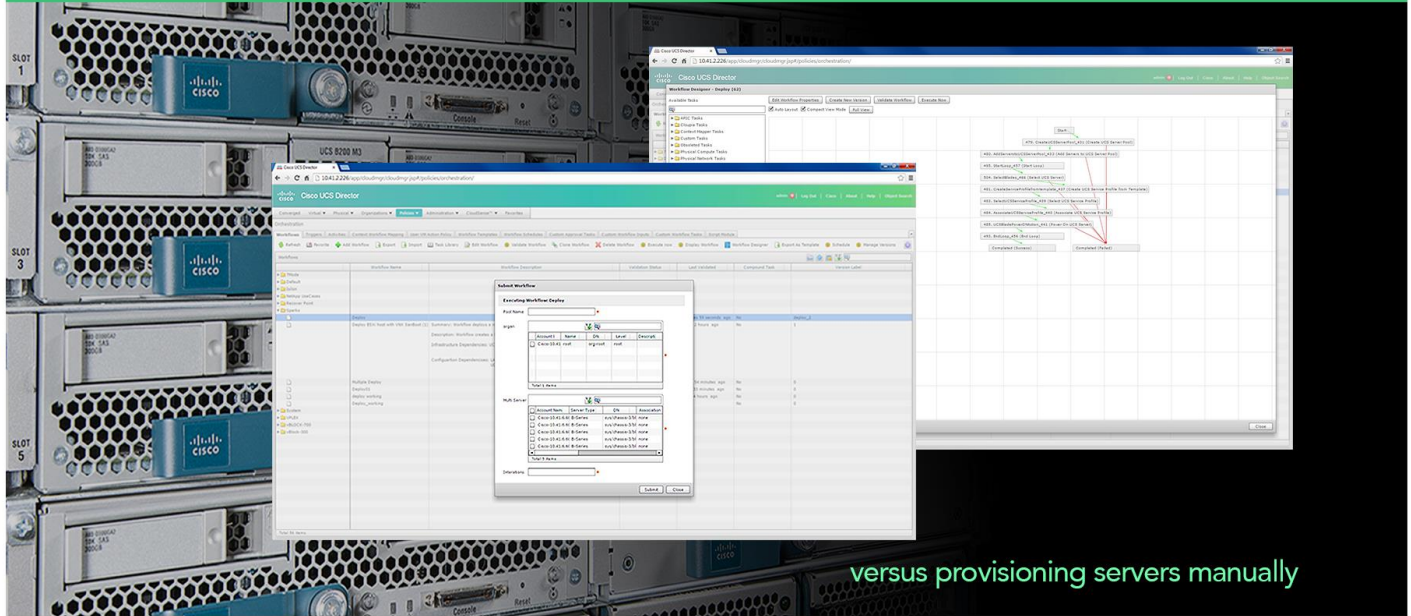


SIMPLIFYING SERVER PROVISIONING WITH CISCO UCS DIRECTOR

Simplify server provisioning with Cisco® UCS® Director™

88.4% fewer steps
to provision
six servers

12.9% less time
required for
server provision



Provisioning servers—getting them ready for operation under your organization’s specific guidelines—requires a number of considerations and a significant amount of work that system administrators have traditionally had to do manually.

Designed to operationalize bare-metal and physical server resources into automated workflows, Cisco UCS Director replaces complex, time-consuming manual tasks with server automation, which can increase the efficiency of datacenter staff. Cisco UCS Director’s automated deployment model abstracts hardware and software elements into programmable tasks that replace manual troubleshooting and rework associated with human error while freeing up essential data center staff to focus on more strategic business projects.

In the Principled Technologies labs, we looked at how Cisco UCS Director simplified server provisioning. Using a preconfigured workflow, we found that UCS Director provisioned a single server in 66.0 percent fewer steps and in 8.5 percent less time than doing so manually. When we increased the number of servers to six, Cisco UCS Director took 12.9 percent less time, which netted an 88.4 percent reduction in the number of steps required vs. manual provisioning. In environments where multiple servers are being provisioned on a daily basis, Cisco UCS Director can provide significant time savings, and potentially cost reductions when you switch from manual processes.



THE VALUE OF AUTOMATION WITH UCS DIRECTOR

As the pace of business continues to increase, replacing manual tasks with automated provisioning delivers efficiency as well as cost savings to your bottom line. Cisco UCS Director's comprehensive provisioning and management for integrated infrastructure solutions streamlines management of servers with these features:

- Central management from a single-pane
- Policy-based provisioning
- Adaptive provisioning
- Dynamic capacity management
- End-to-end process automation

Provisioning new servers as your business grows or as needs shift can be a time-consuming task. Cisco UCS Director lets administrators use preconfigured workflows to get servers into production more quickly. This workflow format and template creation also ensures that each server in your environment follows the best practices and guidelines your organization follows regarding configurations and resources. Policy-based provisioning means admins can automatically deploy servers with the predetermined template to save time and minimize error.

To learn more about Cisco UCS Director, visit www.cisco.com/go/ucsdirector.

IN OUR LABS

We provisioned Cisco UCS B200 M3 servers our in our labs using both UCS Director and a traditional manual approach. First, we provisioned a single blade. Then, to show the impact of time savings as we added more servers, we provisioned six blades.

In our tests, provisioning consisted of the following:

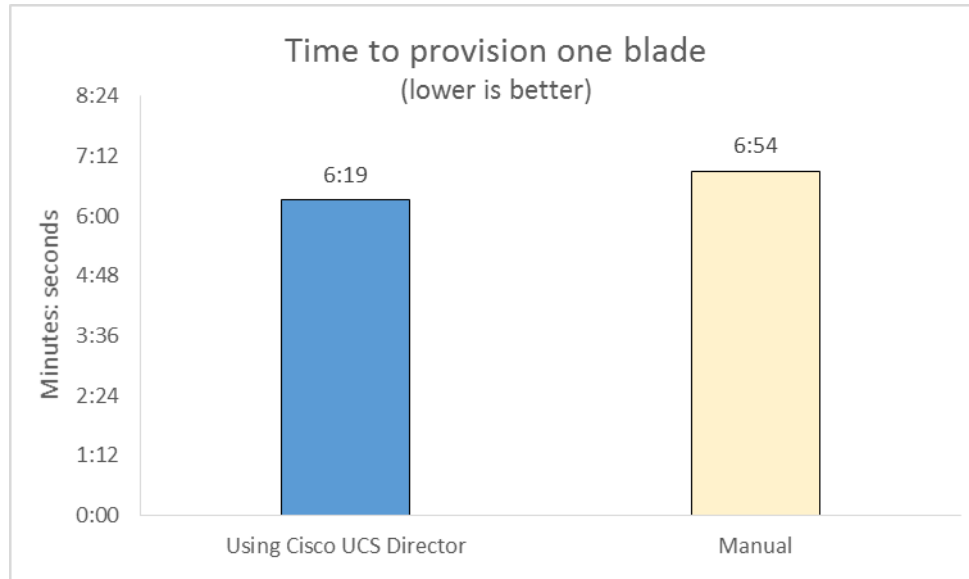
1. Create UCS Service Pool.
2. Add UCS Servers to Service Pool.
3. Select UCS Servers.
4. Create Service Profile from Template.
5. Associate Service Profile to Template.
6. Power on Server to preconfigured LUN containing VMware ESXi 5.5.

For more information about our test components, see [Appendix A](#). For system configuration information, see [Appendix B](#), and for detailed steps about how we tested, see [Appendix C](#).

PROVISIONING A SINGLE BLADE

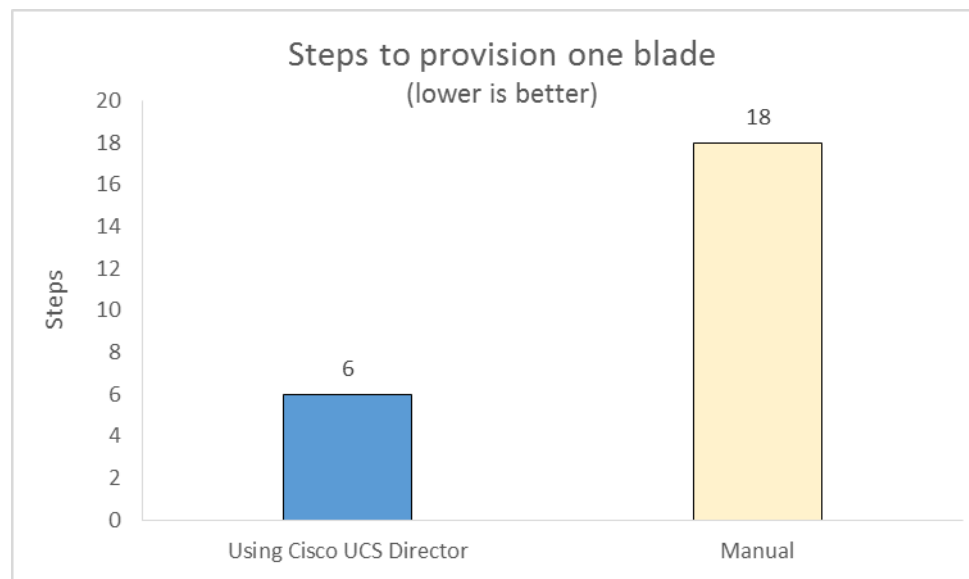
Using Cisco UCS Director, we were able to provision a single Cisco UCS B200 M3 blade in just 6 minutes, 19 seconds—8.5 percent less time than doing the same task manually (see Figure 1).

Figure 1: Comparison of the time it took to provision a single blade.



Provisioning a single server with Cisco UCS Director also dramatically reduced the number of steps it took to get the server up and running compared to the manual approach. As Figure 2 shows, Cisco UCS Director provisioned a single UCS B200 M3 blade in just 6 steps, compared to 18 steps for manual provisioning, a 66.7 percent reduction.

Figure 2: Comparison of the steps it took to provision a single blade.



PROVISIONING SIX BLADES

We saw a similar story when we compared the time and steps it took to provision six Cisco UCS B200 M3 blades. Using Cisco UCS Director to automate the process increased time and step savings even further.

As Figure 3 shows, Cisco UCS Director provisioned six blades in 12.9 percent less time than provisioning them manually.

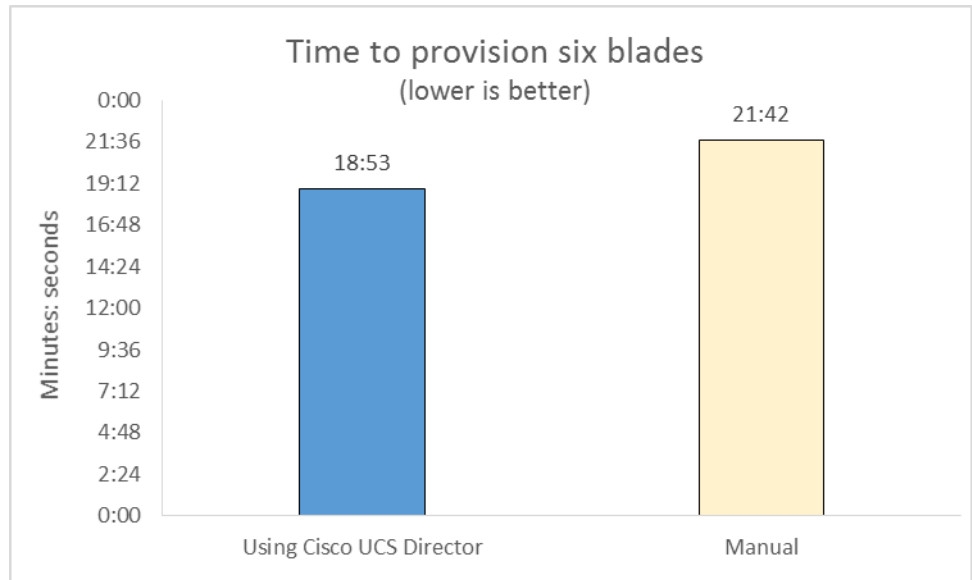


Figure 3: Comparison of the time it took to provision six blades.

The number of steps it took to provision six blades manually was staggering; it took 52 steps to complete the task. Using Cisco UCS Director reduced the number of steps to provision six blades by 88.4 percent, doing so in only six steps. (See Figure 4.)

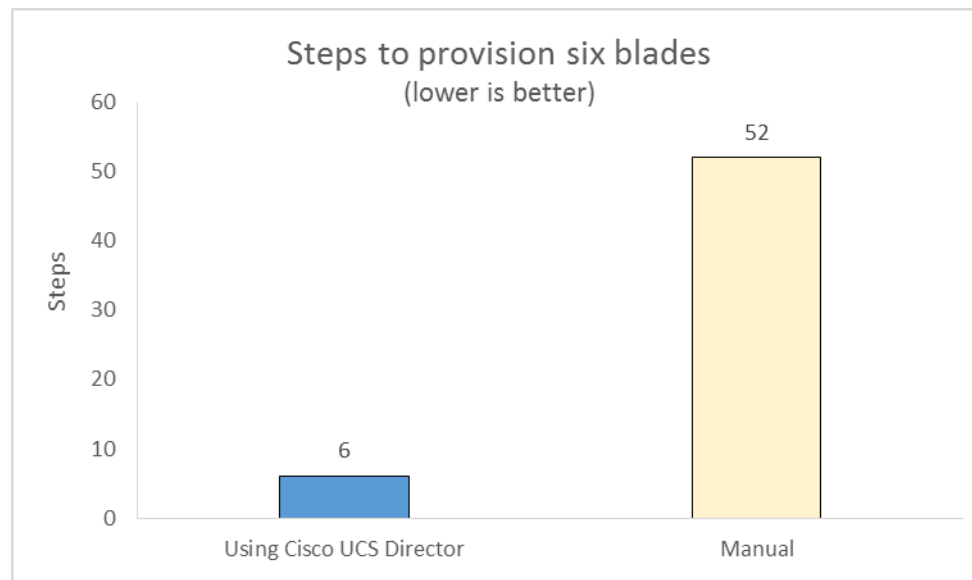


Figure 4: Comparison of the steps it took to provision six blades.

CONCLUSION

In our tests, Cisco UCS Director provisioned servers in up to 12.9 percent less time than provisioning them manually and reduced steps by as much as 88.4 percent.

So what do our findings mean for your organization? By reducing the amount of time and number of steps it takes to provision servers with the automation of Cisco UCS Director, you can help save your systems administrators time so they can work on more strategic projects or even reduce the number of staff you require. Moving from manual provisioning to automated provisioning with Cisco UCS Director can have a significant impact on your management budget by streamlining routine tasks—and the savings could only be expected to grow along with your server count.

APPENDIX A – ABOUT THE COMPONENTS

About the Cisco UCS B200 M3

The Cisco UCS B200 M3 is a half-width blade providing up to two multi-core Intel® Xeon® processors E5-2600 v2 and 24 DIMM slots supporting up to 768 GB of DDR3 RAM. Up to eight B200 M3 servers can reside in a single Cisco UCS 5108 Blade Server Chassis. The B200 M3 can house two hot-pluggable SAS or SATA hard disk drives (HDDs) or solid-state drives.

To learn more about the Cisco UCS B200 M3 blade, visit

www.cisco.com/c/en/us/products/servers-unified-computing/ucs-b200-m3-blade-server/index.html.

About the Cisco UCS Invicta C3124SA Appliance

The Cisco UCS Invicta C3124SA storage appliance is an all-Flash solid-state storage solution designed to accelerate disk IO. The Invicta C3124SA is available in varying capacities up to 24 TB and features the Intel Xeon processor E5-2680 v2 and 24 DIMM slots. The Invicta C3124SA is part of the Cisco UCS Invicta Scaling System and runs with the Cisco UCS Invicta operating system, which uses NAND flash memory in order to speed up performance.

To learn more about the Cisco UCS Invicta C3124SA appliance, visit

www.cisco.com/c/en/us/products/collateral/servers-unified-computing/ucs-invicta-series-solid-state-system/datasheet-c78-730572.html.

APPENDIX B – SYSTEM CONFIGURATION INFORMATION

Figure 5 provides detailed configuration information for the test systems.

System	Cisco UCS B200 M3 server
General	
Number of processor packages	2
Number of cores per processor	8
Number of hardware threads per core	16
System power management policy	OS Control
CPUs	
Vendor	Intel®
Name	Xeon®
Model number	E5-2650 v2
Stepping	4
Socket type	FCLGA2011
Core frequency (GHz)	2.60
Bus frequency	8.0 GT/s
L1 cache	32 KB + 32 KB (per core)
L2 cache	256 KB (per core)
L3 cache	20 MB
Platform	
Vendor and model number	Cisco UCS B200 M3
Motherboard model number	73-13217-07
BIOS name and version	Cisco B200M3.2.2.1a.0.111220131105
BIOS settings	Default
Memory module(s)	
Total RAM in system (GB)	128
Vendor and model number	Hynix HMT31GR7EFR4C-RD
Type	PC3-14900
Speed (MHz)	1,866
Speed running in the system (MHz)	1,333
Size (GB)	8
Number of RAM module(s)	16
Chip organization	Double-sided
Rank	Dual
RAID controller	
Vendor and model	LSI MegaRAID SAS
Controller firmware	10.11.1-0135
Operating system	
Name	ESXi-5.5.0
Build number	1746018-Custom-Cisco-5.5.1.3
Language	English
Operating system power profile	Maximum Performance

System	Cisco UCS B200 M3 server
I/O adapters	
Vendor and model number	Cisco UCS VIC 1240
Type	mLOM

Figure 5: System configuration information for our test servers.

Figure 6 provides detailed configuration information for the test storage.

System	Cisco UCS Invicta C3124SA Appliance
Storage	
Number of 24-disk processor enclosures	1
Power supplies	
Total number	2
Disk array enclosures	
Number of 24-disk array enclosures	1
Disks	
Number of 240GB SSDs	24
Operating system	
Name	Invicta 5.0.1.1a Release 016

Figure 6: Configuration information for the test storage.

APPENDIX C – HOW WE TESTED

Figure 7 shows how we set up our test bed.

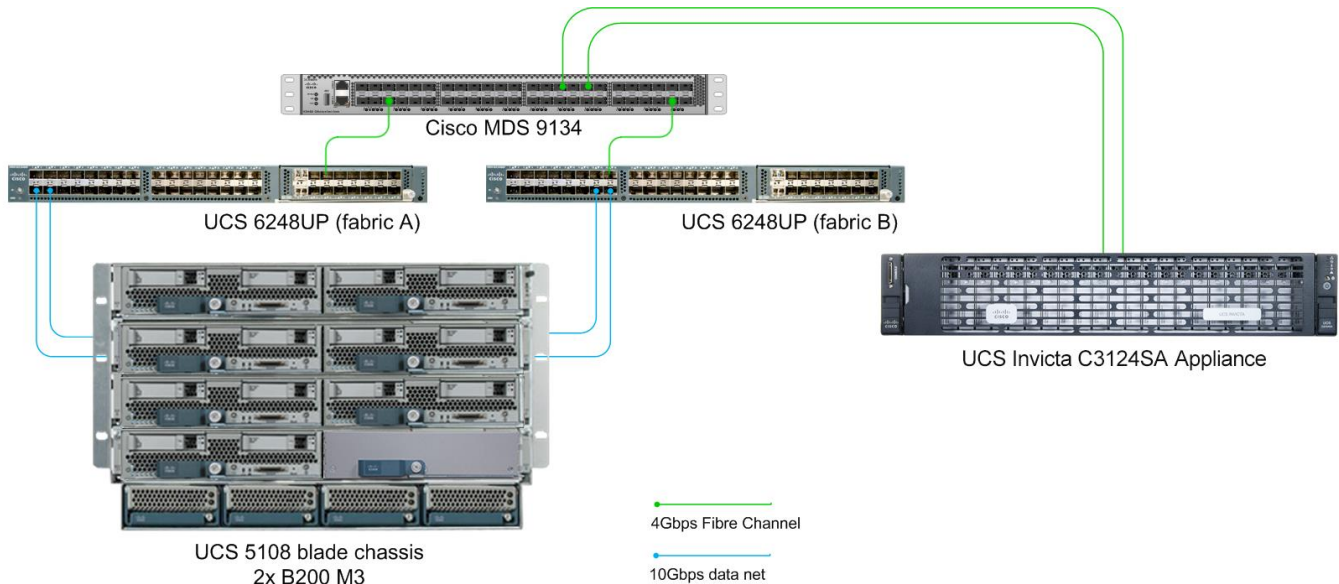


Figure 7: Our test bed diagram.

Initial automated provisioning of one blade with workflow creation

Log into UCS Director (6 Minutes 19 Seconds)

1. Select Policies → Orchestration.
2. Select and expand folder.
3. Select Workflow.
4. Right click
5. Select Execute Workflow.
 - Enter Pool Name.
 - Select Organization.
 - Select Servers.
 - Select number of Iterations.
6. Select Submit.

Preconfigured workflow includes the following tasks:

1. Create UCS Service Pool.
2. Add UCS Servers to Service Pool.
3. Select UCS Servers.
4. Create Service Profile from Template.
5. Associate Service Profile to Template.
6. Power on Server to preconfigured LUN containing VMware ESXi 5.5 U3.

Automated provisioning of six blades with workflow creation

Log into UCS Director (18 Minutes 53 Seconds)

1. Select Policies→Orchestration.
2. Select and expand folder.
3. Select Workflow.

4. Right click.
5. Select Execute Workflow.
 - Enter Pool Name.
 - Select Organization.
 - Select Servers.
 - Select number of Iterations (6).
6. Select Submit.

Manual provisioning of one blade

Create Service Profile: (6 Minute 54 Seconds)

1. Log into Cisco UCS Manager.
2. Select Tab Servers → Service Profiles.
3. Right-click and select Create Server Pool.
 - Provide a name.
 - Provide a description.
4. Select Next.
 - Select Blades.
5. Click OK.
6. Select Finish.
7. Expand Service Profile Templates.
8. Right-click Service Profile Template for cloning.
9. Select Create Service Profile from Template.
 - Provide a name.
 - Enter the one (1) for Number of Instances.
10. Click OK.
11. Select Servers → Service Profiles → Root.
12. Select newly created Service Profile.
13. Select General → Actions.
 - Select Change Service Profile Association.
14. Select Server Assignment pull-down menu.
 - Select appropriate Server pool.
15. Select OK → Yes.
16. Pause until Service Profile association is complete.
17. Select Boot.

Manual provisioning of six blades

Create Service Profile: (21 Minute 42 Seconds)

1. Log into Cisco UCS Manager.
2. Select Tab Servers → Servers → Pools → Root.
3. Select and right-click Create Server Pool.
 - Provide a name.
 - Provide a description.
4. Select Next.
 - Select Blades

5. Click OK → Select Finish.
6. Expand Service Profile Templates.
7. Right click Service Profile Template for cloning.
8. Select Create Service Profile from Template.
 - Provide a Naming Prefix.
 - Enter Name Suffix Starting Number (01).
 - Enter Number of Instances (06).
9. Click OK.
10. Select Servers → Service Profiles → Root.
11. Select newly created Service Profile.
12. Select General → Actions.
 - Select Change Service Profile Association.
13. Select Server Assignment pull-down menu.
 - Select appropriate Server pool.
14. Select OK.
15. Select Yes.
16. Pause until Service Profile association is complete.
17. Select Boot.
18. Select the next available Service Profile.
19. Select General → Actions.
 - Select Change Service Profile Association.
20. Select Server Assignment pull-down menu.
 - Select appropriate Server pool.
21. Select OK.
22. Select Yes.
23. Pause until Service Profile association is complete.
24. Select Boot.
25. Select the next available Service Profile.
26. Select General → Actions.
 - Select Change Service Profile Association.
27. Select Server Assignment pull-down menu.
 - Select appropriate Server pool.
28. Select OK.
29. Select Yes.
30. Pause until Service Profile association is complete.
31. Select Boot.
32. Select the next available Service Profile.
33. Select General → Actions.
 - Select Change Service Profile Association.
34. Select Server Assignment pull-down menu.
 - Select appropriate Server pool.
35. Select OK.
36. Select Yes.
37. Pause until Service Profile association is complete.

38. Select Boot.
39. Select the next available Service Profile.
40. Select General → Actions.
 - Select Change Service Profile Association.
41. Select Server Assignment pull-down menu.
 - Select appropriate Server pool.
42. Select OK.
43. Select Yes.
44. Pause until Service Profile association is complete.
45. Select Boot.
46. Select the next available Service Profile.
47. Select General → Actions.
 - Select Change Service Profile Association.
48. Select Server Assignment pull-down menu.
 - Select appropriate Server pool.
49. Select OK.
50. Select Yes.
51. Pause until Service Profile association is complete.
52. Select Boot.

ABOUT PRINCIPLED TECHNOLOGIES



Principled Technologies, Inc.
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