

## SHOWCASE

# The Transformational Business Value of PowerMax

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**ABSTRACT:** Among the most important priorities for businesses today are cyber resiliency, intelligent automation, and continuously modern storage. Dell Technologies PowerMax is delivering transformational value to such businesses with innovations in those three specific areas.

## Overview

In our current digital era, out-innovating, out-thinking, and out-pacing the competition requires an IT infrastructure that is capable of accelerating digital initiatives. But traditional, siloed data center technologies actually restrict innovation because they require time-consuming manual intervention to operate properly. Those manual processes have now become an unsustainable burden for IT.

Digital businesses can simply no longer afford to do things that old-fashioned way. They need technologies that are transformative enough to handle increased IT-related demands, boost overall efficiency, automate repetitive management tasks, and protect the company from cyber-attacks. These capabilities will allow an organization to focus its valuable IT resources on driving large-scale digital transformation efforts that will empower the company to thrive long-term in a digital economy.

The bottom line is that the infrastructure supporting an organization's application environment must not only provide performance, availability, and simplicity, it must also:

- Improve an organization's security posture and reduce business risk by providing increased protection from an increasing variety of outside and inside threats.
- Accelerate operations by leveraging integrated intelligence and automation.
- Stay continually modern and easily adaptable to change by using the most innovative, efficient, and sustainable technologies available.

Simply adding an ultra-fast silo to an already overburdened and complex data center won't help; it will only increase cost and management burdens. Contemporary digital organizations need—and must demand—more.

One of the most highly regarded vendors in the data storage industry, [Dell Technologies](#), champions this position. Dell has been engaging in a concerted effort to help its customers and prospects pursue digital transformation the right way. The vendor's revolutionary next-generation Dell PowerMax storage systems, powered by a new end-to-end NVMe scale-out architecture, are key to that effort.

## The Need for a Highly Resilient, Automated Future

For a business built on technology, speed of operations translates into business success. Ninety-one percent of IT organizations surveyed by ESG report that they have had to accelerate their operations compared with three years ago, with 41% saying they have had to accelerate those efforts by 50% or more.<sup>1</sup>

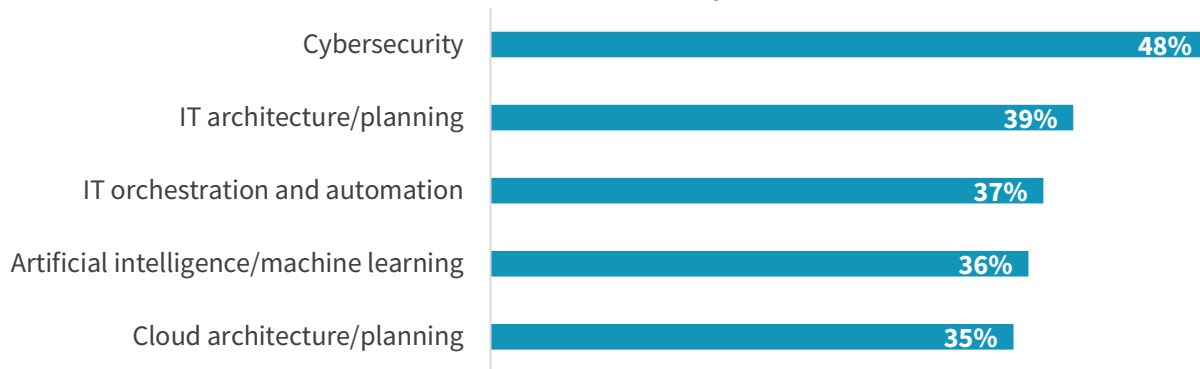
However, as demands on IT increase, a side-effect can hinder operations and actually impede competitive success. Namely, the infrastructure itself tends to become more distributed and complex. Consider that:

- 77% of surveyed IT organizations now leverage three or more data centers, and that number is expected to increase to 80% in five years.<sup>2</sup>
- 82% leverage more than one public cloud provider, and 53% leverage more than two.<sup>3</sup>
- 63% agree that it is often challenging to properly size workloads to achieve an optimal infrastructure environment.<sup>4</sup>
- 64% say that data storage infrastructure requirements and spending are hard to predict.<sup>5</sup>
- 64% believe that the complexity of their IT infrastructure slows IT operations and digital initiatives.<sup>6</sup>
- 64% view data center design as strategic and believe it can lead to a competitive advantage.<sup>7</sup>

Another complicating factor stems from widespread IT skills shortages—most notably in the cybersecurity area, but extending also to IT and cloud planning, as well as orchestration and automation (see Figure 1).<sup>8</sup>

**Figure 1. Top Five Most Common Problematic IT Skills Shortages**

In which of the following areas do you believe your IT organization currently has a problematic shortage of existing skills? (Percent of respondents, multiple responses accepted)



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

<sup>1</sup> Source: Enterprise Strategy Group Research Report, [Data Infrastructure Trends: Accelerating IT Operations in the Era of the Distributed Cloud](#), November 2021.

<sup>2</sup> Source: Enterprise Strategy Group Research Report, [Application Infrastructure Modernization Trends Across Distributed Cloud Environments](#), March 2022.

<sup>3</sup> Source: Enterprise Strategy Group Research Report, [2022 Technology Spending Intentions Survey](#), November 2021.

<sup>4</sup> Source: Enterprise Strategy Group Research Report, [Data Infrastructure Trends: Accelerating IT Operations in the Era of the Distributed Cloud](#), November 2021.

<sup>5</sup> Ibid.

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

<sup>8</sup> Source: Enterprise Strategy Group Research Report, [2022 Technology Spending Intentions Survey](#), November 2021.

The prevalent skills shortages within so many organizations are putting pressure on existing staff, with 76% of surveyed IT decision makers reporting that they have taken on added/new responsibilities to support their organization's digital transformation goals/initiatives (or they are under pressure to do so).<sup>9</sup> The answer lies in automation, but that automation must be simple and integrated. Otherwise, it can exacerbate the skill shortage problem.

## Modernizing Your Data Storage Expectations

Organizations are justifiably intent on utilizing valuable personnel as efficiently as possible and ensuring that the application ecosystem remains as secure as possible. But it is challenging. When ESG asked IT managers about the greatest challenges they face in terms of supporting their production application infrastructure, the two most common answers related to impacts on IT staff time and resources (cited by 38%) and ensuring security (36%).<sup>10</sup>

Clearly, businesses need to maximize their use of cybersecurity and intelligent automation innovations. By leveraging such innovations, they will empower their IT teams to take the storage infrastructure to the next level of modernization, namely by:

- Safeguarding high-value assets, notably mission-critical applications on enterprise storage.
- Leveraging intelligent automation so that tactical resources can be redeployed to strategic IT projects.

## The Transformational Business Value of PowerMax

Dell's next-generation [PowerMax storage](#) is designed to be secure, intelligent, and continuously modern, without compromising on the mission-critical capabilities the PowerMax brand is known for. According to Dell, PowerMaxOS 10 software now includes more than 200 new features, elevating storage intelligence and automation to a new level while delivering industry-leading cybersecurity and resiliency capabilities for storage. The combination of this software-driven innovation, the cutting-edge hardware architecture, and even simplified licensing helps organizations keep their storage infrastructure modern—adding great flexibility, efficiency, performance, and massive scalability.

The hardware's new intelligent, multi-node scale-out design supports the most demanding open systems and mainframe environments, offering massive scale and efficiency. According to Dell, the new models deliver up to 2x more performance and up to 14x more storage density, along with impressive data reduction over the previous generation of PowerMax. Dell now offers a 4:1 data reduction guarantee for open systems and the industry's first 3:1 data reduction guarantee for mainframe data. Furthermore, PowerMax 64-bit network-attached file storage provides even greater data consolidation and data access flexibility, protected by highly resilient SRDF remote replication software.

Dell's strategy for its new PowerMax architecture is based on three tenets essential for any contemporary data-driven enterprise storage environments:

- Safeguarding high-value data.
- Automating storage operations.
- Staying continuously modern.

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<sup>9</sup> Source: Enterprise Strategy Group Research Report, [Data Infrastructure Trends: Accelerating IT Operations in the Era of the Distributed Cloud](#), November 2021.

<sup>10</sup> Source: Enterprise Strategy Group Complete Survey Results, [Distributed Cloud Series: Application Infrastructure Modernization Trends](#), March 2022.

## Safeguarding High-value Data

Cybersecurity threats and ransomware attacks have become an everyday phenomenon, resulting in widescale data loss and business disruption. According to ESG research:

- 79% of organizations have experienced an attempted ransomware attack, with 30% experiencing attempted attacks on a weekly or daily basis.
- Of those 79% that have experienced an attempted ransomware attack, 73% have been victims of at least one successful ransomware attack.
- And of those that were hit with a successful attack, 56% paid the ransom, but only 14% of those who paid got 100% of their data back. Sixty-one percent got 75% or less of their data back.<sup>11</sup>

PowerMax has long been known for delivering mission-critical levels of data security, isolation, immutability, and availability. With the latest release, Dell has enhanced PowerMax's already-advanced cyber resiliency, business continuity, and disaster recovery capabilities to help its customers identify, prevent, detect, and recover from cyber-threats effectively.

PowerMax is designed for a zero-trust security architecture, covering the seven pillars of a robust security framework: device, user, transport, applications, data, visibility/analytics, and automation/orchestration. Using AIOps with intrinsic security capabilities, PowerMax delivers swift ransomware and malware activity detection by spotting data reducibility anomalies. For example, if a PowerMax has been achieving an average data reduction rate of 4:1 over time but then suddenly reports a 1:1 ratio, it may be a result of data encryption stemming from a cyber-attack.

PowerMax also offers 64 million secure snapshots to protect data from intentional/unintentional tampering, which helps IT to achieve a better RPO and RTO at scale in the event that an attack does occur. For organizations that require an air-gap cyber recovery solution, Dell offers PowerMax Cyber Vault, incorporating proven PowerMax replication for fast and granular cyber recovery.

## Automating Storage Operations: Artificial Intelligence for Autonomous Storage

When PowerMax launched in 2018, it came with leading AI/Ops automation. This year, Dell has enhanced the next-gen PowerMax with yet more AI-related software innovation. Dell is not new to incorporating AI/Ops into mission-critical storage. From its initial product launch, PowerMax has come with a built-in machine learning engine that uses predictive analytics and pattern recognition to automatically place data on the correct media according to I/O profile. That is the kind of automation support that is going to free IT resources to focus on strategic initiatives instead of day-to-day performance tuning. PowerMax customers can also leverage DevOps/Container Storage Modules (CSMs), making enterprise storage real for Kubernetes.

The next-generation PowerMax possesses a number of additional software-centric innovations to automate storage operations, eliminating the need for manual intervention. They include:

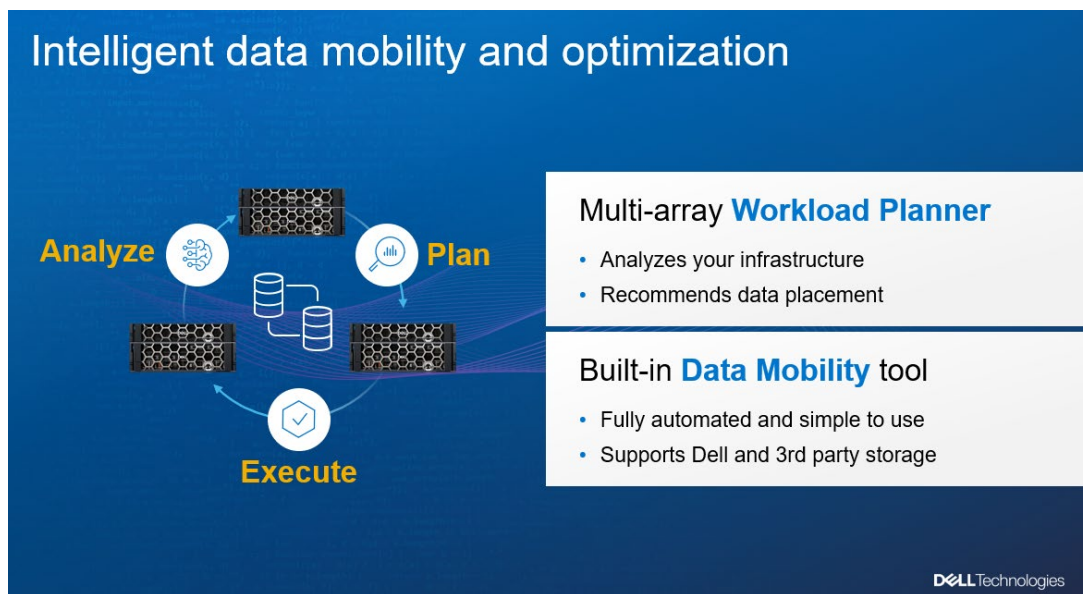
- **Multi-array smart provisioning software**, which monitors and analyzes storage statistics across multiple arrays in real time to select the most suitable array for new and existing workloads. PowerMax smart provisioning thereby delivers optimal performance and resource utilization across the storage infrastructure (see Figure 2).

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<sup>11</sup> Source: Enterprise Strategy Group Complete Survey Results, [The Long Road Ahead to Ransomware Preparedness](#), June 2022.

- **Built-in data mobility technology**, which provides common data mobility across supported PowerMax and non-PowerMax storage arrays. It leverages array-based orchestration and replication services to automatically discover, configure, and move data online.
- **Smart Fabric Storage Software**, an NVMe/TCP end-to-end deployment solution for automating NVMe/TCP operations—translating to 44% less time to configure PowerMax storage resources compared with iSCSI. NVMe/TCP helps lower deployment costs, reduces SAN design complexity, and supports the building of a highly scalable PowerMax storage environment for mission-critical workloads.

**Figure 2. Dell PowerMax Multi-array Smart Provisioning**



Source: Dell Technologies

Dell also includes CloudIQ cloud-based monitoring and storage analytics in its high-end hardware. CloudIQ monitors and measures overall health using intelligent, comprehensive, and predictive analytics, making it easier for IT to identify storage issues quickly and accurately, further reducing the burden on valuable IT resources. These analytics (which admins can access from anywhere through a web interface or mobile app) can drive business decisions that could lower the organization’s total cost of ownership associated with the array. The monitoring abilities of CloudIQ are praised by organizations currently using it for its ability to facilitate higher uptime, increase performance, improve data protection, and support effective configuration and capacity-planning efforts. CloudIQ is included with PowerMax arrays for free.

### Staying Continuously Modern

Infrastructure maintenance and workload migrations are constant, costly burdens on personnel. Dell’s Future-Proof Program and its Anytime Upgrade provide investment protection with a set of technology capabilities and programs that enable PowerMax to provide value for the lifetime of applications. According to Dell, purchasing PowerMax qualifies an organization for a 3-year satisfaction guarantee, hardware investment protection, a 4:1 data reduction guarantee for open systems workloads, and a 3:1 data reduction guarantee for mainframe workloads.

Dell is also prioritizing delivering storage solutions that can be modernized without disruption, without downtime, and without impacting applications. The Dell Anytime Upgrade provides non-disruptive, data-in-place upgrades to next-generation storage. PowerMax nodes can be upgraded non-disruptively while preserving existing drives and expansion enclosures—without requiring additional purchases.

The final element of Dell's continuously modern storage strategy focuses on sustainability, i.e., delivering an infrastructure that maximizes business outcomes while preserving energy resources. Lessening environmental impacts has been the focus of many sustainability initiatives. However, given current unprecedented challenges regarding energy availability globally, organizations have amped up efforts to improve efficiency and lower their power and cooling costs, which typically make up about 40-60% of data center operating costs.

According to Dell, the new PowerMax arrays will:

- Deliver 7x more storage (8PBe) in half the rack space (10U).
- Consume less power versus the prior generation (80% power savings per terabyte).
- Be more efficient with storing data (via the 4:1 data reduction guarantee).

## The Bigger Truth

Dell Technologies is all about digital transformation, and that's been the case for years. A big part of Dell's strategy centers on helping organizations securely transform their enterprise IT environments while simultaneously accelerating digital initiatives. After all, the mission-critical applications that typically reside on PowerMax are no longer just important business enablers, they are now often direct revenue creators.

When an application ecosystem directly drives revenue creation, more capabilities will be needed from the infrastructure behind it. Yes, data storage that is always on—delivering the highest levels of performance, scalability, and resiliency—is essential. But it is no longer sufficient. Security threats are very real, costly, pervasive, and risky. If your storage isn't helping to secure your data, it isn't doing enough.

In addition, the tie between digital operations and revenue generation is requiring businesses to accelerate everything to bring in the revenue faster. But skilled IT personnel are in such short supply. Therefore, the storage technology must take on some of that acceleration responsibility, using capabilities such as integrated automation.

The Dell PowerMax platform has long been a leader in enterprise mission-critical storage. Dell, however, understands that today, given the transformational value of data and the pervasive risk of debilitating cyber-attacks, businesses need more from their storage infrastructure. PowerMax should be on, if not at the top of, any organization's shortlist when evaluating storage options for data that fuels business.

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