



Highlights

- Simplify backup administration with advanced IBM® Tivoli® Storage Manager Operations Center dashboard and VMware vCenter plug-in
 - Scale up to manage billions of objects per backup server, and scale down to support entry-level environments
 - Reduce backup infrastructure costs up to 38 percent with proven efficiency capabilities built in¹
 - Optimize data protection for virtual environments, core applications, remote facilities and critical workstations
 - Protect data with built-in multi-site replication and flexible restore capabilities
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IBM Tivoli Storage Manager family

Simplify data protection for physical, virtual and cloud environments

It can be frustrating for organizations to manage the cost, complexity and capabilities of their backup systems, especially on today's smarter planet—where instrumented, interconnected and intelligent businesses collect, process, use and store more information than ever before. The ability to successfully manage the data explosion 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 size of the storage infrastructure continues to increase, IT budgets remain flat.

IBM Tivoli Storage Manager is a family of software offerings designed to help organizations manage and protect their data by simplifying backup administration, delivering more scalable solutions and helping to reduce costs related to backup and recovery.

Simplicity

Backups can be managed by IBM [Tivoli Storage Manager Operations Center](#) or VMware vCenter. Tivoli Storage Manager Operations Center delivers breakthrough visibility and ease of use, reducing the level of expertise required. Restores are simplified with item-level and near-instant recovery for virtual machines and for Linux and Microsoft Windows servers and workstations.²

IBM Tivoli Storage Manager Suite for Unified Recovery helps clients get up and running fast, with simplified capacity-based licensing for Tivoli Storage Manager and popular agents. Users can deploy advanced agents for virtual environments, databases, email and enterprise resource planning as needed, with no additional licensing costs.





Tivoli Storage Manager Operations Center provides an advanced visual dashboard, built-in analytics and integrated workflow automation features to dramatically simplify backup administration.

Efficiency

Tivoli Storage Manager can help users save up to 38 percent in backup infrastructure costs.¹ Savings are typically found in storage media, backup servers, data center floor space, power and cooling. Tivoli Storage Manager deduplication and incremental forever capabilities, working together, can reduce backup storage space up to 95 percent.³ In addition, Tivoli Storage Manager Suite for Unified Recovery measures capacity after efficiency features are used, so users are rewarded for being more efficient with lower license and support costs.

To boost operational efficiency even further, Tivoli Storage Manager server deduplication enables organizations to handle massive volumes of data during a given backup window. This can help reduce costs by limiting the disk space required for backups and minimizing the impact on client systems.

Scalability

Tivoli Storage Manager is known for its ability to manage very large environments. For example:

- Tivoli Storage Manager servers can manage billions of objects, so there is less disruption and complexity as backup workloads continue to grow.

- IBM Tivoli Storage FlashCopy® Manager can back up 500 VMware images in 15 minutes and 1,000 images in 36 minutes.⁴
- Tivoli Storage Manager Operations Center can consolidate multiple Tivoli Storage Manager servers for simpler administration of large environments.
- Tivoli Storage Manager can start small and grow, offering flexible deployment options.
- Tivoli Storage Manager Suite for Unified Recovery—Entry enables advanced data protection at a lower cost for organizations with less than 100 TB of backup data.⁵
- Tivoli Storage Manager is available as a cloud-managed backup service from IBM and IBM Business Partners, and as a ready-to-use backup appliance from multiple IBM Business Partners.⁶
- IBM reference architecture blueprints are available for small, medium and large Tivoli Storage Manager configurations, which can take much of the guesswork out of scalability planning.

Advanced data protection for virtualized, software-defined environments

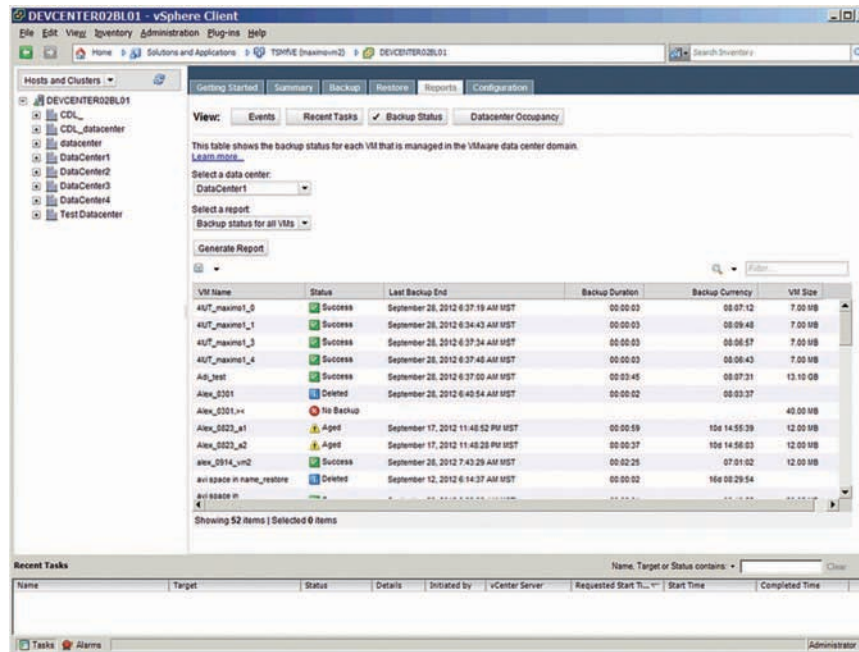
IBM Tivoli Storage Manager for Virtual Environments and IBM Tivoli Storage FlashCopy Manager for VMware can back up and restore data residing on virtual machines without negatively impacting applications and operations that also rely on the virtual environment. IBM solutions are designed to benefit both the virtualization and backup teams with data protection visibility, control and automation.

“With Tivoli Storage Manager for Virtual Environments, we are seeing faster backup and recovery, more centralized management, and reduced risk of data loss.”

— Jeff Jones, senior infrastructure engineer, Unum

Advantages of IBM Tivoli Storage Manager for Virtual Environments used with VMware

Feature	Benefit
VMware vCenter plug-in	• Enables VMware and storage teams to optimize resources
VMware vCloud Director integration	• Enables VMware cloud support (VMware vApp backups)
VMware vStorage API support	• Helps reduce compute, storage and network overhead
Integration with hardware snapshots	• Helps increase application uptime
Deduplication and progressive incremental backup	• Helps reduce storage and network resource requirements
Change-block tracking	• Enables reduction in the backup window
Physical tape support	• Provides operational restore and long-term archive and retention
Single-pass backup with item-level recovery	• Helps reduce management complexity
Instant restore	• Enables reducing restore time objective to meet service-level agreements
Application-consistent recovery	• Helps reduce downtime
Nondisruptive (to ingest) backups	• Help increase application availability
Granular file recovery	• Enables instant access to critical data without increased overhead
Full virtual machine recovery	• Provides near-instant recovery of an entire virtual server
Agentless support	• Helps reduce operating expenditures
Auto-discovery of new virtual machines	• Helps protect all data in VMware environments



The Tivoli Storage Manager VMware vCenter plug-in enables users to manage backups from VMware vSphere.

In addition, Tivoli Storage Manager enables the following capabilities in Microsoft Hyper-V virtual server environments:

- Backs up and restores snapshots of Hyper-V virtual machines using the Microsoft Volume Shadow Copy Services (VSS) interface
- Backs up data without the need to stop the virtual machine or any running applications within the virtual machine
- Restores either individual virtual machines or a group of virtual machines running on Hyper-V servers for disaster-recovery purposes
- Requires no installation of Tivoli Storage Manager client on a guest virtual machine, but the guest virtual machine must be running a VSS-enabled Windows operating system

Data protection using flexible restores and multi-site replication

While insurance policies can mitigate almost any business risk, no policy can return lost data. This is why IBM has applied its extensive experience in data protection to guide users on best practices to enable superior business outcomes. Essential disaster-recovery capabilities are built into Tivoli Storage Manager and ready to use, and flexible backup and recovery functions simplify common restore requests.

Backup and recovery functions

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

- Full virtual machine instant restore for virtualized environments
- VMware cloud-aware backups
- Individual item-level recovery for Microsoft Exchange and SQL databases
- Individual object recovery for Microsoft Active Directory environments
- Snapshot management for most IBM storage systems, NetApp and storage systems supporting the Windows VSS provider
- Continuous data protection and near-instant access to backup data for Windows and Linux Intel-based servers and Windows workstations
- File-level recovery for IBM System Storage® N series and NetApp network-attached storage (NAS) environments
- Efficient backups of very large SAP and SAP HANA databases
- Restartable backups and restores

Multi-site replication for disaster recovery

Tivoli Storage Manager Extended Edition and Tivoli Storage Manager Suite for Unified Recovery include enhanced features to provide fast recovery from site-level disasters. Backup data and metadata can be replicated on an incremental, scheduled or 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.

Tivoli Storage Manager for a smarter, greener data center

Tivoli Storage Manager helps organizations reduce power, cooling and data center floor-space requirements, which helps reduce organizations' carbon footprints. Tivoli Storage Manager includes data space-reduction technologies such as deduplication, compression and "incremental forever" backups. And because tape is the greenest storage technology, Tivoli Storage Manager helps users take advantage of its capabilities by enabling the easy migration of backup data between disk and tape storage pools—so it is simple to move backups to tape as they age.

Why IBM?

IBM data protection solutions offer a simplified user experience that helps deliver superior business outcomes. IBM is using applied analytics to make backup and storage management software more intelligent, so users can deliver global data availability. IBM continues to innovate, bringing first-to-market capabilities—built on a solid foundation of trusted technology—to increasingly complex backup and recovery environments.

IBM Tivoli Storage Manager family v7.1 at a glance

Solution bundles with capacity-based licensing

Tivoli Storage Manager Suite for Unified Recovery—Enterprise solution includes Tivoli Storage Manager Extended Edition, advanced agents for virtual environments and core applications, UNIX space management, and continuous data protection for Windows and Linux Intel-based servers

Tivoli Storage Manager Suite for Unified Recovery – Entry—Includes full Tivoli Storage Manager Suite for Unified Recovery at an up to 55 percent discount for deployments less than 100 TB*

Tivoli Storage Manager Suite for Unified Recovery – IBM ProtecTIER® option—Includes full Tivoli Storage Manager Suite for Unified Recovery, with capacity calculated using ProtecTIER deduplication

Tivoli Storage Manager Suite for Unified Recovery – Archive option—Includes full Tivoli Storage Manager Suite for Unified Recovery at an up to 80 percent discount for archive storage†

Backup server

Tivoli Storage Manager—Automates data backup and restore functions, supports a broad range of platforms and storage devices, reduces the data storage footprint and centralizes storage management operations

Tivoli Storage Manager Operations Center—Provides a next-generation administration dashboard that enhances visibility, enables faster problem analysis and simplifies corrective actions; included with Tivoli Storage Manager

Tivoli Storage Manager Extended Edition—Provides advanced disaster-recovery functionality

Tivoli Storage Manager for Storage Area Networks—Enables SAN-connected Tivoli Storage Manager servers and user systems to use Fibre Channel connections to storage systems for data backup and reduced network traffic

Tivoli Storage Manager for System Backup and Recovery—Offers a comprehensive system backup, restore and reinstallation tool with bare-metal restore capabilities

Backup agent for virtual environments

Tivoli Storage Manager for Virtual Environments—Delivers advanced data protection and flexible recovery for VMware virtualized servers and hosted applications

Backup agents for core applications

Tivoli Storage Manager for Mail—Provides advanced data protection for IBM Domino® and Microsoft Exchange environments

Tivoli Storage Manager for Databases—Offers advanced data protection for Oracle and Microsoft SQL environments‡

Tivoli Storage Manager for Enterprise Resource Planning—Helps protect vital SAP and SAP HANA data efficiently, consistently and reliably; multiple backup and restore streams can also be enabled to support very large environments

Snapshot management

Tivoli Storage FlashCopy Manager—Provides application-aware snapshot backup and recovery management for IBM storage systems, NetApp, third-party storage systems using Windows VSS provider, and an open API for third-party storage systems supporting UNIX workloads

Continuous data protection

Tivoli Storage Manager FastBack®—Provides a continuous data protection and recovery management platform for Linux, Intel-based, and Windows servers

Tivoli Storage Manager FastBack for Microsoft Exchange—Quickly and easily recovers granular Microsoft Exchange data objects

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

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

Tivoli Storage Manager FastBack for Workstations—Provides continuous, automated backup of desktop and laptop workstations running Windows operating systems; central administration console consolidates IBM Tivoli Continuous Data Protection backups for thousands of workstations

Space management

Tivoli Storage Manager HSM for Windows—Enables policy-based migration of inactive data to tape, leaving the directory structure on disk so users don't have to change the way they access Windows data

Tivoli Storage Manager for Space Management—Enables policy-based migration of inactive data to tape, leaving the directory structure on disk so users don't have to change the way they access UNIX data

System requirements

Tivoli Storage Manager supports most operating environments. A complete list of platforms supported and system requirements can be found here: ibm.com/software/tivoli/products/storage-mgr

For more information

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

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Please Recycle

* Tivoli Storage Manager Entry Option is limited to 100 TB of managed backup data, measured after deduplication and other efficiency features are used, and two Tivoli Storage Manager servers per enterprise.

† Tivoli Storage Manager Archive option applies to data ingested through an archive operation and backed up to Tivoli Storage Manager virtual tape library or tape archive pools. Data backed up to other storage pools is fully supported and charged at the standard Suite for Unified Recovery capacity rate.

‡ IBM DB2® and IBM Informix® agents are included with Tivoli Storage Manager base offering.

¹ Average of individual customer [Analysis Engine Reports from Butterfly Software](#), May 2013; savings include cumulative 36-month hardware, hardware maintenance and electrical power savings, excluding one-time Tivoli Storage Manager migration cost.

² Near-instant recovery for virtual machines is enabled by Tivoli Storage Manager for Virtual Environments; near-instant recovery for Windows and Linux servers is enabled by Tivoli Storage Manager FastBack; near-instant recovery for Windows desktops and laptops is enabled by Tivoli Storage Manager FastBack for Workstations.

³ Tony Palmer, “IBM Tivoli Storage Manager for Virtual Environments: Robust, Comprehensive Data Protection for Virtualized Environments,” *Enterprise Strategy Group*, February 25, 2013. <http://www.esg-global.com/lab-reports/ibm-tivoli-storage-manager-for-virtual-environments/>

⁴ Performance based on measurements using standard IBM benchmarks in a controlled environment.

⁵ Tivoli Storage Manager Entry option is limited to 100 TB of managed backup data, measured after deduplication and other efficiency features are used, and two Tivoli Storage Manager servers per enterprise.

⁶ IBM managed backup services can be found here: ibm.com/services/us/en/it-services/disaster-recovery.html; IBM Business Partners offering Tivoli Storage Manager solutions can be found here: ibm.com/partnerworld/wps/servlet/ContentHandler/isv_com_dvm_techval_tivoli_BackedUpByTSM