

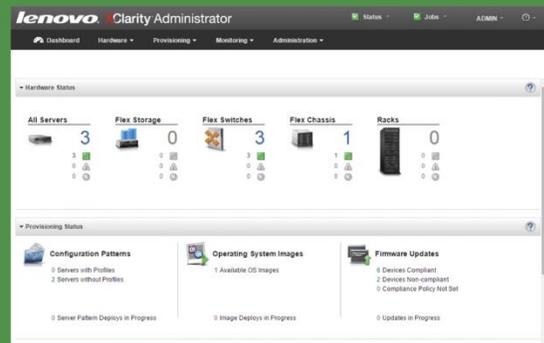
# FASTER AND MORE EFFICIENT FLEX SYSTEM MANAGEMENT WITH LENOVO XCLARITY ADMINISTRATOR VS. HP ONEVIEW

## Simplified management saves you time and labor

Managing a Lenovo® Flex System™ solution was faster and more efficient by automating with XClarity™ Administrator.\*



**48% LESS TIME**    **37% FEWER STEPS**



\*compared to completing the same management tasks with HP OneView on an HP solution

Time savings are important for your IT staff: less time to complete management tasks, such as configuring a node or updating firmware, can mean more time to focus on issues elsewhere in the datacenter.

Here in the Principled Technologies datacenter, we compared Lenovo XClarity Administrator—the new hardware resource-management solution—to HP OneView. Compared to HP OneView, Lenovo XClarity provided the following benefits:

- The initial configuration, system discovery, and inventory process took 43 percent less time and six fewer steps.
- Creating and applying configuration patterns/profiles took 51 percent less time.
- Deploying VMware® ESXi™ to a bare-metal compute node took four percent less time and two fewer steps.
- Acquiring and applying firmware updates took 82 percent less time and 14 fewer steps.
- In sum, the four use cases required 48 percent less total time and 37 percent fewer overall steps.



# FASTER AND EASIER MANAGEMENT WITH LENOVO XCLARITY ADMINISTRATOR

In addition to saving time, a high-quality management solution should reduce complexity and provide a standard of consistency, reliability, and accuracy. The automation that such a solution provides should effectively reduce the potential for human error, and by doing so reduce downtime. Most importantly, the benefits should be scalable and grow with your datacenter and your business.

Lenovo XClarity Administrator is a virtual appliance that provides centralized resource management. It was designed to reduce complexity in the datacenter through automation, to facilitate prompt responses from IT staff, and to promote availability of Lenovo server solutions. XClarity Administrator provides agent-free hardware management for Lenovo servers and Flex System, including the Flex System Chassis Management Module, x86 compute nodes, and I/O modules. The virtual appliance offers out-of-band agentless management, which means managed endpoints may not need special software agents, driver installation, or maintenance. Being agentless means XClarity Administrator can remove operating system (OS) dependency, which can simplify your datacenter's workload. For more information on XClarity Administrator and Flex System, see [Appendix A](#).

In our datacenter, we tested four resource-management use cases:

- Initial setup and discovery
- Server pattern/profile configuration
- Deployment of VMware ESXi to bare-metal compute nodes
- Updating firmware of system components

We recorded the time and steps to complete each use case for Lenovo XClarity Administrator with the Flex System solution and for HP OneView with the BladeSystem c7000 solution. We configured both solutions using the methods and best practices described in relevant documentation. For detailed configuration information on the test systems, see [Appendix B](#). For detailed steps on how we tested, see [Appendix C](#).

## WHAT WE FOUND

Altogether, completing all the tasks in the four use cases with Lenovo XClarity Administrator took 48 percent less time and 37 percent fewer steps than using OneView. Figure 1 shows our times and steps from each use case.

Use case	Flex System (XClarity Administrator)		HP BladeSystem (HP OneView and HP Insight Control server provisioning)	
	Time (h:mm:ss)	Steps	Time (h:mm:ss)	Steps
Initial configuration, discovery, and inventory of chassis	0:03:27	7	0:06:05	13
Creating and applying configuration patterns/profiles	0:00:51	12	0:01:43	9
Deploying VMware ESXi to a bare-metal node	0:01:39	7	0:01:43	9
Acquiring and applying firmware updates	0:00:30	6	0:02:50	20
<b>Total for all use cases</b>	<b>0:06:27</b>	<b>32</b>	<b>0:12:21</b>	<b>51</b>

Figure 1: Time and steps for the two hardware management tools in each use case. Lower numbers are better.

### Faster initial configuration, discovery, and inventory of Flex System chassis

The initial configuration, discovery, and inventory of our Flex System components with Lenovo XClarity Administrator was a fast, simple process compared to setting up the HP OneView solution. Using XClarity Administrator for this use case saved over two minutes, or took 43 percent less time, for a single chassis. XClarity Administrator also required six fewer steps to complete this use case. Figure 2 shows the amount of time both solutions needed for initial configuration, discovery, and inventory; Figure 3 shows the number of steps.

The HP solution required two HP appliances to automate our four use cases: the HP OneView application and the HP Insight Control server provisioning application. HP Insight Control server provisioning is used for discovery and inventory alongside HP OneView. Insight Control is also used to automate OS and hypervisor installation to bare-metal servers. HP OneView itself is used to automate the remaining use cases. HP Insight Control server provisioning requires a separate media server to house OS and hypervisor images for deployment; we used a dedicated Windows Server® virtual machine for this purpose.

Using Lenovo XClarity Administrator, we found that the automated discovery and inventory process of Flex System components to be simple and effective. We first deployed and logged in to the XClarity Administrator virtual appliance. XClarity Administrator automatically discovered the chassis, making it available for us to manage.

This means that automating the initial configuration, discovery, and inventory of a new Lenovo Flex System infrastructure with XClarity Administrator can help your administrators promptly identify components requiring deployment or installation, thereby decreasing the time-to-value (TtV) of each component.

Figure 2: The time each solution took (hours:minutes:seconds) for initial configuration, discovery, and inventory of solution components. Lower numbers are better.

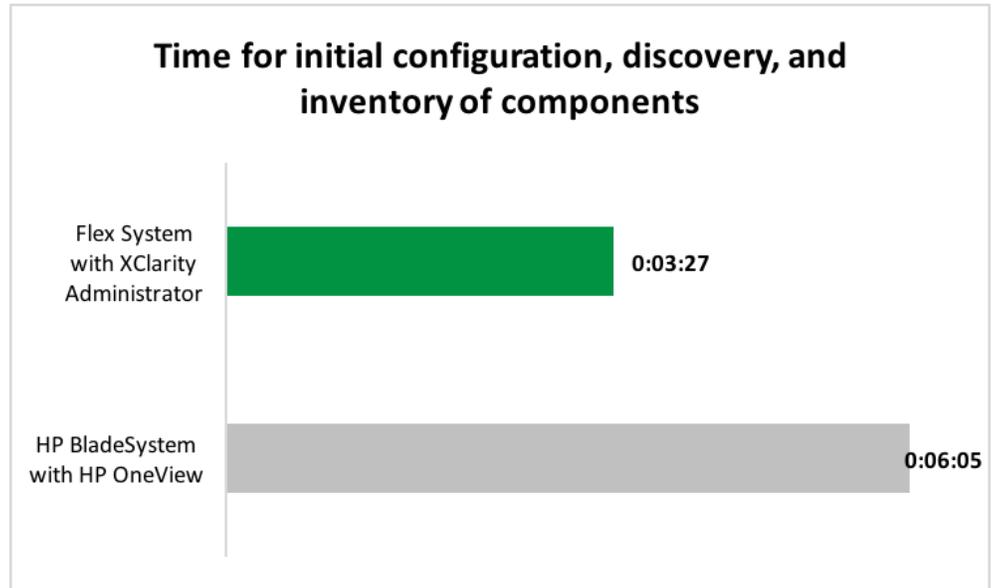


Figure 3: The number of steps each solution took for initial configuration, discovery, and inventory of solution components. Lower numbers are better.

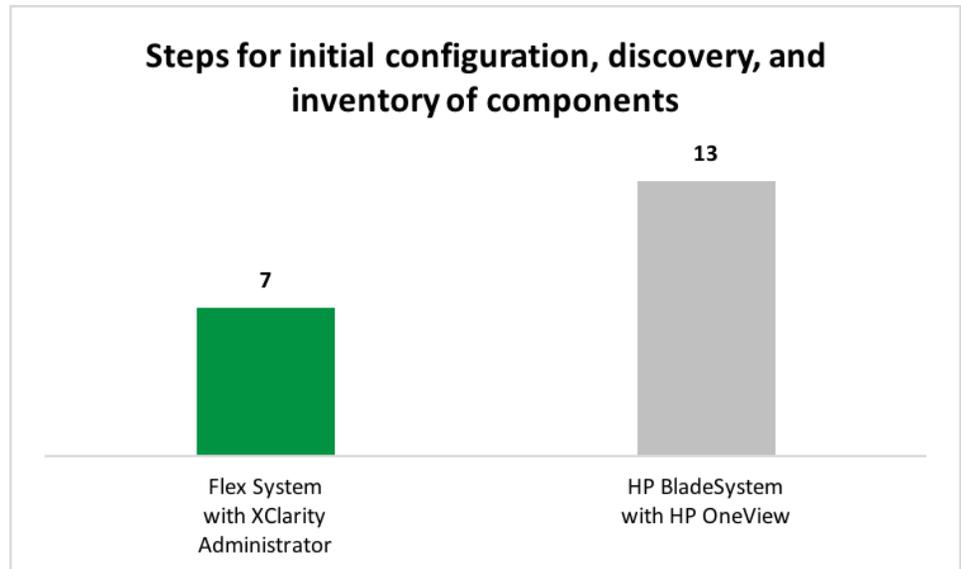


Figure 4 shows the Lenovo XClarity Administrator dashboard. After XClarity Administrator gathers discovered endpoints into an inventory, administrators can view the inventory and the status of any component at a glance from the dashboard.

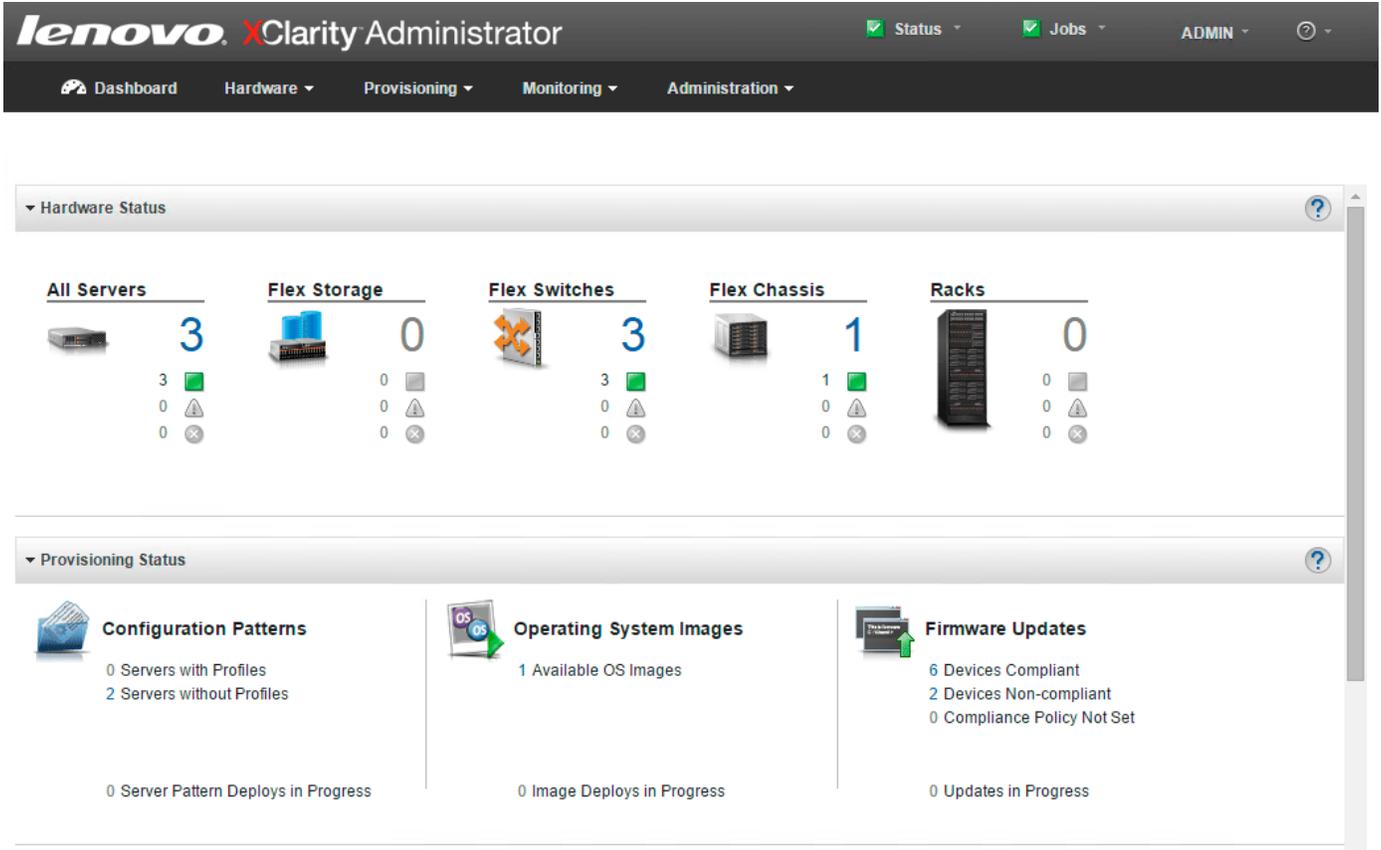


Figure 4: The Lenovo XClarity Administrator dashboard displaying components of our Flex System solution.

## Faster pattern/profile configuration

The Lenovo XClarity Administrator interface allowed us to create a configuration template, called a configuration pattern, and use the pattern to configure multiple nodes simultaneously. This kind of simplicity can let administrators quickly see which nodes have configurations and apply patterns to the ones that need them. Applying configurations en masse, as opposed to individually, can help reduce the possibility of human error.

We found that XClarity Administrator saved 51 percent of the necessary time to create and apply a configuration pattern to a node. Saving time in configuration can leave administrators free to move on to installing the operating system or updating firmware sooner. Figure 5 shows the amount of time both solutions needed to configure one node; Figure 6 shows the number of steps.

Figure 5: The time each solution took (hours:minutes:seconds) to create and apply configuration patterns or profiles. Lower numbers are better.

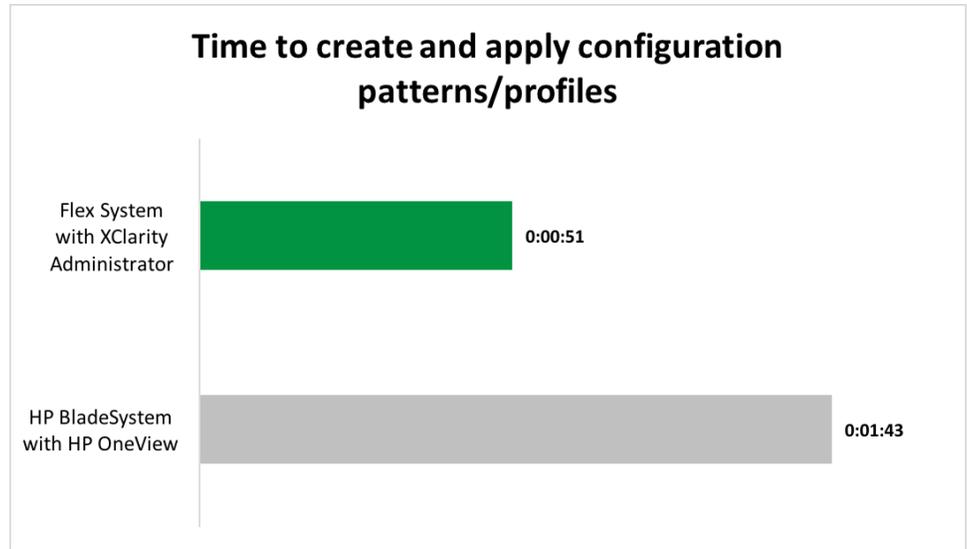
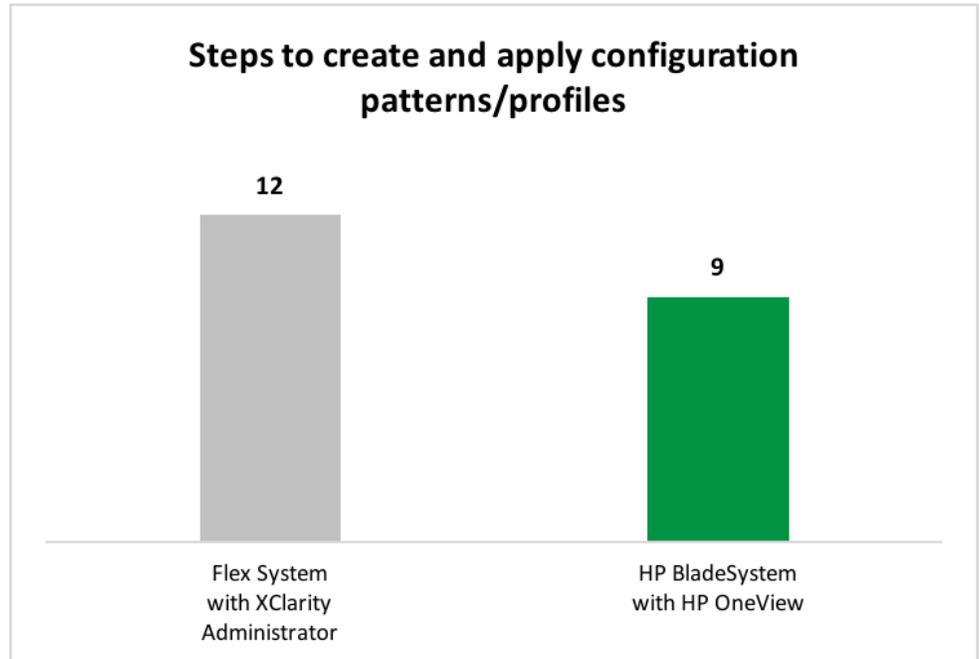


Figure 6: The number of steps each solution needed to create and apply configuration patterns or profiles. Lower numbers are better.



## Faster deployment of VMware ESXi to a bare-metal node

Lenovo XClarity Administrator automates deployment of VMware ESXi, Microsoft® Windows Server including Hyper-V®, or Red Hat® Enterprise Linux® including KVM to bare-metal compute nodes or servers. Using XClarity Administrator, administrators can deploy the operating system or hypervisor onto a single node or onto multiple nodes simultaneously. XClarity Administrator did not require an external file server or the use of software-based consoles to manage the installation.

A second HP application, HP Insight Control server provisioning, is used to automate OS and hypervisor installation to bare-metal servers.

Deploying VMware ESXi to the compute node took four seconds less with XClarity Administrator than it took using the OneView solution. With faster deployment of VMware ESXi, your administrators could move on to other critical tasks sooner, such as deploying virtual machines into production. It also took two fewer steps with XClarity Administrator. Figure 7 shows the amount of time it took with both solutions; Figure 8 shows the number of steps. These savings can scale according to your own datacenter needs and demands.

Figure 7: The time each solution took (hours:minutes:seconds) to deploy VMware ESXi to a bare-metal compute node. Lower numbers are better.

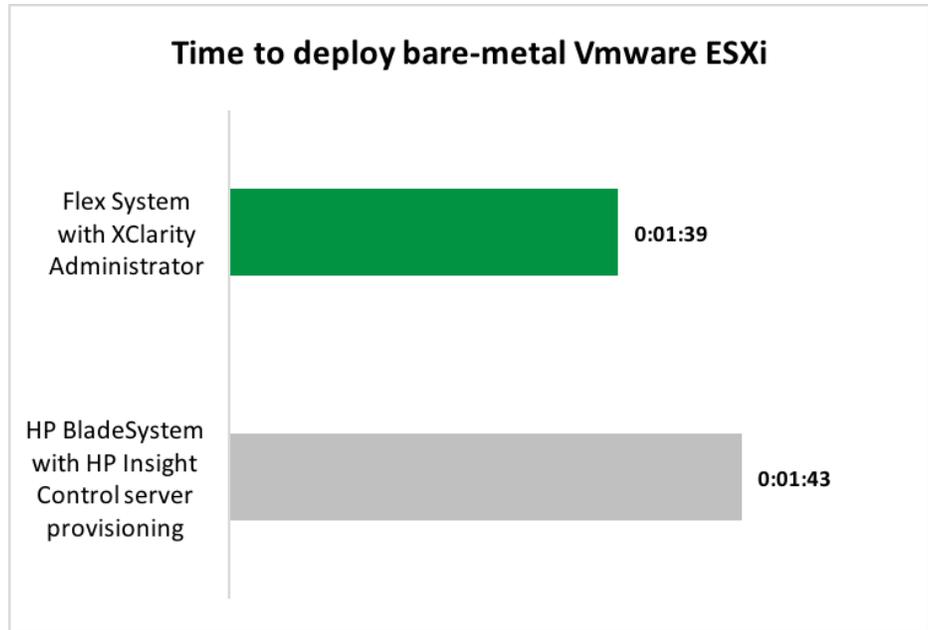


Figure 8: The number of steps each solution needed to deploy VMware ESXi to a bare-metal compute node. Lower numbers are better.

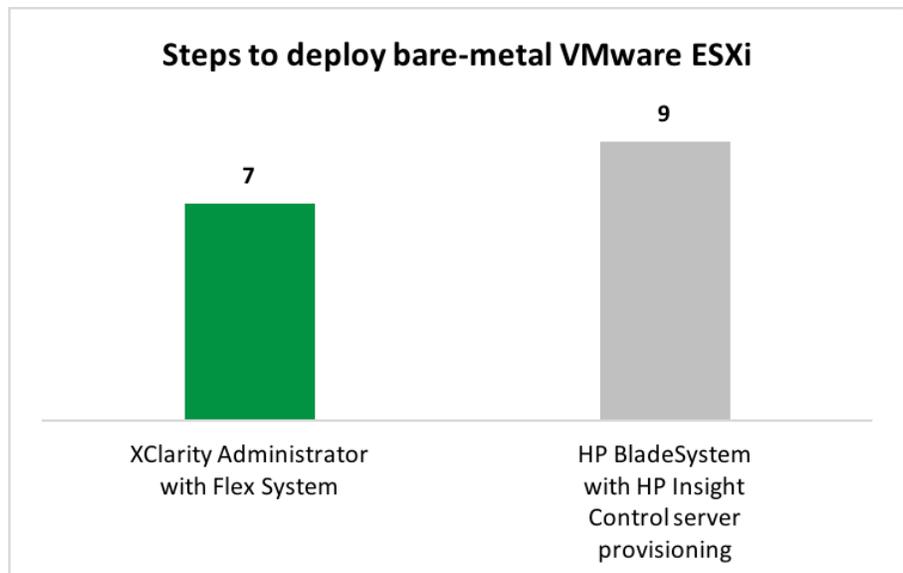


Figure 9 shows the Lenovo XClarity Administrator interface displaying endpoints available to accept OS or hypervisor deployment. Your administrators can quickly select the desired endpoints and then execute the deployment job.

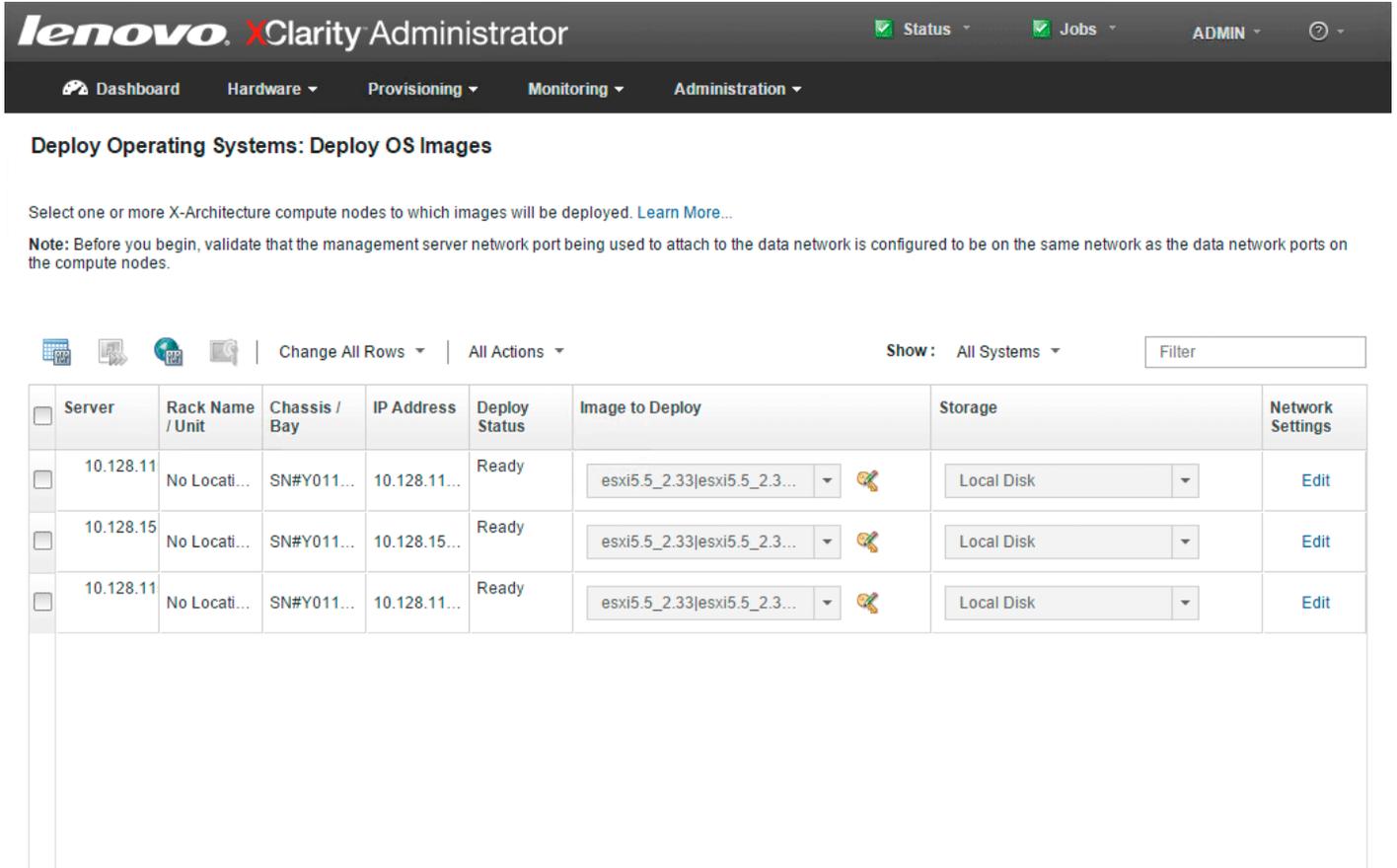


Figure 9: The Lenovo XClarity Administrator dashboard when deploying an OS image.

## Faster updates and firmware management

Applying firmware updates to Flex System with Lenovo XClarity Administrator took 82.3 percent less time than HP OneView took to update OneView components. It was also simpler to update with XClarity Administrator, requiring 14 fewer steps than performing the task with HP OneView. Figure 10 shows the amount of time it took with both solutions, and Figure 11 shows the number of steps.

Figure 10: The time each solution needed (hours:minutes:seconds) to acquire and apply firmware updates. Lower numbers are better.

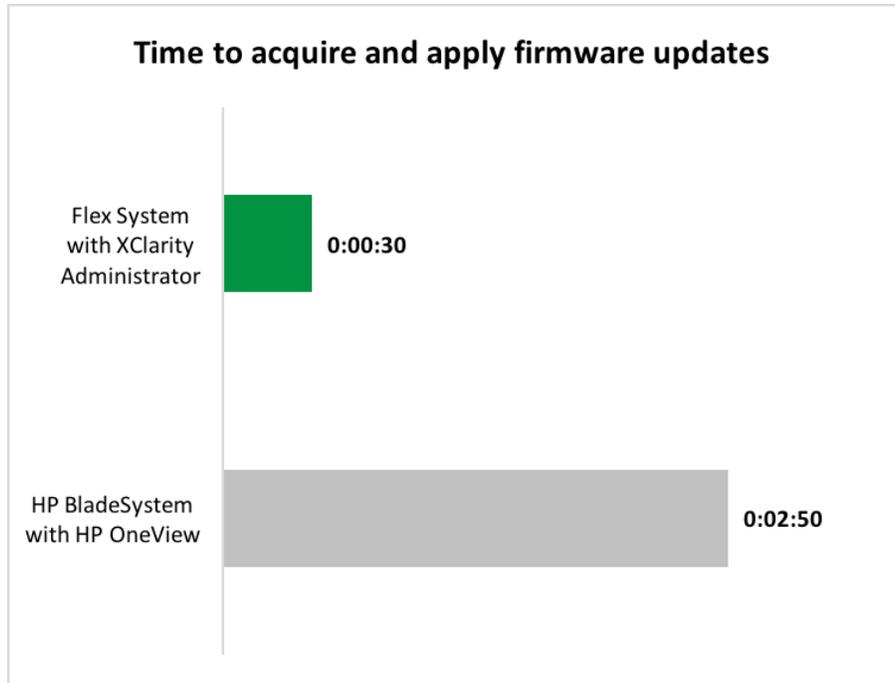


Figure 11: The number of steps each solution needed to acquire and apply firmware updates. Lower numbers are better.

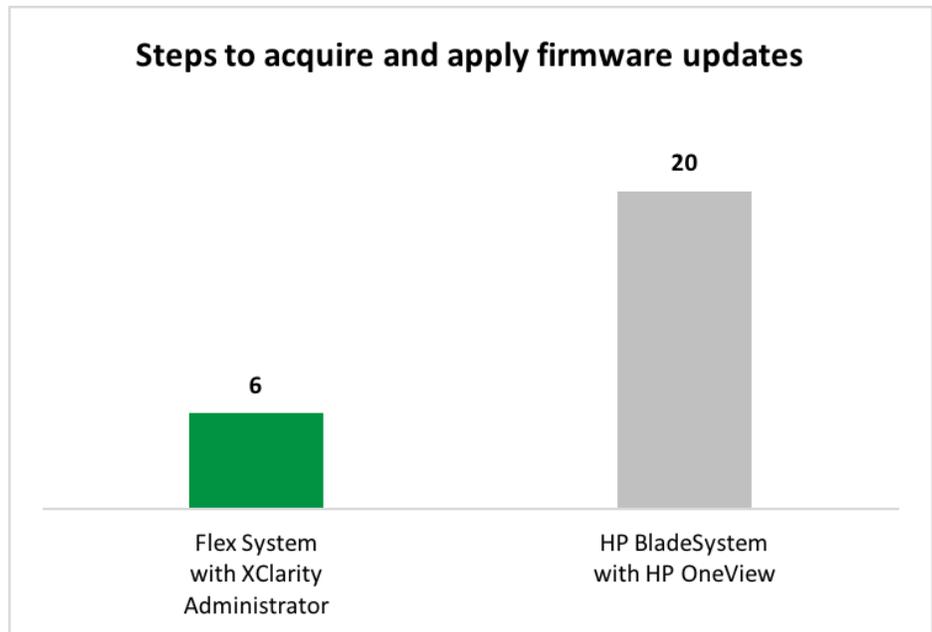


Figure 12 shows the Lenovo XClarity Administrator interface displaying the endpoints that can receive firmware updates. Similar to deploying an OS or hypervisor, your administrators can quickly select the desired endpoints to update and then execute the update job.



## APPENDIX A – ABOUT THE COMPONENTS

### About Lenovo XClarity Administrator

Designed to integrate into Lenovo servers and the Flex System converged infrastructure platform, Lenovo XClarity Administrator is a hardware management solution that can simplify and automate infrastructure tasks. XClarity Administrator features an intuitive graphical user interface (GUI); automated firmware updates, configuration patterns, and bare-metal provisioning of OSs and hypervisors; support for integration into various external, higher level management, automation, and orchestration tools; and control over hardware resources through scripting and commands by using Microsoft Windows PowerShell®.

### About the Lenovo Flex System

The Flex System is the next generation of blade technology that offers potentially greater performance, bandwidth, and ability to consolidate and virtualize than previous systems. At the center of the Flex System is the Flex System Enterprise Chassis, which enables high-speed performance with integrated servers and networking. According to Lenovo, the flexible design of this system lets it meet the needs of varying workloads with independently scalable IT resource pools for higher utilization and lower cost per workload. Learn more at [www.redbooks.ibm.com/abstracts/tips0863.html](http://www.redbooks.ibm.com/abstracts/tips0863.html).

## APPENDIX B – SYSTEM CONFIGURATION INFORMATION

Figure 13 provides detailed configuration information for the Lenovo Flex System nodes we used.

System	Lenovo Flex System x440 Compute Node-7917	Lenovo Flex System x240 Compute Node-8737	
<b>General</b>			
Number of processor packages	4	2	
Number of cores per processor	4	4	
Number of hardware threads per core	2	2	
System power management policy	Default	Default	
<b>CPU</b>			
Vendor	Intel®	Intel	
Name	Intel Xeon® Processor	Intel Xeon Processor	
Model number	E5-4603	E5-2680	
Stepping	M1	C1	
Socket type	FCLGA2011	FCLGA2011	
Core frequency (GHz)	2.0	2.7	
Bus frequency	6.4 GT/s	8 GT/s	
L1 cache	128 KB	128 KB	
L2 cache	256 KB	256 KB	
L3 cache	10 MB	20 MB	
<b>Platform</b>			
Vendor and model number	Lenovo Flex System x440 Compute Node (7917)	Lenovo Flex System x240 Compute Node (8737)	
Motherboard model number	88Y6237	95Y4788	
BIOS name and version	CNE136SUS / 1.30 (Nov 8, 2013)	B2E136TUS / 1.40 (Nov 12, 2013)	
BIOS settings	Default	Default	
<b>Memory modules</b>			
Total RAM in system (GB)	192	32	192
Vendor and model number	HMT31GR7CFR4C-PB	HMT351R7CFR8C-PB	HMT31GR7CFR4C-PB
Type	PC3-12800R	PC3-12800R	PC3-12800R
Speed (MHz)	1,600	1,600	1,600
Speed running in the system (MHz)	1,600	1,600	1,600
Size (GB)	8	4	8
Number of RAM module(s)	24	8	24
Rank	2Rx4	2Rx8	2Rx4
<b>Hypervisor</b>			
Name	VMware ESXi 5.5	VMware ESXi 5.5	
Language	English	English	

System	Lenovo Flex System x440 Compute Node-7917	Lenovo Flex System x240 Compute Node-8737
<b>Hard drives</b>		
Vendor and model number	90Y8876	42C0529
Number of drives	2	2
Size (GB)	600	200
RPM	10,000	N/A
Type	SAS	SSD
<b>Expansion card</b>		
Name	Lenovo Flex System FC3052 2-port 8Gb FC	Lenovo Flex System FC3052 2-port 8Gb FC
Firmware version	2.01A11 (Nov 15, 2012)	2.01A11 (Nov 15, 2012)

Figure 13: System configuration information for the Lenovo Flex System nodes.

Figure 14 provides detailed configuration information for the HP BladeSystem c7000 we used.

System	HP BladeSystem c7000
<b>Power supplies</b>	
Number of power supplies	6
Vendor and model number	HP 2400W HE PSU – HP P/N 499253-B21
Wattage of each (W)	2,400
<b>Cooling fans</b>	
Total number of fan modules	10
Vendor and model number	HP Active Cool 200 – HP P/N 412140-B21
<b>Chassis firmware</b>	
OA Controller Hardware Version	A1
OA Tray firmware	1.7
Onboard Administrator firmware	4.40
<b>I/O modules</b>	
Switch	HP VC FlexFabric 10Gb/24-Port Module
VC firmware	4.40
Interconnect bay	1, 2

Figure 14: Configuration information for the HP blade server chassis.

Figure 15 provides detailed configuration information for the HP ProLiant BL460c Gen9 blade server we used.

System	HP ProLiant BL460c Gen9 blade server
<b>Blade Model</b>	
Blade Model	HP ProLiant BL460c Gen9
<b>General</b>	
Number of processor packages	2
Number of cores per processor	6
Number of hardware threads per core	1
System power management policy	Default

System	HP ProLiant BL460c Gen9 blade server
<b>CPU</b>	
Vendor	Intel
Name	Xeon
Model number	E5-2609 v3
Stepping	M1
Socket type	FCLGA2011-3
Core frequency (GHz)	1.9
Bus frequency (GT/s)	6.4
L1 cach	6 × 32 KB instruction cache, 6 × 32 KB data cache
L2 cache	6 × 256 KB
L3 cache	15 MB
<b>Platform</b>	
Motherboard model number	744409-001
BIOS version	I36 v1.40 (05/06/2015)
iLO4 Firmware	2.20 May 20 2015
<b>Memory module(s)</b>	
Total RAM in system (GB)	16
Vendor and model number	SK Hynix HMA41GR7MFR4N-TF
Type	PC4-17000
Speed (MHz)	2,133
Speed running in the system (MHz)	2,133
Size (GB)	8
Number of RAM module(s)	2
Chip organization	Double-sided
Rank	Single
<b>RAID controller</b>	
Vendor and model number	HP Smart HBA H244br
Firmware version	2.52
Cache size (GB)	1
<b>Mezzanine card(s)</b>	
Card Model	HP FlexFabric 10Gb 2-port 536FLB Adapter

Figure 15: Configuration information for the HP ProLiant BL460c Gen9 blade server we used in our tests.

## APPENDIX C – HOW WE TESTED

### Discovery and inventory of Flex System chassis and compute nodes

#### Discovery and inventory using Lenovo XClarity Administrator

1. Log onto the Lenovo XClarity Administrator console.
2. In the Lenovo XClarity Administrator console, click Hardware.
3. Click Discover and Manage New Devices.
4. In the Discover and Manage New Devices screen, select the chassis that appears, and click Manage Selected.
5. In the Manage window, input the username, password, and recovery password, and click Manage.
6. In the Manage Chassis window, click OK after the XClarity Administrator finishes connecting to the chassis.
7. When given the option, select Continue to Chassis Configuration.

### Creating and applying configuration patterns to Flex System compute nodes

#### Creating and applying configuration patterns using Lenovo XClarity Administrator

1. Log onto the Lenovo XClarity Administrator console.
2. In the Lenovo XClarity Administrator console, click Provisioning.
3. Click Patterns.
4. In the Configuration Patterns: Patterns window, click the Create a new pattern button.
5. In the New Server Pattern Wizard window, click Create a new pattern from scratch.
6. Make sure the Form Factor is Flex Computer Node, write a name, and click Next.
7. In the Local Storage tab, choose the following options:
  - Disk Type: Any type (try HDD first)
  - Raid Level: RAID 1 (Mirroring)
  - Number of drives: 2

Then, click Next.

8. In the I/O Adapters tab, click Add I/O Adapter.
9. In the Add I/O Adapter window, select the following options:
  - PCI Slot 2
  - Lenovo Flex System FC3052 2-port 8Gb FC Adapter

Then, click Add.

10. Click Next.
11. Leave the option on Keep existing boot mode, and click Next.
12. Choose Extended UEFI: x240 Virtualization, and click Save and Deploy.
13. In the Deploy Server Pattern window, select your server, and click Deploy.

### Deploying bare-metal version of VMware ESXi to Flex System chassis and compute nodes

#### Deploying bare-metal ESXi using Lenovo XClarity Administrator

1. Log onto the Lenovo XClarity Administrator console.
2. In the Lenovo XClarity Administrator console, click Provisioning.
3. Click Deploy OS Images.
4. On your first server, click on the Edit button under Network Settings.
5. In the Edit Network Settings button, enter the host name and IP information, and click OK.
6. Repeat steps 4 and 5 for the next two servers.
7. Check all servers' checkboxes, make sure that the image to deploy is the provided ESXi image, and then click Deploy Images.
8. At the deployment confirmation screen, double-check that everything is set up the way you want, and click Deploy.

## Acquiring and applying firmware updates to Flex System nodes

### Applying firmware updates using Lenovo XClarity Administrator

1. Log onto the Lenovo XClarity Administrator console.
2. In the Lenovo XClarity Administrator console, click Provisioning.
3. Click Apply / Activate.
4. In the Firmware Updates: Apply / Activate screen, check all units, and change their assigned policy to the policy you created. Then, click Perform Updates.
5. In the Update summary, select the following options:
  - Update Rule: Stop all updates on error
  - Activation Rule: Immediate activation
6. Click Perform Update.
7. If you get a confirmation window warning you that the endpoint might be restarted, click OK.

## Installation, Configuration and Deployment with the HP OneView solution

### HP OneView OVF Deployment

1. From the vSphere Client, click File, Deploy OVF Template...
2. When the Deploy OVF Template wizard launches, click Browse..., navigate to the HP OneView OVA location, and click Open.
3. Click Next.
4. Review the OVF Template Details, and click Next.
5. Name the HP OneView VM (`HPOneViewTest`), select the inventory location, and click Next. If you did not specify a Specific Host, at the next screen, select the Host and click Next.
6. Select the destination storage for the virtual machine files, and click Next.
7. Select Thin Provision, and click Next.
8. Ensure the Destination Networks for the VM Network is set to the correct VLAN (for our test, we used our management VLAN), and click Next.
9. Review the Ready to Complete summary, check Power on after deployment, and click Finish.

### HP OneView Initial Setup

These steps are to follow a successful OVF deployment, and they assume that the OneView VM has been powered on.

1. From the vSphere Client, select the newly deployed appliance (`HPOneView-NoSSH_1.20.05-0201918`), and click the Console tab.
2. Click Agree to accept the HP OneView licensing terms.
3. Click Disable to turn off Authorized services access.
4. Click OK.
5. At the HP OneView login screen, enter the default User and Password (`Administrator / admin`), and click Login.
6. Enter and confirm a new password for the Administrator (`Password1`), and click OK.
7. Enter the hostname (`oneview.local`).
8. At the Appliance Networking screen, enter the IPv4 address for the appliance (`10.128.54.123`).
9. Verify the Gateway address and Preferred DNS server (`10.128.0.1` and `10.128.0.10`) are correct; Leave the default Time and Language settings, and click OK.

### HP Insight Controller OVF Deployment

1. From the vSphere Client, click File→Deploy OVF Template.
2. When the Deploy OVF Template wizard launches, click Browse.

3. Navigate to the Insight Controller OVF, and select Open.
4. Select Next on the OVF Template Details screen.
5. Provide a name for the Virtual Machine, and select an inventory location.
6. Select Next.
7. On the Host / Cluster pane, select a host for the VM deployment.
8. Select Next.
9. On the Storage pane, select the storage location.
10. Select Next.
11. On the Disk Format pane, select Thick Provisioned Eager Zeroed.
12. Select Next.
13. On the Network Mapping Pane, select the appropriate network for Insight Controller to use.
14. Select Next.
15. On the Ready to Complete pane, select Finish.

### HP Insight Control server provisioning Initial Setup

These steps are to follow a successful OVF deployment, and they assume that the OneView VM has been powered on.

1. From the vSphere Client, select the newly deployed appliance (ICsp-vmware-7.4.1-105860) and click the Console tab.
2. Click Agree to accept the HP Insight Control server provisioning License.
3. Click Disable to turn off Authorized services access.
4. Click OK.
5. At the HP Insight Control login screen, enter the default username and password, and click Login.
6. Enter and confirm a new password for the Administrator, and click OK.
7. At the Appliance Networking screen, expand the Appliance tree.
8. Enter a valid IPv4 address for the gateway address, the appliance IP address, and DNS servers.
9. Expand the Deployment tree.
10. Enter a valid IPv4 address for the deployment IP address.
11. Leave the default time & language settings, and click OK.

### Connecting HP Insight Control server provisioning & HP OneView

1. Navigate to the web client for HP Insight Control server provisioning.
2. Select the top drop-down menu, and select HP OneView Appliances.
3. Select Add Appliance.
4. Fill in all required fields, and select Add.

### HP Media Server Setup

*Note:* Download the image file for Intelligent Provisioning and the HP Service Pack for ProLiant to the media server. Also ensure the media server has access to the VMware vSphere 5.5U2 media.

1. In Windows Server 2012 R2, launch Server Manager.
2. Select Add roles and features from the Dashboard.
3. Select Next on the Before You Begin pane.
4. Select Next on the Installation Type pane.
5. Select Next on the Server Selection pane.
6. Select Next on the Server Roles pane.
7. On the Features pane, select .Net Framework 3.5 Features.
8. When a dialog to add required features appears, select Add Features.

9. Select Next on the Features pane.
10. On the Confirmation pane, select Finish.
11. Navigate to the Insight Controller server provisioning web client in a web browser.
12. Select the top drop-down menu, and select Settings.
13. Select Edit, located next to Media Server.
14. Select the link Download HP Insight Control server provisioning Media Server setup utility.
15. When the HP Install Package window opens, click Run.
16. The Media Server setup utility will launch. At the Prerequisites screen, click Continue.
17. When the Browser For Folder window launches, navigate to the Local Disk and create a new folder to host the Media Server. For our test, we created a folder on C:\ named `hpmediaserver`.
18. At the Select Components to Install screen, uncheck Select All, and check ESXi 5.5 U2, HP SPP, and Intelligent Provisioning.
19. Click Install.
20. At the Parameters screen, enter a name for the Windows File Share Name (`hpmediaserver`).
  - Enter an Authorized Windows User (`Administrator`).
21. Click Install.
22. The ESXi 5.5 U2 Setup window will launch. Mount the vSphere installation ISO by right-clicking and selecting Mount.
23. Select the browse icon next to the Distribution location, navigate to the mounted ISO, and select OK.
24. Click Install.
25. Click Close when the ESXi media transfer completes.
26. Click Close on the still-open installation dialog.
27. Navigate back to the web-client for HP Insight Control server provisioning.
28. Select the top drop-down menu, and select Settings.
29. Select Edit, located next to Media Server.
30. Provide all Media Server information.
31. Select OK.

### HP iLO License configuration

1. Navigate to the iLO of the server to be deployed.
2. Enter the correct credentials, and select Login.
3. Expand the Administration tree in the left menu, and select Licensing.
4. Enter the License Key, and select install.

### HP OneView Enclosure Discovery

1. Navigate to the web client for HP OneView.
2. Enter the credentials configured at installation, and select Login.
3. Select the top-left drop down, and select Enclosures.
4. Select Add enclosure.
5. Enter the IP address of the Onboard Administrator of the HP BladeSystem c7000. Select the radio button Managed.
6. Enter the credentials for the OA, provide an Enclosure group name, and select a Firmware baseline.
7. Select Add to start enclosure discovery.
8. When the prompt for Edit [Enclosure Group Name] logical interconnect group appears, select OK.
9. When the inventory is complete, verify all information and stop the timer.

### HP Service Pack for ProLiant Download and Integration with HP OneView

1. Navigate to [http://h17007.www1.hp.com/us/en/enterprise/servers/products/service\\_pack/spp/index.aspx](http://h17007.www1.hp.com/us/en/enterprise/servers/products/service_pack/spp/index.aspx) in a web browser. Performing this on the server that acts as a media server is ideal.
2. Under Full ISO Image, select the link to download the HP Service Pack for ProLiant. The file is 4.69 GB.
3. On the next page, select Obtain Software.
4. Select Sign-in Now on the prompt that appears.
5. Sign in with an HP account that has rights to download the HP SPP.
6. Select Obtain Software.
7. Click Select.
8. Fill out the form, and click Next.
9. Choose either the HP Download Manager or Standard download, and select Download.
10. Once the file is downloaded, navigate to the web portal for HP OneView.
11. From the top left drop down menu, select Firmware Bundles.
12. Select Add Firmware Bundle.
13. Select Choose file and navigate to the HP Service Pack for ProLiant ISO.
14. Select Start Upload.

### HP OneView Profile Creation

1. Navigate to the web client for HP OneView.
2. Select the top-left drop down, and select Server Profiles.
3. Select Create profile.
4. Provide the profile with all needed information, such as a name, description, etc. When selecting hardware on which to apply the profiles, use the following settings.
  - Server hardware: Bay 1
  - Server hardware type: BL460c Gen9
  - Enclosure group: Test Enc Group (this is the group created during discovery)
  - Affinity: Device bay + server hardware
  - Firmware baseline: HP Service Pack for ProLiant version 2015.06.0
  - Select Boot Mode Legacy BIOS
5. Select Create.
6. To create profiles for other bays/blades that are identical to the first profile, select the first profile.
7. Select the Actions menu, and select Copy.
8. Provide the new profile with a name, and enter the correct bay number.
9. Select Create.
10. Repeat steps 6–9 for each additional blade.

### HP Insight Control server provisioning discovery

1. Navigate to the web client for HP Insight Control server provisioning.
2. From the top-left drop-down menu, select Servers.
3. Select Add server.
4. Provide the server's iLO IP address, and username/credentials.
5. Select Add.

### HP Insight Control server provisioning vSphere 5.5U2 deployment with manual IP address

1. Navigate to the web client for HP Insight Control server provisioning.
2. From the top-left drop-down menu, select Device Groups.
3. Select Create device group.

4. Provide the group with a name, and add two previously discovered servers.
5. Select Create.
6. On the Actions drop-down, select Run OS Build Plans. Select Add Plan, and find the plan titled ProLiant OS - ESXi 5.5 U2 Scripted Install. Select Add.
7. Set the radio button next to Configure network to Customize.
8. Select the correct Ethernet interface to edit, and expand it. Switch the radio button to Enabled. Switch the radio button to Manual. Provide an IP address and netmask. Select the next Ethernet interface to edit, and expand it. Provide an IP address and netmask for the second discovered server, and select OK.
9. Select OK. The servers will have ESXi 5.5U2 deployed to them with manual IP address settings.

## ABOUT PRINCIPLED TECHNOLOGIES



Principled Technologies, Inc.  
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We provide industry-leading technology assessment and fact-based marketing services. We bring to every assignment extensive experience with and expertise in all aspects of technology testing and analysis, from researching new technologies, to developing new methodologies, to testing with existing and new tools.

When the assessment is complete, we know how to present the results to a broad range of target audiences. We provide our clients with the materials they need, from market-focused data to use in their own collateral to custom sales aids, such as test reports, performance assessments, and white papers. Every document reflects the results of our trusted independent analysis.

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Our founders, Mark L. Van Name and Bill Catchings, have worked together in technology assessment for over 20 years. As journalists, they published over a thousand articles on a wide array of technology subjects. They created and led the Ziff-Davis Benchmark Operation, which developed such industry-standard benchmarks as Ziff Davis Media's Winstone and WebBench. They founded and led eTesting Labs, and after the acquisition of that company by Lionbridge Technologies were the head and CTO of VeriTest.

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