

# Highlights

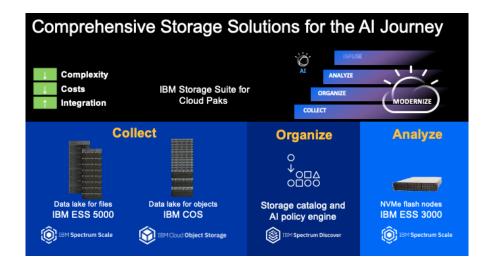
- Installation in minutes with upgraded containerized software
- Create YB scale namespace with file and object storage
- Performance up to 55GB/s in a single node
- Density of 370TB/u in a single 36u node
- Integrated with real-time continuous updates to Spectrum Discover
- Two basic configurations that scale from 552TB to 13.5PB

# IBM Elastic Storage System 5000

The simplest way to deploy a fast, optimized, scale-out file data lake for data and AI

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 large data lake capacity solutions and solutions that enable artificial intelligence (AI) workloads.

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.

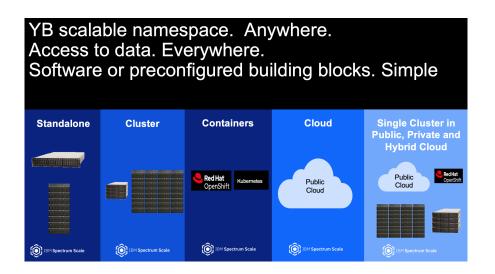




#### IBM Storage for Data and AI

To address the challenges of managing today's data, IBM Elastic Storage System 5000 (ESS 5000) delivers a new generation of software-defined storage for large capacity data lakes. It builds on years of experience and couples proven IBM Spectrum Scale software with capacity optimized storage technology and IBM Power9 compute 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 5000 is a faster, denser storage solution with a whole new smoother containerized out-of-the-box experience and simpler management.

## The only YB scale-out storage solution



#### YB scale namespace

At the heart of ESS 5000 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 5000

#### Fast time to value

Faster access to data provides competitive advantage for industries including financial services, healthcare, and manufacturing. ESS 5000 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 data and AI workloads as well as for traditional high-performance workloads. ESS 5000 represents a new generation of integrated scale-out data management with state-of-the-art capacity storage with containerized software delivery for ease of installation and update.

The ESS 5000 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 minutes 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 5000 delivers market-leading 55GB/sec performance throughput per node 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 5000 has the ability to seamlessly integrate with a high-performance tier of storage (ESS 3000) that will keep GPUs running at peak levels for AI workloads.

To grow the performance of the system, simply add additional ESS 5000 systems or scale-up by adding more disk enclosures. The ESS 5000 is architected to work in parallel with other ESS

# **IBM Storage for Data and AI**Data Sheet



3000 or ESS 5000 systems to deliver more and more performance as you add further building blocks to your data management solution.

## 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 5000 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 5000 can be deployed in a variety of configuration. It can be a standalone system. To accommodate larger systems or growing data needs, ESS 5000 is designed to scale up and scale out by simply adding more units or disk enclosures to expand capacity and bandwidth. It can be deployed in a cluster with other ESS 5000 or ESS 3000 units and is also fully compatible with all older IBM Elastic Storage Server models and can interoperate with these within a cluster. Its high-performance characteristics make it perfect data ingest or data collection nodes and also when high capacity access to large amounts of data is required.

ESS 5000 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 5000 offers a wide range of capacities ranging from 552TB to Yottabytes, depending on configuration specifics.

## **Specifications**

Fully compatible with current IBM Elastic Storage Server systems. 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.

# **IBM Storage for Data and AI** Data Sheet



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 ESS 5000**

	ESS 5000 SL	ESS 5000 SC
Number of drive enclosures	1 - 6	1 - 8
Drive capacity	6, 10, 14 or 16TB	10, 14 or 16TB
Enclosures	Standard size (92)	Expanded size (106)
Maximum useable capacity per ESS	552TB - 8.8PB	1PB - 13.5PB
Servers	2 x IBM Power9 Servers	2 x IBM Power9 Servers
SSD	2 x SSDs	2 x SSDs

#### **System information**

Systems	IBM Power9 Data Server (two per building block); IBM Power9 ESS Management Server (one per cluster)	
Interconnects	Ethernet: 10GbE, 40GbE, 100GbE; Infiniband: 56 Gbps FDR, 100Gbps EDR	
Operating system	Red Hat Enterpise Linux (RHEL)	
Software	IBM Spectrum Scale: Data Access Edition or Data Management Edition xCAT	
Supported RAID levels	oported RAID levels Erasure coding: 3-way or 4-way mirroring, 8+2P or 8+3P, or a combination	

#### **Rack cabinets**

Rack cabinet	IBM 7014-T42, IBM 7965-S42, IBM ESS is also supported in compatible racks from other vendors	
Power	Multiple rack PDU options - see IBM ESS 5000 Planning information in IBM Knowledge Center	
Scalability	IBM ESS 5000 scales in a building block approach - capacity, bandwidth and the single namespace increases as more building blocks are added. Clusters using other servers and storage running IBM Spectrum Scale software may be scaled out using IBM ESS 5000.	
Services	IBM Lab Services are available for planning, configuration and implementation support.	
Warranty	Limited warranty: 3-year parts, customer-replaceable unit or on-site labor, with individual nodes retaining the warranty and service upgrade offerings for that IBM machine type. Base support is 9x5, next business day. Warranty service upgrades are available at additional cost. Standard software subscription and support.	



## Why IBM?

IBM invests in solutions that put data to work, helping organizations realize the full potential of 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 ESS 5000, please contact your IBM representative or IBM Business Partner, or visit:

https://www.ibm.com/it-infrastructure/stora ge/ai-infrastructure

Additionally, IBM Global Financing provides numerous payment options to help you acquire the technology you need to grow your business. We provide full lifecycle management of IT products and services, from acquisition to disposition. For more information, visit: ibm.com/financing

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