Solution Brief

NetApp ONTAP and Lenovo for Entry-Level AI/ML

Accelerate performance and streamline data management

Key Benefits

Affordable performance with maximum data protection

- Deliver the highest possible throughput at the lowest possible cost
- Keep your data safe with built-in data protection capabilities such as volume-level encryption and NetApp® Snapshot™ copies

Streamline operations and reduce TCO

- Simplify management with a unified management interface and a single set of tools
- Reduce the amount of storage needed with NetApp data compaction and deduplication, and lower storage costs with automatic cold data tiering
- Independently scale compute and storage to minimize costs and improve resource utilization

Future-proof your infrastructure

- Meet demanding and constantly changing business needs with a solution that delivers seamless scalability, easy cloud connectivity, and integration with emerging applications
- Deploy a proven enterprise-grade, nondisruptive scalable solution for small and medium-size organizations

Challenge

Organizations large and small are navigating in a rapidly changing data-driven economy. Artificial intelligence (AI) and machine learning (ML) workloads are becoming omnipresent across all verticals. Industries such as retail, financial services, energy, and healthcare are leveraging ML, deep learning (DL), and inference techniques to stay ahead of the competition, to bring new products to market faster, and to accelerate innovation. But with the high complexity and integration costs of off-the-shelf AI and ML solutions, achieving a predictable and scalable solution while minimizing operational expenses is challenging for small and medium-size organizations.

The Solution

NetApp and Lenovo have partnered to deliver an AI and ML solution that is efficient and cost effective. This validated solution delivers scalable performance, streamlined data management, and rock-solid protection in a scale-out architecture. Built on enterprise-grade NetApp ONTAP® cloud-connected storage and Lenovo servers, the NetApp and Lenovo solution offers small and medium-size organizations a powerful option for getting started with AI. Joint customers can collaborate in Lenovo AI Innovation Centers to discover the value of our ready-to-use solution development platforms optimized for AI.

Benchmark testing of the NetApp and Lenovo solution for AI demonstrates that NetApp storage systems provide the same or better performance as local SSD storage with the following additional benefits.

Affordable Performance with Maximum Data Protection

Speed innovation and get to market faster

Designed to handle large datasets, the NetApp and Lenovo solution uses the processing power of GPUs along with traditional CPUs to deliver superior levels of performance. The Lenovo ThinkSystem SR670 supports up to four large or eight small GPUs per 2U node. With the latest scalable Intel Xeon CPUs that support high-end GPUs, including the NVIDIA Tesla V100 and T4, the ThinkSystem SR670 delivers optimized accelerated performance for the computationally intensive workload requirements of ML, DL, and inference.

To achieve maximum performance, you need storage that can keep pace with the processing power of the GPUs and CPUs. NetApp AFF storage systems running NetApp ONTAP data management software offer the highest possible throughput with latency as low as 100 microseconds, making them ideal for the most demanding workloads.

NetApp®

Lenovo™

Technology partner.

Keep your data safe

Data is everything when it comes to AI and ML operations, and protecting that data is crucial to the success of your projects and your business. NetApp AFF systems come with a full suite of NetApp integrated and application-consistent data protection software. Space-efficient Snapshot copies enable you to perform complete backups frequently, without affecting performance and without requiring additional storage space. NetApp SnapMirror® technology enables you to replicate your data to any NetApp FAS or AFF system on your premises or in the cloud for disaster recovery—all with low recovery point objectives (RPOs) and recovery time objectives (RTOs) with no data loss.

Native volume-level encryption and key management help guard your sensitive data on your premises, in the cloud, and in transit. Multifactor authentication, role-based access control, secure multitenancy, and storage-level file security help further protect your data.

Streamline Operations and Reduce TCO

Simplify data management

Data management is crucial to enterprise IT operations to ensure that appropriate resources are used for applications and for datasets. NetApp ONTAP 9, the industry-leading enterprise data management software, simplifies management of the most complex environments. A single management interface with a single set of tools streamlines and simplifies operations regardless of where your data resides. It also allows you to freely move your data to wherever it's needed—the edge, the core, or the cloud.

Snapshot and thin-cloning technologies enable creation of near-instant copies of data, helping to streamline development workflows and providing opportunities for more frequent testing using up-to-date production data.

Lower TCO

NetApp AFF systems running ONTAP 9 leverage built-in storage efficiencies that help to reduce your TCO. Data compaction and deduplication enable you to store more data in less storage, significantly reducing the amount of storage you need to purchase, both on your premises and in the cloud. FabricPool helps reduce costs by automatically tiering cold data to lower cost storage in the public cloud or in NetApp StorageGRID® object storage on your premises.

With NetApp AFF systems, you can dramatically reduce your data center costs with the most effective capacity for any workload, backed by the industry's most effective guarantee.

Bring AI to Life

The ThinkSystem SR670 is a 2U two-processor system built on a concept called "integrated modularity," where the fundamental system design is re-imagined. The system is optimized for devices such as GPUs or accelerators by leveraging flexible PCI lanes instead of PCIe slots. The system is perfect for emerging AI workloads, which require the additional processing power for model training and algorithm development.

Future-Proof Your Infrastructure

NetApp ONTAP is the most cloud-connected storage management software, with options for software-defined storage (ONTAP Select) and cloud-native instances (NetApp Cloud Volumes Service) in all public clouds.

To accommodate your ever-expanding data growth, ONTAP supports the nondisruptive addition of capacity to existing controllers as well as to scale-out clusters, and it offers enterprise-grade data services for next-generation platforms and applications. You get full scalability of data storage and computation power with multiple Lenovo servers.

About Lenovo

Lenovo (HKSE: 992) (ADR: LNVGY) is a US$50 billion Fortune Global 500 company, with 57,000 employees and operating in 180 markets around the world. Focused on a bold vision to deliver smarter technology for all, we are developing world-changing technologies that create a more inclusive, trustworthy and sustainable digital society. By designing, engineering and building the world's most complete portfolio of smart devices and infrastructure, we are also leading an Intelligent Transformation – to create better experiences and opportunities for millions of customers around the world. To find out more visit **www.lenovo.com**, follow us on LinkedIn, Facebook, Twitter, YouTube, Instagram, Weibo and read about the latest news via our StoryHub.

About NetApp

NetApp is the data authority for hybrid cloud. We provide a full range of hybrid cloud data services that simplify management of applications and data across cloud and on-premises environments to accelerate digital transformation. Together with our partners, we empower global organizations to unleash the full potential of their data to expand customer touchpoints, foster greater innovation and optimize their operations. For more information, visit **www.netapp.com**. #DataDriven