IBM Elastic Storage System 3000

The simplest way to deploy fast, highly scalable storage for AI and big data

Highlights

- Simplifies install, upgrade and management
- Minimizes demands on IT staff time and expertise
- Provides High performance with NVMe flash storage
- Provides 40GB/second throughput per 2U building block
- Fully utilizes GPUs to maximize AI algorithm performance
- Minimizes data center footprint with up to 370TB storage in 2U
- Ensures full GPU utlization to maximize AI algorithm performance

The role of data has never been more crucial than it is today. Businesses are dealing with ever-increasing volumes of a growing variety of data, arriving faster than ever from an ever-more connected world. And they understand that, in order to remain competitive, it is vital to take full advantage of this wealth of information. To that end, they are increasingly turning to big data analytics and artificial intelligence technologies such as machine learning.

To be successful, businesses require a system that can efficiently manage this wealth of data. These data management systems have to meet growing demands for capacity, performance, bandwidth and lower latency along with ease of management, all within severe budget constraints.

IBM Elastic Storage System 3000

To address the challenges of managing today's data, IBM Elastic Storage System 3000 (ESS 3000) delivers a new generation of software-defined storage. It builds on years of experience and couples proven IBM Spectrum Scale software with lightning-fast NVMe storage technology to offer industry-leading file management capabilities. These build on and extend a track record of meeting the needs of the smartest, most demanding organizations. ESS 3000 is a faster, denser storage solution with a whole new smoother containerized out-of-the-box experience and simpler management.

At the heart of ESS 3000 lies IBM Spectrum Scale. This provides a single unified file system across the organization, eliminating data silos, simplifying storage management and delivering consistent high performance even as it scales out to meet the demands of even the largest of data systems.

Whatever the current scope of your data management needs, you can start as small – or as big – as you want and easily scale out by adding more units when needed. ESS 3000 offers:

- Simplicity: Containerized software install and upgrade, plus a powerful management GUI, minimize demands on IT staff time and expertise
- High performance: NVMe flash storage with 40GB/second throughput per 2U building block
- AI optimization: High-performance storage tier for full GPU utilization to maximize AI algorithm performance
- Operational efficiency: Dense storage within a 2U package minimizes data center footprint.

Fast time to value

Faster analytics and machine learning results provide competitive advantage for industries including financial services, healthcare, and manufacturing. ESS 3000 gives you the speed you need. It is designed to let you hit the ground running from day one, and to keep up the pace, providing faster time to value for modern big data and machine learning workloads as well as for traditional high-performance computing. ESS 3000 represents a new generation of integrated scale-out data management with state-of-the-art NVMe storage for fast performance and containerized software delivery for ease of installation and update.

The ESS 3000 containerized delivery model provides the ultimate in speed and simplicity out of the box. Containerized software efficiently packages all of the elements needed to quickly and easily install the system software. The preconfigured hardware and software can be up and running productively in a matter of hours rather than days. Setup is simple and can be undertaken by IT staff, with optional support from IBM.

From day one on the job, ESS 3000 delivers market-leading 40GB/sec throughput performance to move data to or from your systems fast enough to keep pace with even the most powerful processors, whether they are GPUs, IBM Power or x86. Crucially for the modern business, ESS 3000 has the ability to provide a high-performance tier of storage that will keep GPUs running at peak levels for AI workloads.
To grow the performance of the system, simply add additional ESS 3000 systems. ESS 3000 is architected to work in parallel with other ESS 3000 or IBM Elastic Storage Server systems to deliver more and more performance as you add further building blocks to your data management solution.

Operational efficiency

IBM Elastic Storage System 3000 gives you efficient installation and efficient operation. Containerized installation minimizes demands on IT staff time and expertise.

For customers who want or need to get the highest performance per rack, ESS 3000 offers very dense storage options, accommodating a maximum of 24 15.4TB NVMe drives (369TB total) in a 2U enclosure. This compact configuration provides superior total cost of ownership (TCO) thanks to reduced cooling and power requirements.

Operations are also made more efficient by ESS 3000 interoperability with:

- IBM Spectrum Control for system monitoring, automation and analytics
- Spectrum Discover for metadata management
- Spectrum Protect for scalable data protection

Reliability

Data reliability is assured by IBM Spectrum Scale software erasure coding. By contrast with traditional RAID, erasure coding can rebuild disks in minutes, rather than hours or days, even as operations continue, minimizing the impact of disk failures. With IBM Spectrum Scale erasure coding, data is distributed across the available physical storage. It requires less storage overhead than traditional RAID and thus increases effective capacity as well as data integrity. It is designed to deliver high performance and low latency with all-flash storage.

Hardware is monitored for potential problems using a variety of techniques including call-home for automated monitoring of key components. ESS 3000 also integrates with IBM Storage Insights, a platform that monitors storage health, capacity and performance, helping with proactive planning to ensure system reliability.

Deployment flexibility

ESS 3000 can be deployed in a variety of configuration. I can be a standalone system. To accommodate larger systems or growing data needs, ESS 3000 is designed to scale out by simply adding more units to expand capacity and bandwidth. It can be deployed in a cluster with other ESS 3000 units and is also fully compatible with all IBM Elastic Storage Server models and can interoperate with these within a cluster comprising both ESS 3000 and IBM Elastic Storage Server models with disk or flash storage options. Its high-performance characteristics make it perfect for tier 0 or tier 1 storage within a multi-tier storage architecture.

ESS 3000 can work with IBM Power systems, x86, or other solutions such as NVIDIA DGX systems, for example, where it is easily capable of keeping up with the data needs of the system's GPUs.

ESS 3000 offers a wide a wide range of capacities ranging from tens to hundreds of terabytes, depending on configuration specifics.

Specifications

Fully compatible with current IBM Elastic Storage Server systems (GLxS, GLxC, GSxS and GHxy). Capable of leveraging the same ESS Management Servers, Protocol Nodes and Spectrum Scale Cluster/Name Space.

Embedded Red Hat Enterprise Linux 8.x operating system simplifies RHEL install, management and upgrade by removing the need to register with Red Hat to download errata and patches.

Standard three-year warranty, IBM on-site 9x5, next business day support. Optional upgrade for additional on-site, 24x7, and same day support.

Extensive training available online or on site.

IBM Elastic Storage System 3000 At A Glance

System Features	• Dual 2-socket Storage Controllers, Active/Active • 384GB or 768 GB memory per controller • De-Clustered RAID supporting erasure coding schemas: 3-way replication, 4-way replication, 4+2P, 4+3P, 8+2P, 8+3
Performance	• Sequential read performance up to 42GB/s • Sequential write performance up to 32GB/s
Networking	• EDR InfiniBand, up to 12 ports • 100G Ethernet, up to 12 ports
Drive Support	12 or 24 NVMe SSDs (1.92 TB, 3.84 TB, 7.68 TB or 15.36 TB)
Power/Cooling	• Input Voltage: 200-240V 50/60 Hz • Nominal Power: 1,350 W (empty); 2000 W (max) • Nominal Heat: 4,606 BTU/hr (empty); 6,825 BTU/hr (max) • Power Supplies: 2 hot swappable, redundant • Acoustical: 8.1 bels (idling or operating) • Environment Operating temperature (optical networking: 5°C to 32°C) ((copper networking: 5°C to 35°C) from 0 to 3048 m (0 to 10,000 ft); Above 900 m, de-rate maximum air temperature 1 degree per 300 m; 8%-80% humidity range
Size/Weight	• 2RU; H:3.5” (88 mm), W: 19” rack (483 mm), D: 33.5” (850 mm) without bezel • Weight: 84.7 lbs/38.5 kg (empty); 102.5 lbs/46.6 kg (max)

Why IBM?

IBM invests in solutions that put data to work, helping organizations realize the full potential of AI, big data and analytics to better serve their customers while improving competitive advantage. IBM has the expertise and solutions to help businesses exploit advanced analytics to enable growth, mitigate risk and improve operational efficiency.

For more information

To learn more about IBM Elastic Storage System 3000 , please contact your IBM representative or IBM Business Partner or visit www.ibm.com/us-en/marketplace/elastic-storage-system-3000

This document contains information pertaining to the following IBM products which are trademarks and/or registered trademarks of IBM Corporation:
IBM®, IBM Elastic Storage®, IBM Spectrum®, Power®, System Storage™,

All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.