



# **It's Time for a Unified, Cloud-Enabling Approach to Enterprise Data Management and Storage**



We are on the cusp of a new era in enterprise storage and data management, driven by the cloud and all-flash technologies such as NVMe. If there was ever a time to break away from your legacy storage provider and embrace a vendor with a modern, open and unified approach, it is now.

The old models for data management and storage no longer work. In fact, sticking with legacy vendors can be a detriment. Rather than moving ahead quickly with new advances and cloud enablement, legacy vendors often limit change in order to protect their installed bases and older technologies.

In today's world of rapid digital business transformation and market disruption, that model is no longer feasible. Over the next few years, your storage and data management models are going to have to change dramatically, whichever vendor you choose.

You may have already begun using the cloud for backup, archiving and recovery, but other use cases are emerging rapidly, including DevOps and certain production environments. This trend will continue and accelerate.

In addition, the next-generation of NVMe-all-flash storage is now simpler and more economical to deploy than ever and will dominate production environments within the next 24 months.

By 2021—just next year—more than half of primary storage revenue is expected to be generated by NVMe-based platforms, and NVMe over Fabric (NVMe-oF) will be in use on most of those systems.<sup>1</sup> As noted by IDC:

*The NVMe-based all-flash array market will grow very quickly as it cannibalizes revenue from SCSI-based all-flash arrays. The rapid growth of new workloads that demand NVMe performance and the fact that the transition to NVMe will be much easier than the transition from spinning disk to persistent flash are two key factors driving the strong growth of this market.<sup>2</sup>*

To maximize the business benefits of this transition, you need an enterprise storage and data management vendor that embraces the cloud and provides a clear path to NVMe. This path should include protecting your legacy investments, ensuring enterprise-class features and security, and delivering a platform that puts data squarely at the center of your business.

While waiting for your legacy vendor to deliver NVMe and cloud connectivity, you could lose out on business opportunities, revenue and profit that could be generated from agile IT infrastructure. Don't get left in the dust by competitors that adopt these vital technology changes.

<sup>1</sup> "IDC TechBrief: NVMe Over Fabric," IDC, Sept. 2018.

<sup>2</sup> "General-Purpose NVMe-based All-Flash Arrays to Dominate Revenue as the Enterprise NVMe Market Develops," IDC, September 2018.

With the right partner, you can immediately achieve end-to-end NVMe capabilities, hybrid- and multi-cloud enablement and a pay-for-what-you-use infrastructure on-demand service. You can also leverage unique strengths, such as a vertically integrated supply chain and global service and support.

In this article, we build the business case for a more modern, cloud-enabled approach to data management and storage, and discuss the benefits that Lenovo can deliver versus all other vendors.

## Why Change, Why Now?

This is a critical time in the evolution of IT. Within the next two years, more than 60% of global GDP will be digitalized and within three years over 90% of all enterprises will build “digital native” IT environments to thrive in the digital economy, according to IDC.<sup>3</sup>

At the heart of this evolution is data. Companies that do the best job of managing, manipulating and leveraging all of their data will be the ones to differentiate themselves in the digital economy and create digital disruption themselves in the digital economy, create digital disruption and avoid being victims of it.

This focus on data as the defining business differentiator of our time puts enormous pressure on the IT decision-makers and data management professionals responsible for ensuring that their organizations successfully



leverage their data now and into the future.

The challenges are exacerbated by the various changes and new options available in the world of data management. In today's era, many business leaders are stressing cloud-first strategies for a wide range of applications and workloads.

In addition, all-flash storage technologies and the impending shift to NVMe flash are creating new potential for IT to drive dramatic improvements in performance, along with simplified management, higher availability, lower costs and improved security from the core to the edge to the cloud.

<sup>3</sup> “IDC FutureScape: Worldwide IT Industry 2019 Predictions,” IDC, October 2018.

This creates big challenges for IT and data management decision-makers. But it also creates huge opportunities. This is the time to put the right foundation in place to position your organization to truly leverage data for competitive advantage. This means:

- **Unifying data management** under a single end-to-end open platform from the core to the edge to the cloud to drive business improvements and resiliency and enhance the experience for customers and employees.
- **Leveraging hybrid cloud** to enable the organization to take advantage of cloud economics and agility, while also giving IT control over performance, security, availability, compliance, governance and other enterprise-grade requirements.
- Maximizing performance of workloads and applications through the use of all-flash storage and particularly end-to-end NVMe—not only in the storage infrastructure but also across your servers and networks.
- Emphasizing simplicity across all of your IT infrastructure—and specifically in data management—so deployment is accelerated, downtime is eliminated, IT personnel is maximized, development teams are empowered, and your organization is less vulnerable to outside events it can't control.

## The Lenovo Data Management Story

When it comes to delivering on the promise of an open, unified, innovative and cloud-enabled model for enterprise storage and data management, Lenovo offers distinct advantages other vendors can't match.

You no doubt know Lenovo as the leading PC manufacturer in the world, along with laptops, tablets, workstations and perhaps even servers. What you may not realize, until now, is that Lenovo is a leading global provider of enterprise-grade infrastructure solutions from the data center to the cloud to the edge. They are the Lenovo is a \$51B E2E leader that has somehow managed to stay under the radar.

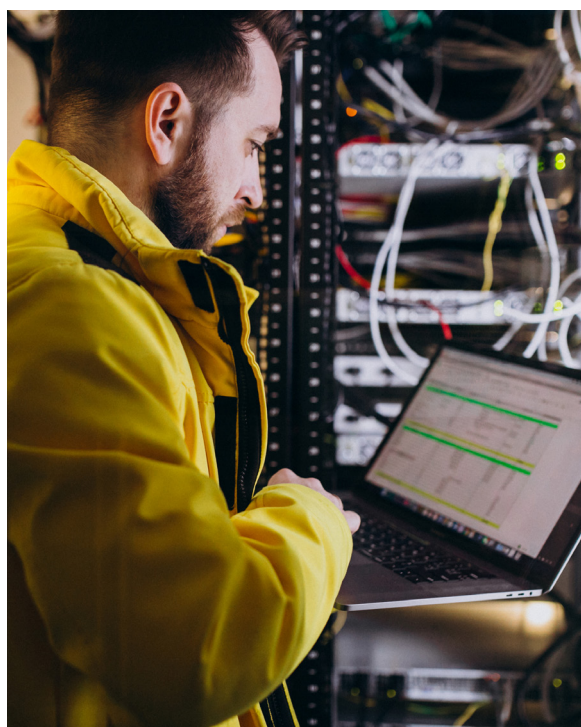




From the data center to the edge, Lenovo delivers infrastructure solutions including servers, storage, data management, hyper-converged infrastructure, artificial intelligence, high-performance computing, software-defined infrastructure and global services and support.

When it comes to your next-generation infrastructure, it is time to pay attention. In enterprise storage and data management, as you are looking to evolve from legacy platforms, Lenovo offers unique value of best-in-class data management tools in their storage without the burden of managing them across legacy systems.

Key points of data management differentiation include:



**End-to-End Infrastructure:** IT is undergoing fundamental transformation. If you are in IT, you want to make this transformation intelligently, leveraging hybrid cloud, modernizing your data center and extending next-generation compute, storage and data networking capabilities to business-critical edge locations. One of the advantages of partnering with Lenovo is that they provide a complete end-to-end, data-center-to-cloud-to-edge portfolio of products and services. This reduces pressure on IT teams, strengthens security and increases availability of key applications because you have just one vendor to deal with for support, service and maintenance.

**End to End NVMe:** An end-to-end model is particularly relevant in the deployment of NVMe technology. NVMe offers massive parallelism that delivers dramatically improved performance, particularly in achieving lower latency and improved IOPS. However, you also need servers and networks that leverage NVMe in order to maximize its benefits in an enterprise environment. Lenovo is the only provider with a full suite of NVMe solutions from storage to networks to servers. This results in huge performance gains: Lenovo's DM7100 end-to-end NVMe over Fibre Channel solution delivers 52% lower latency and a 2.1X improvement in IOPS and throughput. In addition, the DM7100 is simple for storage administrators to install, using the same interfaces, APIs and structure as SAS or SATA arrays, so it can be easily added to existing

Lenovo arrays or clusters. In addition, it is available at the same price point as traditional all-flash arrays.

**Industry-Leading NVMe-Ready Servers and Networks:** Successful data management in today's world is not just about storage: It's also about having best-of-breed network switches and servers. NVMe-enabled networks are critical to maximizing storage performance, and leading-edge servers are vital in powering the shift to technologies such as object storage and NVMe. Lenovo ThinkSystem servers dominate data center performance with 154 current world record benchmark results spanning a wide range of industries and workloads, including applications, data management, application development and testing, engineering/technical computing and infrastructure. Lenovo achieved these records across multiple ThinkSystem platforms, ranging from single-socket to 8-socket, spanning Intel and AMD architectures. This demonstrates Lenovo's ability to design systems that create value for customers across architectures, workloads and industries.

**Unified Data Management:** To empower Intelligent Transformation, organizations need flexibility in storage platforms. Typically, there is a mix of on-premises and cloud storage across various tiers; hybrid arrays and all-flash arrays; file and block storage for structured and unstructured data. By unifying data management, storage teams can reduce costs, improve security and lessen the burden on

personnel resources, while taking advantage of both scale-out and scale-up storage models. In particular, IT teams benefit dramatically with the ability to unify block and unstructured file data under one set of easy-to-manage management tools. This gives IT the ability to make enterprise data management and data quality more efficient and consistent, and easily protect all of your data with features such as unified snapshots and unified security.

**Hybrid Cloud Data Management:** Lenovo offers a one-stop solution for hybrid cloud management, rather than forcing customers to build a stack using solutions from multiple vendors. This makes it simpler and more cost effective for IT to manage, secure and scale. Storage administrators don't have multiple consoles and components, saving them time and headaches. Additional benefits include the ability to do simple S3 tiering to the cloud for backup and archiving, which means you can consolidate resources in the data center and get rid of older technologies such as tape backup or spinning disk drives. You can also use Cloud Volumes to build high availability and disaster recovery models in the cloud or give DevOps teams quick and easy access to the infrastructure they need when they need it.

**Simplicity/Enterprise Functionality:** Automation and simplicity are critical to today's rapidly evolving IT environment. Lenovo solutions maximize storage efficiency, with

3:1 data reduction ratios. Additional enterprise data management capabilities include space-efficient snapshots; fast provisioning, and automated tiering of cold data to the cloud. Lenovo offers high availability features with synchronous workload failover to eliminate unplanned downtime and disruption; fast recovery with immutable snapshots, and enhanced security protections via software-based, data-at-rest encryption.

**Security:** In addition to encryption, Lenovo data management and storage solutions offer intrinsic security capabilities. With unified management, IT can easily manage all of their data sets from a central location and can thus recognize and mitigate points of vulnerability. With rich snapshots and immutable copies, IT can have near-real-time backup to limit the damage of ransomware and malware attacks. If you get hit with ransomware, you know you have a copy of the data that can't be changed.

**Flexible Deployment Models:** In this time of transformation, IT teams are looking for flexibility in how they deploy infrastructure. Lenovo offers storage customers a range of options, depending on their needs. The TThinkSystem DM Series All-flash arrays feature a simple scale-up architecture with up to 88.5PB of unified storage and guaranteed 3:1 data reduction without sacrificing performance. The DM Series is optimized for hybrid cloud and is well suited for business-critical

apps such as Oracle, Microsoft SQL Server, MongoDB, virtual desktop infrastructure and server virtualization. ThinkSystem DE Series All Flash and Hybrid Flash arrays deliver outstanding performance and simplified management to support edge environments and remote offices, as well as applications such as big data analytics, video surveillance, technical computing and backup/recovery. It is simple to install and manage, combining high capacity with extreme performance, high reliability, six nines of availability and advanced data protection. Across the portfolio, Lenovo offers flexible data management solutions to cost-effectively meet specific customer requirements from the edge to the core data center. In the current economic environment, as customers look to reduce capital costs, Lenovo provides storage and compute in a complete end-to-end, data center as a service model with Lenovo TruScale. TruScale provides enterprise storage on premises in a true monthly pay-for-what-you-use consumption model that can eliminate capital expenses and transform how customers consume technology and innovation.

**Vertically Integrated Supply Chain:** Lenovo operates a fully vertically integrated supply chain, which means it sources all of its own components and builds the systems in Lenovo factories. This offers customers advantages in costs, SLAs and security. It also offers increased protection at times of crisis when supply chains can be compromised or there may be product

shortages. Because Lenovo manages its entire supply chain, it has the ability to ensure its components are secure. When updates and patches are available, Lenovo can track them throughout the entire supply chain.

**World Class Service and Support:** As a \$51 billion, global technology leader, Lenovo brings significant experience and expertise to work closely with customers to identify needs and recommend and support the right solutions. Directly and with business partners, Lenovo offers a range of value-added support capabilities, including solution assessment, design, implementation and support services. As the IT market changes, Lenovo has responded with innovative solutions, such as remote storage deployment and configuration without coming on site, as well as remote management services for both servers and storage. These capabilities can address the entire infrastructure from compute to storage, providing an integrated end-to-end support experience with one

consistent point of support.

## **Taking the Next Step**

The world is changing rapidly. The ability to use and leverage data is becoming more important than ever, not just in how we do business, but in how we live our lives, socialize, learn, and provide healthcare and other vital services.

This is the time to get ahead of the curve in terms of data management and storage. The technology is available, and the need is certainly there. This is not a time to be held back by your legacy vendors, and it is not a time to sit on the sidelines.

Lenovo provides a clear path to the future of data management, with the backing of a \$51 billion, vertically integrated, proven technology leader. For more information on how your organization can chart its course in data management and storage, please visit **Lenovo**.