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## Highlights

- Simplify backup and recovery with a self-service restore portal and interfaces for VMware administrators
  - Reduce backup infrastructure costs by up to 53 percent<sup>1</sup> with proven, built-in efficiency capabilities
  - Choose the right mix of storage media to optimize backups, including disk, cloud, tape and object storage
  - Optimize data protection for virtual and software-defined environments, core applications and critical workstations
  - Protect data with policy-based multi-site replication and flexible restore capabilities
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# IBM Spectrum Protect

## *IBM Tivoli Storage Manager family*

It can be challenging for organizations to manage the cost, complexity and capabilities of their backup systems, especially when they collect, process and store more information than ever before. Backup administrators are also feeling the pressure of increasingly stringent compliance demands, growing backup infrastructure complexity and flat IT budgets.

IBM® Spectrum Protect™, formerly IBM Tivoli® Storage Manager family, can simplify data protection, whether data is hosted in physical, virtual, software-defined or cloud environments. With IBM Spectrum Protect, 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 capabilities.

### **Simplified backup administration and cloud optimization**

Backups can be managed by IBM Spectrum Protect Operations Center, VMware vSphere Client or third-party software. IBM Spectrum Protect Operations Center delivers breakthrough visibility and ease of use for backup administrators, reducing the level of expertise required. Server

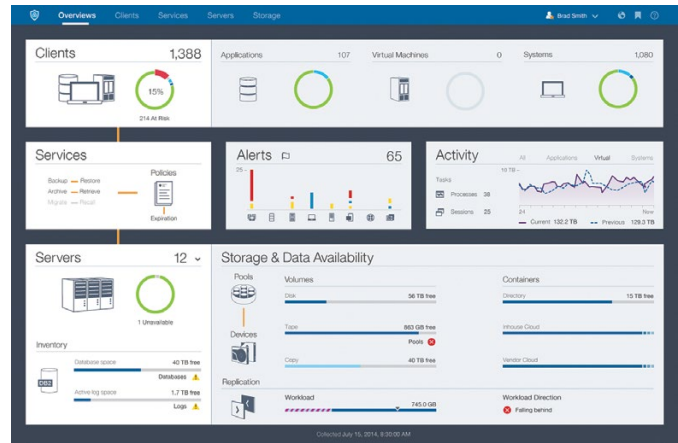


administrators can restore individual virtual machines from the VMware vSphere Client or launch the IBM Spectrum Protect VMware graphical user interface to schedule, monitor and perform backups.

IBM Spectrum Protect 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.

Simplified solution bundles—such as IBM Spectrum Protect Suite—help clients get up and running fast with easy-to-manage licensing for IBM Spectrum Protect, including snapshots and popular backup agents for virtual environments, databases, email and enterprise resource planning.

IBM Spectrum Protect also provides the foundation for simplified backups via cloud-based managed services and ready-to-use backup appliances. Representational state transfer (REST) application programming interfaces (APIs) and OpenStack backup drivers enable automation. Front-safe portal software, available from IBM, enables multi-tenancy, on-boarding and billing for IBM Spectrum Protect. IBM Resiliency Services and IBM Business Partners offer a number of cloud-based data protection solutions.<sup>2</sup>



IBM Spectrum Protect Operations Center provides an advanced visual dashboard, built-in analytics and integrated workflow automation features to dramatically simplify backup administration.

**Reduced backup infrastructure costs**

IBM Spectrum Protect can help users save up to 53 percent<sup>1</sup> in backup infrastructure costs. Savings are typically found in storage media, backup servers, data center floor space, power and cooling. IBM Spectrum Protect high-performance deduplication and incremental forever capabilities, working together, can reduce backup storage space by up to 95 percent.<sup>3</sup>

For maximum deployment flexibility, IBM Spectrum Protect enables backup data to be stored on disk, tape, on-premises object stores and cloud.

To boost operational efficiency even further, IBM Spectrum Protect deduplication enables organizations to handle massive volumes of data during a given backup window, without the need for deduplication appliances. Deduplication reduces the disk space required for most backup data.

IBM Spectrum Protect Extended Edition includes policy-driven remote replication, which can significantly reduce storage space requirements at primary backup sites.

IBM offers a broad choice of licensing options for IBM Spectrum Protect, so organizations can choose the most advantageous plan for their business.

### Scalable performance

Organizations of all sizes need advanced data-protection capabilities. Organizations with fewer than 50 managed servers or less than 100 terabytes of backup data can choose specially priced IBM Spectrum Protect entry-level solution bundles.

IBM Spectrum Protect servers can expand to manage billions of objects per server, so there is less disruption and complexity as backup workloads grow.

As data grows, IBM Spectrum Protect backups can be augmented with advanced agents and snapshots that can reduce backup and restore times for large applications and virtual machines. For example, IBM Spectrum Protect Snapshot can back up 500 VMware virtual machine images in as little as seven minutes.<sup>4</sup>

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*“With [IBM Spectrum Protect] 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

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### Optimized data protection

IBM Spectrum Protect is a complete solution. It enables advanced data protection for current and next-generation environments, including cloud, virtualized and software-defined environments; core applications; and remote facilities. Data managed by IBM Spectrum Protect is easily replicated to off-site recovery facilities for safekeeping.

Backups are important, but restores are essential.

IBM Spectrum Protect solutions enable fast, flexible restores from primary and remote recovery sites. IBM Spectrum Protect helps recover individual items, complex systems and entire data centers. Recovery simulators provide assurance that systems can be recovered as expected.

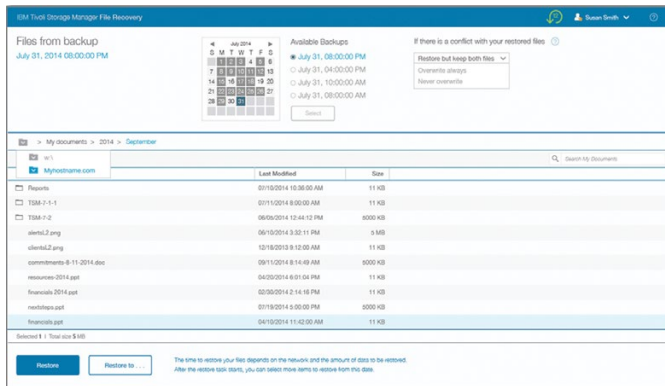
**Advantages of IBM data protection for virtual machines**

Feature	Benefits	VMware	Hyper-V
Auto-discovery of new virtual machines	Helps ensure that all data in the virtualized environment is protected	•	•
Self-service restore portal	Enables data, server and application owners to easily recover their data	•	
Item-level recovery	Enables fast recovery of individual files, Microsoft Exchange mailboxes, 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 data recovery, testing, development, etc.	•	•
Integration with hardware snapshots	Enables faster snapshots with less impact on application performance	•	
Incremental "forever" backups	Reduces the need for extra backup system capacity	•	•
Data deduplication	Enables high-performance space reduction on the virtual machine or backup server	•	•
Nondisruptive, single-pass backups	Help increase application performance during backups	•	•
Agentless support	Helps simplify deployment	•	•
Tape support	Helps reduce costs for long-term storage	•	•
Instant access/instant restore	Helps reduce the user impact during virtual machine restores	•	
Single-pass, full datastore recovery	Provides near-instant recovery of an entire datastore, including all virtual machines*	•	

\* Near-instant recovery for virtual machines is enabled by IBM Spectrum Protect for Virtual Environments; near-instant recovery for Windows desktops and laptops is enabled by IBM Spectrum Protect for Workstations.

**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 IBM Spectrum Protect, and launched within the familiar vSphere interface
VMware vCenter integration	Enables VMware administrators to easily configure, schedule, and monitor backups and snapshots
VMware vStorage API support	Helps reduce compute, storage and network overhead



A self-service restore portal enables data, server and application owners to easily recover their data.

### Virtualized, software-defined infrastructures

IBM Spectrum Protect for Virtual Environments and IBM Spectrum Protect Snapshot can back up and restore data residing in virtual, software-defined environments without negatively impacting applications and operations that share the underlying physical resources. IBM offers a choice in data protection options, including incremental “forever” backups and hardware-assisted snapshots.

### Flexible restores

Flexible recovery options in IBM Spectrum Protect are designed to simplify common restore requests, including:

- Self-service restore portal, initially for VMware data
- Individual item, database, volume-level, and data store restores from snapshots
- Near-instant access to backup data for Microsoft Windows and Linux Intel-based servers and Windows workstations

- Snapshot copying, browsing and recovery
- Automatic restores from an alternate backup server, if the primary backup server is unavailable
- Simplified disaster-recovery audits, recovery simulators and guided recovery from disasters

### Multi-site replication

IBM Spectrum Protect Extended Edition enables backup data to be replicated on an incremental, scheduled or per-client basis from one IBM Spectrum Protect 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 IBM Spectrum Protect server can be used as a hot standby. Alternatively, two active IBM Spectrum Protect servers can replicate to each other. A single replication target can be used to consolidate data from multiple active IBM Spectrum Protect backup servers.

### 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.

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## IBM Spectrum Protect at a glance

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### Backup server components

- **IBM Spectrum Protect**—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
  - **IBM Spectrum Protect Extended Edition**—Adds disaster-recovery management, node replication, network data management protocol (NDMP) backup and large tape library support
  - **IBM Spectrum Protect Operations Center**—Provides an at-a-glance view of the IBM Spectrum Protect environment, which simplifies reporting and enables faster problem resolution; included with IBM Spectrum Protect
  - **IBM Spectrum Protect for Data Retention**—Enables long-term record retention with flexible hold and release processing. Formerly called IBM System Storage® Archive Manager
  - **IBM Spectrum Protect for SAN**—Enables SAN-attached IBM Spectrum Protect servers and user systems to use Fibre Channel connections to storage systems for data backup
  - **Front-safe Cloud Portal**—Enables multi-tenancy, on-boarding, and billing for IBM Spectrum Protect
  - **Rocket Servergraph Professional**—Provides real-time information about multi-vendor backup environments with reports, alerts and monitoring
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**Backup agent for virtual environments and core applications**—Enables high-performance, online backups and flexible restores, which can increase application availability

- **IBM Spectrum Protect for Virtual Environments**—Works with VMware and Microsoft Hyper-V virtual servers and hosted applications
  - **IBM Spectrum Protect for Mail**—Works with IBM Domino® and Microsoft Exchange
  - **IBM Spectrum Protect for Databases**—Works with Oracle and Microsoft SQL Server; IBM DB2® and IBM Informix® include IBM Spectrum Protect backup agents
  - **IBM Spectrum Protect for Enterprise Resource Planning**—Works with SAP and SAP HANA
  - **DocAve Backup and Restore for Microsoft SharePoint Backup**—Works with Microsoft SharePoint
  - **OpenStack IBM Tivoli Storage Manager backup driver**—Included in OpenStack distribution
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### Snapshot management

- **IBM Spectrum Protect Snapshot**—Enables application-aware, virtual machine-aware, hardware-assisted snapshot backup and recovery management for most major IBM and non-IBM storage systems
  - **Rocket Device Adapter Pack for IBM Tivoli Storage FlashCopy® Manager**—Expands IBM Spectrum Protect Snapshot platform support to include several EMC, Hitachi and HP storage devices and NetApp clusters connected to UNIX servers
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### Bare machine recovery and recovery simulators

- **IBM Tivoli Storage Manager for System Backup and Recovery**—Offers a comprehensive system backup, restore and reinstallation tool with bare-metal restore capabilities for IBM AIX®
  - **Cristie Bare Machine Recovery software for Tivoli Storage Manager, TBMR**—Provides rapid recovery from IBM Spectrum Protect 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 IBM Spectrum Protect
  - **Recovery Simulator for Tivoli Storage Manager for Virtual Environments**—Tests whether a machine can be successfully recovered from backups created by Cristie TBMR and IBM Spectrum Protect for Virtual Environments
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### Continuous data protection

- **IBM Spectrum Protect for Workstations**—Provides continuous, automated backup of desktop and laptop workstations running Windows operating systems
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**Hierarchical space management (HSM)**—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 their files

- **IBM Spectrum Protect HSM for Windows**—Works with Windows data
  - **IBM Spectrum Protect for Space Management**—Works with AIX and Linux data
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**IBM Spectrum Protect solution bundles at a glance**

	<b>IBM Spectrum Protect Entry</b>	<b>IBM Spectrum Protect Suite – Front End</b>	<b>IBM Spectrum Protect Suite</b>
<b>Available components</b>			
IBM Spectrum Protect	Standard Edition	Extended Edition	Extended Edition
IBM Spectrum Protect Snapshot		✓	✓
IBM Spectrum Protect for Virtual Environments	✓	✓	✓
IBM Spectrum Protect for Mail	✓	✓	✓
IBM Spectrum Protect for Databases	✓	✓	✓
IBM Spectrum Protect for Enterprise Resource Planning	✓	✓	✓
IBM Spectrum Protect backup-archive client for file systems	✓	✓	✓
IBM Spectrum Protect for Storage Area Networks	✓	✓	✓
IBM Spectrum Protect for Space Management		✓	✓
Entry option	✓	✓	✓
Archive option			✓
ProtecTIER® option			✓

**License plan**

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)**

	<b>IBM Spectrum Protect Entry</b>	<b>IBM Spectrum Protect Suite Entry – Front End</b>	<b>IBM Spectrum Protect Suite Entry</b>
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 IBM Spectrum Protect servers per enterprise	Two IBM Spectrum Protect servers per enterprise

## For more information

To learn more about IBM Spectrum Protect, including platforms supported and system requirements, contact your IBM representative or IBM Business Partner, or visit:

[ibm.com/software/tivoli/products/storage-mgr](http://ibm.com/software/tivoli/products/storage-mgr)



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Actual available storage capacity may be reported for both uncompressed and compressed data and will vary and may be less than stated.



Please Recycle

\* Near-instant recovery for virtual machines is enabled by IBM Spectrum Protect for Virtual Environments; near-instant recovery for Windows desktops and laptops is enabled by IBM Spectrum Protect for Workstations.

<sup>1</sup> Based on IBM assessments using Butterfly Software.

<sup>2</sup> IBM Cloud Managed Backup services can be found here: [ibm.com/services/us/en/it-services/business-continuity/cloud-managed-backup](http://ibm.com/services/us/en/it-services/business-continuity/cloud-managed-backup); IBM Business Partners offering IBM Spectrum Protect-based cloud services can be found here: [ibm.com/partnerworld/wps/servlet/ContentHandler/isv\\_com\\_dvm\\_techval\\_tivoli\\_BackupByTSM](http://ibm.com/partnerworld/wps/servlet/ContentHandler/isv_com_dvm_techval_tivoli_BackupByTSM)

<sup>3</sup> 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/>

<sup>4</sup> Performance based on measurements using standard IBM benchmarks in a controlled environment.