IBM® Storwize® V7000 Midrange Disk System

IBM introduces a new era in midrange disk systems

Highlights

- Sophisticated enterprise-class storage function that is easy to use for midsized businesses
- Integrated IBM System Storage® Easy Tier™ function provides up to 200 percent performance improvement with automatic migration to high-performing solid state drives (SSD)
- Thin provisioning allows you to purchase only the disk capacity you need
- Dynamic migration provides continuous availability of applications while migrating critical data
- Faster and more efficient data copies for online backup, testing or data mining with IBM FlashCopy®
- IBM Systems Director provides flexible server and storage management capabilities
- Easy-to-use data management designed with a graphical user interface and point-and-click system management capabilities
- Metro Mirror and Global Mirror for replicating data synchronously or asynchronously between systems for backup efficiency
- Solid state drive (SSD) for applications that demand high speed and quick access to data
- RAID 0, 1, 5, 6 and 10

The IBM® Storwize® V7000 provides storage management that is easy-to-use with a point-and-click interface. It provides a single point of control for storage resources. And it supports storage virtualization for greater resource utilization. The Storwize V7000 supports easy migration of data from one storage device to another without disrupting workloads. Designed to support existing storage devices, the Storwize V7000 provides a greater return on investment (ROI) by extending these devices’ life span. Reusing existing devices also can leverage existing IT training and experience for reduced implementation costs and better control of the total cost of ownership (TCO).

In storage management today, breaking the cycle of increased complexity and explosive data growth can be a big challenge. The old ways of buying and managing storage have become less effective. Due to resource constraints—both physical storage resources and human resources—IT organizations must act quickly to optimize and simplify their infrastructure. Unchecked complexity and growth will only become bigger problems over time.

Small and midsize organizations also may suffer from a range of challenges:

- Inability to share storage among servers
- Reduced productivity and increased cost due to isolated storage
- Difficulty deploying tiered storage
- Disruptive migrations
- Inability to use virtualized storage as a tool for optimizing expenditures, resources and capabilities
To stand up to these challenges and allow businesses to respond to a rapidly changing marketplace, IBM® Storwize® V7000 provides unmatched performance, availability, advanced functions, and highly scalable capacity never seen before in midrange disk systems. IBM® Storwize® V7000 is a powerful midrange disk system that has been designed to be easy to use and enable rapid deployment without additional resources. IBM® Storwize® V7000 offers IBM storage virtualization, SSD optimization and “thin provisioning” technologies built in to improve storage utilization and to enable the system to be reconfigured to meet changing needs quickly and easily. IBM® Storwize® V7000 advanced functions also enable non-disruptive migration of data from existing storage, simplifying implementation and minimizing disruption to users. IBM® Storwize® V7000 also allows you to virtualize and reuse existing disk systems, supporting a greater potential return on investment (ROI).

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<thead>
<tr>
<th>Feature</th>
<th>Benefits</th>
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<tr>
<td>IBM Systems Director</td>
<td>• Provides integrated management for physical and virtual server infrastructures, including monitoring and repairing for higher availability and operational efficiency</td>
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<tr>
<td>Dynamic migration</td>
<td>• Provides efficiency and business value in a non-disruptive migration function</td>
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<tr>
<td>IBM System Storage® Easy Tier®</td>
<td>• Provides automatic migration of frequently accessed data elements to high performing SSDs</td>
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<tr>
<td>Thin provisioning</td>
<td>• Supports business applications that need to grow dynamically, while consuming only the space actually used</td>
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<tr>
<td>IBM FlashCopy®</td>
<td>• Creates a near instant copy of active data that can be used for backup or for parallel processing activities; supports backup for recovering corrupted data</td>
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<tr>
<td>Solid state drive (SSD)</td>
<td>• For applications that demand high disk speed, quick access to data and support for tiered storage environments</td>
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<tr>
<td>IBM Tivoli Storage FlashCopy Manager</td>
<td>• Helps minimize the impact of backups, provides near instant restore; shortens backup and recovery times, simplifies management and automates routine tasks.</td>
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<tr>
<td>Metro/Global Mirror</td>
<td>• Allows replicating data synchronously or asynchronously between systems for backup efficiency; used as failover in disaster recovery and for remote copy over distances</td>
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**Executive summary for Midmarket**

**Our understanding of your goals**

Mid-sized businesses are struggling with the explosion of information that needs to be stored and managed. And extracting insight from that data for real business advantage is even more difficult. Storage capacity requirements are growing on average 40% per year while IT budgets are typically flat. This growth of storage required is inescapable. Businesses have to store and access data to stay competitive and to meet internal and regulatory requirements.

To tame the explosion of information, you need more efficient storage solutions that also make your storage support staff more productive. You must take advantage of the latest technologies available without adding complexity to your IT infrastructure.

Your business goals are to bring revenue producing applications online as quickly as possible and keep them running, improve service to your customers, increase your ability to react to changes in the marketplace, and minimize the risk of data loss.

To meet your goals you must have a more efficient storage infrastructure that frees your staff from low value storage management tasks and enables them to focus on leveraging data to make your business more competitive.

**Our approach to meeting your goals**

IBM has continuously invested in the development of technologies that make your storage infrastructure more efficient and your storage administrators more productive. The IBM® Storwize® V7000 brings several technologies, previously available only on much more expensive storage offerings, to the midmarket customer. Examples of these technologies are thin provisioning, storage virtualization, and automated data tiering. All these advanced technologies are packaged in an affordable, modular platform that is remarkably easy to use.

**Overview**

To meet your storage challenges, IBM® Storwize® V7000 helps you reduce the growth of storage costs, increase storage administrator productivity, improve service levels, and reduce the risk of losing data. Mid-sized businesses have traditionally had to sacrifice function to avoid complexity. That is no longer necessary; Storwize V7000 is easy to use and is designed to offer all the advanced capabilities you need.

**IBM® Storwize® V7000 helps reduce the growth in storage costs in several ways:**

- Built-in storage virtualization can increase disk utilization by 30 percent
- Thin provisioning is designed to reduce disk storage requirements
- Space-efficient FlashCopy® can reduce disk storage needed for point-in-time copies by 75 percent

**IBM® Storwize® V7000 can help your storage administrators be more efficient as well:**

- Storage virtualization can double the productivity of storage administrators
- Easy-to-use graphical user interface simplifies management tasks
- The Systems Director Storage Productivity Center Plugin allows your systems administrators to be more productive by managing supported System x® and POWER® servers and the Storwize V7000 from the same console

**IBM® Storwize® V7000 can help you improve service levels:**

- Easy Tier technology can improve performance up to 200 percent by moving as little as 2 percent of data to solid state drives and requires no administrator intervention
- The dynamic migration function helps speed time-to-value from weeks or months to days, eliminate the cost of add-on migration tools
- TPC for Disk Midrange Edition Performance Optimization technology can help reduce service times of resource-constrained application by an average of 48 percent and up to a maximum of 90 percent

While your storage has to be efficient and easy to use, you can’t afford to lose data. IBM® Storwize® V7000 has the enterprise-class data protection features you need:

- Metro and Global Mirror create exact copies of your data at remote locations to help you stay up and running in case of an emergency
- FlashCopy creates instant copies of data to minimize data loss
- Tivoli® Fastback continuously protects your data
- TPC for Replication improves the efficiency of storage replication through automation
- Tivoli FlashCopy Manager Improves Recovery Point Objectives by more than 95 percent

IBM® Storwize® V7000 can make your storage infrastructure more efficient to unleash the power of the vast amounts of information in your business.
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The Storwize V7000 storage system is packaged in a 2U rack-mountable enclosure that houses twenty four 2.5” drive bays (Model 124) or twelve 3.5” drive bays (Model 112), redundant dual-active intelligent RAID controllers and dual power supplies and cooling components. Other components and characteristics of the system include:

- **Internal storage capacity**—Up to 24 TB of physical storage using 2 TB near-line SAS disk drive modules on the 2076-112 model, or up to 14 TB physical storage using 600 GB SAS disk drive modules
- **Disk drives**—SAS disk drives, near-line SAS disk drives and SSDs. Intermix of these drive types within the Storwize V7000 RAID controller and storage expansion units adds flexibility
- **Cache memory**—To provide high performance and high availability, 16 GB cache memory (8 GB per internal RAID controller) as a base feature
- **Ports**—Eight 8 Gbps FC host ports (four 8 Gbps Fibre Channel ports per RAID controller) and four 1 Gbps iSCSI host ports (two 1 Gbps iSCSI host ports per RAID controller), with an RJ-45 connector for each port

The Storwize V7000 RAID controller and storage expansion units are each available in two models—one with twelve 3.5” disk drive bays or one with twenty four 2.5” disk drive bays. The system supports intermixing 12-bay or 24-bay RAID controller and storage expansion units. The storage expansion units connect to the RAID controller via SAS 6 Gbps disk expansion ports.

- **RAID controller**—Supporting attachment of up to nine storage expansion units with configurations up to 240 TB physical storage capacities
- **Storage expansion unit**—Packaged in a 2U rack-mountable enclosure that houses twenty four 2.5” drive bays (Model 224) or twelve 3.5” drive bays (Model 212) and dual power supplies with cooling components. Physical storage capacity of up to 24 TB per storage expansion unit using 2 TB SATA disk drive modules and up to 14 TB per storage expansion unit using 600 GB Fibre Channel disk drive modules

**Electrical power: controllers and expansion units**

- 12-bay 2076-12 and 24-bay 2076-124 controllers: 120 - 240 V ac, 3.8 - 9.0 A, 50/60 Hz
- 12-bay 2076-212 and 24-bay 2076-224 storage expansion units: 100 - 240 V ac, 3.2 - 8.0 A, 50/60 Hz

**Environment: all systems**

- Temperature (operating):
  - 10° to 35° C (50° to 95°F) at 0 to 914 m (0 to 3,000 ft)
  - 10° to 32° C (50° to 90°F) at 914 to 2,133 m (3,000 to 7,000 ft)
- Temperature (powered off):
  - 10° to 43° C (50° to 109°F)
- Temperature (storage):
  - 1° to 60° C (34° to 140°F) at 0 to 2,133 m (0 to 7,000 ft)
- Temperature (shipping):
  - -20° to 60° C (-4° to 140°F) at 0 to 10,668 m (0 to 35,000 ft)
- Relative humidity (operating and powered off): 8 percent to 80 percent
- Relative humidity (storage): 5 percent to 80 percent
- Relative humidity (shipping): 5 percent to 100 percent (including condensation but excluding rain)
- Wet bulb
  - Wet bulb (operating temp): 23°C
  - Wet bulb (powered off temp): 27°C
  - Wet bulb (storage and shipping temp): 29°C
- Noise level: 6.5 bels LwAd—when operating in a 2146 system rack

*Note: The noise emission level stated is the declared (upper limit) sound power level, in bels, for a random sample of machines. All measurements are made in accordance with ISO 7779 and reported in conformance with ISO 9296.*
Why IBM?

The performance and availability of your storage environment can either enhance or hamper your business processes. That's where IBM comes in. As a market leader in the storage industry, we can help you handle the challenges, whether you are a small to midsize company or an enterprise.

Innovative technology, open standards, excellent performance, a broad portfolio of proven storage software, hardware and solutions offerings—all backed by IBM with its recognized industry leadership—are just a few of the reasons you should consider IBM storage solutions, including IBM® Storwize® V7000.

With IBM, you get some of the best storage products, technologies, services and solutions in the industry without the complexity of dealing with different hardware and software vendors and system integrators.

IBM Maintenance and Technical Support solutions can help you get the most out of your IT investment by reducing support costs, increasing availability and simplifying management with integrated support for your multiproduct, multivendor hardware and software environment.

IBM offers tailored financing solutions to credit-qualified clients that can be customized to address your specific IT needs from great rates to flexible payment plans and loans.

For more information

To learn more about IBM® Storwize® V7000, please contact your IBM marketing representative or IBM Business Partner, or visit the following website: ibm.com/storage/storwize_v7000

Additionally, financing solutions from IBM Global Financing can enable effective cash management, protection from technology obsolescence, improved total cost of ownership and return on investment. Also, our Global Asset Recovery Services help address environmental concerns with new, more energy-efficient solutions. For more information on IBM Global Financing, visit: ibm.com/financing