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The Business Value of Dell PowerStore

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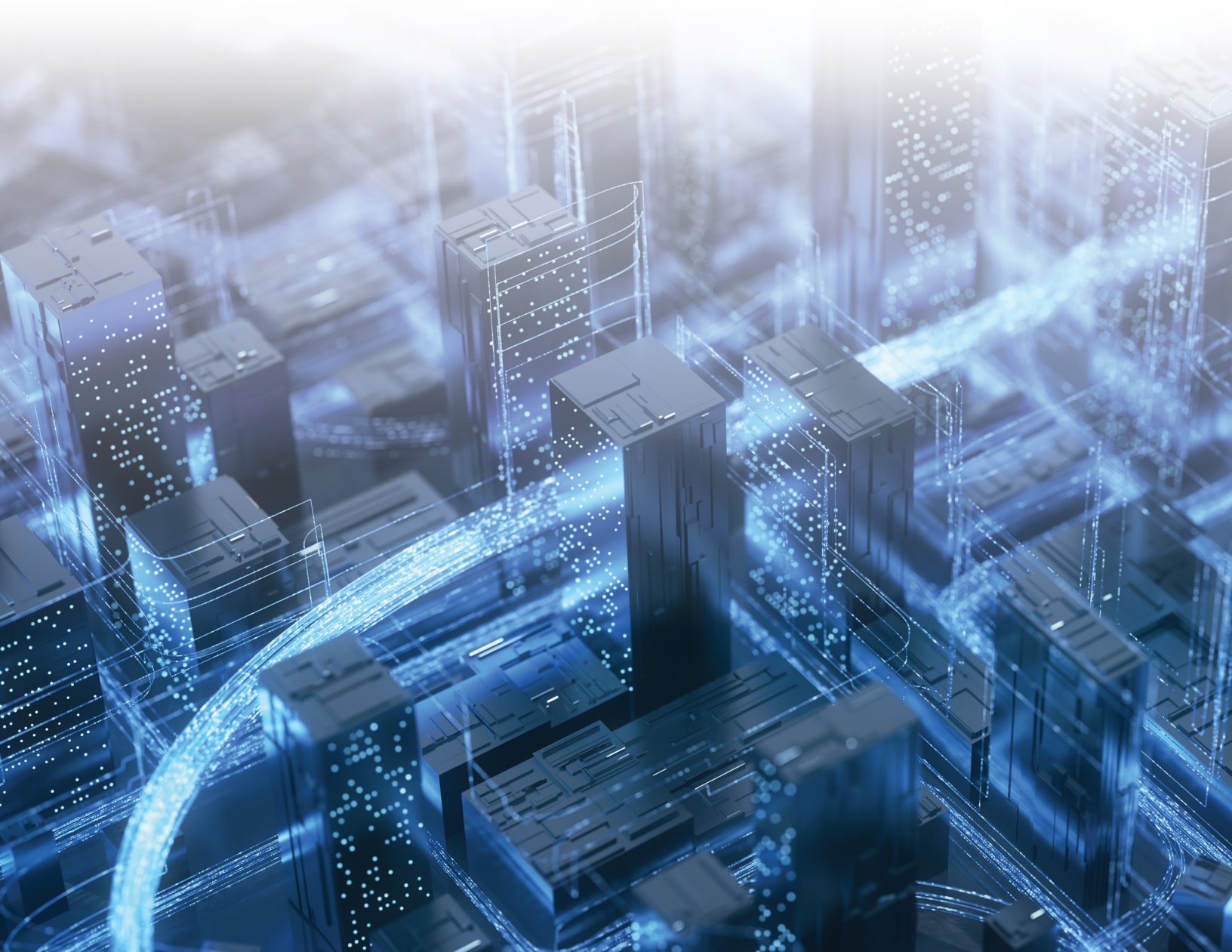

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Executive Summary

Modernizing and simplifying infrastructure is a key priority for IT organizations as they replace aging storage systems. The digital transformation initiatives that enterprises increasingly pursue to gain greater business value from their data often include next-generation workloads, such as analytics and artificial intelligence (AI), that require high performance, availability, and scalability. Procuring storage systems that support scale-out, software-defined architectures and nonvolatile memory express (NVMe) technologies now takes on added importance in comparison to past refresh cycles. Intelligent management and automation capabilities are also critical for organizations that need to stay agile to respond to business needs on expedited time frames and reduce total cost of operations in a tough economic climate.

Dell PowerStore offers scale-up and scale-out architecture options, enterprise-level performance and availability, low-latency NVMe solid state drives (SSDs) and NVMe over Fabrics (NVMe-oF) technologies, and AI-driven management and automation to ease operations at midrange storage system price points. IDC conducted research that explored the value and benefits for organizations that were using Dell PowerStore to optimize, modernize, and scale business-critical workloads. The research initiative included interviews with organizations that not only use Dell PowerStore but also have deep experience and knowledge about the costs and benefits of using the storage system.

Based on these interviews, IDC calculated that each study participant would achieve an average annual benefit of $3.3 million, a three-year return on investment (ROI) of 468%, and payback within 11 months by:

- Decreasing IT infrastructure operational costs without compromising performance and scalability for business-critical applications and general-purpose workloads
- Enabling IT staff to work with greater productivity and efficiency through a more user-friendly work environment and increased automation capabilities
- Significantly decreasing the frequency of unplanned downtime while also reducing the time to resolve an outage
- Enhancing end-user productivity and business results through lower latency and higher performance of business-critical applications

Business Value Highlights

Click each highlight below to navigate to related content within this document.

468%
three-year ROI

11-month
payback period

$3.3 million
average annual benefit per organization

$324,000
average annual benefit per 100TB

24%
decrease in total three-year operational costs

61%
quicker deployment of new storage resources

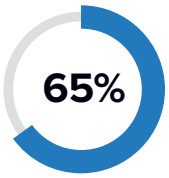
45%
faster deployment of new compute resources

14%
quicker to go to market with products and services

26%
more time for IT innovation

Situation Overview

Demands for high-performance storage that can cost-effectively scale to store petabytes of data have been on the rise as enterprises refresh and modernize their infrastructure, often to consolidate workloads and support digital transformation efforts. The new data-intensive analytics, AI, machine learning (ML), and Internet of Things (IoT) applications that many increasingly deploy may span core, edge, and cloud environments, in contrast to their legacy workloads that were generally confined to core datacenters. Enterprise storage vendors continue to adapt their product architectures to accommodate the changing requirements of customers. Some have been shifting to software-defined, container-based designs that offer the nondisruptive scalability, deployment flexibility, operational agility, and automation capabilities that IT organizations need to help minimize labor-intensive tasks and enable them to better respond to business demands on tight schedules in a challenging economic environment.



of organizations saw NVMe-based SSDs and NVMe over Fabrics as highly important in their storage environments.

Organizations also recognize the significance of high-performance storage technologies in addressing their evolving IT needs. IDC survey data shows that at least 65% of organizations saw NVMe-based SSDs and NVMe over Fabrics as highly important in their storage environments. NVMe technologies can enable substantially lower latency and higher throughput than storage based on the older Small Computer System Interface (SCSI) standard for connecting and transferring data between host and target devices. SCSI emerged in 1986, at a time when spinning disk and tape were the chief storage media. However, the SCSI standard proved less efficient with the faster NAND flash–based SSDs that were growing in popularity 20 years later. A nonprofit industry group released the first NVMe specification in 2011 to provide a streamlined protocol and command set to transfer data to solid state storage devices over a computer's PCI Express bus. The NVMe over Fabrics specification followed in June 2016 to enable NVMe message-based commands to travel across Ethernet, Fibre Channel, and InfiniBand networks, and the first NVMe-based storage systems shipped before the end of the year. NVMe-based all-flash arrays became a $2 billion market by 2019, and IDC forecasts that their growth will generate the majority of primary external storage revenue moving forward. Enterprises will need a smooth transition to NVMe- and NVMe-oF–based systems to reap the benefits, including accelerated application performance, storage footprint reduction, and potentially lower energy consumption.

IT organizations also have grown to expect the ease of procurement, use, and on-demand expansion they find with public cloud services in their on-premises storage systems. Simplifying provisioning, operations, and management has taken on added importance as responsibilities shift from enterprise storage specialists to IT generalists at an increasing number of organizations. Storage vendors have responded by collecting in-depth telemetrics to drive cloud-based predictive analytics platforms and automation capabilities that can help customers with a wide range of storage tasks, from deploying systems and optimizing performance to planning capacity, troubleshooting problems, and monitoring security risks. Providers that offer the most advanced capabilities often use them to differentiate their systems from their enterprise storage competition.

Dell PowerStore Overview

Dell introduced PowerStore in May 2020 to consolidate the storage systems it offered at midrange price points with a new software-driven modern array that can scale up and scale out to increase capacity, use low-latency NVMe technologies to deliver consistently high performance, and ease life-cycle management with built-in automation and AI-driven monitoring capabilities.

PowerStore is built on a container-based software design that isolates storage operating system components as individual microservices, allowing Dell engineers to easily evolve the platform with rapid delivery of new features. The architecture supports block-, file-, VMware vVols–, and container-based workloads, with NVMe SSDs and NVMe-oF networking to facilitate high throughput and sub-millisecond latency. PowerStore supports a maximum raw capacity of 1.49PB per appliance and 5.96PB across a four-appliance cluster, or an "effective" capacity of 4.71PB per appliance and 18.83PB per cluster after factoring in the 4:1 average data reduction that Dell guarantees based on its "always-on" data compression and deduplication.

Dell has noted that PowerStore was the fastest-ramping new storage architecture in the company's history. PowerStore Manager tools can help customers migrate data nondisruptively from prior Dell systems such as Unity, SC, PS Series, VNX, VMAX, and XtremIO. Dell's newer PowerStore line not only provides a performance and memory boost over comparatively priced systems but, in some cases, also offers a competitive alternative to high-end storage systems.

Each dual-active–node PowerStore 9200 appliance has four Intel Xeon CPUs with 112 cores, 2.56TB of memory, four low-latency nonvolatile RAM (NVRAM) cache drives, and 21 NVMe flash-based SSDs in the base enclosure, with the option to add three 24-drive expansion enclosures. Up to four heterogeneous appliances can be combined into a federated scale-out cluster. PowerStore's all-NVMe design offers high-speed Fibre Channel– and TCP-based NVMe-oF networking options to lower latency.

At the other end of the spectrum, the entry-level PowerStore 500T supports much of the same technology as the larger models, including NVMe SSDs and NVMe-oF networking and expansion, although it uses internal DRAM cache rather than NVRAM cards. All models scale to similar maximum capacity and can be intermixed in clusters.

PowerStore targets a broad spectrum of business-critical workloads running in core and edge environments, including databases, cloud-native applications, IoT analytics, and content repositories. Designed for 99.9999% hardware and software availability, PowerStore systems support native block, file, and vVol asynchronous replication and native metro volume synchronous block replication across a distance of up to 60 miles.

Other base software features with each PowerStore purchase include thin provisioning, snapshots, quality of service (QoS), and encryption. PowerStore appliance sensors monitor performance, availability, resource utilization, and overall system health. Dell's CloudIQ predictive analytics application and AI/ML–driven management and automation capabilities can help PowerStore customers plan and configure storage resources and services, tune their system for optimal efficiency, meet administrator-defined QoS levels, flag cybersecurity risks, and proactively troubleshoot problems. SmartFabric Storage Software can assist with automating end-to-end NVMe deployments.

Users can provision virtual machine (VM)–level PowerStore services from VMware's vSphere, and DevOps teams have access to a RESTful API and integrated Kubernetes container orchestration frameworks to ease application development and automate storage workflows across public and private clouds. They can provision PowerStore directly from Kubernetes using integrated open source Ansible tools, the Container Storage Interface plug-in, and Dell's Container Storage Modules.

Customers have the option to deploy PowerStore in three-tier storage/network/server configurations or as an independently scalable storage resource within a VxRail HCI environment. The latter option, known as Dynamic AppsON, features integrated life-cycle management and gives VxRail customers granular control over separate compute and storage resources. Purchase options for either method include traditional capital expense models and Dell APEX custom solutions with pay-per-use options. PowerStore comes with an all-inclusive software subscription, and Dell's Anytime Upgrade program enables customers to nondisruptively update their hardware to new models or expand a cluster with a second system through a cloudlike model. Dell's Future-Proof Program covers all of the company's enterprise storage systems and includes a three-year satisfaction guarantee, hardware investment protection, and all-inclusive software.

The Business Value of Dell PowerStore

Study Demographics

To explore the value and benefits of organizations' using Dell PowerStore, IDC interviewed seven organizations that had vast knowledge about their organization's deployment and use of the enterprise storage system. Participants responded to a wide variety of in-depth qualitative and quantitative questions to understand the impact of Dell PowerStore on infrastructure costs, IT staffing, and their core business objectives.

As shown in **Table 1**, interviewed organizations were in the United States, with a range of 300–20,500 employees and an average of 7,890 employees. The organizations had an average of 1,210 IT professionals with responsibility for supporting 275 business applications and 7,390 employees. On average, the organizations had $4.1 billion in annual revenue. This research represented organizations in a wide variety of verticals: healthcare, financial services, education, energy, and hospitality.

TABLE 1

Firmographics of Interviewed Organizations

	Average	Median	Range
Number of employees	7,890	4,000	300–20,500
Number of IT staff	1,210	210	15–5,000
Number of employees using IT services	7,390	3,000	300–20,500
Number of external customers	2.4M	62,430	50–14.0M
Number of business applications	275	100	5–1,000
Number of terabytes (total)	19,040	7,000	52–100,000
Company revenue	$4.1B	$2.7B	$14 .0M–$13.9B
Countries	United States (7)		
Industries	Healthcare (2), financial services (2), education, energy, hospitality		

Source: IDC interviews, January 2023

Selection and Usage of Dell PowerStore

Interviewed organizations had significant goals to optimize, modernize, and protect their business-critical workloads when evaluating Dell PowerStore. In many cases, they needed to upgrade aging architecture, and they noted that their old systems were tedious to manage and often insecure. An important objective for interviewed organizations when assessing Dell PowerStore was to find a user-friendly, software-driven storage system.

The solution needed to decrease their operational costs, without sacrificing performance and scalability. Interviewed organizations elaborated on their specific reasons for selecting Dell PowerStore:

User-friendly storage solution:

"We looked at four different companies, but selected Dell. Honestly, PowerStore was just a lot easier to navigate and is user-friendly unlike some of the competitors."

High performance for compiling and analyzing complex data sets:

"We are a scientifically driven organization and one of the challenges that we have been facing is different data types, whether that be sequencing data or other molecular data types combined with say, for instance, EMR data or lifestyle data. It runs the gamut, but really compiling these data sets and then performing analysis upon them are pretty challenging from an IT perspective. So that's what has driven us to look at the high-performance Dell PowerStore storage solution that we have."

Replacement for aging solution:

"We selected Dell PowerStore because we were looking for a modern, secure solution to replace our older, aging EMC solution."

Organized management and AI capabilities:

"We selected PowerStore because it works well, has strong management capabilities, is organized, and has AI components. When making our decision, in the end, we thought that Dell PowerStore was strong."

Table 2 (next page) provides an overview of Dell PowerStore usage across the interviewed organizations. As shown, Dell PowerStore was supporting branch sites (an average of eight), datacenters (two), and country locations (two). In addition, PowerStore handled a large amount of data — specifically, 1,015TB, 270 databases, and 80 applications on average. IDC also found that Dell PowerStore supported 51% of an organization's revenue on average.

TABLE 2

Organizational Usage of Dell PowerStore

	Average	Median
Branches/sites	8	2
Datacenters	2	2
Locations (countries)	2	1
Servers	250	275
Nodes	9	5
Terabytes	1,015	250
Databases	270	60
Applications	80	15
Internal users	3,965	1,500
External users	3.5M	52,500
Percentage of organizational revenue	51%	50%

Source: IDC interviews, January 2023

Business Value and Quantified Benefits

IDC's Business Value research focuses on the benefits interviewed organizations achieved in deploying and using Dell PowerStore to optimize their storage architecture. Interviewed organizations attributed significant IT improvements to their usage of Dell PowerStore and were quick to state that they were able to achieve their goal of decreasing their total cost of operations in a substantial manner. They also noted that in shrinking their datacenter footprint and costs, they did not sacrifice performance, availability, or scalability. Importantly, another large benefit of Dell PowerStore was ease of use, often freeing up time for senior IT leaders.

Interviewed organizations discussed the most significant benefits their respective organizations achieved in using Dell PowerStore:

Ability to shrink datacenter footprint without sacrificing performance:
"One significant benefit of Dell PowerStore is that it is easy of use, which allows admins to spend their time doing other things. Another benefit is that Dell PowerStore has great performance and scalability and allows us to shrink our datacenter footprint."

High availability while reducing costs:
"My organization appreciates the high agility that has come from deploying PowerStore. The I/O throughput is fantastic, not to mention the fact it has reduced storage space and cost. PowerStore is also definitely easier to perform updates. When it comes to upgrading or updating the software or firmware, we don't have to worry about outages or downtime."

Lower cost to operate new arrays:
"The biggest benefit is cost. The business cost is much lower to operate the newer arrays. Also, any downtime would theoretically be minimized."

Lower-cost, user-friendly solution:
"One of the largest benefits was the cost savings that came with deploying Dell PowerStore. It's also very simple to use compared with some of the storage frames that we already have on the floor."

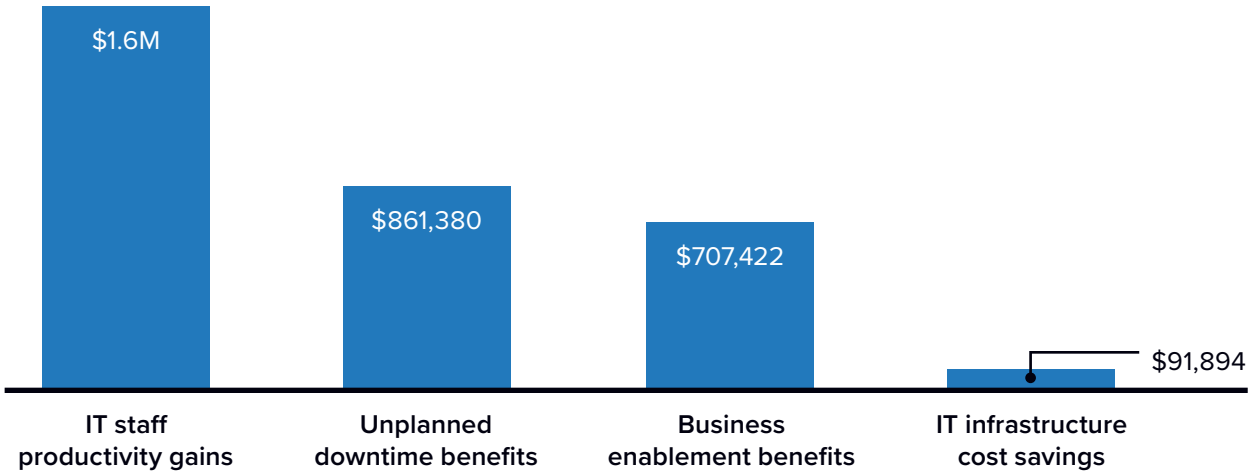
Strong performance and low latency:
"Significant benefits of Dell PowerStore are the performance and ability to provide low latency."

Figure 1 (next page) illustrates that the benefits described previously provided considerable value for interviewed organizations. Dell PowerStore had an especially positive impact on IT staff, unplanned downtime, IT costs, and overall business operations. Factoring in deployment time, IDC calculated that interviewed organizations achieved a total average annual benefit worth $3.3 million, or $324,000 per 100TB, from deploying and using Dell PowerStore.

FIGURE 1

Average Annual Benefits

($ per organization)



n = 7; Source: IDC interviews, January 2023

Operational Benefits of Dell PowerStore

Study participants made it abundantly clear that modernizing their aging infrastructure while decreasing their total cost of operations was a major goal and reason for selecting Dell PowerStore. **Table 3** (next page) showcases not only that this goal was realized but also that the reduction in operations cost was quite substantial in nature, at 24%. Over a three-year period, interviewed organizations decreased their infrastructure costs by 19%. To further illustrate this decrease in infrastructure costs, Dell PowerStore increased usable terabytes for interviewed organizations by an average of 33%. Interviewed organizations saved hard costs, but Dell PowerStore was also easier to maintain and deploy and had automated features that benefited the IT departments' infrastructure and database administration (DBA) teams that worked directly with Dell PowerStore. This resulted in a 30% reduction in the cost of IT staff time.

TABLE 3

Total Three-Year Operational Costs

	Before Dell PowerStore	With Dell PowerStore	Difference	Benefit
Infrastructure costs	$1.5M	$1.2M	$275,683	19%
Cost of IT staff time	$1.6M	$1.1M	$474,503	30%
Total	**$3.1M**	**$2.3M**	**$750,185**	**24%**

Source: IDC interviews, January 2023

IT Staff Efficiency Impacts of Dell PowerStore

In conducting the interviews, IDC noted several organizational positions that were more effective in their day-to-day work thanks to Dell PowerStore. Study participants identified a variety of benefits that stemmed from ease of use. PowerStore proved to be easier to manage, deploy, and secure than the organizations' previous systems. It provided automated features, was data centric in nature, and was adaptable to their unique business circumstances. These features specifically empowered employees to work with greater productivity and efficiency.

IDC first evaluated the IT infrastructure team. Interviewed organizations observed that the IT infrastructure team benefited from the AI features provided by Dell PowerStore. These features made PowerStore easier to manage and maintain than their previous solution. One customer noted, *"Dell PowerStore has greatly assisted our IT team, because it's much simpler to manage than some of the other storage arrays that we have on the floor. I was able to spread the load across more junior team members to be able to achieve the goal that would normally have to be done by one or two highly skilled team members. So I get more bandwidth and it takes them less time to do the job."* **Table 4** (next page) quantifies the significant efficiency impact of Dell PowerStore. Infrastructure teams were 29% more efficient with Dell PowerStore, which IDC equated to $49,034 in staff time per year. This team did not take the efficiency gain for granted; they used this time to further innovate for their respective organizations. IDC calculated that infrastructure staff members were able to spend 26% more time innovating than they were with their previous storage architecture.

TABLE 4

Infrastructure Team Efficiency Gain

	Before Dell PowerStore	With Dell PowerStore	Difference	Benefit
Total FTE count	1.7	1.2	0.5	29%
Value of staff time per year	$170,521	$121,487	$49,034	29%

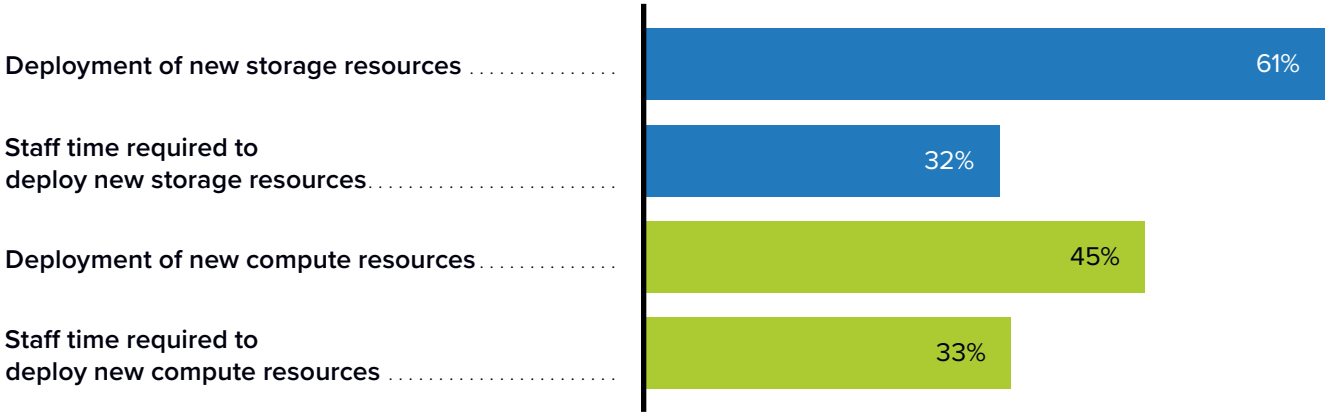
Source: IDC interviews, January 2023

IDC then evaluated the impact of Dell PowerStore on the deployment of new compute and storage resources. Interviewed organizations made it clear that Dell PowerStore helped them deploy and upgrade storage and compute with greater agility and efficiency than previously possible. As shown in **Figure 2**, the interviewed organizations required 61% less staff time to deploy new storage resources and needed 45% less time to deploy new compute resources. Additional metrics are shown.

FIGURE 2

Deployment of New Compute and Storage Resources

(% quicker)



n = 7; Source: IDC interviews, January 2023

Table 5 illustrates that Dell PowerStore also had a positive impact on DBA staff. The automated functionality provided by PowerStore simplified the administration and maintenance processes of databases and resources for the DBA team. This enabled DBA staff to work with 30% greater efficiency, and IDC valued the savings in staff time at $120,000 per year. To further illustrate this efficiency gain, an interviewed organization stated, *"A lot of the time with our existing systems is troubleshooting and you need a higher skill set to be able to do that. With the PowerStore, the training is very simple, and you don't need to tweak a bunch of knobs or push a bunch of levers to get the performance that you need. It saves time with the administrative staff, and I can train more junior staff members to use it rather than looking for a higher team member to take care of it."*

TABLE 5

DBA Staff Efficiency Gain

	Before Dell PowerStore	With Dell PowerStore	Difference	Benefit
Total FTE count	4.0	2.8	1.2	30%
Value of staff time per year	$400,000	$280,000	$120,000	30%

Source: IDC interviews, January 2023

IDC also examined the impact of Dell PowerStore on the analytics teams of interviewed organizations. Structured and unstructured data often came from varying sources. PowerStore enabled interviewed organizations to better harness this data and simplified how analytics staff used, interpreted, and reported complex data sets. This team specifically benefited from the scalability and latency provided by Dell PowerStore, further increasing their productivity. One Dell customer stated, *"Importantly, Dell PowerStore has enabled the analytics folks to look at data in new ways that were not possible in the previous system. This is a significant benefit for our organization."* As shown in **Table 6** (next page), IDC calculated that Dell PowerStore enabled the analytics team to work with the equivalent productivity level of 1.2 additional FTEs. This staff productivity gain was valued at nearly $117,000 per year.

TABLE 6

Analytics Team Productivity Gains

	Before Dell PowerStore	With Dell PowerStore	Difference	Benefit
Equivalent productivity level (FTEs)	15.3	16.4	1.2	8%
Value of staff time per year	$1.5M	$1.6M	$116,917	8%

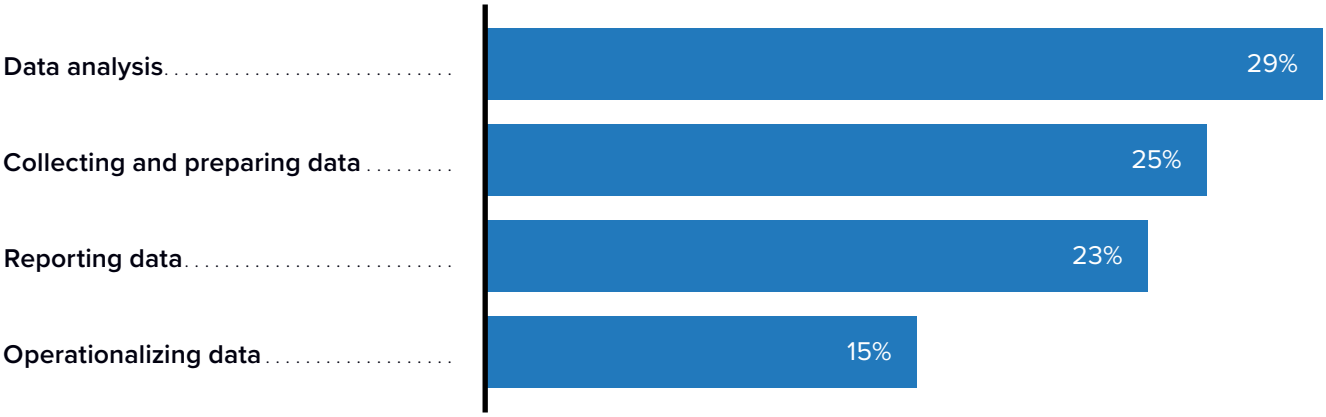
Source: IDC interviews, January 2023

Further explaining the productivity gain noted previously, interviewed organizations indicated that Dell PowerStore enabled the analytics team to collect data, perform analysis, and create compelling reports with greater speed and agility (see **Figure 3**).

FIGURE 3

Data Analytics KPIs

(% quicker)



n = 7; Source: IDC interviews, January 2023

Last, IDC calculated the productivity impact of Dell PowerStore on developers (see **Table 7**). Developers benefited from self-service capabilities that empowered them to deploy or push updates to analytics-driven applications without relying on other busy company resources. Illustrating this claim, one study participant stated, *"Dell PowerStore helps developers in that they can use infrastructure as a code to basically push application changes themselves, as opposed to waiting for a storage engineer to do it. There is so much more automation and greater self-serve capabilities than our previous solution."* Developers also appreciated that Dell PowerStore offered higher performance than their previous solution, which helped them work with greater productivity. These features enabled developers to work with the equivalent productivity level of nearly 15 additional FTEs, amounting to a value of staff productivity per year of over $1.4 million.

TABLE 7

Development Team Productivity Gains

	Before Dell PowerStore	With Dell PowerStore	Difference	Benefit
Equivalent productivity level (FTEs)	241.0	255.5	14.5	6%
Value of staff time per year	$24.0M	$25.5M	$1.4M	6%

Source: IDC interviews, January 2023

Unplanned Downtime End-User Impact

Dell PowerStore had a tremendous impact on unplanned downtime for study participants. PowerStore reduced the frequency of unplanned downtime by 77% and enabled the resolution of outages in a staggering 92% quicker time frame than their previous solutions. As a result, interviewed organizations benefited from overall greater staff productivity. Factoring in the number of users impacted by downtime and their average productivity loss during downtime, these benefits resulted in an annual value of lost productivity time per year of over $920,000. Dell PowerStore also saved the equivalent productivity level of 13.2 FTEs (see **Table 8,** next page). To further support these statements, an interview participant stated, *"There's a lot more uptime, less downtime with Dell PowerStore. What I like about PowerStore is that it shows you the I/O throughput, and it lets you identify where spikes and lows are. If something's messing with the server downrange, we can quickly pinpoint it. We're able to identify problems faster and correct the issue quicker."*

TABLE 8

Unplanned Downtime Productivity Impact

	Before Dell PowerStore	With Dell PowerStore	Difference	Benefit
Number of outages per year	3.0	0.7	2.3	77%
Time to resolve per outage (hours)	6.0	0.5	5.5	92%
Hours of lost productivity (per user/year)	6.4	0.1	6.2	98%
Number of FTEs	13.4	0.3	13.2	98%
Value of lost productive time per year*	**$938,510**	**$17,951**	**$920,558**	**98%**

* Based on the interviews conducted by IDC, an assumption was used that 3,125 users were impacted by downtime and had a productivity lost factor of 45% to calculate the value of lost productivity time per year.
Source: IDC interviews, January 2023

In addition, interviewed organizations made it clear that Dell PowerStore enabled them to meet internal (22%) and external (17%) service-level agreements (SLAs) with great frequency (see **Figure 4**). In many cases, participants stated that they benefited from PowerStore's automatically identifying and rectifying issues before they impacted the overall business.

FIGURE 4

SLA KPIs

(% more SLA KPIs met)

n = 7; Source: IDC interviews, January 2023

Business Enablement Benefits

Interviewed organizations reported that Dell PowerStore had an extremely positive impact on their overall business. Dell PowerStore provided lower latency and overall better availability of business-critical applications and systems that end users depended on for their day-to-day work. As a result, this better performance enabled end users, including those in upper management positions, to work with far greater productivity. Interviewed organizations estimated they could go to market with products and services 14% quicker as a result of using Dell PowerStore.

IDC closely assessed these business end-user productivity gains (exclusive of IT staff) related to the organizational use of Dell PowerStore. **Table 9** quantifies these productivity improvements and shows an annual end-user productivity gain of 3% from Dell PowerStore usage. Factoring in an operating margin of 15%, IDC valued this end-user productivity–based gain at $756,024.

TABLE 9

Business Enablement — End-User Productivity Gains

	Before Dell PowerStore	With Dell PowerStore	Difference	Benefit
Equivalent productivity level (FTEs)	2,653	2,725	72	3%
Total FTE count (net)	2,653	2,664	11	0.4%
Value of staff productivity per year	$185.7M	$186.4M	$756,024	0.4%

Source: IDC interviews, January 2023

ROI Summary

In summary, **Table 10 (next page)** presents IDC's ROI analysis for study participants' deployment and use of Dell PowerStore. IDC calculated that interviewed organizations would achieve three-year discounted benefits worth an average of $7,834,200 per organization through staff efficiencies and better business performance. These benefits compare with total three-year discounted costs of $1,378,800 per organization. As shown in Table 10, IDC projects the benefits and investment costs to result in an average three-year ROI of 468% and a payback point in investment within 11 months.

TABLE 10

Three-Year ROI Analysis

	Per Organization	Per 100 Terabytes
Discounted benefits	$7.8M	$773,557
Discounted investment	$1.4M	$136,144
Net present value (NPV)	$6.5M	$637,413
ROI	468%	468%
Payback (months)	11	11
Discount factor	12%	12%

Source: IDC interviews, January 2023

Challenges/Opportunities

Dell's PowerStore offers significant advantages to enterprises hoping to modernize their infrastructure with its software-driven, scale-out/scale-up architecture and high-performance storage and networking technologies. In a challenging economic environment, Dell needs to clearly explain the total cost of ownership benefits since the high-performance NVRAM and NVMe technologies carry a price premium over the SCSI-based alternatives that customers are accustomed to, especially in the midrange price tier. PowerStore's ability to lower latency, increase IOPS, and boost raw capacity through a smaller storage footprint than classic midrange models can help offset the added cost for the newer nonvolatile memory.

Dell has an opportunity to expand its storage customer base with PowerStore. Customers of high-end storage systems may find they can meet their application performance needs at a more cost-effective price point. Also, IT organizations that need enterprise-grade performance, availability, and storage features to consolidate workloads in edge and remote office/branch office (ROBO) environments may see advantages with PowerStore's deployment flexibility and ease of use. Hyperconverged infrastructure has also become a popular option for edge and ROBO sites, and the new Dynamic AppsON capability with VxRail may offer additional flexibility for especially high-performance, storage-intensive needs.

Conclusion

The need for high-performance storage that can scale nondisruptively and cost-effectively to store petabytes of data has risen as enterprises refresh and modernize their infrastructure, often in tandem with workload consolidation efforts and digital transformation initiatives. New data-intensive analytics and AI/ML applications that organizations are increasingly deploying are well suited to software-defined, container-based storage designs that can more easily scale out across core, edge, and cloud environments than traditional scale-up systems. New AI-based management and automation capabilities in the latest software-centric storage systems can also help ease deployment and operations for IT organizations that need to stay agile to respond to ever-changing business demands.

Introduced in May 2020, Dell PowerStore is a modern software-focused storage array available at midrange price points that offers enterprise-grade performance and availability, scale-up and scale-out architecture options, low-latency NVMe technologies, and AI/ML–driven self-management and automation capabilities. IDC conducted in-depth interviews with seven customers of Dell PowerStore to assess the business value and benefits of using the storage system. IDC's analysis found that Dell PowerStore helped the interviewed organizations decrease their IT infrastructure operational costs, enable their IT staffs to work more productively and efficiently thanks to the system's ease of use and automation, and increase end-user productivity and business results due to the higher performance of business-critical applications and reduction in unplanned downtime. IDC calculated that the average annual benefit per organization would be $3.3 million, with a three-year ROI of 468% and a payback within 11 months of purchasing PowerStore systems.

Appendix: Methodology

IDC's standard Business Value/ROI methodology was utilized for this project. This methodology is based on gathering data from organizations currently using Dell PowerStore as the foundation for the model.

Based on interviews with organizations using Dell PowerStore, IDC performed a three-step process to calculate the ROI and payback period:

- **Gathered quantitative benefit information during the interviews using a before-and-after assessment of the impact of using Dell PowerStore.** In this study, the benefits included employee productivity gains, staff time savings, and reduced costs.
- **Created a complete investment (three-year total cost analysis) profile based on the interviews.** Investments go beyond the initial and annual costs of using Dell PowerStore and can include additional costs related to migrations, planning, consulting, and staff or user training.
- **Calculated the ROI and payback period.** IDC conducted a depreciated cash flow analysis of the benefits and investments for the organizations' use of Dell PowerStore over a three-year period. ROI is the ratio of the net present value (NPV) and the discounted investment. The payback period is the point at which cumulative benefits equal the initial investment.

IDC bases the payback period and ROI calculations on a number of assumptions, which are summarized as follows:

- Time values are multiplied by burdened salary (salary + 28% for benefits and overhead) to quantify efficiency and manager productivity savings. For purposes of this analysis, based on the geographic locations of the interviewed organizations, IDC has used assumptions of an average fully loaded salary of $100,000 per year for IT staff members and an average fully loaded salary of $70,000 per year for non-IT staff members. IDC assumes that employees work 1,880 hours per year (47 weeks x 40 hours).
- The net present value of the three-year savings is calculated by subtracting the amount that would have been realized by investing the original sum in an instrument yielding a 12% return to allow for the missed opportunity cost. This accounts for both the assumed cost of money and the assumed rate of return.
- Because IT solutions require a deployment period, the full benefits of the solution are not available during deployment. To capture this reality, IDC prorates the benefits on a monthly basis and then subtracts the deployment time from the first-year savings.

Note: All numbers in this document may not be exact due to rounding.

About the IDC Analysts

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Megan Szurley is a consulting manager within IDC's Custom Solutions Division, delivering consultative support across every stage of the business life cycle: business planning and budgeting, sales and marketing, and performance measurement. In her position, Megan partners with IDC analyst teams to support deliverables that focus on thought leadership, business value, custom analytics, buyer behavior, and content marketing. These customized deliverables are often derived from primary research and yield content marketing, market models, and customer insights.

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Carol Sliwa is a research director for storage systems in IDC's Enterprise Infrastructure Practice. Her core research area spans block, file, and object storage, with a special focus on the storage of unstructured data. With more than 25 years of experience as a technology journalist, including 13 years covering enterprise storage, Carol gained extensive insight into the ways in which the industry has adapted systems over time to address the evolving needs of IT customers.

More about Carol Sliwa

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