



Highlights

- Help simplify the protection and management of your data, even as it continues to grow exponentially
 - Address business continuity by helping to shorten backup and recovery times and helping to maximize application availability with advanced data recovery management technologies
 - Employ source and target data deduplication and a hierarchy of storage to help conserve storage resources and increase bandwidth efficiencies
 - Help control storage management costs with ease-of-use features and unified recovery management across the entire enterprise
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IBM Tivoli Storage Manager

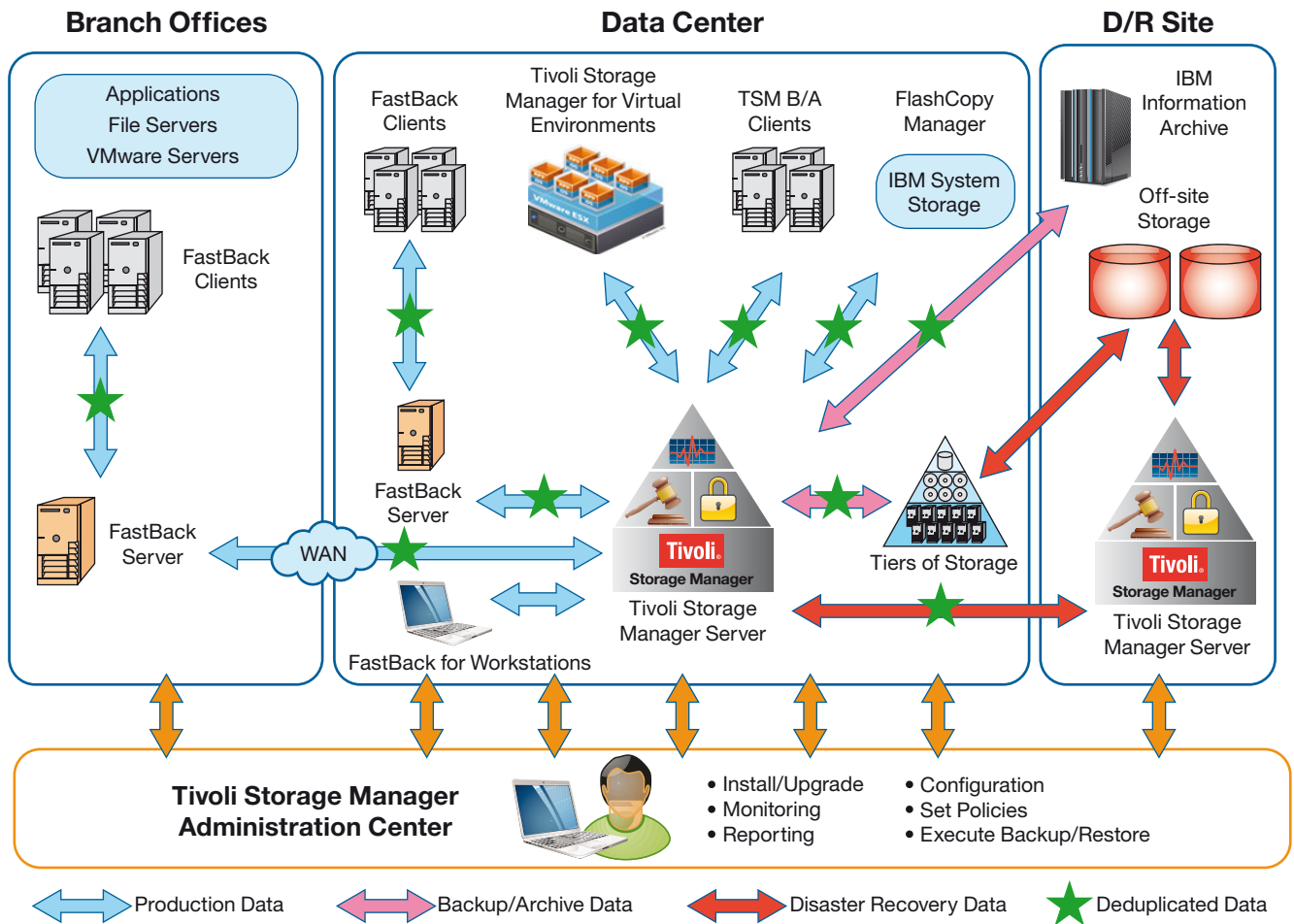
Leverage advanced data protection and simplified, unified recovery management capabilities

Businesses in today's environment face a continual explosion in data growth rates. The ability to successfully manage data has become a competitive necessity, and with increasingly stringent compliance demands and the growing complexity of the storage infrastructure, storage administrators are feeling the pressure. While the costs of maintaining storage infrastructure continue to increase, IT budgets often do not.

IBM Tivoli® Storage Manager is a family of products that helps businesses manage and protect their data assets by delivering a single point of control and administration for storage management needs. This advanced, highly scalable product helps increase the efficiency of your IT operations and helps cut costs related to storage management by providing a wide range of advanced capabilities using policy-based automation, including:

- Backup and recovery.
- Online database and application protection.
- Disaster recovery.
- Data reduction.
- Bare-machine recovery.
- Space management.
- Archiving and retrieval.
- Built-in reporting and monitoring.





IBM Tivoli Storage Manager is the core component of an enterprise-wide data protection and unified recovery management system.

Tivoli Storage Manager continues to meet growing data storage requirements, increasing scalability by 100 percent each year from 2008 to 2011, now supporting up to 4 billion data objects in a single Tivoli Storage Manager server. Combined with exceptional performance, reliability and flexibility, Tivoli Storage Manager's scalability is ideally suited for any size IT environment, including public and private cloud deployments.

Tivoli Storage Manager delivers centralized, web-based administration and intelligent data move-and-store techniques to help ease storage management. The product scales from small to very large installations, 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 organizations improve business continuity, and reduce the risks of data loss, minimize complexity, better manage costs and address strict compliance requirements. With Tivoli Storage Manager you can:

- Reduce the amount of data being stored with progressive incremental backups and deduplication.
- Efficiently manage multilocation backups across operating systems and applications.
- Automate data migration between storage tiers and the retention of archives.
- Selectively replicate backup data to a disaster recovery site, on a scheduled basis, and automatically generate disaster recovery plans.
- Implement retroactive policy changes.
- Automatically distribute upgrades to client agents.

Tivoli Storage Manager is the core component of an enterprise-wide data protection and recovery management solution set. Tivoli Storage Manager works seamlessly with Tivoli Storage Manager FastBack®, which provides enhanced data protection and recovery of critical Microsoft Windows and Linux servers in remote offices and in the data center, with Tivoli Storage Manager FastBack for Workstations to automatically and continuously protect desktop and laptop systems, and with Tivoli Storage FlashCopy® Manager for hardware-assisted, application-aware snapshots.

Leading-edge data reduction features

Tivoli Storage Manager helps you address the relentless growth in the amount of data being retained through a number of leading-edge capabilities, including:

- Progressive incremental backups with an incremental forever backup method that eliminates redundant periodic full backups.
- Built-in data deduplication can eliminate redundant files and subfiles. Source-side data deduplication reduces the amount of data sent from client systems to the Tivoli Storage Manager Server. Target-side data deduplication eliminates redundant data stored by the Tivoli Storage Manager Server. Combined, these advanced features reduce bandwidth and storage requirements and can help speed recovery operations by storing more data on disk.
- Seamless integration with popular Virtual Tape Library systems, such as the IBM ProtecTIER® Deduplication Solutions, that employ in-line data deduplication for long-term retention of large data sets.
- Elimination of the need to add costly and complex "media servers" as most competitive products require as they scale.

Can increase efficiency with a hierarchy of storage

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 value, access and retention requirements.

Tivoli Storage Manager automatically manages the movement of the data onto new storage technology when introduced into the hierarchy, allowing you to easily remove old systems from the IT center. In addition to this storage hierarchy, the open application programming interface (API) of Tivoli Storage Manager provides the ability to seamlessly manage many types of data. 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**—backup and maintain numerous file versions to enable point-in-time recovery in the event of production storage device failure, data errors or accidental file deletions.
- **Disaster Recovery**—Tivoli Storage Manager Extended Edition replicates backup data and its descriptive metadata to an offsite Tivoli Storage Manager Server, enabling fast failover and resumption of operations; and automatically updates a dynamic, step-by-step disaster recovery plan as changes in the IT infrastructure occur.
- **Archive**—archive files to the hierarchy of storage for a specified amount of time, after which they automatically expire, based on policies set for each data type.

- **Space management**—IBM Tivoli Storage Manager for Space Management identifies and moves less-frequently accessed and inactive files to the hierarchy of storage. IBM Tivoli Storage Manager HSM for Windows enables you to migrate lesser-used Windows files without disrupting your end users.
- **Data retention enforcement**—IBM System Storage® Archive Manager prevents stored data from being changed or deleted prior to expiration dates or while a “hold” is placed on the content, helping organizations address legal and regulatory requirements.

Advanced protection and recovery of Virtual Servers

Tivoli Storage Manager provides a range of options for protecting virtualized servers. A Tivoli Storage Manager agent can be run from within the virtual machine to perform backups and restores just as with physical servers, and Tivoli Storage Manager supports the Microsoft Volume Shadow Copy Service to perform full-image snapshots of virtual machines in Microsoft Hyper-V environments.

Tivoli Storage Manager for Virtual Environments leverages the VMware vStorage APIs for Data Protection to provide nondisruptive, incremental backups and flexible file, volume and image-level recovery of vSphere 4 and vSphere 5 virtualized servers. Administration is simplified through automatic discovery and protection of new VM guest deployments, and Tivoli Storage Manager for Virtual Environments can also be managed from within the VMware vCenter Client interface.

Leverage an advanced architecture for robust functionality

Tivoli Storage Manager provides superior functions for managing data because it utilizes a fully integrated enterprise-class IBM DB2® relational database and transaction log to track the managed data's metadata. No DB2 administration skills are needed—it is completely contained within Tivoli Storage Manager. Other storage optimization features help reduce capacity requirements, speed installations, automate backup and recovery processes, and simplify custom report creation.

Storage features

- Intelligent data movement to save disk and tapes, processing cycles and network bandwidth.
- Flexible policies to migrate data from one storage pool to another based on business needs.
- SAN exploitation for sharing of storage resources.
- Direct-to-disk storage so the number of client machines moving data is not controlled by how many tape drives are available, nor is the data fragmented by cumbersome multiplexing techniques.
- Reclamation of space to free up partially used tapes by moving active files to other tape volumes.
- Seamless scalability to support the growing data protection and recovery management needs of almost any organization.

Backup and recovery features

- Collocation to dedicate a set of tapes to a single user or group of users for faster recovery.
- Offsite replication for disaster recovery purposes.
- Better tape utilization through automated 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.
- Advanced integration with virtual server environments, including the VMware vStorage APIs for Data Protection.
- Intelligent, high-speed data protection features for popular email, database and enterprise resource planning applications, including DB2, Oracle, SAP, Microsoft Exchange, SQL, Lotus® Domino®, etc.

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 client systems locally, independent of or with a Tivoli Storage Manager server.
- Create copies for long-term retention from backup versions already stored on the server.

The “active data pool” storage feature stores the active version of data in a virtualized group of tape and virtual tape media. This helps to conduct faster client restores and to greatly reduce the amount of data taken offsite.

Faster recovery from disasters

Tivoli Storage Manager Extended Edition includes enhanced features to provide fast recovery from site-level disasters. Backup data and metadata can be replicated, on an incremental, scheduled, per-client basis from one Tivoli Storage Manager server to another. The replicated data can be further reduced with data deduplication, and network bandwidth efficiencies can be gained by scheduling the replication for relatively quiet times.

The target Tivoli Storage Manager server can be used as a hot standby for the source server, and two active Tivoli Storage Manager servers can replicate to each other for added efficiency and flexibility. A single replication target can also be used to support multiple active backup servers.

Help enhance data security

Storage administrators must ensure that data is backed up and secure, regardless of location, and that purposely erased data is irrecoverable. To help meet compliance requirements while maintaining productivity of personnel, Tivoli Storage Manager generates, encrypts, stores and manages encryption keys for Tivoli Storage Manager clients and application protection modules. Furthermore, Tivoli Storage Manager 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 help relieve the burden of manually tracking encryption keys and passwords.
- In-flight 256-bit AES data encryption between client and server using Secure Socket Layer (SSL).
- Leverage tape-drive encryption to offload encryption from the system to the tape drive for faster backups and restores.
- Shredding of data on disk, or the overwriting of deleted data, helps to prevent future discovery.

Increase visibility into the data protection environment

Tivoli Storage Manager provides advanced features for operational monitoring and historical trends reporting. A customizable dashboard provides graphical views, while reports can be created in multiple formats such as HTML, Adobe Portable Document Formatting (PDF) and comma-separated values (CSV). Based on IBM Cognos® Business Intelligence Reporting Suite, this feature allows administrators to quickly define their own customized reports.

Use NDMP backup images for onsite or offsite vaulting

To heighten disaster recovery capabilities, use Tivoli Storage Manager to protect data on 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 on disk or tape.
- Create offsite copies of NDMP backups.
- Transfer NDMP-generated data to other storage media to reclaim unused space or to migrate data to more appropriate media in the storage hierarchy.

Implement advanced backup and recovery functions

To help meet increasingly stringent recovery point objectives and recovery time objectives, Tivoli Storage Manager provides advanced backup and recovery capabilities, including:

- Individual item-level recovery for Microsoft Exchange databases.
- Individual object recovery for Microsoft Active Directory environments.
- Progressive-incremental backup of Microsoft Windows System Writer.
- File-level recovery for IBM System Storage N series and NetApp NAS environments.
- Efficient backup of very large SAP databases.
- Direct management of Tivoli Storage Manager FastBack Servers.

IBM 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, reduces data storage footprint, and centralizes storage management operations.

Tivoli Storage Manager Extended Edition—Expands on backup, restore and archive abilities with advanced disaster recovery functionality.

IBM Tivoli Storage Manager Suite for Unified Recovery—An easy to order, deploy and manage bundle of ten Tivoli Storage Manager and Tivoli Storage Manager FastBack products, licensed by only the amount of data being managed.

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 Hierarchical Storage Management with a policy-based management system for migrating Windows files economically and transparently.

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 for Virtual Environments—Advanced data protection and flexible recovery options for VMware vSphere virtualized servers.

IBM Tivoli Storage Manager FastBack—Provides a continuous data protection and recovery management platform for Microsoft Windows servers.

IBM Tivoli Storage Manager FastBack for Microsoft Exchange—Provides the ability to quickly and easily recover granular Microsoft Exchange data objects.

IBM Tivoli Storage Manager FastBack for Bare Machine Recovery—Restores entire systems, whether to comparable hardware, dissimilar hardware, or a virtual machine.

IBM Tivoli Storage Manager FastBack Center—Combines the features of the IBM Tivoli Storage Manager FastBack family of products into one solution.

IBM Tivoli Storage Manager FastBack for Workstations—Provides continuous, automated backup of desktop and laptop workstations.

IBM Tivoli Storage FlashCopy Manager—Application-aware snapshot backup and recovery management for IBM System Storage and systems with VSS-Writer support.

Tivoli Storage Manager for a smarter, greener data center

IBM Tivoli Storage Manager is one of the premier data management solutions that leverage the capacity, performance and long-term retention features of the broad range of available tape systems. Magnetic tape is among the greenest of all storage technologies, in that tape can store vast quantities of data for long periods of time, while requiring only minimal environmental (power and cooling) support.

For more information

IBM Tivoli Storage Manager is part of an extensive family of products that work together seamlessly. To learn more about IBM Tivoli Storage Manager, contact your IBM representative or IBM Business Partner, or visit:

ibm.com/software/tivoli/products/storage-mgr

Additionally, IBM Global Financing can tailor financing solutions to your specific IT needs. For more information on great rates, flexible payment plans and loans, and asset buyback and disposal, visit: ibm.com/financing

About Tivoli software from IBM

Tivoli software from IBM helps organizations efficiently and effectively manage IT resources, tasks and processes to meet ever-shifting business requirements and deliver flexible and responsive IT service management, while helping to reduce costs. The Tivoli portfolio spans software for security, compliance, storage, performance, availability, configuration, operations and IT lifecycle management, and is backed by world-class IBM services, support and research.

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