IBM Storage DS8000 10TH Generation

High-performance storage solutions for mission-critical environments

Highlights

16 μs response time for mainframe environments

Enterprise resiliency up to eight 9's availability

Seamless hybrid cloud integration with Transparent Cloud Tiering

Malware and ransomware protection with IBM Safeguarded Copy and 100% data encryption, at rest, in-flight and in the cloud

Integration into IBM z17® and IBM® LinuxONE 5 single frame solutions

Today, the world's largest enterprises rely on IBM Z to operate their most critical and performance-intensive applications. IBM Storage DS8000 plays a critical role as an integrated storage solution for IBM Z, offering comprehensive data protection, security, and business continuity capabilities.

IBM Storage DS8000 (10th Generation) is the latest innovation in enterprise-class storage for IBM Z mainframe architectures. Designed to harness the full power of IBM Z, DS8000 ensures organizations have constant access to critical workloads, consistent and optimized data performance, and a modular architecture to adopt the latest IBM research-backed technologies to fuel business growth while monetizing data.

Figure 1. IBM Storage DS8000 10th Generation

16 μs

The fastest application response time for mainframe environments, with latencies as low as 16 μs

< 60 sec

The fastest disaster recovery solution for mainframe, with 2 seconds RPO and less than 60 seconds RTO at more than 1,000 miles
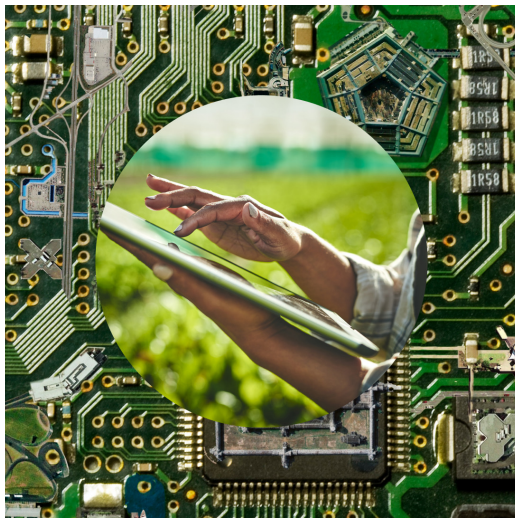
Mission-critical capabilities

IBM Storage DS8000 (10th Generation) is designed to accelerate IBM Z®, IBM® LinuxONE and IBM Power Systems™ as well as data-intensive workloads in open environments. Built with Power 9+ processor technology, IBM Storage DS8000 delivers next level performance, data resilience and enterprise availability to build faster, more efficient operations and make smarter decisions to transform data into business opportunities.

The DS8000 family includes four flexible models designed to address a wide variety of workloads and different business needs:

- **IBM DS8A10 model A00** is designed for medium-sized organizations looking for powerful enterprise capabilities delivered in a flexible, rack-mountable solution at the lowest entry cost. This solution is the perfect balance between performance, capacity and cost.
- **IBM DS8A10 model A01** is designed for medium-sized organizations requiring powerful enterprise capabilities at an entry-level cost. This solution is offered in a 42U 19-inch industry standard rack.
- **IBM DS8A50 model A05** is designed for medium and large-sized organizations looking to meet storage challenges with advanced functionality offered in a prepackaged 42U 19-inch industry standard rack.
- **IBM DS8A80 model A08** is designed for medium and large-sized organizations looking for advanced functionality and powerful enterprise capabilities to meet any workload. This solution is offered in a 42U 19-inch industry standard rack.

IBM Storage DS8000 offerings provide the following benefits:

- Up to 99.999999 ("eight nines") availability and no-data-loss automatic failover within metropolitan distances.
- The fastest disaster recovery solution for mainframe, with 2 seconds RPO and less than 60 seconds RTO at more than 1,000 miles. [1]
- Transparent Cloud Tiering (TCT) to enable hybrid cloud storage solutions as additional tiers for disaster recovery, data archiving and long-term retention in IBM Z environments.
- Encryption of data at-rest and in-flight with Fibre Channel Endpoint Security (IFCES) without any impact on performance.
- IBM Safeguarded Copy functionality to protected data from malware, ransomware, and many other adverse cyber events.
- IBM FlashCore Module Ransomware Threat Detection to accelerate detection of suspicious behavior
- Persistent storage for mission-critical containers with support for IBM Cloud Pak™ solutions to enhance and extend the functionality of Red Hat® OpenShift®.
- Leverage Z and DS8000 synergies with more than 30 advanced capabilities optimized for Z and Power servers by design.

On-going innovation

The 10th Generation of IBM DS8000 is the perfect storage foundation for consolidating transactional, cloud native, and AI workloads under a single all flash mission-critical solution, delivering the following benefits to customers as compared to the previous generation:

- **Accelerate application responsiveness** with up to 73% more IOPS for high volume transaction processing with new HPFE gen3 flash enclosure Reduce transaction time with 2.5X the throughput for writes of 48KB with PCIe Gen4 and zHyperlink for transactional workloads.
- **Maximize the continuity** of vital business operations with eight nines (99.999999) of availability.
- **Strengthen your resilience** with the only solution integrated with CyberVault and 2X increase in resources available for immutable Safeguarded Copy.
- **Stay ahead of threats** with IBM FlashCore Module Ransomware Threat Detection that help you identify suspicious behavior.
- **Improve data center efficiency and sustainability** through consolidation with up to 2X storage capacity in the same space when using FCM4.

Ultra-low application response times

In addition to an architecture optimized for high-performance flash storage media, IBM Storage DS8000 solutions also offer extremely fast data access enabled by technologies such as IBM zHyperLink™ – the result of an IBM research project created to provide ultra-low latency links between mainframe servers and storage systems. IBM zHyperLink dramatically accelerates access to data with less than 16 µs response time and can be integrated with IBM HyperSwap® to meet the needs of high performance in high availability environments.

IBM Storage DS8000 provides consistent performance for read operations in high availability environments for metropolitan regions, reducing the negative impact of increased latency caused by the separation distance between storage systems. This capability enables reads from a secondary site both over FICON® and zHyperLink to obtain the same response time as the primary system and better workload balance.

Powerful cyber resilience

IBM Storage DS8000 (10th Generation) is designed to manage the full spectrum of storage workloads that exist in today's dynamic business environments and do it while offering very high performance and system availability, with industry-leading data protection and disaster recovery features. An important security feature offered by IBM DS8000 is its comprehensive support for the IBM Z suite of data protection technologies collectively labeled pervasive encryption. These technologies enable extensive encryption of data in-flight and at-rest to substantially simplify encryption and reduce costs associated with protecting data.

The unrelenting tide of data breaches is driving increased interest in secure authentication across hybrid cloud environments. IBM provides a unique technology that ensures data is accessed only by authorized server and storage devices in order to reduce and eliminate insider threats of unauthorized access to the Storage Area Network. IBM Fibre Channel Endpoint Security is an end-to-end solution which ensures all data flowing on FICON and Fibre Channel Protocol (FCP) links from IBM Z to IBM DS8000 systems is encrypted. This solution provides in-flight protection for all data, independent of the operating system or access method in use.

IBM Copy Services Manager helps customers easily manage their copy services in storage environments across two sites, three sites or 4 site environments. Providing a single point of control across the entire storage environment, customers can manage and monitor their Disaster Recovery, High Availability and Cyber Resiliency solutions. In addition, with advanced scheduling capabilities and available, modern APIs, customers can build up automation to meet all their business requirements.
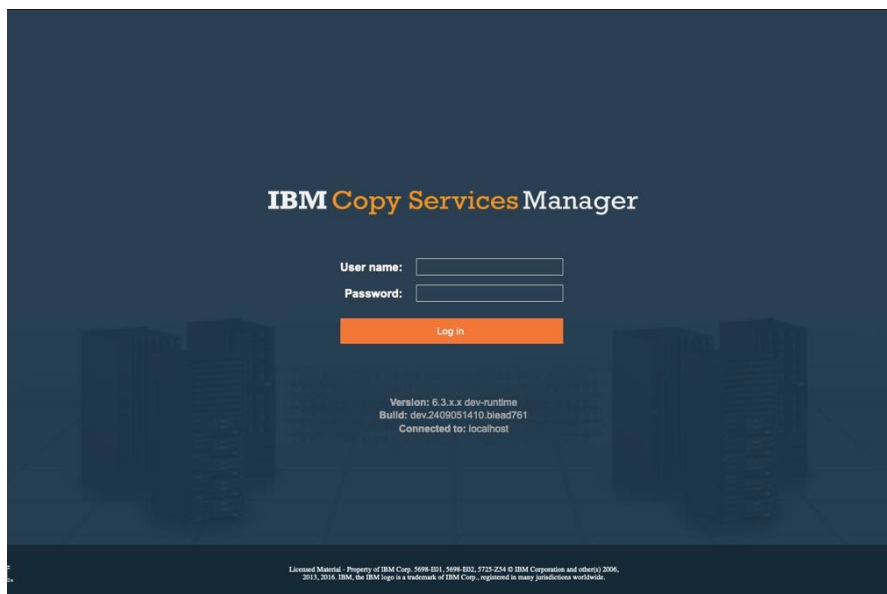

Figure 2. IBM Copy Service Manager

IBM Storage DS8000 also offers the powerful data security functionality of IBM Safeguarded Copy. This technology provides immutable points of data recovery that are hidden and protected from being modified or deleted. These immutable copies are a trusted and secure source of data that can be used for forensic analyses or surgical or catastrophic recoveries. For increased security, Safeguarded Copy provides dual management control and can be integrated with different disaster recovery and high availability configurations.

In order to extend cyber resilience even further, IBM DS8000 can now back up full data volumes to the cloud where they can later be used to repair or recover production environments that have been compromised by user errors, malicious destruction, or ransomware attacks. This functionality leverages the benefits of TCT, including AES 256-bit encryption.

Business continuity made simple

In combination with IBM DS8000, IBM Copy Services Manager (CSM) helps simplify and automate complex data replication tasks to be executed in just one step while providing high availability capabilities under a single point of control.

IBM Copy Services Manager supports FlashCopy®, Safeguarded Copy, and advanced disaster recovery functions with failover and failback operations across two, three, and four sites ensuring business continuity with extraordinary simplicity.

Seamless hybrid cloud integration
IBM Storage supports business transformation into a hybrid cloud ecosystem through a series of innovations centered around Red Hat OpenShift Container Platform and IBM Cloud Pak.

IBM has developed a series of middleware tools called IBM Cloud Paks designed to enhance and extend the functionality and capabilities of Red Hat OpenShift. The family of IBM Cloud Pak solutions give enterprises the fully modular and easy-to-consume capabilities they need to bring their workloads into modern, cloud-based environments.

In addition, IBM DS8000 provides persistent storage for mission-critical containers with support for Container Storage Interface (CSI), making data always available to the application, regardless of container location, planned downtime or unexpected disruptions.

Transparent Cloud Tiering

IBM DS8000 provides Transparent Cloud Tiering capabilities that allow organizations to introduce hybrid cloud as a new storage tier for data archiving, long term retention, and data protection in IBM Z environments. TCT does not require a server or gateway; it is a software-defined storage feature that leverages existing storage resources, avoiding the need for additional hardware infrastructure. TCT integrates with IBM Cloud Object Storage and can also provide transparent connectivity to IBM Cloud, Amazon S3 cloud storage resources, RStor or IBM TS7700 virtual tape libraries configured as object storage targets.

TCT off-loads the data movement responsibility to the IBM DS8000 without any impact on performance. Thanks to deep integration with z/OS®, TCT provides up to 50% savings in mainframe CPU utilization when migrating large data sets as compared to other traditional archiving methods. TCT offers an excellent solution for increasing cyber resilience by making use of the immutability features provided by cloud repositories. It can also be used to create full volume backups to the cloud which can then be restored to any system.

AI-driven management and proactive support

As any storage administrator knows, managing large storage systems requires many hours of monitoring, analysis, decision-making and adjustment. When problems arise, troubleshooting complex storage infrastructure and implementing the most effective solutions can be problematic, to say the least. To address these challenges and reduce both manual labor and mistakes, IBM Storage DS8000 comes with IBM Storage Insights, an enterprise-proven, AI, cloud-based system insights platform to help you better understand trends in storage capacity and performance and expedite resolution when support is required.

Storage Insights monitors the health, capacity and performance under management on a single pane of glass, helping IBM customers understand and plan storage capacity and performance. The program provides proactive best practices and uses AI-based analytics to help identify potential issues before they become problems. When support is needed, Storage Insights helps speed resolution by simplifying opening tickets, automating log uploads to IBM, and providing configuration, capacity and performance information to IBM technicians.

Figure 3. IBM Storage DS8000 10th Generation

IBM DS8000 (10th Generation) at a glance

IBM DS8000 brings the security, performance, and cloud functionality demanded in today's data-intensive hybrid cloud environments. Build with flexibility, deliver with confidence, and protect the future of your business with these solutions from IBM Storage.

Table of Specifications

Offering	DS8A10 Rack Mount	DS8A10 Single Frame	DS8A50 Multiframe	DS8A80 Multiframe
Controller model	A00	A01	A05	A08
Expansion model	N/A	N/A	E05	E05
POWER9 cores per system	20	20	40	48
System cache options supported	256, 512 GB	256, 512 GB	1, 2, 3.5 TB	4.8 TB
Flash cards	192	192	384*	384*
Maximum physical capacity	3.69 PB	3.69 PB	7.37 PB	7.37 PB
Host ports	64	64	128*	128*
Number of frames	0	1	2*	2*
Supported flash card sizes	NVMe flash drive: 1.6 TB, 1.92 TB, 3.84 TB, 7.68 TB FCM: 4.8TB, 9.6TB, 19.2TB			
Minimum response time	80 microseconds			
Minimum response time with zHyperlink	16 microseconds			
Host adapters	32 GFC encryption capable with IBM Fibre Channel Endpoint Security support			
RAID options	6 and 10			
Dry bulb temperature	16°C – 32°C (60°F – 90°F)			
Relative humidity	20% - 80%			
Power frequency	50 Hz – 60 Hz			
Power pase options	Single phase or Three phase			
Warranty	All models: 1 year warranty, onsite service, same day, 24 x 7			

* With an expansion unit
For details on supported servers, visit the [IBM System Storage Interoperation Center (SSIC)](#)

Whatever the requirements, only IBM can help with end-to-end solutions that include data systems, application servers, software, services, support and equipment financing. The IBM Storage DS8000 data systems deliver mission-critical availability, superior flash performance, unparalleled synergy with IBM servers and leading-edge hybrid multicloud capabilities for organizations looking to achieve a true competitive advantage.

For more information
To learn more about IBM Storage DS8000 10th Generation contact your IBM representative or IBM Business Partner, or visit ibm.com/products/ds8000

---

1. 2 seconds RPO and less than 60 seconds RTO in replication environments configured with GDPS® Continuous Availability