



IBM Tivoli Storage Manager

Highlights

- Increase business continuity by shortening backup and recovery times and maximizing application availability with advanced data restoration technology
- Employ a hierarchy of storage to increase efficiencies and conserve resources
- Enhance data security with innovative security features
- Help manage change within the IT infrastructure to minimize service disruptions and speed restorations and backups
- Help control storage management costs with ease-of-use features and integration with IBM NAS products

Storage administrators today confront a variety of ongoing challenges. Constant changes that threaten application availability. Intense pressure to reduce backup and recovery windows. Increasingly stringent compliance demands. Add to that a growing complexity within the storage infrastructure — with interconnected applications that must be maintained around the clock — and conducting efficient and effective storage management has become more difficult than ever before. Yet the costs of maintaining the storage infrastructure continue to increase, while IT budgets do not.

IBM Tivoli® Storage Manager is part of a robust family of products that delivers a single point of control and administration for your storage management needs, helping to increase the efficiency of your IT operations and control costs related to storage management.

This advanced, scalable product helps take the complexity out of storage management, performing a variety of tasks through policy-based automation, including:

- Backup and recovery.
- Archiving and retrieval.
- Disaster recovery.
- Space management.
- Online database and application protection.
- Bare-machine recovery.
- Continuous data protection.

Tivoli Storage Manager delivers centralized, Web-based administration and intelligent data move-and-store techniques to ease storage management. The product scales from small to very large installations, works with devices from PCs to UNIX® servers to mainframes, and supports more than 50 operating system versions and hundreds of devices. It also facilitates

a multitude of connections, including Internet, wide area networks (WANs), local area networks (LANs) and storage area networks (SANs).

Tivoli Storage Manager helps increase business continuity and reduce the risks of data loss while removing complexity, managing costs and helping to meet strict compliance requirements. With Tivoli Storage Manager you can:

- **Conduct progressive incremental backups** — identify and back up only files that have changed since the last backup to help minimize backup and restore windows, resource-consuming full backups and storage of redundant data.
- **Enable subfile backups** — only transmit the changed portions of files to conserve network bandwidth and server storage space.
- **Conduct multilocation backups** — write directly to disk, tape or optical pools, with the option to write to multiple locations at the same time.
- **Automate migration** — automatically migrate managed data from one media type to another.
- **Facilitate disaster recovery** — provide a daily-updated disaster recovery plan and restore only the files you need to conduct high-speed, policy-based disaster recovery, business continuity or both.
- **Manage archives** — retain important documents for a specific time period in long-term storage.

- **Extend beyond traditional backup and recovery** — utilize advanced disk replication capabilities to perform high-performance, low-impact backups.
- **Use hierarchical storage management (HSM)** — automate space management to achieve life-cycle management.
- **Implement retroactive policy changes** — apply policy changes retroactively to previously backed-up or archived data.
- **Use SAN technology** — offload the production network and reduce overall IP traffic.

Hierarchy of storage increases efficiencies, conserves resources

In most storage management environments, managed data is trapped on the media to which it was originally backed up. Tivoli Storage Manager manages data stored in a hierarchy of lower-cost storage, which helps conserve resources as automated policies migrate data to the appropriate media type, based on:

- Data longevity.
- Access speed.
- Cost needs.

Tivoli Storage Manager automatically manages the movement of the data onto new storage technology when introduced into the hierarchy, thus allowing you to remove old technology from the IT center.

In addition to this storage hierarchy, the open application programming interface (API) of Tivoli Storage Manager gives it the unique ability to seamlessly manage many types of data and integrate with various functions. As soon as data is in the hierarchy, it can easily be moved from one storage device to another. Use Tivoli Storage Manager for:

- **Backup** — back up numerous file versions to the hierarchy of storage in the event of online storage device failure, data errors or accidental file deletions for easy data restoration.
- **Archive** — archive files to the hierarchy of storage for a specified amount of time, after which they automatically expire.
- **Database and application data** — use products in the Tivoli Storage Manager family specifically designed to perform online backups of databases and applications.
- **Space management** — IBM Tivoli Storage Manager for Space Management identifies and moves low-activity and inactive files to the hierarchy of storage. IBM Tivoli Storage Manager HSM for Windows enables you to migrate lesser-used Microsoft® Windows® files without disrupting your end users.
- **Data retention data** — IBM System Storage™ Archive Manager prevents stored data from being changed or deleted prior to expiration dates, thus addressing regulatory requirement needs.

- **Disaster recovery planning** — provides built-in and automated disaster recovery planning tools.
- **Bare-machine recovery** — returns the system to the state of the last backup, recovering all the operating system changes and customizations, streamlining the recovery process and eliminating the need for skilled professionals to manually reinstall hardware, network configurations and patches.

Utilizing the full storage hierarchy within your infrastructure not only helps ensure that your most important data is more easily accessible, it also helps conserve storage resources and control costs.

Advanced architecture enables robust functionality

Tivoli Storage Manager provides superior functions for managing the data, because it utilizes a built-in relational database and transaction log to track the managed data's metadata. Other storage maximization features help reduce manual processes and speed installations, backups and recovery, including:

Administration features

- A granular policy engine configurable to individual files.
- Central administration provided through a Web-based user interface.

- Enhanced automation to reduce staff-intensive manual procedures.
- Enterprise management features to consolidate the administration of multiple servers.
- Server-to-server communication to send or receive objects directly from another server, and share tape resources.

Storage features

- Intelligent data movement to save tapes, processing cycles and network bandwidth.
- Flexible storage pools to migrate data from one storage pool to another based on policies set up to reflect business needs.
- Direct-to-disk storage so the number of client machines moving data is not controlled by how many tape drives are available.
- Reclamation of space to free up partially used tapes by moving active files to other tape volumes.

Backup and recovery features

- Collocation to dedicate a set of tapes to a single user or group of users.
- Offsite copying for disaster recovery purposes.
- Better tape utilization through better reclamation and migration.
- Restartable backup and restore for interrupted operations.
- Journal-based backups to expedite the process and minimize processing overhead.
- Nondisruptive online image backup and restore.
- Rapid recovery by creating backup sets that consolidate files onto portable media.
- Automated backup schedules.

Help improve data security

Storage administrators must ensure that data is backed up and secure regardless of location, and that erased data is irrecoverable. To help meet regulatory and security compliance requirements while maintaining personnel productivity, Tivoli Storage Manager creates a single point of control, administration and security for file recovery. It generates, encrypts, stores and manages encryption keys for Tivoli Storage Manager clients, application protection modules, applications that use the Tivoli Storage Manager API and more. Furthermore, Tivoli Storage Manager easily compresses and encrypts data that is being moved into the hierarchy of storage. Enhanced security features within Tivoli Storage Manager include:

- Automated data security encryption key management to relieve the burden of administrators and end users managing encryption keys and passwords manually.
- Tape-drive encryption to offload encryption from the system to the tape drive for faster backups and ease of use.
- Data shredding to provide overwriting of deleted data.
- Optional data protection for popular e-mail, database and enterprise resource planning applications.

Manage changes in the IT environment

Changes in the IT environment constantly threaten application availability and overall business continuity. Storage administrators must ensure that storage changes do not affect mission-critical applications and must protect applications and customer data without compromising application performance or causing disruptions. Organizations can rely on Tivoli Storage Manager to help speed the recovery of files, file systems and bare machines, and provide a daily, comprehensive disaster recovery plan.

Speed backups and disaster recovery

Tivoli Storage Manager offers numerous features to facilitate backups and recovery, including disk storage pools, backup sets, volume level backups, offsite copies, collocation and an integrated approach to protection of VMware environments. Backup sets are portable images created on the Tivoli Storage Manager server from existing backups. They can be used to:

- Create media for rapid recovery or instant archives.
- Restore individual files or point-in-time backups of data to backup archive clients locally, independent of or with a Tivoli Storage Manager server.
- Create copies for long-term retention from backup versions already stored on the server.

IBM has added the “active data pool” storage feature for storing only the active version of backup data in particular pools. Storing data in active data pools using tape and optical media greatly reduces the amount of data that must be onsite for primary storage hierarchy recovery. With active data pools you can help conduct faster client restores of active data and reduce the amount of stored data and volumes taken offsite.

Tivoli Storage Manager takes an integrated approach to protect VMware environments, simplifying configuration and providing improved data management when used in a VMware environment. This is accomplished via integration with VMware Consolidated Backup to coordinate the movement of virtual machine data from the VMware Consolidated Backup proxy server to tape devices.

Additionally, Tivoli Storage Manager supports the Microsoft Volume Shadow Copy Service for Microsoft SQL and Exchange. By performing more frequent low-impact backups, you help minimize potential data losses and enable extremely rapid restores from local snapshot backups.

Use NDMP backup images for onsite or offsite vaulting

To heighten disaster recovery capabilities, use Tivoli Storage Manager to

protect data on network attached storage (NAS) devices by using network data management protocol (NDMP). Use Tivoli Storage Manager to:

- Implement NDMP backups of NAS devices directly to attached tape drives or tape drives shared with Tivoli Storage Manager.
- Send NDMP backups to a Tivoli Storage Manager server to be stored in its versatile and function-rich hierarchy of storage.
- Create offsite copies of NDMP backups.
- Transfer NDMP-generated data to other storage media to reclaim unused space or migrate data to new storage media.

Help reduce administration costs with ease-of-use features

Ease-of-use features in Tivoli Storage Manager, like operational reporting, help reduce administration costs. Operational reporting saves your administrators time, by sending reports on the daily operations of Tivoli Storage Manager. It draws its information from the Tivoli Storage Manager database to create three customizable reports showing:

- Daily updated information on the amount of files backed up, missed backups, the number of tapes available and any errors encountered.
- Computers with failed backups.
- Particular conditions that have been met, such as when you are low on backup tapes or a tape drive is offline.

The Web-based interface of Tivoli Storage Manager — the administration center — offers the ability to simultaneously update passwords on multiple servers and a “fast path” for administrators. Together, these features help improve installation and response times, reduce resource use and improve performance — all of which help control the overall storage management costs.

Leverage the Tivoli Storage Manager family of products

Tivoli Storage Manager is part of a family of products, including IBM Tivoli Storage Manager Extended Edition, which expands on Tivoli Storage Manager backup, restore, disaster recovery and archive capabilities by enabling you to create a detailed plan and automated scripts, and to track where offsite copies of data are stored. Additionally, the Tivoli Storage Manager family includes products designed specifically for:

- Midsize organizations not yet ready for a full enterprise storage management solution.
- Backing up mail, database and enterprise resource planning applications online.
- Utilizing disk replication and storage virtualization tools to create a virtually impact-free database backup.
- Automatically migrating seldom-used or very large files off of the production server to the more cost-effective Tivoli Storage Manager hierarchy of storage.

Tivoli Storage Manager at a glance

The Tivoli Storage Manager family of offerings includes:

- **Tivoli Storage Manager** — automates data backup and restore functions, supports a broad range of platforms and storage devices, and centralizes storage management operations.
- **Tivoli Storage Manager Extended Edition** — expands on backup, restore and archive abilities with disaster recovery functionality.
- **IBM Tivoli Storage Manager for Mail** — helps secure IBM Lotus® Domino® and Microsoft Exchange data, regardless of where or how it is stored.
- **IBM Tivoli Storage Manager for Databases** — helps secure IBM Informix®, Oracle and Microsoft SQL data, no matter where or how it is stored.
- **IBM Tivoli Storage Manager for Microsoft SharePoint®** — offers granular backup and recovery of your SharePoint business data and content.
- **IBM Tivoli Storage Manager HSM for Windows** — provides HSM with a policy-based management system for migrating Windows files economically and transparently.
- **IBM Tivoli Storage Manager for Advanced Copy Services** — protects your mission-critical data that requires 24x7 availability by delivering snapshot backup capabilities.
- **IBM Tivoli Storage Manager for Copy Services** — delivers high-efficiency backup and restoration of data and applications, virtually eliminating backup-related performance impacts.
- **IBM Tivoli Storage Manager for Enterprise Resource Planning** — helps protect vital SAP R/3 system data efficiently, consistently and reliably.
- **IBM Tivoli Storage Manager for Space Management** — automatically moves inactive data to free online disk space for important active data.
- **IBM Tivoli Storage Manager for Storage Area Networks** — allows SAN-connected Tivoli Storage Manager servers and client computers to make maximum use of their direct network connection to storage.
- **IBM Tivoli Storage Manager for System Backup and Recovery** — offers a comprehensive system backup, restore and reinstallation tool that provides bare-metal restore capabilities.
- **IBM Tivoli Storage Manager Express** — Windows-based solution for small and midsize businesses in one easy-to-install, configure and manage solution.

- Utilizing a storage area network to free up your LAN.
- Providing bare-machine recovery protection for your operating system and all of the customizations and changes made to it.
- Implementing continuous data protection to back up files the instant they are closed or saved.

For more information

To learn more about how Tivoli Storage Manager can help your organization increase the efficiency and effectiveness of your storage management functions, contact your IBM representative or IBM Business Partner, or visit ibm.com/tivoli



About Tivoli software from IBM

Tivoli software provides a set of offerings and capabilities in support of IBM Service Management, a scalable, modular approach used to deliver more efficient and effective services to your business. Helping meet the needs of any size business, Tivoli software enables you to deliver service excellence in support of your business objectives through integration and automation of processes, workflows and tasks. The security-rich, open

standards-based Tivoli service management platform is complemented by proactive operational management solutions that provide end-to-end visibility and control. It is also backed by world-class IBM Services, IBM Support and an active ecosystem of IBM Business Partners. Tivoli customers and business partners can also leverage each other's best practices by participating in independently run IBM Tivoli User Groups around the world — visit www.tivoli-ug.org

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Route 100
Somers, NY 10589
U.S.A.

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