

## **Disclaimer and Acknowledgements**

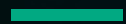
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**Hewlett Packard  
Enterprise**

# **HPE SYNERGY TECHNICAL WORKSHOP**



**intel**<sup>®</sup>

# INTRODUCTION TO HPE SYNERGY

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Software Defined Infrastructure

# MANAGE PHYSICAL COMPUTE LIKE VIRTUAL MACHINES

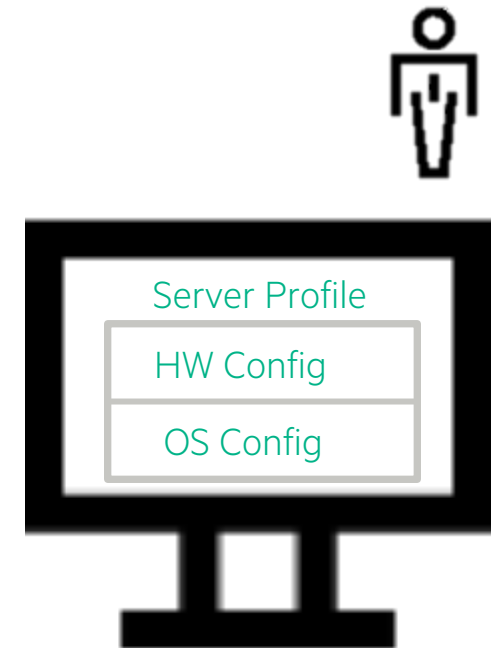
Enhanced server profiles manage stateless Compute Modules like VMs

## Virtual Machine Operation

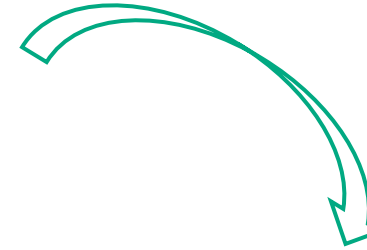
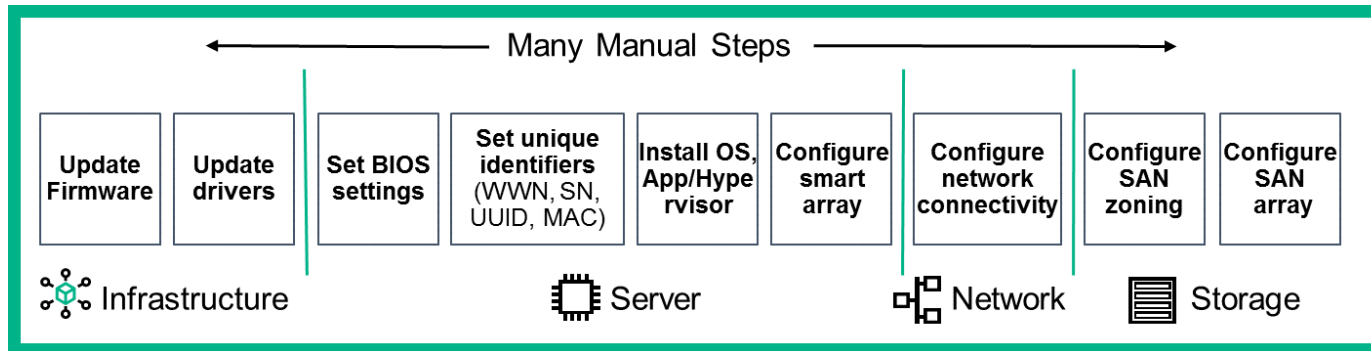
- Create VM template with OS
- Deploy template to VM
- Update VM template
- Hibernate VM template
- Move VM template
- Delete VM template

## Physical Server Equivalent

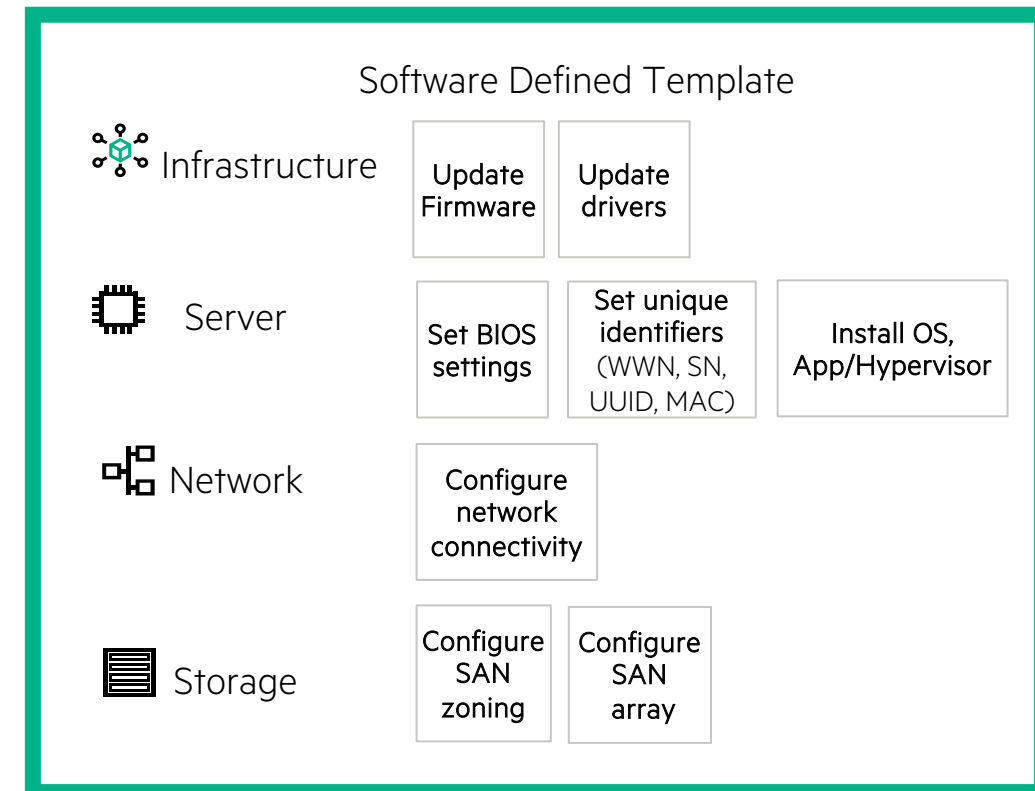
- Create logical server profile with OS
- Activate server profile on compute module
- Update server profile
- Deactivate server profile
- Move server profile
- Delete server profile



# DEPLOY INFRASTRUCTURE FASTER



- Repeatable, consistent deployment
- Totally automated
- From days to minutes
- No misconfiguration
- No manual intervention
- Totally programmable



# TWO METHODS FOR AN ENHANCED USER EXPERIENCE

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## GUI

Is designed to enhance interaction among IT staff and match work practices in the data center

Is inspired by commonly used web technology

Builds functionality around an administrator's work practices

Works on desktops, tablets, and mobile devices

## REST APIs

Involve the use of relatively basic C.R.U.D. operations applied to resources by using standardized HTTP POST, GET, PUT, PATCH, and DELETE commands

Enable you to manipulate resources consistently

Integrate with a broad ecosystem of management partners

# BROAD ECOSYSTEM EASILY INTEGRATES YOUR PREFERRED TOOLSET

Through HPE OneView software-defined intelligence

## Future proofing your datacenter

Reliable integration with the latest and most popular 3<sup>rd</sup> party and open source tools

**TRANSFORM to software-defined**  
**Improve productivity** by  
simplifying IT Ops and Facilities



**COMPOSE for any workload**  
**Increase agility** by automating  
infrastructure for DevOps

**CONNECT from core to cloud**  
**Gain intelligent insights**  
by optimizing across clouds

# HPE SYNERGY SOFTWARE RELEASES

## Synergy Management Appliances

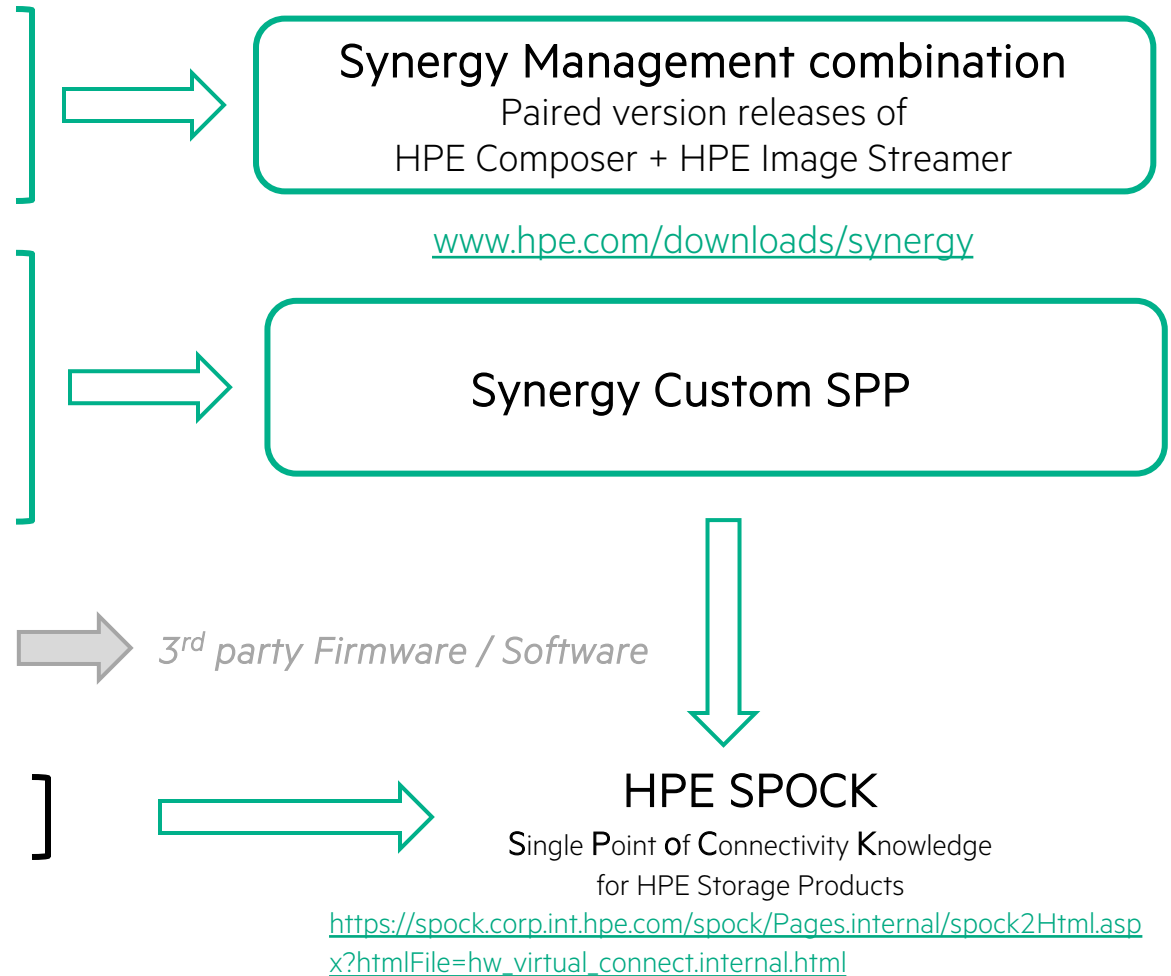
- HPE Synergy Composer (running HPE OneView)
- HPE Synergy Image Streamer

## Synergy Frame Elements

- Synergy 12000 Frame
- Synergy Compute Modules (e.g. SY480, SY660)
- Interconnect Modules (e.g. Virtual Connect, adapters)
- Frame Link Modules

## System elements that are NOT INCLUDED:

- 3<sup>rd</sup> party switches (e.g. Cisco)
- 3<sup>rd</sup> party storage (e.g. EMC, NetApp)
- Interconnects that are NOT managed by Synergy Composer (e.g. Brocade)





# INTRODUCTION TO HPE SYNERGY

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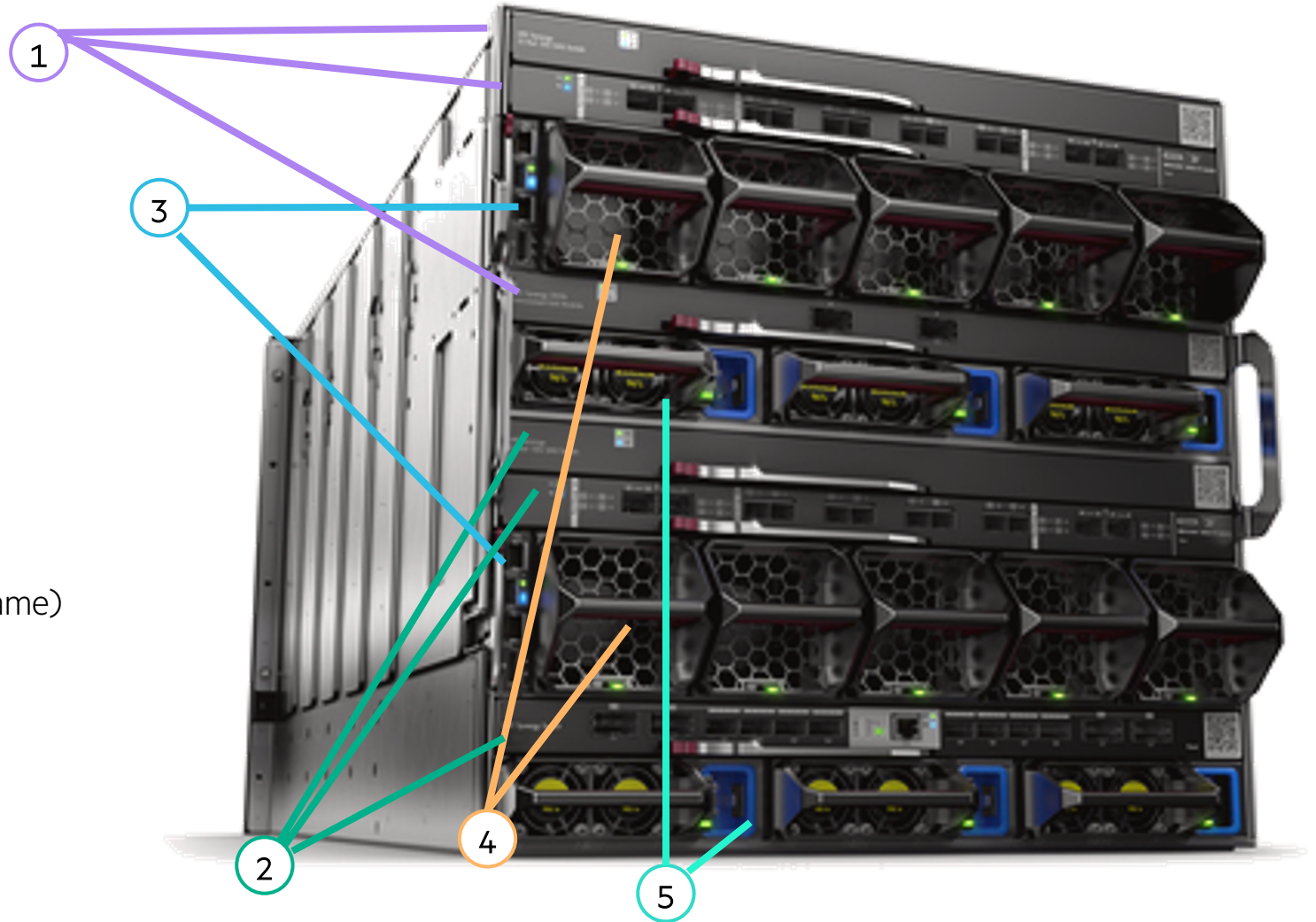
# FLEXIBLE DESIGN FOR A SEAMLESS TRANSITION INTO THE DATACENTER

- ① Sized to fit in existing infrastructure
- ② Double Wide Storage module
- ③ Half Height Compute module
- ④ Full Height Compute module
- ⑤ Redundant Management Appliance Modules
- ⑥ Front Panel / HPE Synergy Console



# FLEXIBLE DESIGN FOR A SEAMLESS TRANSITION INTO THE DATACENTER

- 1 Three primary Interconnect Modules (ICM)
- 2 Redundant Interconnect Modules
- 3 Redundant Frame Link Modules
- 4 Ten System Fan Modules included
- 5 Six Titanium 2650W Power Supplies (8.2kW Frame)



# SYNERGY MANAGEMENT APPLIANCES

## Synergy Composer2

### Enhanced Security

- Secure Boot

### New Capability

- iLO Remote Access
- Synergy IPv6 support

### Performance Improvements

- Faster CPU, More Memory, NVMe Storage
- Faster Operations
- More Responsive User Interface



*the 'Brains' of Synergy*

## Synergy 4-port Frame Link Module

### Enhanced Security

- Secure Start
- Hardware Root of Trust
- File Encryption (TPM)

### Extending Synergy Connectivity

- SFP+ 10Gb ports for long distance connections
- New Appliance ports for future enhancements



*the 'Gatekeeper' to Synergy*

# REDUCE DATA CENTER COMPLEXITY AND COST

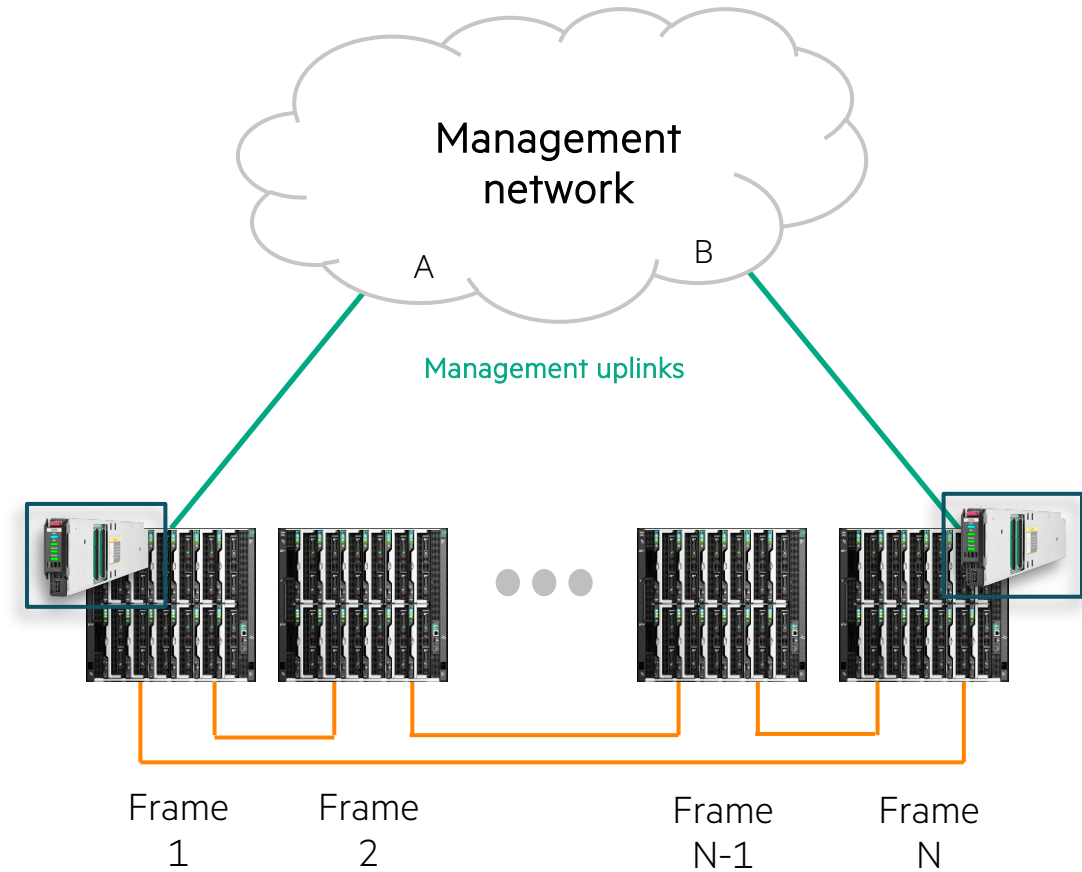
Simplifies cabling and reduces management deployment costs

Increases management availability

Reduces management bottlenecks and management configuration

Automated discovery of all frames in the management ring

Allows maximum flexibility for Image Streamer deployments



# CONFIGURING HPE ONEVIEW FOR SYNERGY

The installation technician is responsible for simplifying deployment and scale with auto-assimilation of fluid resources.

General steps involved with the installation technician's role:

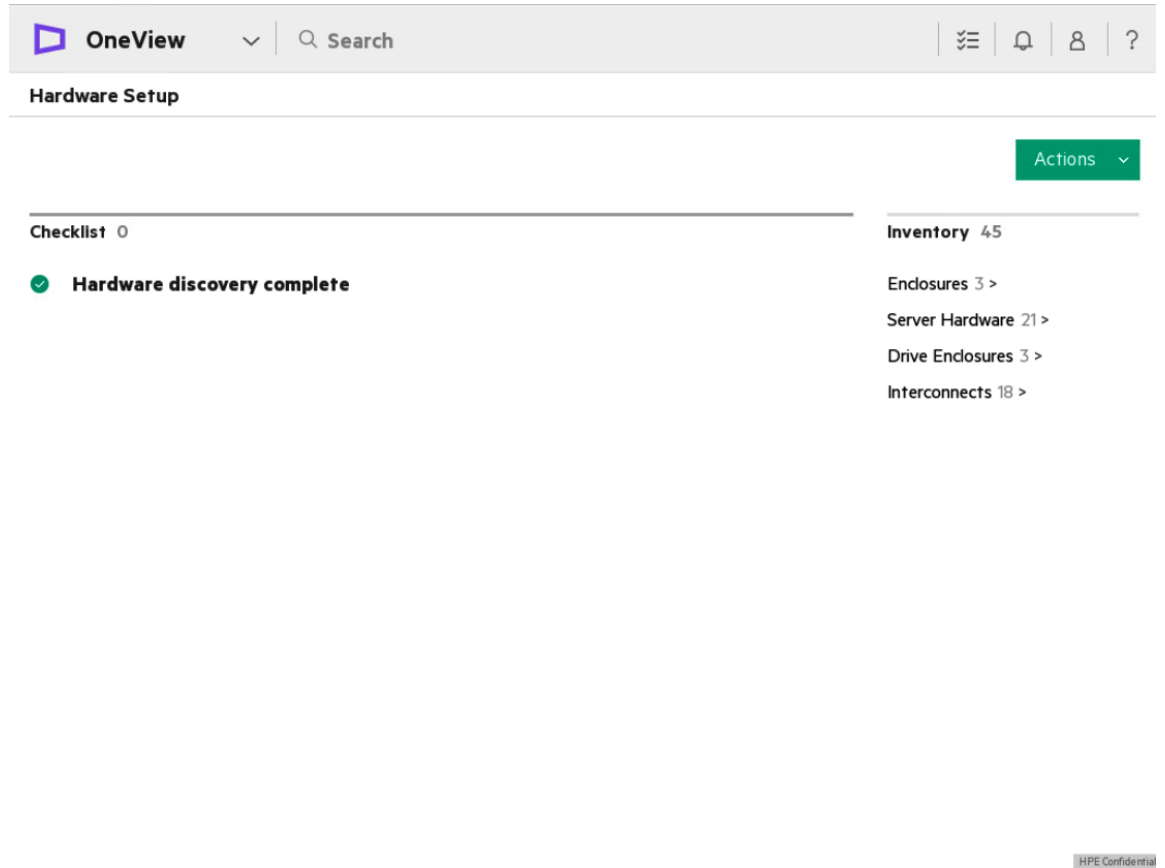
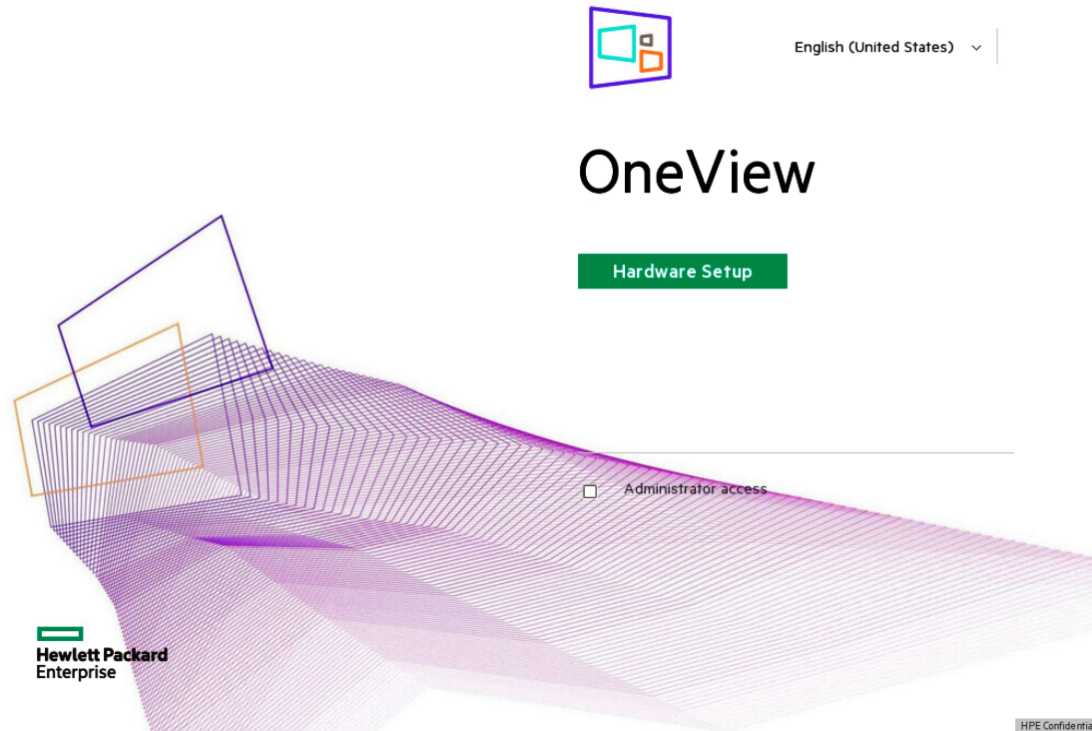
1. Build up the frame by inserting the compute, storage, fabric, and power options defined for the build.
2. Connect the fabric and management network cables.
3. Plug in the system.

Additional steps for the installation technician:

1. Access the Hardware Setup screen from the Synergy console.
2. Resolve any hardware setup errors.
3. Confirm the inventory.
4. Assign the Composer IP addresses.



# INTEGRATED HARDWARE SETUP AND APPLIANCE CONFIGURATION



# GUIDED SETUP

Provides step-by-step guidance for initial system setup along with a product tour of key concepts and features

Is accessed setup from the OneView dashboard

Enables you to configure the appliance efficiently without missing any steps

Display on every login  
Click on a step to see details

**Guided Setup**  
[>> hide list of steps](#)

**Welcome to guided setup**  
Customize setup steps

- ▼ Appliance settings 0 of 12 completed
  - Configure appliance networking
  - Configure NTP
  - Configure appliance certificate
  - Configure automated backup
  - Add directory servers
  - Add users and groups
  - Configure proxy servers
  - Configure remote support
  - Add licenses
  - Add repository
  - Add firmware bundles
  - Add management network IP pool
- ▼ Resource configuration 0 of 16 completed
  - Create networks
  - Create network sets
  - Create logical interconnect groups
  - Create enclosure groups
  - Add C7000 enclosures
  - Add server hardware
  - Add power delivery devices
  - Add unmanaged devices
  - Add racks
  - Add data centers
  - Manually configure unmanaged interconnects
  - Create server profile templates
  - Create server profiles
  - Configure SNMP trap forwarding

**Welcome to guided setup**  
By following the steps on this setup guide, you will be able to configure your appliance in an efficient manner without missing any steps.

When steps are completed to your satisfaction, or if steps are not applicable in your environment, mark them complete. Only administrators with authorization to perform a step are allowed to mark/unmark steps.

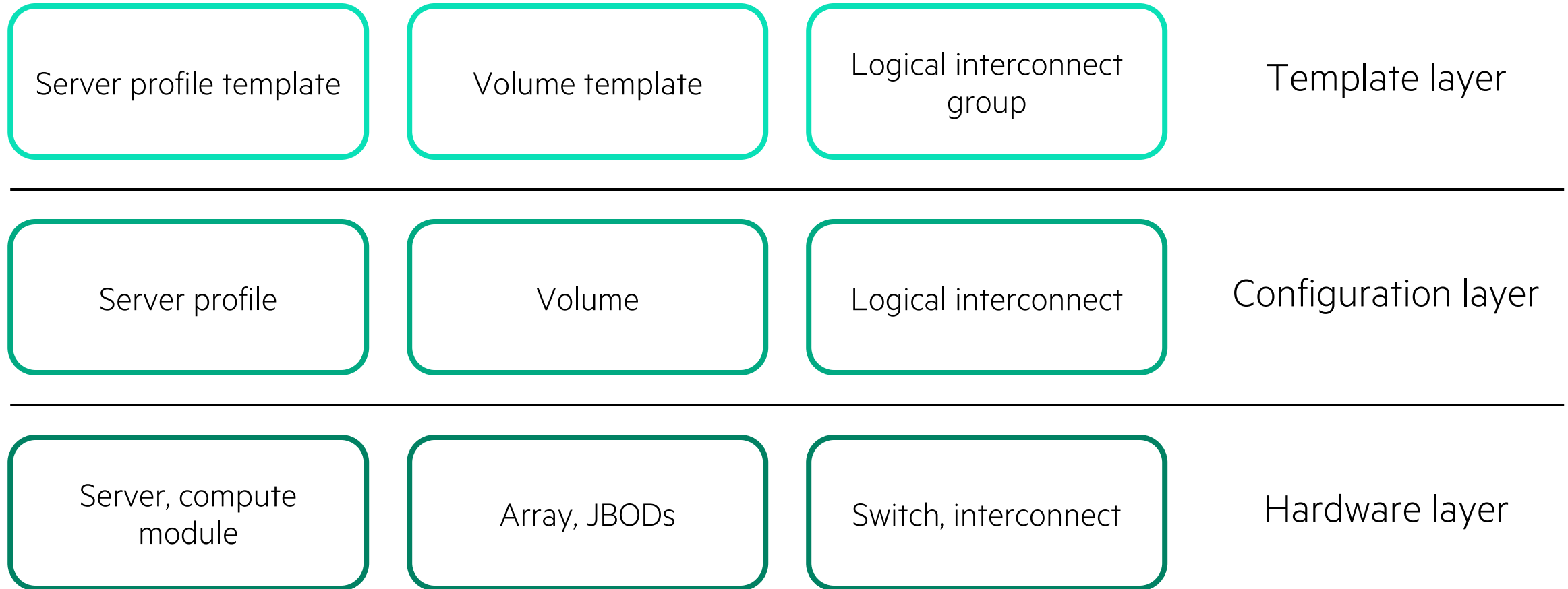
When you are ready to start, click a link below.

Complete  
[First step](#)  
[First incomplete step I'm allowed to complete](#)



# SOFTWARE-DEFINED ARCHITECTURE

Abstraction of configuration from the hardware

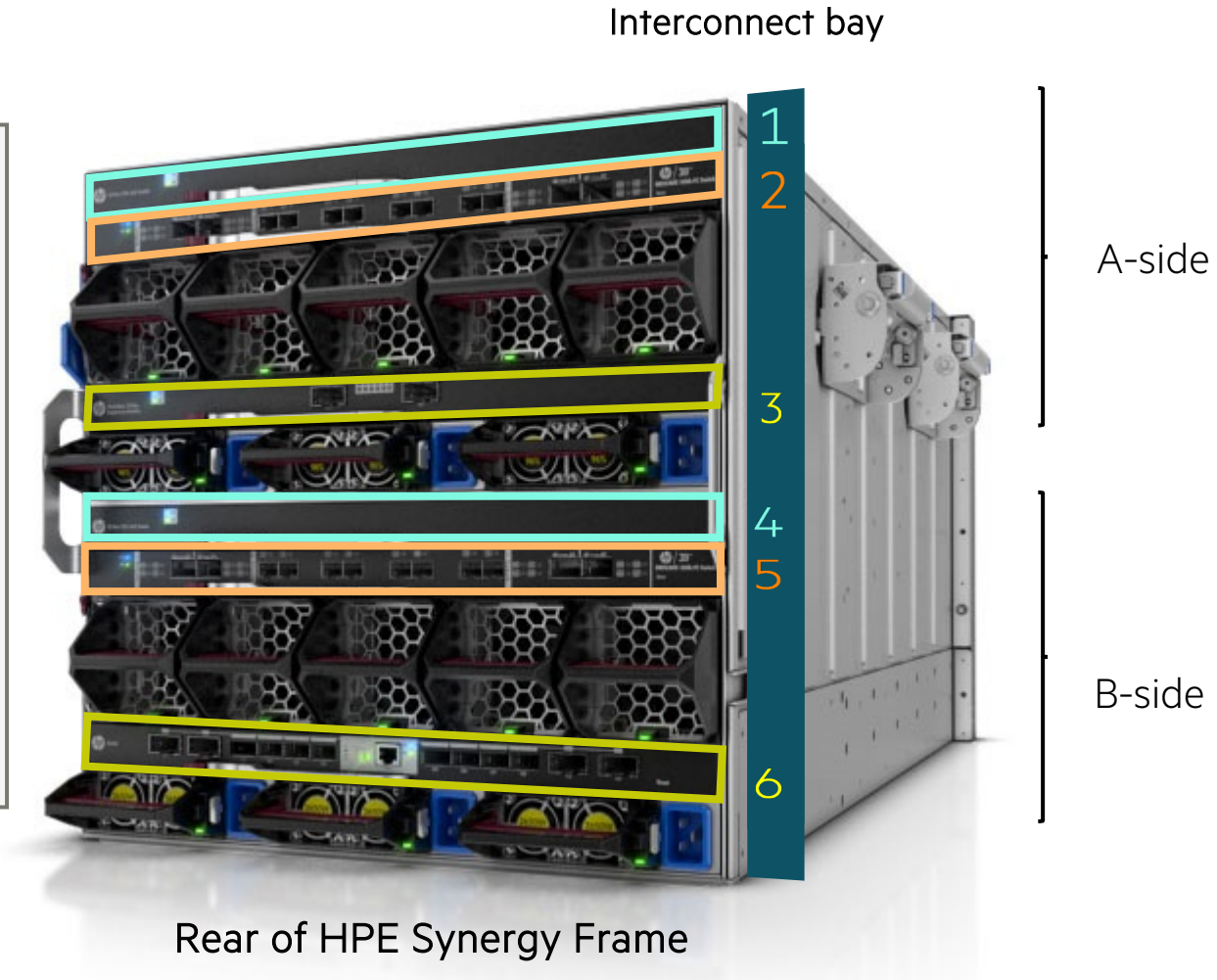
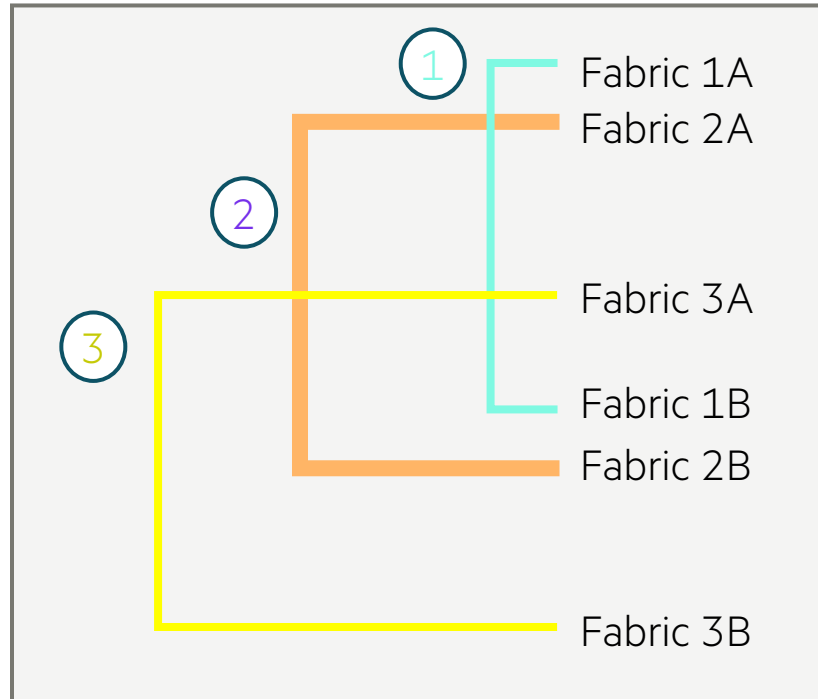


# MANAGING HPE SYNERGY NETWORKING

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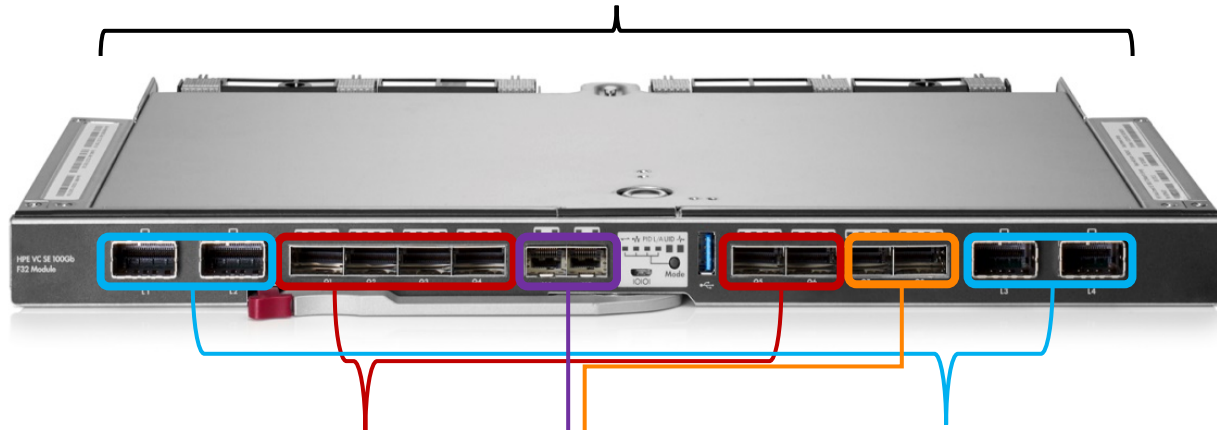
Interconnect Modules

# HPE SYNERGY FABRIC CONFIGURATION



# HPE VIRTUAL CONNECT SE 100GB F32 MODULE

12x 25/50Gb (10Gb not supported)



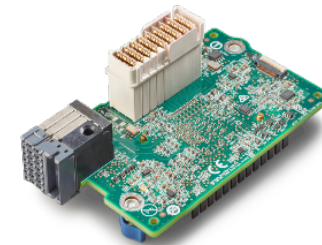
- 6x 100Gb uplink ports
  - Q1-Q6: 100/40Gb, 4x 10Gb or 4x25Gb Eth/FCoE
  - 4x 8/16/32Gb FC

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

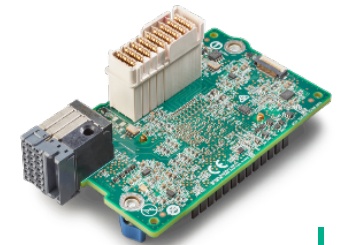
- 2x 10Gb SFP+ ports
  - X1-X2: 10Gb SFP+ Image Streamer ports

- 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
- Upgrade to 32Gb FC via a license on demand
- Paired with full-featured currently shipping and new adapters



4820C @ 25 Gb/s



6820C @ 25/50 Gb/s

# HPE SYNERGY 20 GB INTERCONNECT LINK MODULE

Satellite module

12x20 Gb to compute modules



- High performance, low latency
- 12 compute modules with 20 Gb connectivity
- Two 120 Gb CXP ports to master module
- Low latency (< 8 nano secs)
- Ethernet, FCoE, Fibre Channel, and iSCSI
- Scalable up to 3 frames

120 Gb interconnect link module CXP ports to master module



Zero-latency interconnect link AOCs

# LOGICAL ENCLOSURE

Reduce hardware complexity and cost

Consolidate interconnects and cables

Maximize data throughput and minimize latency

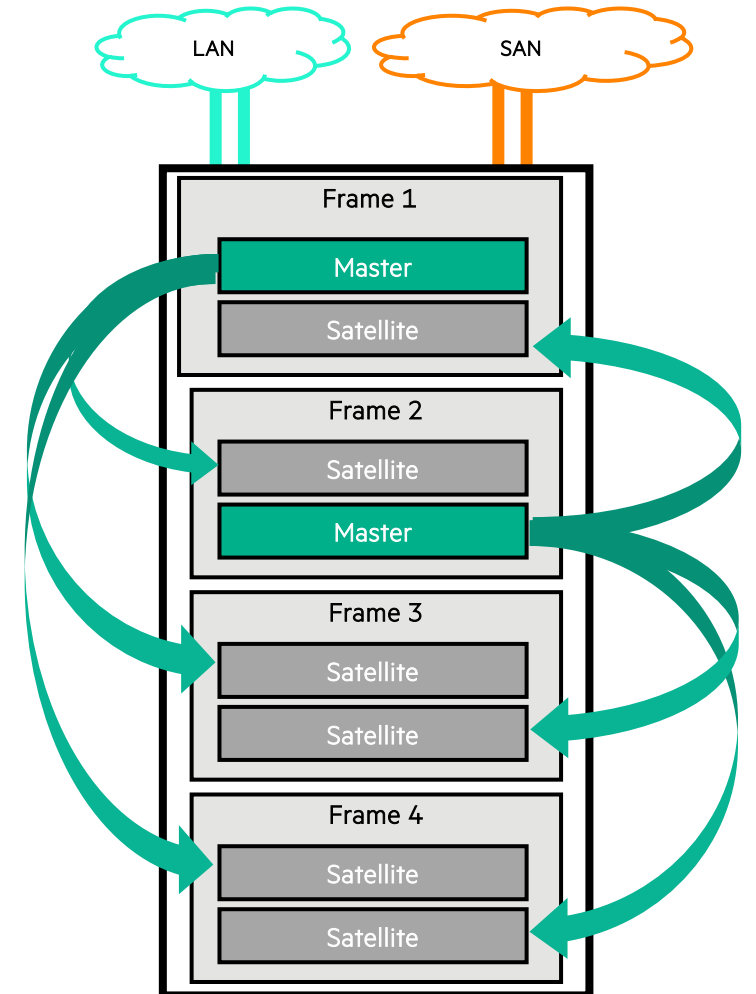
Only one hop and no oversubscription between VMs

Simplify management

Fewer devices to maintain

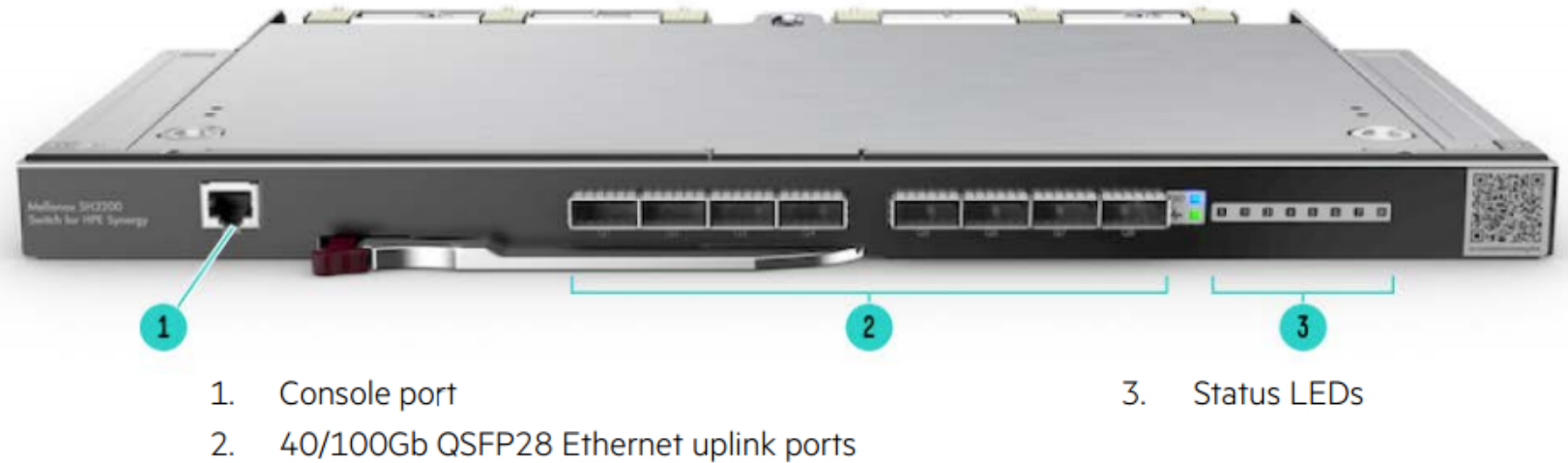
Efficiently scale fabrics across multiple frames

Up to 60 compute modules per fabric



# MELLANOX SH2200 SWITCH MODULE FOR HPE SYNERGY

- Downlink ports to compute modules 25 GbE or 50 GbE
- Eight uplink ports 40/100 GbE
  - Each 100 GbE port can be split into four 25 GbE ports
  - QSFP28 ports
- Ultra-low latency <300 ns
- Managed by
  - Command line interface
  - Web GUI
  - Mellanox NEO software
- Monitored by HPE OneView



**Figure 1 Mellanox SH2200 Switch Module for HPE Synergy Bezel**

# HPE SYNERGY 10 GB PASS-THRU MODULE

12x10 Gb to compute modules



## 12x 10 Gb uplink ports

- Q1 to Q12: 10 Gb, 10 Gb Ethernet/FCoE
- QSFP+/SFP+ adapter required for 10 Gb connections, one per QSFP+ port
- SFP+ transceivers
- SFP+ DAC cables
- SFP+ to 10 GbaseT RJ45 transceivers

- High performance, low latency
  - 12 direct network connections
  - Line rate performance
  - Standard Ethernet as well as FCoE
- No management required
- Synergy Composer provides:
  - Monitor performance
  - Hardware diagnostics
  - Error reporting
  - Firmware updates
- Unmanaged support by HPE OneView



# MANAGING HPE SYNERGY NETWORKING

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Network Configuration

# CREATING ETHERNET NETWORKS

Network parameters include:

- VLAN
  - Tagged
  - Untagged
  - Tunnel
- VLAN ID
- Associate with subnet ID
- Purpose
- Preferred bandwidth
- Maximum bandwidth
- Smart link
- Private network


## Create Network

Name

Type  Ethernet  Fibre Channel  FCoE

VLAN

VLAN ID

Associate with subnet ID  

Subnet IDs cannot be assigned until a valid VLAN ID is specified

Purpose

Preferred bandwidth  Gb/s

Maximum bandwidth  Gb/s

Smart link

Private network

# CREATING NETWORK SETS

Network Set represent a collection of networks and can be used for creating server connections (profiles).

The screenshot displays the OneView interface for managing Network Sets. At the top, there is a navigation bar with the OneView logo, a search bar, and utility icons. Below this, a breadcrumb trail shows 'Network Sets 1' with filters for 'All resources' and 'All labels', and a search result indicator '1 match out of 1'. A sidebar on the left contains a '+ Create network set' button and a table listing network sets. The main content area shows the configuration for 'Prod\_Set' in 'Overview' mode, with an 'Actions' menu. The configuration is divided into 'General' and 'Networks' sections.

Name
Prod_Set

**Prod\_Set** | Overview | Actions

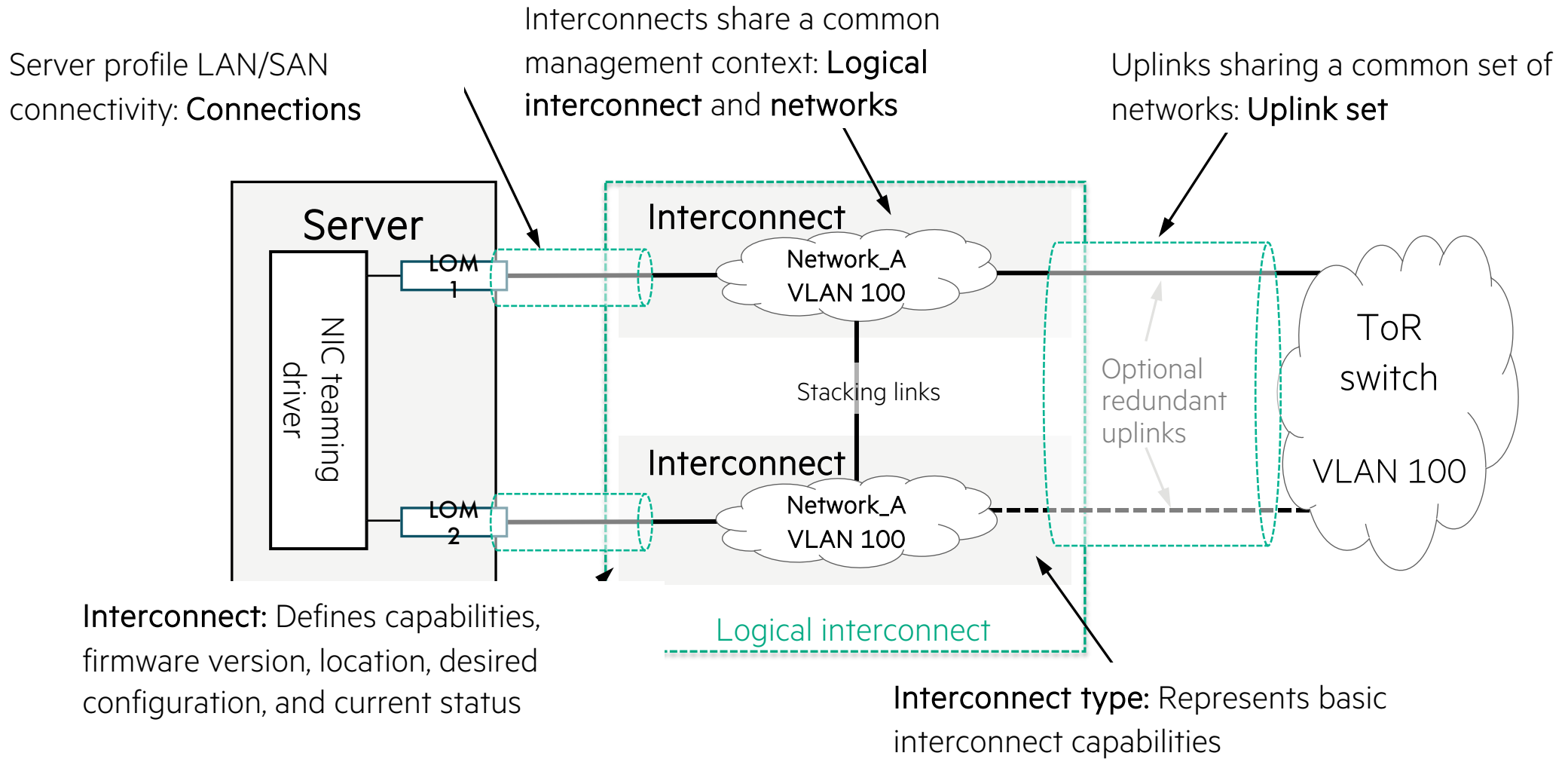
**General**

Preferred bandwidth	2.5 Gb/s
Maximum bandwidth	20 Gb/s
Used by	none

**Networks**

<u>Production100</u>	100	<u>Production200</u>	200
----------------------	-----	----------------------	-----

# ONEVIEW AND VIRTUAL CONNECT INTERCONNECTS



# LIG FOR SYNERGY VIRTUAL CONNECT SE 40 GB F8/100 GB F32 MODULE

LIG for Synergy Virtual Connect SE 40 Gb F8/100 Gb F32 Modules defines:

- Enclosure count (defines number of frames stacked in master/satellite configuration)
- Interconnect bay set used (according to the best practices modules are placed in third fabric—interconnects 3 and 6)
- Redundancy: Highly available, redundant, non-redundant
- Uplink set configuration (including FCoE uplink sets)
- Placement of master/satellite
- Advanced VC settings (QoS, IGMP, and so on)

### Create Logical Interconnect Group

General ▾

---

#### General

Name

---

#### Logical Interconnect Group

Using the selectors below, describe the logical interconnect group to be created and then click "Select interconnects" to see the bay and interconnect choices.

Interconnect type


Enclosure count

Interconnect bay set

Redundancy

**Select interconnects**

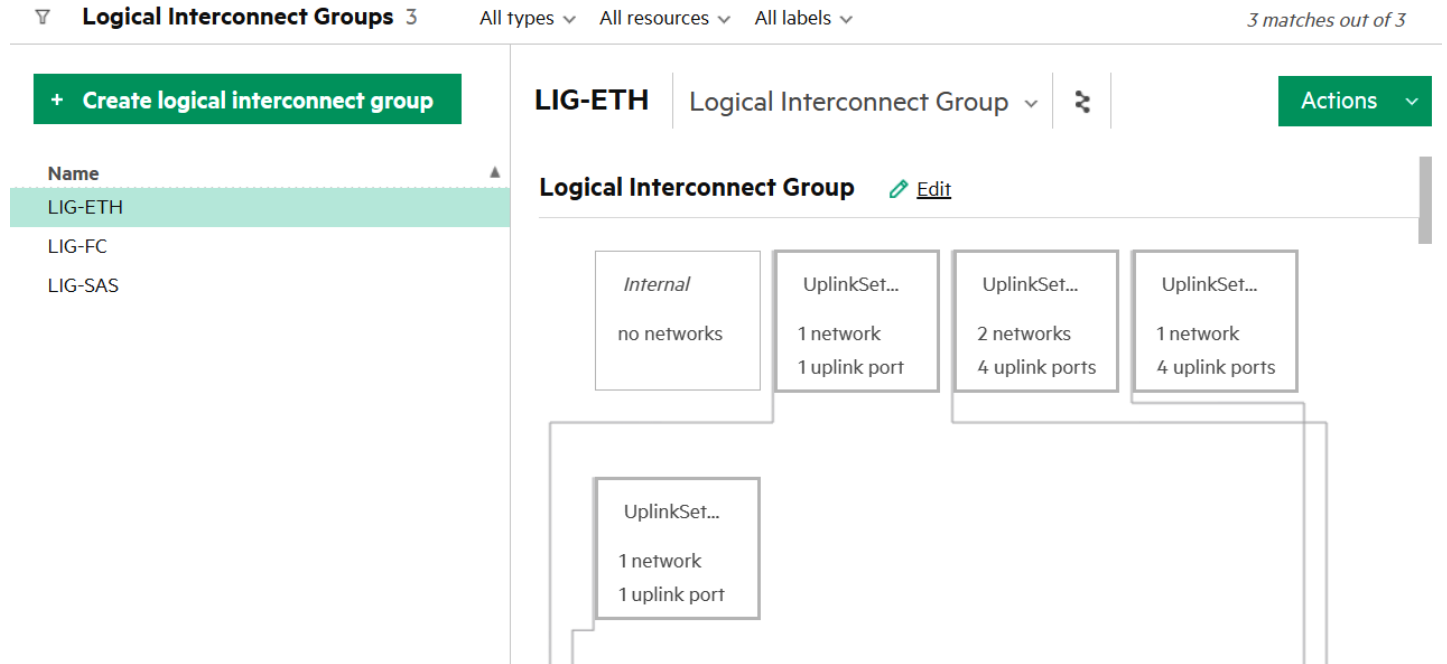
---

 Changed: Redundancy to "Highly ...

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

# LOGICAL INTERCONNECT GROUPS

- **LIG definition:** A template that specifies the interconnect technology and associates the necessary Ethernet, Fibre Channel, or FCoE networks
- LIGs can be one of the following types:
  - HPE Synergy 12 Gb SAS Connection Module
  - Virtual Connect SE 40 Gb F8/100 Gb F32 Module for Synergy
  - Virtual Connect SE 16 Gb/32 Gb FC Module for Synergy



# MANAGING LOGICAL SWITCHES

The logical switch can consist of a maximum of 2 physical ToR switches (external to the HPE Synergy frame) configured in a single stacking domain.

- The logical switch supports a maximum of 2 Arista switches.
- Both of them must be M-LAG setup.
- Both of them must belong to the same M-LAG domain.

### Create Logical Switch

Name

Logical switch group

Add logical switch as  Monitored  Managed


A monitored logical switch provides display of the physical switch information, physical port information, and port statistics. Monitoring provides both the health events and port state changes, as well as the network availability between enclosure edge and upstream switches.  
[Learn more...](#)

In addition to all of the monitoring capabilities, a managed logical switch will enable full control of the port state and network provisioning between enclosure edge and upstream switches.  
[Learn more...](#)

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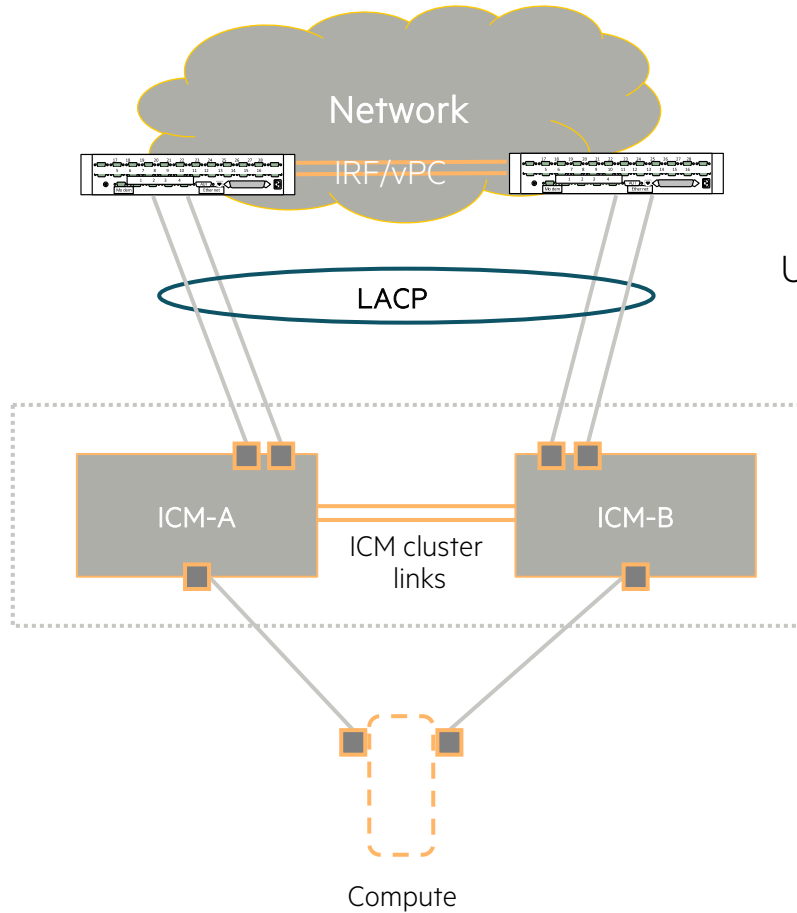
#### Switch 1

IP address or host name

 Changed: Logical switch group to "...

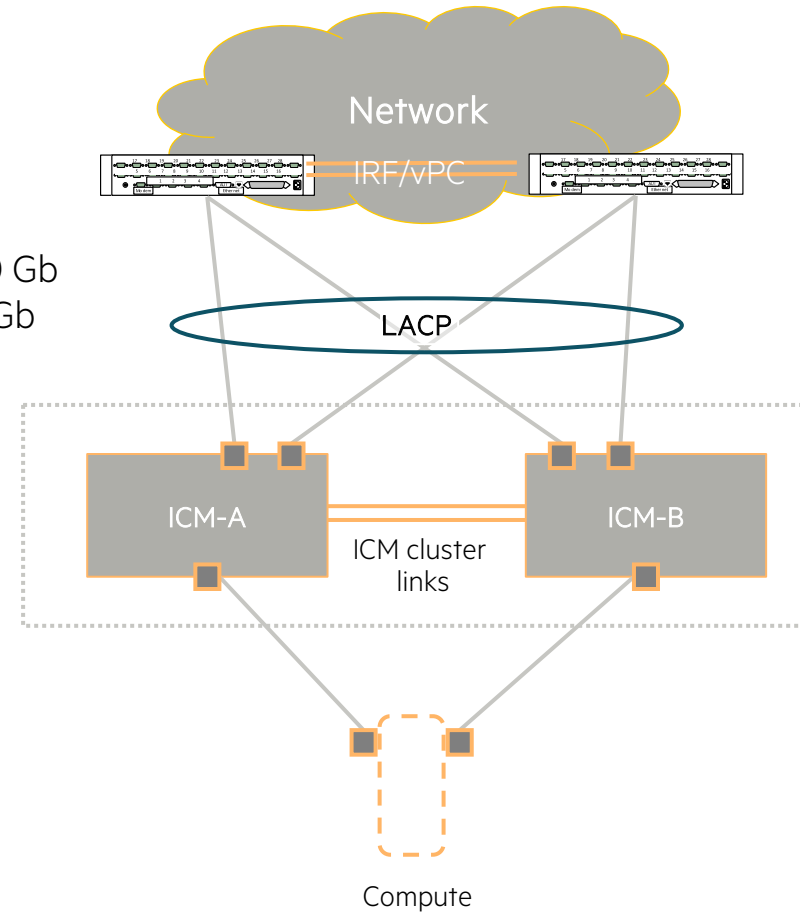
# HIGH AVAILABILITY SCENARIO

Reduced availability EOR single homed



Up to all 16 x40 Gb  
or all 48 x10 Gb

Highly available EOR multi homed





# MANAGING HPE SYNERGY STORAGE

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In-Frame Storage

# HPE SYNERGY IN-FRAME STORAGE SOLUTION

## D3940 Storage Module

Has slots for two IO adapters inside the drawer

- One IO adapter provided initially
- Acts as the interface to the disks
- Connects to the HPE Synergy 12 Gb SAS Connection Module



## 12 Gb SAS connection module

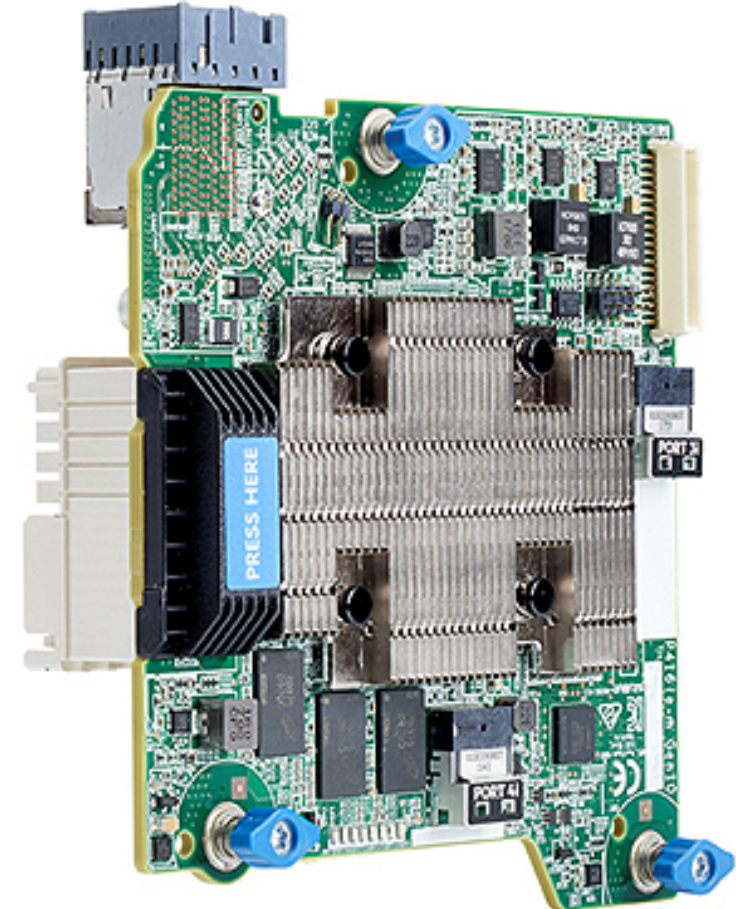
Connects to the RAID storage controllers in a compute module



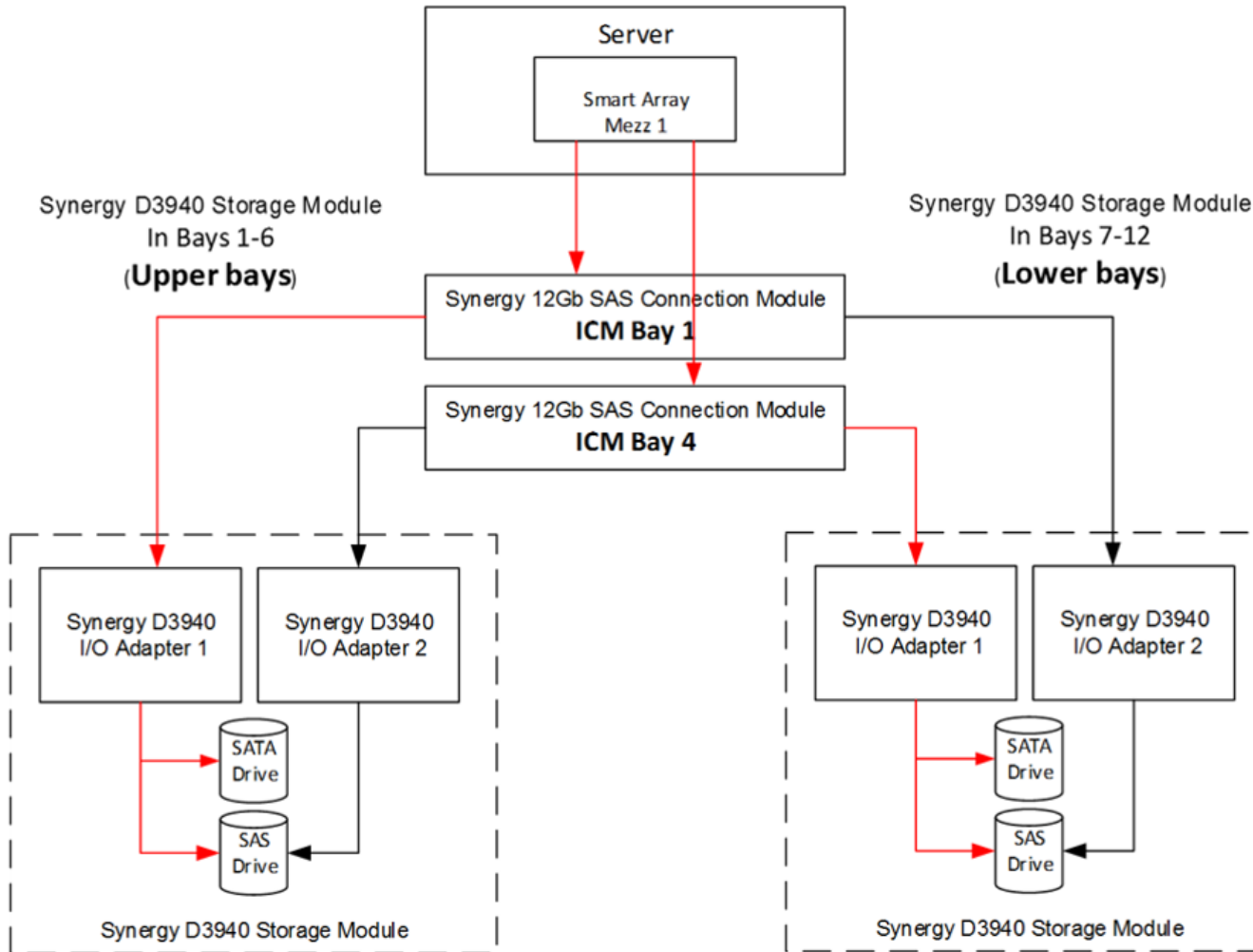
# SMART ARRAY SAS CONTROLLERS

Smart Array P416ie-m Controller (for Gen10)

- 12 Gb/s SAS or 6 Gb/s SATA
- PCI express 3.0 x 8 link width
- 2 GB 72-bit wide DDR4-2100 flash-backed write cache
- **Internal:** 8 SAS/SATA lanes across 2 x 4 slim SAS ports
- **External:** 8 SAS/SATA lanes across an external SAS port



# SYNERGY D3940 SAS/SATA STORAGE CONNECTIVITY

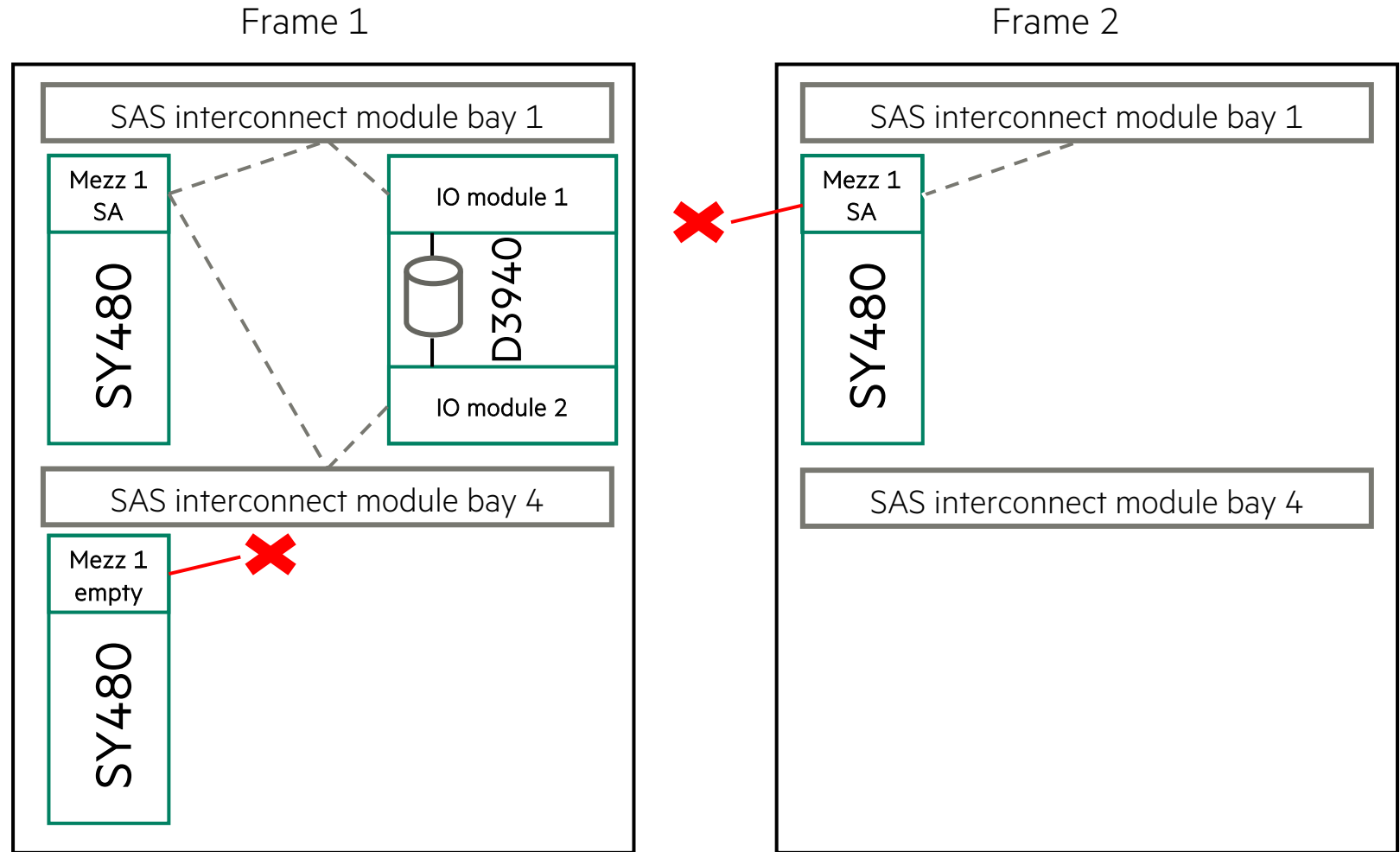


# SYNERGY SAS STORAGE CONNECTIVITY

SAS interconnect module provides internal (within the frame) connections only

No Smart Array = No SAS connection to drive

Different frame = No SAS connection to drive



# CREATING AN LIG FOR SYNERGY SAS MODULES

LIG for Synergy SAS modules defines:

- Enclosure count (always is 1, as FC modules do not support stacking like Ethernet module)
- Interconnect bay set used (only first fabric can be used—interconnects 1 and 4; single module is also supported)

There are no uplinks to configure as the SAS modules present disks from the D3940 Storage Module to compute modules within the same frame

### Create Logical Interconnect Group

General ▾ ?

---

#### General

Name

---

#### Logical Interconnect Group

Using the selectors below, describe the logical interconnect group to be created and then click "Select interconnects" to see the bay and interconnect choices.


Interconnect type

Enclosure count 1

Interconnect bay set 1

**Select interconnects**

---

 Changed: Intercon...

# HPE ONEVIEW LJBOD—SYNERGY D3940

A logical JBOD supports the following features:

- Manual drive selection supported
- Ability to erase drive when LJBOD is deleted
- Permanent option

### Create Logical JBOD ?

Name

Scope

Description

Drive Enclosure(s)

Select drives by  Drive type  Size and technology  Specific drives

Drives *none selected*

Erase on delete  Yes  No

Changed: Drive Enclosur...

# MANAGING HPE SYNERGY STORAGE

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Storage Area Networks



# COMPOSABLE AND FC SWITCHED FABRIC INNOVATIONS

32 Gbps (Gen6) FC Interconnect Modules and adapters for HPE Synergy



HPE VC SE 32 Gb FC Module



Brocade 32 Gb FC SAN Switch



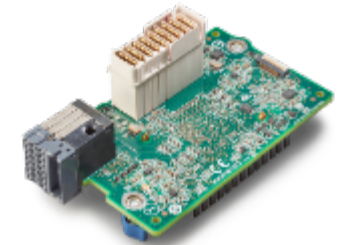
32 Gb HBA  
(Broadcom/Emulex)

Composable and time-tested Fibre Channel ICMs with Gen 6 (32 G) technology

plus

FC-NVMe over Fabric Gen 6 adapters

Fully compatible with HPE Gen 5 and Gen 4 FC SANs



32 Gb HBA  
(Cavium/QLogic)

# LIG FOR SYNERGY VIRTUAL CONNECT FIBRE CHANNEL MODULES

LIG for Synergy Virtual Fibre Channel modules defines:

- Enclosure count (always is 1, as FC modules do not support stacking like Ethernet modules)
- Interconnect bay set used (according to the best practices modules are placed in second fabric—interconnects 2 and 5)
- Redundancy
- Uplink set configuration for FC networks
- Uplinks on a single ICM may be added to an uplink set and trunked together at the SAN switch

### Create Logical Interconnect Group

General ▾ ?

#### General

Name

#### Logical Interconnect Group

Using the selectors below, describe the logical interconnect group to be created and then click "Select interconnects" to see the bay and interconnect choices.

Interconnect type


Enclosure count 1

Interconnect bay set

Redundancy

**Select interconnects**

---

 Changed: Interconnect typ...

# ADDING SAN MANAGERS

1. From the HPE OneView Main menu, select SAN Managers.
2. Click + Add SAN Manager.
3. Select the SAN manager type from the drop-down menu, and complete all of the required information.

**NOTE:** Brocade Network Advisor software is going EOL, which means no enhancements beyond BNA version 14.4.

**Add SAN Manager** ?

SAN manager type  
Brocade FOS Switch  
**Brocade Network Advisor**  
Cisco  
HPE

**General**

IP address or host name

Port

Use secure connection (HTTPS)

**Credentials**

User name

Password

Changed: SAN manager type to "Brocade Net..."

**Add** **Add +** **Cancel**

# DISCOVERING SAN FABRICS

**Discovered**—A SAN that is not associated with a network.

**Managed**—A SAN that is associated with one or more networks in HPE OneView.

Only managed SANs can be configured to be automatically zoned by HPE OneView.

OneView Search

SANs 6 All statuses All SAN Managers All states All labels

Name	SAN Manager	State
VSAN1	172.18.20.2	Discovered
VSAN1	172.18.20.1	Discovered
VSAN10	172.18.20.1	Managed
VSAN11	172.18.20.2	Managed
VSAN20	172.18.20.1	Managed
VSAN21	172.18.20.2	Managed

**VSAN1** General Actions

**General**

State	Discovered
Type	FC
Principal switch	26:02:4A:2B:21:E0:00:31
SAN manager	<a href="#">172.18.20.2</a>
Associated networks	none

**Zoning Policy**

Zoned	Yes
Automate zoning	Yes

# CHANGING SAN SETTINGS

Edit VSAN1 | General ▾ ?

### General

SAN Type  FC detected  
 FCoE

Primary SAN manager 172.18.20.1 x 🔍

### Auto Zoning Policy

Automate zoning Yes

Auto zoning enables OneView to automatically create SAN zones and aliases granting servers access to attached SAN volumes from the storage system serving the LUN. This auto zoning policy controls the structure of created zones and the naming of zones and aliases. Auto zoning does not disturb SAN zoning or aliases for systems managed outside of OneView.

Zone layout Single initiator / all targets ▾

Zone name format server profile - server profile connection

Update zone names as referenced resources are renamed

OK Cancel

After SAN is imported, it can be edited to configure:

- General settings like SAN type and primary SAN manager
- Zone structure policy
- Alias generation

# CREATING FIBRE CHANNEL NETWORKS

Network parameters:

- Fabric type
- Associated SAN
- Preferred and maximum bandwidths
- Login redistribution
- Link stability interval

## Create Network

Name

Type

Ethernet  Fibre Channel  FCoE

Fabric type

Fabric attach

Associated SAN

none

Preferred bandwidth

2,5

Gb/s

Maximum bandwidth

20

Gb/s

Login redistribution

Auto

Link stability interval

30

seconds

# CREATING FCOE NETWORKS

- Creating FCoE networks combines the Fibre Channel and Ethernet network creation processes.
- If SANs are discovered from SAN managers, the VLAN ID auto-populates when the Associated SAN is selected.

## Create Network

Name

Type

Ethernet  Fibre Channel  FCoE

Associated SAN

VLAN ID

Preferred bandwidth

 Gb/s

Maximum bandwidth

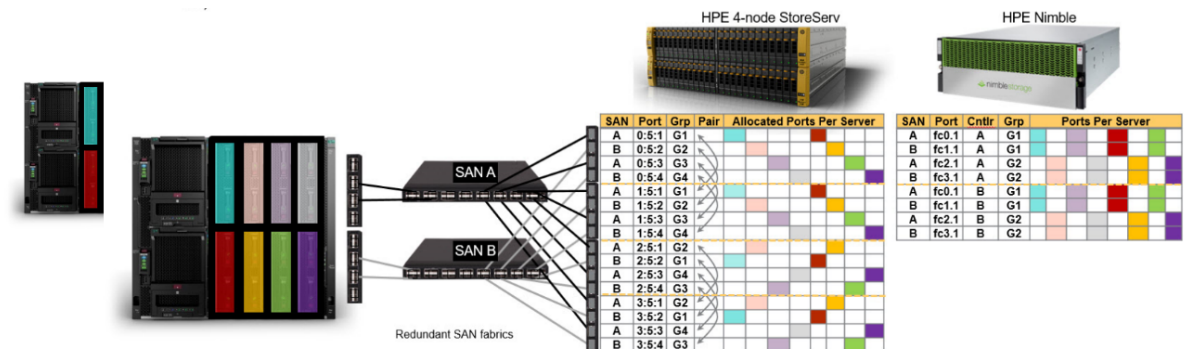
 Gb/s

# SAN STORAGE PATH LOAD BALANCING TO MULTI-NODE/COUPLLET

"I want to perform SAN volume attachment configuration path load balancing across 3PAR/Primera nodes for best practice fault tolerance of paths."

HPE OneView enhanced load balancing capabilities with HPE Primera storage systems:

- Follows best practice data path configuration will be auto configured when using 2-8 node storage systems.
- Profile volume attach paths will prefer boot targets on different storage system nodes when selecting boot targets for multiple paths to the boot volume
- Profile volume attach paths will spread boot & data path port group selection to maximize use of storage system fault domains (for > 2 node systems) Fibre Channel protocol only (no iSCSI support)
- Profiles with "FC load balanced" boot connections will enhance load balancing of primary/secondary assignment across network/sans to use a least configured network load balancing approach



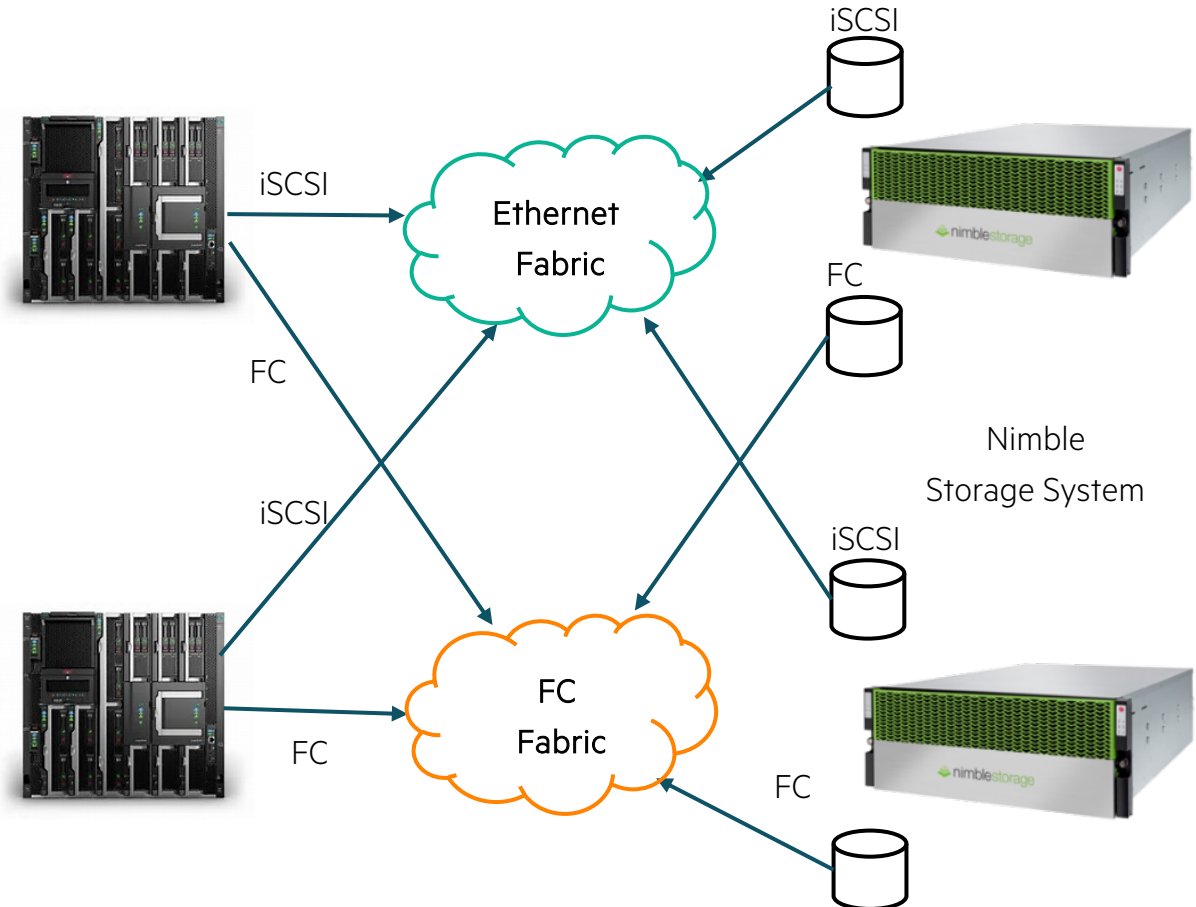


# ONEVIEW – NIMBLE 5.1 - MIXED PROTOCOL STORAGE

"I want to configure Nimble storage to support both FC and iSCSI protocols using the same storage system."

HPE OneView will now support Nimble 5.1 multi-protocol arrays with both FC and iSCSI ports on a single array:

- Customers can use the protocol that is best for the use case of the volume's usage
- OneView manages both iSCSI and FC ports.
  - iSCSI port is VLAN assignment for discovery IP's and subnets
- Requires Nimble OS version 5.1 and above
  - Can be configure to support both FC and iSCSI protocols from the same storage system (group of arrays).
  - Servers can be configured to access storage using both protocols at same time
  - Storage systems can be configured to serve storage using both protocols at the same time



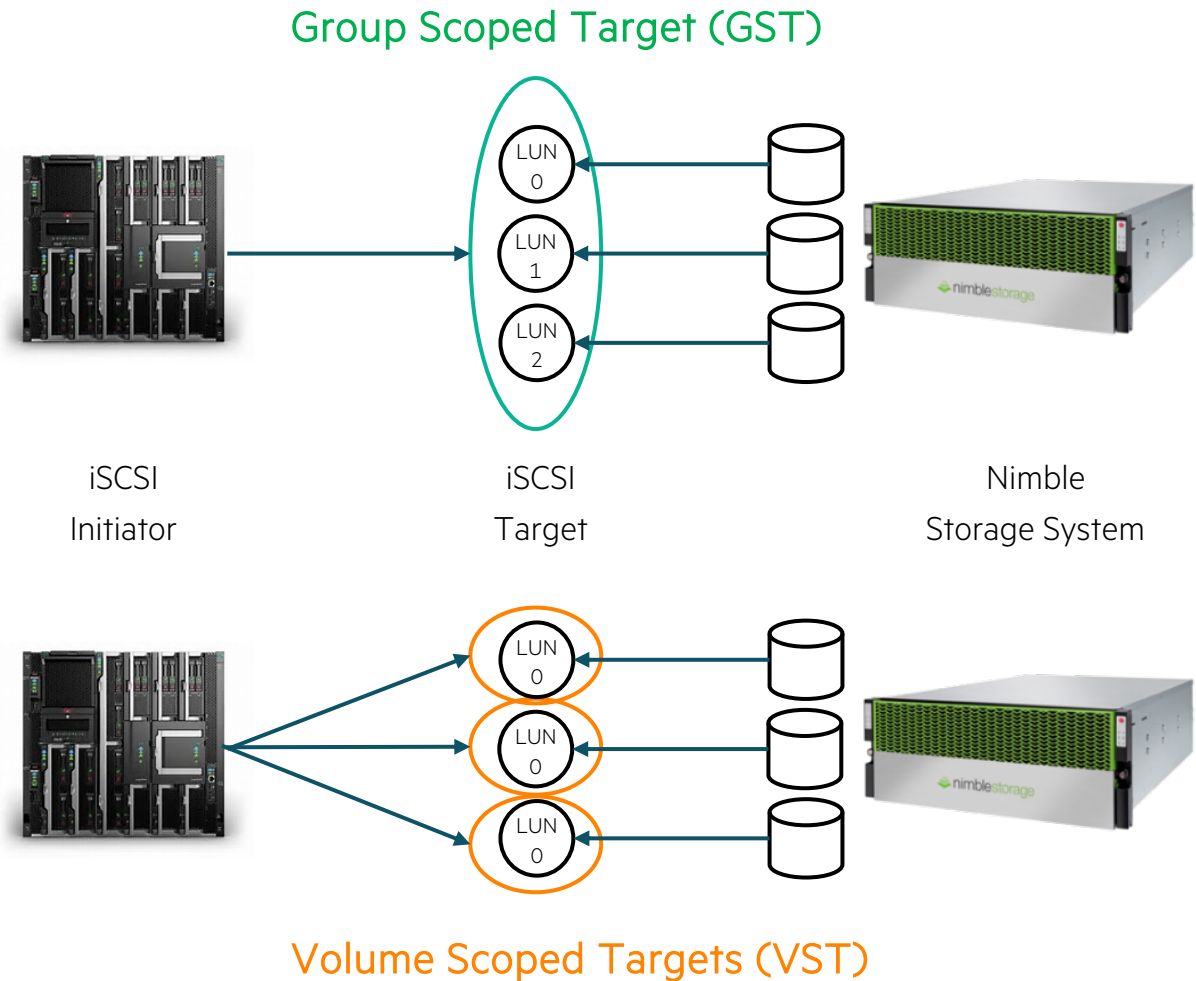
Mixed Protocol Storage Configuration

# NIMBLE 5.1 - ISCSI GROUP SCOPED TARGET SUPPORT

"I want to configure iSCSI storage for my VMware cluster."

HPE OneView will now configure HPE Nimble 5.1 supported **Group Scoped Targets** when configuring iSCSI storage volume attachments for servers:

- Reduces the number of network connections between server and storage
  - One connection per group vs. one connection per volume
- Reduces the amount of server (iSCSI initiator) configuration required
- Allows adding iSCSI storage without reconfiguring the server
- Preferred for VMware cluster iSCSI storage use
- Required by Nimble synchronous replication use
- Supported with Synergy, C7000, DL/Apollo servers



# MANAGING HPE SYNERGY STORAGE

---

External Storage Arrays

# ADDING MANAGED STORAGE SYSTEMS

Supported storage:

- 3PAR StoreServ
- StoreVirtual
- Nimble
- Primera

Add Storage System | Credentials ▾ ?

Storage system type   
IP address or host name

StoreServ  
StoreVirtual  
Nimble

**Credentials**

User name   
Password

**Connect**

**General**

To view storage system information, first connect to the storage system.

**Storage Pools**

To define storage pools, first connect to the storage system.

Changed: Storage system type to "StoreServ" **Add** **Add +** **Cancel**

# ADDING A STORAGE SYSTEM

3PAR Storage domain and storage pools

### Add Storage System

General ▾

---

#### General

Name ThreePAR7200-4751

Model HP\_3PAR 7200

Serial number TXQ1010307

Storage domain  × 🔍

---

#### Storage Pools

[Add storage pools](#)

---

#### Storage System Ports

Port	▲ Label	Protocol	Expected SAN/Network	Actual SAN	Port Group	Partner Port
0:1:1	<i>none</i>	FC	<input type="text" value="Auto"/> × 🔍	<i>unknown</i>	<input type="text" value="Auto"/> × 🔍	1:1:1
0:1:2	<i>none</i>	FC	<input type="text" value="Auto"/> × 🔍	<i>unknown</i>	<input type="text" value="Auto"/> × 🔍	1:1:2

Controller node ports

<controller>: <port-module>: <port>



# MANAGING STORAGE POOLS

- All storage pools from 3PAR (if applicable) are added with the storage system in a discovered state.
- Volume provisioning is possible only for managed pools.
- To manage a pool, edit the pool, and change it to managed.
- Data protection volume collections from Nimble arrays are detected and imported into HPE OneView as volume sets.

The screenshot shows the HPE OneView interface. At the top, there is a search bar and a navigation menu. The main content area displays a table of storage pools. The table has columns for Name, Storage System, and State. The 'Team\_1\_CPG' pool is highlighted in green. Below the table, there is an 'Edit Team\_1\_CPG' dialog box with a state selector set to 'Managed' and 'OK'/'Cancel' buttons.

Name	Storage System	State
FC_r6	h4157	Discovered
fs_cpg	h4157	Discovered
NL_r6	h4157	Discovered
Team_1_CPG	h4157	Discovered

State  Managed  Discovered

OK Cancel

# CONFIGURING SYSTEM PORTS ON 3PAR

HPE OneView provides an ability to:

- Define port groups as part of the storage system configuration.
- Manage an expected SAN/network.

Edit Storage System ThreePAR-1

### Storage System Ports

Port ▲	Label	Protocol	Expected SAN/Network	Actual SAN	Port Group	Partner Port
0:1:1	none	FC	Auto <input type="checkbox"/> <input type="checkbox"/>	unknown	Auto <input type="checkbox"/> <input type="checkbox"/>	1:1:1
0:1:2	none	FC	Auto <input type="checkbox"/> <input type="checkbox"/>	unknown	Auto <input type="checkbox"/> <input type="checkbox"/>	1:1:2
0:1:3	none	FC	Auto <input type="checkbox"/> <input type="checkbox"/>	unknown	Auto <input type="checkbox"/> <input type="checkbox"/>	1:1:3
0:1:4	none	FC	Auto <input type="checkbox"/> <input type="checkbox"/>	unknown	Auto <input type="checkbox"/> <input type="checkbox"/>	1:1:4
0:2:1	none	FC	Auto <input type="checkbox"/> <input type="checkbox"/>	unknown	Auto <input type="checkbox"/> <input type="checkbox"/>	1:2:1
0:2:2	none	FC	Auto <input type="checkbox"/> <input type="checkbox"/>	unknown	Auto <input type="checkbox"/> <input type="checkbox"/>	1:2:2
0:2:3	none	FC	Auto <input type="checkbox"/> <input type="checkbox"/>	unknown	Auto <input type="checkbox"/> <input type="checkbox"/>	1:2:3
0:2:4	none	FC	Auto <input type="checkbox"/> <input type="checkbox"/>	unknown	Auto <input type="checkbox"/> <input type="checkbox"/>	1:2:4
0:3:1	none	FC	Auto <input type="checkbox"/> <input type="checkbox"/>	unknown	Auto <input type="checkbox"/> <input type="checkbox"/>	1:3:1
0:3:2	none	FC	Auto <input type="checkbox"/> <input type="checkbox"/>	unknown	Auto <input type="checkbox"/> <input type="checkbox"/>	1:3:2
0:3:3	none	FC	Auto <input type="checkbox"/> <input type="checkbox"/>	unknown	Auto <input type="checkbox"/> <input type="checkbox"/>	1:3:3
0:3:4	none	FC	Auto <input type="checkbox"/> <input type="checkbox"/>	unknown	Auto <input type="checkbox"/> <input type="checkbox"/>	1:3:4

# MANAGING HPE SYNERGY STORAGE

---

Storage Volumes



# STORAGE VOLUME TEMPLATES

Storage administrators can create storage volume templates.

- The administrator can force users to create volumes using the available storage volume templates.
- 3PAR StoreServ pools support different volume properties than StoreVirtual or Nimble pools.

### Create Volume Template

General

#### General

Name: Team 1 Volume Template

Description:

Storage pool: Team\_1\_CPG

#### Volume Properties

Capacity: 40,00 GiB

Sharing:  Private  Shared

#### Advanced

Provisioning: Thin

Enable deduplication

Enable compression

Snapshot storage pool: Team\_1\_CPG

Locked: Capacity

[Create](#) [Create +](#) [Cancel](#)

# LOCKING VOLUME TEMPLATE PROPERTIES

### Volume Properties

Capacity  GiB

Sharing  Private  Shared

---

### Advanced

Provisioning  ▾

Data protection level  ▾

Permit Adaptive Optimization  ▾

Reset: Capacity

Locked properties are not editable on the volume

### Create Volume

General ▾

---

### General

Volume template  ×

Volume template description *not set*

Storage pool [Gary13 5VSA-MLPT-Pool](#)

Storage system [Gary13 5VSA-MLPT-Pool](#)

---

### Volume Properties

Capacity  GiB

Sharing  Private  Shared

---

### Advanced

Provisioning  ▾

Data protection level  ▾

Permit Adaptive Optimization  ▾

Changed: Volume template to "...

# VOLUME CONSISTENCY VALIDATION

✓ my-volume-template | Overview ▾ | ⌘ | Actions ▾

● Update template Completed Administrator 11/16/17 2:27:16 pm ▾

---


**General >**

Description	<i>not set</i>
Storage system	<a href="#">ThreePAR-1</a>
Storage pool	<a href="#">CPG-SSD</a>
Used by	<a href="#">1 volume (1 inconsistent)</a>

**Volume Properties >**

Capacity	🔒 1.00 GiB
Sharing	Private

**Volumes 1 >**



# GROWING VOLUME CAPACITY

- Edit volume capacity (cannot be decreased)
- Up to available pool capacity (fully provisioned)
- Up to 16 TB (thin provisioned)

The screenshot shows a dialog box titled "Edit Team\_1\_Volume\_2" with a "General" tab selected. The dialog is divided into three sections: "General", "Volume Properties", and "Advanced".

**General**

Name	Team_1_Volume_2
Description	
Volume template	None
Storage pool	Team 1 CPG
Storage system	h4157

**Volume Properties**

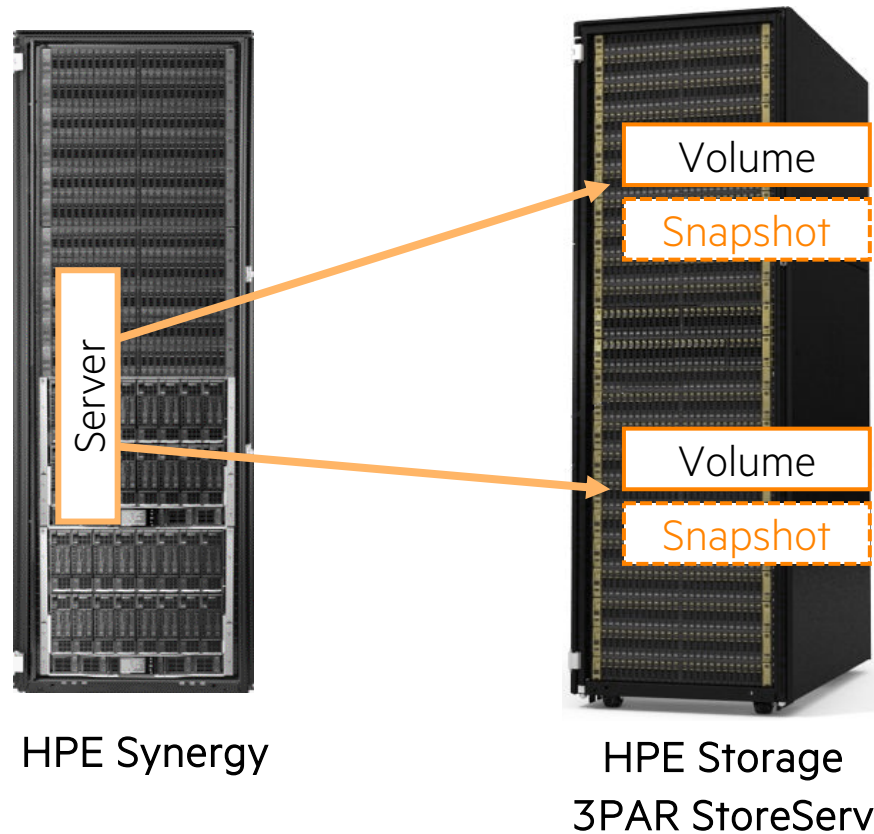
Capacity	41,00	GiB
Sharing	<input checked="" type="radio"/> Private	<input type="radio"/> Shared

**Advanced**

Changed: Capacity to "41.00"

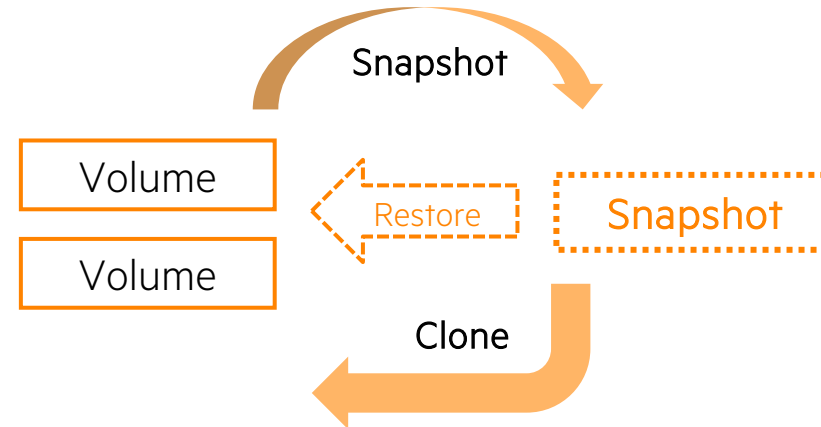
Buttons: OK, Cancel

# SAN VOLUME SNAPSHOTS / CLONES



## SAN volume snapshots and clones

- Server admin can create and use snapshots and clones of SAN volumes directly within HPE OneView
- Single snapshot/clone experience across storage arrays



**IMPORTANT:** HPE OneView makes the snapshot request (via the 3PAR REST API), which will fail if the storage system does not have a snapshot license.

# DELETING THE VOLUME ATTACHMENTS AND VOLUMES

- Deleting a volume options:
  - Only from the HPE OneView provisioning list
  - Removes a volume on the storage system
- If the volume is associated with a server profile, HPE OneView will not allow you to remove it.

The screenshot shows the HPE OneView interface. At the top, there is a search bar and navigation icons. Below that, a breadcrumb trail reads 'Volumes 2' with filters for 'All statuses', 'All labels', and 'All resources'. A table lists volumes, with 'Team\_1\_Volume\_2' selected. The details pane for this volume shows a 'General' tab with the following information:

State	Managed
Description	not set
Volume template	none
Storage system volume name	Team_1_Volume_2
Storage system	h4157
Storage pool	Team_1_CPG

An 'Actions' menu is open over the volume, listing 'Create', 'Edit', 'Refresh', 'Create snapshot', and 'Delete'.

Delete Team\_1\_Volume\_2



Deleting a volume from OneView and the storage system will result in loss of all data on the volume and any snapshots. Perform a backup of this volume before deleting it.

Deleting a volume from OneView only removes OneView's visibility to the volume and its snapshots, but preserves it on the storage system.

Delete volume from  OneView and the storage system  
 OneView only

Delete volume Team\_1\_Volume\_2?

Yes, delete

Cancel

# IMPORTING A STORAGE VOLUME

You can add an existing storage volume into HPE OneView.

- HPE OneView does not differentiate between volume created and volume added.

### Add Volume ?

This action adds an existing volume to OneView. Once added, this volume must not be managed by any other applications.

Storage system  ✕ 🔍

Storage system volume name

Description

Sharing  Private  Shared

🔔 Changed: Storage system vo... Add Add + Cancel

# MANAGING HPE SYNERGY COMPUTE

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Compute Hardware



# HPE SY 480/660 GEN 10 COMPUTE MODULES

## IT goals:

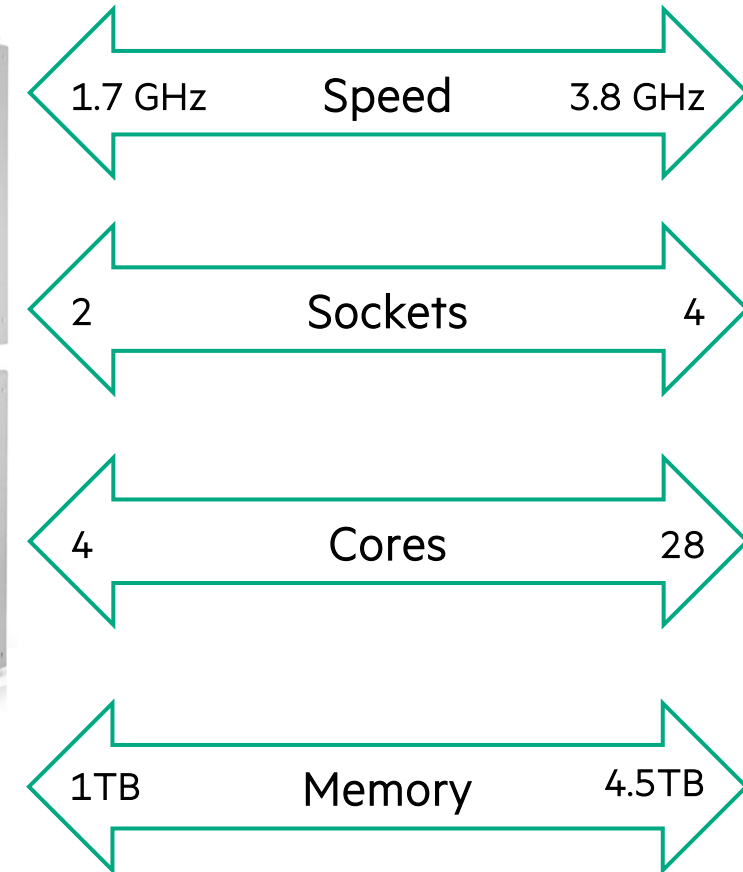
- Enterprise Standard Solution across workloads
- Flexible Resource Pool
- Consolidation of Workloads

## Everyday workload examples:

- General Enterprise Applications
- Business Management
- Data Management
- IT infrastructure

## Popular workload examples:

- Virtualization and VDI
- Software Defined Storage
- Data Management
- Data Analytics
- Collaboration
- ERP
- Private cloud
- Containers



Scale economically from 1 to 2 or 2 to 4 processors





Choose from the Intel® Xeon™ Scalable Family processors **up to 205W**  
(Generation 1 or 2 – **with GPU option support** in SY480 Gen10)

Run multiple tiers and multiple levels of availability in one infrastructure

Provision and re-provision rapidly and simply through Composability/OneView

# MORE CHOICE TO RUN WORKLOADS BETTER

Generalized Deployment Type -- VIRTUALIZATION: Virtual Machines support ANY workload

<p>HPE Synergy 480 Gen10</p> <p>Most economic general purpose compute platform</p> <p>Most processor choices, easy to buy and deploy for most workloads and deployment types</p> 	<p>HPE Synergy 660 Gen10</p> <p>General purpose scale-up with highest memory density</p> <p>General purpose computing with double the I/O and memory for larger scale applications</p> 	<p>HPE Synergy 620 Gen9</p> <p>Most optimized software licensing by core</p> <p>For best core to memory ratio, high performance, and the most 2S I/O for choice and availability</p> <p>2x memory &amp; IO vs SY480</p> 	<p>HPE Synergy 680 Gen9</p> <p>Mission Critical performance, memory and I/O density</p> <p>For the largest memory demands, high performance, with the most 4S I/O</p> <p>2x memory &amp; IO vs SY660</p> 
General Enterprise Applications*			
Engineering, VDI			
Object Storage			
Networking			
Content, App Dev			
Data Warehouse			
		Data Analytics	
	Business Management: ERP, CRM, HCM; Data Management		

\*General enterprise applications: VDI, email, collaboration, system management, web serving, engineering

# MANAGING HPE SYNERGY COMPUTE

---

OneView Server Configuration

# SERVER HARDWARE TYPE

- For any managed server, hardware type defines the physical configuration for server hardware and which settings are available to server profiles.
- A unique S.H.T will be created automatically for different architecture and mezzanine card configurations.
- The S.H.T will capture different parameters for different architectures; port information will be available only for HPE BladeSystem and Synergy.

The screenshot shows the OneView interface for managing server hardware. At the top, there is a search bar and a dropdown menu. Below this, the section is titled "Server Hardware Types" with a count of 9. A "Sort by" dropdown is set to "Name". Three hardware type cards are displayed:

- SY 480 Gen9 4**: Mezzanine 1, HPE Synergy 3530C 16Gb Fibre Channel Host Bus Adapter, Mezzanine 3, HPE Synergy 3820C 10/20Gb Converged Network Adapter.
- SY 480 Gen9 5**: Mezzanine 1, HPE Synergy 3830C 16G Fibre Channel Host Bus Adapter, Mezzanine 3, HPE Synergy 3820C 10/20Gb Converged Network Adapter.
- SY 480 Gen10 1** (highlighted): Mezzanine 1, HPE Smart Array P416ie-m SR Gen10 Controller, Mezzanine 2, HPE Synergy 3830C 16G Fibre Channel Host Bus Adapter, Mezzanine 3, HPE Synergy 3820C 10/20Gb Converged Network Adapter.

# MANAGING HPE SYNERGY COMPUTE

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Server Profile Templates

# SERVER PROFILES AND SERVER PROFILE TEMPLATES

---

Any single Synergy compute node must have a server profile defined:

- Individual profile can be created
- Server profile template can be used (to standardize provisioning and compliance check)

A server profile captures key aspects of a server configuration in one place, including:

- Unique IDs (WWNs, MACs, SN)
- Network and storage connectivity
- Firmware update selection and scheduling
- OS deployment settings
- BIOS and boot configuration settings
- Local storage and SAN storage (including D3940)
- iLO settings
- Advanced settings

# WHEN TO USE A SERVER PROFILE TEMPLATE

---

A server profile template allows you to do the following tasks:

- Update many server profiles with the same configuration.
- Easily generate new server profiles from one template.
- Control configuration changes for multiple servers at once. HPE OneView checks compliance in all the server profiles that are referenced to the template.
- Automatically resolve the compliance issues using the **Update from Template** action.

# SERVER PROFILE TEMPLATE PARTIAL COMPLIANCE TRACKING

- Customers can define minimum requirements or not to track.
- Three settings:
  - Minimum match
  - Exact match
  - Not checked
- Granular control of each profile section:
  - OS Deployment
  - Firmware
  - Connections
  - Local Storage
  - SAN Management
- Exceptions:
  - BIOS
  - Boot Mode
  - iLO
- It is also available with Logical Interconnect Group resources.

**Create Server Profile Template** Connections ?

### Connections

Manage connections

Consistency checking: Minimum match

ID	Name	Type	Port	Boot		
1	Minimum match	Not checked	Auto	Not bootable		
Type: ...net MAC address: Auto Requested bandwidth: 2.5 Gb/s						
2	VLAN 1-B	VLAN1	Auto	Not bootable		
Type: Ethernet MAC address: Auto Requested bandwidth: 2.5 Gb/s						

[Add connection](#)

### Local Storage

Consistency checking: Minimum match

Integrated storage controller:   
*Managed manually*

### SAN Storage

Add Connection: VLAN 1-B

[Create](#) [Create +](#) [Cancel](#)



# SIMPLIFY MANAGEMENT OF SERVER PROFILE UPDATES

Apply staged updates when server hardware is powered off.

OneView expands update management to powered on servers:

- OneView displays server profile changes.
- User requests staged update.
- The server profile is automatically updated from the template when the server is next powered off.

Best practices for server profile updates:

- Update the server profile template.
- Identify noncompliant server profiles.
- Complete the update from the template.

**Update From Template** Sample Server Profile ?

▼ 4 automatic updates

- Change firmware baseline to [Convenience download 2018 09 27, 2018.09.0](#).
- Create a connection to network [VLAN 103](#) with id 11 on port Mezzanine (Mezz) 3:1-d.
- Create a connection to network [VLAN 103](#) with id 12 on port Mezzanine (Mezz) 3:2-d.
- Change network of connection 4 on port Mezzanine (Mezz) 3:2-c to [VLAN 102](#).

**Server hardware must be powered off to perform this update.**

Stage automatic updates from template to occur when [Synergy4, bay 3](#) is powered off via OneView.

OK Close

# SERVER PROFILE ENHANCEMENT

Change server hardware type & enclosure group

## Detailed profile changes when performing a server profile move

- Server profiles can be assigned to a server with a different server hardware type or in a different enclosure group
- Some server profile settings may need to be adjusted when the profile is moved
- Enhanced assignment lists every setting that will be adjusted.
- No server profile changes are committed until the edit session ends.

### Change Server Hardware Type and Enclosure Group ?

If the server hardware type or enclosure group are changed, capabilities available to the server profile may change. In some cases, the change could result in data loss.  
Any edits made to this server profile before changing server hardware type or enclosure group will be discarded and will have to be specified again.  
To preview the specific effects before applying them to the server profile editor, click the preview button.

Server hardware type:  ✕ 🔍

Enclosure group:  ✕ 🔍

**Preview** Preview the effect of the specified change.

Review the following changes (make a copy for later reference). If these are acceptable, click OK to proceed.

- Changing BIOS settings to unmanaged.
- Changing server hardware to unassigned.

**Copy to clipboard**

**OK** **Cancel**

# GENERAL AND SERVER PROFILE

## General

- Provide the server profile name.
- Enter an optional description.

## Server Profile

- Enter the optional server profile description.
- Select **Server Hardware Type**.
- Select **Enclosure Group**.
- Select the Affinity:
  - Device bay
  - Device bay + server hardware

**Create Server Profile Template** | General ▾

---

### General

---

Name	<input type="text" value="DB_Profile_Template"/>
Description	<input type="text" value="Template for SQL Database Cluster Node"/>

---

### Server Profile

Server profile description	<input type="text"/>
Server hardware type	<input type="text" value="SY 480 Gen10 1"/> <span>✕ 🔍</span>
Enclosure group	<input type="text" value="EG"/> <span>✕ 🔍</span>
Affinity	<input type="text" value="Device bay"/> ▾

# FIRMWARE

## Firmware

- Select the SPP from the repository to be used as a firmware baseline.
- Force the installation options:
  - Unchecked, only updates will be installed.
  - Checked, downgrades and rewrites will be allowed.
- Select the installation method.
- Select the activation method (reboot time).

## Firmware

Firmware baseline	<input type="text" value="HPE Synergy Custom SPP 2018 09 2018 09 19 version 2018.09.19.00"/>
	<input type="checkbox"/> Force installation
Consistency checking	<input type="text" value="Exact match"/>
Installation Method	<input checked="" type="radio"/> Firmware and OS Drivers using Smart Update Tools <input type="radio"/> Firmware only using Smart Update Tools <input type="radio"/> Firmware only
Activate firmware	<input checked="" type="radio"/> Immediately <input type="radio"/> At a scheduled date and time <input type="radio"/> Not scheduled

# CONNECTIONS

## Connections



- Selecting the checkbox next to Manage connection option, enables connection definition (Ethernet, FC, FCoE).
- If an Image Streamer is used, the first connections from NIC are used to provide connectivity to the boot volumes.

### Connections

Manage connections

Consistency checking

Minimum match ▾

ID	Name	Network	Port	Boot	
1	Deployment Network A	<u>Deployment</u> VLAN5	Mezzanine 3:1-a	iSCSI primary	
	Type	Ethernet			
	MAC address	Auto			
	Requested bandwidth	2.5 Gb/s			
	Link aggregation group	None			
	Initiator name	<i>pending assignment</i>			
	Initiator IP address	<i>pending assignment</i>			
	Target name	<i>pending assignment</i>			
	Target LUN	<i>pending assignment</i>			
	Target IP address	<i>pending assignment</i>			
2	Deployment Network B	<u>Deployment</u> VLAN5	Mezzanine 3:2-a	iSCSI secondary	
	Type	Ethernet			
	MAC address	Auto			
	Requested bandwidth	2.5 Gb/s			
	Link aggregation group	None			
	Initiator name	<i>pending assignment</i>			
	Initiator IP address	<i>pending assignment</i>			
	Target name	<i>pending assignment</i>			
	Target LUN	<i>pending assignment</i>			
	Target IP address	<i>pending assignment</i>			


# LOCAL STORAGE

## Local storage parameters


- Select the consistency check level.
- Select the controller to configure.
  - Integrated controller
  - SAS controller (D3940 connectivity)

### Local Storage

Consistency checking Minimum match ▾

Integrated storage controller 

*Managed manually*

SAS Mezz 1 storage controller 

*Managed by OneView*

Write cache Managed manually

Predictive spare activation Managed manually

Name	Type	RAID Level	Number of Drives	Size GB	Drive Technology	Boot	Erase on Delete	Permanent	Accelerator
Data Drive	External logical drive	RAID 10 ADM	6	1662	SAS SSD	<input type="checkbox"/>	No	Yes	Managed manually

# CONFIGURING AN INTEGRATED STORAGE CONTROLLER

## Integrated storage controller

- Select the re-initialization mode.
- Configure the write cache settings.
- Configure the logical drive.

### Edit Integrated Storage Controller

- Manage integrated storage controller
- Re-initialize controller on next profile application

Controller will be initialized the next time the server profile is applied to server hardware.

Any existing data on this controller will be lost. To preserve the data or import existing logical drives, de-select this option.

Write cache Managed manually ▾

*No logical drives*

[Add logical drive](#)

# ADDING A LOGICAL DRIVE

## Adding a logical drive for an integrated controller

- Enter the logical drive name.
- Select the RAID level.
- Select the number of the drives and drive technology.
- Enable/disable the boot from the drive.
- Configure the acceleration.

### Add Logical Drive

Creating a logical drive uses the physical server drives. To preserve any data, back up the server drives before creating a logical drive.

Name	<input type="text" value="Boot Drive"/>
RAID level	<input type="text" value="RAID 1"/>
Number of physical drives	2
Drive technology	<input type="text" value="SAS HDD"/>
	<input checked="" type="checkbox"/> Boot
Accelerator	<input type="text" value="Managed manually"/>



# CONFIGURING A MEZZANINE SAS CONTROLLER

## Mezzanine SAS controller

- Select the re-initialization mode.
- Configure the write cache settings.
- Configure the logical drive / logical JBOD.

### Edit SAS Mezz 1 Storage Controller ?

- Manage Mezz 1 storage controller
- Re-initialize controller on next profile application

Controller will be initialized the next time the server profile is applied to server hardware.

Any existing data on this controller will be lost. To preserve the data, de-select this option.

Write cache Managed manually ▼

*no storage is configured*

Add logical JBOD

Add logical drive

# SAN STORAGE

## SAN storage

- Select the consistency check level.
- Select the host OS type—it must match the OS that will be installed on the server.
- Click **Add volume**:
  - Existing one
  - Create a new volume on demand

### SAN Storage

Manage SAN Storage

Consistency checking

Minimum match ▾

Host OS type

Windows 2012 / WS2012 R2 ▾

Volume Attachments

**Add volume**

# ADDING SAN VOLUME

## Adding SAN volume

- Select the existing volume from the list. If SAN manager is present and configured, zoning will be configured automatically.
- Adding the new volume on demand manually:
  - Using volume template
  - By providing all parameters manually
  - Permanent option

### Add Volume

#### General

Type

Attach Volume

Existing volume

New volume

Search

Filter volumes by defined connections

# BOOT SETTINGS

## Boot settings

- Select the consistency check level.
- Select the boot mode (UEFI, UEFI optimized, Legacy Boot).
- Enable or disable the secure boot.
- Select the PXE boot policy (Auto, IPv4, IPv6).

## Boot order

- Select the consistency check level.
- Select the primary boot device (Hard disk, PXE, SD card).

### Boot Settings

Manage boot mode

Consistency checking

Exact match ▾

Boot mode

UEFI optimized ▾

Secure boot

Managed manually ▾

PXE boot policy

Auto ▾

Manage boot order

Consistency checking

Exact match ▾

Primary boot device

Hard disk ▾

# BIOS SETTINGS

## BIOS settings

- Select the consistency check level.
- Select the **Edit BIOS settings** to define the default server configuration.

### BIOS Settings

Manage BIOS

Consistency  
checking

Exact match ▾

Using default values

[Edit BIOS settings](#)

## Edit BIOS Settings

### Other

Workload Profile

Default - General Power Efficient Compute ▾

### Boot Time Optimizations

Extended Memory Test

Default - Disabled ▾

Memory Fast Training

Default - Enabled ▾

UEFI POST Discovery  
Mode

Default - Auto ▾

Memory Clear on Warm  
Reset

Default - Disabled ▾

# ILO SETTINGS

## iLO settings

- Select the consistency check level.
- Select **Edit iLO settings**, then select:
  - Manage administrator account
  - Manage local accounts
  - Manage directory configuration
  - Manage directory groups

**iLO Settings**

Manage iLO

Consistency checking

No settings managed

**Edit iLO settings**

## Edit iLO Settings

Manage administrator account

Manage local accounts

Manage directory configuration

Manage directory groups

# ADVANCED SETTINGS

## Advanced settings

Configure settings for:

- iSCSI initiator name
- MAC addresses
- WWN addresses
- Serial number and UUID

## Advanced

iSCSI initiator name  Virtual  User-specified

MAC addresses  Virtual  Physical

WWN addresses  Virtual  Physical

Serial number/UUID  Virtual  Physical

# ADDRESSES AND IDENTIFIERS

HPE OneView manages pools of the virtual IDs:

- WWNs pools
- MACs pools
- Serial numbers pools
- IP pools

MAC Addresses							
Type	▲	Enabled	Start	End	Count	Allocated	Remaining
Generated		enabled	26:3B:81:70:00:00	26:3B:81:7F:FF:FF	1048576	14	1048562
Total					1048576	14	1048562
World Wide Names							
Type	▲	Enabled	Start	End	Count	Allocated	Remaining
Generated		enabled	10:00:4E:1C:7D:70:00:00	10:00:4E:1C:7D:7F:FF:FF	1048576	12	1048564
Total					1048576	12	1048564
Serial Numbers							
Type	▲	Enabled	Start	End	Count	Allocated	Remaining
Generated		enabled	VCGJB1X000	VCGJB1XZZZ	46656	3	46653
Total					46656	3	46653

By default, one virtual ID pool each of contiguous MAC addresses, WWNs, and serial numbers are created automatically when you initialize the appliance.



# MANAGING HPE SYNERGY COMPUTE

---

Server Profiles

# CREATING A SERVER PROFILE FROM A TEMPLATE

## Creating a server profile from a template

- From the Action menu, select **Create server profile**.
- The profile can be assigned only to the server which is powered off.

The screenshot shows the OneView interface for managing server profile templates. The top navigation bar includes the OneView logo, a search bar, and utility icons. The main content area is titled 'Server Profile Templates' and shows a list of templates. The 'DB\_Profile\_Template' is selected, and its details are displayed on the right. The 'Actions' menu is open, showing options: Create, Edit, Copy, Create server profile (highlighted), and Delete.

Name
DB_Profile_Template

**DB\_Profile\_Template** | Overview

- Create Completed 26s Administrator 2/2/2016

**General >**

Description	not set
Server profile description	not set
Server hardware type	<a href="#">SY 480 Gen10.1</a>

# MODIFYING A SERVER PROFILE TEMPLATE

## Modifying server profile template

- To edit the server profile template, select **Edit** from the Actions menu.
- If changes are applied to the server profile template, all profiles created from this template will become inconsistent.

The screenshot displays the OneView interface for managing server profile templates. At the top, the OneView logo and search bar are visible. Below the navigation bar, the 'Server Profile Templates' section is active, showing a list of templates. The 'DB\_Profile\_Template' is selected, and its details are shown in the main area. The 'Actions' menu is open, highlighting the 'Edit' option.

**OneView** Search

Server Profile Templates 1 All statuses All labels All resources 1 match out of 1

+ Create server profile template

Name
DB_Profile_Template

**DB\_Profile\_Template** Overview

**General**

Description	not set
Server profile description	not set
Server hardware type	<a href="#">SY 480 Gen10 1</a>
Enclosure group	<a href="#">EG</a>
Affinity	Device bay

Actions

- Create
- Edit**
- Copy
- Create server profile
- Delete

# FIXING PROFILE INCONSISTENCIES

## Fixing profile inconsistencies

- If the server profile is inconsistent, it can be updated to match the template by selecting **Update from template** from the Actions menu.
- Before updating the server profile, review the update impact.
- Multiple profiles can be updated simultaneously.

The screenshot shows the OneView interface for a server profile named 'Bay 11 Profile'. The profile is marked as inconsistent with a yellow warning icon and a message: 'The server profile is inconsistent w...'. An 'Actions' menu is open, showing options like 'Create', 'Edit', 'Copy', 'Create template from profile', 'Refresh', 'Reapply', 'Update from template' (highlighted), 'Launch console', 'Power on', and 'Delete'. Below the menu, the 'General' tab is selected, displaying the following details:

General >	
Description	not set
Server profile template	DB_Profile_Template Inc...
Server hardware	0000A66101_bay.11
Server hardware type	SY 480 Gen10.1
Enclosure group	EG
Affinity	Device bay
Server power	Off

The dialog box is titled 'Update Fro... Bay 11 Profile' and shows a dropdown for '1 automatic update'. The update details are:

Delete the connection 2 on port Mezzanine (Mezz) 3:2-a.

**Update server profile from template?**

At the bottom, there are two buttons: 'Yes, update' and 'Cancel'.

# DELETING A SERVER PROFILE

## Deleting a server profile

- You can delete a server profile that you no longer need while associated with a powered-on server hardware.
- Logical JBODs and logical drives on mezzanine controllers are deleted when the profile is deleted, and their data will not be recoverable.
- Deleting a server profile that defines non-permanent volumes will result in those volumes being deleted from the storage system.

The screenshot shows the OneView interface for deleting a server profile. At the top, the OneView logo and search bar are visible. Below the navigation bar, the 'Server Profiles' section is active, showing a list with 'Bay 11 Profile' selected. The 'Actions' menu is open, with 'Delete' highlighted. Below this, a confirmation dialog titled 'Delete Bay 11 Profile' is displayed. A yellow warning box states: 'Deleting a server profile removes network connections, but does not restore all server settings to the factory defaults.' There is a checkbox for 'Force delete server profile' which is currently unchecked. The dialog asks 'Delete server profile Bay 11 Profile?' and has two buttons: 'Yes, delete' and 'Cancel'.

General >	
Description	not set
Server profile template	<a href="#">DB_Profile_Template</a>
Server hardware	<a href="#">0000A66101_bay_11</a>
Server hardware type	<a href="#">SY 480 Gen10.1</a>
Enclosure group	<a href="#">EG</a>
Affinity	Device bay
Server power	Off
Serial number (v)	VCGCF7D000
UUID (v)	4ab2ddc8-6f7e-4adf-8bc4-45822eb0a3e0

# MANAGING HPE SYNERGY COMPUTE

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Firmware Management

# FIRMWARE REPOSITORY

Two types of the repositories for firmware bundles are available:

- Internal
- External

The screenshot displays the OneView interface for managing a Firmware Repository. The top navigation bar includes the OneView logo, a search bar, and icons for search, list, notifications, user profile, and help. The main content area is divided into two panels. The left panel, titled '< Settings Repository 1', features a green '+ Add Repository' button and a table with the following data:

Name	Space Available
Internal	95.55 GB

The right panel, titled 'Internal', shows the 'General' settings for the selected repository. It includes a 'Size' of 100.00 GB and 'Available' space of 95.55 GB. Under the 'Firmware bundles' section, a table lists the bundle name: HPE Synergy Custom SPP 201903 2019 06 12. An 'Actions' dropdown menu is visible in the top right corner of the right panel.

# FIRMWARE COMPLIANCE DASHBOARD

The screenshot displays the 'Firmware Bundles' section with a table of bundles. The 'Service Pack for ProLiant, 2019.03.0' bundle is selected, showing its details and a bar graph. The bar graph indicates that 33 hardware units have available firmware updates, with a 'Recommended' category highlighted in orange. An arrow points from the text 'Hot links to detailed View' to the bar graph.

Name	Version	Size	Type
Service Pack for ProLiant	2019.03.0	5.66 GB	SPP
SPP2016110.2 018_1015.30.js	unknown version	6.16 GB	SPP

**General >**

Version: 2019.03.0  
Size: 5.66 GB  
Type: SPP  
Description: The Service Pack for ProLiant (SPP) is a comprehensive systems software and firmware update solution, which is delivered as a single ISO image. This solution uses Smart Update Manager (SUM) as the deployment tool and is tested on all HPE ProLiant Gen9 and Gen10 servers as defined in the Service Pack for ProLiant Server Support Guide found at [www.hpe.com/servers/spp/documentation](http://www.hpe.com/servers/spp/documentation).  
Used by: none  
Locations: [View](#)

**Hardware with available firmware updates 33 >**

33 Recommended

Hot links to detailed View

*"I need a way to determine which servers or other managed hardware are out compliance with my baseline . . ."*

## The Compliance Dashboard

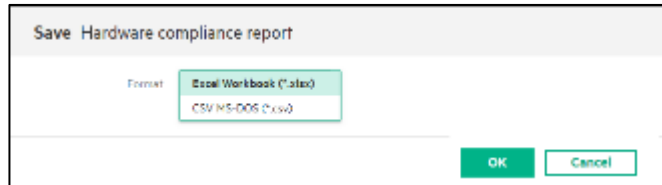
- Simplifies management of FW compliance for 100's of servers
- Compares firmware compliance to any selected SPP within the OneView SPP library
- Groups by the severity of update (Critical, Recommended, Optional)
- Firmware baselines (SPP) have a new section that shows the FW compliance of all managed hardware
- Available for both Synergy and OneView virtual appliance ecosystems
  - Initial release for Gen10 servers
  - Future extension to Gen8/9

The bar graph summary is available in:

- OneView dashboard (all SPPs)
- Each individual SPP

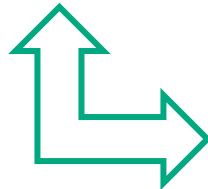


# FIRMWARE COMPLIANCE DASHBOARD



Spreadsheet Export

*“I need to share a report to the teams looking at compliance. And they don’t use OneView . . .”*



Hardware	Model	Hardware category	Logical resource name	Firmware bundle	Component	Update category	Installed version
MXQ824072B, bay 1	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,2BB1,	Service Pack for ProLiant 2019.03.0	System ROM	RECOMMENDED	i42 v1.50 (12/13/2018)
MXQ824072B, bay 1	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,2BB1,	Service Pack for ProLiant 2019.03.0	Drive	RECOMMENDED	HPD3
MXQ824072B, bay 1	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,2BB1,	Service Pack for ProLiant 2019.03.0	HPE Smart Array E208i-c SR Gen10	RECOMMENDED	1.65
MXQ824072B, bay 1	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,2BB1,	Service Pack for ProLiant 2019.03.0	Server Platform Services (SPS) Firmware	OPTIONAL	4.0.12.224
MXQ824072B, bay 1	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,2BB1,	Service Pack for ProLiant 2019.03.0	Innovation Engine (IE) Firmware	OPTIONAL	0.1.5.2
MXQ824072B, bay 1	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,2BB1,	Service Pack for ProLiant 2019.03.0	iLO 5	RECOMMENDED	1.30 May 31 2018
MXQ824072B, bay 1	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,2BB1,	Service Pack for ProLiant 2019.03.0	Synergy 3830C 16G FC HBA	RECOMMENDED	06.01.59
MXQ824072B, bay 2	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,SP2BB2,	Service Pack for ProLiant 2019.03.0	Drive	RECOMMENDED	HPD3
MXQ824072B, bay 2	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,SP2BB2,	Service Pack for ProLiant 2019.03.0	Synergy 3830C 16G FC HBA	RECOMMENDED	06.01.59
MXQ824072B, bay 2	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,SP2BB2,	Service Pack for ProLiant 2019.03.0	HPE Smart Array E208i-c SR Gen10	RECOMMENDED	1.65
MXQ824072B, bay 2	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,SP2BB2,	Service Pack for ProLiant 2019.03.0	iLO 5	RECOMMENDED	1.30 May 31 2018
MXQ824072B, bay 2	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,SP2BB2,	Service Pack for ProLiant 2019.03.0	System ROM	RECOMMENDED	i42 v1.50 (12/13/2018)
MXQ824072B, bay 2	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,SP2BB2,	Service Pack for ProLiant 2019.03.0	Innovation Engine (IE) Firmware	OPTIONAL	0.1.5.2
MXQ824072B, bay 2	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,SP2BB2,	Service Pack for ProLiant 2019.03.0	Server Platform Services (SPS) Firmware	OPTIONAL	4.0.12.224
MXQ824072B, bay 3	Synergy 480 Gen10	server-hardware	SP2BB3,LogicalEnclosureSEART,	Service Pack for ProLiant 2019.03.0	System ROM	RECOMMENDED	i42 v1.50 (12/13/2018)
MXQ824072B, bay 3	Synergy 480 Gen10	server-hardware	SP2BB3,LogicalEnclosureSEART,	Service Pack for ProLiant 2019.03.0	Synergy 3830C 16G FC HBA	RECOMMENDED	06.01.59
MXQ824072B, bay 3	Synergy 480 Gen10	server-hardware	SP2BB3,LogicalEnclosureSEART,	Service Pack for ProLiant 2019.03.0	Innovation Engine (IE) Firmware	OPTIONAL	0.2.0.5
MXQ824072B, bay 3	Synergy 480 Gen10	server-hardware	SP2BB3,LogicalEnclosureSEART,	Service Pack for ProLiant 2019.03.0	iLO 5	RECOMMENDED	1.22 Mar 06 2018
MXQ824072B, bay 3	Synergy 480 Gen10	server-hardware	SP2BB3,LogicalEnclosureSEART,	Service Pack for ProLiant 2019.03.0	HPE Smart Array E208i-c SR Gen10	RECOMMENDED	1.65
MXQ824072B, bay 3	Synergy 480 Gen10	server-hardware	SP2BB3,LogicalEnclosureSEART,	Service Pack for ProLiant 2019.03.0	Server Platform Services (SPS) Firmware	OPTIONAL	4.1.2.224
MXQ824072B, bay 4	Synergy 480 Gen10	server-hardware	SP2BB4,LogicalEnclosureSEART,	Service Pack for ProLiant 2019.03.0	HPE Smart Array E208i-c SR Gen10	RECOMMENDED	1.65
MXQ824072B, bay 4	Synergy 480 Gen10	server-hardware	SP2BB4,LogicalEnclosureSEART,	Service Pack for ProLiant 2019.03.0	Synergy 3830C 16G FC HBA	RECOMMENDED	06.01.59
MXQ824072B, bay 4	Synergy 480 Gen10	server-hardware	SP2BB4,LogicalEnclosureSEART,	Service Pack for ProLiant 2019.03.0	System ROM	RECOMMENDED	i42 v1.50 (12/13/2018)
MXQ824072B, bay 4	Synergy 480 Gen10	server-hardware	SP2BB4,LogicalEnclosureSEART,	Service Pack for ProLiant 2019.03.0	Server Platform Services (SPS) Firmware	OPTIONAL	4.0.12.224
MXQ824072B, bay 4	Synergy 480 Gen10	server-hardware	SP2BB4,LogicalEnclosureSEART,	Service Pack for ProLiant 2019.03.0	iLO 5	RECOMMENDED	1.22 Mar 06 2018
MXQ824072B, bay 4	Synergy 480 Gen10	server-hardware	SP2BB4,LogicalEnclosureSEART,	Service Pack for ProLiant 2019.03.0	Innovation Engine (IE) Firmware	OPTIONAL	0.1.5.2
MXQ824072B, bay 4	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,2BB5,	Service Pack for ProLiant 2019.03.0	Synergy 3830C 16G FC HBA	RECOMMENDED	06.01.59
MXQ824072B, bay 5	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,2BB5,	Service Pack for ProLiant 2019.03.0	iLO 5	RECOMMENDED	1.22 Mar 06 2018
MXQ824072B, bay 5	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,2BB5,	Service Pack for ProLiant 2019.03.0	Innovation Engine (IE) Firmware	OPTIONAL	0.2.0.5
MXQ824072B, bay 5	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,2BB5,	Service Pack for ProLiant 2019.03.0	System ROM	RECOMMENDED	i42 v1.50 (12/13/2018)
MXQ824072B, bay 5	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,2BB5,	Service Pack for ProLiant 2019.03.0	HPE Smart Array E208i-c SR Gen10	RECOMMENDED	1.65
MXQ824072B, bay 5	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,2BB5,	Service Pack for ProLiant 2019.03.0	Server Platform Services (SPS) Firmware	OPTIONAL	4.1.2.224
MXQ824072B, bay 6	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,2BB6,	Service Pack for ProLiant 2019.03.0	Synergy 3830C 16G FC HBA	RECOMMENDED	06.01.59
MXQ824072B, bay 6	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,2BB6,	Service Pack for ProLiant 2019.03.0	Drive	RECOMMENDED	HPD3
MXQ824072B, bay 6	Synergy 480 Gen10	server-hardware	LogicalEnclosureSEART,2BB6,	Service Pack for ProLiant 2019.03.0	Server Platform Services (SPS) Firmware	OPTIONAL	4.1.2.224

# ONEVIEW 5.0 – NEW FIRMWARE CHANGES

"I'd really like a way to determine the progress of firmware operations; current status and remaining to go . . .

## Applies to Gen9/10

- Accessed from the OneView Activity page
- The profile task shows fine grained information regarding the staging and installation of each individual component.
- Shows the current and total number of components being staged and installed.
- For Gen9 servers, starts with SPP 2019.03.0 and later
- Available for all managed server models (BLs, Rack mounts, Synergy etc.)
- Any component failures are listed in the task progress

The screenshot shows the OneView Activity page. The main activity is 'Apply profile : p2', which is completed. The task details include the following steps and progress:

Name	Progress	Start Time	End Time	Status	Duration
Apply profile : p2	Completed	5/9/19 12:12:20	Completed	Completed	20m47s

The task details include the following steps and progress:

- Refresh firmware inventory.
- Power on server.
- Power off server.
- Write the selected firmware baseline settings on the iLO (force install).
- Stage firmware.
- Stage component 1/5 - ilo5\_140.bin
- Stage component 2/5 - PICGen10\_1.0.4s.hex
- Stage component 3/5 - A41\_1.40\_01\_25\_2019.signed.flash
- Stage component 4/5 - cp036111.exe
- Stage component 5/5 - cp037175.exe
- Stage firmware complete.
- Install firmware.
- Install component 1/5 - ilo5\_140.bin
- Install component 2/5 - PICGen10\_1.0.4s.hex
- Install component 3/5 - A41\_1.40\_01\_25\_2019.signed.flash
- Install component 4/5 - cp036111.exe
- Install component 5/5 - cp037175.exe
- Reboot the server for activating the installed firmware. This may take a while, the server will power off automatically after the reboot.

# ONEVIEW 5.0 – CANCEL FIRMWARE UPDATE TASK

Easing out of a user mistake or failed update

*I need to cancel a firmware task to stop a firmware operation ...*

- Accessed from the OneView Activity page
- A server profile update now provides a “Cancel task” link for the server task.
- Previously this required an OV restart in order to terminate the profile task.
- It is recommended to be used only in exceptional cases. For example, a case where a component installation is stuck.

The screenshot shows the OneView interface with a modal dialog for cancelling a task. The modal title is "Cancel Task Apply profile : SP\_ENC3\_BAY10". It contains a list of task steps and a "Cancel task" button. A warning message states: "Cancel Task Apply profile : SP\_ENC3\_BAY10 is intended for tasks that are known to be stuck, hung, unresponsive and/or taking a significant amount of time. Some tasks can take significant time. Do not cancel a task simply because it is taking a long time. Only cancel a task when confident that it is not making progress. Cancelling a task will terminate all subtasks. Cancelled tasks/subtasks will terminate with error(s) and may require manual cleanup steps that may be required due to cancellation. Cancelling a task may require a significant amount of time for restarting the appliance. If a task does not cancel cleanly, or if you experience an error, it may be necessary to restart the appliance." Below the warning is a checkbox "I have read and understood all of the implications." and a "Continue with the action?" prompt with "Yes, perform action" and "Close" buttons. A separate window shows the task details for "Apply profile : SP\_ENC3\_BAY10" with a "Cancel task" button highlighted by a red starburst. Below this, a log entry shows the task cancellation: "Task cancellation requested by the user. Install component 4/8 - cp035774.exe Install component 5/8 - cp037175.exe Install component 6/8 - cp038733.exe Install component 7/8 - cp038835.zip Firmware update failed. Failed to apply firmware settings on MXQ65202L4\_bay\_10". An "Issue" section states: "Firmware update on the server has been canceled based on a user request." and a "Resolution" section states: "The firmware update may have been incomplete. Retry the firmware update by reapplying the server profile to complete the firmware installation."

# MONITORING FEATURES OF HPE ONEVIEW

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Monitoring with HPE OneView

# ONEVIEW ACTIVITY PAGE

Click to expand or close the Filters pane

Click a filter to toggle

The screenshot shows the OneView Activity page. At the top, there is a navigation bar with the OneView logo, a search bar, and a menu. The menu is open, showing options: GENERAL, Dashboard, Activity (highlighted in green), Firmware Bundles, and Reports. Below the navigation bar, the page title is 'Activity 1153'. On the left, there is a 'Filters' pane with three sections: 'Filter:' (with 'All' selected and 'Needs attention' below it), 'Type:' (with 'All' selected and 'Alerts' and 'Tasks' below it), and 'Status:' (with 'All' selected and 'Critical' below it). The main area displays a table of activities. The table has columns for Name, Resource, Date, State, and Owner. There are five rows of activity data, all with a status of 'Completed' and owner 'System'. An 'Actions' dropdown menu is visible in the top right corner of the table area.

Name	Resource	Date	State	Owner
Initialize interconnect 0000A66102, interconnect 6	<a href="#">0000A66102, interconnect 6</a>	2/22/16 7:01:14 am	Completed 17s	System
Initialize interconnect 0000A66101, interconnect 3	<a href="#">0000A66101, interconnect 3</a>	2/22/16 7:01:14 am	Completed 16s	System
Initialize interconnect 0000A66103, interconnect 6	<a href="#">0000A66103, interconnect 6</a>	2/22/16 7:01:14 am	Completed 13s	System
Initialize interconnect 0000A66101, interconnect 6	<a href="#">0000A66101, interconnect 6</a>	2/22/16 7:01:14 am	Completed 13s	System
Initialize interconnect 0000A66103, interconnect 3	<a href="#">0000A66103, interconnect 3</a>	2/22/16 7:01:14 am	Completed 12s	System

# CLEAR LOCKED ALERTS

Customers want to clear locked alerts

state:locked

Activity 1

Actions

Name	Resource	Date	State	Owner
<i>The current appliance configuration is not supported. It does not meet the minimum required amounts of compute resources or memory. The appliance will have degraded performance and may become unusable until the configuration is corrected.</i>	<a href="#">Appliance Settings</a>	6/15/20 4:45:11 pm 9 days ago	Locked	unassigned

Request:

```
PUT /rest/alerts/{ID}?force=true
```

Request Body:

```
{  
  "alertState": "Cleared",  
  "assignedToUser": null,  
  "notes": "Cleared locked alert.",  
  "eTag": "2020-06-24T14:50:07.586Z"  
}
```

Customers can clear locked alerts, via the REST API, which would not force them to open support cases

# ALERT EMAIL NOTIFICATIONS

- Send an email notification when an alert is generated
- Use any supported filter search criteria to specify the alerts of interest
- Fine-tune alert messages sent

## Settings

Users and Groups

OS Deployment  
Servers

🔍 Search

– status:critical

– status:critical cpu

## Email

Sending email address      demo@hpe.com

## Alert email

Alert email      Enabled

Filters      *none*

# ADDING ALERT EMAIL NOTIFICATIONS

### Edit Notifications

#### Email

Sending email address

Password  optional

SMTP options

#### Alert email

Alert email

Filters *none*

**Add alert email filter**

### Add Alert Email Filter

As alerts arrive, if they match the filter search criteria, they are sent to the destination email addresses.

Name

Alert email  Filters can be disabled temporarily

Alert criteria  Pre-defined  Guided  Advanced

Resource scope  Multiple criteria can be specified

Match any  Match all

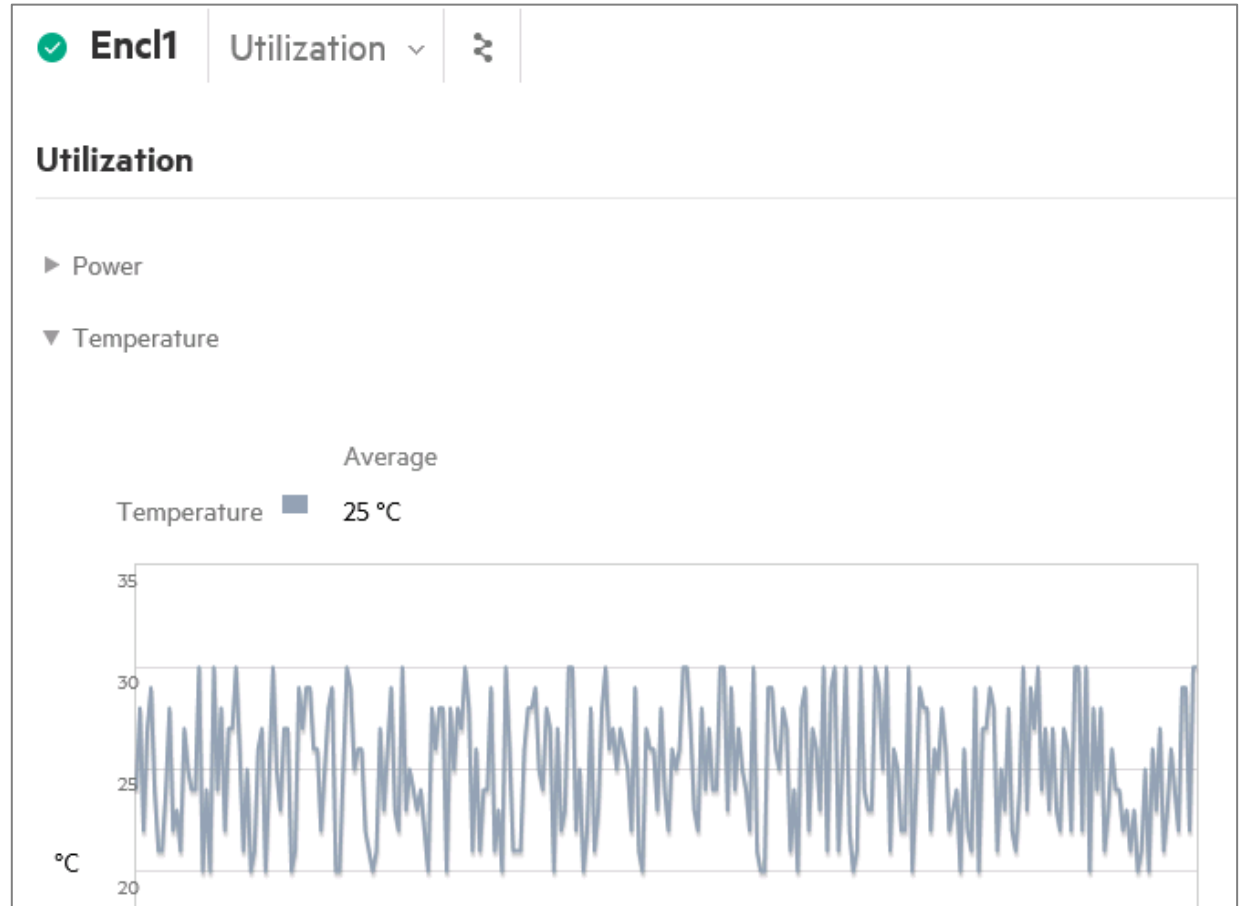
Email addresses

**Add** **Add +** **Cancel**



# UTILIZATION DATA COLLECTION AND DISPLAY

- Utilization history
- Common utilization infrastructure for all device types
- Text labels with capacity information and maximum value for the metric
- Navigation graph



A closer look at temperature utilization over a specified time period

# SNMP

It is possible to enable third-party SNMP managers to monitor (read-only) network status information from the interconnects:

- Designate the SNMP manager to which traps will be forwarded. By default, SNMP is enabled with no trap destinations set.
- When a logical interconnect is created, it inherits the SNMP settings from its LIG.
- LIG and logical interconnect settings support SNMPv1, SNMPv2, and SNMPv3 protocols for forwarding traps.

### SNMP

Consistency checking	<input type="text" value="Exact match"/>
SNMPv1, v2	<input type="checkbox"/> Disabled
SNMPv3	Enabled
System contact	<input type="text"/>
Read community string	<input type="text"/>

---

SNMPv3 users	No SNMPv3 users
	<input type="button" value="Add SNMPv3 user"/>

---

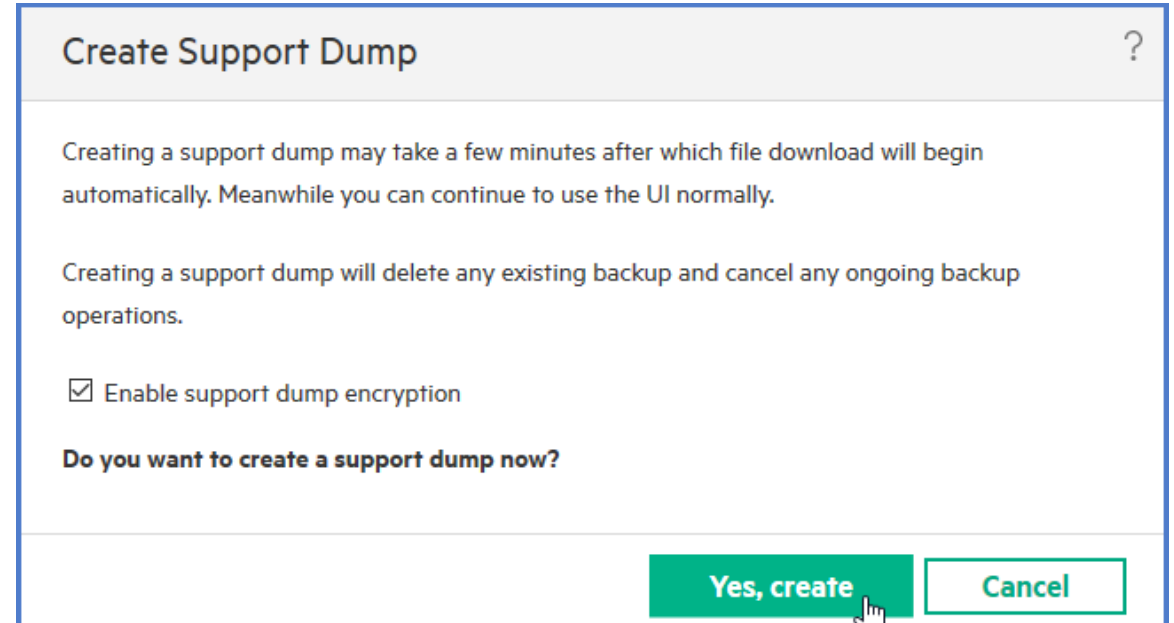
Trap destinations	No trap destinations
	<input type="button" value="Add trap destination"/>

# CREATING SUPPORT DUMP FILES

A support dump file:

- Is encrypted
- Does not contain credentials included in backups
- Is protected using 128-bit AES encryption and an SHA-256 hash
- Does not prevent a customer from seeing contents
- Is generated from the Settings page

The username and password are not stored on the OneView appliance



The screenshot shows a dialog box titled "Create Support Dump" with a help icon in the top right corner. The main text reads: "Creating a support dump may take a few minutes after which file download will begin automatically. Meanwhile you can continue to use the UI normally." Below this, it states: "Creating a support dump will delete any existing backup and cancel any ongoing backup operations." There is a checked checkbox labeled "Enable support dump encryption". At the bottom, the question "Do you want to create a support dump now?" is followed by two buttons: "Yes, create" (highlighted in green) and "Cancel".

# ENABLING HPE ONEVIEW EMBEDDED SUPPORT

The screenshot shows the OneView Settings page. The top navigation bar includes the OneView logo, a search bar, and a notification bell with a '4' badge. The main content area is titled 'Settings' and is divided into several sections:

- Activity >**: Shows 'no active alerts'.
- SNMP >**: A table of SNMP configuration:

SNMPv1 read community string	BeN8UY
Engine ID	83615a9c2a2bcb3f89661ffd849310ff
SNMPv3 Users	none
Trap destinations	none
- Addresses and Identifiers >**: A table of system identifiers:

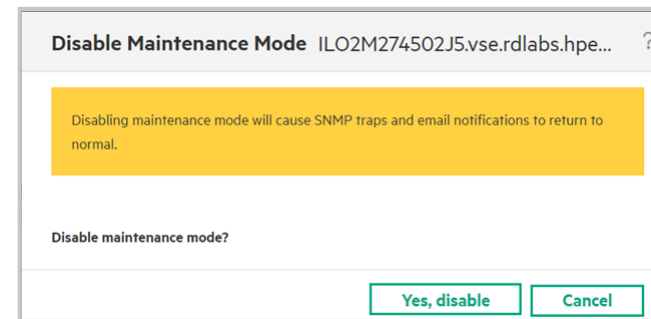
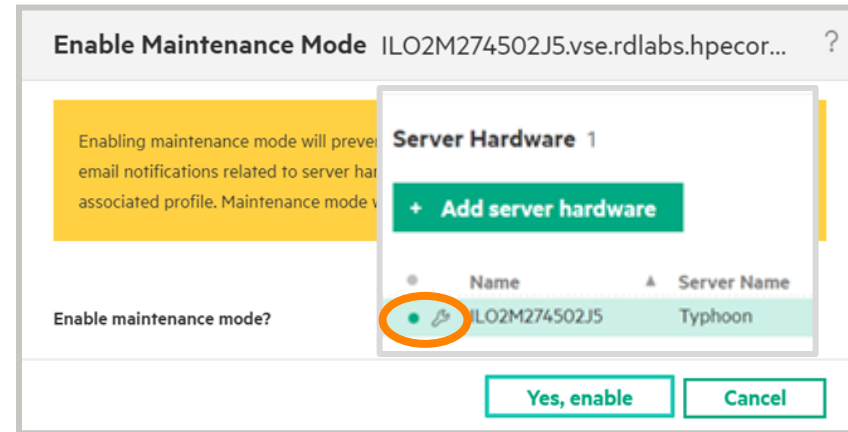
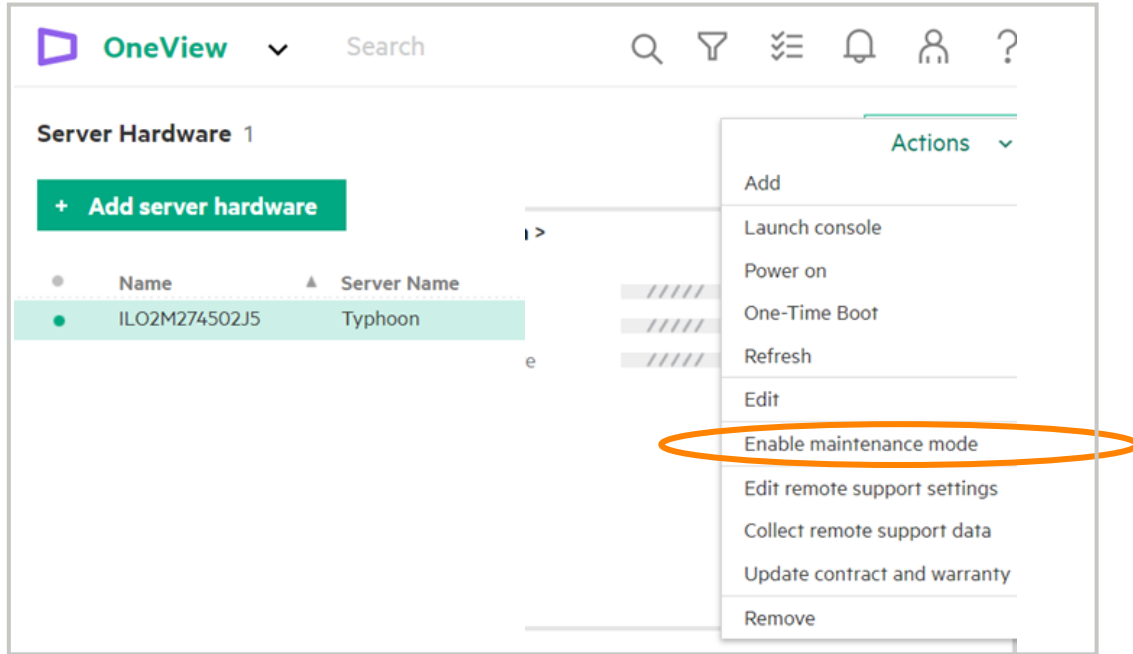
IPv4 Addresses	Available
MAC Addresses	1048576
World Wide Names	1048576
Serial Numbers	46655
- Remote Support >**: A table of support configuration, highlighted with a dashed green box:

Remote Support	Disabled
Connected to HPE	No
Registration status	Not registered
Insight Online	Disabled

- 1 On the Settings page, select **Remote Support**.
- 2 Click the **Enable Remote Support** radio button.
- 3 Enter the system manager contact information and site location, then click **Register**.

# MAINTENANCE MODE

Customers experience unwanted emails and activity alerts for routine server maintenance operations



Reduced number of emails and alerts and a visual indicator of maintenance state

# ONEVIEW REPORTING

- GENERAL
- Dashboard
- Activity
- Firmware Bundles
- Reports**

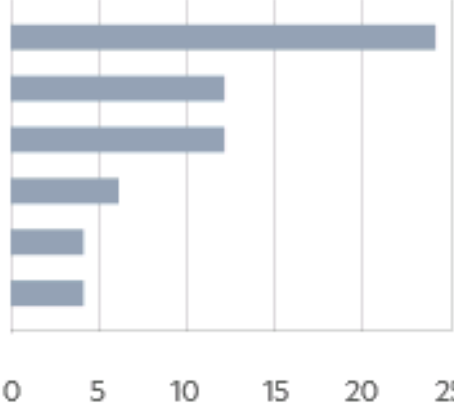
Reports 8

- Name
- Active alerts
- Enclosure bay inventory
- Enclosure inventory
- Interconnect inventory
- Local users
- Server firmware inventory
- Server inventory
- Server profiles inventory

## Server inventory

### Models

Number of servers by model



Model	Number of servers
HPE Synergy 480 Gen9 Compute Module	24
ProLiant BL460c Gen9	12
ProLiant BL460c Gen8	12
HPE Synergy 660 Gen9 Compute Module	6
ProLiant BL660c Gen9	4
other	4

Save Server inventory

Format

- Excel Workbook (\*.xlsx)
- CSV MS-DOS (\*.csv)

OK

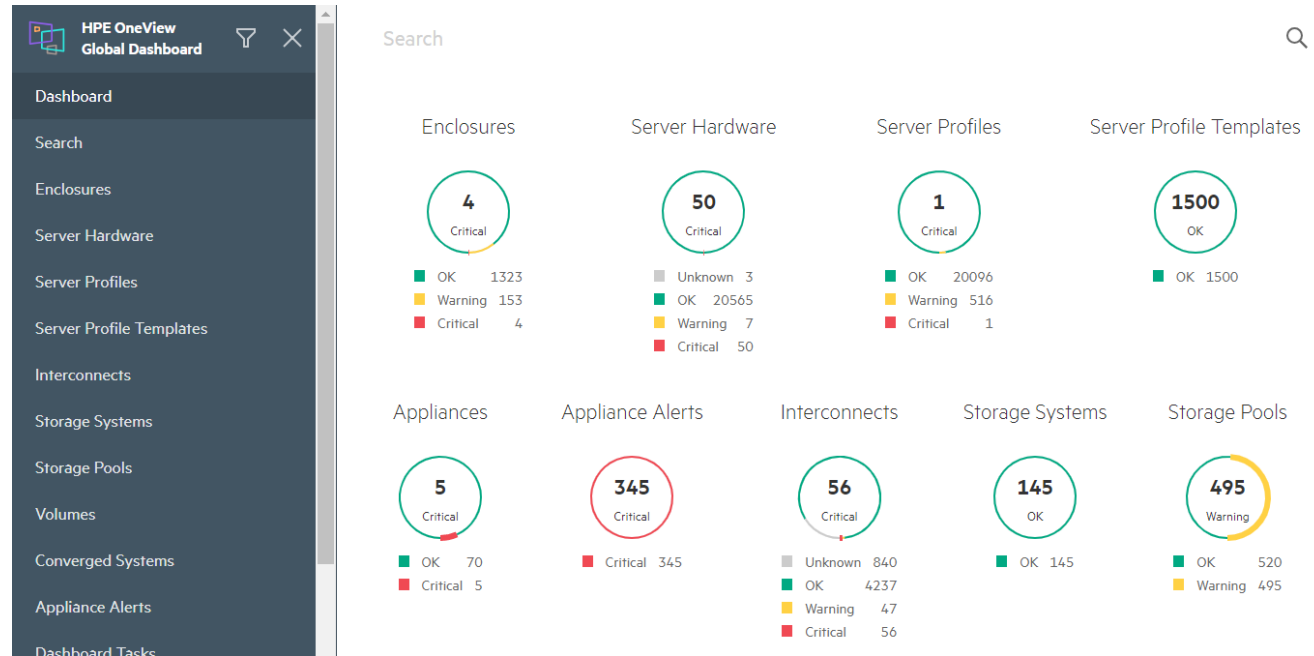
Exportable to Excel or CSV file

Print from browser

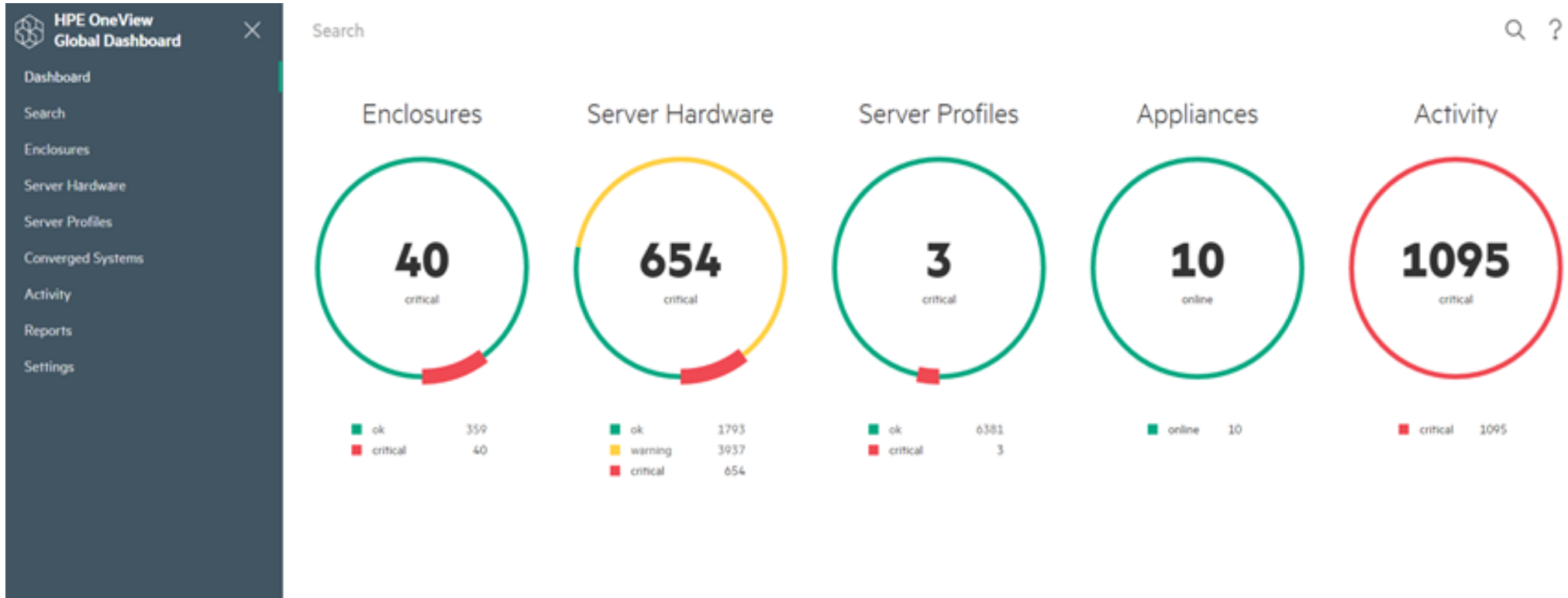
# UNIFY MANAGEMENT WITH HPE ONEVIEW GLOBAL DASHBOARD

Provides unified view of health and alerting of resources managed by HPE OneView including c-Class, DL, ML, Apollo, HPE Synergy, HC380, and SimpliVity

- Instant search results for devices of interest
- In-context launch to HPE OneView, iLO and OA with SSO
- Flexible access to health and inventory data with HPE Global Dashboard API
- Delivered as a virtual appliance at no extra cost
- Supports HPE OneView from version 3.1
- Integrated reporting



# HPE ONEVIEW GLOBAL DASHBOARD: HEALTH STATUS



Green

A healthy status

Yellow

An event has occurred that might require your attention

Red

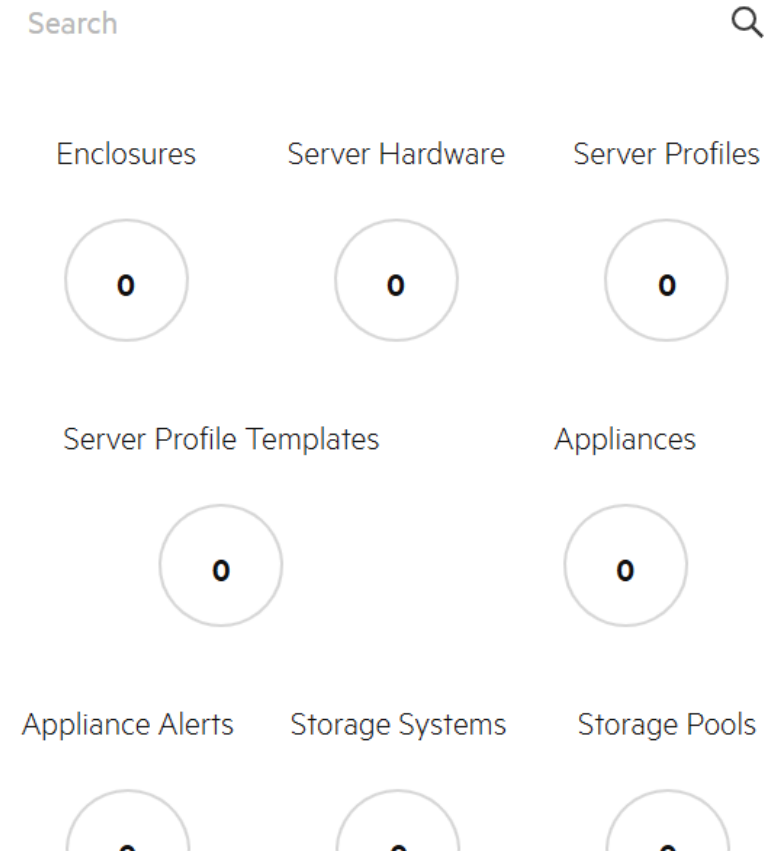
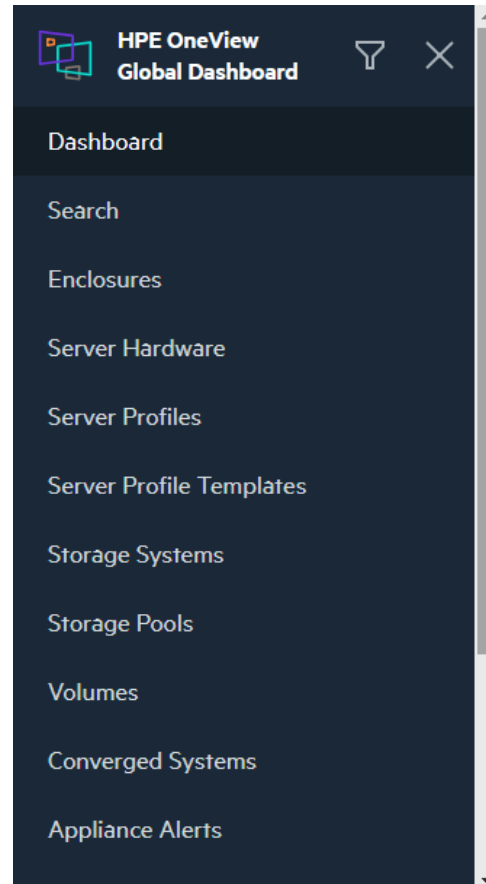
A critical condition that requires your immediate attention



# RESOURCES SUPPORT

Resources supported in Global Dashboard:

- Enclosures
- Server Hardware
- Server Profiles
- Server Profile Templates
- Storage Systems
- Storage Pools
- Volumes
- SAN Managers
- SANs
- Converged Systems



# SINGLE SIGN-ON FROM HPE GLOBAL DASHBOARD

The image shows a multi-step process in the HPE Global Dashboard. On the left, a 'Server Hardware' list contains various server entries. The entry 'SY20000A66102, bay 11' is highlighted. A callout box shows the details for this server, including a green checkmark and the text 'SY20000A66102, bay 11'. An orange box highlights the 'Open in OneView' button, with an arrow pointing to a detailed hardware view on the right. This detailed view shows the server's state as 'Monitored' and lists hardware components like network adapters in the ports section.

Model	Server Profile
SY 480 Gen9	n/a
SY 480 Gen9	n/a
SY 480 Gen9	n/a
SY 660 Gen9	n/a
SY 660 Gen9	n/a
SY 480 Gen9	n/a
SY 480 Gen9	n/a
SY 480 Gen9	n/a

Slot	Model	Port	Interconnect
Mezzanine 1	empty		none
Mezzanine 2	HP Synergy 3820C 10/20Gb Converged Network Adapter	1	none
		2	none
Mezzanine 3	HPE Synergy 3520C 10/20Gb Converged Network Adapter	1	SY20000A66102, inter
		2	SY20000A66102, inter

# SEARCH

Search results are displayed in name, category, and appliance.

The screenshot shows the HPE OneView Global Dashboard interface. On the left is a navigation sidebar with options: Dashboard, Search, Enclosures, Server Hardware, Server Profiles, Server Profile Templates, Storage Systems, and Storage Pools. The 'Search' option is highlighted. The main content area features a search bar containing the text 'A06\_Synergy\_Encl\_0A66101'. Below the search bar is a table with three columns: Name, Category, and Appliance(s). The table lists search results for the specified enclosure, including individual bays. The first result is the enclosure itself, categorized as 'enclosures'. The following six results are individual bays (11, 12, 3, 4, and 5), categorized as 'server-hardware'. Bay 5 has a yellow warning icon next to its name.

Name	Category	Appliance(s)
✓ A06_Synergy_Encl_0A66101	enclosures	ov-2
✓ A06_Synergy_Encl_0A66101, bay 11	server-hardware	ov-2
✓ A06_Synergy_Encl_0A66101, bay 12	server-hardware	ov-2
✓ A06_Synergy_Encl_0A66101, bay 3	server-hardware	ov-2
✓ A06_Synergy_Encl_0A66101, bay 4	server-hardware	ov-2
⚠ A06_Synergy_Encl_0A66101, bay 5	server-hardware	ov-2

# WORKING WITH THE REPORTS

Available Enclosure Bays	Information on available bays in enclosures
Converged Systems Available Capacity	Converged Systems Available CPU, Memory, and Storage
Converged Systems Utilization	Converged Systems CPU, Memory, and Storage Usage
Firmware Compliance	Profile and Server compliance against Service Pack for ProLiant (SPP) baselines
Remote Support Service Events	Service Events triggered by Remote Support
Server Firmware Details	Server Firmware Components and Details
Server Inventory	Models, ROM and iLO versions, Server details
Server Profile Template Utilization	Available Server Profile Templates (SPTs) and Server Profile (SP) compliance
SPP Bundles	Service Pack for ProLiant (SPP) Bundles available and missing per Appliance
Storage Pool Utilization	Storage Pool Status and Utilization
Virtual ID Conflict	Virtual ID conflicts among Appliances

# EMAIL REPORTS

← Search

Available Enclosure Bays  
Information on available bays in enclosures

0 Available Bays C7000

10 Available Bays SY12000

10 Available Bays

**Enclosures - 3**

Appliance Name ↓	Enclosure Name	Type	Available Bay Count
ci-005056b3013f	<a href="#">Enc1</a>	C7000	-
ci-005056b378e4	pulsarchin-enc1	C7000	-

## Send Report

Subject

Available Enclosure Bays

Email addresses

supervisors@hpe.com



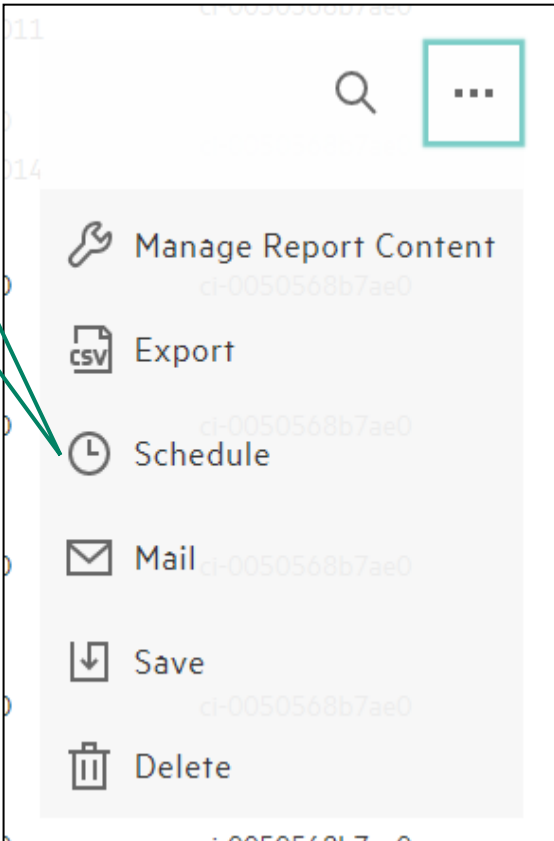
report\_group@hpe.com



Send

# SCHEDULE REPORT

Select schedule



A screenshot of a mobile application interface showing a menu with several options. The 'Schedule' option is highlighted with a green box. A callout box labeled 'Select schedule' points to this option. The menu items are: Manage Report Content (with a wrench icon), Export (with a CSV icon), Schedule (with a clock icon), Mail (with an envelope icon), Save (with a download icon), and Delete (with a trash icon). A search icon and a three-dot menu icon are visible at the top of the menu.

## Create Schedule

Email subject  
Server Inventory Report

Email addresses

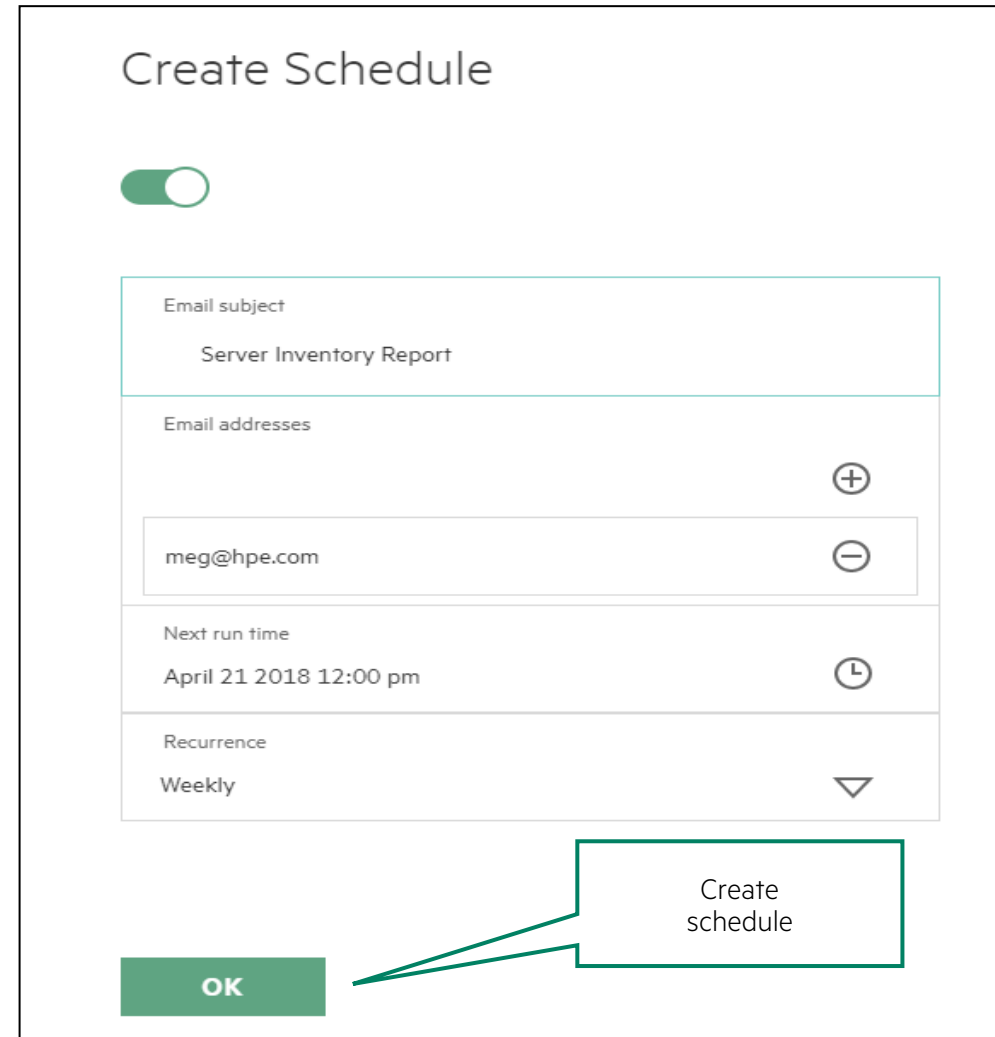
meg@hpe.com

Next run time  
April 21 2018 12:00 pm

Recurrence  
Weekly

OK

Create schedule



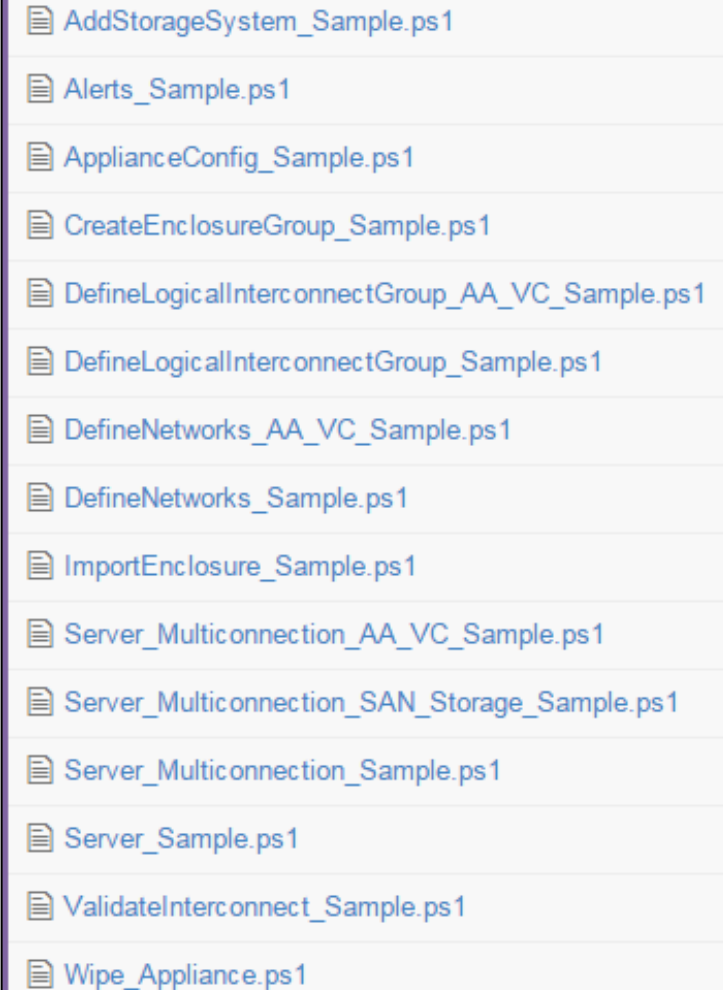
A screenshot of the 'Create Schedule' form in a mobile application. The form is titled 'Create Schedule' and has a toggle switch that is turned on. The form fields are: 'Email subject' with the value 'Server Inventory Report', 'Email addresses' with the value 'meg@hpe.com', 'Next run time' with the value 'April 21 2018 12:00 pm', and 'Recurrence' with the value 'Weekly'. At the bottom of the form is a green 'OK' button. A callout box labeled 'Create schedule' points to the 'OK' button.

# MANAGING HPE SYNERGY WITH POWERSHELL

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# HPE ONEVIEW POWERSHELL INTERFACE

- A Windows PowerShell interface to the HPE OneView REST APIs.
- The PowerShell project is developed for those that want to automate tasks within HPE OneView or use PowerShell as a CLI for HPE OneView operations.
- This is available from <https://www.powershellgallery.com/>

A screenshot of a PowerShell gallery listing various sample scripts. Each entry consists of a document icon followed by the script name. The scripts are: AddStorageSystem\_Sample.ps1, Alerts\_Sample.ps1, ApplianceConfig\_Sample.ps1, CreateEnclosureGroup\_Sample.ps1, DefineLogicalInterconnectGroup\_AA\_VC\_Sample.ps1, DefineLogicalInterconnectGroup\_Sample.ps1, DefineNetworks\_AA\_VC\_Sample.ps1, DefineNetworks\_Sample.ps1, ImportEnclosure\_Sample.ps1, Server\_Multiconnection\_AA\_VC\_Sample.ps1, Server\_Multiconnection\_SAN\_Storage\_Sample.ps1, Server\_Multiconnection\_Sample.ps1, Server\_Sample.ps1, ValidateInterconnect\_Sample.ps1, and Wipe\_Appliance.ps1.

AddStorageSystem\_Sample.ps1  
Alerts\_Sample.ps1  
ApplianceConfig\_Sample.ps1  
CreateEnclosureGroup\_Sample.ps1  
DefineLogicalInterconnectGroup\_AA\_VC\_Sample.ps1  
DefineLogicalInterconnectGroup\_Sample.ps1  
DefineNetworks\_AA\_VC\_Sample.ps1  
DefineNetworks\_Sample.ps1  
ImportEnclosure\_Sample.ps1  
Server\_Multiconnection\_AA\_VC\_Sample.ps1  
Server\_Multiconnection\_SAN\_Storage\_Sample.ps1  
Server\_Multiconnection\_Sample.ps1  
Server\_Sample.ps1  
ValidateInterconnect\_Sample.ps1  
Wipe\_Appliance.ps1



# HPE ONEVIEW POWERSHELL LIBRARY

A simple wrapper to map REST APIs to PowerShell objects

- Microsoft guidelines
  - Standard verb-noun command naming
  - Full integration with help and auto-complete
- HPE OneView resources
  - Library maps JSON to/from PowerShell objects
- REST interaction
  - Use New to create a new resource
  - Get-Modify-Set to change a resource
  - Remove to delete a resource

```
PS > Connect-HPOVMgmt appliance.acme.com
OK
PS > Get-HPOVNetwork "Net-14"

name           : Net-14
type           : ethernet-networks
vlanId        : 14
purpose       : Unspecified
defaultTypicalBandwidth : 2500
defaultMaximumBandwidth : 7500
smartLink     : False
privateNetwork : False
status        : OK
```

# HPE SYNERGY MAINTENANCE AND MANAGEMENT

---

User Administration

# USER ACCESS - ROLE-BASED ACCESS CONTROLS (RBAC)

RBAC grants access rights to the users based on one or more roles. There is a limited set of user roles:

- Infrastructure Administrator: Full access to create, read, update, and delete resources plus manage resource activities, notifications, and logs
- Read only: View resource information
- Specialized users:
  - Network, Server, or Storage Administrator: Specific resource admin roles
  - Backup administrator: Create and download backups, but cannot restore
  - Scope administrator: Create, update, and delete user scopes
  - Scope operator: Update scopes, including adding and removing scope resources
  - Server firmware operator: Able to view and edit server related resources
  - Server profile administrator: Manage server profiles and associated storage & networking
  - Server profile architect: Manage server profiles and templates, including associated storage & networking
  - Server profile operator: Able to edit server profiles, including associated storage and networking information
  - Software administrator: Manages the security certificates for the monitored and managed infrastructure

The screenshot shows the 'Add User' form with the following fields and values:

- Login name:** [Empty]
- Full name:** [Empty] (optional)
- Initial password:** [Empty]
- Confirm password:** [Empty]
- Permissions:**
  - Role:** Backup administrator, Scope administrator
  - Scope:** All resources, All resources
- Contact:**
  - Email:** [Empty] (optional)
  - Office phone:** [Empty] (optional)
  - Mobile phone:** [Empty] (optional)

Buttons: Add permission, Add, Add +, Cancel

Message: Changed: Role to "Backup administrator"

# BASIC USER AUTHENTICATION

Security settings are independent of RBAC and SBAC and apply to all local user accounts

OneView default is local user name and password

- Password must be at least 8 characters with no other restrictions
- THIS IS NOT SAFE and may not even be adequate for dev or test environments

From the OneView menu => Settings => Security you can enable complex passwords

- Requires 14+ characters with uppercase, lowercase, number, special character, and no spaces

User passwords are stored in the OneView appliance using SHA384 hash

Additional local access security settings:

- Service console access for HPE remote support
- SSH access to the HPE OneView maintenance console
- Login message with optional required acknowledgement
- Certificate management for the appliance and monitored and managed devices
- Addition of the HPE public key used to validate the authenticity of updates
- Audit log forwarding to specified applications via device IP addresses or hostnames

The screenshot displays the 'Edit Security' interface for 'Authentication' settings. The 'Authentication' section includes: 'Two-factor authentication' (Enabled), 'Smart card only login' (disabled checkbox), 'Local login' (Enabled), 'Default directory' (Local), 'Service console access' (Disabled), 'Enforce complex passwords' (Disabled), and 'SSH access' (Disabled). Two yellow warning boxes are present: one for 'Service console access' stating that disabling support access prevents authorized support from diagnosing system failures, and another for 'SSH access' stating that disabling SSH access prevents remote access to the maintenance console. The 'Login' section features a message box with a warning about unauthorized use and a 'Require acknowledgement' checkbox. The 'Client Login Certificate Configuration' section explains that fields are used to validate certificates and lists 'Certificate owner' (Subject alternative name), 'Directory domain' (Subject), and 'Requirements to validate the certificate' (Smart Card Logon and Client Authentication). A button 'Add a required validation' is visible. The 'Directories' section shows 'No directories' and an 'Add directory' button.

# ENTERPRISE DIRECTORY AUTHENTICATION

Microsoft Active Directory and/or OpenLDAP

Enterprise directory services

- An option in addition to, or in place of, local user accounts
- Multiple enterprise directory services may be added
  - A directory service should not be added multiple times with different names
- TLS 1.2 communication between the directory service and OneView
  - If the directory service does not support TLS 1.2, 1.1 or 1.0 will be negotiated
- User groups can be configured in the directory service
- Two-factor authentication with a smart card and a user supplied PIN
  - Common Access Card (CAC) or Personal Identity Verification (PIV) X.509-based smart cards
  - Optional smart card only login to the browser UI
    - User name and password is still available to the appliance console

The screenshot shows the 'Add Directory' configuration form for Active Directory. The form includes the following fields and options:

- Directory: Primary\_AD
- Directory type: Active Directory (dropdown)
- Base DN: (empty text box)
- Directory binding: User Account (dropdown)
- Directory servers: Add directory server (button)

At the bottom of the form, there is a 'Reset: Directory binding' link with a warning icon, and three buttons: 'Add', 'Add +', and 'Cancel'.

The screenshot shows the 'Add Directory' configuration form for OpenLDAP. The form includes the following fields and options:

- Directory: (empty text box)
- Directory type: OpenLDAP (dropdown)
- Base DN: (empty text box)
- Directory binding: User Account (dropdown)
- User naming attribute: CN (dropdown)
- Organizational unit: (empty text box)

Below the Organizational unit field, there is a note: "Provide all the OUs in separate fields under which both users and groups exist. Example: OU=People or OU=Groups".

At the bottom of the form, there is a 'Reset: Directory binding' link with a warning icon, and three buttons: 'Add', 'Add +', and 'Cancel'.

# SCOPE-BASED ACCESS CONTROL

Create different scopes based on teams

- Adds an access control model on top of a scope
  - Restricts user permissions based on that user's associated scopes
- Allows a role to be restricted to a subset of resources managed by the appliance
- Is useful for large customer sites with a variety of users responsible for managing different groups of equipment
- Allows you to restrict the rights granted by a role to a subset of resources

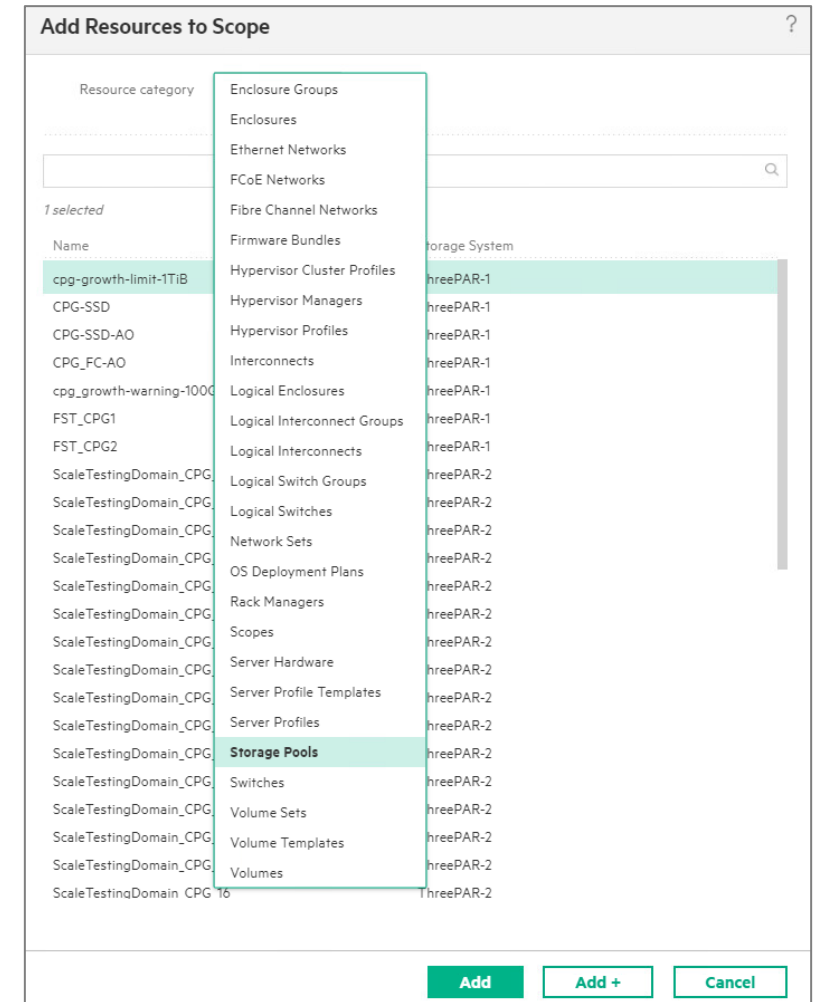
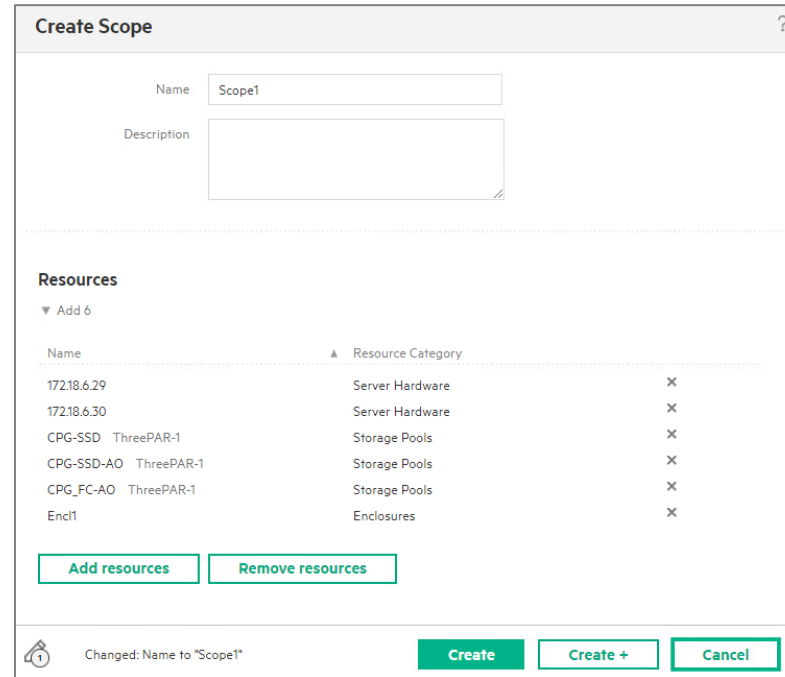
The screenshot displays the OneView management console. At the top, the 'OneView' logo and a search bar are visible. Below the navigation bar, the 'Settings' section is active, showing 'Scopes' with 6 items. A list on the left includes 'CorpCloud', 'DevCloud', 'Finance', 'Finance - Accounting', 'Finance - Payroll', and 'VDI'. The 'CorpCloud' scope is selected, and its details are shown in the main panel. The 'General' tab is active, displaying a description: 'ESX hosts supporting our corporate cloud infrastructure' and 'Used by: 3 users and groups'. A 'Resources' section lists various managed items: 1 enclosure group, 1 logical interconnect group, 1 enclosure, 1 logical interconnect, 14 ethernet networks, 2 network sets, 4 fibre channel networks, 13 server hardware, 1 firmware bundle, 1 server profile template, 2 interconnects, 6 server profiles, and 1 logical enclosure, 1 volume. A note at the bottom states: 'Note: Some resource categories do not allow scope assignments. All resources in these categories are included in all scopes. [Learn more](#)'.

# SCOPE-BASED ACCESS CONTROLS (SBAC)

Creating and assigning resources

SBAC assigns rights for a user's role to specific resources

- Scopes are defined from HPE OneView => Settings => Scopes
- A resource can be assigned to zero or more scopes
- A scope can contain one or more resources
- A scope can contain zero or more sub-scopes, for example
  - Scope1 contains resources A, B, and C
  - Scope2 contains resources D, E, and F
  - Scope3 contains resources X, Y, and Z, plus Scope1 and Scope2
  - A user assigned Scope3 will have access to resources A, B, C, D, E, F, X, Y, and Z



# SCOPE-BASED ACCESS CONTROL

## New user

- First configure a user's role, then restrict user access based on scopes.
- Assign scopes to:
  - User account
  - Directory group
- A user can be given access (by role) to multiple scopes.
- A user may have different roles for different scopes.

### Add User

Login name

Full name  optional

Initial password

Confirm password

---

### Permissions

Role	Scope
<input type="text" value="Backup administrator"/> <input type="button" value="x"/> <input type="button" value="🔍"/>	<input type="text" value="All resources"/> <input type="button" value="x"/> <input type="button" value="🔍"/>
<input type="text" value="Infrastructure administrator"/> <input type="button" value="x"/> <input type="button" value="🔍"/>	<input type="text" value="DB Scope"/> <input type="button" value="x"/> <input type="button" value="🔍"/>



# USER ACCESS BEST PRACTICE RECOMMENDATIONS

For secure production environments

The only local account should be an “administrator” maintenance account with a complex password

All other user accounts should be integrated with an enterprise directory

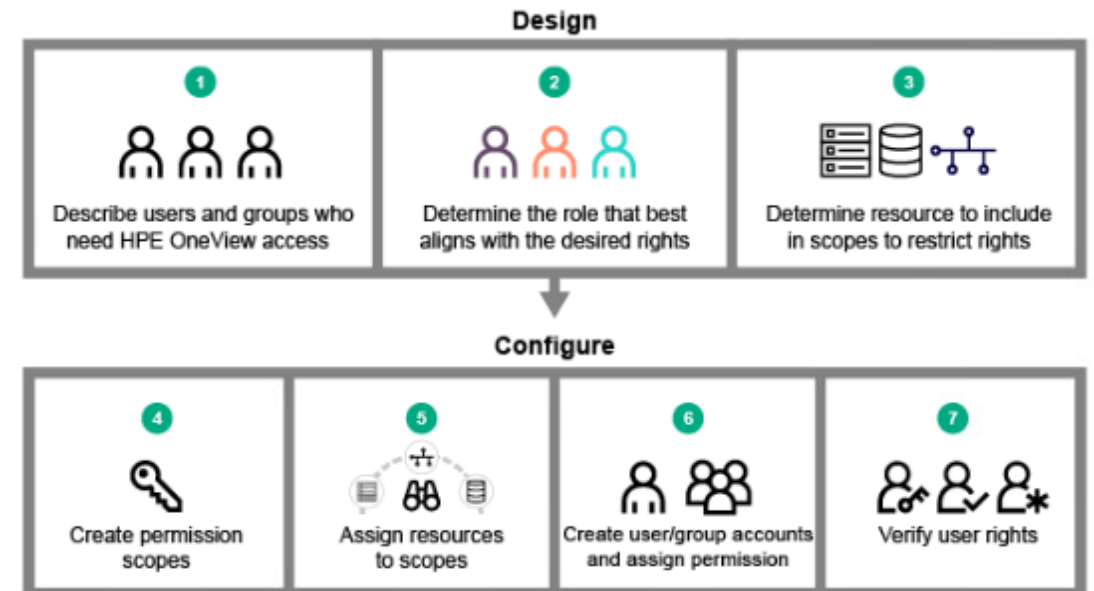
- After enabling the enterprise directory integration, all local user access can be disabled
- Optional “break glass in case of emergency” feature may remain for Administrator access in the rare event that the enterprise directory is not available

Consider using additional enterprise directory features

- User groups and domains
- Multiple forest security and nested domain security groups with AD

Consider optional enhanced security features:

- Two-factor authentication
- Complex passwords
- Disabling SSH and support access



# HPE SYNERGY MAINTENANCE AND MANAGEMENT

---

Appliance Security

# CERTIFICATE MANAGEMENT

## Validating trust

- May be required for:
  - Users
  - Applications (for single sign-on)
    - HPE OneView web server RSA certificate (initially configured as a self-signed certificate)
      - **HPE Synergy Composer 2 appliance requires** CNSA-strength certificates that are 3072 bit and SHA-386
    - Enterprise directories and any domain controllers
    - HPE Remote Support
    - HPE Synergy Image Streamer
    - Proxy servers
    - Remote firmware repository
    - RabbitMQ message broker client

## Monitored and managed infrastructure devices

- Integrated Lights Out (iLO)
- Onboard Administrator (OA)
- Virtual Connect
- HPE Rack and Power Manager
- HPE Superdome Rack Management Controller (RMC)
- HPE Synergy Frame Link Module (FLM)
- HPE Synergy 12Gb SAS Connection Module
- Message bus Advanced Message Queuing Protocol (AMQP) (initially configured as self-signed)
- REST APIs for device Certificate Sign Request (CSR) and pushing CA-signed certs

# CERTIFICATE MANAGEMENT

HPE OneView uses HTTPS to communicate with managed devices and remote servers.

HPE OneView supports the use of both self-signed certificates and certificate authority-issued certificates in a formal PKI.

## Certificates

Certificate validation

Enabled

Check for expiration of leaf certificates

Certificate revocation checking (using CRLs)

Enabled

Skip revocation checks when CRL is not available

Allow expired CRLs

Notify CRLs status

# FIPS AND CNSA

Enablement and compatibility reports

Enabled from OneView => Settings => Security  
=> Cryptography

- Change cryptography mode to enable FIPS or CNSA
- Actions (drop-down) => Create compatibility report to generate the report
  - Report generation and results are shown to the right

CNSA ciphers provide the highest level of cryptography in the industry

The screenshot shows the OneView interface. On the left, the 'Settings' menu is open to 'Security' > 'Cryptography'. The 'Actions' dropdown is visible, and an arrow points to the 'Create compatibility report' option. Below this, the 'Edit Cryptography Mode' dialog is shown, with an arrow pointing to the 'FIPS' radio button. The main area displays a table of subtasks for the 'Create FIPS compatibility report' task, which is currently 'Running'. An arrow points to the 'Fetching report details from resource managers.' status. On the right, the 'Compatibility Report FIPS' overview is shown, with an arrow pointing to the warning message: 'The appliance and/or the managed devices are not compatible with FIPS mode. Refer to the sections below for details. Take appropriate corrective steps before switching the appliance cryptography mode to FIPS.' The report details include the report name 'FIPS', date created '09/10/2019 17:14:15 pm (UTC -0600)', and sections for 'Protocols and Cipher suites', 'Digital Signature Algorithms', 'Public Key Algorithms', and 'Appliance Certificates'.

Name	Resource	Date	State	Owner
Create FIPS compatibility report	Security Settings	9/10/19 5:18:10 pm < 1 minute ago	Running 44s	administrator

Subtasks	Resource	Date	State	Owner
Retrieve appliance compatibility data	Security	9/10/19 5:18:11 pm	Completed 1s	
Retrieve certificates compatibility data.	Security	9/10/19 5:18:11 pm	Completed 1s	
Retrieve Logindomains compatibility data	Security	9/10/19 5:18:11 pm	Completed 1s	
Retrieve backup remote server compatibility data	Security	9/10/19 5:18:11 pm	Completed 1s	
Retrieve support compatibility data	Security	9/10/19 5:18:11 pm	Completed 1s	
Retrieve enclosures compatibility data	Security	9/10/19 5:18:11 pm	Completed 1s	
Retrieve server hardware compatibility data	Security	9/10/19 5:18:12 pm	Completed 2s	
Retrieve power delivery devices compatibility data	Security	9/10/19 5:18:12 pm	Completed 1s	
Check security compatibility of server	Enc01_bay16	9/10/19 5:18:12 pm	Completed 1s	
Check security compatibility of server	Enc02_bay14	9/10/19 5:18:12 pm	Completed 1s	
Check security compatibility of server	Enc01_bay13	9/10/19 5:18:12 pm	Completed 1s	
Check security compatibility of server	172.18.6.29	9/10/19 5:18:12 pm	Completed 1s	
Check security compatibility of server	Enc02_bay1	9/10/19 5:18:12 pm	Completed 1s	
Retrieve interconnects compatibility data	Security	9/10/19 5:18:12 pm	Completed 1s	
Validate Interconnects.				
Check security compatibility of server	Enc02_bay8	9/10/19 5:18:12 pm	Completed 1s	
Check security compatibility of server	Enc01_bay4	9/10/19 5:18:12 pm	Completed 1s	
Check security compatibility of server	Enc01_bay11	9/10/19 5:18:12 pm	Completed 1s	
Check security compatibility of server	Enc01_bay15	9/10/19 5:18:12 pm	Completed 1s	
Check security compatibility of server	Enc02_bay7	9/10/19 5:18:12 pm	Completed 1s	
Check security compatibility of server	Enc01_bay7	9/10/19 5:18:12 pm	Completed 1s	
Check security compatibility of server	Enc01_bay3	9/10/19 5:18:12 pm	Completed 1s	
Check security compatibility of server	Enc02_bay11	9/10/19 5:18:12 pm	Completed 1s	
Check security compatibility of server	172.18.31.3	9/10/19 5:18:13 pm	Completed 1s	
Check security compatibility of server	Enc02_bay15	9/10/19 5:18:13 pm	Completed 1s	
Check security compatibility of server	Enc02_bay6	9/10/19 5:18:13 pm	Completed 1s	
Check security compatibility of server	Enc02_bay13	9/10/19 5:18:13 pm	Completed 1s	
Retrieve interconnects compatibility data	Security	9/10/19 5:18:13 pm	Completed 1s	
Validate Interconnects.				
Check security compatibility of server	172.18.6.13	9/10/19 5:18:13 pm	Completed 1s	
Check security compatibility of server	Enc01_bay2	9/10/19 5:18:13 pm	Completed 1s	

**Compatibility Report FIPS** Overview

The appliance and/or the managed devices are not compatible with FIPS mode. Refer to the sections below for details. Take appropriate corrective steps before switching the appliance cryptography mode to FIPS.

**Overview**

[Print report](#). This compatibility report checks for compatibility issues for the FIPS mode. It reports on various entries, such as, the appliance certificates, external servers and managed devices.

Report name: FIPS  
Date created: 09/10/2019 17:14:15 pm (UTC -0600)

**Protocols and Cipher suites**

These are the TLS protocols and cipher suites supported under the FIPS mode.

**TLSv11:**

Cipher suite name

TLS\_ECDHE\_RSA\_WITH\_AES\_128\_CBC\_SHA  
TLS\_RSA\_WITH\_AES\_256\_CBC\_SHA  
TLS\_RSA\_WITH\_AES\_128\_CBC\_SHA  
TLS\_RSA\_WITH\_AES\_128\_GCM\_SHA256  
TLS\_RSA\_WITH\_AES\_128\_CBC\_SHA256

**TLSv12:**

Cipher suite name

TLS\_ECDH\_RSA\_WITH\_AES\_256\_CBC\_SHA384  
TLS\_ECDH\_ECDSA\_WITH\_AES\_256\_CBC\_SHA384  
TLS\_ECDH\_RSA\_WITH\_AES\_256\_GCM\_SHA384  
TLS\_ECDH\_ECDSA\_WITH\_AES\_256\_GCM\_SHA384  
TLS\_RSA\_WITH\_AES\_256\_GCM\_SHA384

For all communication protocols, refer to the appliance user guide for a detailed description of the supported algorithms and ciphers.

**Digital Signature Algorithms**

The certificates are expected to be signed by one of these digital signature algorithms in FIPS mode.

Name

SHA256WITHRSA  
SHA384WITHRSA  
SHA512WITHRSA  
SHA256WITHECDSA  
SHA384WITHECDSA

**Public Key Algorithms**

The keys are expected to be using one of these key generation algorithms and the respective key size in FIPS mode.

Name

RSA2048  
RSA3072  
RSA4096  
RSA1024  
ECDSA256

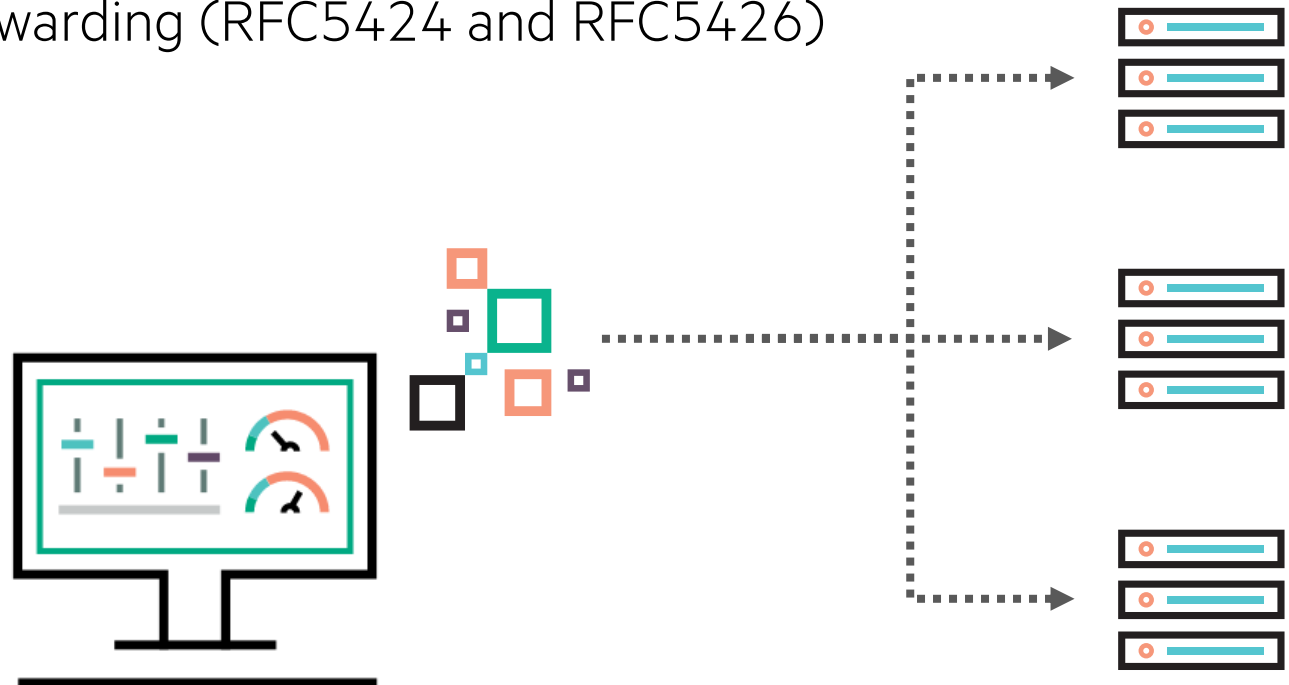
**Appliance Certificates**

All appliance certificates are compatible with the FIPS mode.

Update Close

# AUDIT LOG FORWARDING

- Forward the OneView audit log to a remote log server
- Centralized log server enables audit compliance, monitoring, log analysis, and controlled retention policies
- Support for multiple remote forwarding destinations
- Uses standard UDP-based syslog forwarding (RFC5424 and RFC5426)



# HPE SYNERGY MAINTENANCE AND MANAGEMENT

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Unmanaged Devices

# POWER DELIVERY DEVICES IN HPE ONEVIEW

The Power Delivery Devices screen describes the following classes of devices:

- iPDUs, which the appliance can automatically discover and control.
- Other power delivery devices that the appliance cannot discover.

The screenshot shows the 'Add Power Delivery Device' dialog box. The 'Type' dropdown menu is open, showing the following options: HPE Intelligent Power Distribution Unit (selected), Power Feed, Breaker Panel, Branch Circuit, Rack PDU, Load Segment, Power Strip, and Outlet. The 'IP address or hostname' field is empty. The 'Credentials' section has 'User name' set to 'admin' and an empty 'Password' field. At the bottom are 'Add', 'Add +', and 'Cancel' buttons.



# UNMANAGED DEVICES IN HPE ONEVIEW

The screenshot displays the HPE OneView interface. On the left, a sidebar titled "Unmanaged Devices 3" contains a green button labeled "+ Add unmanaged device" and a table listing three devices:

Name	Model
HPE UPS	R7000
TOR Switch-1	HPE FlexFabric
TOR Switch-2	HPE FlexFabric

The main content area shows the details for the selected "HPE UPS" device. It includes a breadcrumb "Overview" and an "Actions" button. The "General" section lists the following attributes:

Model	R7000
Management Interface	not set
Location	Rack-1
Height	4 U
Powered by	not set
Maximum power	1200 Watts

An unmanaged device is a device, such as a server, enclosure, KVM switch, in-rack monitor/keyboard, or router that occupies space in a rack and/or consumes power, but is not managed by the appliance.

Unmanaged devices are created automatically to represent devices that are attached to an iPDU using Power Discovery Services connections.

# MANUAL DEVICE POSITIONING

Edit Rack-221 | Layout ▾

### Layout

172.18.8.11.PDU1  
HP INTELLIGENT MOD  
PDU 3PH 24A NA/JPN

172.18.8.12.PDU1  
HP INTELLIGENT MOD  
PDU 3PH 24A NA/JPN

172.18.6.16

172.18.6.16

**Encl1**  
BladeSystem c7000  
Enclosure G3  
10u

**Encl2**  
BladeSystem c7000  
Enclosure G3  
10u

### Devices

172.18.6.15

172.18.6.31

172.18.6.32  
ProLiant DL380p Gen8

Add

▲ Rack layout has been inferred from power connections.

OK Cancel

# DATA CENTERS IN HPE ONEVIEW

## Data center object

- A data center represents a physically contiguous area in which racks containing IT equipment are located.
- When you initialize the appliance for the first time, it creates a data center named Datacenter 1.
- You can add a data center and specify its dimensions.

The screenshot displays the HPE OneView interface. At the top, there is a navigation bar with the OneView logo, a search bar, and several utility icons. Below this, a sidebar on the left shows a list of 'Data Centers 1' with a green '+ Add data center' button and a table containing one entry: 'Datacenter 1'. The main content area is titled 'Datacenter 1' and includes an 'Overview' dropdown and an 'Actions' button. Under the 'General' section, the following details are listed:

Width x depth	7.2 m x 3 m
Electrical derating	NA/JP (20%)
Default voltage	220 V
Power costs	7 USD / kWh

The 'Layout' section features a 3D visualization of server racks on a grid floor. A vertical temperature scale on the right indicates a temperature of 34 °C.

# HPE SYNERGY MAINTENANCE AND MANAGEMENT

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Backups and Restores

# BACKUPS

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- Backups use a specific user role that cannot access other resource views or tasks
- Backups are encrypted and contain configuration settings and management data
- Use the UI, REST API, or a custom-written PowerShell script to restore a corrupted appliance from a backup file
- The restore operation is required only to recover from catastrophic failures

## Recovering from catastrophic failures

- Restores the appliance from the backup file
- Replaces all management data and most configuration settings on the appliance with the data and settings in the backup file
- Reconciles the data in the backup file with the current state of the managed environment

# SCHEDULED REMOTE APPLIANCE BACKUP

Appliance backup can be done:

Manually on demand

Scheduled to be uploaded to the remote location

- SFTP
- SCP

### Edit Backup Settings

#### Remote Backup Location

Enable remote backup location

Transfer protocol  SFTP  SCP

IP address or host name

Port  optional

Folder  optional

User name

Password

Manually enter SSH host key

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#### Schedule

Frequency

Changed: Frequency to "Weekly"