



Highlights

- Customize your storage system with flexible software and hardware options
 - Boost performance with next-generation IBM® Storwize® V5000
 - Store up to five times more data on your existing storage with IBM compression technology¹
 - Consolidate and provide Storwize V5000 capabilities to existing storage infrastructures using optional external virtualization
 - Implement configurations for high availability and data mobility
 - Simplify management with an industry-leading graphical user interface
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IBM Storwize V5000

Designed to drive innovation and greater flexibility with a hybrid storage solution

The enterprise data storage marketplace is changing at a rapid pace. Organizations of all sizes are experiencing new business and IT operational challenges. Businesses now need greater data collaboration, agility and cost efficiency to stay ahead of the competition. Today, data is more important than ever for making highly informed decisions in real time. Security teams need data to recognize and prevent fraud before it happens. Call centers need data to help accelerate customer service. Most important, top executives need data to develop strategic insights for battling the competition.

With the rise of new applications that demand the integration of big-data analytics, mobility and social platforms, organizations require additional storage capacity, performance, advanced functionality and flexibility. IT must deliver more services faster and more efficiently, enable real-time insight and support more customer interaction. The right infrastructure allows clients to share information, secure transactions and drive real-time insights.

To enter the new era of business, organizations need robust storage solutions such as IBM Storwize V5000 to provide a comprehensive set of tools that enable unified virtualization, extraordinary scale and simplified management—all designed to support key business initiatives. Three new Storwize V5000 models—IBM Storwize V5030, IBM Storwize V5020 and IBM Storwize V5010—provide the flexibility to start small and keep growing while leveraging existing storage investments.



Utilizing IBM Spectrum Virtualize™ software at its core, Storwize V5000 is a hybrid storage solution that provides improved performance, virtualization capabilities and greater flexibility. It includes built-in functions such as IBM Real-time Compression™ and IBM Easy Tier® technology to deliver extraordinary levels of efficiency and high performance. Storwize solutions achieve up to 5:1 data compression ratios, require 47 percent less storage administration, and can provide up to three times more performance with only five percent flash storage.¹ Available in three new models, Storwize V5000 delivers enterprise capabilities at entry-level pricing to help handle business-critical applications while controlling costs for growing organizations.

Multiply your possibilities. New Storwize V5000 models provide the flexibility to start small and keep growing, while leveraging existing storage investments.

IBM Storwize also helps organizations achieve better data economics to support the traditional and new mobile, social and analytics workloads that are critical for success. The shift to cloud computing requires a fundamental shift in how organizations consume and support IT.

Storwize V5000 is intended to deliver more of what you need from storage with greater flexibility—while using fewer resources. Using innovative IBM technology, a single Storwize V5000 system can scale up to 504 drives per system (and up to 1,008 drives with two-way clustered systems), or can store up to 2 PB per system (and 4 PB with two-way clustered systems).



Encompassing Storwize family functions

Storwize V5000 leverages proven Storwize family functions, management and interoperability features.

Virtualize external storage

Built with IBM Spectrum Virtualize software, Storwize V5000 enables applications to run without disruption, even when changes are made to the storage infrastructure.

Available in the larger model, Storwize V5030 also extends data virtualization to other storage systems. When virtualized, data in a storage system becomes part of the Storwize solution, and it can be managed in the same way as internal drives. Data in external systems inherits all the Storwize functional richness and ease-of-use features, including advanced replication, high-performance thin provisioning, encryption, Real-time Compression and Easy Tier.

Virtualizing external storage helps improve administrator productivity and boosts storage utilization while also enhancing and extending the value of existing storage investments.

IBM Spectrum Virtualize software in the three Storwize V5000 models provides advanced storage functions that enable VMware vSphere Virtual Volumes (VVOL) and support the latest capabilities in key operating environments including Microsoft ODX and VMware vSphere v6.

Transform the economics of data with Real-time Compression

Real-time Compression in Storwize V5030 is designed to enable storing up to five times as much data in the same physical disk space by compressing data as much as 80 percent.² Unlike other approaches to compression, Real-time Compression is designed to be used with active primary data such as production databases and email systems, which dramatically expands the range of candidate data that can benefit from compression. Real-time Compression operates immediately as data is written to disk, meaning that no space is wasted storing uncompressed data awaiting post-processing. When combined with external data virtualization, Real-time Compression can significantly enhance the usable capacity of existing storage systems, extending their useful life even further.

Enhance storage access with Easy Tier

Easy Tier provides automatic migration of frequently accessed data to high-performing flash storage, enhancing usage efficiencies. Operating at a fine-grained granularity, the optional Easy Tier function automatically repositions different data types to the appropriate class of drives based on input/output (I/O) patterns and drive characteristics, requiring no administrative interaction. Using Easy Tier, you can increase performance up to three times using only five percent flash storage.²

Protect your most valuable asset—your data

To help protect sensitive data from unauthorized users, Storwize V5030 and Storwize V5020 give IT teams the full power of storage encryption. In addition to placing encryption inside hardware arrays—which protects only against a subset of data security risks—IBM Spectrum Virtualize software includes encryption capabilities in its management layer. This enables organizations to add encryption across their existing heterogeneous storage arrays, while leveraging a single point of control for encryption throughout the storage layer.

Storwize V5000 offers an optional IBM FlashCopy® function designed to create an almost-instant copy of active data, which can be used for backup purposes or for parallel-processing activities.

Should a catastrophic event occur at a data center, Storwize V5000 supports remote mirroring to create copies of data for use at a second location. Metro Mirror supports synchronous replication at distances up to 300 km (186 miles), whereas Global Mirror supports asynchronous replication at distances up to 8,000 km (4,970 miles). Replication can occur between any Storwize family offerings, and can include any supported virtualized storage. With IP networking, Storwize V5000 supports 1 GbE and 10 GbE connections, and uses innovative Bridgeworks SANrockIT technology to optimize the use of network bandwidth. As a result, the networking infrastructure may require lower speeds (and thus, lower costs), or users may be able to improve the accuracy of remote data through shorter replication cycles.

In addition, the IBM HyperSwap® function enables a single Storwize V5030 system to support servers in two data centers. In this configuration, the solution enables servers at both data centers to access data concurrently. When combined with server data mobility functions such as VMware vMotion or IBM PowerVM® Live Partition Mobility, this configuration enables nondisruptive storage and virtual machine mobility between the two data centers.

Storwize V5000 also helps improve data availability with its support for Distributed RAID. The system allows data to be distributed across a large number of physical drives that are used simultaneously, achieving faster rebuild time. What's more, Distributed RAID can also deliver increased performance since data can be read from/written to more drives for a given I/O.

Avoid disruptions with dynamic migration

Moving data is one of the most common causes of planned downtime. Storwize V5000 includes a dynamic data migration function that is designed to move data from existing storage into a new system or between arrays in a Storwize V5000 system, while maintaining user access to data. The data migration function might be used, for example, when replacing older storage with newer storage, as part of load-balancing work or when moving data in a tiered storage infrastructure.

Nondisruptive migration can speed time-to-value from weeks or months to days, minimize downtime for migration, eliminate the cost of add-on migration tools, and may help avoid penalties and additional maintenance charges for lease extensions. The result can be real cost savings to your business.

Take advantage of additional features

In addition, Storwize V5000 includes:

- Innovative management capabilities, to ease storage management
- Dual clustering for Storwize V5030, to enable growth from smaller configurations
- Support for OpenStack Cinder driver, which helps automate storage provisioning and volume management for organizations by combining the efficiency of Storwize V5000 with the OpenStack compute cloud platform

Leveraging proven independent software vendor solutions

IBM is committed to continuous improvement and smooth application integration to optimize business results and minimize time-to-value. Our commitment is evident through our ongoing work and enduring partnerships with independent software vendors (ISVs) such as Microsoft, Oracle, SAP, Symantec and VMware.

IBM Storwize V5000 at a glance

Software	IBM Spectrum Virtualize software for Storwize V5030	IBM Spectrum Virtualize software for Storwize V5020	IBM Spectrum Virtualize software for Storwize V5010
User interface	Web-based graphical user interface (GUI)	Web-based GUI	Web-based GUI
Single or dual controller	Dual	Dual	Dual
Connectivity (standard)	10 Gb iSCSI 1 Gb iSCSI	12 Gb SAS 1 Gb iSCSI	1 Gb iSCSI
Connectivity (optional)	16 Gb Fibre Channel 12 Gb SAS 10 Gb iSCSI / Fibre Channel over Ethernet (FCoE) 1 Gb iSCSI	16 Gb Fibre Channel 12 Gb SAS 10 Gb iSCSI / FCoE 1 Gb iSCSI	16 Gb Fibre Channel 12 Gb SAS 10 Gb iSCSI / FCoE 1 Gb iSCSI
Cache (per system)	32 GB or 64 GB	16 GB or 32 GB	16 GB

IBM Storwize V5000 at a glance

<p>Drives supported</p>	<p>Small form-factor 2.5-inch disk drives:</p> <ul style="list-style-type: none"> • 300 GB, 600 GB @ 15k rpm • 900 GB, 1.2 TB, 1.8 TB @ 10k rpm • 1 TB,* 2 TB @ 7.2k rpm SAS nearline <p>Large form-factor 3.5-inch disk drives:</p> <ul style="list-style-type: none"> • 300 GB, 600 GB @ 15k rpm, SAS (2.5-inch drive in a 3.5-inch drive carrier) • 900 GB, 1.2 TB, 1.8 TB @ 10k rpm, SAS (2.5-inch drive in a 3.5-inch drive carrier) • 2 TB,* 3 TB,* 4 TB, 6 TB, 8 TB @ 7.2k rpm <p>Solid-state drive (SSD) 2.5-inch drives:</p> <ul style="list-style-type: none"> • 200 GB,* 400 GB, 800 GB, 1.6 TB, 3.2 TB • 1.92 TB Read Intensive flash drives 	<p>Small form-factor 2.5-inch disk drives:</p> <ul style="list-style-type: none"> • 300 GB, 600 GB @ 15k rpm • 900 GB, 1.2 TB, 1.8 TB @ 10k rpm • 1 TB,* 2 TB @ 7.2k rpm SAS nearline <p>Large form-factor 3.5-inch disk drives:</p> <ul style="list-style-type: none"> • 300 GB, 600 GB @ 15k rpm, SAS (2.5-inch drive in a 3.5-inch drive carrier) • 900 GB, 1.2 TB, 1.8 TB @ 10k rpm, SAS (2.5-inch drive in a 3.5-inch drive carrier) • 2 TB,* 3 TB,* 4 TB, 6 TB, 8 TB @ 7.2k rpm <p>SSD 2.5-inch drives:</p> <ul style="list-style-type: none"> • 200 GB,* 400 GB, 800 GB, 1.6 TB, 3.2 TB • 1.92 TB Read Intensive flash drives 	<p>Small form-factor 2.5-inch disk drives:</p> <ul style="list-style-type: none"> • 300 GB, 600 GB @ 15k rpm • 900 GB, 1.2 TB, 1.8 TB @ 10k rpm • 1 TB,* 2 TB @ 7.2k rpm SAS nearline <p>Large form-factor 3.5-inch disk drives:</p> <ul style="list-style-type: none"> • 300 GB, 600 GB @ 15k rpm, SAS (2.5-inch drive in a 3.5-inch drive carrier) • 900 GB, 1.2 TB, 1.8 TB @ 10k rpm, SAS (2.5-inch drive in a 3.5-inch drive carrier) • 2 TB,* 3 TB,* 4 TB, 6 TB, 8 TB @ 7.2k rpm <p>SSD 2.5-inch drives:</p> <ul style="list-style-type: none"> • 200 GB,* 400 GB, 800 GB, 1.6 TB, 3.2 TB • 1.92 TB Read Intensive flash drives
<p>Maximum drives supported</p>	<p>Maximum of 504 drives per system with 20 expansion enclosures and 1,008 drives in two-way clustered:</p> <ul style="list-style-type: none"> • Small form-factor enclosure: 24 x 2.5-inch drives • Large form-factor enclosure: 12 x 3.5-inch drives 	<p>Maximum of 264 drives per system with 10 expansion enclosures:</p> <ul style="list-style-type: none"> • Small form-factor enclosure: 24 x 2.5-inch drives • Large form-factor enclosure: 12 x 3.5-inch drives 	<p>Maximum of 264 drives per system with 10 expansion enclosures:</p> <ul style="list-style-type: none"> • Small form-factor enclosure: 24 x 2.5-inch drives • Large form-factor enclosure: 12 x 3.5-inch drives



Take the next step. [Click here.](#)
 See the full list of specifications.

Why IBM?

The Storwize family of products from IBM, a recognized leader in the storage industry, is known for providing efficiency and high-performance storage for almost any type of workload. IBM storage offerings customized for small, mid-sized and large organizations are designed to deliver performance in stream-lined packages that are easy to buy, deploy and manage.

Offered in a wide range of storage systems, the Storwize family delivers sophisticated capabilities that help control costs for growing businesses.

For more information

To learn more about IBM Storwize V5000, please contact your IBM representative or IBM Business Partner, or visit: ibm.com/storage/storwizev5000

IBM Global Financing can help enable credit-qualified clients to transform their business with affordable options to acquire the latest IT solutions, visit: ibm.com/financing



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Actual available storage capacity may be reported for both uncompressed and compressed data and will vary and may be less than stated.

* Available only in Storwize V5000 generation 1.

¹ IBM lab measurements – April 2012.

² IBM lab measurements – August 2010.



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