAN 1234
Tunnel-Net-For-All-VLANs	Tunnel

# ACI/Synergy Network Configuration with Synergy Tagged Networks

System    **Tenants**    Fabric    Virtual Networking    L4-L7 Services    Admin    Operations    Apps

ALL TENANTS | Add Tenant | Tenant Search: name or descr | common | **Tenant1** | Plexxi | Tenant2 | mgmt

Tenant Tenant1

Static Ports

Path	Primary VLAN for Micro-Seg	Port Encap (or Secondary VLAN for Micro-Seg)	Deployment Immediacy	Mode
Pod-1/Node-102/eth1/3	unknown	vlan-170	On Demand	Trunk
Pod-1/Node-101-102/synergy-101-102-vpc	unknown	vlan-170	On Demand	Access (802.1P)

OneView

Edit leaf-101-102-uplinkset General

General

Name	leaf-101-102-uplinkset
Type	Ethernet
Connection mode	Automatic
LACP timer	Short (1s)
LACP load balancing	Source & Destination MAC Address

Logical Interconnect

Networks

Name	Type	VLAN ID	Native
external-access-mgmt	Ethernet	170	<input checked="" type="checkbox"/>

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# ACI/Synergy Network Configuration with Synergy Tagged Networks

The screenshot displays the Cisco Application Policy Infrastructure Controller (APIC) interface and the HPE OneView interface side-by-side.

**Cisco APIC Interface:**

- Top Navigation:** System, **Tenants**, Fabric, Virtual Networking, L4-L7 Services, Admin, Operations, Apps.
- Sub-Header:** ALL TENANTS | Add Tenant | Tenant Search: name or descr | common | **Tenant1** | Plexxi | Tenant2 | mgmt.
- Tenant Tenant1:** EPG-vlan-170 (selected), Domains (VMs and Bare-Metals), EPG Members, Static Ports (highlighted), Static Leafs, Fibre Channel (Paths), Contracts.
- Static Ports Table:**

Path	Primary VLAN for Micro-Seg	Port Encap (or Secondary VLAN for Micro-Seg)	Deployment Immediacy	Mode
Pod-1/Node-102/eth1/3	unknown	vlan-170	On Demand	Trunk
Pod-1/Node-101-102/synergy-101-102-vpc	unknown	vlan-170	On Demand	Trunk

**HPE OneView Interface:**

- Logical Interconn:** Edit leaf-101-102-uplinkset | General
- General Tab:**

Name	leaf-101-102-uplinkset
Type	Ethernet
Connection mode	Automatic
LACP timer	Short (1s)
LACP load balancing	Source & Destination MAC Address
- Networks Tab:**

Name	Type	VLAN ID	Native
external-access-mgmt	Ethernet	170	<input checked="" type="checkbox"/>

# ACI/Synergy Network Configuration with Synergy Tunnel Networks

The image displays two screenshots illustrating the integration of Cisco ACI and HPE OneView for network configuration.

**Top Screenshot (Cisco ACI UI):**

- Tenant Tenant1:** The left sidebar shows the tenant structure, including Application Profiles (ap-1), Application EPGs (epg-vlan-100, epg-vlan-140), Domains (VMs and Bare-Metals), EPG Members, Static Ports, and Static Leaf nodes.
- Static Path - Pod-1/Node-103-104/synergy-vpc:** The main pane shows the properties of a static path. Key settings include:
  - Path Description:** Pod-1/Node-103-104/synergy-vpc
  - Port Encap (or Secondary VLAN for Micro-Seg):** VLAN 140
  - Deployment Immediacy:** On Demand (highlighted)
  - Primary VLAN for Micro-Seg:** VLAN 140
  - Mode:** Access (802.1P) (highlighted)

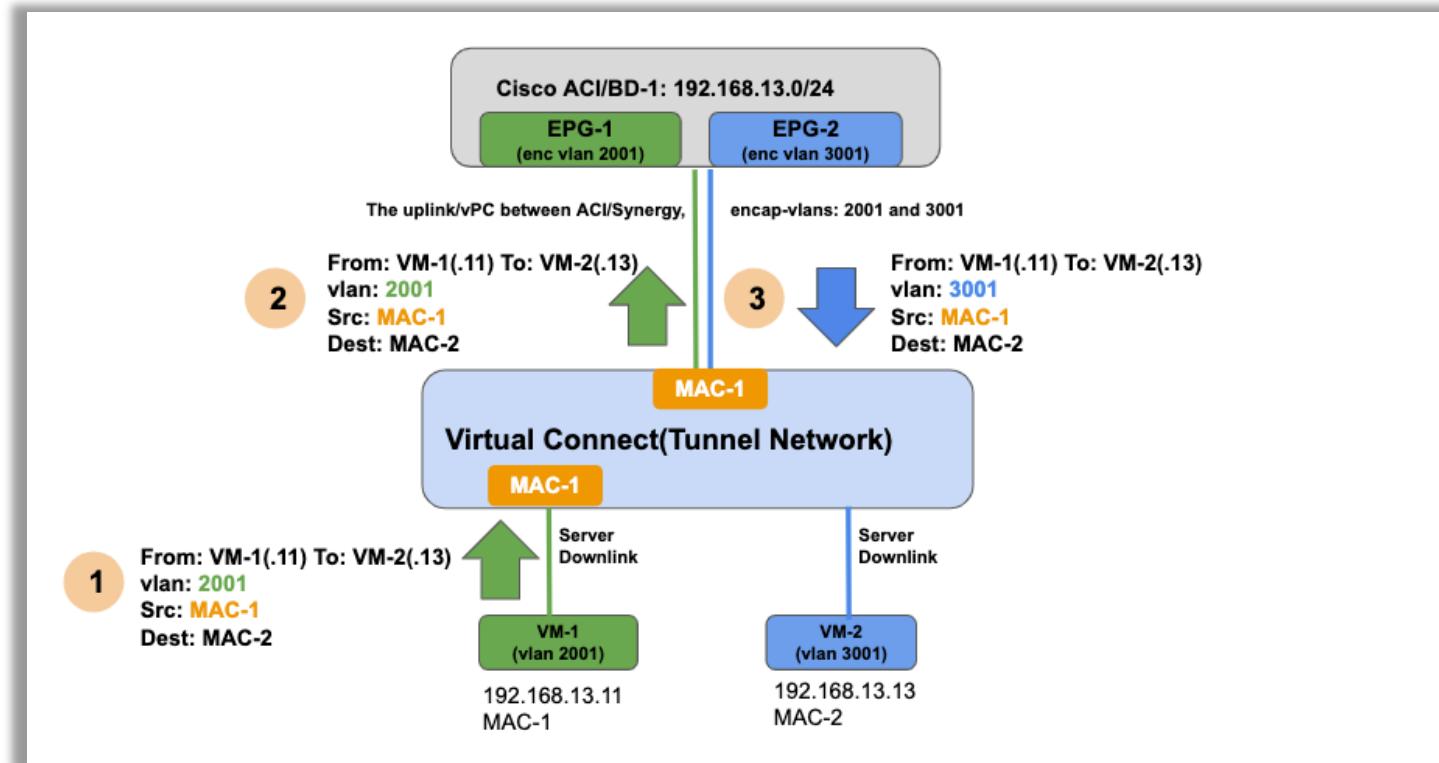
**Bottom Screenshot (HPE OneView UI):**

- Logical Interconnects:** The left sidebar lists logical interconnects, including EG-DCA-Synergy-C, SAS-Switch-1, EG-DCA-Synergy-C, and FC-16Gb-1.
- Edit leaf-103-104-uplink:** The main pane shows the configuration of a logical interconnection named "leaf-103-104-uplink".
  - General:** Type: Tunnel, Connection mode: Automatic, LACP timer: Short (1s), LACP load balancing: Source & Destination MAC Address.
  - Networks:** Network: Tunnel-Net-For-All-VLANs (highlighted).

# Synergy Tunnel network when ACI doing Inter-VLAN Bridging

For **Tunnel** mode, one ACI use case requiring user attention where ACI is doing **Inter-VLAN bridging**.

- Multiple EPGs are under one BD **AND**
- These EPGs share the same IP subnet defined on BD



ACI inter-vlan bridging will switch the packets with the same source MAC address across different encapsulation VLANs like MAC-1 shown in the diagram across EPG VLAN 2001 and 3001.

Synergy Tunnel mode does not look into user VLANs when switching traffic so it will regard the same MAC-1 address learned from both downlink and uplink at the same time.

As a result, Synergy will interrupt the traffic forwarding for the packets with MAC-1 source address.

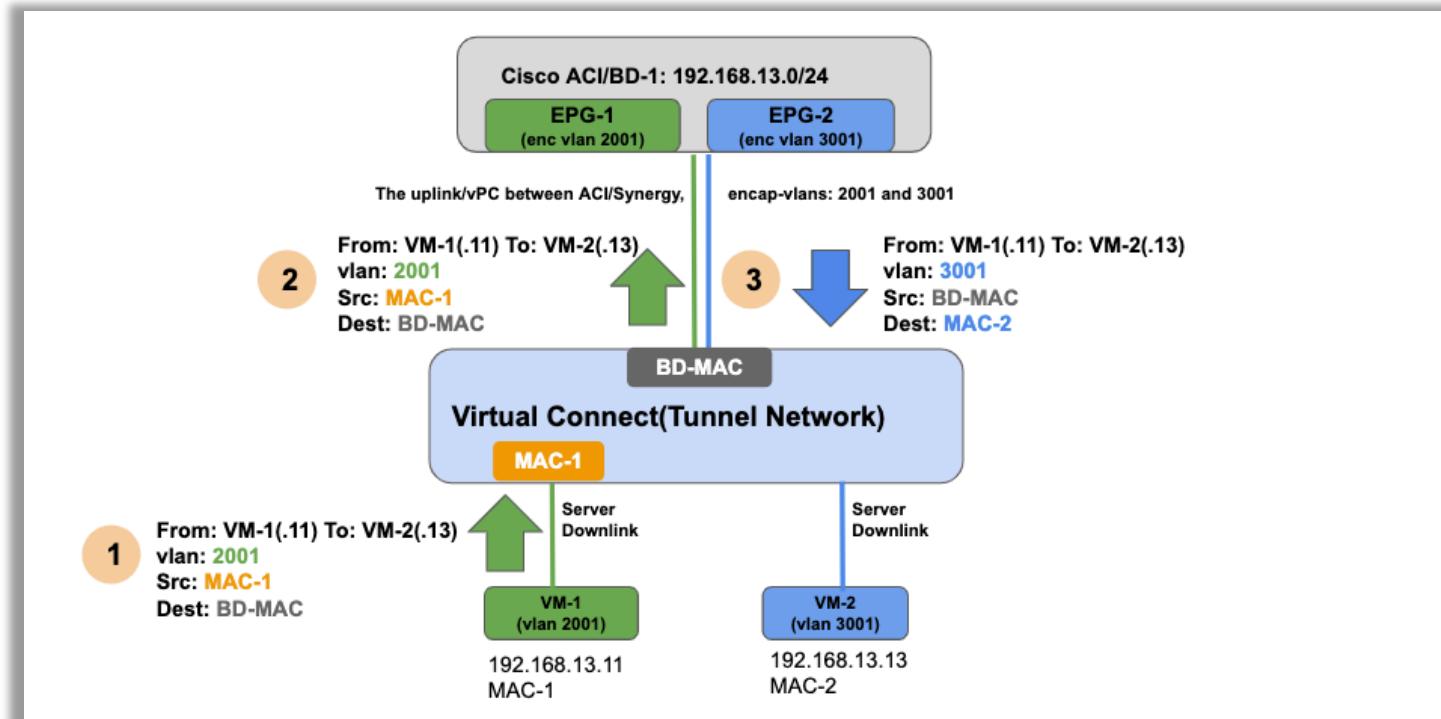
# Introducing ACI “Proxy-ARP” feature

The issue for ACI inter-VLAN bridging with Synergy tunnel mode can be solved with ACI “[Proxy-ARP](#)” feature.

**Note:** ACI Proxy-ARP is not a feature configured separately. It is implemented behind the scene in various ACI features like Flood-in-Encapsulation, Micro-segmentation and Intra-EPG isolation.

## About Proxy ARP

Proxy ARP in Cisco ACI enables endpoints within a network or subnet to communicate with other endpoints without knowing the real MAC address of the endpoints. Proxy ARP is aware of the location of the traffic destination, and offers its own MAC address as the final destination instead.



ACI proxy-ARP will switch packets source MAC with its own BD MAC when doing inter-VLAN bridging.

Endpoints will learn source MACs for other endpoints in different EPGs under same BD as ACI BD MACs.

This will ensure Synergy always learn true source endpoint MACs from downlinks and BD MAC from the uplink and hence forward the traffic successfully.

# Option 1 for Synergy Tunnel network with ACI Inter-VLAN Bridging

[ACI 3.1\(1\)](#) has introduced the “Flood-in-Encapsulation” enhancement specifically for this use case

Configuring flood in encapsulation for all protocols and proxy ARP across encapsulations

In this release, on the Cisco ACI switches with the Application Leaf Engine (ALE), all protocols are flooded in encapsulation. Multiple EPGs are now supported under one bridge domain with an external switch. When two EPGs share the same bridge domain and the **Flood in Encapsulation** option is turned on, the EPG flooding traffic does not reach the other EPG. It overcomes the challenges of using the Cisco ACI switches with the Virtual Connect (VC) tunnel network.

For more information, see the *Cisco APIC Layer 2 Networking Configuration Guide*.

Bridge Domain - dvs-vm-bd2

Summary Policy Operational Stats Health Faults History

General L3 Configurations Advanced/Troubleshooting

R:  V:  A:  D:

Properties

VRF: hj-common-vrf

Resolved VRF: common/hj-common-vrf

L2 Unknown Unicast: **Flood** Hardware Proxy

L3 Unknown Multicast Flooding: **Flood** Optimized Flood

Multi Destination Flooding:  Flood in BD  Drop **Flood in Encapsulation**

PIM:

IGMP Policy:

ARP Flooding:

Users should enable “Flood in Encapsulation” and set “L2 Unknown Unicast” as “Flood” under BD.

The reason “L2 Unknown Unicast” needs to be set in “Flood” when doing “Flood in Encapsulation” is specified in [APIC Layer2 configuration guide](#)

Note:

“L2 Unknown Unicast” as “Flood” will automatically enable “ARP flooding” as prompted in APIC GUI.

# Endpoints and APIC view with ACI Proxy-ARP

Endpoints see other endpoints from different EPGs in same BD doing inter-vlan bridging as BD MACs

```
[root@dvs-epg3-vm1 ~]# ip addr show eno16780032 | egrep "ether|inet "
  link/ether 00:50:56:82:a7:9b brd ff:ff:ff:ff:ff:ff
    inet 192.168.13.11/24 brd 192.168.13.255 scope global eno16780032
      VM-1 arp tables shows inter-EPG VM-2(13.13) MAC as
      BD MAC 19:ff.

[root@dvs-epg3-vm1 ~]# arp
The other intra-EPG VM(13.12) has original VM MAC
Address          HWtype  HWaddress          Flags Mask           Iface
192.168.13.1    ether    00:22:bd:f8:19:ff  C             eno16780032
192.168.13.12   ether    00:50:56:82:eb:93  C             eno16780032
192.168.13.13   ether    00:22:bd:f8:19:ff  C             eno16780032
```

ACI sees all true endpoints MACs

End Point	MAC	IP	Interface	Encap	Learning Source
dvs-epg3-vm1	00:50:56:82:A7:9B	192.168.13.11	10.16.43.118 (vmm) Pod-1/Node-103-104/synergy-vpc (learned)	vlan-2001	learned vmm
dvs-epg3-vm2	00:50:56:82:EB:93	192.168.13.12	10.16.43.118 (vmm) Pod-1/Node-103-104/synergy-vpc (learned)	vlan-2001	learned vmm

# Option 2 for Synergy Tunnel network with ACI Inter-VLAN Bridging

Proxy-ARP is also enabled behind the scene for EPGs enabled for Micro-segmentation.

**Note:** Users don't need to configure any ACI uSeg for Proxy-ARP to take affect.

The screenshot shows the vSphere Web Client interface. On the left, the navigation tree is expanded to show Tenant1, Application Profiles (ap-1, ap-2), Application EPGs (AVE-EPG, AVE-EPG-2, DVS-EPG), and DVS-EPG settings. The main panel displays the 'Edit VMM Domain Association' dialog. Key settings include:

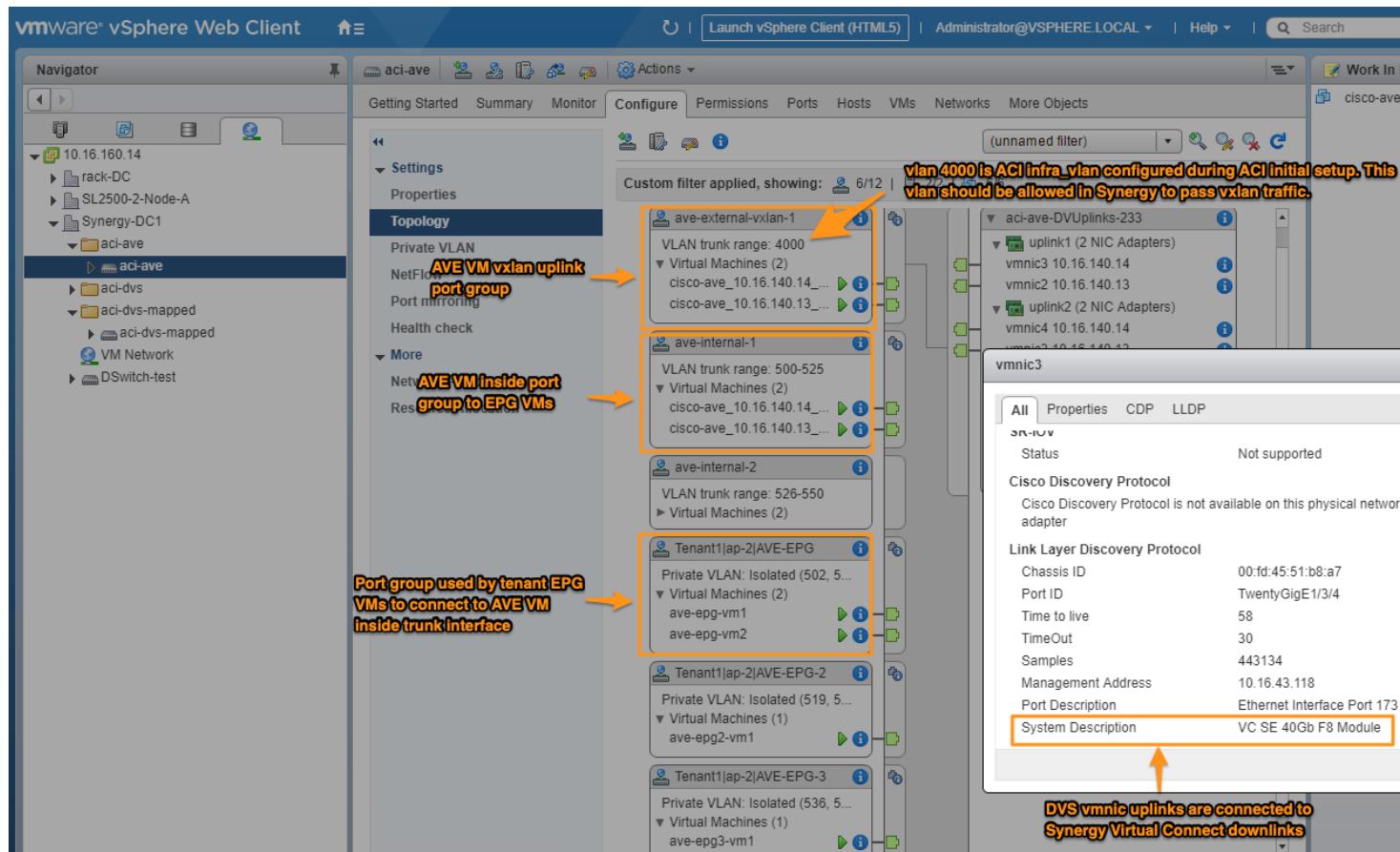
- VMM Domain Profile: uni/vmmp-VMware/dom-aci-dvs
- Deploy Immediacy: Immediate
- Resolution Immediacy: Immediate
- Enhanced Lag Policy: select an option
- Allow Micro-Segmentation: checked
- Untagged VLAN Access: unchecked
- VLAN Mode: Static
- Primary VLAN for Micro-Seg: VLAN 900
- Secondary VLAN for Micro-Seg: VLAN 901
- Netflow: Disable
- Allow Promiscuous: Reject

On the right, the 'Properties' panel shows the 'Topology' section with options like Private VLAN, NetFlow, Port mirroring, Health check, More, Network Protocol Profiles, and Resource Allocation. Below the properties panel, the network topology is visualized with nodes like SL2500-2-Node-A, Synergy-DC1, aci-ave, aci-dvs, and various virtual machines (dvs-epg-vm1, dvs-epg-vm2, dvs-epg2-vm1, dvs-epg2-vm2) connected via uplink ports (uplink7, uplink8).

# Option 3 for Synergy Tunnel network with ACI Inter-VLAN Bridging

A typical AVE deployment uses VXLAN to carry traffic between AVEs and ACI leaf nodes. The VXLAN traffic is encapsulated using a single ACI infra VLAN through Synergy. All underlying endpoint VLAN operation like inter-VLAN bridging is transparent to Synergy.

Users only need to config a single mapped or tunnel network to allow this infra VLAN traffic through Synergy.



# Synergy and ACI VMM Integration

Synergy Tunnel mode really simplifies ACI VMM integration as it can pass the traffic from DVS port-group derived from ACI dynamic vlan pool without any Synergy configuration changes.

The screenshot shows the vSphere Client interface with the following details:

- EPG - DVS-EPG-2** is selected in the top left.
- The **Operational** tab is active in the top navigation bar.
- The **Client End-Points** tab is selected in the sub-navigation bar.
- A table displays the following data:

End Point	MAC	IP	Interface	Encap	Learning Source
dvs-epg2-vm2	00:50:56:82:3D:0D	192.168.10.13	10.16.43.118 (vmm) Pod-1/Node-103-104/synergy-vpc (learned)	vlan-900(P) vlan-901(S)	learned vmm
- The **Topology** sidebar shows the following options:
  - Private VLAN
  - NetFlow
  - Port mirroring
  - Health check
  - More
    - Network Protocol Profiles
    - Resource Allocation
- On the right, two tenant windows are visible:
  - Tenant1|ap-2|DVS-EPG**: Contains two virtual machines: dvs-epg-vm2 and dvs-epg-vm1.
  - Tenant1|ap-2|DVS-EPG-2**: Contains two virtual machines: dvs-epg2-vm1 and dvs-epg2-vm2.

# Synergy Fabric Managers with ACI Integration

Synergy Fabric Manager aligns HPE OneView resources as defined by Cisco ACI APIC policies.

It intends to help Synergy admins to match Synergy network configurations with APIC polices so network configuration mismatch can be prevented.

**Note:** Users don't have to config Fabric Manager feature in order to pass traffic successfully between ACI and Synergy.

The screenshot shows the HPE OneView interface for managing Fabric Managers. On the left, a sidebar lists 'Fabric Managers' with a count of 1. A green button labeled '+ Add fabric manager' is visible. The main panel displays a table with one row for 'NA-ACI'. The table has columns for 'Name' (NA-ACI) and 'Type' (Cisco ACI). On the right, the details for the 'NA-ACI' entry are shown. Under the 'General' tab, the following information is listed:

Type	Cisco ACI
APIC version	3.2(7f)
IP Addresses or hostnames	<a href="#">10.16.42.100</a>
Used by	<a href="#">NA-ACI LS</a>

Below this, under the 'Tenants' tab, it shows 1 Consistent tenant.

# Synergy Fabric Managers with ACI Integration

Fabric Managers 1   All statuses ▾   All labels ▾

+ Add fabric manager   DCA-ACI   Tenants ▾   Actions ▾

▲ One or more networks associated with tenant "Tenant2" are missing. Active   8/20/18 1:57:02 pm   All ▾ 0 ▲ 2 ● 1 ▾

Name	Type
DCA-ACI	Cisco ACI

**Tenants**   Edit

▼ Tenant2

Description: none  
Used by: 3 networks, 1 logical interconnect

► Resource mappings  
▼ Inconsistency details

**Inconsistency**

Resource	Inconsistency
EG-DCA-Synergy-01-LIG-VC Logical interconnect	VLAN 202 missing
Uplink set "leaf-101-102-uplinkset" networks	VLAN 220 missing
Uplink set "leaf-101-102-uplinkset" networks	VLAN 201 missing

**FM reports inconsistency information. In this example, It sees ACI EPGs for Tenant2 are configured for vlan 200-202, 220 but only sees Synergy is configured vlan 200 so it reports the other three vlan 201-202 and 220 missing**

**FM suggests Synergy admin to add the 3 vlangs into uplink set.**

**Resolution**

Any of the selected logical interconnect remediations will also be performed on the logical interconnect groups.

Add VLAN 202 to the uplink set.  
Add VLAN 220 to the uplink set.  
Add VLAN 201 to the uplink set.

**FM shows if it can automatically remediate the inconsistency**

**Remediation**

Yes  
Yes  
Yes

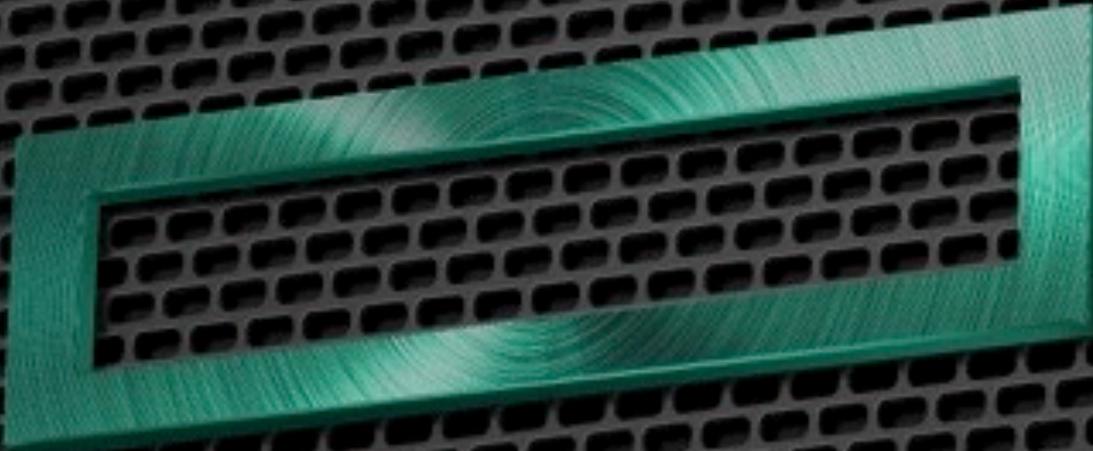
**FM reports inconsistency information. In this example, It sees ACI EPGs for Tenant2 are configured for vlan 200-202, 220 but only sees Synergy is configured vlan 200 so it reports the other three vlan 201-202 and 220 missing**

**FM suggests Synergy admin to add the 3 vlangs into uplink set.**

**FM shows if it can automatically remediate the inconsistency**



**Hewlett Packard  
Enterprise**



## **OneView 5.0 Synergy Networking Features**

# Large Network Sets on VC SE 100Gb F32 Module

Eliminates current VLAN limits imposed on the network sets

"I want to define and utilize large number of discrete networks without having to resort to tunnel mode" - Customer

- OneView 3.x
  - Network Sets were limited to 162 VLANs
  - One had to use Tunnel networks to achieve higher limits
- OneView 4.00
  - Network Set limits increased up to 1000 VLANs (in a single frame)
- Large Network Sets
  - Completely eliminates VLAN limits
  - Enables Synergy mapped networks full interoperability with Cisco ACI and allows users to define a large number of EPGs in the same ACI Bridge Domain

The screenshot shows the 'Create Network Set' dialog in the OneView interface. In the 'General' tab, the 'Name' is set to 'ACI Large Set', 'Preferred bandwidth' is 2.5 Gb/s, and 'Maximum bandwidth' is 20.0 Gb/s. A large double-headed arrow points from the 'General' section to the 'Type' dropdown, which is set to 'Large'. Below this, a note states: 'Regular network sets can contain up to 1000 networks. Specifying a large network set type will extend the number of networks up to a maximum of 4044. There is no limit to how many large network sets can be created, however, a maximum of 60 unique large network sets can be simultaneously deployed per logical interconnect.' In the 'Networks' tab, there is a table listing eight networks named 'ACI\_large\_1000' through 'ACI\_large\_1007', each associated with a VLAN ID (1000-1007) and an Untagged checkbox. At the bottom of the table are buttons for 'Add networks', 'Remove networks', and 'Remove all'. The status bar at the bottom indicates 'Changed: Name to "ACI Large Set"' and has buttons for 'Create', 'Create +', and 'Cancel'.

# Synergy Automated VLAN Provisioning

## Streamlines network deployment across OneView resources in a single step

"It takes too many steps to create a network, provision into a logical interconnect, network set, and finally serve profile" - Customer

- Direct association of a network set with an uplink set immediately propagates all network set modifications to the uplink sets
- Reduces time, effort, and risk of error when adding networks to an uplink set
- When a network is added and associated with an existing network set, it will be automatically deployed across both the uplink sets on LIG/LI and server profiles where network set is provisioned

Create Uplink Set

?

**Networks**

Name	Type	VLAN ID	Native
prod_1021	Ethernet	1021	<input type="checkbox"/>
prod_1022	Ethernet	1022	<input type="checkbox"/>
prod_1023	Ethernet	1023	<input type="checkbox"/>
prod_1024	Ethernet	1024	<input type="checkbox"/>
prod_1025	Ethernet	1025	<input type="checkbox"/>
prod_1041	Ethernet	1041	<input type="checkbox"/>
prod_1042	Ethernet	1042	<input type="checkbox"/>
prod_1043	Ethernet	1043	<input type="checkbox"/>

**Add networks** **Remove networks**

**Add networks from network set**

**Network Sets**

Name
Prod NetSet

**Add network set** **Remove network set**

**Uplink Ports**

**Add uplink ports**

**Create** **Create +** **Cancel**

# Synergy Automated VLAN Provisioning

## Streamlines network deployment across OneView resources in a single step

The image displays three screenshots of the HPE OneView interface, illustrating the process of automated VLAN provisioning across different network resources.

- Create Network:** A dialog box showing the configuration of a new network named "prod-". The "VLAN" dropdown is set to "Tagged" and the "VLAN ID" field contains "1021-1025", which is highlighted with a yellow box. Below this, the "Network sets" section shows a "Prod NetSet" entry, which is highlighted with a purple box. At the bottom right of this dialog is a green button labeled "Remove from network sets".
- Logical Interconnects:** A list view titled "Logical Interconnects 1" showing one item: "Prod LE-Production LIG". The "Uplink Sets" table is expanded, showing a list of uplinks. The first row of this table, containing "mgmt" and "11 prod- 1024 1024", is highlighted with a yellow box. The entire "Uplinks" table area is also highlighted with a yellow box.
- Server Profile:** A list view titled "Server Profiles 1" showing one item: "Server 1". The "Connections" table is expanded, showing a list of connections. The last two rows of this table, labeled "5" and "6" and both associated with "Prod NetSet (network set)", are highlighted with a purple box.

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# OneView for Synergy 5.0 Interop features

- **Synergy Fabric Manager with ACI**
  - On demand ability to download APIC policy alerts for investigating issues in APIC policy configurations.
  - Selectable granular remediation options within a tenant
- **Integration will monitor Arista Leaf ToR switches and model them as part of the Logical Switch resource.**
  - It will display physical switch and port attributes, such as switch model, health information, as well as, LLDP neighbor data, connector info and per port statistical information. OneView will configure Synergy ICM and compute profile connectivity while simultaneously provisioning corresponding VLANs to the Arista ToR ports connected to the Synergy ICMs. This will enable Synergy administrators to discover and validate Synergy to Arista cabling and connectivity, receive an alert on connection errors allowing basic troubleshooting and remediation. This release adds support for additional Arista switch families - 7050, 7260, and 7160, in addition to already supported 7060.

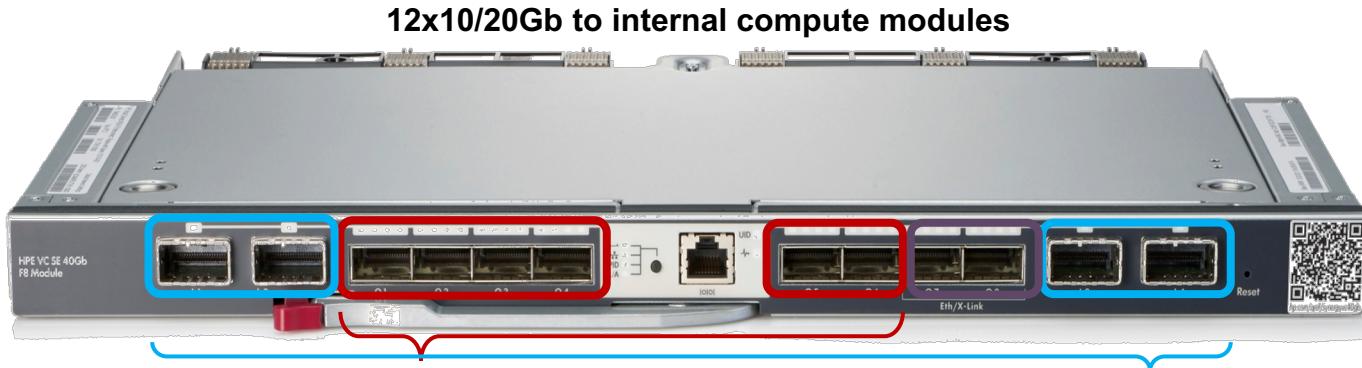
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# Thank You

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# Backup

# Synergy Virtual Connect SE 40Gb F8 module



## 6x 40Gb uplink ports

- Q1-Q6: 40Gb, 4x10Gb Ethernet/FCoE, or 4x8Gb Fibre Channel

## 2x 40Gb cluster ports

- Q7-Q8: 40Gb ICM cluster ports (exclusively reserved)

## 4x 120Gb interconnect link ports

- AOC ICM cables (3m, 7M, 10M and 15M)
- DAC cables (1m, 1.6m and 2.1m)

- High performance, low latency

- 2.56 Tbps switching capacity

- 1.0 µ sec for port to port

- Converged network and resilient fabric

- Ethernet, FCoE, Fibre Channel, and iSCSI

- MLAG for resilient fabric

- Composable for multiple frames

- Optimize the bandwidth for workloads

- Adding new frames does not impact traffic on existing frames

# Synergy VC SE 40Gb F8 Module Uplink Ports to Cisco ACI



**6x 40Gb uplink ports**

Q1-Q6: 40Gb, 4x10Gb Ethernet/FCoE, or 4x8Gb Fibre Channel