

Faster, more efficient implementation with Dell™ ProDeploy

91% less admin effort*

39% faster to deploy

Reduced planning time

Ensured best practices

*compared to our in-house administrator

This is an abridged version of a Principled Technologies report. Read the full story with an expanded “how we tested” section at <http://facts.pt/1KiGhOj>.

Deploying new solutions is a complicated endeavor that takes significant time and attention to detail. We found that installing new Dell hardware in the Principled Technologies datacenter was fast and efficient with help from Dell ProDeploy. A ProDeploy Engineer from Dell deployed a Dell solution consisting of servers, networking components, and storage arrays onsite over three business days in approximately 20 hours and thirty minutes. Our in-house administrator needed more than 28 hours over five business days to deploy the same solution. That means ProDeploy was 39 percent faster—saving almost a full business day.

There are two key ways to view this saved time. First, having a ProDeploy Engineer from Dell deploy the new solution meant our in-house administrator could continue focusing on crucial strategic initiatives such as development and planning of new applications, instead of bouncing between tasks, which could introduce errors or delays in deploying the new solution and leave end users without timely assistance. Our in-house administrator’s level of involvement in the deployment dropped from over 28 hours to just two-and-a-half hours of planning.

Second, this can be great for businesses that want to deploy new Dell hardware because it eases the burden on internal administrators and speeds up the delivery of new services. Faster deployment means less time spent waiting for new hardware to improve datacenter functionality or increase capacity. Instead of trying to do everything in-house, ProDeploy gives your business a faster and more efficient alternative.



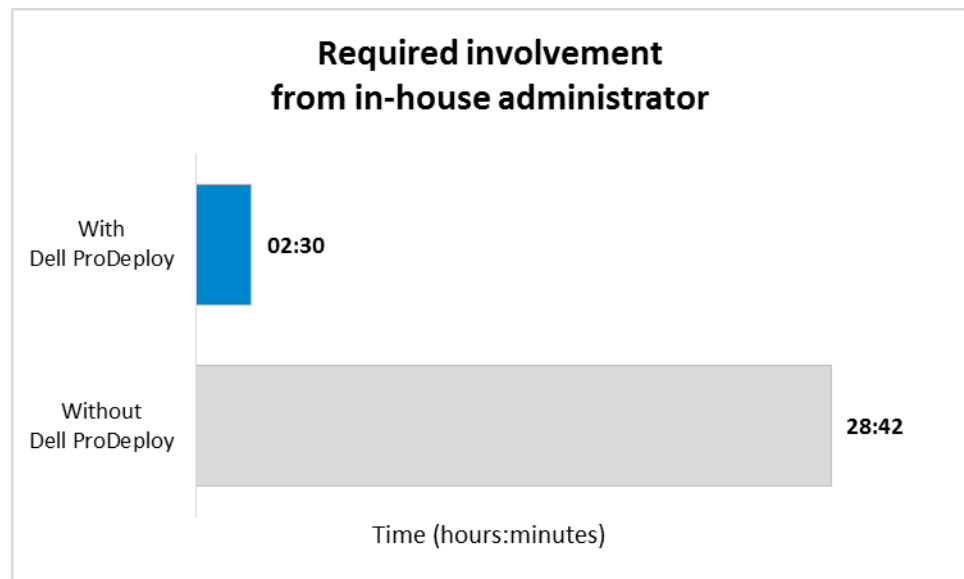
CONSULTATION AND PLANNING WITH DELL

A business has two options when implementing a new Dell hardware solution: The business could choose to plan the deployment, or choose to use Dell ProDeploy instead. With ProDeploy, a system administrator would plan the deployment with Dell after assigning a project manager to the new hardware order. With Dell's help, a company could develop a strict roadmap toward successful deployment, including the arrival of the Dell ProDeploy Engineer. To learn more about ProDeploy, see [Appendix A](#).

Being unprepared for deployment can lead to a number of complications, including delays due to waiting on forgotten components, miscalculations in required time, or improper installation and configuration. We tested both deployment options by having an in-house administrator deploy a new hardware solution while a ProDeploy Engineer from Dell also deployed the same solution separately.

Figure 1 shows how much time was required from our in-house administrator with and without ProDeploy—a difference of over 26 hours. Based on our findings, choosing to deploy with ProDeploy could reduce a system administrator's involvement in the deployment by 91 percent.

Figure 1: Deploying the Dell solution with Dell ProDeploy reduced our in-house administrator's involvement by 91.3 percent. Lower numbers are better.



Our in-house administrator and the ProDeploy Engineer set up the solution in Figure 2. For detailed configuration information for the Dell PowerEdge™ R720 servers, see [Appendix B](#).

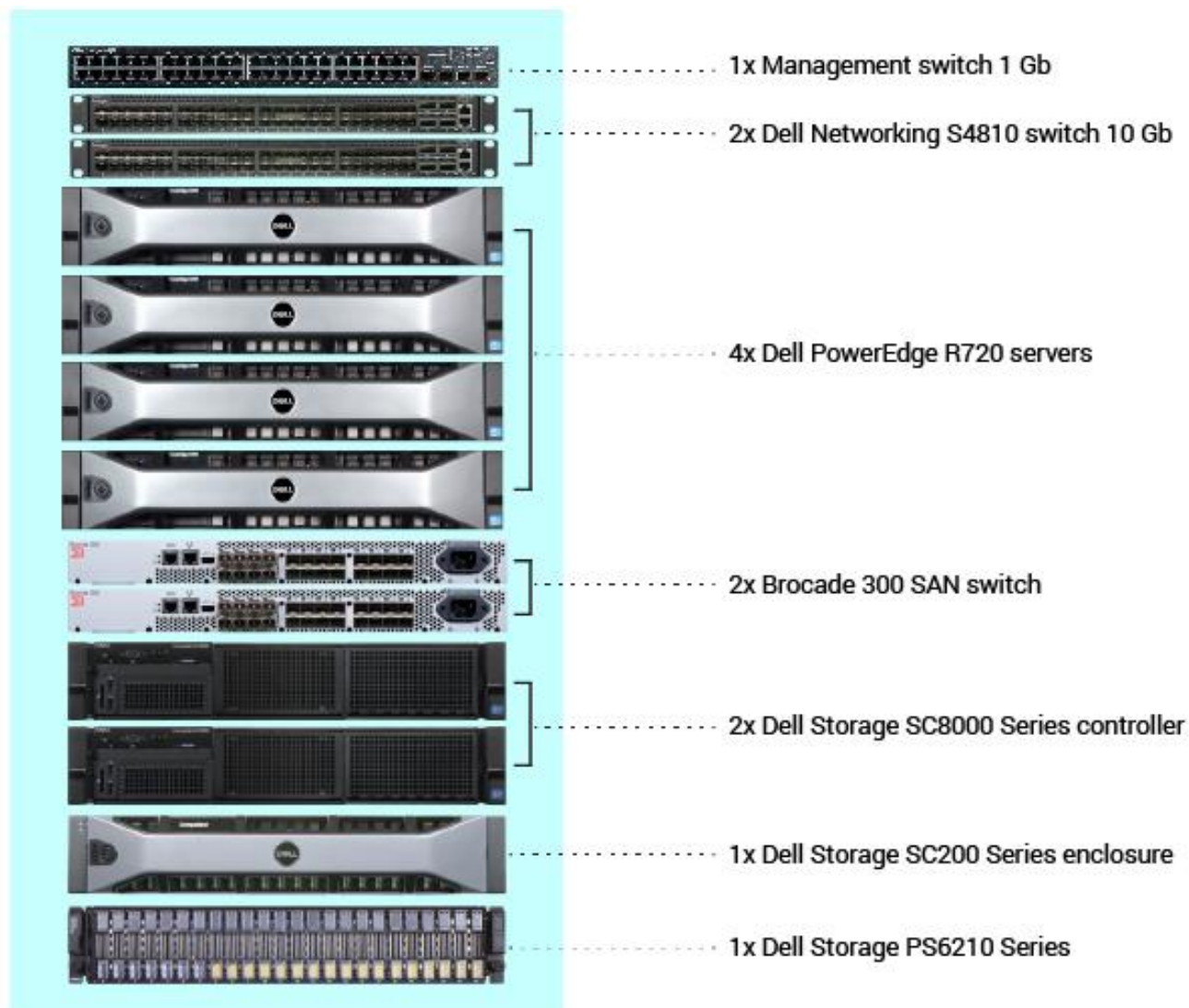


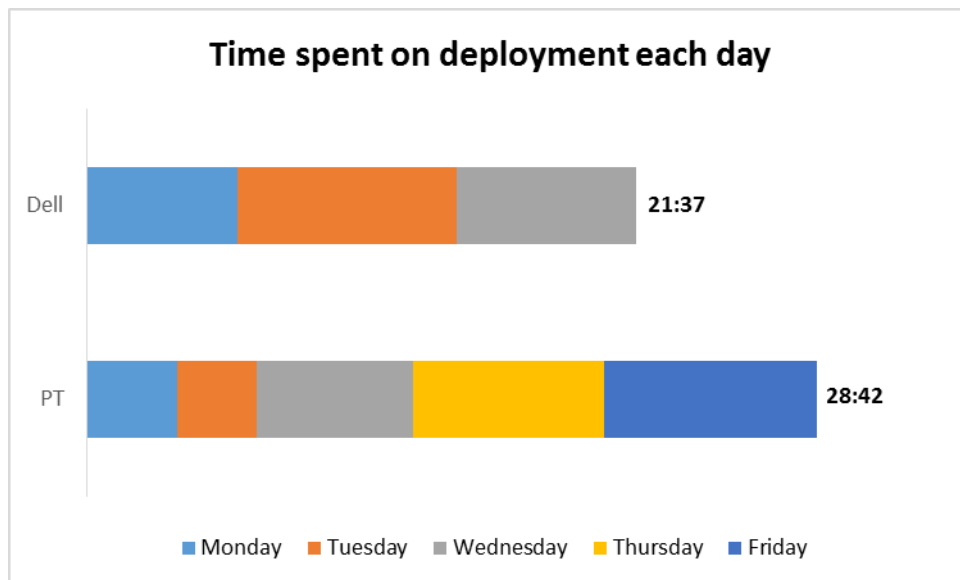
Figure 2: The solution our administrator and the Dell ProDeploy Engineer deployed.

HOW WAS YOUR WEEK?

Over the course of three business days, Dell spent 21 hours and 37 minutes physically deploying the hardware and software. We spent two and a half hours planning for the deployment with Dell before the Dell ProDeploy Engineer arrived to our datacenter. Those two and a half hours completed our involvement in the planning process with Dell ProDeploy; we were not required for any further planning.

Without ProDeploy, we spent 28 hours and 42 minutes deploying the solution over the course of five business days. This time includes our planning. Figure 3 breaks down the business week.

Figure 3: Deploying the Dell solution with Dell ProDeploy was 39 percent faster and took two fewer business days than deploying the solution without it. Lower numbers are better.



Racking the hardware with ProDeploy was 38 percent faster and saved 11 minutes compared to the time it took our in-house administrator without ProDeploy (29 for Dell versus 40 minutes for us). Wiring the solution with ProDeploy saved 19 minutes than without it. Setting up the networking components with Dell saved nearly two hours and was 64 percent faster. Configuring the network took longer for our in-house administrator because he was unfamiliar with the technology and needed to rely on appropriate documentation for careful guidance. Configuring the Dell Storage PS Series array saved 32 minutes and was 53 percent faster.

Planning for the solution with ProDeploy saved a sizable chunk of time, nearly seven and a half hours—that’s nearly 300 percent faster. The advantage with ProDeploy was due to a pre-visit planning session and the ProDeploy Engineer’s familiarity with the Dell solution components.

Figure 4 breaks down the total time spent on each stage of deployment. We based our “percent faster” calculations on the assumption that a one-hour rate of completion is two hundred percent faster than a three-hour rate of completion.

Stage	In-house administrator	Dell ProDeploy	Dell ProDeploy percent faster
Planning	9:55	2:30	297%
Racking hardware	0:40	0:29	38%
Wiring	2:20	2:01	16%
Networking	4:30	2:45	64%
OS & firmware	6:55	9:47	
Dell Storage SC Series configuration	2:35	2:00	29%
Dell Storage PS Series configuration	1:32	1:00	53%
Time spent deploying the Dell solution	28:27	20:32	39%

Figure 4: The time it took our administrator without Dell ProDeploy and the Dell ProDeploy Engineer to complete each stage of deployment.

Monday

Figure 5 shows how our administrator, without using Dell ProDeploy, and the Dell ProDeploy Engineer spent their time on the first day. Without ProDeploy, we spent the first few hours confirming implementation details with the project manager. It took the Dell ProDeploy Engineer less time to rack and wire the solution than we spent in this day's planning sessions.

Stage	In-house administrator	Dell ProDeploy
Monday		
Planning	2:55	(2:30 – before visit)
Racking hardware	0:40	0:29
Wiring		2:01
Networking		0:15
OS & firmware		2:27
Dell Storage SC Series configuration		0:45
Time spent deploying the Dell solution	3:35	5:57

Figure 5: How our administrator without Dell ProDeploy and the Dell ProDeploy Engineer spent their time (in hours and minutes) on the first day.

Tuesday

Figure 6 shows how our administrator without Dell ProDeploy and the Dell ProDeploy Engineer spent their time on the second day. We had to spend time with administrative and routine tasks that needed immediate attention. The ProDeploy Engineer, however, was able to focus on the deployment.

Stage	In-house administrator	Dell ProDeploy
Tuesday		
Planning	0:30	
Wiring	2:20	
Networking	0:15	2:30
OS & firmware		3:50
Dell Storage SC Series configuration		1:15
Dell Storage PS Series configuration		1:00
Time spent deploying the Dell solution	3:05	8:35

Figure 6: How our administrator without Dell ProDeploy and the Dell ProDeploy Engineer spent their time (in hours and minutes) on the second day.

Wednesday

Figure 7 shows how our administrator and the Dell ProDeploy Engineer spent their time on the third day. Our administrator spent three hours and 45 minutes on the networking; the ProDeploy Engineer spent three hours and 15 minutes installing the OSs and updating the firmware.

Stage	In-house administrator	Dell ProDeploy
Wednesday		
Planning	0:30	
Networking	3:45	
OS & firmware	1:55	3:30
Time spent deploying the Dell solution	6:10	3:30

Figure 7: How our administrator without Dell ProDeploy and the Dell ProDeploy Engineer spent their time (in hours and minutes) on the third day.

The next two days...

It took our in-house administrator two more days to finish deploying the new hardware from Dell. That's five business days total, compared to the three business days it took the Dell ProDeploy Engineer. A company could have had the new hardware up and running two days earlier by using Dell ProDeploy. Figure 8 shows how our administrator spent his time on the deployment for the next two days without Dell ProDeploy.

Stage	In-house administrator	Dell ProDeploy
Thursday		
Planning	2:30	
OS & firmware	5:00	
Time spent deploying the Dell solution	7:30	
Friday		
Planning	3:30	
Networking	0:30	
Dell Storage SC Series configuration	2:35	
Dell Storage PS Series configuration	1:32	
Time spent deploying the Dell solution	8:07	

Figure 8: How our administrator, without using Dell ProDeploy, spent his time over the next two days.

VALUABLE POST-DEPLOYMENT CARE FROM DELL

After the solution was up and running, our in-house administrator and the Dell ProDeploy Engineer initiated post-deployment services. These were mostly checks and balances to ensure things were running smoothly. However, the ProDeploy Engineer took some extra time to do things beyond mere deployment. In addition to collecting environment configuration across all the platforms, he performed a final health check, installed SAN HQ software, validated that all configuration best practices were implemented, and completed any remaining documentation.

CONCLUSION

Choosing Dell ProDeploy to deploy new Dell hardware means your business won't have to rely on an administrator's skillset and knowledge to get through a new deployment, or tie up too much of an administrator's time.

In our datacenter:

- Deploying a Dell solution with ProDeploy reduced our in-house administrator's involvement with the project by 91 percent
- The Dell ProDeploy Engineer needed only about 21 hours over three business days to deploy our Dell solution
- Without ProDeploy, it took more than 28 hours over five business days for our in-house administrator
- ProDeploy deployed the Dell solution 39 percent faster, saving six hours and forty minutes, and allowed our in-house administrator to focus on organizational demands and other strategic initiatives
- Familiarity with the solution components allowed the Dell ProDeploy Engineer to complete tasks, such as configuring the network, faster than our in-house administrator who sometimes needed documentation and guidance from the project manager

With ProDeploy, your organization can realize a faster, more efficient implementation with minimal impact on your in-house staff.

APPENDIX A – ABOUT THE COMPONENTS

About Dell ProDeploy

According to Dell, “Dell ProDeploy Enterprise Suite helps you get more out of technology starting on day one. Trust Dell experts to lead deployments from basic hardware installations through planning, configuration and complex integrations. [Their] complete suite of deployment services and professional certifications helps you achieve business outcomes today and tomorrow.

The ProDeploy Enterprise Suite includes:

- **ProDeploy Plus**, the most complete deployment offer available in the market, includes expert installation, configuration, and integration services. Integrate new technology into existing environments with confidence through extensive planning and validation by expert engineers. Post-deployment configuration assistance, full project documentation with knowledge transfer, and flexible training credits improve technology adoption and optimize the long-term performance of mission-critical systems.
- **ProDeploy** combines installation and configuration by experienced certified engineers to get your data center up and running quickly, minimizing downtime and disruption. With Dell driving deployments, you are free to focus on what matters most.
- **Basic Deployment** provides worry-free hardware installations by experienced technicians who do deployments every day.
- **Deployment Training and Certification** is designed for individuals to gain greater deployment expertise and industry recognition through training and testing. As a Dell Certified Deployment Professional, you can advance your career and expand your knowledge with deployment training and certification to improve job opportunities and validate your skillset.”

Learn more at www.dell.com/prodeploy.

APPENDIX B – SYSTEM CONFIGURATION INFORMATION

Figure 9 provides detailed configuration information for the test systems.

	Dell PowerEdge R720 (four)
Power supplies	
Total number	2
Vendor and model number	Dell D750E-S1
Wattage of each (W)	750
Cooling fans	
Total number	6
Vendor and model number	San Ace® 60 9GA0612P1K641
Dimensions (h × w) of each	2.5" × 2.5"
Volts	12
Amps	0.95
General	
Number of processor packages	2
Number of cores per processor	8
Number of hardware threads per core	2
System power management policy	Balanced
CPU	
Vendor	Intel®
Name	Xeon®
Model number	E5-2640 v2
Stepping	M1
Socket type	LGA2011
Core frequency (GHz)	2.00
Bus frequency	7.2 GT/s
L1 cache	32 KB + 32 KB (per core)
L2 cache	256 KB (per core)
L3 cache (MB)	20
Platform	
Vendor and model number	Dell PowerEdge R720
BIOS name and version	Dell 2.5.2
BIOS settings	Default
Memory module(s)	
Total RAM in system (GB)	144
Vendor and model number	Hynix HMT41GR7AFR4A-PB
Type	PC3-12800R
Speed (MHz)	1,600
Speed running in the system (MHz)	1,333
Timing/Latency (tCL-tRCD-tRP-tRASmin)	11-11-11-35
Size (GB)	8
Number of RAM module(s)	8
Chip organization	Double-sided

Dell PowerEdge R720 (four)	
Rank	1
Operating system	
Name	VMware® vSphere® 5.5
Build number	2068190
Language	English
Graphics	
Vendor and model number	Matrox® G200e
Graphics memory (MB)	256
Disk controller	
Type	PERC H710P Mini Mono
Firmware version	21.3.1-0004
Cache size (MB)	1024
Hard drives	
First Disk	
Vendor and model number	Dell ST9300653SS
Number of drives	3
Size (GB)	300
RPM	15k
Type	SAS 6.0
Second Disk	
Vendor and model number	Dell ST91000640SS
Number of drives	13
Size (GB)	1,000
RPM	7,200
Type	SAS 6.0
Ethernet adapters	
First network adapter	
Vendor and model number	Intel 10G Dual Port Ethernet Controller X520/I350
Type	Integrated
Second network adapter	
Vendor and model number	Intel Dual Port Ethernet Controller X520/I350
Type	PCIe®

Figure 9: Detailed configuration information for our servers.

ABOUT PRINCIPLED TECHNOLOGIES



Principled Technologies, Inc.
1007 Slater Road, Suite 300
Durham, NC, 27703
www.principledtechnologies.com

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 our clients assess how it will fare against its competition, its performance, its market readiness, 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 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.
