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In our hands-on tests, the OpenManage Enterprise with OMEVV solution took less time and fewer steps than VMware vSphere Auto Deploy for Stateful Installation of ESXi to a bare-metal server host

Expanding your organization's data center with new servers typically means that admins must devote time to configuring and deploying them. Being able to harness tools that streamline and automate these processes reduces the burden on IT staff and gets the new gear into action sooner.

We compared the process of deploying and configuring ESXi on Dell™ servers in a VMware®-based PowerEdge™ environment using two tools: Dell OpenManage™ Enterprise Integration for VMware vCenter® (OMEVV) 1.1.0.1250 and VMware vSphere® Auto Deploy for Stateful Installation (VMware vSphere Auto Deploy).

We found that the administrative time for one-time setup and configuration was up to 93 percent less for OMEVV and that deploying bare-metal server hosts after the one-time setup and configuration was up to 74 percent less. OMEVV greatly streamlined these activities, reducing the number of required steps by as much as 83 percent for setup and configuration, and by up to 34 percent for bare-metal host deployment.

By decreasing the amount of time and number of steps necessary to put new hosts into service, using OpenManage Enterprise Integration for VMware vCenter can free your admins to perform other activities.

93% less time
to complete one-time setup and configuration

Up to
34% fewer steps
to deploy bare-metal server hosts

Reduced complexity and likelihood of error

OMEVV Deployment Wizard vs. multiple screens and tools to achieve the same outcome in VMware vSphere Auto Deploy

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How we approached testing

We set up three Dell PowerEdge servers to capture the amount of time and number of steps required to provision Dell servers with ESXi software in a vCenter environment using two different automatic deployment solutions:

- OpenManage Enterprise with OMEVV leveraging agent-free iDRAC
- vSphere Auto Deploy for Stateful Installation using PXE boot

We also explored the features the two solutions offer and noted several advantages that OpenManage Enterprise with OMEVV offers over vSphere Auto Deploy for Stateful Installation.

About the OpenManage Enterprise Integration for VMware vCenter

The latest release of OpenManage Enterprise Integration for VMware vCenter (OMEVV) utilizes OpenManage Enterprise data in the vCenter administration portal. The integration can improve vCenter monitoring and management in a VMware software-based PowerEdge environment by offering the following:[1]

- Hardware information and alerts pulled into vCenter with controls for notifications
- iDRAC address and service tag details
- Dell warranty information
- Deep-level detail on certified Dell hardware components, including memory and local drives
- Support for both vLCM and VMware Active HA

As we found in previous testing,[2] OMEVV automates server firmware updating. The update runs sequentially on each host in a cluster by putting the host into maintenance mode, executing the update task, and returning each host from maintenance mode one by one. This cluster method in conjunction with VMware DRS allows the workload to remain up and running. For more information, please visit https://www.principledtechnologies.com/clients/reports/Dell/OpenManage-Integration-for-VMware-vCenter-1122.pdf.

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What we found: The numbers

In this section, we focus on the quantitative advantages of Dell OMEVV over VMware vSphere Auto Deploy for configuration and deployment: less time and fewer steps required to complete tasks.

One-time setup and configuration

In the first phase of testing, we investigated the time requirements and complexity of performing one-time setup and configuration with the two solutions. Before we dive into our detailed findings, let's look at a high-level overview of what the two processes involve. As Figure 1 illustrates, the Dell OMEVV process consisted of only two phases. In contrast, the VMware vSphere Auto Deploy process consisted of six phases (see Figure 2).

Workflow with Dell OMEVV:

Install OMEVV → Create ISO profile

Figure 1: High-level steps necessary to perform one-time setup and configuration of servers using Dell OMEVV.
Source: Principled Technologies.

Workflow with VMware vSphere Auto Deploy:

Enable vCenter Auto Deploy → Create Software Depot → Set up & configure TFTP server → Configure DHCP options → Deploy reference server → Create host profile from reference server
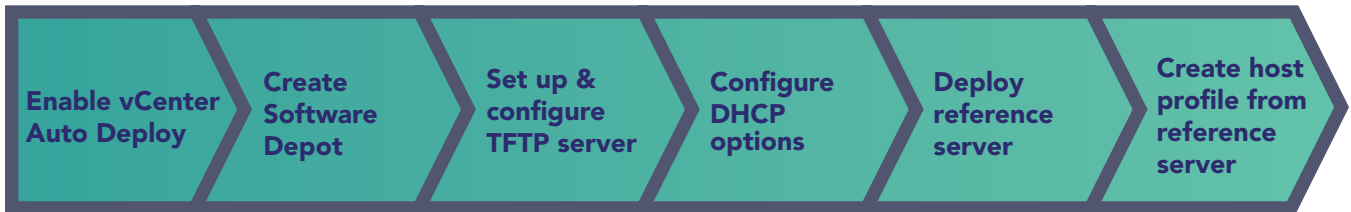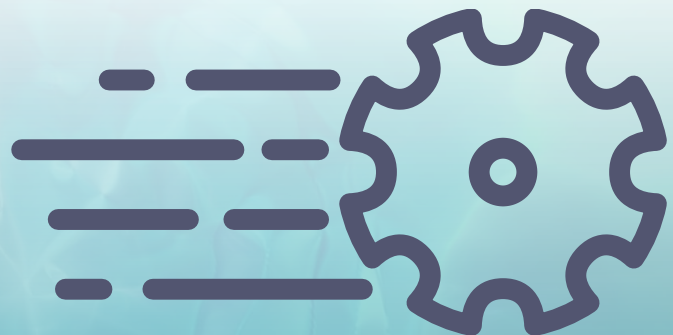
Figure 2: High-level steps necessary to perform one-time setup and configuration of servers using VMware vSphere Auto Deploy.
Source: Principled Technologies.

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Having more phases does not necessarily equate to requiring more time and steps, but in our testing, it did. As Figure 3 shows, using Dell OMEVV to perform one-time setup and configuration was indeed more streamlined than the process with VMware vSphere Auto Deploy, with the process taking fewer than one-sixth the number of steps. It required less admin time, requiring just over 2 minutes versus nearly half an hour.
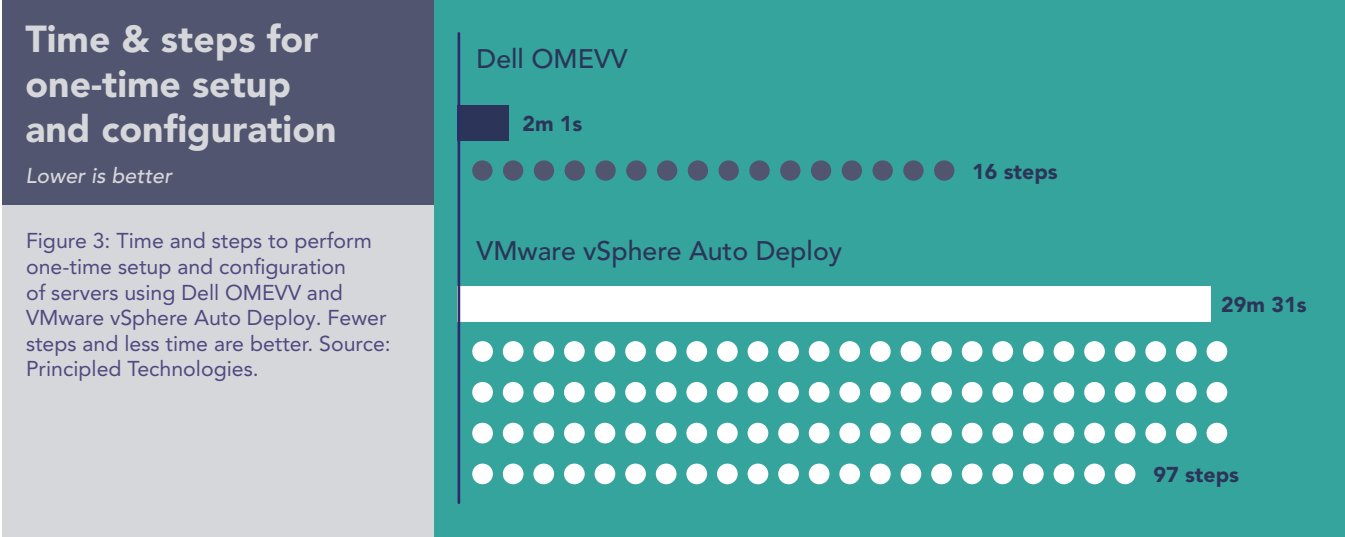

Time & steps for one-time setup and configuration

Lower is better

Figure 3: Time and steps to perform one-time setup and configuration of servers using Dell OMEVV and VMware vSphere Auto Deploy. Fewer steps and less time are better. Source: Principled Technologies.

Dell OMEVV

2m 1s

16 steps

VMware vSphere Auto Deploy

29m 31s

97 steps

Table 1 breaks down the time and steps for each of the two phases of the Dell OMEVV process. As it shows, both were quick for our technician to execute.

Table 1: Time and steps required to perform each phase of the one-time setup and configuration of servers using Dell OMEVV. Fewer steps and less time are better. Source: Principled Technologies.

Dell OMEVV	Time (min:sec)	Steps
Installing OMEVV	01:19	11
Creating ISO profile	00:42	5
Total one-time setup	**02:01**	**16**

Table 2 breaks down the time and steps for each of the six phases of the VMware vSphere Auto Deploy process. While most of these took our technician a minute or less to execute, setting up and configuring the TFTP server and deploying the reference server took significantly longer.

Table 2: Time and steps required to perform each phase of the one-time setup and configuration of servers using VMware vSphere Auto Deploy. Fewer steps and less time are better. Source: Principled Technologies.

VMware vSphere Auto Deploy	Time (min:sec)	Steps
Enabling vCenter Auto Deploy	00: 40	3
Creating Software Depot	00: 42	2
Setting up and configuring TFTP server	13:13	37
Configuring DHCP options	01: 23	9
Deploying reference server	12:38	25
Creating host profile from reference server	00:55	21
Total one-time setup	**29:31**	**97**

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Deploying hosts

In the second phase of our testing, we investigated the time requirements and complexity of deploying one, two, and three hosts using the two solutions. As we did earlier, let's start with a high-level overview of what the two processes involve. As Figure 4 illustrates, the Dell OMEVV process of deploying a host consisted of three phases: discovering the servers in OME, discovering those hosts as bare-metal servers in OMEVV within vCenter, and creating a deployment job. In contrast, the VMware vSphere Auto Deploy process consisted of five phases (see Figure 5).

Workflow with Dell OMEVV:

Discover servers in OME → Discover bare-metal servers in OMEVV → Create deployment job

Figure 4: High-level steps necessary to deploy a host using Dell OMEVV. Source: Principled Technologies.

Workflow with VMware vSphere Auto Deploy:

Create new rule → Activate rule → Boot server through deployment → Customize host → Perform host remediation against profile

Figure 5: High-level steps necessary to deploy a host using VMware vSphere Auto Deploy. Source: Principled Technologies.

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Time and steps to deploy a single host

As Figure 6 shows, using Dell OMEVV to deploy one host was more streamlined than performing the same task using VMware vSphere Auto Deploy, with the process taking fewer steps. Deployment with OMEVV took 2.5 minutes of admin time compared to more than 8 minutes of admin time for vSphere Auto Deploy.

Figure 6: Time and steps to deploy a single host using Dell OMEVV and VMware vSphere Auto Deploy. Fewer steps and less time are better. Source: Principled Technologies.

Time & steps to deploy one server

Lower is better

Dell OMEVV
2m 30s
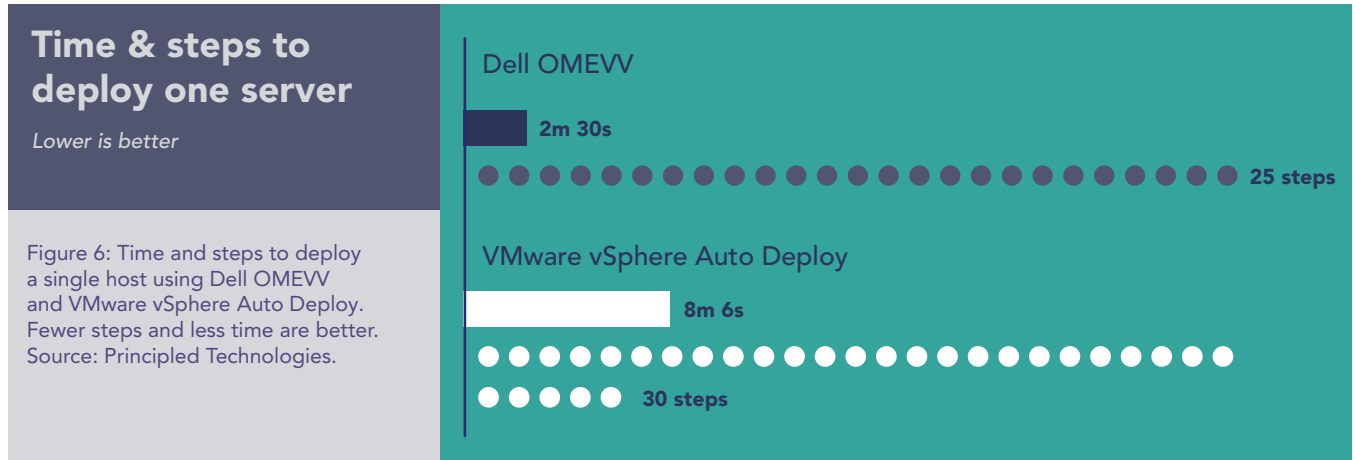25 steps

VMware vSphere Auto Deploy
8m 6s
30 steps

Table 3 provides of breakdown of the time and steps each phase of the Dell OMEVV process required.

Table 3: Time and steps required to perform the three phases involved with deploying one host using Dell OMEVV. Fewer steps and less time are better. Source: Principled Technologies.

Dell OMEVV	Time (min:sec)	Steps
Discovering servers in OME	00:17	8
Discovering bare-metal servers	00:29	8
Creating deployment job	01:44	9
Total	**02:30**	**25**

In contrast to the Dell OMEVV process, the VMware vSphere Auto Deploy process was more complex, with five distinct phases. Four of these took our technician 45 seconds or less to execute, but booting the server through deployment took more than 6 minutes (see Table 4).

Table 4: Time and steps required to perform the five phases involved with deploying one host using VMware vSphere Auto Deploy. Fewer steps and less time are better. Source: Principled Technologies.

VMware vSphere Auto Deploy	Time (min:sec)	Steps
Creating new rule	00:45	8
Activating rule	00:12	6
Booting server through deployment	06:27	4
Customizing host	00:34	6
Performing host remediation against profile	00:08	6
Total	**08:06**	**30**

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Time and steps to deploy two hosts

As Figure 7 shows, using Dell OMEVV to deploy two hosts took the same number of steps as deploying one with only 4 additional seconds. In contrast, the process with VMware vSphere Auto Deploy needed four additional steps and 53 additional seconds.
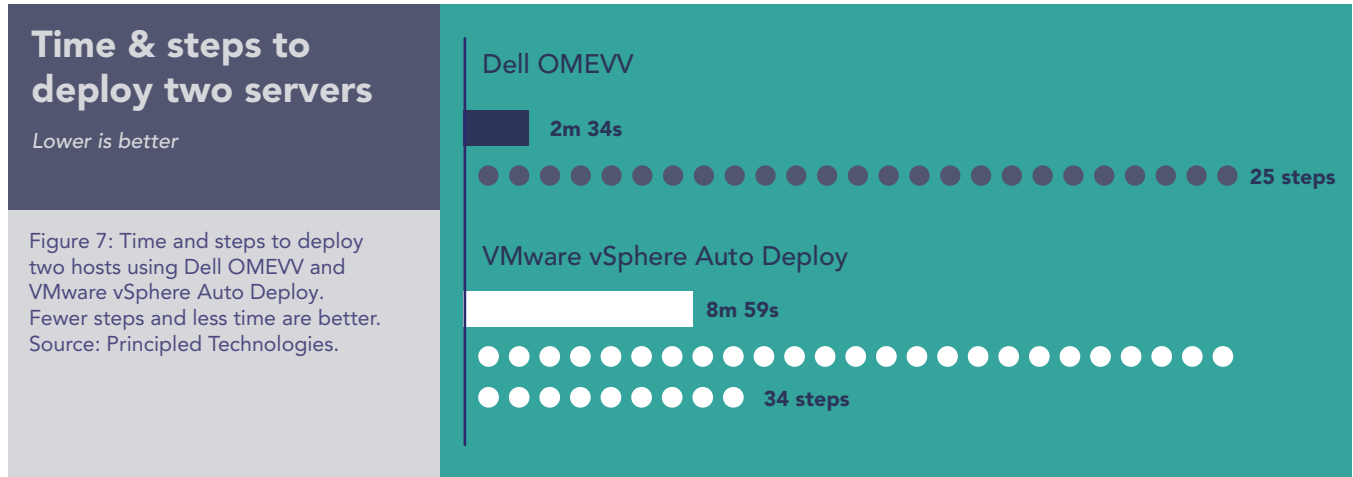

Time & steps to deploy two servers

Lower is better

Figure 7: Time and steps to deploy two hosts using Dell OMEVV and VMware vSphere Auto Deploy. Fewer steps and less time are better. Source: Principled Technologies.

Dell OMEVV
2m 34s
25 steps

VMware vSphere Auto Deploy
8m 59s
34 steps

Table 5 provides of breakdown of the time and steps each phase of the Dell OMEVV process required.

Table 5: Time and steps required to perform the three phases involved with deploying two hosts using Dell OMEVV. Fewer steps and less time are better. Source: Principled Technologies.

Dell OMEVV	Time (min:sec)	Steps
Discovering servers in OME	00:17	8
Discovering bare-metal servers	00:29	8
Creating deployment job	01:48	9
Total	**02:34**	**25**

Table 6 breaks down the time and steps for each of the five phases of the VMware vSphere Auto Deploy process for deploying two hosts. Four of these took our technician 53 seconds or less to execute, but booting the server through deployment took almost 7 minutes.

Table 6: Time and steps required to perform the five phases involved with deploying two hosts using VMware vSphere Auto Deploy. Fewer steps and less time are better. Source: Principled Technologies.

VMware vSphere Auto Deploy	Time (min:sec)	Steps
Creating new rule	00:53	8
Activating rule	00:12	6
Booting server through deployment	06:59	8
Customizing host	00:47	6
Performing host remediation against profile	00:08	6
Total	**08:59**	**34**

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Time and steps to deploy three hosts

As Figure 8 shows, using Dell OMEVV to deploy three hosts took the same number of steps as deploying a single host and only 6 additional seconds. In contrast, the process with VMware vSphere Auto Deploy required eight additional steps and an extra 2 minutes and 11 seconds.
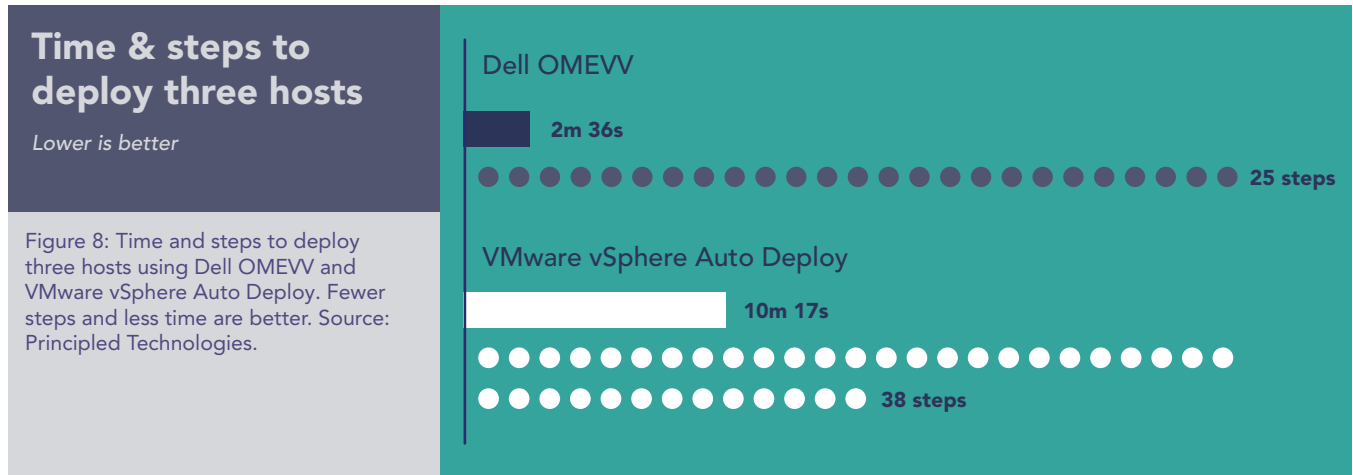

Time & steps to deploy three hosts

Lower is better

Figure 8: Time and steps to deploy three hosts using Dell OMEVV and VMware vSphere Auto Deploy. Fewer steps and less time are better. Source: Principled Technologies.

Dell OMEVV — 2m 36s — 25 steps

VMware vSphere Auto Deploy — 10m 17s — 38 steps

Table 7 provides of breakdown of the time and steps each phase of the Dell OMEVV process required.

Table 7: Time and steps required to perform the three phases involved with deploying three hosts using Dell OMEVV. Fewer steps and less time are better. Source: Principled Technologies.

Dell OMEVV	Time (min:sec)	Steps
Discovering servers in OME	00:17	8
Discovering bare-metal servers	00:29	8
Creating deployment job	01:50	9
Total	**02:36**	**25**

With three hosts, four of the five phases of the VMware vSphere Auto Deploy process took our technician 1 minute and 19 seconds or less to execute. However, booting the server through deployment took 7 minutes and 40 seconds (see Table 8).

Table 8: Time and steps required to perform the five phases involved with deploying three hosts using VMware vSphere Auto Deploy. Fewer steps and less time are better. Source: Principled Technologies.

VMware vSphere Auto Deploy	Time (min:sec)	Steps
Creating new rule	00:58	8
Activating rule	00:12	6
Booting server through deployment	07:40	12
Customizing host	01:19	6
Performing host remediation against profile	00:08	6
Total	**10:17**	**38**

As our findings in this section show, **the amount of time that administrators save by selecting the Dell solution increased as the number of deployed servers increased.** Because the time savings as we added servers was not linear, we can't reliably extrapolate the savings organizations would see with larger deployments. However, when deploying a large VMware vSphere ESXi cluster of 32 or more servers, the time savings would be even more substantial than what we have shown here.

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What we found: The experience

In this section, we present some of the qualitative advantages of Dell OMEVV over VMware vSphere Auto Deploy for configuration and deployment.

Some advantages of Dell OMEVV

- Our team found OMEVV substantially easier to use than vSphere Auto Deploy and found that its documentation covers all of the use cases we tested.
- By reducing complexity, job deployment in OMEVV reduces the likelihood of error. Using vSphere Auto Deploy, it is possible to miss steps when navigating among Profiles, Auto Deploy, Rules, Inventory, and back to Profiles to remediate after the first deployment pass completes.
- OMEVV operates within a single GUI. The user stays within the OMEVV plugin area to complete tasks such as selecting target servers, creating an ISO profile, and creating a deployment job. To create a deployment job, the user stays in a single-pane Deployment Wizard, which functions as a guided tutorial (see Figure 9). In contrast, vSphere Auto Deploy requires the user to move among a variety of different screens and locations.
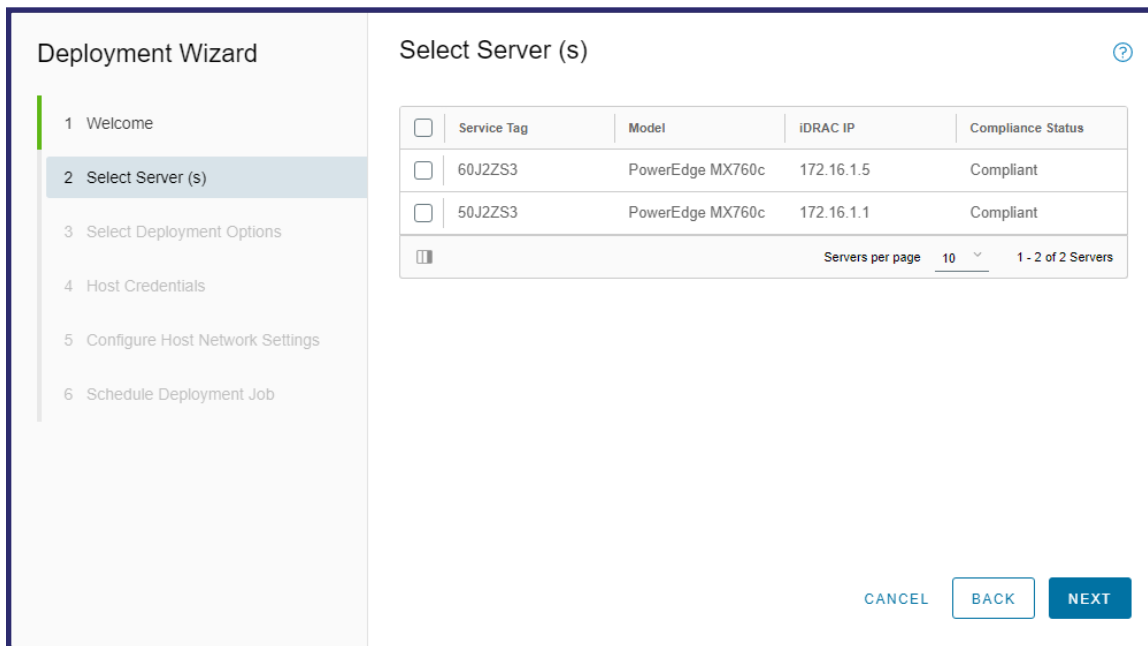

Figure 9: Representative screen from the OMEVV Deployment Wizard.

- Even if an existing OS is present on the server boot volume, OMEVV can perform an installation without intervention by leveraging the Lifecycle Controller; in contrast, using VMware guidance for setting PXE as the secondary boot method, reinstalling using vSphere Auto Deploy requires manual intervention to invoke the boot menu and users must manually select the PXE option for boot.
- OMEVV assigns static IPs before installation; vSphere Auto Deploy does this after installation. In a real-world setting, the vSphere Auto Deploy approach wastes time. Admins must wait, turning the install time into active administration time where the admin is unable to work on other tasks or jobs because another step is waiting for them at the end.
- OMEVV offers additional features beyond deployment that vSphere Auto Deploy does not (see box on page 2). Once you have added servers using OMEVV, they benefit from OME. For example, OME offers development of firmware setting and support for call-home service, detailed reports, and other plugins.

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Some disadvantages of vSphere Auto Deploy

- vSphere Auto Deploy requires PXE boot, which has networking considerations that users must accommodate.

- vSphere Auto Deploy requires a TFTP server, which is a potential disadvantage because their lack of authentication and encryption makes these servers less secure and more prone to attacks.

- In vSphere Auto Deploy, users can only import or extract host profiles and cannot build them from scratch. This limitation means users must have a template server, which adds steps.

- In vSphere Auto Deploy, Server Initial Config is more specific, whereas in OMEVV Server Initial Config only ensures that defaults are enabled. It is possible to work with Dell so that servers come pre-configured and ready to go for OME/OMEVV on the day they arrive; the admin needs only to power them on, discover them in OME, and run a deployment job.

- To use rules that target specific servers in vSphere Auto Deploy, the user must know certain information about the servers ahead of time, such as IP addresses, serial numbers, or drive and driver types for targeted installation. OMEVV does not require this.

Conclusion

Deploying servers can be a time-consuming task but it doesn't have to be. In a VMware-based Dell PowerEdge environment, we found that using Dell OpenManage Enterprise Integration for VMware vCenter to configure and deploy bare-metal server hosts greatly reduced the administrative burden in terms of time and complexity compared to using VMware vSphere Auto Deploy. In addition, by letting our technician perform these tasks in up to 74 percent less administrative time and with 34 percent fewer steps, Dell OMEVV is the clear winner in efficiency and complexity, all from a single console with the added benefit of introducing customers to the host of other OME features.

To streamline your deployment of new ESXi servers and optimize your administrator's time, choose Dell OpenManage Enterprise Integration for VMware vCenter.
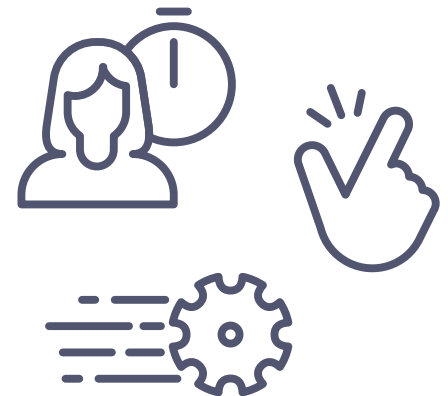
1. Dell, "OpenManage Enterprise Integration for VMware vCenter," accessed April 14, 2023, https://www.dell.com/support/kbdoc/000176981/openmanage-integration-for-vmware-vcenter.

2. Principled Technologies, "Implement cluster-aware firmware updates to save time and effort," accessed April 18, 2023, https://www.principledtechnologies.com/clients/reports/Dell/OpenManage-Integration-for-VMware-vCenter-1122.pdf.

Read the science behind this report at https://facts.pt/cWfB13A ▶

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