

The New Rules of Buying Data Storage

As legacy infrastructure impedes AI success, Dell has optimized PowerStore Elite to provide a path forward

Authors: Scott Sinclair, Practice Director
and Monya Keane, Senior Research Analyst
July 2026

This Omdia White Paper was commissioned by Dell Technologies and is distributed under license from TechTarget, Inc.

Contents

Executive summary	3
Introduction	4
The AI era has redefined data storage requirements	5
Dell PowerStore Elite	8
How PowerStore Elite’s architecture improves infrastructure simplicity and flexibility	8
Dell and PowerStore Elite offer AI-driven management and automation to further simplify and accelerate IT operations	9
PowerStore Elite offers integrated cyber resilience and AI-enabled ransomware detection	10
How PowerStore Elite helps simplify private and hybrid cloud environments	11
Conclusions	13



Executive summary

Artificial intelligence (AI) is redefining how storage is purchased, and it is raising the baseline expectations for all workloads—not just AI. The new buying criteria for enterprise storage in the AI era are tied to the following:

- **Changing flash economics.** Demand for AI infrastructure drained NAND supply and reshaped flash procurement from a line-item negotiation into a strategic sourcing problem.
- **Performance.** The performance bar was reset upward for the whole environment. Data prep and inferencing raised expectations that now apply to legacy workloads, too.
- **Space efficiency.** Density and data reduction became the primary lever for controlling cost, footprint, and sprawl.
- **Hypervisor and platform freedom,** Storage that is wedded to one stack is now a liability, not a convenience.

“Legacy” storage is built on isolated silos, rigid three-year forklift cycles, and fragmented management. It therefore fails all four tests at once. Adding another silo to a legacy architecture does not just accrue technical debt; it also locks buyers out of the flexibility the new criteria demand.

[Dell PowerStore Elite](#) was architected against these four criteria, not retrofitted to them. It offers performance and capacity density that consolidates multi-petabyte environments, procurement flexibility that absorbs supply shocks, platform openness across hypervisors and containers, and advanced data reduction that stretches every scarce terabyte of flash.

This Omdia White Paper was commissioned by Dell Technologies and is distributed under license from TechTarget, Inc.

Introduction

AI is having an impact on all aspects of IT, including data storage. AI is everywhere, with 80% of surveyed organizations reporting that they are making or planning to make significant infrastructure investments to support new AI initiatives.¹

The rise of AI has been accompanied by a subsequent increase in complexity everywhere, not just for AI initiatives. In fact:

- **81%** of organizations agreed that the pace of change in IT is accelerating.
- **75%** agreed that, over the past two years, IT administrators have faced additional responsibilities to support digital initiatives.
- **69%** agreed that their overall IT infrastructure environment has become more complex in the last two years.
- **61%** agreed that overall complexity slows down IT operations and initiatives.

AI is changing the way organizations purchase storage, even for non-AI workloads. Among survey respondents, 87% said their adoption of AI will drive or is driving substantial data growth,² but 39% are actively working to reduce the number of physical systems in their data center environment.³

¹ Source: Omdia Complete Survey Results, [IT Modernization Report: Cloud, Applications, and Infrastructure Amid the AI Revolution](#), June 2026. All Omdia research references and charts in this White Paper are from this survey results set unless otherwise noted.

² Source: Enterprise Strategy Group (now Omdia) Complete Survey Results, [The Critical Role of Storage in Building an Enterprise AI Infrastructure](#), September 2025.

³ Source: Enterprise Strategy Group (now Omdia) Research Report, [Private AI, Virtualization, and Cloud: Transforming the Future of Infrastructure Modernization](#), July 2025.

The AI era has redefined data storage requirements

The effects of AI have rippled throughout the infrastructure stack, impacting how organizations tackle the importance of data privacy, locality, and sovereignty for both their modern and traditional mission-critical workloads. According to Omdia research, 83% of organizations agreed that data center modernization is a top IT priority. This is in large part because legacy storage has become a costly, frustrating, and troublesome issue that is impeding IT operations: 72% of surveyed organizations agreed that managing their data storage environment is significantly more complex than it was two years ago, and 68% agreed that storage is a major pain point for their organization.⁴

Multiple macro-scale events are affecting how IT administrators need to evaluate storage. These include the following:

- **The rise of AI-enabled IT operations.** The manner in which IT admins can and want to manage infrastructure, including storage, is evolving. Our research shows that 80% of organizations agreed that agentic AI will redefine IT roles and responsibilities. The recent rise in AI adoption has shifted storage challenges and priorities in the past two and a half years. Specifically, from 2023 to 2026, the challenge of integrating storage with broader IT management platforms and tools increased by 11 percentage points (from 35%⁵ to 46%). This finding highlights how the scale and distribution of legacy storage system silos have become a growing challenge to manage and maintain (see **Figure 1**).

Similarly, the time and effort to provision capacity increased by 7 percentage points (from 33% to 40%),⁶ showing how the accelerated pace of digital initiatives such as AI projects has put more pressure on IT teams to provision capacity quickly.

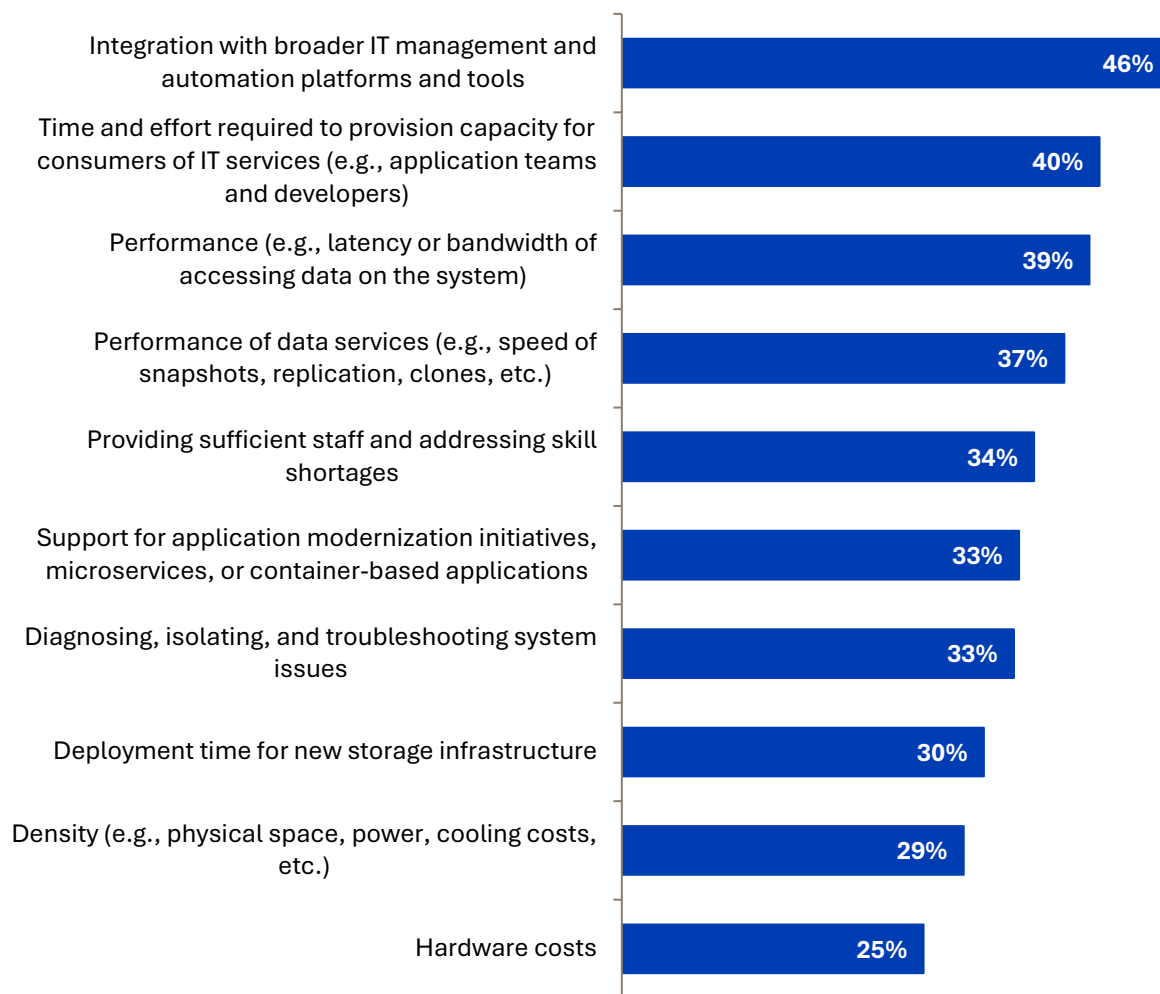
⁴ Source: Enterprise Strategy Group Complete Survey Results, [The Critical Role of Storage in Building an Enterprise AI Infrastructure](#), September 2025

⁵ Source: Enterprise Strategy Group Complete Survey Results, [Navigating the Cloud and AI Revolution: The State of Enterprise Storage and HCI](#), February 2024.

⁶ Ibid.

Figure 1: Top challenges with SAN storage

Which of the following best represent your organization's most significant system-related challenges with its on-premises block storage environment (i.e., SAN)?
(Percent of respondents, n=238, multiple responses accepted)



Source: Omdia

- **An increased need for hypervisor flexibility.** Businesses are increasingly diversifying their hypervisor providers and/or accelerating their container-based modernization efforts. Our research found that 69% of organizations are evaluating alternatives to replace their primary hypervisor.
- **The increased importance of hardware delivery.** Increased global demand for AI infrastructure has resulted in a scarcity of components. Among surveyed organizations, 68% agreed that current NAND flash supply chain concerns have impacted their organization's storage strategy in 2026. Similarly, flash economics and saving money

This Omdia White Paper was commissioned by Dell Technologies and is distributed under license from TechTarget, Inc.

are also important. Organizations therefore need to seek out a solution that provides data reduction, space efficiency, and density.

Traditional storage silos present a dangerous risk in the AI era. With that fact in mind, the following is a list of what IT administrators should prioritize for data storage:

- **Maximizing performance and capacity density for your dollar.** Ensure that IT can support the increased demands for performance and capacity while minimizing budget spending and the number of systems that need to be managed.

Research showed that challenges tied to storage performance increased by 5 percentage points (from 34%⁷ to 39%), indicating that demands from data-intensive workloads, including AI (such as increased demands related to data prep or inferencing), require higher levels of performance.

Interestingly, the challenge of hardware costs decreased by 5 percentage points (from 30%⁸ to 25%), which reflects how storage is shifting away from being a cost center toward becoming a profit center, where investment to achieve meaningful improvements is prioritized despite the initial cost.

- **Maximizing architectural flexibility.** The ability to deploy multiple storage types and cluster multiple storage generations extends the life of existing investments and widens options for new hardware deployments. This can limit the impact of supply chain disruptions.
- **Maximizing platform flexibility.** Legacy storage and rigid hyperconverged (HCI) architectures are no longer suitable for a modern environment that requires rapid adaptability. Storage needs to be highly programmable, easy to operate with AI-driven automation, and able to support easily integrated, platform-agnostic, full-stack private cloud operations for maximum business agility. Automation in particular can make the management and integration of storage resources in private or hybrid cloud environments easier while accelerating provisioning, maintenance, and troubleshooting to reduce the complexity burden on internal IT resources.
- **Maximizing upgradability.** Organizations need storage that can be upgraded without replatforming. They should prioritize modular, upgradable platforms instead of continuing to follow the “three-year lifecycle with a forklift upgrade” strategy that underpins most legacy storage environments.

⁷ Ibid.

⁸ Ibid.

Dell PowerStore Elite

Dell PowerStore Elite is a full platform refresh across hardware and software that embodies numerous key capabilities (see sidebar). For many organizations, it will be the right fit because it was purpose-built for this moment. PowerStore Elite delivers the performance headroom, future-proof design, capacity/density efficiency, and platform integrations that make it the right move for organizations looking to modernize their environments.

How PowerStore Elite's architecture improves infrastructure simplicity and flexibility

AI has increased the pace at which new storage must be deployed and provisioned and increased the importance of quickly deploying and provisioning new capacity within those arrays—all while improving the longevity of existing assets. PowerStore Elite possesses several architectural benefits, including:

- It offers organizations a new opportunity for massive **consolidation and simplification**, driven by PowerStore Elite's performance and density increases.
- The **flexibility** of the system as a whole is impressive (including single-drive scale-up, multi-generational scale-out with non-disruptive mobility, unified support, and more).
- The **future-proof design** provides headroom to accommodate new technologies, supported by Lifecycle Extension with ProSupport. Data-in-place upgrades are possible due to the system's modular architecture. PowerStore Elite is easily upgradable across nodes and the network, making it ready for future media and technologies.
- **Support for multiple tiers of flash, TLC, and QLC reduces the cost of storage capacity** while providing procurement flexibility to improve accessibility of hardware to speed deployment amid flash memory supply shortage concerns. Dell uses industry-standard E3 drives in PowerStore Elite, and it

Dell PowerStore Elite

- Unified, scale-out file and block storage.
- Up to 5.8PB effective capacity.
- Provides up to 3x improvement in performance and density, according to Dell Technologies, leveraging multiple innovations.
- 6:1 data reduction guarantee.
- AI-driven per-I/O performance optimization.
- Metadata acceleration to locate and serve reads faster across large datasets.
- Integrated AI-based ransomware detection and recovery acceleration.
- 40 E3 NVMe drive slots with support for QLC and TLC flash.
- Up to 40 network ports (32/64 Gb Fibre Channel 10/25/100Gb Ethernet).
- 40 Ethernet ports (10/25Gb).

This Omdia White Paper was commissioned by Dell Technologies and is distributed under license from TechTarget, Inc.

has simplified the portfolio to allow both QLC and TLC in the same models without any compromise in performance or reliability.

- **Support for granular scaling and high data efficiency**, including single-drive expansion and always-on data reduction backed by a 6:1 DRR guarantee, enables organizations to deploy only what they need upfront, stretch available flash further, and adapt more easily to supply constraints.
- **Dell Lifecycle Extension (LCE)** makes it easy to add performance and capabilities over time. Organizations can choose from a couple of upgrade options (e.g., a next-generation or a higher model) to improve their TCO and reduce operational risk. The non-disruptive, data-in-place controller swaps can add longevity to existing storage investments while accelerating deployment of the latest performance advances. Another important aspect of LCE is that Dell offers a “buy three, get one free” discount on capacity.
- **Multi-generational clustering and scalability** simplify the deployment and integration of new systems, consolidate the management experience to simplify operations, and improve the longevity of storage assets, making it easier to repurpose existing storage for expansion or as a replication target. Additionally, the non-disruptive wizard-based movement of workloads across systems in the cluster simplifies the optimization of performance and capacity, as well as the rebalancing of clusters if file and block demands change over time.

Dell and PowerStore Elite offer AI-driven management and automation to further simplify and accelerate IT operations

PowerStore is a simple-to-operate storage array that offers features such as:

- **Performance optimization** targeted to per-I/O machine learning, metadata acceleration, and active/active controllers with Dynamic Node affinity for performance optimization to support a higher performance baseline.
- **Always-on data reduction**, including unaligned deduplication, intelligent compression, and next-gen Intel QuickAssist to improve flash economics.
- **AI-powered self-healing**, which leverages telemetry data across deployed PowerStore systems to proactively identify and resolve issues to support non-disruptive operations.

With the Dell Automation Platform, IT administrators can leverage a prompt-based generative AI experience that uses telemetry data to deliver tailored management and maintenance, along with AI-enabled automation to simplify operations. By automating storage operations with AI-enabled automation from the Dell Automation Platform, administrators can leverage several integrated simplicity benefits. In fact, Dell claims that

This Omdia White Paper was commissioned by Dell Technologies and is distributed under license from TechTarget, Inc.

managing PowerStore requires up to 95% less effort than managing more traditional storage systems.

PowerStore Elite offers integrated cyber resilience and AI-enabled ransomware detection

Cyber resilience is required to maintain data integrity and support data availability, reducing risk as an infrastructure becomes more complex and distributed. It is a core requirement of modern storage architecture.

As global adoption of AI tools increases, the threat of cyberattacks increases as well. Dell PowerStore Elite incorporates integrated ransomware protection and advanced threat detection, including the following:

- **Data and platform protection.** PowerStore's capabilities include immutable, secure snapshots; file-level retention; encryption validated to meet US Federal Information Processing Standards for data at rest and in flight; hardware root of trust; and secure boot.
- **Identity and access controls.** It comes with multifactor authentication (MFA), single sign-on authentication, multiparty authorization, policy-based access, and secure auditing.
- **Detect and respond features, including AI-enabled ransomware detection and recovery.** Features include built-in anomaly detection at the storage layer and AI for IT operations (AIOps) cybersecurity insights. Optionally, Dell PowerStore Elite integrates with Dell Cyber Detect software, which leverages AI and analytics to detect ransomware-related data corruption with 99.99% accuracy, according to Dell. Additionally, Dell PowerStore Elite with Dell Cyber Detect can accelerate recovery from ransomware attacks by validating data integrity and identifying the last known clean backup or snapshot for recovery.
- **An ability to adhere to evolving standards.** It comes with Security Technical Implementation Guidelines (STIG) mode and NIST-aligned controls supporting federal and regulated environments today, and its upgrade-ready design will support Post-Quantum Cryptography and emerging regulatory frameworks tomorrow.

Securing data is more important than ever. PowerStore Elite is the cornerstone of a clear end-to-end cyber resiliency strategy that is built for the AI era.

This Omdia White Paper was commissioned by Dell Technologies and is distributed under license from TechTarget, Inc.

How PowerStore Elite helps simplify private and hybrid cloud environments

PowerStore Elite expands the flexibility of the larger environment, with specific innovations to improve integration with leading hypervisor and container platforms. When combined with the Dell Automation Platform, Dell PowerStore simplifies and accelerates the deployment of new private cloud environments, with support for VMware, Microsoft, Red Hat, and Nutanix. It also simplifies the ability to integrate new platforms or switch to alternatives.

Storage is just one piece of the puzzle, but what really sets PowerStore apart is how it integrates across the stack. PowerStore anchors Dell Private Cloud (DPC), pairing with PowerEdge to deliver a full-stack private cloud foundation. Dell Automation Platform handles end-to-end orchestration, providing appliance-like simplicity with the flexibility and independent scalability of disaggregated infrastructure. Validated DPC blueprints span VMware vSphere, VCF, Red Hat OpenShift, Nutanix, and Microsoft Azure Local—and Dell Automation Studio extends them with CI/CD-native blueprints for teams with mature infrastructure-as-code (IaC) and DevOps practices.

Essentially, PowerStore is more than storage; it is the integrated foundation for modern private clouds, providing the following:

- **Management integration with popular hypervisor environments**, including VMware, Microsoft, Red Hat, and Nutanix, helping simplify private and hybrid cloud operations.
- **Enterprise data services for container-based and Kubernetes application environments**, supporting application modernization initiatives with support for mixed VM and container environments.
- **Integration with the Dell Automation Platform to automate the deployment or switching of application platforms**. Combined with validated blueprints, Dell automates the deployment of or the transition to new hypervisor or Kubernetes-based application platform environments.

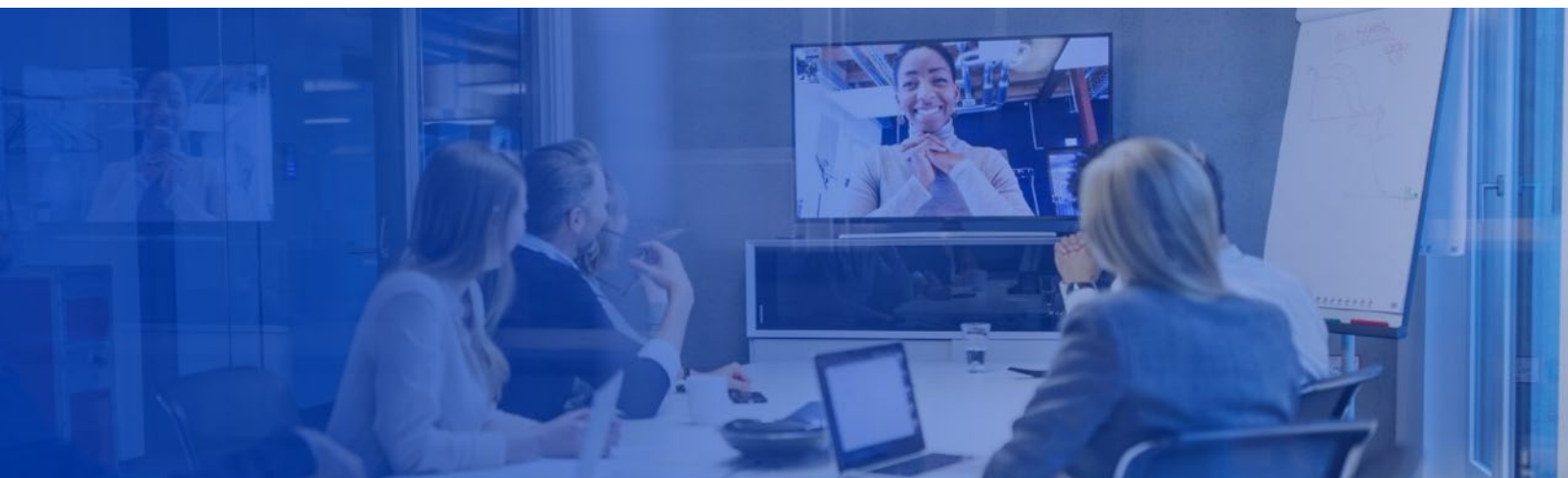
These benefits tie back to achieving platform freedom and operational flexibility, plus other buying priorities (see **Table 1**). Organizations get the benefit of multi-hypervisor support to avoid lock-in, container/Kubernetes support to propel modernization, and automation of deployment/switching to enable rapid adaptation as platforms change. These advantages are especially needed at a time when virtualization disruption and rapid strategic changes are so prevalent.

This Omdia White Paper was commissioned by Dell Technologies and is distributed under license from TechTarget, Inc.

Table 1: Key challenges and how PowerStore addresses them

Storage buying priority	Why it matters	How PowerStore Elite delivers
Performance and capacity density	Meet growing AI and data demands while reducing infrastructure sprawl	Up to 3x higher performance and density, scalable capacity, always-on data reduction, and a 6:1 DRR guarantee
Architectural flexibility	Adapt to changing business needs and extend the value of existing investments	Multi-generational clustering, scale-out growth, mixed TLC/QLC media support, and non-disruptive workload mobility
Platform flexibility	Avoid lock-in and support evolving cloud, virtualization, and container strategies	Broad integration across leading hypervisor and Kubernetes environments, with end-to-end orchestration through Dell Private Cloud deployments
Upgradability	Modernize infrastructure without costly migrations or downtime	Future-proof design with Lifecycle Extension and non-disruptive upgrades, helping organizations add performance and capacity without replatforming

Source: Omdia



Conclusions

The AI era represents an inflection point for enterprise IT infrastructure—one that demands immediate and decisive action. As organizations navigate this transformation, the limitations of legacy storage architectures have never been more apparent or costly. Traditional approaches (built on isolated silos, with rigid refresh cycles, and run using fragmented management tools) are fundamentally incompatible with the dynamic, data-intensive requirements that AI workloads impose across the entire ecosystem.

AI is not merely changing what enterprises do with data; it is redefining what they require from the infrastructure that stores, protects, and delivers that data. The convergence of data growth, performance demands that span both AI and traditional workloads, and the operational complexity of managing increasingly distributed environments has created a perfect storm that legacy storage simply cannot support. Organizations continuing down the path of incremental additions and siloed deployments are not just accepting technical debt; they are actively constraining their ability to compete in an AI-driven marketplace.

Dell PowerStore Elite addresses these challenges with an architecture purpose-built for the realities of modern enterprise computing. By delivering maximum performance and capacity density for your dollar, PowerStore Elite enables organizations to consolidate sprawling storage environments while meeting the elevated performance requirements of AI workloads and data preparation pipelines. The platform's architectural flexibility and multi-generational scalability break the forklift upgrade cycle, enabling businesses to extend the life of existing investments while seamlessly integrating new capabilities—a big advantage when infrastructure planning horizons are measured in months, not years.

This Omdia White Paper was commissioned by Dell Technologies and is distributed under license from TechTarget, Inc.

The integration of AI-enabled automation throughout the management stack represents a shift in how storage can and should be operated. In an era where IT teams face mounting responsibilities and accelerating change, the ability to leverage intelligent automation for provisioning, optimization, and troubleshooting is a necessity. Similarly, PowerStore Elite's AI-enabled cyber resilience tools, including advanced ransomware detection and accelerated recovery capabilities, provide essential protection in an environment where AI is simultaneously empowering both innovation and increasingly sophisticated threat actors.

Beyond the technical capabilities of the platform itself, Dell's position in the market provides a strategic advantage that cannot be overlooked. In a period marked by global supply chain pressures and component shortages—particularly for NAND flash—Dell's purchasing power and supply chain strength offer enterprises greater confidence in their ability to acquire and deploy storage capacity when and where it is needed. The flexibility to deploy systems with mixed TLC and QLC configurations, support for partially populated arrays, and the ability to cluster multiple generations of hardware all contribute to improved hardware accessibility and faster time to deployment, even amid constrained supply conditions.

Dell PowerStore Elite represents not just an evolution in storage technology but a strategic enabler for businesses seeking to harness AI's transformative potential while maintaining the operational efficiency, security, and flexibility required for long-term success. In a landscape where the pace of change continues to accelerate and the stakes of infrastructure decisions have never been higher, the question is not whether to modernize storage infrastructure; it is whether organizations can afford the competitive disadvantage of waiting any longer.

Omdia consulting

Omdia is a market-leading data, research, and consulting business focused on helping digital service providers, technology companies, and enterprise decision makers thrive in the connected digital economy. Through our global base of analysts, we offer expert analysis and strategic insight across the IT, telecoms, and media industries.

We create business advantage for our customers by providing actionable insight to support business planning, product development, and go-to-market initiatives.

Our unique combination of authoritative data, market analysis, and vertical industry expertise is designed to empower decision-making, helping our clients profit from new technologies and capitalize on evolving business models.

Omdia is part of Informa TechTarget, a B2B Materials information services business serving the technology, media, and telecoms sector. The Informa group is listed on the London Stock Exchange.

We hope that this analysis will help you make informed and imaginative business decisions. If you have further requirements, Omdia's consulting team may be able to help your company identify future trends and opportunities.

Get in touch

www.omdia.com
askananalyst@omdia.com



Copyright notice and disclaimer

The Omdia research, data, and information referenced herein (the "Omdia Materials") are the copyrighted property of TechTarget, Inc. and its subsidiaries or affiliates (together "Informa TechTarget") or its third-party data providers and represent data, research, opinions, or viewpoints published by Informa TechTarget and are not representations of fact.

The Omdia Materials reflect information and opinions from the original publication date and not from the date of this document. The information and opinions expressed in the Omdia Materials are subject to change without notice, and Informa TechTarget does not have any duty or responsibility to update the Omdia Materials or this publication as a result.

Omdia Materials are delivered on an "as-is" and "as-available" basis. No representation or warranty, express or implied, is made as to the fairness, accuracy, completeness, or correctness of the information, opinions, and conclusions contained in Omdia Materials.

To the maximum extent permitted by law, Informa TechTarget and its affiliates, officers, directors, employees, agents, and third-party data providers disclaim any liability (including, without limitation, any liability arising from fault or negligence) as to the accuracy or completeness or use of the Omdia. Informa TechTarget will not, under any circumstance whatsoever, be liable for any trading, investment, commercial, or other decisions based on or made in reliance of the Omdia Materials.