# The Business Value of Dell PowerFlex

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# Executive Summary

Software-defined infrastructure has become a popular choice for enterprises seeking to modernize and consolidate systems for new digital business initiatives, especially those that require an expansion of IT resources. Software-driven storage can offer advantages over traditional SAN and NAS systems, easing the scaling of performance and capacity across industry-standard server nodes. Flexible deployment options and automation capabilities can help reduce the complexity of provisioning, operating, and managing storage infrastructure for IT organizations that need to stay agile to respond to changing business needs. Software-defined infrastructure platforms, such as Dell Technologies' Dell PowerFlex with Intel Xeon processors, are designed to support a diverse set of traditional and modern cloud-native workloads, including relational databases, NoSQL databases, and throughput-intensive analytics applications.

IDC conducted research on the value and benefit that organizations are achieving through the use of Dell PowerFlex to run and manage important business workloads. The research included in-depth interviews with seven companies that have experience with and knowledge about the benefits and costs of using the Dell PowerFlex platform.

**Based on extensive quantitative and qualitative data derived from these interviews, IDC calculates that each study participant will realize an average benefit of $7.24 million and a 276% return on investment (ROI) over a three-year time frame by:**

- Boosting the overall productivity of IT and storage infrastructure management staff to free up teams from routine tasks and better support digital innovation and business projects
- Improving the agility required for provisioning storage and compute resources while lowering the overall total cost of operations
- Leveraging improvements in IT infrastructure management to facilitate application development work, achieve better business results, and increase revenue
- Minimizing the effects of unplanned downtime to enable greater business productivity and ease the burden on help desk teams

## Business Value Highlights

*Click highlights below to navigate to content within this document.*

- **276%** three-year ROI
- **8 months** to payback
- **40%** reduced TCO over three years
- **50%** more efficient IT infrastructure management teams
- **51%** more efficient help desk teams
- **19%** reduced IT staff time needed for "keeping the lights on"
- **24%** more time freed up to spend on innovation and business support
- **88%** reduction in unplanned downtime for end users and customers
- **$13.9 million** in additional revenue gained
- **8%** increase in productivity of application developers

# Situation Overview

Software-defined infrastructure has become an increasingly common alternative to traditional storage systems that require IT staff with special skills to deploy, operate, and maintain. SAN and NAS systems designed for dedicated storage hardware and, in some cases, special high-speed networking gear have historically been the preferred choice for important performance-sensitive enterprise workloads. However, flash drives and nonvolatile memory express (NVMe) technologies now facilitate high performance with software-defined storage running on general-purpose server hardware, potentially at a lower cost than legacy systems. Software-defined infrastructure can also ease the scaling of storage capacity and increase data input/output (I/O) and throughput through the addition of nodes, making the systems well suited to modern business intelligence workloads that can grow at an unpredictable rate.

One of the most popular types of software-defined storage, hyperconverged infrastructure (HCI), combines virtualization, computational, storage, and networking resources to help organizations consolidate workloads and ease provisioning, operations, and management. IDC forecasts that spending for HCI software running on certified reference hardware would increase at a compound annual growth rate (CAGR) of 13.6% from 2021 to 2026 while HCI appliances and rack-scale solutions grow at 9.5%. IDC surveys also show that many enterprises replace SAN and NAS systems with HCI, and most of them run one or more mission-critical workloads on their consolidated hyperconverged systems. Leading HCI suppliers support many of the enterprise features found in traditional storage and offer variable deployment options, including systems that can independently scale compute and storage resources and span core datacenter, edge, and public cloud sites. IDC surveys show that most organizations now take a hybrid cloud or hybrid multicloud approach to infrastructure, and flexibility can be especially important for those building new applications as part of digital initiatives designed to help them derive greater business benefit from their data.

# Dell PowerFlex Overview

PowerFlex is an apt name for Dell's software-defined infrastructure platform. Dell PowerFlex offers flexibility in deployment and consumption, enables block and file storage, and supports multiple operating systems, hypervisors, and container orchestration platforms for bare-metal installations. The software-defined PowerFlex architecture is designed to scale linearly and leverage the latest Intel Xeon processor technology for high performance.

## Further:

- **Deployment**
  Users have the option to run PowerFlex as:
  - HCI (single layer)
  - Independent compute and storage (two layer)
  - A mixture of storage, compute, and HCI nodes, with the option to scale storage and compute resources discretely or together
- **Consumption**
  Customers configure and purchase Dell PowerFlex nodes as storage, compute, or hyperconverged nodes. Dell Technologies sells Dell PowerFlex appliances that provide automated operations and lifecycle management, engineered rack systems that also include integrated networking, and PowerFlex custom nodes with do-it-yourself networking and management. Each of these options is also available as consumption-based services with an operational expense model through Dell APEX Custom Solutions.
- **Cloud services**
  Dell APEX Block Storage for Public Cloud offers Dell PowerFlex software-defined storage on Amazon Web Services (AWS) and Microsoft Azure, enabling customers to use the same storage on premises and in the cloud. The APEX offering uses a scale-out distributed mesh-mirror architecture to combine storage resources across multiple server instances in a cluster and provide high performance and resilience in the public cloud. PowerFlex also supports two configuration options with the on-premises AWS Outposts managed service: a software-only deployment on AWS Outposts hardware and a physical deployment with a PowerFlex storage appliance connected to an AWS Outposts server for compute resources.
- **Management**
  Dell PowerFlex Manager software gives customers a unified toolset and interface to administer storage operations and oversee the management of the entire infrastructure

stack (compute, storage, and networking), with automation capabilities for deployment and life-cycle management. PowerFlex Manager runs as a containerized service in a distributed Kubernetes-based platform. Integrated Dell CloudIQ technology adds AI-based support for capabilities such as real-time predictive monitoring. Additional tools for DevOps teams include the Dell REST API, Dell Container Storage Modules, and container storage interface (CSI) drivers.

- **Block storage**
  PowerFlex supports petabyte-scale deployments in both on-premises and hybrid-cloud environments. The maximum raw capacity of a PowerFlex system is 16PB, and the usable storage volume size can range from 8GB to 1PB. PowerFlex supports a proprietary TCP-based protocol to move data between the storage clients and servers via standard SCSI commands. PowerFlex also supports a low-latency NVMe/TCP option through a Storage Data Target service that translates between the native PowerFlex protocol and NVMe commands.

- **File storage**
  Although PowerFlex is primarily a block-based storage platform, the system also enables file services for unified storage deployments. Supporting up to 2,000 NAS servers per system, PowerFlex File Services run on pairs of diskless file controller nodes, up to a maximum of 16 nodes. Clustered NAS server containers host the NAS servers, which in turn host the tenant namespaces, their individual security policies, and the file systems. Each file system maps to a PowerFlex volume, and both the volumes and file systems can scale in the background. PowerFlex supports major file protocols such as NFS v3 and v4 and SMB/CIFS v2 and v3 for data access. In the latest version, PowerFlex File enables the aggregation of individual NAS servers and file systems into a single, global namespace for operational efficiency and scale.

- **Performance**
  Dell designed the software-defined PowerFlex system to linearly scale input/output operations per second (IOPS) and throughput through the aggregation of resources across potentially thousands of server nodes. Performance varies based on system configuration and various other factors, but Dell claims mission-critical applications running on PowerFlex can deliver millions of IOPS at submillisecond latency.

- **Storage functionality**
  Dell designed PowerFlex for 99.9999%, or six nines, of availability. Enterprise storage capabilities include read/write or read-only snapshots, inline data compression, and asynchronous replication between up to five PowerFlex clusters, with individual volumes copied to a single target. Supported security features include single sign-on (SSO), with optional multifactor authentication if the identity provider requires it, certificate-based access for administrative users, at-rest data encryption, and immutable snapshots.

# The Business Value of Dell PowerFlex

## Study Firmographics

IDC conducted research to explore the value and benefits that organizations can achieve using Dell PowerFlex to support business workloads. The project included interviews with seven organizations that have in-depth experience with and knowledge about the benefits and costs of using the Dell PowerFlex platform. IDC asked the organizations a variety of quantitative and qualitative questions about the product's impact on their IT operations, core businesses, and costs.

**Table 1** presents the aggregated firmographics of the interviewed organizations. Organizations that IDC interviewed had an average of 99,043 employees, with an annual revenue of $13.9 billion and 747,100 external users/customers. These companies had, on average, an IT staff count of 5,004 managing 2,201 business applications. For geographic distribution, four companies were based in the United States, with the remainder in Australia, Canada, and Switzerland. The companies represented the following vertical markets: insurance, healthcare, financial services, manufacturing, and transportation. (Note: All numbers cited represent averages.)

**TABLE 1**

### Firmographics of Interviewed Organizations

| | Average | Median | Range |
|---|---|---|---|
| **Number of employees** | 99,043 | 83,000 | 300–300,000 |
| **Number of IT staff** | 5,004 | 5,000 | 25–12,000 |
| **Number of external users/customers** | 747,100 | 200,000 | 21,000–2M |
| **Number of business applications** | 2,201 | 2,500 | 4–4,500 |
| **Revenue per year** | $13.9B | $7.3B | $16.9M–$40.0B |
| **Countries** | United States (4), Australia, Canada, Switzerland | | |
| **Industries** | Insurance (2), healthcare (2), financial services, manufacturing, transportation | | |

n = 7; Source: IDC Business Value In-Depth Interviews, August 2023

# Choice and Use of Dell PowerFlex

The organizations that IDC interviewed described their rationale for selecting Dell PowerFlex with Intel Xeon processors to better support a variety of business workloads and advance their digital transformation and IT modernization efforts. Study participants noted that the platform gave their organizations the ability to support their unique business requirements under a two-tier model that included non-blocking performance with more CPUs than storage. Study participants cited previous positive experiences with Dell Technologies products/support, such as vBlock converged infrastructure, and noted the need for a very scalable solution that could be helpful in creating a private cloud infrastructure.

## Study participants elaborated on these and other selection criteria:

**Evaluated multiple hyperconverged options and picked PowerFlex, North America, healthcare:**

*"We were doing an evaluation of hyperconverged infrastructure, and through the evaluation that we were doing, we picked Dell Technologies to host our virtual environment."*

**Could support unique business requirements, North America, financial service:**

*"There were two types of challenges that made us look at PowerFlex. One was that the business wanted an infrastructure to be deployed that would have a smooth, non-blocking performance. The other business challenge was that they wanted lots of CPUs but not as much storage. They were looking, essentially, for a two-tier model."*

**Previous experience with Dell Technologies products was positive, EMEA, insurance:**

*"At the start, we had Dell Technologies solution vBlock, and we wanted to closely collaborate with Dell Technologies. The right way was to use a very scalable solution and a robust solution, and PowerFlex fit this description."*

**Could be helpful in creating their own private cloud, APAC, insurance:**

*"We had a requirement to build private cloud infrastructure to allow us to move faster, and PowerFlex was chosen as part of that."*

**Looking for improved scalability and reliability, North America, transportation:**

*"Scalability and reliability were the two big ones, especially compared with our previous SAN-based solutions."*

**Table 2** (next page) illustrates the organizational usage associated with interviewed companies' deployment of Dell PowerFlex. It's worth noting that there was a substantial usage footprint across all companies, as evidenced by 57% of all revenue supported or associated with the platform. In addition, companies reported, on average, three datacenters and 203 servers supported by 5,567TB of data/storage capacity, and there were 93 databases and 732 business applications in play.

**TABLE 2**

### Organizational Usage of Dell PowerFlex

| | Average | Median | Range |
|---|---|---|---|
| **Number of branches/sites** | 668 | 21 | 5–3,000 |
| **Number of datacenters** | 3 | 2 | 2–8 |
| **Number of geographical locations (countries)** | 33 | 4 | 1–130 |
| **Number of servers** | 203 | 138 | 18–785 |
| **Number of terabytes** | 5,567 | 2,600 | 200–21,000 |
| **Number of databases** | 93 | 60 | 6–250 |
| **Number of applications** | 732 | 430 | 1–2,000 |
| **Number of internal users** | 24,082 | 3,200 | 25–80,000 |
| **Percentage of revenue supported by applications supported by Dell PowerFlex** | 57 | 65 | 1–100 |

n = 7; Source: IDC's Business Value research, August 2023

## Business Value and Quantified Benefits

IDC's Business Value model quantifies the benefits for organizations using Dell PowerFlex to cost effectively support their IT infrastructure operations. The solution boosted the overall productivity of IT and storage infrastructure management staff, thereby freeing up teams from routine tasks to better support datacenter modernization and innovative business projects. In addition, PowerFlex improved overall agility for provisioning storage and compute resources while lowering the overall total cost of operations. Over time, leveraging these improvements in IT infrastructure management helped these companies improve their application development efforts, achieve better business results, and increase revenue. In addition, PowerFlex served to minimize the effects of unplanned downtime, contributing to greater business productivity and easing the burden on help desk teams.

## In their comments to IDC, study participants described these benefits in detail, among others:

**More standardized infrastructure that is more stable and scalable, North America, healthcare:**

*"The easy part for us is standardization. We now have the ability, from a scalable and mature platform, to roll this out to different areas. That lowers our technical debt. It also lowers our risk by not having what we call "snowflake systems" out there. That stability, the scalability, and the maturity of the product, along with the Dell Technologies support, are all key to why we're on PowerFlex."*

**Ease of management and performance, EMEA, insurance:**

*"We have no downtime, and we have less exploitation. The IT environment is very simple with Dell PowerFlex. Everything is integrated, everything is supported by Dell Technologies, and we don't need to have knowledge of our infrastructure. Dell Technologies supports us with that. We have a small team, and it's important to make sure our team is not entirely focused on infrastructure. We are confident with Dell Technologies products."*

**Improved stability and functionality, APAC, insurance:**

*"The biggest benefits for us are probably the stability and functionality. For example, we plug in PowerFlex into our Kubernetes environment, and that helps the business in terms of us being able to provision workloads that require storage more seamlessly."*

**Better performance for key workloads, North America, manufacturing:**

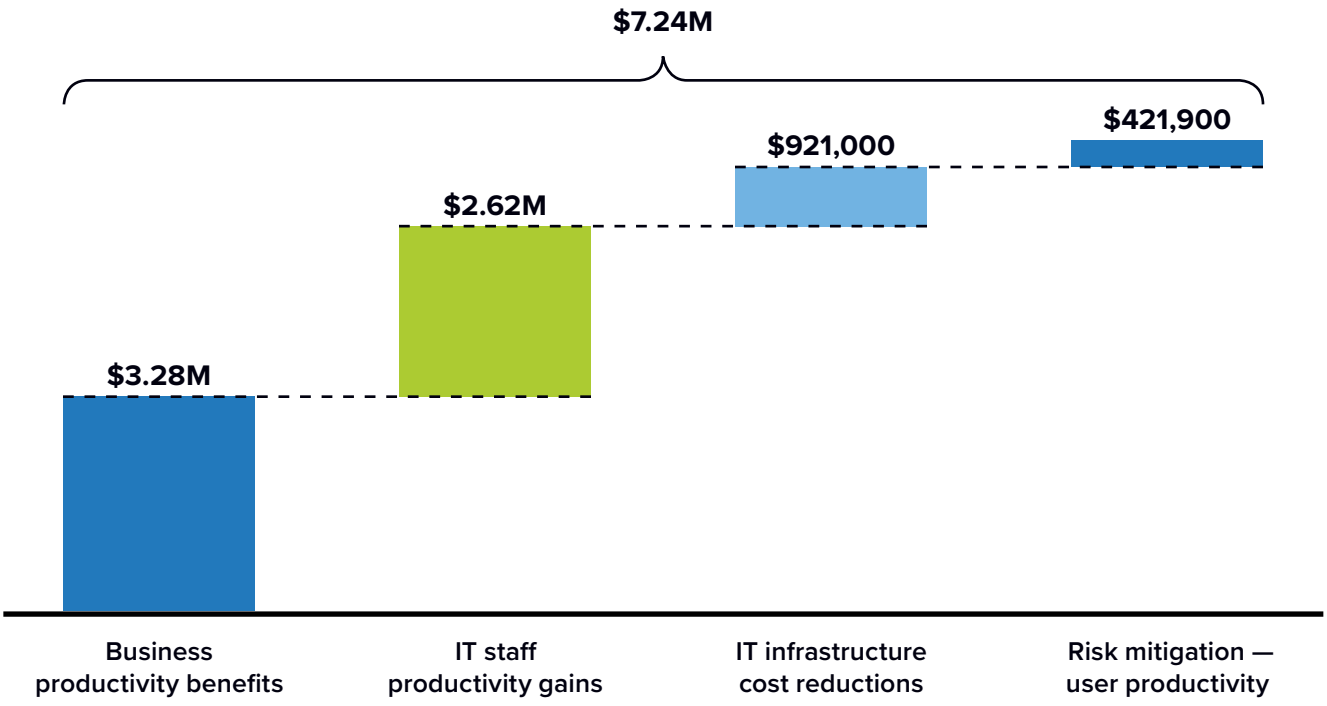
*"For us, it's the uptime and performance. The performance that the end users are seeing is three to four times better. Some of those spinning discs we had been using were awful. When it came to latency, I would say, for instance, in particular there was one database where jobs took nine hours. And when we moved them to PowerFlex, it took about 45 minutes. Latency is about 90% improved."*

Based on interviews with the seven intensive users of Dell PowerFlex, IDC quantified the value that each study participant will receive over three years at an average of $7.24 million, with a 276% three-year return on investment and a payback period of eight months (see **Figure 1,** next page). Granular metrics and calculations are presented in the following sections.

**FIGURE 1**

## Annual Average Benefits per Organization

(Average annual dollar increase)




n = 7; Source: IDC's Business Value research, August 2023

For an accessible version of the data in this figure, see Figure 1 Supplemental Data in Appendix 2.

# Operational Impacts of PowerFlex

Interviewed organizations confirmed that Dell PowerFlex added significant value to their IT and storage operations. Study participants appreciated the overall flexibility and scalability of the Dell platform and the fact that it was easier to manage. They pointed to the fact that IT staff had fewer customer calls and complaints to contend with after deployment. In addition, they noted that the platform was easier to upgrade and offered flexibility to handle infrastructure issues that weren't directly associated with PowerFlex itself. They also reported that the process of patching and adding capacity was measurably easier.

### Study participants commented on these and related issues:

**PowerFlex easier to manage, North America, financial services:**

*"Once this is set up, the support overhead is minimal. It's very stable from a support standpoint."*

**Reduced calls for performance issues, North America, financial services:**
*"I never get a call. That's a good problem to have when the customers don't call me. No complaints, performance is great."*

**Easier to upgrade and flexibility to handle non-PowerFlex infrastructure issues, North America, manufacturing:**
*"The biggest benefit is upgradability. It's incredibly easy to upgrade, and PowerFlex has resiliency in handling node failures and network interruptions."*

**PowerFlex easier to scale up and apply patches, EMEA, insurance:**
*"One of the benefits is the scalability of the infrastructure. We can add capacity easily. Also, it's easy to stay up to date, and we know Dell Technologies tests everything before we apply patches."*

**Better performance regardless of data volume size, North America, financial services:**
*"We did run some benchmarks. Based on the metrics I have, it is a lot better than normal hyperconverged. A lot faster, especially random read and random write. It is a lot faster than before — smooth performance, regardless of data volume."*

To develop an accurate profile of Dell PowerFlex benefits, IDC drilled down on how the solution improved the performance of various teams, beginning with IT infrastructure. Interviewed companies reported that these teams found PowerFlex easy to manage and appreciated the quality and accessibility of Dell support that they had access to when issues or questions arose.

**Table 3** quantifies these benefits. After adoption, interviewed companies saw a 50% improvement in team productivity. In real-world terms, this means that an average of 4.7 FTEs were able to produce at the same level as 9.4 FTEs. IDC calculated that this translated into an annual business value of $471,300, on average, for each organization.

**TABLE 3**

## IT Infrastructure Management Staff Impact

| | Before Dell PowerFlex | With Dell PowerFlex | Difference | Benefit |
|---|---|---|---|---|
| Management of IT infrastructure (FTE equivalent per organization per year) | 9.4 | 4.7 | 4.7 | 50% |
| Equivalent value of staff time per year | $939,400 | $468,000 | $471,300 | 50% |

n = 7; Source: IDC's Business Value research, August 2023

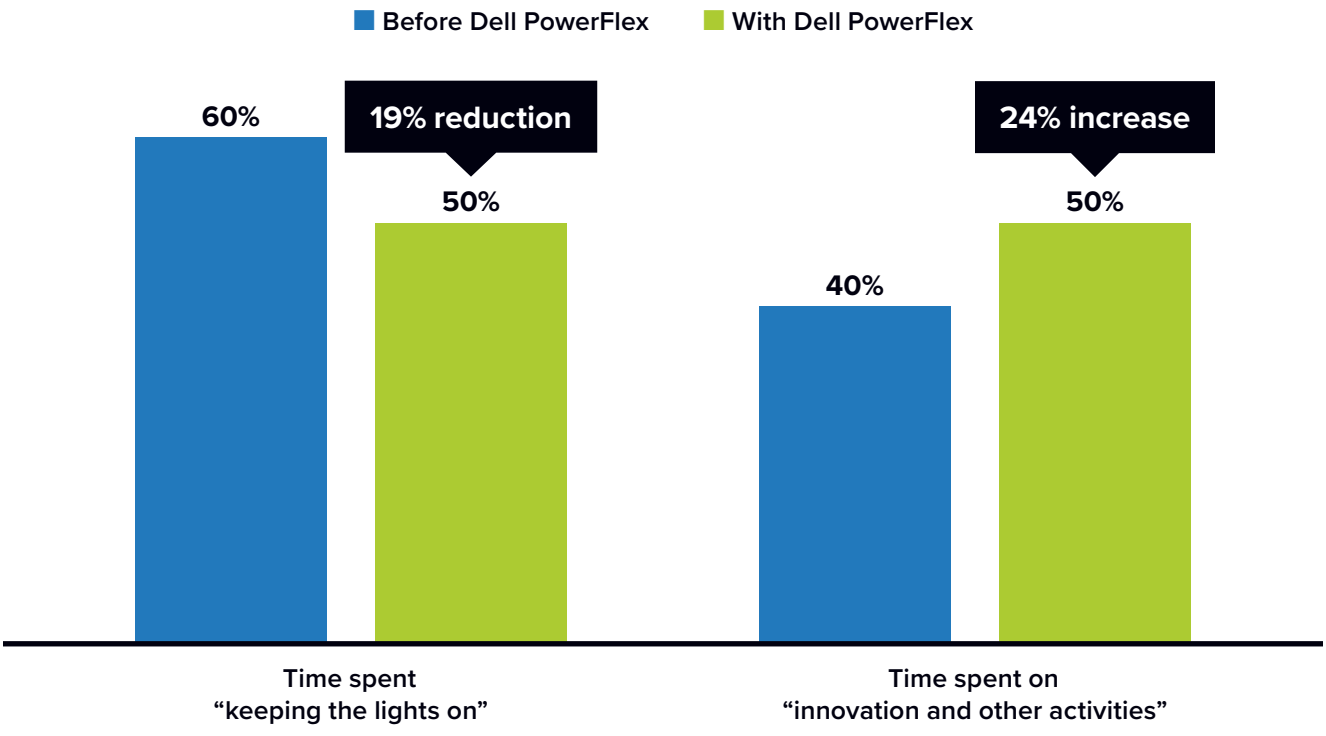
IDC then drilled down on task impacts, specifically in terms of routine versus valued-added projects, an issue that every modern IT department wrestles with. Interviewed companies reported that, after adopting PowerFlex, IT infrastructure management teams were able to spend less time on routine management tasks such as "keeping the lights on." They found that PowerFlex freed them up to work on other projects and activities, many of which were more directly related to either supporting the business or advancing digital transformation efforts within their organizations. As one study participant working in North American manufacturing noted: *"With the time freed up, we're now able to work with the business more, rather than just doing the churn and burn of daily operations."*

As shown in **Figure 2,** the use of PowerFlex was able to provide, on average, a 19% reduction in time spent on routine tasks while increasing the time spent on innovation or supporting business efforts by 24%.

**FIGURE 2**

**IT Task Impact**

(Percentage)




n = 7; Source: IDC's Business Value research, August 2023

For an accessible version of the data in this figure, see Figure 2 Supplemental Data in Appendix 2.

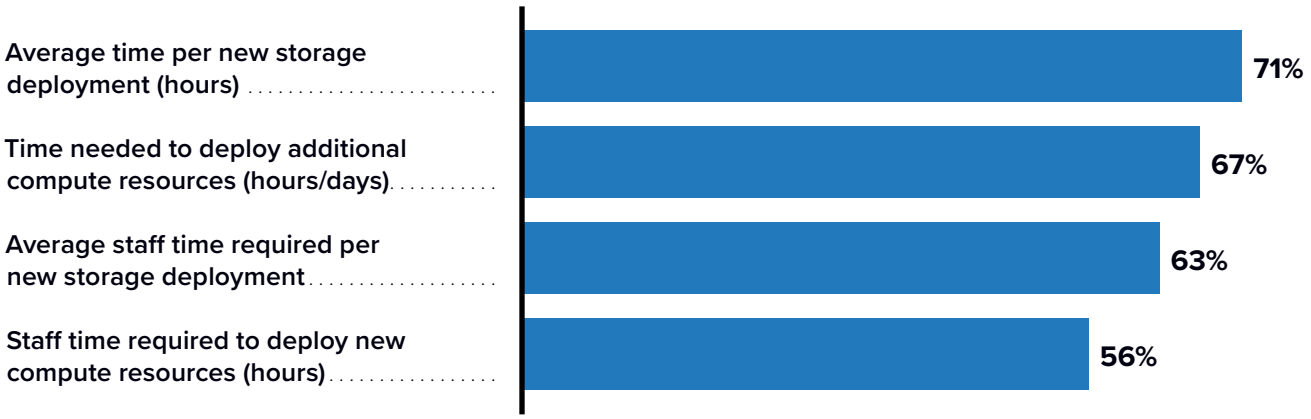
Improved IT agility for both storage and compute resources represented a clear value-add derived from the Dell platform, along with improved scalability and management simplicity. Interviewed companies reported that it was much faster and easier to deploy these resources when they were needed to accommodate business needs or requests.

IDC quantified these benefits by applying a series of key performance indicators (KPIs) to drill down on agility benefits. **Figure 3** shows IDC's analysis. The greatest improvements were seen in the average time per new storage deployment (71% less), time to deploy additional compute resources (67% less), and average staff time required per new storage deployment (63% less). Additional metrics are presented.

**FIGURE 3**

## Infrastructure Agility Impact

(Percentage quicker)



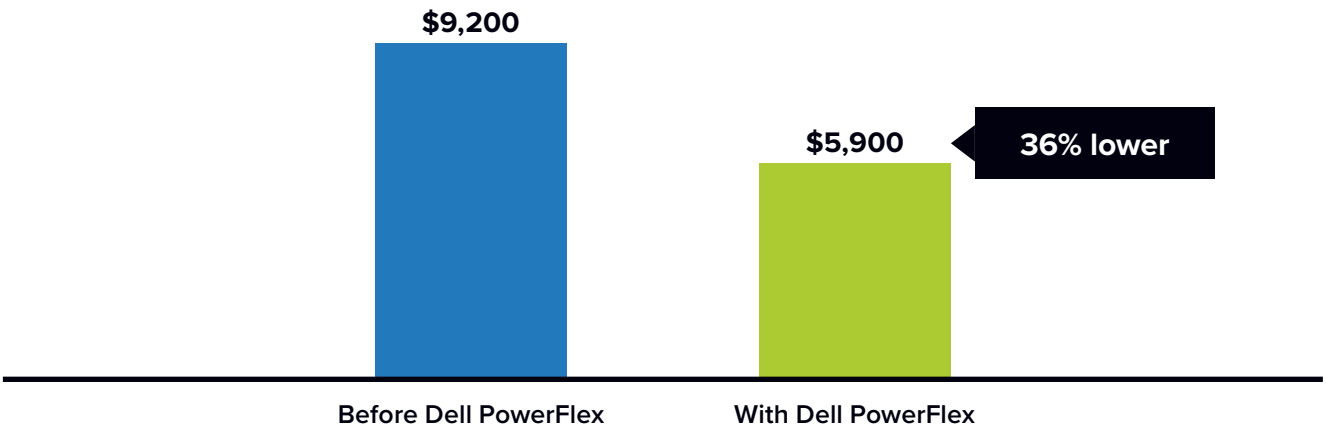

n = 7; Source: IDC Business Value research, August 2023

IDC then evaluated the overall cost-effectiveness of Dell PowerFlex. Interviewed companies reported that they were able to cut their IT infrastructure costs by more than one-third with PowerFlex. Cost reduction factors included reduced facilities and/or energy costs along with core savings associated with PowerFlex hardware itself. IDC calculated IT infrastructure savings per application and database over a three-year period. As shown in **Figure 4** (next page), overall costs were 36% lower, on average.

FIGURE 4

## IT Infrastructure Savings per Application and Database, Three Years

(Cost of Dell PowerFlex/other infrastructure)

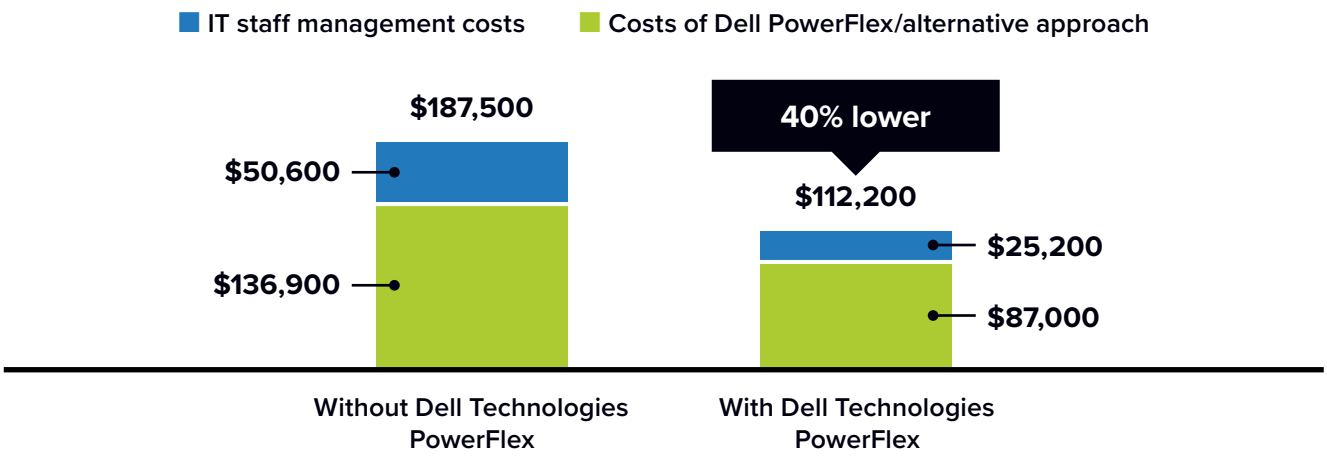



n = 7; Source: IDC's Business Value research, August 2023

IDC then quantified the total cost of operations (TCO) per 100 TBs over a three-year period. Interviewed companies reported that, overall, their organizations were able to reduce TCO by 40% based on the benefits of reduced management burden and more cost-effective storage (see **Figure 5**).

FIGURE 5

## Total Cost of Operations per 100 TB over Three Years




n = 7; Source: IDC's Business Value research, August 2023

For an accessible version of the data in this figure, see Figure 5 Supplemental Data in Appendix 2.

In another key area, IDC found that more efficient IT infrastructure staff and better agility had positive downstream impacts for the help desk operations of interviewed companies. After Dell PowerFlex adoption, organizations noted that they were seeing fewer infrastructure-related help desk tickets. When incidents did occur, they found they were able to address them quicker and more effectively.

**Figure 6** shows IDC's analysis. The greatest improvements were seen in time saved for help desk staff (51% more time freed up), number of calls per week (37% less), and average time to resolve help desk issues (22% faster).

**FIGURE 6**

**Help Desk Impact**

(Percentage improvement)


n = 7; Source: IDC Business Value research, August 2023

## Business Improvements with Dell PowerFlex

Interviewed companies told IDC that, after implementing Dell PowerFlex, they experienced an array of benefits across their business operations, including better financial results. These business benefits were directly linked to better productivity for IT infrastructure teams, increased IT resource agility, and more consistent, automated, and reliable performance of compute and storage systems as described previously.

In their comments, companies noted the ability of Dell PowerFlex to support mission-critical applications. They observed that PowerFlex added more capabilities, such as running Kubernetes or databases on Kubernetes. Better handling of potential compliance issues was also cited as a key benefit. In addition, study participants noted an observable performance delta that occurred when some departments were running the platform and others were not.

## Study participants elaborated on these benefits:

**Dell PowerFlex supporting mission-critical applications, North America, healthcare:**

*"Stability and performance are the biggest business benefits to our organization. Especially when it comes to supporting critical operations, including our pharmacies. PowerFlex runs the various pharmacy sites, as well as internally at the two datacenters, what we call our "access-to-care applications." Some of those run on PowerFlex as well. Those are all mission critical. There aren't any I can think of that we wouldn't run on PowerFlex."*

**Increased capabilities, such as running Kubernetes, APAC, insurance:**

*"Before we couldn't run any Kubernetes, or any databases on Kubernetes, but now we can run Kubernetes workloads with PowerFlex."*

**Could handle potential compliance issues, North America, financial services:**

*"We had gotten a fine from the U.S. regulator. So, we wanted to make sure our IT operations would be really stable going forward by deploying PowerFlex."*

**Performance attractive to multiple departments, North America, manufacturing:**

*"Once we got PowerFlex up and running, people called and said, — Can you please put **my** application on whatever this application is on? — Or, if they support multiple applications, they would notice that the other ones were still slow."*

IDC quantified the benefits called out by these anecdotal observations in several key areas, starting with reductions in unplanned downtime. The data shows that PowerFlex helped organizations significantly reduce the user impact of infrastructure-related performance issues that interfere with on-the-job productivity.

**Table 4** (next page) quantifies these benefits. After deployment, 66% fewer disruptive events occurred annually. When issues did occur, they were resolved 59% faster. These two improvements combined resulted in an 88% improvement in lost productivity. IDC calculated that all these improvements saved companies $456,600 annually, on average.

**TABLE 4**

## Unplanned Downtime Impact

| | Before Dell PowerFlex | With Dell PowerFlex | Difference | Benefit |
|---|---|---|---|---|
| **Frequency per year** | 1.8 | 0.6 | 1.2 | 66% |
| **Time to resolve (hours)** | 4.9 | 2.0 | 2.9 | 59% |
| **Hours of lost productivity time per employee per year** | 0.6 | 0.1 | 0.5 | 88% |
| **FTE impact (lost productivity due to unplanned outages)** | 7.4 | 0.9 | 6.5 | 88% |
| **Value of lost productivity per year** | $518,900 | $62,300 | $456,600 | 88% |

n = 7; Source: IDC's Business Value research, August 2023

Interviewed companies further reported that more reliable and scalable infrastructure meant that application developers and DevOps teams had the resource capacity they needed to quickly and effectively produce high-quality, business-critical applications.

**Table 5** (next page) shows these impacts. After adoption, interviewed companies saw an 8% productivity boost for their application development teams. This amounted to the equivalent of teams of 293 FTEs having the productivity levels of 315, without needing to hire the additional 22 FTE head count. This resulted in an annual productivity-based business value of $2.20 million, on average, for each organization.

TABLE 5

## Application Developer Impact

| | Before Dell PowerFlex | With Dell PowerFlex | Difference | Benefit |
|---|---|---|---|---|
| **AppDev (FTE equivalent per organization per year)** | 292.9 | 314.8 | 22.0 | 8% |
| **Equivalent value of AppDev team productivity (dollar per year per organization)** | $29.3M | $31.5M | $2.2M | 8% |

n = 7; Source: IDC's Business Value research, August 2023

Looking at benefits for financial results with PowerFlex, IDC found that organizations were able to better address business opportunities with better performing and more agile HCI infrastructure. IDC quantified revenue gains from better addressing business opportunities. **Table 6** shows significant gains through business enablement, with $13.95 million in total additional annual revenue, on average, for each organization. IDC's financial model applies a 15% operating margin assumption, resulting in net revenue gains of an average of $2,092,000 per interviewed organization.

TABLE 6

## Business Impact — Revenue from Better Addressing Business Opportunities

| | Per Organization | Per Application and Database | Per Server |
|---|---|---|---|
| **Total additional revenue per year** | $13.95M | $16,900 | $68,700 |
| **Assumed operating margin** | 15% | 15% | 15% |
| **Total recognized revenue per year, IDC model*** | $2.09M | $2,500 | $10,300 |

*IDC assumes a 15% operating margin for each additional dollar of revenue gained.
n = 7; Source: IDC's Business Value research, August 2023

IDC's Business Value calculations confirmed that infrastructure and staff improvements from the use of PowerFlex had direct and measurable impacts on end-user performance. Users were more productive because they enjoyed a more reliable, agile, and scalable infrastructure supporting their applications and compute and storage resources.

**Table 7** quantifies these improvements and shows an average of 5,902 productive hours gained annually per organization. In terms of end-user time, these benefits translated into an annual productivity-based business value of $1.47 million, on average.

**TABLE 7**

### End-User Impact

| Enhanced User Productivity | Per Organization |
|---|---|
| Number of users impacted | 2,700 |
| Average productivity gains | 0.8% |
| Productive hours gained per organization | 5,902 |
| Productive hours gained per user | 1.6 |
| End-user impact (FTE equivalent per organization per year) | 20.9 |
| Value of end-user time | $1.47M |

n = 7; Source: IDC's Business Value research, August 2023

## ROI Summary

IDC's analysis of the financial and investment benefits related to study participants' use of Dell PowerFlex is presented in **Table 8** (next page). IDC calculates that, on a per organization basis, interviewed organizations will achieve a total discounted three-year benefit of $17.2 million based on better IT infrastructure performance, improved staff productivity, and improved business results. These benefits compare with projected total discounted investment costs of $4.58 million per organization over three years. At these levels of benefits and investment costs, IDC calculates that these organizations will achieve, on average, a three-year ROI of 276% and break even on their investment in approximately eight months.

**TABLE 8**

Three-Year ROI Analysis

| | Per Organization | Per 100 TBs | Per Application and Database | Per Server |
|---|---|---|---|---|
| **Benefit (discounted)** | $17.20M | $309,800 | $20,900 | $85,000 |
| **Investment (discounted)** | $4.58M | $82,400 | $5,560 | $22,600 |
| **Net present value (NPV)** | $12.70M | $227,500 | $15,300 | $62,400 |
| **ROI (NPV/investment)** | 276% | 276% | 276% | 276% |
| **Payback (months)** | 8 months | 8 months | 8 months | 8 months |
| **Discount factor** | 12% | 12% | 12% | 12% |

n = 7; Source: IDC's Business Value research, August 2023

# Challenges/Opportunities

## IDC survey data shows the most common challenges organizations confront as they attempt to scale their HCI deployments include:

- Maintaining a single view of all their HCI clusters in a multivendor environment
- Getting sufficient storage performance without excessive costs
- Three-node minimum and higher costs to get RAID capability in an HCI cluster
- Difficulty in scaling compute resources separately from storage resources
- Guaranteeing specific application performance

All vendors would do well to focus on addressing such challenges and keeping costs in check as they add new features and capabilities to their HCI products. Dell PowerFlex Manager enables system oversight of PowerFlex installations through a single user interface. Dell also supports the independent scaling of compute and storage resources and offers validated configurations designed to deliver high performance for select applications. As with any vendor, there is always opportunity for improvement.

IDC survey data consistently shows that most enterprises now take a hybrid cloud or hybrid multicloud approach to IT infrastructure. Dell offers public cloud deployment options through AWS and Microsoft Azure and may need to consider support for additional public clouds based on customer demand.

# Conclusion

Enterprises hoping to consolidate, modernize, and simplify their IT infrastructure are increasingly turning to hyperconverged infrastructure and software defined storage as they pursue new digital business initiatives. HCI can consolidate virtualization, compute, storage, and networking resources on cost-effective, industry-standard servers and help them scale performance and storage capacity with greater ease and speed than traditional 3-tier IT architectures. Dell PowerFlex software-defined infrastructure offers the flexibility to independently scale compute and storage resources and use the same storage on premises and in the public cloud through a unified control plane, an advantage for organizations that are increasingly taking a hybrid cloud approach to IT infrastructure.

IDC's interviews with seven customers that use Dell PowerFlex with Intel Xeon processors showed the business value can be significant with software-defined infrastructure. IDC calculated that each study participant achieved a payback on their Dell PowerFlex investments within eight months, on average. IDC also projected that the interviewed Dell PowerFlex customers would see an average benefit of $7.24 million and a 276% return on investment over a three-year period by easing infrastructure management, reducing the total cost of operations, minimizing downtime, and boosting the productivity of IT staff and developers.

# Appendix 1: Methodology

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from current users of Dell PowerFlex.

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

1. **Gathered quantitative benefit information during the interviews using a before-and-after assessment of the impact of Dell PowerFlex.** In this study, the benefits included IT cost reductions and avoidances, staff time savings and productivity benefits, and revenue gains.
2. **Created a complete investment (three-year total cost analysis) profile based on the interviews.** Investments go beyond the initial and annual costs of using PowerFlex and can include additional costs related to migrations, planning, consulting, and staff or user training.
3. **Calculated the ROI and payback period.** IDC conducted a depreciated cash flow analysis of the benefits and investments for the organizations' use of PowerFlex over a three-year period. ROI is the ratio of the net present value 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 productivity savings. For the purpose of this analysis, 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.
- Further, because Dell PowerFlex requires 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.*

# Appendix 2: Supplemental Data

This appendix provides an accessible version of the data for the complex figures in this document. Click "Return to original figure" below the table to get back to the original data figure.

### FIGURE 1 SUPPLEMENTAL DATA

## Annual Average Benefits per Organization

| | Business productivity benefits | IT staff productivity gains | IT infrastructure cost reductions | Risk mitigation — user productivity |
|---|---|---|---|---|
| **Average** | $3,280,000 | $2,620,000 | $921,000 | $421,900 |

n = 7; Source: IDC's Business Value research, August 2023

Return to original figure

### FIGURE 2 SUPPLEMENTAL DATA

## IT Task Impact

| | Time spent "keeping the lights on" | Time spent on "innovation and other activities" |
|---|---|---|
| **Before Dell PowerFlex** | 60% | 40% |
| **With Dell PowerFlex** | 50% | 50% |

n = 7; Source: IDC's Business Value research, August 2023

Return to original figure

### FIGURE 5 SUPPLEMENTAL DATA

## Total Cost of Operations per 100 TB Over Three Years

| | IT staff management costs | Costs of Dell PowerFlex/ alternative approach |
|---|---|---|
| **Without Dell Technologies PowerFlex** | $50,600 | $136,900 |
| **With Dell Technologies PowerFlex** | $25,200 | $87,000 |

n = 7; Source: IDC's Business Value research, August 2023

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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.

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