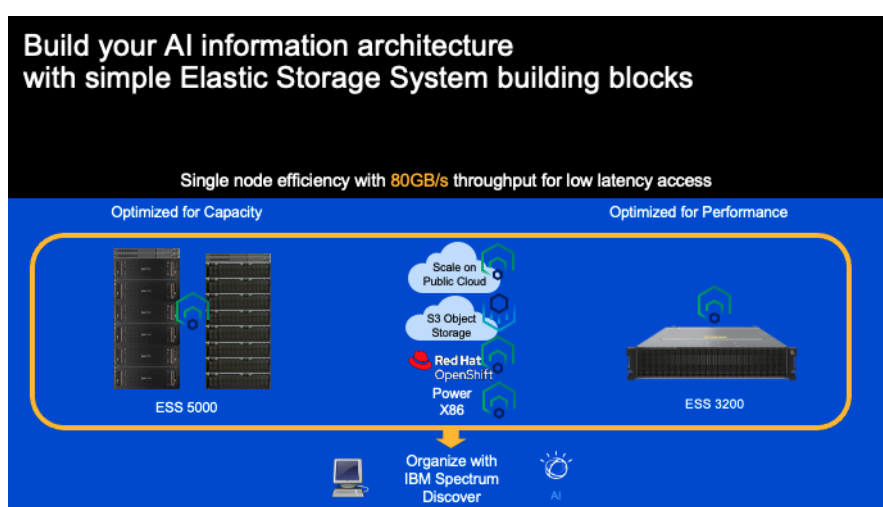


# Elastic Storage System (ESS)

## Simple building blocks for IBM Spectrum Scale

### Highlights

- Simple building blocks to create a single global parallel file system
- Configure system in minutes
- AFM + IBM COS where object storage meets NVMe access
- One solution that scales to 8YB, eliminating silos
- Up to 80GB/s per node for high performance
- Storage integration to IBM Watson solutions
- High performance and capacity optimized for flexibility
- Lower cost with built in data lifecycle management
- Integrate with OpenShift container-native client access



### IBM Spectrum Scale nodes

IBM Elastic Storage System (ESS) provides both capacity nodes and low latency analysis nodes with market-leading performance, density and scalability that seamlessly integrate to the AI Journey. These nodes are perfect for edge computing or core data center deployments and can be integrated for hybrid cloud solutions that include the public cloud and Red Hat OpenShift containerized nodes. All the spectrum scale deployment options can be configured in a single cluster or namespace to provide up to 8YB of scalability. All ESS nodes can be combined with IBM Spectrum Discover to provide real time updates to a data catalog and policy engine for more efficient AI workflows.

### Benefits software defined storage and an integrated solution

Building and testing is time consuming and complex	Elastic Storage Server is integrated and ready to deploy
<p><b>Complex tasks:</b> Many tasks are not integrated or may not be tested</p> <p><b>Installation</b> Many parts to install</p> <p><b>Test, Optimize, Deploy</b> Performance tuning is difficult and hard to optimize</p> <p><b>Maintenance</b> Difficult to patch individual components (OS, server firmware, switch firmware, software update)</p>	<ul style="list-style-type: none"><li>• Spectrum Scale is integrated, tested, and factory preloaded, leveraging the latest software release</li><li>• ESS are building blocks ready to deploy</li><li>• Easy to integrate with public cloud and object storage</li></ul>

#### *Software is not always easy*

You might ask, “Why buy an integrated solution when I can buy just the software and build my own solution?”

Of course, you can build your own if that is the route you wish to take. However, many customers opt for the integrated solution.

Simple tasks can become more complex as many tasks are not integrated or may not be tested. Installation may include many parts to install and performance tuning is difficult and hard to optimize. Finally, maintenance can include difficult-to-patch components such as OS, server firmware, switch firmware, software updates, etc.

IBM Elastic Storage System (ESS) comes as an integrated solution. Hardware is assembled and software is pre-installed and tested in the factory. The solution is ready to be mounted in a rack at the client site. All ESS solutions make the deployment experience as smooth as possible and a system can be configured in minutes ready to accept data. ESS, as a single vendor end-to-end solution, simplifies the deployment process as well as the support and maintenance tasks involved. The ESS patch is an all-encompassing replacement of the existing ESS solution stack with a newer version. This includes the OS, firmware and software stack.



---

### IBM ESS 3200

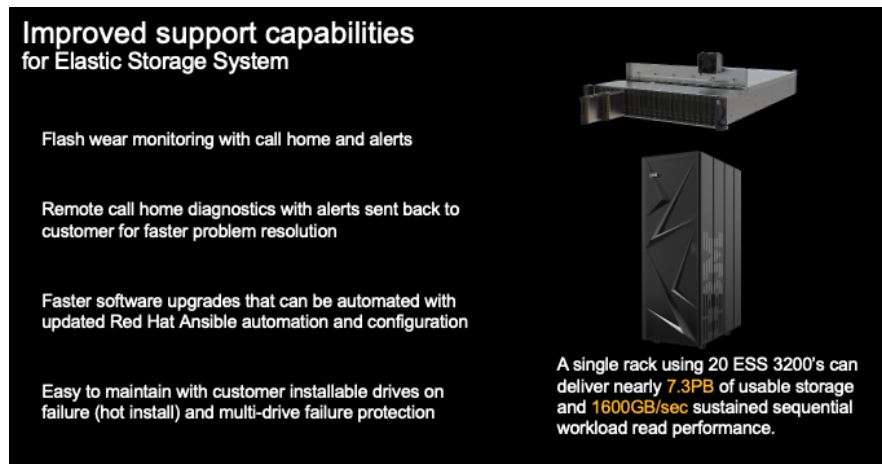
IBM Elastic Storage System 3200 (ESS 3200) is designed to be the simplest way yet for users to deploy IBM Spectrum Scale. Spectrum Scale comes installed on a pre-configured system. Installations and updates are delivered by means of containerized software that speeds and simplifies the process. There is no need for a storage specialist from IBM to install an ESS system if you have an existing ESS or Spectrum Scale deployment. It is much easier to install than previous systems and maintenance can be performed by IT staff.

ESS 3200 is targeted at new, easy-to-order, easy-to-install, easy-to-upgrade, easy-to-use, appliance-like, lower-cost customer experience.

ESS 3200 provides an extreme high-performance tier of Spectrum Scale file storage for a broad variety of AI, analytics, and Big Data applications. ESS 3200 is designed to keep GPUs in AI workloads running at peak performance. Like all Elastic Storage Systems, ESS runs the proven IBM Spectrum Scale RAID erasure coding, which provides superior consistent high performance, mitigation of storage hardware failures, and intelligent monitoring / management / dynamic tuning of ESS 3200 and Spectrum Scale software.

Spectrum Scale RAID manages the physical NVMe media. Spectrum Scale RAID not only helps with reliability and capacity savings but also increases performance to the applications in the event of storage hardware rebuilds.

ESS 3200 is based on proven IBM Storage 2U24 hardware. It leverages the high performance of the fastest CPU benchmarks in the world as claimed by AMD. You can order half-populated 12 or fully-populated 24, 2.5" NVMe drives in capacities of 3.84TB, 7.68TB and 15.36TB. Using the largest capacity 15.36TB NVMe drives, up to 368TB usable capacity, in a 2U form factor, along with associated low weight and low power consumption.



**Improved support capabilities for Elastic Storage System**

- Flash wear monitoring with call home and alerts
- Remote call home diagnostics with alerts sent back to customer for faster problem resolution
- Faster software upgrades that can be automated with updated Red Hat Ansible automation and configuration
- Easy to maintain with customer installable drives on failure (hot install) and multi-drive failure protection

A single rack using 20 ESS 3200's can deliver nearly **7.3PB** of usable storage and **1600GB/sec** sustained sequential workload read performance.

### IBM ESS Support

IBM has many improvements for the ESS 3200 including:

Flash wear monitoring with call home and alerts

Remote call home diagnostics with alerts sent back to customer for faster problem resolution

Faster software upgrades that can be automated with updated Red Hat Ansible automation and configuration



Easy to maintain with customer installable drives on failure (hot install) and multi-drive failure protection.

A single rack using 20 ESS 3200's can deliver nearly 7.3PB of usable storage and 1600GB/sec sustained sequential workload read performance.

Do not be concerned about list price! Customer price for entry ESS 3200 can start under \$90K USD. Contact your IBM Sales representative for details about your configuration.

**Data Lake made simple**  
**IBM Elastic Storage System 5000**

- HDD based systems for capacity and low cost
- SL model fits in a standard rack and scale-up to 10.3PB with 7 (SL) enclosures(92)
- SC fits in an extended rack (deep) and scales up to 15.2PB with 9 (SC) enclosures(106)
- Installation in minutes vs. days for previous ESS
- Continuous real-time metadata updates to IBM Spectrum Discover for faster insights without rescan
- Seamlessly integrate with ESS 3000 NVMe nodes or previous ESS for investment protection

SL model	SC model
552TB – 10.3PB 260TB/u	1PB – 15.2PB 375TB/u
	
	Extended deep rack

### IBM ESS 5000

The bigger business value is that ESS 5000 provides all these features and many more, in order to make implementing, managing, deploying, designing, and maintaining a data lake, as simple as possible.

ESS 5000 consists of two POWER9 servers, each 2U high and both running Spectrum Scale RAID, controlling either 5U92 standard depth storage enclosures (the SL models) or 4U106 ultra-dense, deep depth storage enclosures (the SC models.)

The ESS 5000 provides a simple way to create a data lake.

- HDD-based systems for capacity and low cost
- SL model fits in a standard rack and scales up to 8.8PB with 6 (SL) enclosures(92)
- SC fits in an extended rack (deep) and scales up to 15.2PB with 9 (SC) enclosures(106)
- Installation in minutes vs. days for previous ESS
- Continuous real-time metadata updates to IBM Spectrum Discover for faster insights without rescan
- Seamlessly integrate with ESS 3200 NVMe nodes or previous ESS for investment protection

**More options to optimize cost and capacity**

	ESS 3200	ESS 5000 SLx	ESS 5000 SCx
Configurations	2U24 With 12 or 24 drives	SL1 SL2 SL3 SL4 SL5 SL6 SL7	SC1 SC2 SC3 SC4 SC5 SC6 SC7 SC8 SC9
Drive sizes	NVMe: 3.84TB 7.68TB 15.36TB	HDD: 6TB 10TB 14TB 16TB	HDD: 10TB 14TB 16TB

[IBM ESS summary](#)

## Why IBM?

The value of Spectrum Scale and the Elastic Storage System is simple: High-performance parallel data access with enterprise data services connecting edge to core to public cloud in a single cluster with simple scalable building blocks optimized for maximum throughput, low latency and cost optimization. This makes Spectrum Scale second to none for AI and Big Data Analytics, HPC, and most any High-Performance Workload.

## Next steps

- [IBM Spectrum Scale Data Sheet](#)
- [IBM ESS 5000 DataSheet](#)
- [IBM ESS 3200 DataSheet](#)

## For more information

IBM Elastic Storage System Web Page

<https://www.ibm.com/products/ibm-elastic-storage-system>

© Copyright IBM Corporation 2021.

IBM, the IBM logo, and ibm.com are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at <https://www.ibm.com/legal/us/en/copytrade.shtml>, and select third party trademarks that might be referenced in this document is available at [https://www.ibm.com/legal/us/en/copytrade.shtml#section\\_4](https://www.ibm.com/legal/us/en/copytrade.shtml#section_4).

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.