IBM Storwize V5000 disk system

Outstanding benefits with greater flexibility for midsized organizations

Highlights

- Simplify management with an industry-leading graphical user interface

- Easily customize your storage system with flexible software options

- Boost performance up to three times using only five percent flash storage with optional IBM® Easy Tier® technology[1]

- Consolidate and provide IBM Storwize® V5000 capabilities to existing storage infrastructures using optional external virtualization

- Implement configurations for high availability and data mobility

- Improve network utilization for remote mirroring with innovative replication technology

Organizations of all sizes are faced with a tidal wave of data coming from myriad new sources, including sensors, social media, mobile platforms and more. Data has become the new currency of business, their most critical asset. But organizations often spend too much money and time managing where their data is stored. The average firm purchases 24 percent more storage every year,[2] but uses less than half of the capacity it already has.[3]

To help maximize the benefits of growing amounts of data, many organizations are turning to software-defined storage, which frees data from physical storage and provides better access to applications. There are many ways to benefit from software-defined storage. One approach starts with data virtualization, which provides a software layer that helps simplify management. Data virtualization simplifies deployment of new applications and new storage tiers, eases movement of data among tiers, and enables consistent easy-to-use optimization technologies across multiple storage tiers.

In the era of cloud, big data and analytics, and mobile and social computing, organizations need to meet ever-changing demands for storage while also improving data economics. 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.

Built with IBM Spectrum Virtualize™ software, the IBM Storwize family helps organizations achieve better data economics by supporting these new workloads that are critical to their success. Storwize family systems

can handle the massive volumes of data from mobile and social applications, enable rapid and flexible cloud services deployments, and deliver the performance and scalability needed to gain insights from the latest analytics technologies.

Storwize V5000, the latest addition to the Storwize family, is a virtualized, enterprise-class modular storage system that complements virtual server environments and delivers the flexibility and responsiveness required for changing business needs. As an intermediate offering, Storwize V5000 is designed to help consolidate and provide new capabilities to existing storage infrastructures. And because of its flexible licensing options, Storwize V5000 is simple to deploy with complementary storage solutions, such as IBM ProtecTIER®. Storwize V5000 inherits its built-in flexibility and innovative storage functions from IBM Spectrum Virtualize.

To help address the block storage requirements of midsized organizations, 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 480 drives, and up to 960 drives with two-way clustered systems or can store up to 1.92 PB per system and 3.84 PB with two-way clustered systems.

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

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.[1]

Virtualize external storage
External virtualization enables organizations to bring external Fibre Channel controller disk capacity into a pool of Storwize V5000 storage with software value and performance capabilities. This capability helps you to consolidate your existing storage systems, expanding the software benefits of Storwize V5000.

IBM Spectrum Virtualize software in Storwize V5000 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.

Protect data with replication services
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.

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.

Deliver continuous operations with high-availability configurations

The IBM HyperSwap® function enables a single Storwize V5000 system that supports 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.

Take advantage of additional features

In addition, Storwize V5000 includes:

- Innovative management capabilities, to ease storage management
- Dual clustering, 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

IBM Storwize V5000 at a glance

Host interface	1 Gb iSCSI, 6 Gb SAS and 8 Gb Fibre Channel, or 10 Gb iSCSI/Fibre Channel over Ethernet (FCoE)
User interface	Web-based graphical user interface (GUI)
Maximum cache	32 GB (with two-way clustered systems)
Drive type	Dual-port, hot-swappable, 6 Gb SAS disk drives
Advanced functions included with system	• Embedded GUI • Dual-system clustering • Virtualization of internal storage • Thin provisioning • One-way data migration • Interoperability with most major server platforms and operating systems
Optional advanced functions	• Easy Tier • External virtualization • FlashCopy • Remote mirroring

Take the next step. Click here.
See the full list of specifications.

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.

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, midsized and large organizations are designed to deliver performance in streamlined 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/systems/storage/disk/storwize_v5000

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

[1] IBM lab measurements – August 2010.

[2] TheInfoPro "Wave 17 Storage Study," *451 Research*, October 2013. https://451research.com/component/content/article/15/254-theinfopro-wave-17-storage-study

[3] IBM storage infrastructure optimization studies – April 2014

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