

IBM System Storage Product Guide



Cost effective and reliable access to your information

People need access to information so they can make knowledgeable decisions that lead to growth and increased profitability. Your challenge is making sure that information is always available, when and where it is needed, to fuel the cycle of creative thinking that leads to innovation.

IBM System Storage™ solutions help you more successfully support your business by creating IT environments that:

- Protect information assets and enable data sharing and collaboration across your enterprise in real time
- More easily handle changing business requirements
- Manage information effectively by matching the value of your information to how it is stored and accessed at each point in its life cycle

Only IBM delivers the depth and breadth of intelligent storage solutions and expertise to help you reliably bring information to people in a cost-effective way.

Empower your people to innovate and make more informed business decisions

Innovate faster and help ensure that the information that fuels creative thinking and decision making is available in real time with IBM System Storage solutions.

- Automate and simplify IT operations with revolutionary IBM System Storage solutions—so you can focus on your business and spend less time managing your infrastructure
- Increase your return on people and create an environment for competitive advantage by capitalizing on data sharing and collaboration across the enterprise in real time with IBM System Storage offerings
- Fuel your innovation engine with complete solutions that leverage IBM's unmatched expertise, strong synergy between servers and storage, award-winning storage software and extensive partner network

Get the most value from your information

Protect and fully leverage your information assets by using intelligent management solutions from IBM—solutions that enable your IT staff to implement the most cost-effective storage options based on the value and service level of the information at each point in its lifecycle.

- Align your storage investment with the value of your information using comprehensive tiered storage, policy-based automation and intelligent information management solutions from IBM
- Confidently protect your strategic information assets and efficiently comply with regulatory and security requirements with the unrivaled breadth of storage solutions from IBM

Make your business more responsive with an information-centric IT environment

Manage and adapt to growing and changing business needs with an IT environment that makes critical information always available—without disruption.

- Keep your business running with continuous access to information through industry-leading business continuity solutions from IBM System Storage
- Rapidly adapt to evolving business needs by creating an open, flexible, on demand infrastructure that scales as you grow—without disrupting ongoing operations—using proven IBM System Storage solutions
- Optimize and protect your IT investment with marketplace-leading virtualization capabilities, superior multi-vendor interoperability and cost-effective storage solutions from IBM



IBM System Storage DR550 and DR550 Express

Model	An award-winning information archiving and retention solution designed to:
Highlights	<ul style="list-style-type: none"> store, retrieve, manage, share and secure all types of data (e-mail, database, documents, images, files, etc.) provide non-erasable, non-rewritable archival storage. Prevents deletion or alteration of data stored on the system. support multiple storage tiers for long term archiving (disk, tape and optical) provide the facilities to migrate archive data from aging disk or tape subsystems to new ones offer automatic provisioning, migration, expiration and archiving capabilities offer scalability up to 112 TB raw physical capacity and supports petabytes of storage with attached tape and optical offer chronological and event-based data retention offer high availability option to avoid single points of failure provide security and protection through data encryption and data shredding options support and integrate with broad set of IBM and non-IBM content management applications provide file archiving through the new IBM System Storage DR550 File System Gateway protect customer data against disasters through Synchronous or Asynchronous Replication offer low TCO through the use of multiple storage devices for long period archiving Carefree Services—for onsite software/firmware upgrades and three year warranty repair and maintenance (24x7, four hour response)
Scalability	DR550: Single engine: 8 TB and 16 TB, Dual engine: 8, 16, 32, 56, 112 TB of raw physical storage, up to petabytes with attached tape and optical storage. DR550 Express 1.1, 5.1 and 9.1 TB configurations.
Nodes	Single- or dual-server configurations Dual-server configuration offers failover protection
Processors	DR550: 2-way 2.1 GHz POWER5+™ Processor Card, 36 MB L3 Cache DR550 Express: 1-way 1.65 GHz POWER5+ Processor Card, no L3 Cache
Network protocol support	IBM System Storage Archive Manager (SSAM) application programming interface (API) v5.4
Operating system	IBM AIX, Version 5.3
Performance	Performance testing results: ibm.com/servers/storage/disk/dr/performance.html
PCI slots available	N/A
Network connectivity	2 port Gigabit Copper or Fibre Ethernet (upgrades available)
ECC SDRAM memory (max)	1 GB per node
Data protection	Mirrored OS, RAID-5, RAID-10 (opt.) for user data Data Encryption for enhanced security for disk and tape via 128-bit AES or 56-bit DES encryption technology. Encryption keys can be managed by the application or by the DR550. Maintains data as non-erasable and non-rewritable until deletion is permitted by retention policy.
Redundancy/high availability	IBM HACMP 5.3 (Dual-server configuration), redundant DS4700 controllers, RDAC driver to provide path failover, RAID
Backup	External tape (recommended IBM 3592 WORM tape)
RAID levels	RAID-5, RAID-10 (opt.)
Systems management	SMIT, DS4000 Storage Manager GUI, SNMP
Storage management	IBM Tivoli Storage Manager client and storage agent

* Please visit ibm.com/storage/nas for additional N3700 performance information.

** Please visit ibm.com/storage/dr550 for current DR550 performance results.

† For more information on third-party product support, please refer to "IBM NAS Interoperability" at ibm.com/storage/nas.

Disk Storage Virtualization

Create a tiered storage environment and help increase the flexibility and efficiency of your storage infrastructure by introducing solutions based on IBM System Storage virtualization software.

Product	Function and Value	Highlights
IBM System Storage SAN Volume Controller (SVC)	Based on virtualization technology, the IBM System Storage SAN Volume Controller is designed to increase the efficiency and flexibility of your storage infrastructure by pooling storage and centralizing management, and enabling changes to the physical storage while avoiding disruption to applications.	<ul style="list-style-type: none"> Manage storage volumes from a central point: SVC is designed to enhance the flexibility of your storage environment. It can combine the storage capacity from multiple disk systems from different suppliers into a single pool of storage that can be managed from a central point. In this way, fewer skills are required and storage administrators can become more productive. Virtually eliminate downtime related to storage: SVC enables data migrations, maintenance and upgrades to the SVC system itself, and changes to the physical storage without impacting host applications. Improve storage resource utilization: By combining the storage capacity from multiple disk systems into a single pool, SVC uses existing storage capacity more efficiently, which can defer additional storage purchases to save costs. A single, cost-effective set of advanced copy services: SVC can apply copy services across all the managed storage, regardless of the disk system supplier. This capability helps simplify the environment, reduce the costs of implementing disaster recovery solutions, increases flexibility in using storage and increases personnel productivity. Create a tiered storage environment: Using virtualization technology, SVC enables customers to match the cost of the storage to the value of their data. For example, mission-critical data can be stored on high-performance, highly available Fibre-Channel disks while non-mission-critical data can be stored on serial-ATA disks. Data can easily be moved from one tier to another without application disruption.

IBM TotalStorage Expert Family

Adds value to the storage subsystem solution by providing information for better management.

Product	Function and Value
IBM TotalStorage ETL Expert	Provides a high-performance monitoring tool to help simplify the management of IBM tape subsystems that include the IBM TotalStorage Enterprise Tape Library, Virtual Tape Server and Peer-to-Peer Virtual Tape Server
IBM TotalStorage XRC Performance Monitor	Provides the ability to monitor and evaluate the performance of a running XRC configuration; the monitor function provides information at the real-time, historic and summary levels

DFSMS Family

Provides automated and central storage management in the z/OS environment

Product	Function and Value
DFSMSdftp™	Provides data access, program and device management functions that furnish effective management of active data
DFSMSdsss™	Provides data movement, copy, backup and space management functions
DFSMSShsm™	Provides backup, recovery, migration and space management functions that furnish effective management of inactive data
DFSMSRmm™	Provides a policy-driven solution for the management of removable media, such as tape cartridges and reels
DFSORT™	Provides a solution for faster and easier data sorting, reporting and analysis
DFSMSStvs	Enables batch jobs and IBM CICS® (Customer Information Control Systems) online transactions to update shared VSAM data sets concurrently

IBM Tivoli Storage Manager

Function and Value

IBM Tivoli Storage Manager is designed to provide protection of your 24x7 applications and key data in the event of hardware, software or network failures. It offers move-and-store techniques and policy-based automation, which are designed to work together to help increase data and application protection, decrease disaster recovery time and lower storage administration costs. It manages inactive data, helping you match the value of the data to the most cost-effective storage management practices. Tivoli Storage Manager is designed to scale easily to protect hundreds of computers running a dozen operating systems ranging from laptops to mainframes and connected together via the Internet, WANs, LANs or SANs. Tivoli Storage Manager also offers open, easy-to-use APIs designed to enable ISVs to more easily adapt their solutions to IBM software, helping to allow joint customers to customize, better secure and extend the functionality of their storage environment.

Highlights

- Designed to protect valuable data in the most cost-effective manner
- Designed to archive inactive data to help reduce costs
- Designed to help ensure continuity and recovery

IBM Tivoli Storage Manager Extended Edition

IBM Tivoli Storage Manager Express

IBM TotalStorage Productivity Center

Product	Function and Value	Highlights
IBM TotalStorage Productivity Center for Disk	In a pooled or virtualized SAN environment, multiple devices work together to create a storage solution. IBM TotalStorage Productivity Center for Disk is designed to provide integrated administration, optimization and replication features for these environments.	<ul style="list-style-type: none"> • Designed to help reduce the complexity and cost of storage management while improving data availability • Offers centralized, open standards-based management of storage devices • Designed to help enhance storage administrator productivity • Offers proactive management of storage devices
IBM TotalStorage Productivity Center for Replication	TotalStorage Productivity Center For Replication is designed to simplify and automate the configuration of your replication environment allowing for more effective Metro Mirroring, Global Mirror and IBM FlashCopy management. It is also designed to monitor and automate copy operations across devices to support a replication environment.	<ul style="list-style-type: none"> • Automates the configuration of your IBM DS8000, DS6000™ and ESS advanced copy services features. • Monitors and manages the IBM DS8000 and SVC copy operations to ensure successful completion from your source volumes to your disaster recovery volumes

IBM TotalStorage Productivity Center

IBM TotalStorage Productivity Center for Replication Two Site Business Continuity	TPC for Replication Two Site and Three Site Business Continuity provides disaster recovery management through planned and unplanned failover and fallback automation for the IBM ESS Model 800, IBM DS6000 and IBM DS8000.	<ul style="list-style-type: none"> • TPC for Replication Two Site and Three Site Business Continuity helps you manage replication to a remote backup site(s) through Metro Mirror or Global Mirror. The software is designed to allow you to monitor the progress of the copy services so you can verify the amount of replication that has been done as well as the amount of time needed to complete the replication. Automated failover is designed to keep your critical data online and available to your users even if your primary site fails. When the primary site comes back on, the software manages fallback to the default configuration as well.
IBM TotalStorage Productivity Center for Data	IBM TotalStorage Productivity Center for Data is a Storage Resource Management (SRM) tool for storage environments that provide a set of policy-driven automated tools for managing storage capacity, availability, events, performance and assets, including DAS, NAS and SAN technologies.	<ul style="list-style-type: none"> • Designed to help leverage and optimize existing storage resources and perform storage management with a high level of control • Designed to help maximize storage utilization • Designed to be able to manage more storage with the same staff

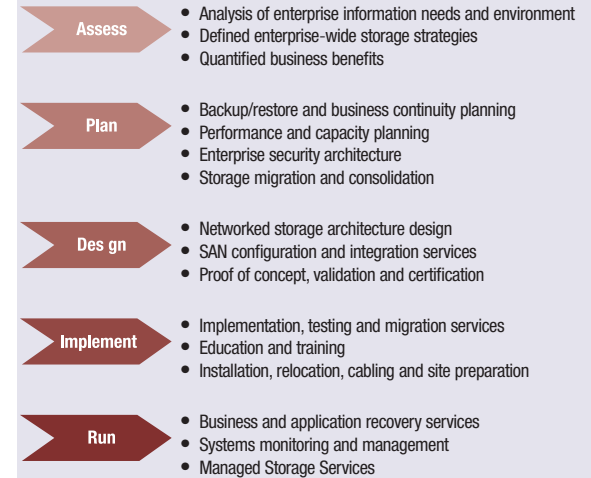
IBM TotalStorage Productivity Center

IBM TotalStorage Productivity Center for Fabric	IBM TotalStorage Productivity Center for Fabric is designed to help automate the management of heterogeneous storage networks and works with a broad range of devices, so businesses can leverage and better use existing technology investments. It is designed to provide comprehensive management of physical and logical configurations for multi-vendor SANs with automatic resource discovery, event monitoring and alerting, zone control and SAN error-prediction capabilities.	<ul style="list-style-type: none"> • Designed to help predict storage network failures before they happen, enabling preventative maintenance • Designed to help accelerate problem isolation when failures occur • Designed to create a single point of control, administration and security for the management of heterogeneous storage networks
IBM TotalStorage Productivity Center Standard Edition	Combines Disk, Data and Fabric components together as one orderable product.	<ul style="list-style-type: none"> • Having Disk, Data and Fabric allows higher levels of value—i.e. combined SAN and Disk performance reports or automated workflows to do provisioning (under the control of Tivoli Provisioning Manager)

IBM Global Services for System Storage and Storage Networking

Data Storage Services from IBM can help companies achieve their business objectives by creating cost-effective data storage solutions that address the requirements of key business applications. These solutions can support multiple platforms and product vendors, helping to provide enhanced protection for critical business data, increased asset utilization, availability and reliability levels with reduced management costs.

IBM Global Services, as the leading data storage services provider, brings best practices from its thousands of customer engagements to work with your employees to integrate new solutions and technology with your business and IT needs. IBM offers a comprehensive portfolio of data storage services including:



IBM Global Services has a track record in offering services for open and mainframe storage, data migration, installation and support services for IBM and non-IBM environments. Some examples are:

- IBM Storage Strategy Assessment assists with the vision and strategy, assessment, architecture and conceptual designs to help customers optimize their storage infrastructure to new architectures.
- IBM Planning Services for 3494 Automated Tape Library and Virtual Tape Server can help improve tape storage management and gain control of an often expanding library of tapes.
- IBM Operational Support Services for Tivoli Storage Manager assists customers in the planning and implementation of storage management software.
- IBM Managed Storage Services offer scalable, cost-effective storage capacity, management and backup/restore services on a usage basis.

More information about IBM storage services can be found at ibm.com/services/storage.

IBM Global Financing

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MB, GB and TB equal 1,000,000, 1,000,000,000 and 1,000,000,000,000 bytes, respectively, where referring to storage capacity. Actual storage capacity will vary based upon many factors and may be less than stated. Some numbers given for storage capacities give capacity in native mode followed by capacity using data compression technology.

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