IBM

IBM Storwize Rapid Application Storage solutions

Efficient, integrated, pretested and powerful solutions to accelerate deployment and return on investment.

Highlights

- Improve disk utilization by up to 30 percent with thin provisioning and virtualization

- Improve administrator productivity up to two times with easy-to-use GUI and virtualization

- Improve application throughput up to three times, with up to 60 percent improved response time with IBM® System Storage® Easy Tier™

- Simplify integration with applications: IBM DB2®, Oracle, SAP, Microsoft Exchange and SQL Server

- Improve data protection by 95 percent with hourly snapshots

- Cut implementation time in half with implementation and installation services

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

Organizations of all sizes may suffer from a range of challenges:

- Low disk utilization
- Performance bottlenecks
- Slow solution deployment caused by lack of resources
- Reduced productivity and increased cost caused by isolated server and storage management tools
- Difficulty managing the explosion of data with flat or slightly increased budgets
- Backup windows have shrunk and applications often have to be taken down for backups

To stand up to these challenges and allow businesses to respond to a rapidly changing marketplace, the IBM Storwize® Rapid Application Storage solutions were created to provide unmatched performance, availability, advanced functions and highly scalable capacity never seen before in midrange disk systems. The IBM Storwize Rapid Application Storage solutions are designed to be easy to use to enable rapid deployment without additional resources. Included in the solutions is the Storwize V7000: virtualized storage that offers greater efficiency and flexibility

through built-in thin provisioning and replication technologies coupled with a completely new user interface that offers breakthrough ease-of-use. The Storwize V7000 advanced functions also can enable non-disruptive migration of data from existing storage, simplifying implementation and minimizing interruption to users. The Storwize V7000 also can help you virtualize and reuse existing disk systems, supporting a greater potential return on investment (ROI).

Managing the information infrastructure

The need to increase storage efficiency has led many IT organizations to turn to consolidation, virtualization and automated tiering to reduce capital and operational expenses. IBM offers solutions today that can become part of your highly efficient, highly capable, next-generation information infrastructure, whether your storage environment supports a small or midsize organization, or a large, complex data center.

Introducing the IBM Storwize Rapid Application Storage solutions

Storwize Rapid Application Storage solutions combine hardware, software and implementation services to provide a complete solution that helps support improved storage efficiency.

IBM created two solutions to suit your storage needs, with the following benefits:

Challenge	Benefits	Storwize Rapid Application Storage Manager	Storwize Rapid Application Backup
Increase storage utilization	Virtualization eliminates islands of storage to improve utilization	✦	Optional
	Thin provisioning allocates storage to applications only as needed	✦	✦
Increase application performance	Easy Tier improves application performance, putting the right data on solid state storage	✦	✦
	Analytics and automated data movement optimize performance	✦	
Increase application availability	Application-aware backups virtually eliminate downtime for backups, and improve data protection by up to 95%	✦	✦
	Online data migration moves data with almost no downtime	✦	✦
Storage efficiency	Efficient management of a Storage Area Network (SAN)	✦	
	Manage IBM and non-IBM storage from a single control point	✦	

These solutions combine IBM's industry-leading IBM Tivoli® Storage Productivity Center, Tivoli Storage FlashCopy® Manager and award-winning Storwize V7000, with a three-year hardware and optional software maintenance package, and the services to provide a pretested, integrated storage solution to speed deployment and return on investment. Each solution offers easy-to-use, efficient and cost-effective management capabilities for both new and existing storage resources in your IT infrastructure.

IBM Tivoli Storage Productivity Center for Disk Midrange Edition

Tivoli Storage Productivity Center for Disk Midrange Edition provides comprehensive performance monitoring and alerts from a single console. Monitoring and reporting of perform-ance metrics such as I/O, data rates and cache utilization can enhance storage efficiency and optimization. This solution helps staff establish threshold levels based on business policies, and gives alerts when these levels are reached. This single console management capability can improve storage return on investment and reduce administration costs by simplifying management.

Tivoli Storage Productivity Center for Disk Midrange Edition is an optional feature for the Storwize Rapid Application Backup solution.

IBM Tivoli Storage FlashCopy Manager

Tivoli Storage FlashCopy Manager can improve data protection up to 95 percent. It is designed for today's business world, where application servers are operational 24 hours a day, with data always remaining fully protected. If you have a high-availability environment, you can't afford to lose any data; you also can't afford to stop critical systems for hours in order to protect data adequately. Tivoli Storage FlashCopy Manager exploits the Storwize V7000 snapshot capabilities to provide high-speed, low-impact, integrated backup and restore functionality for critical applications. Automated policy-based management of multiple snapshot backup versions provides an easy-to-use and quick-to-deploy data protection solution to help meet the most stringent database recovery time require-ments. Tivoli Storage FlashCopy Manager can help deliver the highest levels of protection for mission-critical IBM DB2, SAP, Oracle, Microsoft Exchange and Microsoft SQL Server applications via integrated application-aware snapshot backup and restore capabilities. Also, custom application support offers the ability to extend FlashCopy Manager to any application on IBM AIX®, Linux and Solaris.

Traditional approaches to taking consistent backup copies of data can require applications to be down for minutes or even hours while a backup copy is created. In contrast, FlashCopy Manager coordinates applications with the Storwize V7000 FlashCopy function so that applications do not need to be stopped but merely paused, usually for just a few minutes. FlashCopy Manager helps with restores, too. For example, FlashCopy manager can restore an individual Exchange mailbox from a backup copy, helping users become productive again much more quickly and with less administrator effort.

Storwize V7000 includes a rich FlashCopy function that is designed to create an almost instant copy of active data which can be used for backup purposes or parallel processing activities. Up to 256 copies of each volume may be created. When

combined with Storwize V7000 thin provisioning, you can create copies using only a fraction of the amount of storage needed for a full physical copy. This type of copy, called a snapshot, is designed to help improve overall storage utilization and reduce the amount of capacity required for copies.

Storwize V7000 supports incremental FlashCopy operations. This improves efficiency by copying only the portions of the source or target volume that have been updated since the FlashCopy function was last used, ignoring layered copy situations where a copy is further copied. These abilities can help maintain and update a test environment based on production data.

Implementation and installation services

Implementing a new storage hardware and software solution can be a headache. Overworked administrators must take time out of their schedules to perform implementation, meaning that important business work may be delayed. As a result, the installation and/or implementation may not be finished quickly or even completely, and business value from the new storage solution is delayed and perhaps limited. Additional maintenance and lease costs are an additional all-too-familiar result.

To help avoid these problems, the Storwize Rapid Application Storage Manager solution includes IBM implementation services for the Storwize V7000 and associated software products to enable a more predictable implementation that can accelerate return on investment in IBM disk technology by reducing implementation time by up to 50 percent. IBM offers this fixed-price, fixed-scope service for the implementation of the Storwize V7000 and associated software, helping you establish predictable costs for your budget. This offering is designed to help streamline implementation of the Storwize Rapid Application Storage Manager solution to minimize business disruptions. Also available is an optional and complementary Storwize V7000 hardware installation service. The Storwize Rapid Application Backup solution includes installation services

for both the Storwize V7000 and Flash Copy Manager with optional implementation services. The service team provides highly skilled and experienced IBM storage specialists with strong project management skills and time-tested methodologies to deliver implementation services on time. They also provide basic skills instruction to increase understanding of implementation and product features.

The IBM Storwize V7000 system description

The Storwize V7000 storage system can improve disk utilization by up to 30 percent, increase application throughput by up to three times and increase response time by up to 60 percent. It is packaged in 2U rack-mountable enclosures that house up to twenty-four 2.5-inch drives or up to twelve 3.5-inch drives. Control enclosures contain drives, redundant dual-active intelligent RAID controllers and dual-power supplies, batteries and cooling components. Expansion enclosures contain drives, switches, power supplies and cooling components. You can attach up to nine expansion enclosures to a control enclosure, enabling the system to scale up to 240 drives. Other components and characteristics of the system include:

- Internal storage capacity: Up to 36 TB of physical storage per enclosure using twelve 3 TB near-line SAS disk drive modules or up to 14.4 TB of physical storage per enclosure using twenty-four 2.5-inch 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 IBM Storwize V7000 Unified controller and expansion enclosures add flexibility
- Cache memory: 16 GB cache memory (8 GB per internal RAID controller) as a base feature—designed to improve performance and availability
- Ports per control enclosure: Eight 8 Gbps Fibre Channel host ports (four 8 Gbps FC ports per RAID controller), four 1 Gbps and optionally four 10 Gbps iSCSI host ports (two 1 Gbps and optionally two 10 Gbps iSCSI host ports per RAID controller)

Storwize V7000 control and expansion enclosures are each available in two models—one with twelve 3.5-inch disk drive bays or one with twenty-four 2.5-inch disk drive bays. The system supports intermixing 12-bay or 24-bay enclosures in a single system. The expansion enclosures connect to the control enclosure using four SAS 6 Gbps disk expansion ports.

- **Control enclosure—**Supporting attachment of up to nine expansion enclosures with configurations up to 240 TB physical storage capacities
- **Expansion enclosure—**Packaged in a 2U rack-mountable enclosure that houses twenty-four 2.5-inch drive bays or twelve 3.5-inch drive bays and dual power supplies with cooling components. Physical storage capacity of up to 24 TB per storage expansion enclosure using twelve 3.5-inch 2 TB near-line SAS disk drive modules and up to 14.4 TB per storage expansion enclosure using twenty-four 2.5-inch 600 GB SAS disk drive modules.
- **Clustered systems—**Two control enclosures (each with up to nine expansion enclosures) may be clustered together in a single system for even greater capacity and performance growth potential. Clustered systems support up to 480 disk drives and up to 720 TB capacity.

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. 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 the IBM Storwize Rapid Application Storage solutions for your IT environment.

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.

Included IBM Implementation Services can help you streamline the implementation of your storage solution. Using a comprehensive approach, our highly skilled storage specialists provide planning, implementation, configuration, testing and basic skills instruction to help you eliminate the need for specialized, in-house skills and free up your IT staff to focus on higher priority business initiatives. With IBM Implementation Services for Storwize Rapid Application Storage you can quickly take advantage of new storage technology, minimize business disruptions and accelerate the return on your investment in IBM storage technology.

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.

IBM Storwize Rapid Application Storage solutions at a glance

	Storwize Rapid Application Storage Manager	Storwize Rapid Application Backup
Tivoli Storage FlashCopy Manager	✓	✓
Tivoli Storage Productivity Center *For Disk Midrange Edition*	✓	
Storwize V7000	Includes external virtualization	✓
Solution Implementation Services	✓	✓
Solution Installation Services	Optional	✓
3-Year Warranty on HW	✓	✓
3-Year Maintenance on SW	✓	✓

For more information

To learn more about IBM Storwize V7000, please contact your IBM sales representative or IBM Business Partner, or visit the following website: **ibm.com**/storage/storwizev7000

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