

Enhanced Protection and Manageability of Virtual Servers

Scalable Options for VMware Server and ESX Server

Companies relying on the benefits of virtualized environments to reduce cost and maximize operational efficiencies are often challenged by limited manageability, data protection and disaster recovery options.

Key Benefits

- ▶ Enables Consolidated Backup of Virtual Servers
- ▶ Enables hot backups of Virtual Machines
- ▶ Simplifies and expands data protection and recovery options
- ▶ Improves backup efficiency and reliability
- ▶ Facilitates implementation of tiered storage
- ▶ Increases application and data availability

Many organizations rely on VMware Server and ESX Server to extend their datacenter beyond the limitations of a physical infrastructure to a virtual environment. Virtualized environments help centralize systems, improve hardware utilization and maximize available resources. However, they also disrupt data management and limit options for data protection.

While VMware enables the use of traditional backup and recovery methods to protect VMware Server and ESX Server, CommVault helps consolidate virtual servers for improved data protection, increased availability and reliable disaster recovery.

The CommVault® Solution

CommVault Unified Data Management Enables Consolidation with Virtualized Servers

CommVault helps deploy virtual servers by enabling the replication of data and applications from physical to virtual servers. CommVault provides a single console from which to easily manage all aspects of data protection, archive management, recovery management and replication of physical and virtual servers. It also facilitates the implementation of tiered storage allowing administrators to easily migrate data to less expensive storage.

CommVault's Unified Data Management enables the ability to browse a virtual machine's backup sets and restore them to the source virtual machines as if the backups were created locally. This eliminates the administrator's burden of manually tracking the location of backup sets as they relate to specific virtual machines, and eases the transition from physical to virtual systems.

- ▶ Extend data protection options beyond traditional methods
- ▶ Recover to dissimilar hardware
- ▶ Easily move data from a virtual server into a backup server environment
- ▶ Leverage file level granularity across all platforms
- ▶ Assist in the transition to a new storage infrastructure

Reliable Disaster Recovery for VMware

CommVault enhances and extends VMware's disaster recovery benefits with unique capabilities that enable organizations to:

- ▶ Quickly recover data and applications
- ▶ Accelerate the process of rebuilding a backup environment

CommVault Galaxy® software simplifies and accelerates the process of rebuilding the backup environment and re-establishing the index database, so that actual data recovery can begin much quicker. With the backup environment re-established, CommVault's granular recovery capabilities allow restores of single objects, instead of entire application databases or volumes. The same granular recovery benefits apply to VMware virtual machine file system environments, and applications including Microsoft Exchange and SQL Server, Oracle, Lotus Notes, GroupWise and SharePoint Portal Server.

Replication of Virtual Data for Simplified Migration and Management

CommVault Continuous Data Replicator delivers data replication into Virtual Machine environments. CDR provides continuous, real time capture and wide area replication of Windows data written to disk. CDR operates on Windows host-based environments and is fully supported on Windows virtual machines hosted on ESX Server or VMware Server systems. When deploying a virtual environment, CDR helps migrate and centralize Windows data from physical to virtual machines. CDR offers the ability to continuously replicate data from physical to virtual (P:V), virtual to virtual (V:V), or virtual to physical (V:P) for centralized protection and disaster recovery preparedness.

Backup Methods and Options for Protecting VMware Virtual Servers

CommVault supports VMware virtual machines and enables several backup methods for protecting file system, data and applications within VMware virtual environments.

Backup from a VCB Proxy Server on a SAN Using VMware Consolidated Backup and CommVault's VMware Integration Module

- ▶ Extend data protection and enhance disaster recovery
- ▶ Eliminate LAN traffic
- ▶ VMotion aware backups to ensure seamless data protection

VMware Consolidated Backup (VCB) provides a set of drivers and scripts that enable LAN-free backup of Virtual Machines. These backups are performed from a VCB Proxy Server running Microsoft Windows 2003. This method is ideal for companies looking to eliminate LAN traffic through the use distributed SAN environments.

CommVault's VMware Integration Module leverages Virtual Machine snapshots to provide two recovery options using VCB directly on the SAN.

File Level Backup of Windows Guest Machines

- ▶ Preserve scheduling, storage reporting and compliance per virtual machine view
- ▶ Backup only relevant data
- ▶ Restore directly to the guest system in a single step regardless of the location of the virtual machine
- ▶ Restore specific versions of individual file(s)
- ▶ Leverage Single Instance Store to reduce disk storage required for backup

Full Image Backup of Virtual Machines

- ▶ Protect full virtual machines running for complete Disaster Recovery
- ▶ Recover entire virtual machines to the same or a different ESX server

Backup from a Virtual Machine

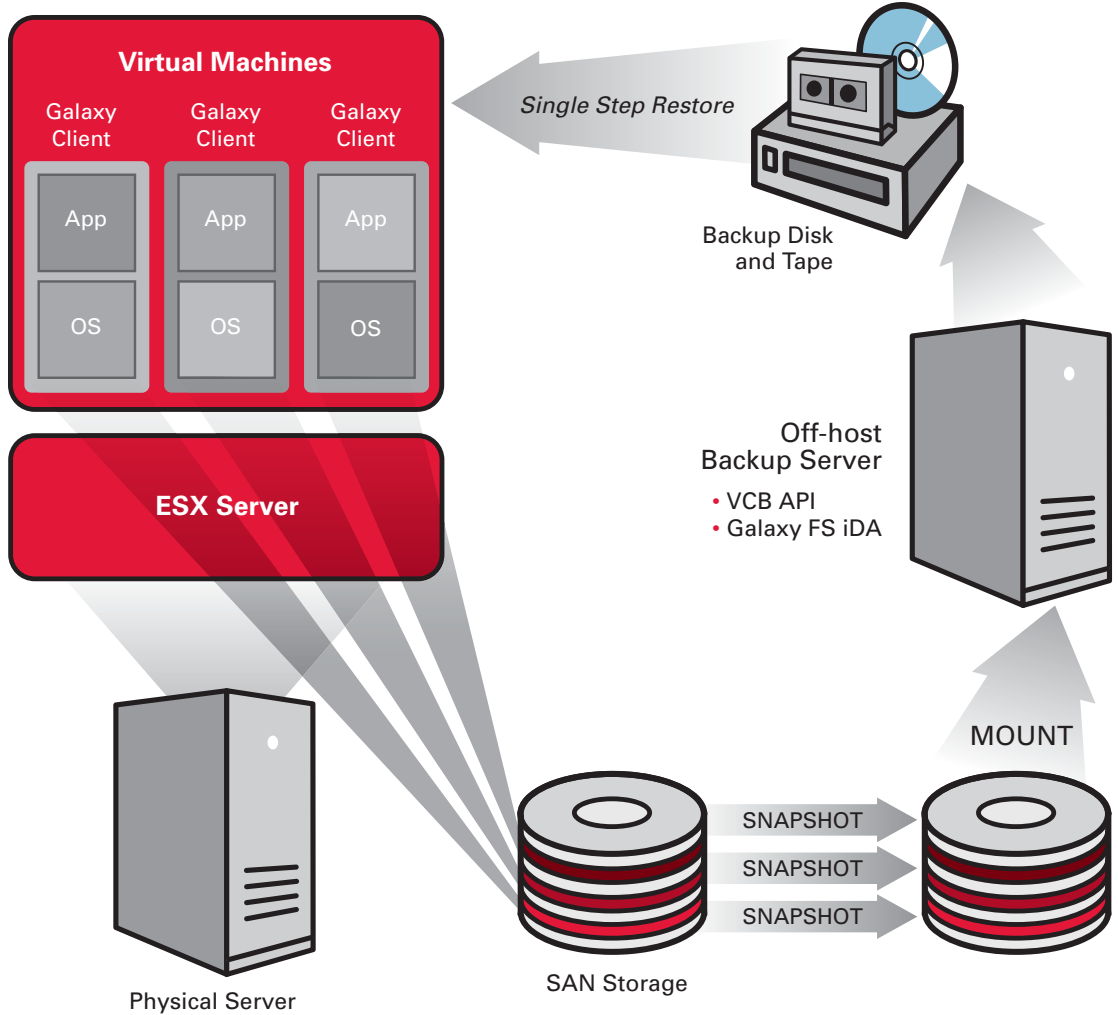
- ▶ Leverage application awareness
- ▶ Preserve scheduling, storage reporting and compliance per original client view
- ▶ Does not require scripting
- ▶ Easily manage and share dissimilar hardware

CommVault can treat virtual machines as "real" machines. This method is best suited for protecting and recovering an entire virtual machine, including its configuration, operating system and application data. Galaxy iDataAgent(s) installed on virtual machines enable data to be backed up directly from virtual machines just as if they were separate physical servers. By combining real system support with virtual disk file support, Galaxy makes it easy to recover on dissimilar hardware.

Leverage VCB snapshots to perform off-host backup of virtual machines

Perform file level, single step restore back to the source

Manage data protection, archiving, recovery and replication of physical and virtual from one console



Key Features and Benefits

Features

Benefits

VMware Consolidated Backup framework

Easily offload backup from production or critical ESX servers while maintaining integration with existing backup schemes. Enables file backups for fast and easy single step recovery of individual files. Enables full image backups for disaster recovery purposes.

Unified Architecture

Provides additional granularity that can be used to enhance protection and simplify management. It also reduces learning curve and increases reliability.

Full, incremental, differential and synthetic full backup operations

Enables most efficient data protection possible, and with appropriate use of storage media to ensure just as rapid recovery from synthetics as from full.

Object-level recovery

Easy, fast recovery of file system, database and application data using a single data object.

Easy right-click selection among multiple file versions

See multiple versions of the same file and easily select all, some, or one to recover the exact version that your business user requires. This can enable recovery of multiple versions of the same VMware virtual disk files for selection from multiple point-in-time copies.

Single Instance Store

Store only one instance of an object to reduce disk storage requirements without any impact on the recovery speeds.

End user and compliance search

Allow end users to search and restore data they have access to. Allow designated compliance users to perform e-discovery search across backup, archive and online data.

Granular backup job control and management

Fine tune operation. Control all jobs by queue, pre-emption, priority, on demand restart, and update interval. Suspend, resume or kill any job using the Job Controller Window at will.

Configurable Auxiliary copies

Configure Auxiliary copies from inline, selective, synchronous, or cascading. This enables compliance with data protection and retention policies and ensures recovery due to data availability.

Multi-streaming and multiplexing

Improves backup performance and helps meet shorter backup windows.

Key Features and Benefits (continued)

Features

Benefits

Distributed index

Eliminates issues typically associated with managing backup catalogs. Relational structure ensures high-speed performance. Built in redundancies ensure recoverability and eliminate the need for administrative management of the index.

Configurable firewall support

Depending on your needs and configuration, as few as two ports are required to backup through a firewall – saving money and resources.

Dynamic and static disk sharing

Increases ROI from expensive disk storage by sharing access to disk with static and dynamic configurations.

Data aging

Saves disk space and reduces backup failures by removing data that has aged past your immediate-term retention requirement. This can also be overridden for specific backup jobs that you need to retain.

Span disk mount points

Configurable to “spill and fill” or “fill and spill”. This reduces problems with disk management by enabling Galaxy backup to work across multiple mount points and treat them as a single backup to disk device.

Disk space monitoring with configurable watermarks

Saves disk space and reduces backup failures by monitoring available disk space, tracking disk usage for trend analysis and capacity planning and by triggering automatic alerts and pruning of data when watermarks are reached.

Mixed drive support in the same library

Avoid the need for expensive add-on or third party software to manage different types of tape drives in the same library.

Shared library management

Increase ROI by providing shared access to libraries from multiple backup servers, making it easier to deploy, manage, and maintain than other backup offerings.

Shared drive management

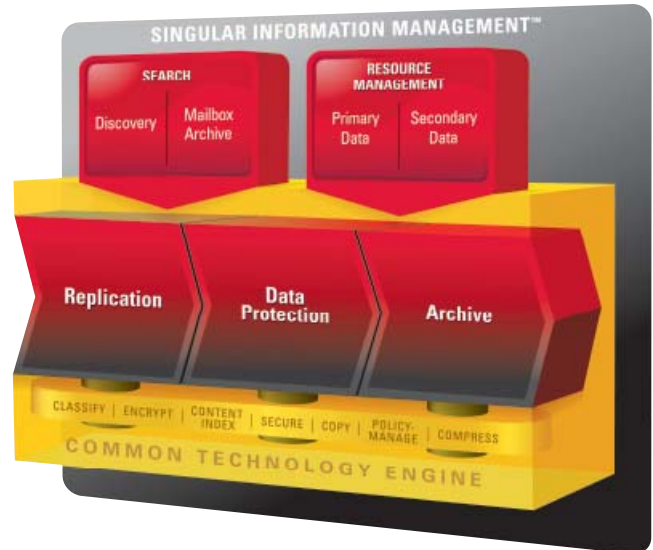
Append data to removable media to fully utilize capacity, rather than wasting space and increasing costs.

Unique Benefits of CommVault Software

The CommVault suite of software includes data archiving, data protection, replication & snapshot management, and data resource management. When used in combination, these capabilities provide unique and compelling benefits for managing data—all from a single console.

As additional CommVault capabilities are added, they are managed from the same console to reduce administrative time. They also leverage the same data management infrastructure including servers and storage devices, to reduce costs.

- ▶ One console from which to easily browse and share resources and perform disaster recovery
- ▶ One software solution, schedule of data movement and application index to maintain
- ▶ One admin team to manage



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