



Deploy and manage servers more efficiently with HPE Synergy

HPE Synergy composable infrastructure requires fewer steps and less time than Cisco UCS

Infrastructure as a Service (IaaS) has gained enormous popularity because of the ease and speed with which it lets companies deploy and manage compute modules to perform their varied workloads. HPE Synergy facilitates IaaS in your company's private datacenter—its composable infrastructure provides fluid pools of resources that administrators control using software, letting your company respond to changing business needs with great agility.

Principled Technologies (PT) used HPE Synergy and Cisco® UCS® to execute four typical datacenter deployment and management scenarios. We found that thanks to the HPE Synergy Composer and HPE Synergy Image Streamer, two key components of the HPE Synergy solution, PT technicians could carry out all four scenarios in less time and fewer steps than they could using the Cisco solution. For two scenarios, the HPE Synergy approach also required fewer tools.

Whether you use it for some of your workloads or all of them, HPE Synergy has the potential to boost the efficiency of your IT staff and the agility of your datacenter—both of which can help your business.



Faster

up to **63%**
less time needed



Simpler

up to **88%**
fewer steps needed



Less complex

fewer management tools

HPE Synergy: Composable infrastructure offers the ease of IaaS

In today's idea economy, datacenter agility is more important than ever. Successful companies take advantage of improvements to deployment and orchestration technologies, enabling them to provision in just minutes compared to the old way of doing things, which could take days. Being able to rapidly deploy the resources businesses need to support a given workload—and just as easily turn them off when demand wanes—offers many business advantages. HPE Synergy delivers this flexibility.

Its composable infrastructure provides fluid pools of resources that admins control using software instead of having to physically configure hardware.



How else can HPE Synergy help your business?

- By giving you the ability to quickly reconfigure resources in response to changing needs, HPE Synergy can help you seize business opportunities.
- HPE Synergy can fit into your company's hybrid cloud strategy. It can handle your private cloud and traditional applications within a single architecture and management frame, while you put other applications in a public cloud.
- You can give each of your workloads the resources and the levels of compliance, security, and access that you choose.

How does HPE Synergy work?

HPE Synergy consists of hardware frames containing various components with a uniform infrastructure, enabling modular management of hardware. IT staff controls these components with a software interface, which defines, allocates, and attaches available resources from within the pool of available assets.

IT administrators can use HPE Synergy composable infrastructure to provision storage from both HPE 3PAR and HPE Synergy Direct Attached Storage (DAS), define and stretch networks across multiple enclosures, and deploy compute modules from anywhere within the pool defined by the management domain.

Tight integration with HPE OneView enables the HPE Synergy solution to deliver software-defined datacenter (SDDC) capabilities by leveraging HPE Synergy Composer and HPE Synergy Image Streamer. Your IT staff uses the HPE Synergy Image Streamer to create golden images and the HPE Synergy Composer to maintain resource pool inventory and availability. Together, these tools let staff deploy and redeploy datacenter assets easily and get the convenience of holistic updates with tracking, including deviation-from-standard flagging and rollback capability.

Head to head: HPE Synergy vs. Cisco UCS

To compare the ease and speed with which HPE Synergy and Cisco UCS allow datacenter admins to carry out tasks, PT technicians executed four typical deployment and management scenarios using the two platforms. As we show in detail below and on the following pages, the HPE Synergy composable approach let them complete all four sets of tasks with fewer steps and in less time—and often using fewer tools—than Cisco UCS. Combining all the use cases, the HPE Synergy solution saved a total of 71.5 minutes and 69 steps, and used 4 fewer tools than the Cisco UCS solution required. These savings boost your business’s ability to respond to changing demands and frees your IT staff to spend more time on innovation and adding value. (See [Appendix B](#) for the detailed steps our admins carried out.)



Use case 1: Deploying a server

Deploying a server involves more than just plugging in hardware and powering it on. All the connections and settings the hardware requires to function properly and to access external resources must be optimally configured for your solution. This includes establishing storage connectivity, defining network settings, and configuring hardware behavior.



In converged environments such as HPE Synergy and Cisco UCS, admins can configure these settings using software-defined hardware and service profiles. But that doesn't mean the tasks are equally straightforward. In our testing, HPE Synergy allowed PT admins to deploy a compute module in seven steps and just over 13 minutes—62 percent less time, a savings of 22 minutes compared to Cisco UCS, and less than half the steps. HPE Synergy Composer allows administrators to quickly select hardware deployment options and configure a hypervisor or operating system, before using HPE Synergy Image Streamer to quickly and easily deploy those resources.

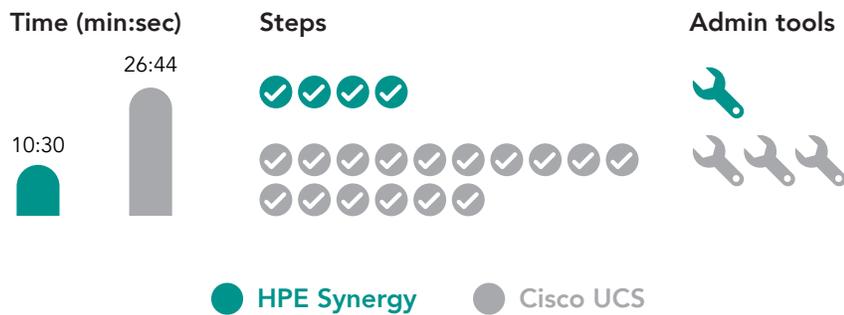
The time saved performing these tasks will compound and grow with repetition. To illustrate this, let's look at a hypothetical datacenter running 200 ESXi nodes. If admins deployed these 200 nodes, and then redeployed 20 percent of these nodes over a five-year period, the 22 minutes 34 seconds saved in this use case would add up to 90.2 hours, or more than 11 workdays.

Use case 2: Installing firmware updates and applying OS patches

Vendors periodically release updates that improve the functionality and security of a hardware solution. These updates typically include firmware, which replaces or modifies the hardware-level instructions, and associated drivers that provide instructions for how your OS should interact with the underlying hardware.

HPE Synergy Composer leverages familiar enterprise management components, such as HPE Smart Update Tool (SUT), to push the firmware baseline and update the target hosts. This method lets you deploy the updates before a maintenance window, and then schedule a reboot for a time when a brief outage will have minimal impact.

Cisco UCS Manager applies firmware updates for only a subset of the firmware. It is necessary to apply node storage controller firmware—and associated driver updates—separately. Carrying out these extra steps takes extra time and administrative interaction, and requires more downtime.

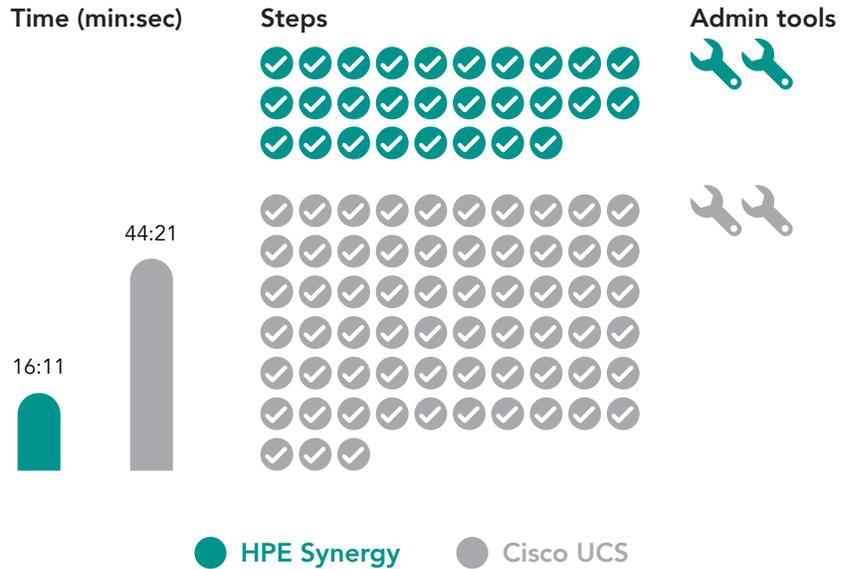


With HPE Synergy, PT admins needed only four steps and 10.5 minutes to install firmware updates and apply OS patches. To do this same exercise, Cisco UCS needed 26.7 minutes. Let's assume that the admins in our hypothetical datacenter running 200 ESXi nodes perform this use case once a year. Over a five-year period, the time savings would grow to 270.5 hours or more than 33 workdays. That's almost a month and a half more time to perform a routine task. On top of the time savings, admins could complete these tasks with a single tool with HPE Synergy. Cisco UCS required four times as many steps, more than twice the time, and three different tools. The additional complexity of the UCS solution increases the opportunity for errors, potentially adding unplanned downtime and loss of productivity costs to a simple maintenance procedure. HPE Synergy delivers ease and simplicity to routine datacenter operations.



Use case 3: Deploying VMware vSAN on an existing three-node cluster

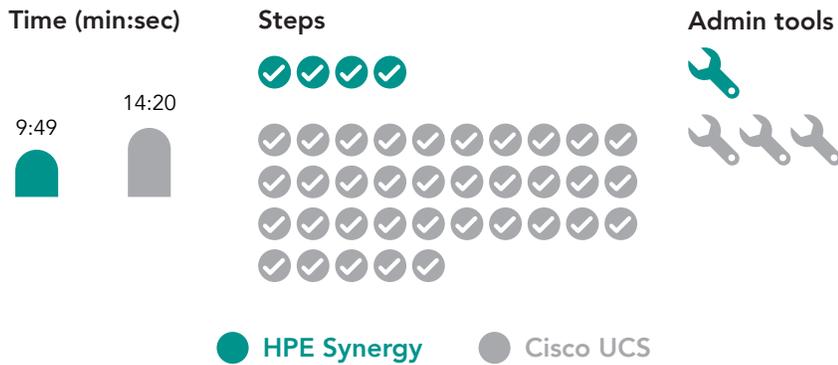
Deploying VMware vSAN™ on compute nodes requires either sufficient in-compute drive bays or the ability to dynamically attach JBOD storage to each node. HPE Synergy Composer lets you easily provision and add storage to an existing node, which means administrators can attach JBOD storage from any associated storage tray and present it to the storage controller for use in vSAN. Because of this, deploying VMware vSAN on an existing three-node cluster with HPE Synergy required only 28 steps compared to 63 with Cisco UCS, and less than 17 minutes—28 fewer minutes than with the Cisco solution.



The Cisco UCS chassis does not provide in-chassis JBOD storage, which means the blades are limited to only what they contain—two drives in a half-width blade and four drives in a full-width blade. As a result, you must migrate the cluster members to standalone UCS servers with sufficient drive bays, re-add the servers to the VMware vCenter®, and then implement vSAN. Because of these additional tasks, implementing vSAN was a much longer and more complicated process that took 63 steps and over 44 minutes. As you can imagine, in a large environment that requires multiple vSAN instances or larger deployment scenarios, this time and complexity difference could be problematic.

Use case 4: Enabling boot from SAN

For enterprises that rely on centralized managed storage, booting servers from SAN volumes is extremely useful, especially when you can define the boot location in the hardware and/or service profiles, abstracted from the underlying hardware element. This ensures that in the event of a node failure, an administrator can quickly restore functionality of a down service by simply re-applying the profile to a new underlying hardware element. To do this quickly and successfully requires transferring all the identity parameters, including connectivity, mapping and zoning for storage. With the HPE solution, Synergy Composer enables the rapid provisioning and deployment of bootable SAN volumes and handles all SAN fabric zoning tasks for you.



Enabling boot from SAN using HPE Synergy took four steps on a single admin tool and less than 10 minutes. Completing this same task on Cisco UCS required 35 steps across three admin tools and more than 14 minutes. It is important to know how fast you can recover from a failure and get back to business as usual. The HPE Synergy composable infrastructure design can help drive faster, easier, simpler recovery.



Conclusion

Principled Technologies executed four typical deployment and management scenarios using both HPE Synergy and Cisco UCS. We found that PT technicians could carry out all four scenarios in less time and fewer steps with the HPE Synergy solution than they could using the Cisco solution. All in all, the HPE Synergy saved 71.5 minutes and 86 steps, and used four fewer tools compared to Cisco UCS. These savings grow quickly. In the hypothetical 200-node datacenter we mentioned earlier, savings on deployment and updates alone could add up to more than 45 work days over a five-year period. That's a total of 9 work weeks, or just over 2 months time savings on routine tasks that HPE Synergy created.

Whether you use it for some of your workloads or all of them, HPE Synergy has the potential to boost the efficiency of your IT staff and the agility of your datacenter—both of which can help your business.

Use case	Savings with HPE Synergy			
	Time	Percentage	Steps	Percentage
1. Deploying a server	22.6	63.0%	8	53.3%
2. Installing firmware updates and applying OS patches	16.2	60.7%	12	75.0%
3. Deploying VMware vSAN on an existing three-node cluster	28.2	63.5%	35	55.6%
4. Enabling boot from SAN	4.5	31.5%	31	88.6%
Total savings in minutes and steps	71.5	59.0%	86	66.7%

On May 5, 2017, we finalized the hardware and software configurations we tested. Updates for current and recently released hardware and software appear often, so unavoidably these configurations may not represent the latest versions available when this report appears. For older systems, we chose configurations representative of typical purchases of those systems. We concluded hands-on testing on July 21, 2017.

Note: Principled Technologies performed our testing of HPE Synergy on an installation in the HPE datacenter in Houston, TX. PT technical staff traveled to Houston, where they verified the Synergy hardware and software and provided validation services for the test bed. They performed testing by remotely accessing the Synergy installation from the PT datacenter in Durham, NC.

Appendix A: System configuration information

HPE Synergy

The table below provides detailed information for the HPE Synergy compute node.

System	HPE Synergy 480 Gen9 Compute Module
General	
Number of processor packages	2
Number of cores per processor	14
Number of hardware threads per core	28
System power management policy	Default
Processor	
Vendor	Intel
Name	Xeon
Model number	E5-2680 v4
Stepping	M0 (QK92, SR2NZ)
Socket type	FCLGA2011-3
Core frequency (GHz)	2.4
Bus speed	9.6 GT/s QPI
L1 cache	14 x 32 KB associative instruction caches 14 x 2 KB 8 associative data caches
L2 cache	14 x 256 KB associative caches
L3 cache	35 MB 28-way associative shared cache
Platform	
Vendor and model number	HPE Synergy 480 Gen9
Motherboard model number	732352-B21

Memory module(s)	
Total RAM in system (GB)	512
Vendor and model number	HPE SmartMemory 809083-091
Type	DDR4
Speed (MHz)	2,400
Speed running in the system (MHz)	2,400
Size (GB)	32
Number of RAM module(s)	16
RAID controller	
Vendor and model number	HPE Smart Array P542D/2GB
Firmware version	4.52
Cluster storage	
Number of drives	16
Drive vendor and model	HP 480GB 6G SATA MU-2 SFF SC SSD
Drive size (GB)	480
Drive information (speed, interface, type)	SATA SSD
Cooling fans	
Number of cooling fans	10
Power supplies	
Vendor and model	HPE Synergy 12000F
Number of power supplies	6
Wattage of each (W)	2,650

Cisco UCS

The table below provides configuration information for the Fabric Interconnect.

System	Cisco UCS 6332 Fabric Interconnect
Power supplies	
Number of processor packages	2
Number of cores per processor	14
Number of hardware threads per core	28
Cooling fans	
Total number of fan modules	4
Vendor and model number	Cisco Systems Inc UCS-FAN-6332
Interconnect firmware	
UCS manger	3.1(3a)
Kernel/system	5.0(3)N2(3.13a)
Service pack	3.1(3)SP0(default)

The table below provides detailed information for the Cisco UCS chassis.

System	Cisco UCS 5108 blade server chassis
Power supplies	
Number of power supplies	4
Vendor and model number	Cisco Systems Inc UCSB-PSU-2500ACPL
Wattage of each (W)	2,500
Cooling fans	
Total number of fan modules	8
Vendor and model number	Cisco Systems Inc N20-FAN5
I/O modules	
Model	Cisco UCS 2304XP
Occupied bay	1, 2

The table below provides detailed configuration information for the Cisco UCS blade server and the C240 M4 server.

System	Cisco UCS B200 M4 blade server	Cisco UCS C240 rack server
Enclosure		
Blade enclosure	Cisco UCS 5108	N/A
General		
Number of processor packages	2	2
Number of cores per processor	10	10
Number of hardware threads per core	20	20
System power management policy	Default	Default
Processor		
Vendor	Intel	Intel
Name	Xeon	Xeon
Model number	E5-2640 v4	E5-2640 v4
Stepping	R0 (QKEU, SR2NZ)	R0 (QKEU, SR2NZ)
Socket type	LGA2011-3	LGA2011-3
Core frequency (GHz)	2.4	2.4
Bus frequency (GHz)	4	4
L1 cache	6 x 32 KB 8-way set associative instruction caches 6 x 32 KB 8-way set associative data caches	6 x 32 KB 8-way set associative instruction caches 6 x 32 KB 8-way set associative data caches
L2 cache	10 x 256 KB 8-way set associative caches	10 x 256 KB 8-way set associative caches
L3 cache	25 MB 20-way set associative shared cache	25 MB 20-way set associative shared cache
Platform		
Vendor and model number	Cisco UCS B200 M4	Cisco UCS C240 M4
Motherboard model number	UCSB-B200-M4	UCSC-C240-M4SX
Memory module(s)		
Total RAM in system (GB)	32	32
Vendor and model number	16GB DDR4-2133-MHz RDIMM/PC4-17000/ dual rank/x4/1.2v	16GB DDR4-2133-MHz RDIMM/PC4-17000/ dual rank/x4/1.2v
Type	DDR4	DDR4
Speed (MHz)	2,133	2,133
Speed running in the system (MHz)	2,133	2,133
Size (GB)	16	16
Number of RAM module(s)	2	2
Chip organization	Double-sided	Double-sided
Rank	Dual	Dual

System	Cisco UCS B200 M4 blade server	Cisco UCS C240 rack server
RAID controller		
Vendor and model number	Cisco Systems Inc UCSB-MRAID12G	MegaRAID SAS 3108
Firmware version	24.5.0-0021	24.5.0-0020
SAS expander		
Vendor and model number	N/A	SAS Expander UCS-C240-M4
Firmware version	N/A	65.10.40.00
Firmware		
CIMC	3.1(22c)	3.0(3a)
Board controller	12.0	N/A
BIOS	B200M4.3.1.3g.0.011820171448	C240M4.3.0.3a.0.0321172111
Disks (OS)		
Quantity	2	2
Vendor	Seagate	Seagate
PID	A03-D300GA2	A03-D300GA2
Product name	300GB 6G SAS 10K RPM 2.5 inch HDD	300GB 6G SAS 10K RPM 2.5 inch HDD
SAS speed	6 GB	6 GB
Cisco UCS VIC 1340	4.1(1e)	4.1(2d)
Disk (vSAN)		
Quantity	N/A	3
Vendor	N/A	Toshiba
PID	N/A	UCS-SD400G12S2-EP
Product name	N/A	400GB 2.5 inch Enterprise Performance 12G SAS SSD
SAS Speed	N/A	12 G SAS

Appendix B: How we tested

Cisco UCS

Use case 1: Deploying UCS B200 M4 server node (total time: 35:49; total steps: 15; number of tools required: 1)

1. In UCS Manager, at the left menu, click the Servers icon, right-click the Service profile template, and click Create service profiles from template.
2. Once the Create service profiles from template window opens, enter the following values, and click OK:
 - NamePrefix = node
 - Name Suffix starting = 1
 - Number of instances = 1
3. Select the newly created service profile named node1, right-click, and select Change service profile association.
4. In the Associate service profile dialog box, click the drop-down menu, select existing server, click the appropriate blade, and click OK. (Note: UCS will ask you to confirm the profile association and the pending reboot.)
5. To open a KVM session, click KVM Console.
6. Mount OS install media, click Virtual media→Activate virtual media, and accept the session warnings.
7. Select Map CD/DVD, browse to the location of the vSphere install media, and click Map device.
8. To begin the OS installation, press enter.
9. Once the welcome screen appears, press Enter.
10. At the EULA screen, to accept, press F11.
11. Select a disk to install vSphere OS, and press Enter.
12. For the keyboard layout, select US Default, and press enter.
13. Enter a root password, confirm it, and press Enter.
14. To confirm the installation, press F11.
15. Before rebooting, select Remove the installation disk, and once complete, to reboot, press Enter.

Use case 2: Updating firmware and OS drivers (total time: 26:44; total reboots: 6; total steps: 16; number of tools required: 3)

Use case 2a: Updating firmware (20:51; 5 reboots, 7 steps)

1. Open UCS Manager, and at the left menu, select the Equipment tab, and open Equipment→Chassis→Chassis1→Servers→Server1.
2. At the right menu, click the Installed Firmware tab, and click Update Firmware.
3. Select the radio button next to Bundle, and select bundle 3.1(1g)T.
4. Click Activate firmware; select the BIOS, CIMC, and adaptor firmware; deselect set startup version only; and click OK.
5. To reboot the CIMC, click OK, and wait for updates to complete. UCS will reboot the server. Wait for the server to activate the firmware updates.
6. In UCS Manager, right-click the server, and click Open KVM.
7. Once the Java prompt to open the KVM appears, click OK, and wait for the server to post.

Use case 2b: Updating drivers (5:53; 1 reboot, 9 steps)

1. Open vCenter, and at the left menu, select host. At the right menu, click the local datastore.
2. At the datastore menu, click Datastore browser.
3. At the Datastore browser, click Upload, and select the appropriate driver file.
4. At the Datastore browser, click Close.
5. Right-click the host, and select Enter maintenance mode.
6. To confirm the change to maintenance mode, click Yes.
7. SSH to the ESXi server. Log into the ESXi server, and type the following command: `esxcli software vib install -v /path/to/driver.vib`.
8. To complete the driver installation, reboot the system.
9. Right-click the host, and select Exit maintenance mode.

Use case 3: Setting up vSAN on an existing three-node cluster (total time: 44:21; total steps: 63; number of tools required: 2)

Powering down the cluster (1 step)

1. In vSphere, select 3 nodes, right-click, and select Power→Shutdown server. To power down the servers, click Yes.

Disassociating the three node service profiles from the B200 M3 Blades (3 steps [1x3])

1. In UCS Manager, click Servers→Server 1, disassociate service profile.
Repeat for servers 2 and 3.

Associating three service profiles with three Cisco C240 rack servers (6 steps [2x3])

1. Click equipment→Server1, and select Change service profile association.
2. At the associate Service profile dialog box for each server, click Existing server, and select the appropriate rack server.
Repeat for servers 2 and 3.

Mounting the vSphere install media (3 steps [1x3])

1. In UCS Manager, click Servers-server(x), Open KVM, and Virtual media, and map/mount the ESXi media.
Repeat for servers 2 and 3.

Installing vSphere on three C240 M4 servers (24 steps [8x3])

1. To begin installation, press Enter.
2. Once the welcome screen appears, press Enter.
3. At the EULA screen, to accept, press F11.
4. To install vSphere OS, select a disk,, and press Enter.
5. For the keyboard layout, select US Default, and press Enter.
6. Enter a root password, confirm it, and press Enter.
7. To confirm the installation, press F11.
8. Select Remove the installation disk before rebooting, and press Enter to reboot when complete.
Repeat for servers 2 and 3.

Opening vCenter and reconnecting all three ESXi hosts (15 steps [5x3])

1. Right-click host, and select Reconnect.
2. Enter the root and password, and click Next.
3. On the View summary screen, click Next.
4. Leave the VM location menu at default settings, and click Next.
5. To add the node, click Finish.
Repeat for servers 2 and 3.

Adding vSAN functionality to vmk0 on hosts 1, 2, and 3 (6 steps [2x3])

1. Click ESXi node→VMkernel adaptors→vmk0, and click Edit.
2. Click vSAN, and click OK.
Repeat for servers 2 and 3.

Enabling and configuring vSAN (5 steps)

1. Right-click the cluster, click Settings, and click vSAN—General→Configure.
2. At the configure vSAN dialog box, perform the following steps:
3. Leave the Services and fault domain at default settings, and click Next.
4. Leave the Network validation at default settings, and click Next.
5. For each host, select 1 disk for cache and 2 for capacity, and click Next.
6. Click Finish.

Use case 4: Enabling boot from SAN (total time: 14:20; total steps: 35; number of tools required: 3)

1. In UCS Manager, click Servers→Server profiles→Server1, boot order tab→Modify boot order. Change the boot policy to BFS, and click OK.
2. To reboot and change the boot order, click Yes.
3. In UCS Manager, click Servers→Server profiles→Server1→Storage→vHBA, and copy the WWPN by highlighting and pressing CTRL-C.
4. Open the storage console, and click LUNS→Create LUN.
5. Enter server1_BFS for the name, 10 GB for LUN size, and click Create LUN.
6. At the storage console, open LUN config→Initiators→Add initiator.
7. Type `server1` for group, paste the WWPN from step 3 into the WWPN/IQN name, and click Add.
8. Click the server1 initiator, right-click, and select Map LUN.
9. Click `serve1_BFS`, and click Map.
10. Enter LUN ID 0, and click Create.
11. Zone the SAN http://www.cisco.com/en/US/docs/storage/san_switches/mds9000/sw/san-os/quick/guide/qcg_zones.html (6 steps)
12. Boot the server, mount install media, and wait for prompt.
13. Type `vsan database` and press enter.
14. Type `vsan 10 name "FAB-A"` and press enter.
15. Type `fcdomain fcid database` and press enter.
16. Type `vsan 10 wwn [your WWN] fcid [your fcid] dynamic` and press enter.
17. Type `interface vsan10` and press enter.
18. Type `vsan database` and press enter.
19. Type `vsan 10 interface fc[number]/[number]` and press enter.
20. Type `system default zone default-zone permit` and press enter.
21. Type `system default zone distribute full` and press enter.
22. Type `zone default-zone permit vsan 10` and press enter.
23. Type `zone distribute full vsan 10` and press enter.
24. Type `fcalias name STORAGE vsan 10` and press enter.
25. Type `member pwwn [your WWN]` and press enter.
26. Type `fcalias name UCS_SERVERS vsan 10` and press enter.
27. Type `member pwwn [your WWN]` and press enter.
28. Type `zone name STORAGE_to_SERVERS vsan 10` and press enter.
29. Type `member fcalias STORAGE` and press enter.
30. Type `member fcalias UCS_SERVERS` and press enter.
31. Type `zoneset name STORAGE_to_SERVERS vsan 10` and press enter.
32. Type `member STORAGE_to_SERVERS` and press enter.
33. Type `zoneset activate name STORAGE_to_SERVERS vsan 10` and press enter.
34. Log out of the FC switch.
35. Boot the server, mount install media and wait for prompt.

HPE Synergy

Use Case 1: Deploying HP SY 480 G9 (total time: 13:15; total steps: 7; number of tools required: 1)

1. From OneView, click server profiles templates,
2. Click create a server profile, select ESX Host Template, and at the actions menu, select Create Server profile.
3. In the Create Profile Dialog box:
 - a. In the box labeled Name, enter the name of the profile.
 - b. In the box labeled Server Hardware, select the desired server hardware to deploy the profile.
 - c. In the box labeled OS Deployment Plan, select the personalized deployment plan.
 - d. In the box labeled Management NIC, select MGMT.
4. In the connections section, click the pencil icon to edit the MGMT connection:
 - a. For Port, use the pulldown to select Auto, and click OK.
5. Click Create.
6. In the actions menu, click Power On.
7. In the actions menu, click Open Console.

Use case 2: Installing firmware and OS drivers (total time: 10:30; total reboots: 1; total steps: 4; number of tools required: 1)

1. From OneView, select Service profiles.
2. Select Frame2-bay1, click action, and click Edit.
3. Make changes to the edit profile dialog box, and click OK:
 - a. For Firmware Baseline, select Service Pack for ProLiant version 2017.04.0
 - b. Using HP Smart Update Tools4, select Firmware and OS Drivers.
4. Once OneView displays the firmware install state Installed pending reboot, reboot the node.

Use case 3: Setting up vSAN on an existing three-node cluster (total time: 16:11; total steps: 28; total reboots: 1; number of tools required: 2)

Powering down the cluster (1 step)

1. In vSphere, select 3 nodes, right-click, and select Power→Shutdown server. To power down the servers, click Yes.

Adding 3 disks to each server profile (15 steps [5x3])

1. In OneView, select the server profile server 1, click actions, and click Edit.
2. Click the icon next to Local Storage→Mezz1 storage controller.
3. Click create jbod.
4. In the create Local JBOD, enter the following values:
 - a. Name = DAS
 - b. Number of Driver =3
 - c. Minimum drive size = 480 GB
 - d. Maximum drive size = 480 GB
 - e. Drive technology = SATA SSD

and click Create, OK, and OK to close the server profile

5. Power on the server.
Repeat for servers 2 and 3

Adding vSAN functionality to vmk0 on hosts 1, 2, and 3 (6 steps [2x3])

1. Click ESXi node→VMkernel adaptors→vmk0, and click Edit.
2. Click vSAN, and click OK.
Repeat for servers 2 and 3.

Enabling and configuring vSAN (6 steps)

1. Right-click the cluster, click Settings, and click vSAN—General→Configure.
2. In the configure vSAN dialog box, perform the following steps:
3. Leave the Services and fault domain at default settings, and click Next.
4. Leave the Network validation at default settings, and click Next.
5. For each host, select 1 disk for cache and 2 for capacity, and click Next.
6. Click Finish.

Use case 4: Enabling boot from SAN (total time: 9:49; total steps: 4; number of tools required: 1)

1. In OneView, select as server profile, click actions, and click Edit.
2. Check the box next to Manage SAN settings, for Host OS select VMware, click add Volume
3. In the add Volume dialog box, select New volume, enter BFS_F2_bay2 as the name, select the appropriate storage pool, and click add, to close the add volume dialog box , and click OK to close the service profile
4. Boot the server, mount install media, and wait for prompt.

Appendix C: Cisco firmware used

Running bundle – 3.1(2g)B

- 1340 VIC = 4.1(2e)
- BIOS = 3.1.3g.0.011820171448
- CIMC = 3.1(22c)

Backup bundle – 3.1(1g) B

- 1340 VIC = 4.1(1d)
- BIOS = 3.1.2a.0.022620161405
- CIMC = 3.1(20a)

Bundle we upgraded to – 3.1(3a)B

- 1340 VIC = 4.1(3a)
- BIOS = 3.13i
- CIMC = 3.1(23a)

This project was commissioned by HPE.



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