

Server management solution comparison on Dell PowerEdge R710 and HP ProLiant DL385 G5p servers

Executive summary

Dell Inc. (Dell) commissioned Principled Technologies (PT) to compare server management solutions on the following two servers:

- Dell PowerEdge R710
- HP ProLiant DL385 G5p

Server management provides ease of use for end users during various tasks they perform. For this comparison, we used each manufacturer's application to perform the following tasks: initial operating system installations, firmware updates, diagnostics, and remote management setup.

On the Dell PowerEdge R710, we used the Unified Server Configurator (USC), which you can access by pressing F10 during the server boot process. USC provides a single point for operating systems installation, firmware updates, server diagnostics, and remote management configuration. The USC is on an embedded chip, so no compact disks (CDs) are necessary. We used USC version 1.1 for this comparison.

The HP ProLiant DL385 G5p uses CDs instead of an embedded chip for these functions. We used Smart Start 8.15 for the operating system installations and to run system diagnostics. We used HP Firmware Maintenance 8.40 to perform the firmware updates. The HP management tools are similar to Dell's USC, but require you to boot off a CD.

In this section, we present the summary results for some of the tasks we performed. See the Test results section for complete results and a description of the comparison.

Figure 1 shows the times required to begin an initial installation of Microsoft Windows Server 2008, Enterprise x64 Edition on the two servers. The Dell PowerEdge R710 took 6 minutes to prepare the server for the initial operating system installation. This is 43.4 percent faster than the HP ProLiant DL385 G5p, which took 10 minutes and 36 seconds to perform the same tasks.

Server	Dell PowerEdge R710	HP ProLiant DL385 G5p
Total time required	6:00	10:36

Figure 1: Time to prepare server for initial operating system installation. Times are in minutes:seconds. Shorter times are better.

Figure 2 shows the times to set static IP addresses on the remote management console. The Dell PowerEdge R710 uses iDRAC for remote management. It took 4 minutes and 50 seconds to configure a static IP address in iDRAC, using the USC configuration console. This is 24.1 percent faster than the HP ProLiant DL385 G5p, which took 6 minutes and 22 seconds to configure a static IP address in iLO 2 remote management.

Server	Dell PowerEdge R710	HP ProLiant DL385 G5p
Total time to set static IP address on remote management application	4:50	6:22

Figure 2: Time to set static IP address on remote management applications. Times are in minutes:seconds. Shorter times are better.

KEY FINDINGS

- The Dell Unified Server Configurator provides a single point for operating systems installation, firmware updates, server diagnostics, and remote management configuration without the need for CDs.
- The Dell PowerEdge R710 server was 43.4 percent faster than the HP ProLiant DL385 G5p server at preparing the server for the initial operating system installation. (See Figure 1.)
- The Dell PowerEdge R710 server was 24.1 percent faster than the HP ProLiant DL385 G5p server at configuring a static IP address in remote management console. (See Figure 2.)

Test results

In this section, we give detailed steps and time required to perform various server management tasks. For this comparison, we used each manufacturer's application to perform the following tasks: initial operating system installations, firmware updates, diagnostics, and remote management setup.

On the Dell PowerEdge R710, we used USC version 1.1 for all tasks in this section of the report. On the HP DL385 G5p, we used Smart Start version 8.15 or HP Firmware Maintenance 8.40. All times in this section are in minutes:seconds.

Initial operating system installation setup

For the initial installation setup, we used the manufacturer-provided tools to prepare a Microsoft Windows Server 2008, Enterprise x64 Edition installation on both servers. Figure 3 shows the time required to complete each step.

Dell R710		HP DL385 G5p	
03:31	Power on server and boot to USC by pressing F10	04:39	Power on server and boot to Smart Start CD 8.15
00:31	Select deploy OS from the menu option and go through the array configuration	00:15	Click through menus to server deployment
01:48	Go through remaining steps, select Windows Server 2008 x64 version and insert Server 2008 CD	01:53	Launch and configure array
		00:54	Continue through setup, selecting Windows Server 2008 x64 as the OS option
		02:55	Wait for system to prepare disk for setup and ask to insert the Server 2008 CD
06:00	Total time	10:36	Total time

Figure 3: Time for initial installation setup. Times are in minutes:seconds. Shorter times are better.

At the completion of these steps, both systems were ready to install Microsoft Server 2008. After inserting CDs on both systems, we clicked the onscreen button to begin the installations. We verified that the installations completed on both systems without errors. We do not include times for the installations in this report.

Firmware updates

Both systems offer firmware update options. The Dell PowerEdge R710 offers this option in their USC. The menu options allow the user to download the latest updates and install them in this console. On the HP DL385 G5p, the user boots to the HP Firmware Maintenance CD. This CD contains the needed firmware updates. An up-to-date CD is available for download from HP's Web site. We performed a BIOS update on both servers to test the firmware update capabilities. Figure 4 shows the time required to complete each step.

Dell R710		HP DL385 G5p	
03:35	Power on server and boot to USC by pressing F10	04:44	Power on server and boot to Firmware Maintenance CD 8.40
01:11	Select BIOS update and click apply. A progress bar appears as the update is applied	00:27	Load Smart Update Manager 3.4.2 software from Firmware Maintenance CD screen
00:15	Select platform update and go through menu options to display updates (We used USB key for the update option.)	00:10	Select BIOS update from list of available updates
04:01	System reboots automatically and boots back into USC. Once in USC a status bar reappears. (We stopped recording time when the progress bar disappeared.)	00:43	BIOS is updated
09:03	Total time	06:04	Total time

Figure 4: Time to perform a firmware update on both servers. Times are in minutes:seconds. Shorter times are better.

At the end of these updates, both servers are ready to reboot into the operating system. No additional tasks are necessary.

We performed a firmware rollback on both systems, but the times are mostly the same as the BIOS install times. The Dell PowerEdge R710 took 9 minutes and 7 seconds. The only difference in the process is we select platform rollback instead of platform update from the USC menu.

The HP performs the same steps to rollback a BIOS as it does to flash a BIOS update. The only difference is you must select the “Force install” option from the Update Manager screen, which only adds a second or two to the 6 minutes and 4 seconds listed on the update time. At the time of this evaluation, there was only one BIOS available for the HP DL385 G5p, so we had to use the same BIOS version to try this process. Therefore, we cannot verify if it actually restored a previous BIOS version with this process.

Diagnostics

Both Dell and HP offer diagnostic options. The Dell builds the diagnostics into the USC, while the HP requires booting the server from a Smart Start CD. The diagnostic programs are essentially the same. Both Dell and HP offer their diagnostic programs without any footprint on the server, which means you need not install any software on the server.

Remote management setup

Both systems offer embedded remote management applications. Dell calls theirs iDRAC and the HP calls theirs iLO 2. For testing, we set up two different IP address configurations: DHCP and static. Under DHCP, the server obtains the IP address automatically; under static, the user assigns an IP address to the console. Figure 5 shows the time required to set up the remote management DHCP.

Server	Dell PowerEdge R710	HP ProLiant DL385 G5p
Total time required	03:10	01:27

Figure 5: Time required to set up the remote management DHCP. Times are in minutes:seconds. Shorter times are better.

Both Dell and HP systems are set up for DHCP by default. The times show how long it takes the user to see the IP address of the remote management console. The IP address shows during server boot process. No additional steps are required. The HP DL385 G5p appears faster because it starts the remote management earlier in the server boot process, so the user knows the address sooner than on the Dell PowerEdge R710.

Figure 6 shows the time required to complete each step for remote management with static IP address.

Dell R710		HP DL385 G5p	
03:49	Power on server and boot to USC by pressing F10	04:16	Open case and change jumper to allow iLO 2 ROM-based Setup Utility (RBSU) access during POST
00:11	Select iDRAC configuration from the hardware configuration menu in USC	01:33	Power on server and select iLO 2 RBSU during POST by pressing F8
00:50	Go through configuration menus and configure static IP address	00:33	Configure with static IP address
04:50	Total time	06:22	Total time

Figure 6: Time to set static IP address on remote management applications. Times are in minutes:seconds. Shorter times are better.

The HP server iLO 2 is set up for DHCP out of the box and the setup program is disabled by default. There is a jumper on the system board that enables the iLO 2 ROM-based Setup Utility, so the user must remove the cover and change the jumper.

Appendix A – Server configuration information

This appendix provides detailed configuration information about the servers, which we present in alphabetical order. Figure 7 provides detailed system configuration information.

Servers	Dell PowerEdge R710	HP ProLiant DL385 G5p
General dimension information		
Height (inches)	3.50	3.40
Width (inches)	17.50	17.50
Depth (inches)	27.00	27.25
U size in server rack (U)	2	2
Power supplies		
Total number	2	2
Wattage of each (W)	870	800
Cooling fans		
Total number	5	6
Dimensions (h x w) of each	2.5" x 2.5"	2.5" x 2.4"
Voltage (V)	12	12
Amps (A)	1.60	2.45
General processor setup		
Number of processor packages	2	2
Number of cores per processor package	4	4
Number of hardware threads per core	2	1
CPU		
Vendor	Intel	AMD
Name	Xeon E5530	Opteron 2384
Stepping	4	2
Socket type	LGA1366	Socket F
Core frequency (GHz)	2.4	2.7
L1 cache	4 x 256 KB	4 x 512 KB
L2 cache (MB)	8	6
Platform		
Vendor and model number	Dell PowerEdge R710	HP ProLiant DL385 G5p
Motherboard model number	PWBYN967	488895-001
Motherboard revision number	X08	C
BIOS name and version	Dell 0.2.15	HP BIOS A22
BIOS settings	Default	Default
Memory modules		
Total RAM in system (GB)	72	64
Number of types of memory modules	2	1
First type of memory modules		
Vendor and model number	Crucial CT51272BB1339	Samsung M393T1K66AZA
Type	PC3-10600 DDR3	PC2-5300 DDR2
Speed (MHz)	1,333	667

Servers	Dell PowerEdge R710	HP ProLiant DL385 G5p
Speed in the system currently running @ (MHz)	1,066	667
Timing/latency (tCL-tRCD-iRP-tRASmin)	9-9-9-24	5-5-5-15
Size (GB)	24	64
Number of RAM modules	6 x 4 GB	8 x 8 GB
Chip organization	Double-sided	Double-sided
Second type of memory modules		
Vendor and model number	Samsung M393B1K70BH1	N/A
Type	PC3-8500 DDR3	N/A
Speed (MHz)	1,066	N/A
Speed in the system currently running @ (MHz)	1,066	N/A
Timing/latency (tCL-tRCD-iRP-tRASmin)	8-8-8-24	N/A
Size (GB)	48	N/A
Number of RAM modules	6 x 8 GB	N/A
Chip organization	Double-sided	N/A
Hard disk		
Vendor and model number	Seagate ST973451SS	HP DH072BAAKN
Number of disks in system	2	2
Size (GB)	73	72
Buffer size (MB)	16	16
RPM	15,000	15,000
Type	SAS	SAS
Controller	Dell PowerEdge Expandable RAID Controller (PERC) 6/i Integrated	HP Smart Array P400/256 MB Controller
Operating system		
Name	Microsoft Windows Server 2008 Enterprise Edition, 64-bit	Microsoft Windows Server 2008 Enterprise Edition, 64-bit
Build number	26714	26714
File system	NTFS	NTFS
Language	English	English
Network card/subsystem		
Vendor and model number	Intel PRO/1000 Dual Port Adapter D33682	Broadcom NetXtreme II 5709 Dual-Port Ethernet
Type	Integrated	Integrated
Optical drive		
Vendor and model number	TEAC DV-28S-VDB	HP GDR-D20N
USB ports		
Number	4	4
Type	2.0	2.0

Figure 7: Detailed system configuration information for the two test servers.

About Principled Technologies

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.

We provide customized services that focus on our clients' individual requirements. Whether the technology involves hardware, software, Web sites, or services, we offer the experience, expertise, and tools to help you assess how it will fare against its competition, its performance, whether it's ready to go to market, and its quality and reliability.

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.



Principled Technologies, Inc.
1007 Slater Rd., Suite 250
Durham, NC 27703
www.principledtechnologies.com
info@principledtechnologies.com

Principled Technologies is a registered trademark of Principled Technologies, Inc.
All other product names are the trademarks of their respective owners

Disclaimer of Warranties; Limitation of Liability:

PRINCIPLED TECHNOLOGIES, INC. HAS MADE REASONABLE EFFORTS TO ENSURE THE ACCURACY AND VALIDITY OF ITS TESTING, HOWEVER, PRINCIPLED TECHNOLOGIES, INC. SPECIFICALLY DISCLAIMS ANY WARRANTY, EXPRESSED OR IMPLIED, RELATING TO THE TEST RESULTS AND ANALYSIS, THEIR ACCURACY, COMPLETENESS OR QUALITY, INCLUDING ANY IMPLIED WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE. ALL PERSONS OR ENTITIES RELYING ON THE RESULTS OF ANY TESTING DO SO AT THEIR OWN RISK, AND AGREE THAT PRINCIPLED TECHNOLOGIES, INC., ITS EMPLOYEES AND ITS SUBCONTRACTORS SHALL HAVE NO LIABILITY WHATSOEVER FROM ANY CLAIM OF LOSS OR DAMAGE ON ACCOUNT OF ANY ALLEGED ERROR OR DEFECT IN ANY TESTING PROCEDURE OR RESULT.

IN NO EVENT SHALL PRINCIPLED TECHNOLOGIES, INC. BE LIABLE FOR INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH ITS TESTING, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT SHALL PRINCIPLED TECHNOLOGIES, INC.'S LIABILITY, INCLUDING FOR DIRECT DAMAGES, EXCEED THE AMOUNTS PAID IN CONNECTION WITH PRINCIPLED TECHNOLOGIES, INC.'S TESTING. CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES ARE AS SET FORTH HEREIN.