



**Prepared by:**

**CommVault Systems, Inc.**

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## SIMPANA™

CommVault's Simpana software is a single product with application modules for **Data Protection, Archive, Replication, Resource Management** and **Search**—all built from the ground up, on a single code base and platform. This efficient, scalable design quite literally changes the way information is protected, archived, managed, and accessed.

***We control the flow of all of the data, enable the intelligent management of all of the copies, index and classify the content, and manage the information from a single platform and a single meta-store.***

### **Singular Information Management™**

Simpana™ software's *Singular Information Management™* approach refers to the use of *one* efficient, scalable data management product to perform a complete range of data management functions. Simpana software uses an expandable range of application modules, sharing a single set of back-end services, to deliver leading-edge functionality that *truly* unifies and simplifies enterprise data management and maximizes cost effectiveness.

#### **Data Protection**

- \* Provides reliable, efficient backup and recovery for file systems, applications and database systems.
- \* Reduces the burden on administrative teams by automating tasks using policies, unifying the backup and restore process for all types of data, and by building in point-and-click reporting.
- \* Reduces the need for additional storage devices and reduces tape costs.

#### **Archive**

- \* Archives data from file systems, NAS, Microsoft Exchange and IBM Lotus Domino messaging systems, and Microsoft SharePoint systems to secondary storage which can span disk and tape.
- \* Controls data growth, decreases storage spending, and enables electronic discovery and compliance.
- \* Scales to millions of files and messages.

#### **Replication**

- \* Protects critical applications and remote office data with snapshots and real-time replication.
- \* Manages hardware-based snapshots seamlessly as part of the data management process.
- \* Improves disaster recovery options by replicating data over networks as it is created.

#### **Search**

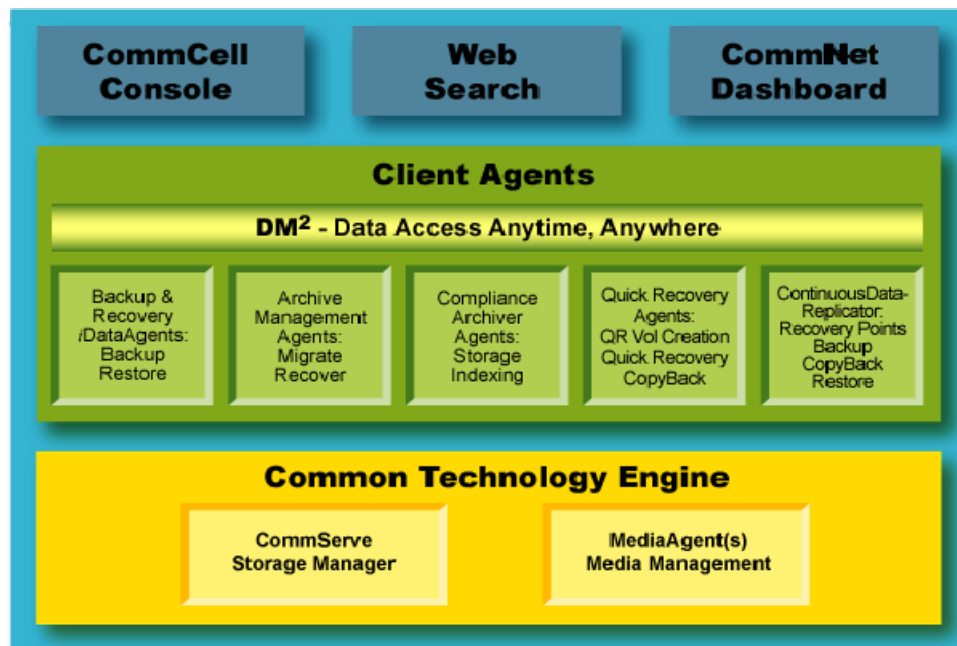
- \* Search Web Interface provides users with intuitive, direct access to desktop data and capabilities to perform easy, self-serve recovery of backup and archive data copies.
- \* 'Super' search to find any data in the CommCell deployment with a single search process, across sites and systems.

#### **Resource Management**

- \* Provides historical and trend analysis reporting across all data, primary and secondary, world-wide.
- \* Enables accurate cost-accounting and monitoring across divisions, geographies, and applications.
- \* Automates delivery of comprehensive CxO-ready performance summaries.

## Technology Overview

## Technology Overview



The illustration provides an example of a CommServe

The CommVault Common Technology Engine (represented above) is the underlying software foundation that gives CommVault software the unique ability to implement a meta-policy approach. This is accomplished by sharing a common metadata model that can be implemented as a single backend meta database or multiple instances of meta databases. In this way, integration and communication between stand alone products for backup/restore, archive, migration, compliance, quick recovery, storage resource and SAN management is achieved. This degree of interaction and communication leads to new levels of automation between previously independent data and storage management software categories: backup, SRM, HSM, availability, compliance and ESI archiving and SAN management.

### CommServe

A single CommServe software module directs combinations of Client Agents and combination of Media Agents. The numbers and types are dependant on your desired strategy. The CommServe software is the command and control center and serves as the central management point for controlling interaction between various software modules.

The CommServe communicates with all agents in the CommCell to initiate data protection, management and recovery operations. Similarly, it communicates with MediaAgents when the media subsystem requires management. The CommServe maintains a database containing all the information relating to the CommCell. In addition, it provides several tools to administer and manage the CommCell.

From a data management perspective, the CommServe houses all logical information gathered by the agents and device management connections. The CommServe module hosts the “point and click” user interface, consisting of the centralized event and job managers plus the logical and physical management tree. The CommServe also houses the meta data database catalog. This database includes metadata about the type of activity, critical logical element to physical object mapping, scheduling and management information. The centralized event manager logs all events, providing unified notification of important events. The job manager controls all the major activity of the software and provides high reliability and

restart capabilities. Since the CommServe console is displayed via a web browser interface, the entire system can be remotely managed from anywhere on the LAN or through web-based access.

The entire software is modular and can reside on the same and/or separate computers, depending on your needs. Some administrators may have a dedicated CommServe computer and a dedicated MediaAgent computer. Others may want to back up the file system data on the CommServe and therefore install the client software on the CommServe computer as well. Still others may use the same computer to serve as the CommServe, MediaAgent, and a client. The software supports any and all of these configurations.

### **CommCell Console**

The CommCell Console is the graphical user interface that allows you to control and manage a CommCell. The CommCell Console can be run in two ways:

- As a stand-alone application, which can be installed directly on any computer that can communicate with the CommServe.
- As a remote web-based application using Java Web Start, which allows you to remotely access the CommCell Console using the web browser.

### **CommServe Storage Manager**

Storage Manager combines storage resource management features to help assess storage inventory, capacity and usage. The Storage Manager software identifies storage resource inventories from an application viewpoint - what disks, storage devices and capacity are available and what they are connected to. It provides insight into data on primary storage through discovery, trending and analysis. The true value lies in Storage Manager's ability to improve storage utilization, identify assets and increase visibility into data growth.

### **CommNet Dashboard**

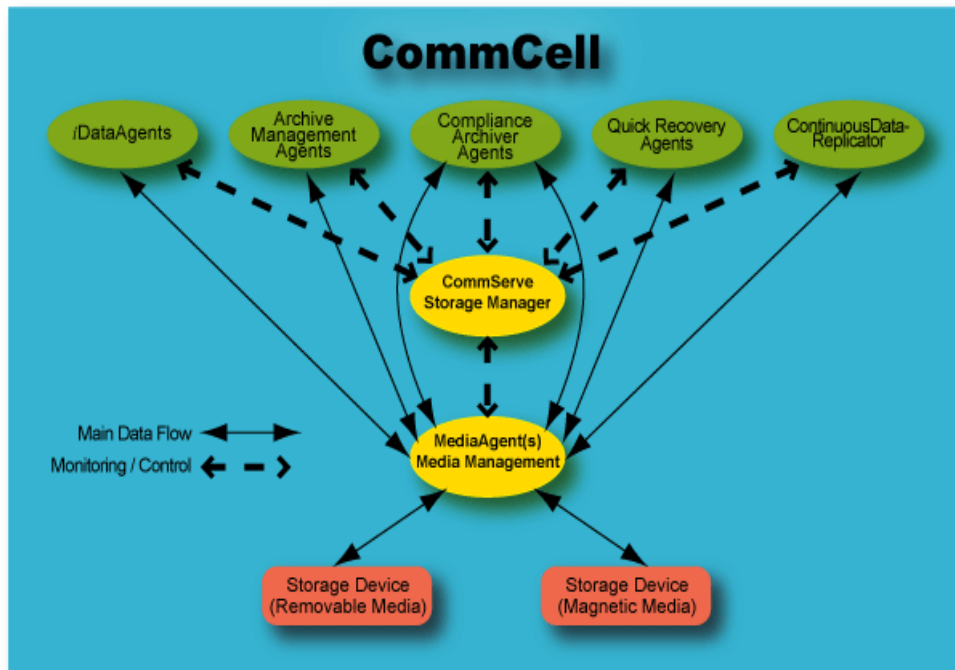
CommVault CommNet Dashboard is an optional module which offers Resource Management solutions to monitor and manage storage utilization, data growth, operational costs and service-level attainment. These are available via the Web-based GUI and reports.

CommNet Service Manager provides consolidated monitoring and analysis of CommVault managed data movement operations across one or more locations. Based on user-defined data management and storage benchmarks, such as storage resource utilization and successful delivery of data protection, migration, archiving and replication services, the CommNet Service Manager monitors the environment, displays status and allows IT to better match the cost of providing critical IT services with its business needs. The true value lies in the ability to monitor service-level attainment, optimize data management services, align data protection policies across storage tiers and minimize costs across the life cycle.

### **Content Indexing and Search**

Content Indexing and Search provides the ability to search and perform data discovery operations in your CommCell. This powerful component provides the capability to search both online and stored data. It also allows Administrators, Compliance Officers and end-users to search and restore data from several applications like File System, Exchange, SharePoint, Lotus Notes, etc. in the CommCell.

The search and restore operations can be performed using either the CommCell Console or the Web-Based Search Console which are in-turn controlled by a robust and impermeable security model.



The illustration provides an example of a CommCell

### Controlling Activity in the CommCell

The CommServe controls activity in the CommCell through the following elements:

**Job Manager:** The Job Manager manages and monitors immediate or scheduled operations throughout the CommCell. It communicates with agents in order to initiate and monitor data protection and data recovery operations. The Job Manager communicates with MediaAgents to monitor the resources necessary to complete these operations. It starts, suspends, and resumes operations based on these resources. All of this activity is displayed in the Job Controller of the CommCell Console. An authorized CommCell user can also perform actions on active operations from the Job Controller.

**Scheduler:** The scheduler allows users to schedule tasks so that these tasks can be initiated by the software.

**Event Manager and Alert Subsystem:** The CommServe controls the Event Manager and Alert subsystem within the CommCell. The Event Manager monitors the events occurring throughout the CommCell, and reports them through the Event Viewer in the CommCell Console. This information can also be viewed through log files. Events can also be reported to CommCell users through the use of configured alert notifications, through the alert subsystem.

**Reports and Job History:** Users can obtain filtered CommCell data through the use of reports generated from the CommCell Console. Users can also obtain information on non-active operations by viewing job history information.

**User Security:** The CommServe controls all user security within the CommCell. The CommServe grants CommCell users permission to perform CommCell actions based on the assigned capabilities and CommCell object association of a CommCell user's member user group.

Disaster Recovery: The CommServe software is responsible for storing a metadata SQL database which contains all the information for the CommCell. The software provides the facility to retrieve this data in the event of a disaster or system failure.

CommCell Console: The CommCell Console is the graphical user interface through which CommCell users can manage and administer the CommCell.

## MediaAgents

The MediaAgent is the software module responsible for managing the movement of data between the physical storage devices and the corresponding iDataAgents. MediaAgents manage the backup storage devices and house the low-level data index of what's on the storage media. Designed to be operating system and storage media independent, the MediaAgent software is capable of supporting a wide variety of storage architectures. This approach provides the ability to rapidly adapt to changes in storage technology. For instance, MediaAgents interface with the following types of storage devices:

- Magnetic disk
- Intelligent storage arrays
- Automated magnetic tape libraries (media agent manages the cartridges, tape drives and movement of the robotic arm with the library)
- Tape stacker/loader
- Stand alone tape drives
- Bar coded magneto-optical libraries / jukeboxes
- Non-bar coded or "blind" media.

In addition, every MediaAgent is capable of supporting many data movement functions. So a single MediaAgent can support many backup and restore, migration, archiving and quick recovery operations – simultaneously. As a result, administrators can seamlessly share expensive high-performance resources among many different types of data movement tasks.

## Client Agents

The Client Agent is a software module that is specific to the operation and type of data it manages. One or more different types of client agents may be deployed on a single system or throughout the system depending on the storage management objectives. If data movement tasks are desired then iDataAgents for backup are deployed. The same applies to serverless data management, data migration, data archiving and quick recovery.

CommVault offers iDataAgents for managing Windows or Unix file systems, Linux, Mac and Netware, SharePoint Portal server, Microsoft Exchange server, Oracle databases, SQL databases, Network Appliance filers, SNAP enabled disk arrays, Lotus Notes servers and many others. An iDataAgent is required for each managed data type per client system – *whether the system is physical or virtual*. Each client Agent can manage multiple instances of the appropriate data type per client. Users can browse data across an entire system, not just a single event.

The use of specific client Agents offers advantages in the management of that data. First, because each client Agent can take advantage of the API's for each data type and function, then movement and management operations are optimized. Second, because many policies are established and managed at the Agent level for each client computer, system users can easily implement individual strategies that are optimized for the data type.

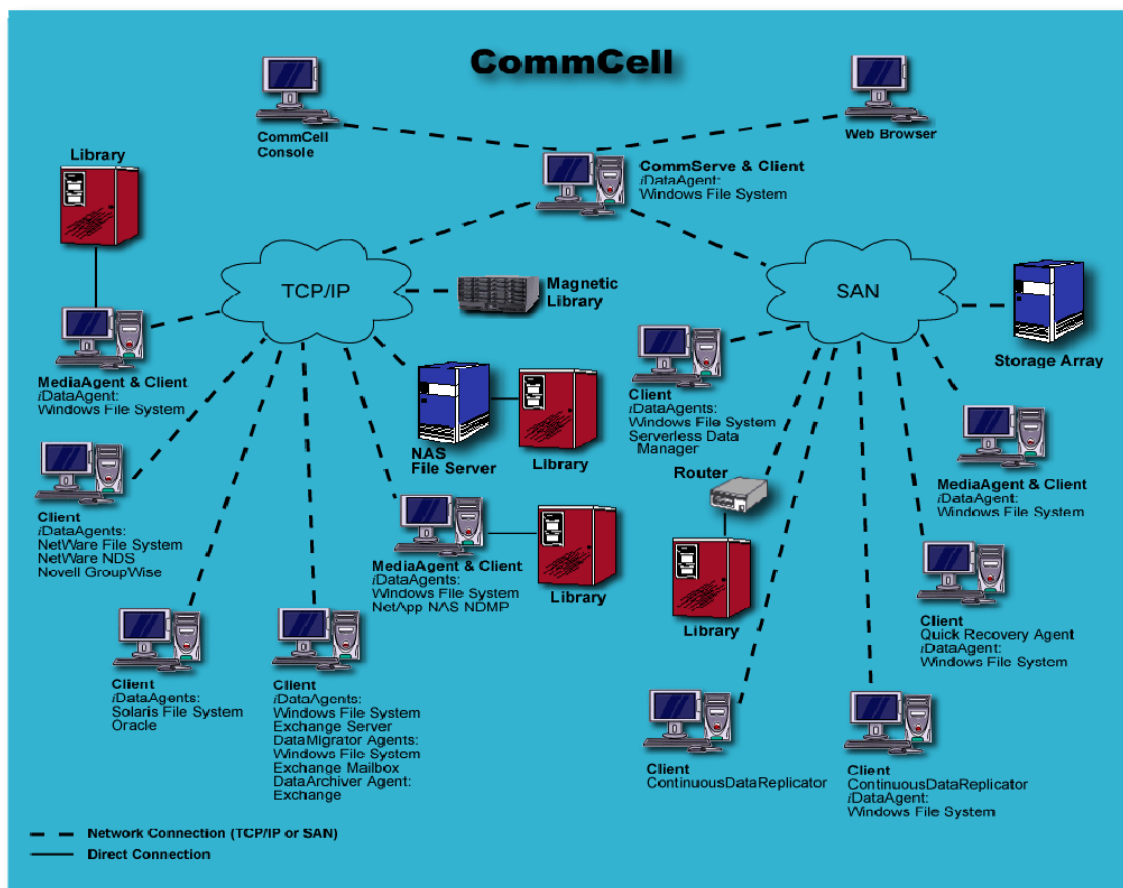
Finally, since multiple client Agents can reside on a single computer, our software offers the ability to manage different types of data on a single physical machine using storage customized to the data type. Client Agents can be grouped by type and managed as a single unit – giving administrators a single, unified view of all data associated with a single application type, such as all Oracle or all Exchange data.



By associating the “group” of client Agents with a single Storage Policy, then all data will be managed with a consistent, single policy.

In addition, CommVault provides a method for capturing and archiving ESI data for compliance with various regulatory, corporate or legal retention requirements. Additional capabilities such as Content Indexing, Single Instance Storage, Keyword search and Auxiliary Copy provide flexibility, electronic tracking, and search for secure and audited retrieval.

The CommVault architecture is designed to provide a simple, seamless and scalable solution to manage data lifecycle and storage management needs. By unifying the traditional separate functions of data movement with data management, the entire storage stack, from application device, can be managed as a cohesive whole to provide application data access and availability in an automated, cohesive manner.



The illustration provides an example of a CommCell

## CommVault **Products**

## Products: The Singular Information Management™ Approach

### Overview

Simpana™ software's *Singular Information Management™* approach refers to the use of *one* efficient, scalable data management product to perform a complete range of data management functions. Simpana software uses an expandable range of application modules, sharing a single set of back-end services, to deliver leading-edge functionality that *truly* unifies and simplifies enterprise data management and maximizes cost effectiveness.

Singular Information Management efficiencies:

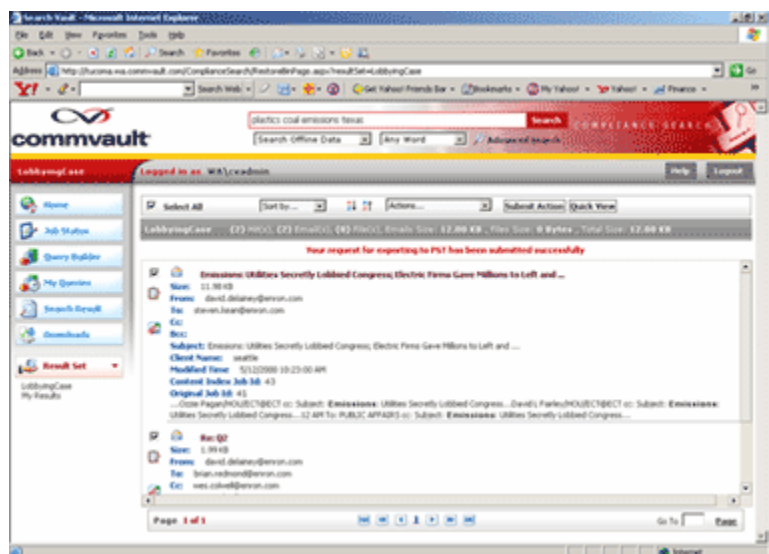
- Control the growth and cost of storage
- Avoid and reduce capital expenditures
- Speed backup and recovery
- Enable easy data archive
- Maximize the use of your storage devices and networks
- Gain time and cost-savings efficiencies
- Avoid the need for additional purchases of devices
- Maximize tape and disk use
- Plan ahead for storage

### Unprecedented Search capability for increased business value in Simpana 7.0 software.

Simpana 7.0 software content-indexes managed data across all data silos and all tiers of storage—online, archive and backup—into a single virtual pool. A single query using a search-engine-like interface provides instant electronic discovery and access to all types of authorized business users—for legal holds, FRCP compliance, competitive advantage and business acceleration. This is a vital function in today's business climate where being unable to quickly locate required information can cause serious legal and regulatory problems and cost companies millions of dollars.

Simpana Search Advantages:

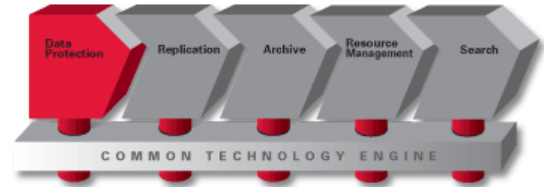
- Increased productivity for users and administrators
- Lower-cost legal discovery
- Faster ramp-up for new employees
- Higher customer satisfaction for your business
- Improved competitiveness
- Collaboration across operational silos



## Products: Data Protection

### Overview

CommVault® Data Protection provides capabilities for backup and recovery of data using disk-to-disk and disk-to-disk-to-tape. Reliable, drill-down recovery in a Unified Console provides fast and easy-to-use browse and selection of the data. Integrated support for applications, file systems and databases ensures coherent protection and recovery.



### CommVault Galaxy® Data Protection 7.0 for Enterprise Deployments

Simplified, Enterprise-Class Protection for File Systems, Applications and Database Systems

### The Business Challenge

Managing data is usually about managing costs: the cost of disk and tape required to store data, the cost of the time required to manage the backup jobs to completion, the cost of delays when data cannot be found and restored quickly. Typically, data protection is more of a problem than a solution.

### The CommVault® Solution

CommVault Galaxy® Backup & Recovery software delivers what you really need: reliable data recovery with maximum cost-efficiencies. CommVault Galaxy software makes it easy for you to browse and find data, select as little or as much as is needed, and then recover it quickly and efficiently. CommVault Galaxy software is application-aware and self-managing, so that you can spend your time on something more productive than double-checking backup copies. Point-and-click reporting saves time and helps you ensure that jobs complete.

The CommVault® solution is designed for fast, easy deployment with your existing infrastructure—so your time-to-better-backup can be days and not months.

Keep reading to find out what thousands of enterprise companies already know, and why CommVault Galaxy software is the fastest-emerging backup and recovery solution available.

### Data Protection for File Systems, Applications and Databases

CommVault Galaxy software provides data protection for:

File systems data including AIX, FreeBSD, HP-UX, Novell OES Linux, Macintosh, Microsoft Windows and Active Directory, Microsoft Vista, NAS NDMP, NetWare and e-Directory services, Red Flag Linux, Red Hat Linux, SGI Irix, Solaris, SuSE Linux, Tru64 and VMware.

Applications and databases including Active Directory, DB2, IBM Informix, Lotus Notes/Domino, Microsoft Exchange Server, Microsoft SharePoint Systems, Microsoft SQL Server, Novell GroupWise, Oracle, Oracle RAC, SAP R3/NetWeaver, and Sybase systems

## Products: Archive

### Overview

CommVault® Archive products enable enterprise-wide storage management and e-discovery with solutions for email, collaboration, file system and Network Attached Storage (NAS) data. With built-in tiered storage and multi-platform support including Microsoft Exchange servers, IBM Lotus systems, and Microsoft SharePoint data, comprehensive archive management is simplified. Active migration of network attached storage (NAS), e-mail and file system data reduces primary storage use, extending the life of storage systems and reducing the time required for data protection. Active archive of e-mail data preserves it for compliance and discovery purposes.



### Archive 7.0 for File Systems and NAS

Optimize Storage Resources, Automate Data Management and Improve Operational Efficiencies

#### The Business Problem

Faced with explosive growth of electronic data, many organizations are looking for a cost-effective archive. Archiving allows preservation, transparent retrieval and discovery of information held within file system and network attached storage (NAS) environments. Large file shares can contain vast stores of unmanaged, aged data stored on expensive storage. Opportunities to recycle existing storage capacity, address new retention requirements and control the size of active file stores by employing centralized, policy-based storage can reduce costs and simplify management. Migrating aged data from file systems and NAS devices to secondary, tiered-storage balances storage utilization across the enterprise and maintains transparent end-user access.

#### The CommVault® Solution

CommVault® Data Archiver (DA) offers a hierarchical data management solution that reclaims valuable primary storage space by automatically moving data to secondary storage. This solution also provides transparent access to end-users, who can see and recall migrated files by selecting them from the file system. Using DA, IT teams can redistribute their file stores across tiered storage. DA migration policies are unique compared to traditional solutions because they work inside existing file system directory structures. Data can be directly migrated from its original location, rather than moving it first to media staging folders. This offers a transparent access experience for end-users and applications because the access point remains identical to before it was migrated. Additionally, the remaining "stub" retains security properties of the original file. Organizations can classify data by application, plan its lifecycle over time and assign the most appropriate and cost-effective storage resources.

### Archive 7.0 for Microsoft Exchange Systems

Active-Archive of Exchange Messaging for Mailbox Management, Legal Discovery and Compliance

#### The Business Challenge

Messaging data continues to grow at exponential rates. According to the Radicati Group (Sept 2006), the average corporate e-mail user generates about 16.4 MB per day; this is expected to grow to over 21.4 MB per user per day in 2010. The size of messaging stores, coupled with increasing litigation, puts organizations at greater risk. Standards for civil litigation such as the Federal Rules for Civil Procedure (FRCP), industry regulations, privacy acts, evolving case law and freedom of information acts require that more and more e-mail be preserved for longer periods of time. Businesses need to control growth and

costs of storing Exchange data, while also being able to respond efficiently and effectively to legal discovery actions.

### **The CommVault® Solution**

To address these challenges, CommVault® software offers a modular solution for Exchange archiving:

Data Archiver for Exchange Mailbox systems controls the growth and cost of primary storage  
Data Archiver for Exchange Compliance works with the message journaling feature of Exchange systems to archive all incoming and outgoing messages and attachments  
Content Indexing (CI) enables higher efficiencies with universal search of archived email messages and attachments

Used separately or in combination, CommVault Archive modules help control Exchange data growth, reduce costs, and manage risks associated with legal discovery and compliance. CommVault Archive software serves mailbox end-users, administrators, legal discovery and compliance teams, and maintains high-speed performance in the face of increasing data volumes.

### **CommVault® Content Indexing**

Higher Efficiencies in Searching Online and Offline Data

Content Indexing (CI) enables higher efficiencies with the search of both online and offline data. This answers the need for discovery, compliance, legal and discovery search with the ability to perform keyword search of indexed data in files, emails and attachments to emails.

CommVault Content Indexing features FAST® market-leading search engine capabilities, supporting 77 languages and 370 data types. Content Indexing applies to backup and archive copies of data, as well as to online Windows file systems data managed with the CommVault® Data Classification Enabler.

CommVault's unique implementation of FAST Content Indexing provides administrators with fine-tuned control of when Content Indexing is done on data, to avoid having to create and store more indexing meta-data than is needed — and to ensure that only the meta-data that is really needed is ever created. Content Indexing meta-data can be retired after its use, freeing up disk space for other purposes. CommVault's exclusive "on-demand" approach to Content Indexing is more efficient for legal discovery of all Electronically Stored Information (ESI), as well as end-user file system searching, and enables the Search web interface to unlock the value of managed data for business use.

### **CommVault® Data Classification Enabler**

Eliminate Unnecessary Disk Scans on Windows Clients to Reduce Impacts of Backup, Archive and Resource Management Operations

This feature works with the Windows Journal to capture and track changes written to the Windows file system, and eliminate the need to perform a disk scan process to find file changes. Disk scanning is otherwise required for every backup, archive or resource management job, whether using CommVault software or some other data management software option. Only CommVault provides the Data Classification Enabler option to avoid multiple disk scans. CommVault's Singular approach means that this feature benefits not just one type of data management, but all types that are in use together on the same client system.

Scanning the disk causes a slow-down in other functioning on the client for the duration of the disk scan, and is one of the reasons that backup jobs are performed during off hours.

This feature has a second, distinct use which is to enable the Content Indexing of Windows file system data. This is necessary for keyword searches of that type of data. When used for this purpose, an additional component called the "Online Content Indexer" agent appears in the Unified Console for the client system.

### CommVault® Search Web Interface 7.0 for Users

Singular Search of Files and e-Mail Managed by CommVault Unified Data Management™ Software

#### The Business Challenge

Unstructured file systems and e-mail data present particular challenges in growth and management, because of the nature of how and when the data is created. Users are typically disorganized in saving and naming their files and in managing their e-mail folders. For business audits and legal discovery purposes, all types of Electronically Stored Information (ESI) must be easily retrievable — from any online or offline data location. This data chaos makes it difficult for administrators to help users to find missing or lost files when required and can lengthen audits and legal discovery, increasing costs and risks.



#### The CommVault® Solution

CommVault® offers a radically better approach that removes the degrees of separation typically found between users and their data. Instead of requiring users to work through a help desk and administration teams to find and recover their data, CommVault's Search Web Interface provides users with easy-to-use, direct web access to files and e-mail managed by CommVault software. The Search interface operates against the single, virtual pool of managed data created by CommVault's exclusive *Singular* approach, making it easier and more cost effective to search, access and make use of that data.

The CommVault Search interface services the growing demands of business compliance and legal discovery teams as well as end-users. It includes capabilities designed to assist organizations in responding to legal discovery actions and compliance audits, and to enable higher levels of business productivity and competitiveness by offering users direct access to data.

### Archive 7.0 for Microsoft SharePoint Systems

Optimize Storage Resources, Automate Data Management and Improve Operational Efficiencies

#### The Business Challenge

Microsoft SharePoint software is an effective tool for creation and organization of enterprise content, document sharing and for streamlining collaborative business processes. However, according to Enterprise Strategy Group (ESG), SharePoint is becoming a problem for many companies because of its use as a standard for information sharing and collaboration (March 2007). The proliferation of SharePoint data causes storage costs to skyrocket, while users continue to demand access to their knowledge assets.

#### The CommVault® Solution

Archive for Microsoft SharePoint systems helps control the data growth and infrastructure costs of collaboration environments while helping to meet legal discovery and corporate governance standards. SharePoint archiving allows you to gain long-term control over corporate knowledge assets while keeping the SharePoint and Windows Server environment running at optimal efficiency. CommVault® Archive software serves end-users, administrators, legal discovery and records management teams, and maintains high-speed performance in the face of increasing data volumes.



## **Archive 7.0 for IBM Lotus Domino Server Mailboxes**

Active-Archive for Mailbox Management, Legal Discovery and Compliance

### **The Business Challenge**

Messaging data continues to grow at exponential rates. According to Osterman Research, 59% of organizations view growth in messaging-related storage as their number one problem (April, 2007). The size of messaging stores, coupled with increasing litigation, exposes organizations to greater risk. Standards for civil litigation such as the Federal Rules for Civil Procedure (FRCP), industry regulations, privacy acts, evolving case law and freedom of information acts require that more and more e-mail be preserved for longer periods of time. Businesses need to control the growth and costs of storing messaging data, while also being able to respond efficiently and effectively to discovery actions.

### **The CommVault® Solution**

Archive for IBM Lotus Domino Server Mailboxes helps control the data growth and infrastructure costs of Lotus Domino environments while reducing risks associated with legal discovery and non-compliance. CommVault Archive software serves mailbox endusers, administrators, legal discovery and compliance teams, and maintains high-speed performance in the face of increasing data volumes.

## **Archive 7.0 Compliance Storage Options**

Achieve Regulatory Compliance with an Active Archive to CAS Devices

### **The Business Challenge**

Fueled by regulatory requirements such as SEC 17a-4 and many others, organizations across a wide spectrum of industries face long-term preservation and retention requirements of fixed content (data that will not change). Maintaining the authenticity and accessibility of fixed content data, such as e-mail, attachments, and other critical business and legal documents is the real challenge. Data needs to be secured in an immutable or non-tamperable storage device, while optimizing the performance and availability of explosive data growth.

### **The CommVault® Solution**

Archiving to Content Addressable Storage (CAS) Devices helps control data growth and infrastructure costs while reducing risks associated with legal discovery and non-compliance. CAS Devices can include tape, disk, optical and WORM media. CommVault® Archive software serves end users, administrators, legal discovery and compliance teams, and maintains high-speed performance in the face of increasing data volumes.



## Products: **Replication**

### **Overview**

CommVault® Replication provides capabilities for creating online replicas of production data, which deliver better Recovery Point and Recovery Time Objective (RPO/RTO) benefits than traditional backup and recovery approaches because they are immediately available and do not need to be restored before use. Also, traditional backup can be performed from replica images rather than from production data, to avoid performance impacts.



### **CommVault® Continuous Data Replicator 7.0**

Continuous Data Protection (CDP) and Centralized Management of Remote Office Data

#### **The Business Challenge**

Managing data at remote sites can be costly, time consuming and inefficient. By some estimates, remote office data management accounts for 40 — 60% of a typical enterprise IT budget. As the costs of managing remote office data continue to rise, IT administrators must look for cost-effective solutions that simplify administration, increase data availability and improve disaster recovery preparedness.

#### **The CommVault® Solution**

CommVault® Continuous Data Replicator (CDR) is a host-based, asynchronous replication solution that delivers Continuous Data Protection (near-CDP) for Windows, Linux and UNIX environments. CDR centralizes the management of remote office data, provides fast, cost-effective disaster recovery and increases data availability. CDR minimizes bandwidth consumption by continuously capturing and replicating file changes at the byte level. It also optimizes available network resources by allowing administrators to throttle network bandwidth. CDR increases recoverability by providing unique, application-consistent snapshots in addition to the primary replica. As part of the CommVault® suite of software, CDR replication can be managed along with backup, recovery and archive from a single Unified Console.

### **CommVault® Quick Recovery™ Software 7.0 for Critical Data Center Applications & File Systems**

Increased Application Availability for Multi-platform SAN Environments

#### **The Business Challenge**

In today's highly competitive business environment, availability of file system and application data is crucial to success. To assure data availability, organizations invest in redundant hardware or commit tremendous administrative resources to solve the problem. But, is data integrity assured? Not really. Data corruption can occur, due to human, program or hardware error. No amount of RAID, mirroring or clustering can prevent this. What is needed is a cost-effective strategy that assures quick application recovery and maximum availability.

#### **The CommVault® Solution**

CommVault® Quick Recovery™ (QR™) software is a snapshot management solution designed to increase file system and application availability. It automates manual snap management processes and delivers ultra-fast data recovery. QR software lets you fine-tune your uptime strategy by leveraging advanced snapshot and data movement technologies to assure data integrity when compromised by human, software or hardware error.

## CommVault® Recovery Director™ 7.0 Software

Maximize the Power of Snapshot Technology for Data Protection

### The Business Challenge

Snapshot technology is a natural extension to data protection, enabling businesses to take backup copies at any time without slowing down production systems and eliminating backup windows. This is particularly helpful for protecting large database systems that can take more time to backup than businesses can afford. However, snapshot technology is often difficult to set up and manage. While many vendors provide snapshot capabilities, few deliver the ability to manage those snapshots across multiple platforms, databases, applications and servers as a seamless part of managing data. This leaves administrators to deal with overly complex processes.

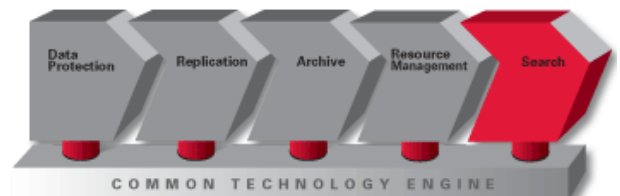
### The CommVault® Solution

CommVault® Recovery Director™ software helps businesses to use snapshot technology as an extension of CommVault Galaxy® Data Protection. CommVault Quick Recovery™ software makes it easy to set up and manage snapshot images made with any of a wide variety of popular snapshot technologies including those offered by Network Appliance, HDS, HP, IBM, EMC and any snapshot technology using Microsoft Volume Shadow Copy Service (VSS). Recovery Director software makes it easy to use those snapshot images to create CommVault Galaxy backup copies, and streamlines recovery procedures to return data back to either the production data location or the snapshot volume, depending on which is in use, in one easy step.

## Products: Search

### Overview

The CommVault® Search web interface services the growing demands of business compliance and legal discovery teams as well as end-users. It includes capabilities designed to assist organizations in responding to legal discovery actions and compliance audits. It enables higher levels of business productivity and competitiveness by offering users direct access to data.



The CommVault Search web interface allows search, sort, select and retrieve of corporate files and information from online, archive, and backup data copies. This is done with a web browser, without having to install an application on the desktop. Users also have the option of accessing this rich information natively within their own Microsoft Outlook using an Outlook plug-in. For legal discovery and compliance search, auditors and business teams have access to data owned by multiple users across all applications. This allows for rapid retrieval of Electronically Stored Information (ESI) when litigation is pending. Timely responsiveness is a key requirement in providing information for meet-and-confer sessions, as is being emphasized with the recent amendments to the Federal Rules of Civil Procedure (FRCP). Having powerful search at business-user fingertips provides peace of mind that all data can be searched and subsequently put on legal hold, as required.

In addition to the Search web interface, administrators working with CommVault software have expansive search capabilities in the Unified Console interface. Content Indexing enables keyword search, for end-users, business teams and administrators.

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Singular Search of Files and e-Mail Managed by CommVault Unified Data Management™ Software

### The Business Challenge

Unstructured file systems and e-mail data present particular challenges in growth and management, because of the nature of how and when the data is created.

Users are typically disorganized in saving and naming their files and in managing their e-mail folders. For business audits and legal discovery purposes, all types of Electronically Stored Information (ESI) must be easily retrievable — from any online or offline data location. This data chaos makes it difficult for administrators to help users to find missing or lost files when required and can lengthen audits and legal discovery, increasing costs and risks.

### The CommVault® Solution

CommVault® offers a radically better approach that removes the degrees of separation typically found between users and their data. Instead of requiring users to work through a help desk and administration teams to find and recover their data, CommVault's Search Web Interface provides users with easy-to-use, direct web access to files and e-mail managed by CommVault software. The Search interface operates against the single, virtual pool of managed data created by CommVault's exclusive *Singular* approach, making it easier and more cost effective to search, access and make use of that data.



The CommVault Search interface services the growing demands of business compliance and legal discovery teams as well as end-users. It includes capabilities designed to assist organizations in responding to legal discovery actions and compliance audits, and to enable higher levels of business productivity and competitiveness by offering users direct access to data.

## CommVault Solutions — Legal Discovery

All organizations can face litigation. The exponential growth of data makes responding to legal action costly and complex. Evolving case law, amendments to the Federal Rules of Civil Procedure (FRCP), regulatory pressures and privacy acts only add to the confusion. CommVault® enables organizations to investigate message and file archives, along with backup data, providing a comprehensive electronic discovery solution. An effective legal discovery strategy can mitigate risk and reduce the costs associated with litigation.

Responding to legal action is more than just archiving. The capability to manage backup data, along with archived messages, is becoming increasingly more important as courts begin to look beyond email for discovery. CommVault software uniquely provides capabilities for search and retrieval across all data types and data copies with our Singular Information Management™ software suite. A single interface enables the archive, find, search and retrieval capabilities necessary to meet the increasing demands for retention and retrieval regardless of data source or media type.

Another important step in responding to legal action is placing all relevant information on "legal hold." This means establishing a process to pause automatic tape rotations, disposition or deletion schedules in order to provide discoverable information in court. CommVault archive, media management and data

protection technologies allow companies to effectively execute legal holds. A legal hold policy that spans email, files and backup tapes minimizes disruption and maximizes protection when responding to court ordered discovery requests.

Lastly, an effective media management strategy can help reduce the risk of sanctions. In some cases, organizations have faced severe penalties because they could not answer the simple question, *"where is my data?"* Knowing where your information is, and being able to access it for review, offers definite business advantages. Tracking the location of media, ensuring the integrity through regularly scheduled data verification processes and being able to audit and report the entire process are critical in avoiding the risk of sanctions.

**CommVault encourages you to take control of your data, because it's not just data — it could be evidence.**

### Federal Rules of Civil Procedure

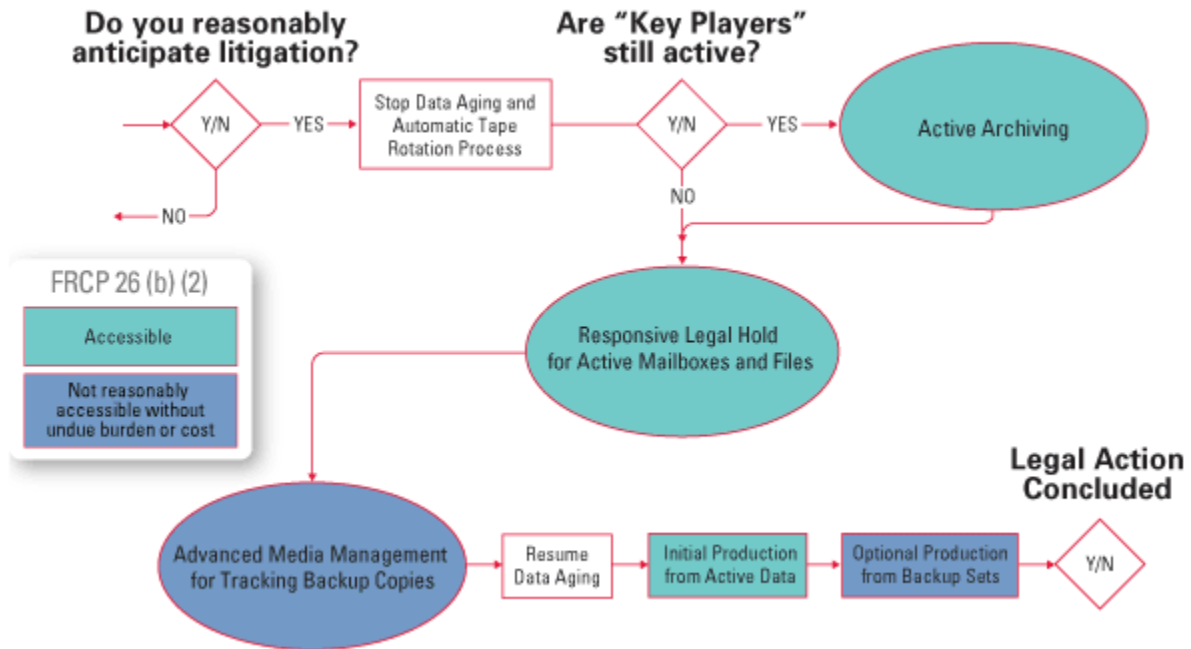
Amendments to the Federal Rules of Civil Procedure took place December 1, 2006. The Federal Judiciary met and approved changes to address discovery issues of Electronically Stored Information (ESI). The FRCP were first enacted in 1938 to define the process, procedure, and rules to conduct a civil trial. As you can imagine, several amendments have occurred since then to address changes in technology. Recent court rulings made it necessary for the committee to specifically address issues like where data is stored and how it is produced. The changes impact both IT professionals and legal departments alike. Basically, they are intended to force early attention to the topic of discovery, especially as it relates to preserving and producing data related to litigation.

### What does this mean?

Essentially, FRCP amendments require legal and IT to collaborate. Gone are the days of legal being mystified by things like tape rotation, backup cycles and archival retention policies while IT is equally confused by jurist prudence and long sentences that end with words like "hereof." Instead, IT may be called upon to discuss how the organization's data is managed in a pre-trial conference. At the same time, the legal team may have to weigh the cost burden of producing all the data relevant to pursue their case vs. the cost of settling.

CommVault sees the amendments as an opportunity for your organization to put a more cost-effective, flexible data retention strategy in place. Preparing for these changes could mitigate risk for your organization and could reduce hefty financial burdens associated with litigation. The CommVault® Singular Information Management™ approach provides a flexible, audit-ready answer to the FRCP and includes a comprehensive strategy to enable discovery that spans:

Archive	Rule 34(a) and Rule 34(b)
Data Protection	Rule 26(f) and Rule 26(b)(2)(B)
Resource Management	Rule 37(f)



### Key Benefits

- Reduce risk and costs related to electronic discovery
- Manage data from its creation to deletion across all repositories
- Produce, retrieve and review all discoverable data on demand
- Institute legal holds across all data
- Provide audit-ready reporting
- Grant legal users transparent access to information, empowering them to search and retrieve critical data
- Reduce the IT bottleneck associated with discovery

## Products: Resource Management

### Overview

CommVault® offers Resource Management solutions to monitor and manage storage utilization, data growth, operational costs and service-level attainment.



CommVault offers these products for Resource Management:

CommVault Storage Manager for resource, application and file system analysis of data residing on primary storage

CommVault CommNet Service Manager for enterprise wide monitoring and analysis of primary storage utilization and secondary storage operations

Storage Manager provides insight into data on primary storage through discovery, trending and analysis. The true value lies in Storage Manager's ability to improve storage utilization, identify assets and increase visibility into data growth.

CommNet provides consolidated monitoring and analysis of CommVault managed data movement operations across one or more locations. The true value lies in the ability to monitor service-level attainment, optimize data management services, align data protection policies across storage tiers and minimize costs across the life cycle.

### Storage Manager 7.0

Optimize Storage Resources, Automate Data Management and Improve Operational Efficiencies

#### The Business Problem

According to leading industry analysts, storage purchases consume 40% of IT's annual budget. With the price of disk storage declining every year, IT is tempted to "throw" more hardware at the rising tide of data. So, why does adding more primary storage never seem to reduce the cost of managing storage? Without a clear understanding of what storage resources are being used by each individual, department or application, IT cannot optimize storage management and usage, reduce excess storage purchasing, and deliver improved business performance.

#### The CommVault® Solution

Storage Manager software discovers, tracks, analyzes, trends, and reports on primary storage usage. Supporting today's enterprise, Storage Manager software provides insight into Windows, NetWare, Linux and UNIX file systems, as well as EMC Celerra and NetApp Filers and applications such as Microsoft Exchange, SharePoint, SQL Server and Oracle. Storage Manager software enables IT to implement consistent usage policies across platforms, applications, geographies, and departments. The software's threshold monitoring alerts IT to abuses; whether it's excessive usage or restricted file types. The Storage Manager software's analytical reports help IT reclaim wasted storage, manage capacity and raise storage utilization to reduce storage spending.

## CommNet Service Manager 7.0

Improve Efficiencies with a 360 Degree View of Primary and Secondary Storage

### The Business Challenge

Are your administrators toggling between interfaces, logs and event viewers just to gauge how much storage your business applications are using? Spending hours trying to figure out if backup, archiving or snapshot operations ran as they were supposed to? All while worrying about delivering on its IT service level agreements. It's a juggling act for the IT team, and a difficult one at that.

### The CommVault® Solution

CommNet software offers a comprehensive point of view that lets IT easily track all CommVault® data management operations and storage resources across an enterprise, department or data center. The CommNet solution monitors data protection operations against a predetermined threshold that measures service levels. The software automatically balances tactical operations against strategic objectives in a single service level metric, vastly simplifying the overseeing of the operation. Easy drill down allows administrators to quickly see what's right and what's wrong.

## Products: Advanced Features

### Overview

CommVault® offers Advanced Features which are built into the Common Technology Engine architecture, which can be turned on with a license key. Building them into the architecture makes them easy for to use with any CommVault software deployment.

The following Advanced Features are built into the CommVault software platform:



## 1-Touch System Recovery 7.0

Automate and Expedite Recovery of Servers, Workstations and Applications

### The Business Challenge

Manual recovery of a server or workstation is a complex, time consuming process that impacts employee productivity and thus your company's ability to generate revenue. Daily occurrences such as power surges, outages or human error can bring a system down. To minimize business interruption, you must be fully prepared with the required technical expertise, processes and tools to quickly recover the system and get your business back up and running.

### The CommVault® Solution

CommVault® 1-Touch System Recovery automates the process of rebuilding and recovering an entire Windows, Linux, Solaris or AIX system so you can rapidly get back to business. 1-Touch helps you prepare for disaster recovery by centrally managing software distributions and service packs. In case of disaster, recovery is as simple as booting from the 1-Touch CD and letting the 1-Touch Server rebuild your OS, file system, registry and applications. You can even recover to dissimilar hardware or a virtual machine.



### **No More Manual Recovery**

Have you ever tried to recover a server using the traditional Bare Metal Restore (BMR) process? If so, you know that a manual process is technically difficult, time consuming, and impacts your company's ability to generate revenue. Common, everyday occurrences can bring a server down and you must be fully prepared with everything needed to quickly recover and get the business up and running. This involves having the time, technical expertise, installation CD's, license keys, service packs, system/security configurations, IP Addresses, NIC and partition information and much more.

### **Automating Recovery**

1-Touch allows you to quickly and efficiently recover systems with defective components such as inaccessible volumes or crashed disks, by automatically rebuilding the OS and restoring the most recent backup data. Automation includes the following options:

- Silent disk partitioning and formatting.
- Dissimilar hardware restore allowing recovery to a system with different NICs, and dissimilar disks.
- Fully unattended operating system reinstall from a central location.
- Full restore to a point in time selected by the administrator.

### **CommVault® CommCell™ Client Migration**

Easy Migration of a Client System Along with its Meta-Data Records from One CommCell™ Deployment to Another

The Client Migration feature enables the merge of multiple CommCell™ deployments into a single deployment, as well as permanent and temporary migration of selected client systems from one CommCell deployment to another.

### **CommVault® CommCell™ Explorer**

Easy Query About CommCell Components Using the Microsoft SQL Server Database Embedded on the CommServe System

Because the top-level of metadata created by CommVault software is kept in a SQL Server database, it is easy to use for ad hoc query, analysis and reporting purposes. The CommCell Explorer provides an easy-to-use interface that makes it simple to take advantage of the metadata collected, to view scheduled administration jobs, Aux copy jobs, backup jobs, client configurations, library configurations, and other key information from the metadata.



## CommVault® Data Encryption

Ensure Secure Data with Encryption as Part of the Data Management Process

CommVault's Data Encryption capability secures data over networks and on media. What makes CommVault's approach unique is the flexibility of when and how the data is encrypted along with secure management of the decryption keys.

Administrators are able to select encryption as follows:

- Before the data leaves the client system to ensure secure network transmission, for replication, backup and archive data copies

- When writing the initial backup or archive data copy to disk or tape

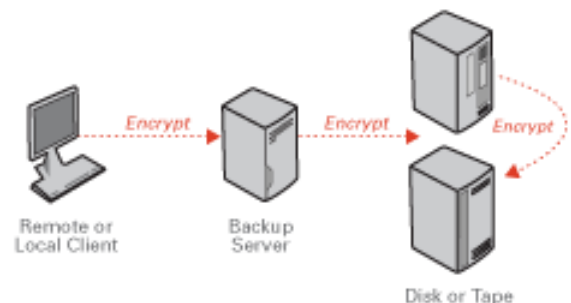
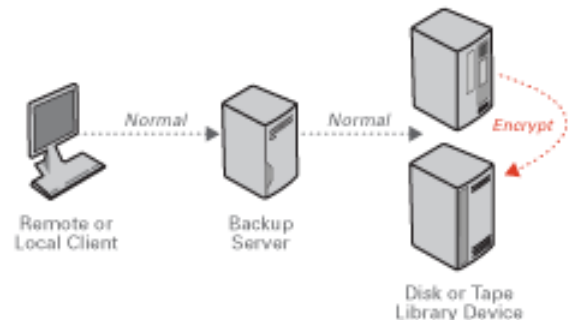
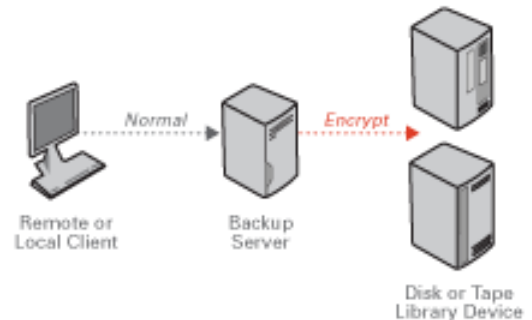
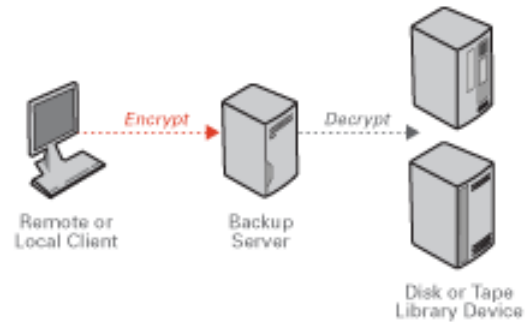
- When making secondary copies of backup and archive data copies, from one storage device to the next — especially useful for encrypting data before it is stored on removable media such as tape

- Any combination of these options

CommVault software offers a variety of encryption algorithms, including Advanced Encryption Standard (AES) with a 128-bit cipher and 128- or 256-bit decryption keys. Other algorithms provided include Blowfish using an implementation designed specifically for speed on 32-bit machines, Serpent, Twofish and 3-Data Encryption Standard (DES).

Data encryption keys can be pass-phrase protected, and stored within the CommCell system, on the media, or both.

The passing of a law in California that forces companies to tell their customers when sensitive data has been lost or stolen has raised awareness of the need for encryption security. There are many examples of large banks and other organizations reporting the loss of tapes—with bank account, social security and other types of highly sensitive information being exposed for thousands of their customers. This type of problem can be avoided using the Data Encryption feature built into CommVault software.



### **CommVault® Data Erase**

Ensures that Old Data Cannot be Recovered from Recycled Media

The Data Erase feature enables the secure recycling of removable media, including tapes and optical platters, by making older data unrecoverable from the media. This feature works on spare, retired and recycled media from tape and optical libraries.

### **CommVault® Disaster Recovery**

Ensure Disaster Recovery for CommVault CommServe Environment

Disaster recovery capabilities are a built-in part of the capabilities that come with the CommVault CommServe™ system. These capabilities enable a rapid rebuild of the CommCell environment on new equipment at a disaster recovery hot site location. This includes protection of the the Microsoft SQL Server database of metadata collected for the CommCell deployment, the Windows registry keys on the CommServe system, and the firewall configuration files. Both full and differential backups are supported.

For those organizations that need more than these built-in disaster recovery capabilities, the Disaster Recovery feature offers a bundled "disaster preparedness pack" which includes: a warm standby state at your disaster recovery location; an additional Windows Media Agent license with support for a single stand-alone tape device; an additional Windows client agent license; automated updates of the license file with Disaster Recovery standby CommServe information whenever the configuration of your CommVault software changes.

### **CommVault® GridStor™ Capabilities**

GridStor Capabilities Controls How and Where Data is Moved Using Load-Balancing and Failover-Resume Capabilities

With the GridStor feature, you can count on automated load balancing and failover of any network-based or local data stream to deliver sophisticated control of where and how your data is moved, including complete device and storage media sharing.

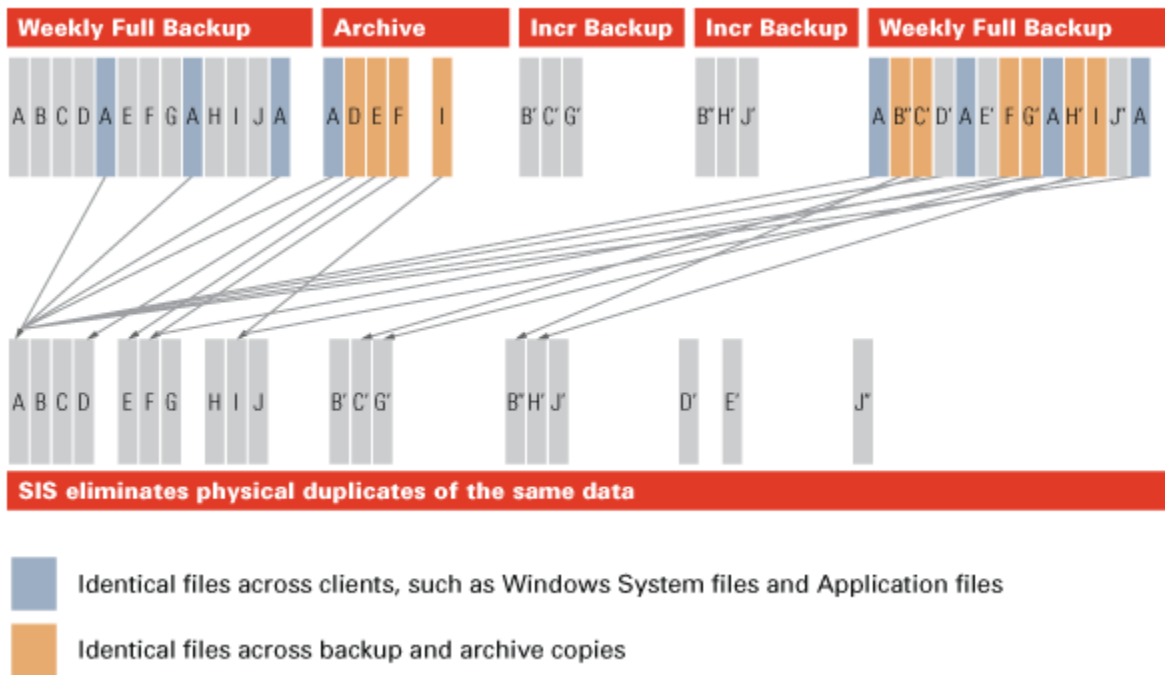
GridStor works across Linux, UNIX and Windows Media Agents. If a data path or storage resource fails—for example., if a network, tape drive or Media Agent becomes unavailable—GridStor can use any other available resource to finish the job. GridStor also allows the exact same device and media to be used to complete the job, if it's available. So enterprises can fully leverage deployed resources, rather than be forced into using a single OS type or maintain standby storage resource pools.

GridStor dramatically improves reliability, storage media efficiency (tape utilization) and service-level performance.

### **CommVault® Single Instance Store (SIS)**

Increase Data Retention Periods on Disk without Increasing Physical Disk Requirements

To expand on the benefits of disk-based data management, Single Instance Store (SIS) eliminates duplicate copies of files and attachments found in backups and archives stored on disk. SIS does this by comparing the contents of files to find duplicates; matches are not affected by any differences in file names, properties or attributes. This method ensures that exact digital duplicates can be matched and eliminated across data sets, applications, clients and OS platforms, maximizing compression benefits. As new backup and archive copies are made on weekly cycles, the compression ratio continuously improves as the number of duplicate files avoided continues to increase.



As shown in the figure, the SIS capability is especially helpful for:

- Eliminating duplicate files across backup cycles
- Eliminating duplicate files across backup and archive copies
- Consolidating tape copies of data to SIS disk copies for search and discovery

SIS capabilities can apply to primary backup and archive copies of data, as well as to secondary copies created by Storage Policies. As logical copies of data are aged and pruned, reference links to the single physical copy are eliminated until none remain, after which the physical copy is also removed.

CommVault SIS is more flexible than de-duplication technologies, which cannot be used with compression or encryption capabilities. SIS also requires less processing on client systems at remote sites, works with any hardware to deliver immediate benefits, and can be used with special-purpose de-duplication appliances.

### CommVault® SNMP Enabler SNMP Event Trapping

The SNMP Enabler sends SNMP event traps on the network for every CommServe™ system alert, to enable third-party Systems Management Software to receive and report on CommVault software alerts as part of their operation. SNMP event trapping uses the industry-standard Systems Network Management Protocol (SNMP) alert process and its Management Information Protocol (MIB) format to work with any third-party software supporting SNMP event trapping capabilities.

If you use SNMP event trapping software, then you will benefit from including the SNMP Enabler as part of your CommVault software deployment.

## **Vault Tracker™ 7.0 Standard and Enterprise Editions**

Automated Management, Tracking and Reporting for Removable Media and Containers

### **The Business Challenge**

Tracking removable media such as tapes through a rotation process is critical to ensuring rapid and efficient data recovery when disasters happen. Paper tracking is inefficient and error prone. However, most options for automating this process have been too difficult and intrusive to be practical in many environments.

### **The CommVault® Solution**

CommVault® Vault Tracker™ software provides built-in capabilities for automating, tracking and reporting the process of rotating media and containers to off-site locations. These capabilities are built-in to the CommVault Common Technology Engine architecture, to make it simple and easy to manage as part of the backup and archive process. Vault Tracker™ software comes in two editions:

Vault Tracker™ software as a standard component, which is enabled as part of any CommVault backup or archive solution. This edition can be used to track media movement between two locations or libraries, and automates media export.

Vault Tracker™ Enterprise Edition, which is a license-key upgrade to add more robust capabilities including container tracking, Due Back capabilities, and managing a Media Repository. The Enterprise edition can be used to track media movement between several locations and libraries. Scheduling, managing and reporting are all done from the CommVault Unified Console along with backup and archive.

**CommVault Support**

## CommVault Support

CommVault is committed to making superior data and storage management solutions a reality for you, our customer. As a result of your input and feedback, CommVault is rapidly expanding the scope and availability of its Customer Support services — because we know that a reduction in needless downtime and unlimited access to your data increases your organization's competitive advantage. Our experts are on hand to help you resolve issues quickly and discuss matters as they arise in your dynamic environment. You'll have excellent communications and great results with the CommVault Support Team, whenever you need them.

CommVault Support Customers are also given access to assistance and problem resolution aids that will help optimize their deployment of CommVault's data and storage management solutions: from free WebEx-based support to our *Maintenance Advantage* on-line support tools.

Maintenance Advantage: Maintenance Advantage is a set of powerful tools to enable CommVault software customers to better optimize their deployments. The section includes:

- \* Tips and techniques to achieve better performance,
- \* Configuration and deployment guidelines,
- \* Supported hardware and software matrixes,
- \* Technical FAQs,
- \* Interactive Troubleshooting Guides, and more.

Telephone Support: Customers can access our telephone support hotline 24 hours a day 7 days a week (including US holidays) by dialing: US/CANADA (Toll Free) (877) 780-3077

### Support Plans

CommVault offers the following programs to support your CommVault® Simpana™ implementation:

#### Standard Support (7 AM - 7 PM, Monday - Friday)

The Standard package provides broader business coverage with direct access to the CommVault Technical Assistance Center, and is designed to support many customers' needs. This package includes:

- \* Access to the *CommVault Technical Assistance Center* on regular business days (Monday - Friday), **excluding** statutory holidays, between the hours of 7 AM to 7 PM (local time) for the location where the software is installed
- \* 24 x 7 access to the *Maintenance Advantage* self-help website
- \* Notification of critical software update fixes
- \* Web-based support technology
- \* Reports provided upon request

#### Premier Support (24 hours a day, 7 days a week)

The Premier package is designed to address mission critical environments since it provides a comprehensive 24 x 7 coverage period. This package includes:

- \* Around-the-clock access to the *CommVault Technical Assistance Center (including holidays)*
- \* 24 x 7 access to the *Maintenance Advantage* self-help website
- \* Notification of critical software updates, product enhancements and new releases (when available)
- \* Web-based support technology
- \* Reports provided upon request

## **Business Critical Support**

Business Critical Support services are an elite set of service offerings for customers with special and critical support needs. They include:

Gold Level — The Business Critical Support Gold Level goes beyond Premium Support to provide:

- \* Premier service levels
- \* Access to a dedicated Technical Support
- \* Engineer (TSE) team to ensure issues get priority
- \* A Technical Account Manager (TAM) to direct process and priorities for best issues resolution outcome
- \* Quarterly reporting of call trends and CommCell health

Platinum Level — The Platinum Level Business Critical Support option builds upon the Gold Level to provide:

- \* Enhanced service levels that have more aggressive response and resolution targets.
- \* The addition of the Severity 0 for highly critical issues
- \* Specifically allocated TSE team members add focus to customer environment
- \* TAM early involvement in Sev 0 and Sev 1 ensures immediate visibility of critical issues
- \* Weekly issues status reporting
- \* Monthly Executive Summary
- \* Use of Support Manager feed to provide Business Critical Team with enhanced information on customer CommCells

Resident Support Engineer - For staff augmentation, CommVault provides the Resident Support Engineer (RSE) for six and twelve month engagements. The Resident Support Engineer provides on-site technical consultative support in maintaining the customer's CommVault solution.

- \* First point of contact on support issues
- \* Excellent complement to Business Critical Support Team, providing on site facilitation of issue diagnosis and resolution

## **Business Case Analysis**



## Business Case Analysis

Because data management is one of the most important functions of corporate IT, switching from one backup solution to another is a decision that cannot be taken lightly. Backup, archiving and recovery continue to play a pivotal role in IT operations everywhere. Despite a noticeable shift in backup and recovery technologies, particularly the move away from tape-based backups in favor of disk-based solutions, many IT managers still use the same technologies and products today that they did five, ten, or even fifteen years ago. CommVault sees this as a case of managers preferring the comfort of a known environment with its oftentimes heavy investment in scripting over the advantages of the newer technologies. Slower recoveries, the relative unreliability of tape as a storage medium, and operational expenses associated with tape (media costs, off-site tape storage, salaries for tape handlers, etc.) often seem an acceptable price to pay if they can help avoid the introduction of new variables into a site's data protection processes.

*"Business as usual"* does not, however, help IT managers sleep better at night. They still have the same concerns regarding capital expenses (for additional libraries, tapes, and IT disk storage), achieving required service levels (making backup windows and archiving both recovery point and recovery time objectives), and lessening the administrative burden on their already-overtaxed staff. Many, quite justifiably, feel they manage a staff of heroes that goes unnoticed by their companies despite their valuable contributions.

Economists define **vendor switching** costs as the costs incurred by a purchaser that results from changing suppliers, brands or products. Although most switching costs are monetary in nature (purchasing expenses, troubleshooting new processes, and the time and costs necessary to train staff on a new product, for example), there are many others that are hard to quantify but are no less real. At an enterprise data center these might include such things as opportunity costs imposed because the staff needs to train on a new product, the loss or devaluation of investment in proven processes (scripts in use for years may have to be substantially rewritten), the need to re-forge relationships with a vendor's field and support staff, and the need to manage a new set of vendor contracts. The larger an IT site is, the more substantial these switching costs are likely to be.

Additionally, many managers have a clearly defined concept of a **"payback horizon"**, the point at which they must recapture all costs associated with an IT investment. Except in very rare cases, payback is typically expected in four to eight quarters. Getting beyond "business as usual", offsetting switching costs, and achieving payback within a clearly defined time limit are each significant challenges. Considering this, the reasons to move from one vendor to another must be quite compelling.

The top 3 reasons for switching fall into the following categories, all of which are inter-related:

- \* On-going operational expenses and cost of ownership
- \* Product reliability and functional levels
- \* Dissatisfaction with service and support

Shifting loyalties to a new software vendor requires confidence not only in the new vendor's technologies, but also in the vendor's ability to deliver and support those technologies in an efficient, effective and responsive manner. Additionally, that vendor's approach must map well to the client company's technology needs and business requirements. Such moves are not meant to be undertaken lightly. Any company that moves off one major software platform and onto another must both overcome concerns about switching costs and must have a reasonable expectation that it will see a short term payback on its investment. While the technology issues are clearly important, it is how these translate into business deliverables that defines whether such a move is likely to make good financial sense.

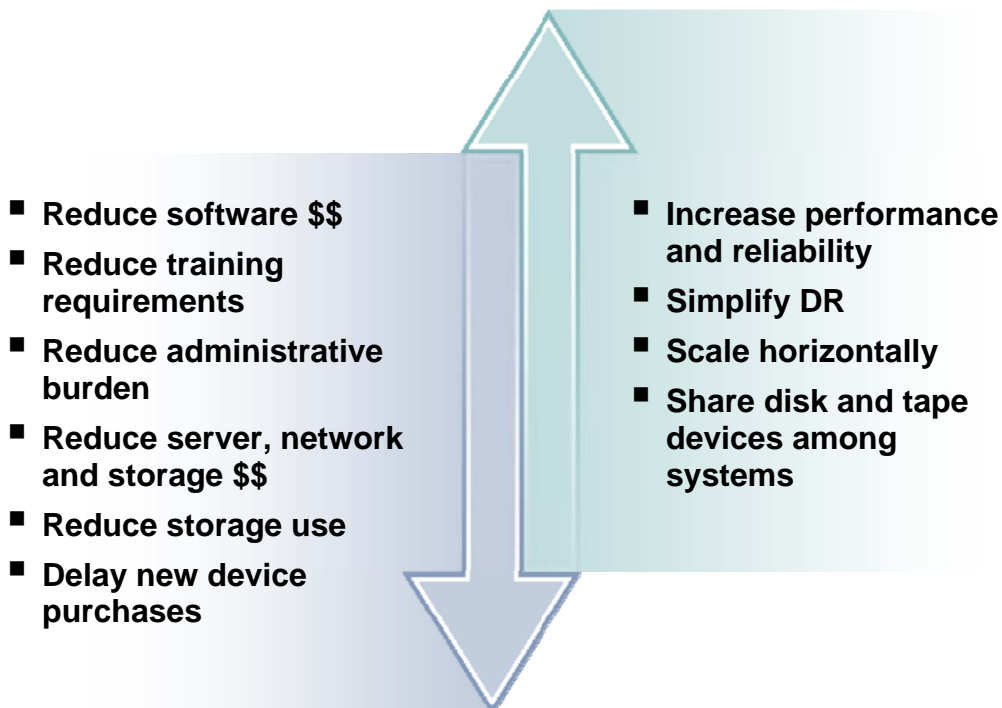
Major differentiators between competitive software and a CommVault solutions center on ease-of-use, product reliability, and service. In addition, site managers report rapid time to value: they report that

Commvault installations are quick and painless. Backups begin the first day with minimal operator intervention. Our customers also clearly like the idea of being able to deliver a report to their CFO on day one that shows they are already getting value from their investment.

CommVault customers find a great deal to like the way CommVault delivers its products and services; the time required to gain significant value which in many cases, averages less than one day. In part, this is due to the Commvault software's capabilities to drop in with little to no changes in the existing infrastructure and application environments.

In addition, reliable backups and rapid recoveries provided by the disk-to-disk backup software impress all CommVault clients not only because the processes are easily run and essentially error-free, but also because when issues do arise, they are effectively addressed by the CommVault support team.

Several things argue favorably for substantially improved ROI when the CommVault software is compared against its offerings. Most obviously, a number of cost reductions and improved benefits are introduced. The CommVault D2D solution, for example, ends the need to invest in most tape media, which not only eliminates the ongoing expense required to purchase tape, but also removes – because it eliminates tape-based backups – the more substantial expenses associated with managing those tapes both on-site and off-site. Benefits that accrue include increased uptime, due both to the high reliability of the CommVault D2D solution and to a highly responsive support team; improved business continuity resulting in faster, disk-based recoveries; and lower ongoing expense associated both with managing the CommVault environment and with IT's management of vendor contracts.



In previous Business Case Analysis, CommVault has captured the following metrics

- 99% Backup Success rate
- 90% Improvement in single object recovery
- 80% Reduction in administrative time
- 75% Reduction in time for full backup
- 75% Reduction in reporting time, backup/storage/IT operations
- 60% Reduction in tape costs
- 50% Reduction in consumable media
- 20:1 Deployment for install and on-going updates

These statistics are significant and directly impact the bottom-line.

## **Business Case Analysis**

CommVault Systems would like to conduct a Business Case Analysis to determine the impact our software would have on your data management operations. This will require you to provide us information related to your operations. This information will be obtained through a series of interviews with client personnel. Depending on their availability, this can be done in a day. If an NDA is required to be signed, please direct that to me or I can provide a CommVault bi-lateral NDA. There is no cost to the client for this analysis.

## **Premise**

CommVault has replaced hundreds of legacy backup installations with products in our Unified Data Management suite. In the process we have delivered significant time and cost savings across software, hardware, tape, administrative overhead and IT operations.

The CommVault common technology engine architecture allows us to take a total-cost perspective. It is the only scalable, unified architecture of common services optimized for data management. CommVault delivers unique cost-savings and time-savings advantages across enterprise data center, remote office and workgroup deployments. This is a change of philosophy from an emphasis on feature checkboxes, software pricing, and hardware bundling. CommVault seeks to understand and quantify the total costs associated with the client operations, and to build a tailored solution designed to minimize that TCO going forward.

CommVault can save money and increase efficiencies across the board: savings on software costs; cut tape usage; reduce, defer or eliminate infrastructure expenditures (for example, slow disk growth, defer tape drive purchases, and eliminate VTL requirements); and recoup administrative hours for more efficient data administration. In addition to hard dollar savings, CommVault can improve many aspects of operational performance.

## **Five Time/Cost areas:**

- Software
- Hardware
- Tape
- Labor
- Operational Performance

A business case for acquisition will be constructed around all of these areas. CommVault builds the foundation for the case by working with the client organization to identify the time and costs associated

with each operational area. A series of key questions will be addressed for the Business Case Analysis covering such topics as (but not limited to):

### **Software**

- What is the ongoing maintenance in existing software?
- What are the ongoing licensing and/ or renewal costs?
- What new backup, archiving, snapshot, replication, mirroring or reporting software will need to be purchased in the future?

### **Hardware**

- What is the ongoing maintenance on existing servers, backup servers, libraries, arrays, and so forth?
- What are the ongoing infrastructure / hardware expenditures? For example, what are the monthly server, library, or disk expenditures?
- What are the planned infrastructure / hardware expenditures?
- What problems / objectives are these expenditures tied to?

### **Tape**

- What is the average tape utilization – what percentage of each tape gets filled?
- How often is each tape used?
- What is the yearly expenditure on tape shipping, storage, recall, and/or replication?
- What are the planned tape expenditures?

### **Labor**

How many hours a week are spent on

- Backup administration, failure troubleshooting, or reporting?
- Tape administration?
- Database, Email, or Capacity management & administration?
- Remote site administration?
- Scripting and script upkeep?
- Legal data discovery?
- IT cost tracking and operational reporting?
- Support issues & support calls?

### **Operations**

- What percentage of your disk is at risk?
- What is backup success rate?
- What percentage of back-ups fail each week?
- How fast is data growing?
- How long does it take to restore a server? A file? A message? An AD object? A Sharepoint doc?

CommVault's unified approach yields compelling value to our customers. The end result of a Business Cased Analysis will be a formal presentation summarizing the ROI/TCO savings expected through an investment in CommVault software and services. The summary will identify the operational areas; the average expected improvement; what these statistics mean and what total savings can be expected.

## CommVault **Corporate Information**

## CommVault **Corporate Information**

### Overview: A Better Way

Being the only software company focused exclusively on data management puts CommVault in a decidedly exclusive category, but it's an incomplete definition. It doesn't begin to tell the complete story of who CommVault is and what makes us unlike the old data management standbys you're used to.

That's because CommVault's identity is as much about character as capabilities. The philosophy that inspired our creation and continues to inform our every move is what enables us to develop truly unique solutions.

Like most great ideas, CommVault was born from the passionate belief in a better way. Our founders understood all too well the shortcomings of existing data management solutions and the difficulties and frustrations they inspired.

Rather than accept these shortcomings, CommVault's founders determined to develop a better way to manage data. A way that would not attempt merely to "integrate" disparate solutions, but would spawn solutions designed to work together from a single, infinitely-adaptable code. A way that would not merely address current data management needs, but that would anticipate and meet needs yet to come. A way that would be more accessible, adaptable, flexible and powerful than any data management solution to date.

This innovative Solving Forward™ approach is quietly transforming what people think a data management solution provider can be.



**Bob Hammer**  
Chairman, President and  
Chief Executive Officer

**Alan G. Bunte**  
Executive Vice President and  
Chief Operating Officer

## **Fact Sheet**

CommVault is the only independent software and service company focused exclusively on data management. We provide companies with a better way to manage data growth, lower costs, and reduce risk by using a single, unified architecture. This flexible platform approach enables our Data Protection, Archive, Replication and Resource Management software to work seamlessly together, utilizing a set of common functions. The result is singular efficiency, performance, reliability, and control over enterprise data environments.

### **Our History**

In early 2000, we launched CommVault Galaxy® for backup and recovery, a storage industry award winner. In the years since, CommVault has forged numerous alliances with top software application and hardware vendors, such as Dell, EMC, HP, Hitachi Data Systems, Microsoft, Network Appliance, Novell and Oracle, to enhance capabilities and to create the premiere suite of data management solutions. In 2002, CommVault launched the single-platform technology that provides the industry's only singular information management approach to storing, managing, and accessing data.

### **The Market Demand for Data Availability**

CommVault's software is built upon an innovative architecture and a single underlying code base, or Common Technology Engine. This unique unified architecture sets CommVault apart from any other data management software company. Competitors offering similar applications built upon disparate software architectures are merely "integrating" point products never designed to work together. Our architecture provides us with significant competitive advantages, including the industry's most granular and automated management of data, tiered classification of all data based on its user-defined value, and greater product reliability and ease of installation. In addition, we believe we have lower support and development costs and faster time to market for our new data management software applications.

CommVault software fully interoperates with a wide variety of operating systems, applications, network devices and protocols, storage arrays, storage formats, and tiered storage infrastructures. This gives our customers the flexibility to purchase the optimal hardware and software for their needs, regardless of vendor.

CommVault has established a worldwide multi-channel distribution network to sell our software, support and services to large global enterprises, small and medium sized businesses, and government agencies, both directly through our sales force and indirectly through our global network of value. CommVault has licensed data management software to many Global 2000 companies, including customers across many industries.

### **CommVault's Data Management Vision**

As CommVault began developing its suite of high-performance, enterprise solutions, the company recognized that most data and storage management products currently on the market were designed well over a decade ago. System administrators had been burdened with complex, outdated systems. These solutions had a lack of automation, weak integration between functional capabilities, and failed to provide a seamless, unified management console with a hard-coded, physical view of storage.

To solve these problems, CommVault embarked on an 18-month research and development project, identifying the critical data management features and benefits not being offered by other storage management vendors: unparalleled automation, extreme ease-of-use, high reliability, competitive

performance, flexible deployment and configuration, and superior manageability. First delivered as a LAN-based backup and recovery product, these features and benefits have been extended by CommVault to SAN and NAS-based storage architectures.

The company's vision and strategic mission is to be the leading provider of singular information management solutions, ensuring high-performance data protection, universal availability and simplified management of complex storage networks. To achieve this goal, CommVault recognized that its products needed to "manage" the entire data path — from application to device. In addition, CommVault understood early on that its software must "know the state" of the data and storage infrastructure where it resides for its products to ensure access and availability of data. Having established a technology leadership position in the backup and recovery market, CommVault is building upon that winning foundation — delivering new solutions that dramatically expand the market served. CommVault software and our accompanying pro-services are based on the concept of managing and moving data based on its attributes and its environment. CommVault software offers solutions for data protection, data migration and archiving, high data availability, storage resource management, device element management and data infrastructure management. The interaction and integration of these software modules results in many business and operational advantages, such as superior ROI, better use of storage resources, higher staff productivity, maximum data availability and reduced Total Cost of Ownership.

## Accolades & Awards



### 2007 Diogenes Labs - Storage Magazine Quality Award for Enterprise Backup Software

Over 500 Storage Magazine subscribers rated their backup products and vendors on five categories: sales force competence, product features, initial product quality, product reliability and technical support. CommVault Galaxy® Data Protection software, one of the five core modules that comprise the CommVault Simpana™ 7.0 software suite, secured the number one overall ranking against a field of five other enterprise competitors with top marks in four out of five categories.



### Gartner Research, 2002 - 2006

Gartner rated CommVault as a "Strong Positive" in their 2006 Enterprise Backup/Recovery Software MarketScope. According to Gartner, vendors who receive a "Strong Positive" rating are solid providers of strategic products, services or solutions. They recommend existing customers to continue investments, and potential customers should consider the vendor a strong strategic choice.



### WindowsITPro Magazine, Editors' Choice Award for SharePoint Backup & Recovery

Galaxy has received the prestigious Editors' Choice Award for SharePoint backup and recovery from WindowsITPro Magazine. [Read the May 2006 article](#) that assesses backup and recovery solutions for Microsoft SharePoint Products and Technologies and see why CommVault Galaxy leads with a total rating of 4.5 out of 5 points.



### 2006 Midsize Enterprise Summit Award

QiNetix was voted the most innovative software by Senior IT Executive attendees of the Midsize Enterprise Summit.





**2005 Diogenes Labs - Storage Magazine Quality Award for Enterprise Backup Software**  
Over 450 Storage Magazine subscribers rated their backup products and vendors on five categories: sales competence, product features, product quality, product reliability and technical support. CommVault Galaxy placed highest overall in the Enterprise category.



**2003 Gold Medal: Backup & Disaster Recovery**  
"The QiNetix platform is based on a single management console and underlying policy-driven framework that allows users to deploy one or several QiNetix modules into their environments."



**2003 Enterprise Storage Software Winner**  
"CommVault delivered a new and innovative approach to the needs & desires of the storage marketplace."



**2003 Backup Category Winner**  
"Galaxy stood out from the pack with its straightforward blend of great technology, easy-to-swallow pricing, and outstanding customer service and support."



**2002 Backup Category Winner**  
"...the best backup software is CommVault Galaxy."



**WSSRA Recommended Backup and Restore Solution for Windows Data Centers**  
Galaxy is the exclusive backup and recovery solution for WSSRA reference configurations.



**2002 Gold Medal: Backup & Disaster Recovery**  
"CommVault delivered drastic reductions in backup / recovery time."

## Financial Analysis

### **AVIANSecurities , LLC**

"Research for intelligent investing"

### **Morning Note October 31, 2007**

**Important Disclosures: see important disclosures at the end of this email.**

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CommVault's common stock is traded on the NASDAQ National Market under the symbol CVLT.

#### **CommVault Review**

CommVault reported sales of \$47.4M, \$26.6M in license revenue, and \$0.12 in EPS. Top-line exceeded both our estimates and consensus on strong initial uptake of CommVault's new Simpana release. Management lifted FY'08 guidance \$194M-\$196M and EPS of \$0.57-\$0.59 (street at \$193M/\$0.56), while indicating Simpana has significantly increased both CommVault's pipeline and deal visibility. We remain optimistic around CommVault's prospects and see management's upbeat outlook as bolstering our positive view on the name.

#### **Breakdown**

Product and services revenue grew 10% and 5% sequentially. As we anticipated, large deal flow returned with large deals (>100K) comprising 37% of revenue. Emerging products accounted for 23% of revenues, up from 15% last quarter as Simpana's new capabilities allowed CommVault to further diversify sales beyond its core backup product. Mix shifted from direct to indirect as existing customers took upgrades through Dell with Dell comprising 28% of revenue, up from 18% last quarter. Geographically, strength was seen primarily in the US up 15% sequentially as Europe experienced typical summer doldrums (-4%q/q).

While GMs increased by 130 bps on better services margins as well as a shift in mix towards software, sales strength did not flow through to the bottom line. Rather CommVault grew operating expenses slightly faster than sales (up 9%). We see the continued investment (particularly in SG&A) as a sign that the company sees further revenue opportunities ahead.

#### **Outlook**

We see the lift in guidance as significant, particularly given management's historically conservative bent. With management indicating that the current pipeline is the largest in the company's history and that deal visibility has increased considerably, it appears CommVault has significantly increased confidence around its revenue outlook.

We continue to see a number of positive catalysts that should drive revenue growth through 2008 and beyond. Our own contacts suggest that the bulk of new large deal opportunities around Simpana will be realized in CY2008. Moreover, the channel opportunity for the software has not yet truly begun to materialize with CommVault only rolling out Simpana to the channel in October. With partnerships with Arrow and Bull still in their nascent stages, these additional channels should drive incremental revenue growth moving forward. Finally CommVault's success in aligning its marketing with leaders in new server/storage technologies (VMW, NTAP, DDUP), in our view puts the company in a position to benefit



from the adoption of these new categories even though it plays primarily in an older technology (backup). With these factors in mind and what we view as an attractive valuation (30X our FY08 EPS estimate and 4XFY08 sales), we remain positive on CVLT.

### **Less expensive ways to play emerging trends in storage**

Currently we are seeing a number of new technology trends that are just beginning to impact the storage environment. The market has embraced some of these trends such as server virtualization and data deduplication with both VMware and Data Domain rallying impressively following recent IPOs. In addition, the markets appear very willing to give new technology in general the benefit of the doubt with ISLN, MLNX, and CML also debuting with BlueArc, Equallogic, and 3PAR, set to follow after a number of years that saw little IPO activity in storage.

At the same time, we believe that investors have not fully investigated all of the players that stand to benefit either directly or indirectly from these trends. As such we see a number of less expensive ways to be involved in emerging technologies and would highlight opportunities in EMC(virtualization), Quantum (deduplication), and Xyratex (all of the above).

## **Headquarters**

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