NetApp E-Series High-Performance Computing Solutions for Manufacturing

BACKGROUND

From design to delivery to support, manufacturers across the globe rely on high-performance computing (HPC) solutions to get their products to market quickly and efficiently—while making sure that customers are satisfied after their purchase. With the Internet of Things (IoT) providing large amounts of data from multiple sources throughout the entire manufacturing lifecycle, HPC solutions are a critical component of bringing innovations to market.

CHALLENGE

To win the race to market, manufacturers use HPC solutions for everything from design to production to distribution and support. New products are modeled, and customized 3D parts are printed during test and development cycles. Production lines are kept up and running with systems that predict when maintenance is needed. Consumer purchasing patterns are tracked to help ensure that enough products are available during peak demand. Retail inventories are monitored to make sure that the right products get to the right stores quickly. Sensors on delivered products send a continuous stream of data back to the manufacturer to help customers get the most value from their purchase and to help identify where improvements in design and production need to be made. By applying artificial intelligence (AI) and deep learning (DL) to their data, manufacturers can offer intelligent digital support.

To maintain a competitive edge, organizations need a fast, reliable HPC solution that is easy to scale and manage—without breaking the budget. Having the right data storage solution to support the HPC environment can help manufacturers bring new products to market quickly.

SOLUTION OVERVIEW

The NetApp® E-Series HPC solution features a complete line of high-performance, highly reliable storage systems. A modular architecture with industry-leading price/performance offers a true pay-as-you-grow solution to support storage requirements for the massive amounts of data generated by AI and DL operations. The system is integrated with leading HPC file systems, including Lustre, BeeGFS, IBM Spectrum Scale, and others to handle the performance and reliability requirements of the most demanding workflows.

THE SPEED YOU NEED

To keep your operations running smoothly, your storage must be able to keep pace with your compute power.

The high-performance NetApp E-Series storage delivers top performance in SPC-1 and SPC-2 benchmarks. It can process up to 1 million random read IOPS with under 250ms of latency and 13GBps sustained (maximum burst) write bandwidth per scalable building block. Optimized for both flash and spinning media, the NetApp E-Series HPC solution includes built-in technology that monitors workloads and automatically adjusts system parameters to maximize performance.

■ NetApp®

AROUND-THE-CLOCK RELIABILITY

Downtime during any phase of the design, production, or distribution process can bring operations to a halt and cost manufacturing companies millions in lost revenue.

The NetApp E-Series HPC solution offers nonstop reliability with a fault-tolerant design that delivers greater than 99.9999% availability. With best-in-class redundancy, the NetApp E-Series HPC solution provides outstanding resilience, proven by more than 1 million systems deployed. Built-in data assurance features help increase data accuracy by avoiding drops, corruption, and missed bits—all the way from host to storage media.

Our extensive partner ecosystem helps us validate configurability, stability, interoperability, and reliability. You can be certain that your NetApp E-Series HPC solution will deliver the 24/7 availability your manufacturing operations require.

EASY DEPLOYMENT AND SUPPORT

The NetApp E-Series HPC solution makes enterprise storage easy. As systems are scaled, the solution is easy to install and manage as a single unit or expanded to hundreds of units. The modular design enables your IT staff to non-disruptively add performance and capacity without complex deployments or migrations. Scripting allows dynamic replication, so you can spontaneously configure new systems for faster deployment and automate common tasks for easier management.

NetApp enterprise architecture E-Series systems also feature proactive monitoring and support to automate issue resolution and reduce management overhead. Worldwide support and 4-hour parts delivery help keep operations flowing. NetApp also offers secure support options for sensitive sites.

LIMITLESS SCALABILITY

The modular design of the NetApp E-Series HPC solution offers a granular, building-block approach to growth. The solution enables you to scale seamlessly from terabytes to petabytes by adding capacity in any increment—one or multiple drives at a time.

LOWER TOTAL COST OF OWNERSHIP

One constant in manufacturing and the IoT is that datasets continue to grow. Without forethought, storage costs can easily spiral out of control. With price/performance-optimized building blocks from NetApp, small to large configurations are cost-efficient. In addition, NetApp HDDs and SSDs are required to meet strict quality, performance, and interoperability requirements before acceptance.

BUSINESS BENEFITS

Accelerate Performance
- Deploy systems that deliver top performance in SPC-1 and SPC-2 benchmarks.

- Drive business value and reduce costs with systems that offer leading price/ performance ratios.

Improve Reliability
- Enjoy 99.9999%+ availability and industry-leading durability, based on nearly 1 million units shipped.

- Enable enterprise-class RAS for integrated solutions.

Simplify Operations
- Integrate with your existing infrastructure and applications by using plug-ins, APIs, and orchestration tools.

This extra scrutiny results in failure rates that are four times lower than commodity HDD and SSD devices. Also, NetApp employs the industry's best performance density per rack unit, resulting in lower power, cooling, and support costs. Finally, you enjoy the flexibility to support 100Gb InfiniBand (IB), 100Gb NVMe over Fabrics (NVMe-oF), 32GB FC, and 12Gb SAS connectivity. All of these capabilities add up to significantly lower TCO.

MORE INFORMATION

To learn more about NetApp high-performance computing solutions for manufacturing, visit netapp.com/hpc.

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