IBM Tivoli Storage Manager for Virtual Environments V6.2 helps improve data backup and restore capability for VMware hypervisors

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At a glance

IBM® Tivoli® Storage Manager for Virtual Environments V6.2 extends capabilities that currently exist in IBM Tivoli Storage Manager. Highlights include:

- Centrally managed data protection for VMware hypervisors
- Quick and efficient incremental block-level backups utilizing VMware's vStorage APIs for Data Protection and Changed Block Tracking features
- Automatic detection of newly created virtual machines to help ensure compliance with a backup policy
- Capability to offload the backup workload to one or more vStorage backup servers
- Use of a non-disruptive snapshot at the virtual machine image level to help minimize disruptions to virtual guests
- Multiple recovery options from a single-pass image-level backup that can help with:
  - Granular file level recoveries
  - Near-instant volume recoveries
  - Full virtual machine recoveries
- Advanced capabilities such as compression and deduplication to help reduce network and storage capacity requirements

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For more information contact the Americas Call Centers at
800-IBM-CALL (426-2255).

Reference: SE001

Overview

Over the past few years, virtualization technologies have been transforming the way data centers and remote offices are managed. These technologies have helped reduce floor space, drive up utilization metrics, and enable new levels of service management and operational flexibility. However, the amount of data created and managed continues to grow.

Although technology has made it easier to create new virtual machines, the sprawling numbers of virtual machines have created challenges for managing data

protection. Backing up and restoring data for dozens of virtual machines that may reside on an enterprise server can bring all other operations on that server to a halt.

While IBM Tivoli Storage Manager already delivers a very effective offering for the backup challenge, the new IBM Tivoli Storage Manager for Virtual Environments V6.2 compliments Tivoli Storage Manager by offering additional improvements for backup efficiencies and advanced recovery capabilities for VMware hypervisors.

Using Tivoli Storage Manager for Virtual Environments V6.2, the burden of running backups on a virtual machine can be eliminated by offloading backup workloads from a VMware ESX or ESXi-based server to a centralized vStorage backup server. The vStorage backup server takes full and incremental snapshots of virtual machines, processes backups, and sends the results to a Tivoli Storage Manager V5.5, or later server.

Incremental backups occur at a block level, thereby leveraging VMware's Changed Block Tracking capability, and periodic full backups take a non-disruptive snapshot at the virtual machine image level. Near-instant recovery can be applied at a file level or disk volume level. Virtual machine image level can be restored through the vStorage server. These capabilities can provide end users with recovery flexibility from a single-pass image-level backup. Tivoli Storage Manager for Virtual Environments V6.2 helps simplify day-to-day administration with a single, centralized console.

Key prerequisites

Refer to the Technical information section.

Planned availability date

- March 11, 2011: Electronic
- March 18, 2011: Media

Description

Faster, more frequent protection for virtual machines

IBM Tivoli Storage Manager for Virtual Environments V6.2 integrates with, and extends the role of, IBM Tivoli Storage Manager to help with:

- Backup and recovery
- Disaster recovery
- Data reduction
- Bare-machine recovery
- Space management

In the virtualized environment, Tivoli Storage Manager for Virtual Environments V6.2 provides:

- Improved frequency of backups to help reduce the amount of data at risk
- Fast recovery of data to help reduce downtime following a failure

Tivoli Storage Manager for Virtual Environments V6.2 supports the VMware vStorage APIs for Data Protection technology that helps simplify and streamline operations by utilizing agents placed on one or more vStorage backup server. Unlike agents placed on the virtual machines themselves, the vStorage APIs can significantly reduce the system overhead and any disruption that backups may cause to virtual machine operations.

In the vStorage model, the agent has the ability to read and write directly from and to the VMware server's storage, handling backup schedules, and the transfer of data from the virtual machines and then transferring data to a server running Tivoli Storage Manager for reporting and management. In this backup process, no intermediate storage is required because data passes through the vStorage backup server for processing but does not remain on the system. In addition, data can be transferred across the Storage Area Network (SAN) when the infrastructure allows it. A vStorage backup server can reside in a virtual machine in the same VMware server, with no additional hardware required.

By conducting operations on the vStorage backup server and VMware host servers rather than on the virtual machine, Tivoli Storage Manager for Virtual Environments V6.2 offers a number of process advantages:

• Centralized and simplified management - one Tivoli Storage Manager agent supports multiple virtual machines
• Can reduce workload on the virtual machine - allows other operations to continue during backup
• Fast backups and potentially less redundant data - integrates with vStorage APIs for Data Protection to help capture incremental data changes at the block level
• Support for LAN-free data transfer from virtual machines to the backup - preserves bandwidth for other uses

Additional support for backup processes and VMware solutions include:

• Automatic discovery of virtual machines
• Automatic configuration of backup for new virtual machines
• Support for deduplication
• Incremental backup using VMware's Changed Block Tracking function
• Automatic detection of a virtual machine's new location when it is moved using VMware vMotion

Retrieving data from image-level backups

Tivoli Storage Manager for Virtual Environments V6.2 gives users the flexibility to perform a file level, volume level, or virtual machine image level recovery using a single backup of a virtual machine image. Periodic capture of data changes at the block level helps reduce the amount of data at risk between full backups, which can enable applications and users to get back up and running within minutes following any data loss.

In a file restore operation, the administrator launches the Tivoli Storage Manager for Virtual Environments V6.2 restore on the vStorage backup server (or on any other Microsoft® Windows® machine), accesses a point-in-time view of the data in the storage pool using Tivoli Storage Manager, and performs a drag-and-drop of the desired files.

For a full volume restore, Tivoli Storage Manager for Virtual Environments V6.2 mounts the point-in-time snapshot for that volume directly to the recovery volume and makes it available immediately to users and applications, while the actual data recovery happens in the background. All application and operating system requests to write to and read from the volume are handled transparently, providing near-normal performance during the recovery process.

Image-level restores can provide comprehensive recovery of not only the data but also the complete computing environment, from operating systems, applications, and patches to upgrades and custom configurations.

Tivoli Storage Manager for Virtual Environments V6.2 extends the capabilities of the Tivoli Storage Manager family of products in the rapidly growing area of virtual servers by:

- Addressing the growing need for simplified, streamlined, and reliable backup and restore processes that can allow virtual machines to continue operations and help their users to remain productive without disruption
- Providing the scalability to handle huge data protection needs in rapidly growing virtual environments
- Providing an offering that is safe and effective in the virtual environment because it is designed specifically for use with virtual machines rather than physical systems

Accessibility by people with disabilities

A U.S. Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at

http://www.ibm.com/able/product_accessibility/index.html

Product positioning

Tivoli Storage Manager for Virtual Environments V6.2 extends existing Tivoli Storage Manager capabilities by providing additional functionality in both backup and recovery scenarios. Those capabilities include support for incremental block-level backup and granular recoveries from image-level backup.

Program number

```
Program          Program
number    VRM    name

5725-A44  6.2    IBM Tivoli Storage Manager for Virtual
                 Environments
```

Education support

Comprehensive education for IBM Tivoli products is offered through Worldwide Tivoli Education Delivery Services. A wide range of training options are available, including classes led by instructors, learning on demand, on-site training, and blended learning solutions.

For additional information, visit

http://www-306.ibm.com/software/tivoli/education/

Offering Information

Product information is available via the Offering Information website

http://www.ibm.com/common/ssi

Also, visit the Passport Advantage® website

http://www.ibm.com/software/passportadvantage

Publications

The following Quick Start Guide will be included in the deliverable package in hardcopy and on DVD.

```
Title                                             Part number

IBM Tivoli Storage Manager for Virtual Environments    CF2X4ML
V6.2: Data Protection for VMware Quick Start Guide
```

The publication listed below is available in English and can be downloaded from the following website on the general availability date. Translated copies in selected languages will be available for download within 60 days of the general availability date.

http://publib.boulder.ibm.com/infocenter/tsminfo/v6r2

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Title                                             Order number

IBM Tivoli Storage Manager for Virtual Environments    SC27-2898
V6.2: Data Protection for VMware Installation and
User's Guide
```

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Technical information

Specified operating environment

Hardware requirements

Supported processors for the vStorage backup server

- 32-bit or compatible processor-based or multiprocessor-based computer
- 64-bit (AMD64 or EM64T) processor-based or multiprocessor-based computer

Minimum installation requirements

- 512 MB RAM
- 1.5 GB disk space
- 100 MB connectivity to the Tivoli Storage Manager server

Software requirements

VMware requirements

- VM backup and restore: vSphere 4.0 and 4.1 (ESX or ESXi) and VI3 (ESX or ESXi 3.5)
- Block incremental (requires vStorage Changed Block Tracking APIs, virtual hardware 7): vSphere 4.0 and 4.1 (ESX or ESXi)

vStorage backup server requirements

- Windows 2003 Server, all editions, all service packs supported
- Windows 2003 Server R2, all editions, all features supported in Windows 2003
- Windows 2008 Server and Windows 2008 Server Core, all editions, all service packs supported
- Windows 2008 Server R2, all editions, all service packs supported

Prerequisites

- Tivoli Storage Manager V6.2.3 backup-archive client
- Tivoli Storage Manager V5.5 server, or later

Additional information

For detailed hardware and software requirements, visit

> http://www-01.ibm.com/support/docview.wss?
> rs=663&context=SSGSG7&uid=swg21197133&loc=en_US&cs=utf-8&lang=en

For a complete list of supported recovery options and supported guest operating systems, refer to the online documentation at the following websites.

Product website

> http://www.ibm.com/software/tivoli/products/storage-mgr-ve/

Support portal website

> http://www.ibm.com/support/entry/portal/Overview/Software/Tivoli/
> Tivoli_Storage_Manager_for_Virtual_Environments

The program's specifications and specified operating environment information may be found in documentation accompanying the program, if available, such as a readme file, or other information published by IBM, such as an announcement letter. Documentation and other program content may be supplied only in the English language.

Planning information

Direct customer support

Installation and technical support is provided by Global Services. For more information call 800-IBM-4YOU (426-4968).

For technical support or assistance, contact your IBM representative or visit

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Packaging

Tivoli Storage Manager for Virtual Environments V6.2 is distributed with:

- International Program License Agreement (Z125-3301)
- License Information document
- DVD media
- Publications (refer to the Publications section)

This program, when downloaded from a website, contains the applicable IBM license agreement and License Information, if appropriate, and will be presented for acceptance at the time of installation of the program. For future reference, the license and License Information will be stored in a directory such as LICENSE.TXT.

Security, auditability, and control

Tivoli Storage Manager for Virtual Environments V6.2 uses the security and auditability features of the operating system software. The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

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Licensing metric definitions and pricing examples

Licensing metric definitions

Processor Value Unit (PVU)

PVU is a unit of measure by which the program can be licensed. The number of PVU entitlements required is based on the processor technology (defined within the PVU table by processor vendor, brand, type, and model number at

http://www.ibm.com/software/lotus/passportadvantage/
pvu_licensing_for_customers.html

and the number of processors made available to the program. IBM continues to define a processor, for the purpose of PVU-based licensing, to be each processor core on a chip. A dual-core processor chip, for example, has two processor cores.

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http://www.ibm.com/software/lotus/passportadvantage/
Counting_Software_licenses_using_specific_virtualization_technologies.html

Instead of the entitlements required for the program directly, licensee must obtain PVU entitlements for this program sufficient to cover the processor cores for the systems on which the resources managed or processed by the program reside.

* An activated processor core is a processor core that is available for use in a physical or virtual server, regardless of whether the capacity of the processor core can be, or is, limited through virtualization technologies, operating system commands, BIOS settings, or similar restrictions.

Pricing example

Protecting VMware environments using Tivoli Storage Manager for Virtual Environments V6.2

The customer environment consists of the following:

- vSphere (host) 1 with 12 virtual machines (guests).

- vSphere (host) 2 with 19 virtual machines (guests).
- All of the guests on both vSphere servers (hosts) are protected using Tivoli Storage Manager for Virtual Environments V6.2.

Notes:

- Either IBM Tivoli Storage Manager or IBM Tivoli Storage Manager Extended Edition are prerequisite products for Tivoli Storage Manager for Virtual Environments and require entitlement on all physical system cores on the vSphere hosts. This entitlement applies only to the vSphere hosts protected by Tivoli Storage Manager for Virtual Environments.
- Tivoli Storage Manager for Virtual Environments is physically installed on a centralized vStorage backup server, which is a secondary or proxy machine that is used to perform the backup using the vStorage application programming interface (API). This secondary or proxy machine can be either a physical machine or a virtual machine. A single vStorage backup server can be used to protect one or more virtual machines that reside on one or more vSphere servers. The customer can use one or more vStorage backup servers.
- Entitlements for Tivoli Storage Manager for Virtual Environments, Tivoli Storage Manager, and Tivoli Storage Manager Extended Edition are not required on the vStorage backup server. Tivoli Storage Manager for Virtual Environment, Tivoli Storage Manager, and Tivoli Storage Manager Extended Edition entitlements are only required for the managed environment, which is the processor cores on the vSphere hosts running the virtual machines being protected.
- Tivoli Storage Manager for Virtual Environments can also be licensed under sub-capacity software licensing terms, if required. Processor Value Unit (PVU) sub-capacity licensing lets you license an eligible software product for less than the full capacity (or total number of processors) of your server or group of servers. It provides the licensing granularity needed to leverage various multicore chip and virtualization technologies. The sub-capacity software licensing terms are documented in the International Passport Advantage Agreement (IPAA) Attachment for Sub-capacity Licensing Terms (Sub-capacity Licensing Attachment).

Full capacity requirement

Scenario 1 - use a single vStorage backup server to protect both vSphere hosts

Quantity of processor core entitlements required	vSphere host 1 (4 way)	vSphere host 2 (8 way)	vStorage backup server (2 way)	Total
Tivoli Storage Manager or Tivoli Storage Manager Extended Edition	4	8	0	12
Tivoli Storage Manager for Virtual Environments	4	8	0	12

Scenario 2 - use two (2 way) vStorage backup servers to protect only the larger vSphere host

Quantity of processor core entitlements required	vSphere host 1 (4 way)	vSphere host 2 (8 way)	vStorage backup server 1 (2 way)	vStorage backup server 2 (2 way)	Total
Tivoli Storage Manager or Tivoli Storage Manager Extended Edition	0	8	0	0	8
Tivoli Storage Manager for Virtual					

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   Environments          0      8      0      0      8
```

Ordering information

This product is only available via Passport Advantage. It is not available as shrinkwrap.

```
Product group: Tivoli Storage Management

Product category: Tivoli Storage Manager

                                           PID
Product identifier description:            number

IBM Tivoli Storage Manager for Virtual Environments  5725-A44
```

Current licensees

New licensees

Orders for new licenses will be accepted now.

Shipment will begin on the planned availability date.

Basic license

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```
Description                                Part number

IBM Tivoli Storage Manager for Virtual
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 Per 10 Processor Value Units
   License and SW S&S 12 Months            D0I2SLL
   Annual SW S&S Renewal                   E0BI0LL
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IBM Tivoli Storage Manager for Virtual Environments   BJ0XPML
 V6.2 DVD media pack - multilingual
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IBM Tivoli Storage Manager for Virtual Environments V6.2 is also available, via Web
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