IBM Tivoli Storage Manager family

Simplify data protection for physical, virtual and cloud environments

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, built-in efficiency capabilities[1]

- Optimize data protection for virtual environments, core applications, remote facilities and critical workstations

- Protect data with multi-site replication and flexible restore capabilities

It can be challenging for organizations to manage the cost, complexity and capabilities of their backup systems, especially on today's smarter planet—where organizations of all sizes collect, process, use and store more information than ever before. The ability to successfully manage rapid data growth has become a competitive necessity. And yet, storage administrators are also feeling the pressure of increasingly stringent compliance demands, growing storage infrastructure complexity and prohibitively flat IT budgets.
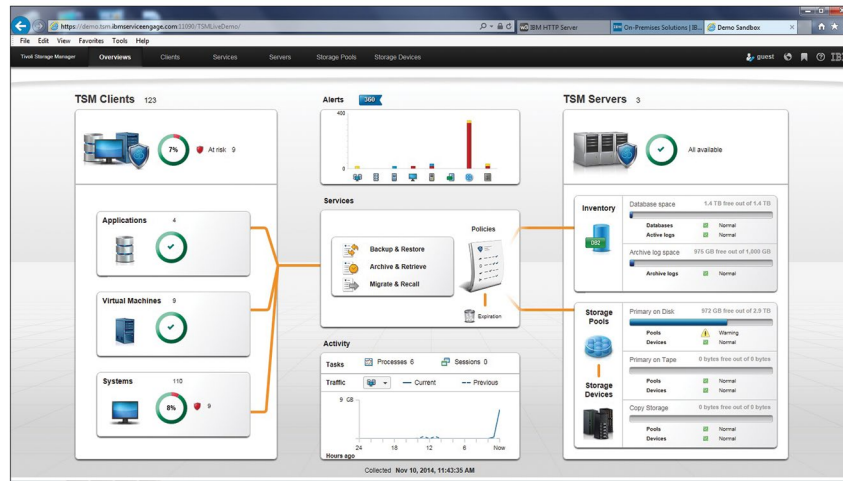
With the IBM Tivoli Storage Manager family, organizations can choose the right software to manage and protect their data—while also simplifying backup administration, improving efficiency, delivering scalable capacity and enabling advanced backup and recovery capabilities.

Simplicity

Backups can be managed by 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. VMware administrators can manage both Tivoli Storage Manager and IBM Tivoli Storage FlashCopy® Manager from the same vCenter interface. What's more, restores are easier with item-level and near-instant recovery for virtual machines and for Linux and Microsoft Windows servers and workstations.[2]

Tivoli Storage Manager "blueprints" and configuration scripts are designed to help reduce deployment time and guesswork by automating deployment steps and integrating best practices for small, medium and large environments.

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

Simplified solution bundles, such as IBM Tivoli Storage Manager Suite for Unified Recovery, help clients get up and running fast with easy-to-manage licensing for Tivoli Storage Manager and popular agents. Tivoli Storage Manager Suite for Unified Recovery license plans enable organizations to deploy advanced agents, as needed, for virtual environments, databases, email and enterprise resource planning.

Tivoli Storage Manager also provides the foundation for simplified backups via cloud-based managed services and ready-to-use backup appliances. For example, IBM Resiliency Services and IBM Business Partners offer a number of simplified solutions.[3]

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 by up to 95 percent.[4]

For organizations with long-term data retention requirements, Tivoli Storage Manager provides valuable capabilities for compression and tape system integration. The solution enables the easy migration of backup data between disk and tape storage pools—so backups can be moved to tape as they age.

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

IBM Tivoli Storage Manager Extended Edition also includes policy-driven remote replication, which can significantly reduce storage space requirements at primary backup sites. Remote recovery sites can then be focused on enforcing long-term retention policies.

IBM offers a broad choice of licensing options for Tivoli Storage Manager, which can significantly reduce software costs compared to alternative licensing plans.

Scalable performance

Tivoli Storage Manager is known for supporting large, multi-petabyte environments, but small organizations can also benefit. Organizations with fewer than 50 managed servers or less than 100 terabytes of backup data can use Tivoli Storage Manager entry-level solution bundles.

Tivoli Storage Manager servers can expand to manage billions of objects per server, so there is less disruption and complexity as backup workloads grow. Tivoli Storage Manager Operations Center can also consolidate information from multiple Tivoli Storage Manager servers for simpler administration of large environments.

As data grows, Tivoli Storage Manager backups can be augmented with advanced agents and snapshots that can reduce backup and restore times for large applications and virtual machines. For example, Tivoli Storage FlashCopy Manager can back up about 500 VMware images in 15 minutes.[5]

Advanced data protection

The Tivoli Storage Manager family is a complete solution. It enables advanced data protection for next-generation environments, including cloud, virtualized and software-defined environments. Tivoli Storage Manager solutions can also protect data hosted on physical machines, in core applications and at remote facilities. Data managed by Tivoli Storage Manager is easily replicated to remote recovery facilities for safekeeping.

Backups are important, but restores are essential. Tivoli Storage Manager solutions enable fast, flexible restores from primary and remote recovery sites. Tivoli Storage Manager helps recover individual items, complex systems and entire data centers.

"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

Virtualized, software-defined environments

Tivoli Storage Manager and Tivoli Storage FlashCopy Manager 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.

In addition, administrators using VMware tools can manage backups and restores in a familiar environment, without having to learn new data protection interfaces. OpenStack cloud developers can find Tivoli Storage Manager backup drivers in the OpenStack distribution.
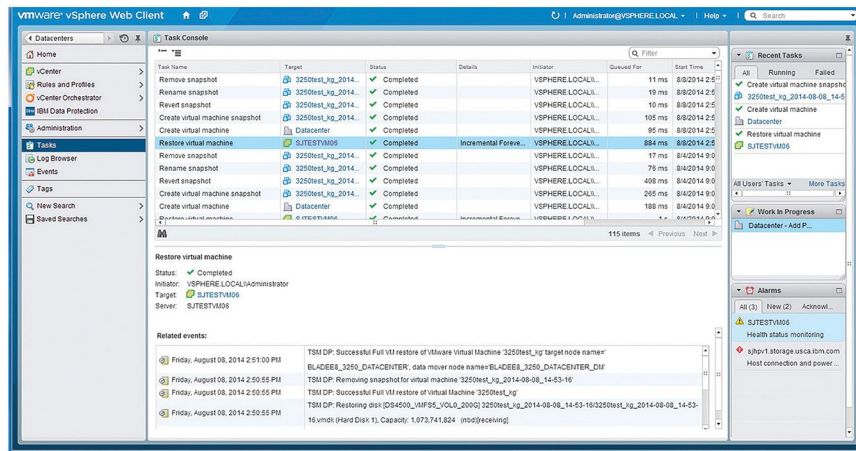
Advantages of IBM data protection for virtual machines

Feature	Benefits	VMware	Hyper-V
Auto-discovery of new virtual machines	Helps ensure that all data in the virtualized environment is protected	●	●
Item-level recovery	Enables fast recovery of individual files, Microsoft Exchange mailboxes and individual emails, and Microsoft SQL Server databases	●	●
Application-consistent backup and recovery	Helps ensure complete application backups and simplifies restore processes	●	●
Copy management	Enables a single virtual-machine snapshot to be used for multiple purposes, including: data recovery, testing, development, disaster-recovery assurance and analytics	●	●
Integration with hardware snapshots*	Enables frequent snapshots with minimal impact on application performance	●	
Incremental "forever" backups	Reduces the need for extra capacity and staff time to manage periodic full backups	●	●
Data deduplication	Helps reduce storage and network resource requirements; is available at the virtual machine, backup server or (optional) appliance level	●	●
Nondisruptive, single-pass backups	Help increase application performance during backups	●	●
Agentless support	Helps simplify deployment and reduce operating expenses	●	●
Tape support	Helps reduce costs for long-term archiving and retention	●	●
Instant access/instant restore	Helps reduce the end-user impact to nearly zero during virtual-machine restores	●	
Single-pass, full datastore recovery*	Provides near-instant recovery of an entire datastore, including all virtual machines	●	

* Requires Tivoli Storage FlashCopy Manager (optional add-on)

IBM integration with VMware tools and APIs

Feature	Benefits
VMware vSphere web client support	Allows VMware administrators to easily perform data protection and recovery operations, powered by Tivoli Storage Manager, but from within the familiar vSphere interface
VMware vCenter integration	Enables VMware administrators to easily configure, schedule, and monitor backups and snapshots
VMware vCloud Director integration	Simplifies VMware cloud (vApp) data protection
VMware vStorage application programming interface (API) support	Helps reduce compute, storage and network overhead

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

Flexible restores

While insurance can mitigate almost any business risk, no insurance 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. Flexible recovery options in Tivoli Storage Manager are designed to simplify common restore requests, including:

- Individual item-level recovery for Microsoft Exchange and SQL databases, as well as object recovery for Microsoft Active Directory environments
- Full virtual-machine instant restores
- 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
- Snapshot browsing and recovery
- Automatic restores from an alternate backup server, if the primary backup server is unavailable
- Simplified disaster-recovery audits and simulations, as well as guided recovery after disasters

Multi-site replication

Tivoli Storage Manager Extended Edition includes enhanced features to simplify disaster-recovery audits and guide recovery from site-level disasters. Backup data can be replicated on an incremental, scheduled or per-client basis from one Tivoli Storage Manager server to another. Replication is policy-driven, so on-site and off-site retention policies can be different. Plus, replication can be performed with deduplicated data, which improves network efficiency. It can also be scheduled during relatively quiet times to help reduce the impact on production applications.

In replicated environments, a remote Tivoli Storage Manager server can be used as a hot standby. Alternatively, two active Tivoli Storage Manager servers can replicate to each other. A single replication target can be used to consolidate multiple active Tivoli Storage Manager backup servers.

IBM Tivoli Storage Manager family at a glance

Backup server components
- **Tivoli Storage Manager—**Automates data backup and restore functions, supports a broad range of platforms and storage devices, reduces the data storage footprint and maintains a catalog of protected data
- **Tivoli Storage Manager Operations Center**—Provides a visual administration dashboard that enables faster problem analysis and simplifies corrective actions; included with Tivoli Storage Manager
- **Rocket Servergraph Professional—**Provides real-time information about multi-vendor backup environments with reports, alerts and monitoring
- **Tivoli Storage Manager Extended Edition**—Adds advanced disaster-recovery functionality and large tape library support
- **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, reducing IP network traffic

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Backup agent for virtual environments
- **Tivoli Storage Manager for Virtual Environments**—Delivers advanced data protection and flexible recovery for VMware and Microsoft Hyper-V virtual 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
- **DocAve Backup and Restore for Microsoft SharePoint Backup**—Enables application-aware, service level agreement (SLA)-driven data protection for Microsoft SharePoint environments
- **Tivoli Storage Manager for Databases**—Offers advanced data protection for Oracle and Microsoft SQL Server 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

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Snapshot management
- **Tivoli Storage FlashCopy Manager**—Provides application-aware and VMware-aware snapshot backup and recovery management for IBM, NetApp, storage systems using Microsoft Windows VSS provider and, optionally, selected storage systems supporting UNIX workloads
- **Rocket Device Adapter Pack for IBM Tivoli Storage FlashCopy Manager**—Expands FlashCopy Manager platform support to include several EMC and Hitachi storage devices and NetApp clusters on UNIX

Bare machine recovery
- **Tivoli Storage Manager for System Backup and Recovery**—Offers a comprehensive system backup, restore and reinstallation tool with bare-metal restore capabilities for AIX
- **Cristie Bare Machine Recovery software for Tivoli Storage Manager, TBMR**—Provides rapid recovery from Tivoli Storage Manager backups, without having to perform any other backup of the operating system files
- **Recovery Simulator for TBMR**—Tests whether a machine can be successfully recovered from backups created by Cristie TBMR and Tivoli Storage Manager
- **Recovery Simulator for Tivoli Storage Manager for Virtual Environments**—Tests whether a machine can be successfully recovered from backups created by Cristie TBMR and Tivoli Storage Manager for Virtual Environments

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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 a Microsoft Windows or Linux Server OS volume within one hour
- **Tivoli Storage Manager FastBack Center**—Combines the features of Tivoli Storage Manager FastBack, Tivoli Storage Manager FastBack for Bare Machine Recovery and Tivoli Storage Manager FastBack for Microsoft Exchange into one solution
- **Tivoli Storage Manager FastBack for Workstations**—Provides continuous, automated backup of desktop and laptop workstations running Windows operating systems

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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

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IBM Tivoli Storage Manager solution bundles at a glance

	Tivoli Storage Manager Entry	Tivoli Storage Manager Suite for Unified Recovery – Front End	Tivoli Storage Manager Suite for Unified Recovery
Available components			
Tivoli Storage Manager	Standard Edition	Extended Edition	Extended Edition
Tivoli Storage Manager for Virtual Environments	✓	✓	✓
Tivoli Storage Manager for Mail	✓	✓	✓
Tivoli Storage Manager for Databases	✓	✓	✓
Tivoli Storage Manager for Enterprise Resource Planning	✓	✓	✓
Tivoli Storage Manager backup-archive client for file systems	✓	✓	✓
Tivoli Storage Manager for Storage Area Networks	✓	✓	✓
Tivoli Storage Manager for Space Management		✓	✓
Tivoli Storage Manager FastBack		✓	✓
Tivoli Storage Manager FastBack for Microsoft Exchange		✓	✓
Tivoli Storage Manager FastBack for Bare Machine Recovery		✓	✓
Entry option	✓	✓	✓
Archive option			✓
ProtecTIER® option			✓
License plan options			
Per component	License each component installed per protected server, virtual or physical	Unlimited	Unlimited
By capacity	Unlimited	License by capacity protected by the products in the bundle	License by capacity used for managed backup data, measured after deduplication and other efficiency features are used
Entry offerings (some restrictions apply)			

	Tivoli Storage Manager Entry	Tivoli Storage Manager Suite for Unified Recovery Entry – Front End	Tivoli Storage Manager Suite for Unified Recovery Entry
Capacity	Up to 50 managed servers per enterprise, of which up to five can be virtual-host servers	100 TB of managed backup data, measured by capacity protected by the products in the bundle	100 TB of managed backup data, measured after deduplication and other efficiency features are used
Backup servers	Windows, Linux x86 or Linux on IBM Power® platforms only	Two Tivoli Storage Manager servers per enterprise	Two Tivoli Storage Manager servers per enterprise

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.

For more information

To learn more about IBM Tivoli Storage Manager, including platforms supported and system requirements, contact your IBM representative or IBM Business Partner, or visit:
ibm.com/software/tivoli/products/storage-mgr

[†] 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] IBM Cloud Managed Backup services can be found here: **ibm.com**/services/us/en/it-services/business-continuity/cloud-managed-backup; IBM Business Partners offering Tivoli Storage Manager solutions can be found here: **ibm.com**/partnerworld/wps/servlet/ContentHandler/isv_com_dvm_techval_tivoli_BackedUpByTSM

[4] 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/

[5] Performance based on measurements using standard IBM benchmarks in a controlled environment.

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