



## **The Common Technology Engine (CTE): The Centerpiece of Singular Information Management**

CommVault's revolutionary **Simpana**™ Software Suite is the world's only data management solution made up of modules designed from the ground up on a single code to work together seamlessly, sharing a single set of enterprise-level services.

Our **Data Protection**, **Archive**, **Replication**, **Resource Management**, and **Search** modules give you singular efficiency, performance, reliability, and control over your enterprise—to help you manage data growth, lower costs and reduce risk better than ever before.

## Singular Benefits

CommVault's Singular approach to data management gives you operational efficiencies you did not think were possible. That's because all Simpana software modules share a single set of common services used for backup, recovery, replication, copy, archive and retrieve operations.

Together these services are called the Common Technology Engine. This engine delivers optimized data movement, easy expansion to support changing business requirements, and secure control. This value is provided in software services used commonly for all data management. Disk-based capabilities make it possible to provide more access to users, and raise the value of managed data to your business.

### Bottom-Line Efficiencies for Managing Data

- 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

### Top-Line Business Value of Information Search

- Increased productivity for users who can find and use their own desktop files quickly and easily
- Self-serve recovery of backup and archive data by users
- Lower-cost legal discovery
- Improved competitiveness
- Reduced burden on administrators who no longer need to provide access to data for users



## Singular Efficiencies— What If You Didn't Need More Storage to Store Your Data?

Imagine a world in which your backup and archive data copies could take less disk space, you could get more use from storage and library devices that you already own, and your administrators needed less time to manage data.

That world is here. CommVault's exclusive Singular approach provides data protection archive, and replication – all managed in a single Unified Console view – using shared systems, networks and storage devices.

Efficiency innovations include better disk-based data handling, Single Instance Stores (SIS), single-pass disk scanning for dramatic performance improvements, built-in data encryption, compression and secure access. All of which combine to lower your costs of data management by giving you more from your current infrastructure.

## Singular Search— What if Managed Data was More than Just a Cost to Your Business?

Imagine a world in which your business users could enter a word or two in an easy-to-use Web Interface, and find any file that they needed from their desktop. Imagine if your business users could easily browse and restore their own backup and archive data rather than relying on administrators.

Imagine a legal discovery process in which the legal team had direct access to search and collect any copy of data that they need – from backups or archives, across disk and tape, covering end-user files as well as email. Now imagine that they don't need help from administrators to get it done.

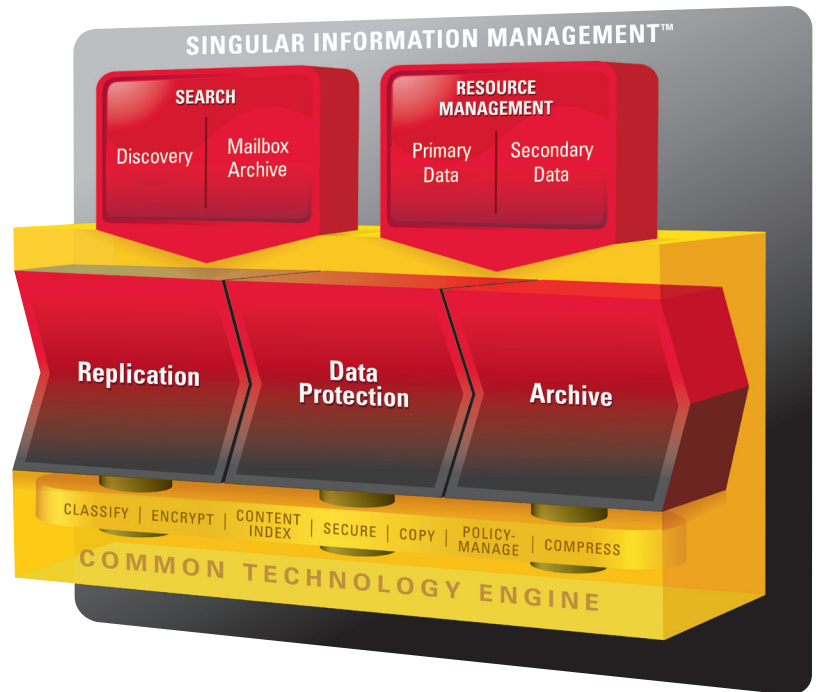
That world is also here. CommVault's exclusive Singular approach creates a single virtualized pool of managed data, providing a foundation for easy and efficient access by business people. This easy access transforms managed data into information with the power to improve the competitiveness and productivity of your business.

Find out how the Singular approach can benefit you by working with CommVault experts to walk through the details and see the numbers. Let us help you lower the costs of data management while raising its value to your business.

## Innovative Capabilities: Shared Services

Shared services mean more efficiencies and better innovation across all of the types of data management that you choose to operate. These innovations include:

- Search Web Interface, for enabling end-user search, sort and retrieve of managed data files
- Single Instance Store (SIS), for eliminating duplicate files from across backup and archive copies on disk
- Single Console, for single pane-of-glass administrative control
- Encryption, for secure data management
- Data Classification Enabler single-pass scan, for dramatic reductions in the time required to backup or archive client data
- Auxiliary Copy, for cost-efficient use of storage tiers managed by Storage Policies
- GridStor™ operations, for higher systems reliability
- Vault Tracker™ capabilities, for built-in management of removable media
- Reporting, for point-and-click verification
- Self-Managed Indexing, for maximum operational performance with least administrative burden



## Select Among These Singular Capabilities

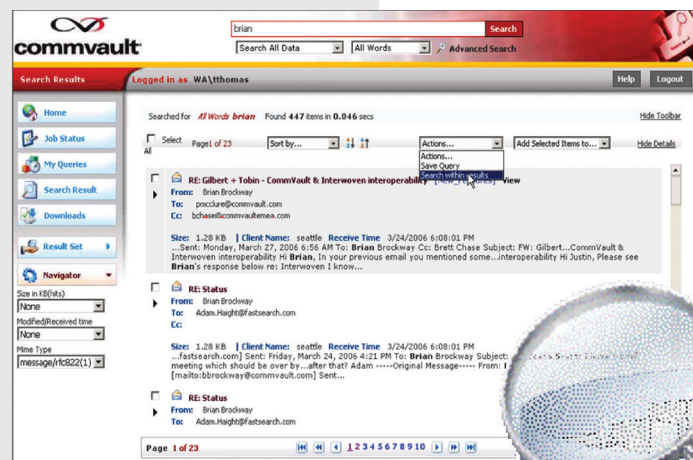
<b>Common Technology Engine</b>	<ul style="list-style-type: none"> <li>▪ Establishes a foundation for data movement and management</li> <li>▪ Provides shared services — like encryption and reporting — which benefit all Singular Information Management™ products</li> <li>▪ Breaks through traditional data silos to allow a 360° view of all managed data</li> <li>▪ Enables shared servers, networks and devices across management functions</li> </ul>
<b>Data Protection</b>	<ul style="list-style-type: none"> <li>▪ Provides reliable, efficient backup and recovery for file systems, applications and database systems</li> <li>▪ 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</li> <li>▪ Reduces the need for additional storage devices and reduces tape costs</li> </ul>
<b>Archive</b>	<ul style="list-style-type: none"> <li>▪ Archives data from file systems, NAS, Microsoft Exchange and Microsoft Exchange and IBM Lotus Domino messaging systems, and Microsoft SharePoint systems to secondary storage which can span disk and tape</li> <li>▪ Controls data growth, decreases storage spending, and enables electronic discovery and compliance</li> <li>▪ Scales to millions of files and messages</li> </ul>
<b>Replication</b>	<ul style="list-style-type: none"> <li>▪ Protects critical applications and remote office data with snapshots and byte-level replication</li> <li>▪ Manages hardware-based snapshots seamlessly as part of the data management process</li> </ul>
<b>Resource Management</b>	<ul style="list-style-type: none"> <li>▪ Provides historical and trend analysis reporting across all data, primary and secondary, world-wide</li> <li>▪ Enables accurate cost-accounting and monitoring across divisions, geographies, and applications</li> <li>▪ Automates delivery of comprehensive CxO-ready performance summaries</li> </ul>
<b>Search</b>	<ul style="list-style-type: none"> <li>▪ Embedded FAST® Content Indexing provides full-text search and retrieval of messages and attachments</li> <li>▪ Search Web Interface provides users with intuitive, fast access of desktop data and capabilities to perform easy, self-serve recovery of backup and archive data copies</li> <li>▪ Federated search to find any data in the CommCell with a single search process, across sites and systems</li> </ul>

## Easy Access: Search Web Interface

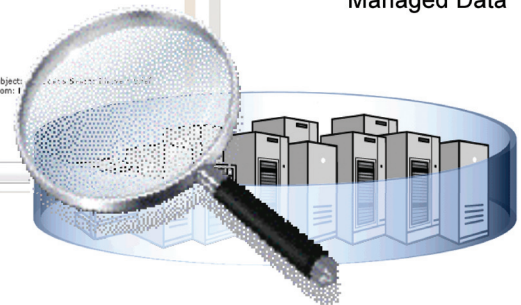
Data growth continues to put stress on information technology (IT) infrastructures, demanding ever-increasing budgets and equipment. Unstructured file systems and e-mail data present particular challenges in growth and management, because of the nature of how and when the data is created. Users are typically not responsive to quotas, and are typically disorganized in saving and naming their files and in managing their e-mail folders. This makes it more difficult to determine which files and messages are business-critical and which can be retired to help control data growth. This data chaos also makes it difficult for administrators to help users to find missing or lost files when required.

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, CommVault's Search 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.



Easy, Fast Web  
Access to a  
Single, Virtual Pool of  
Managed Data



## Get More Data on Disk: Single Instance Store (SIS)

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, 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:

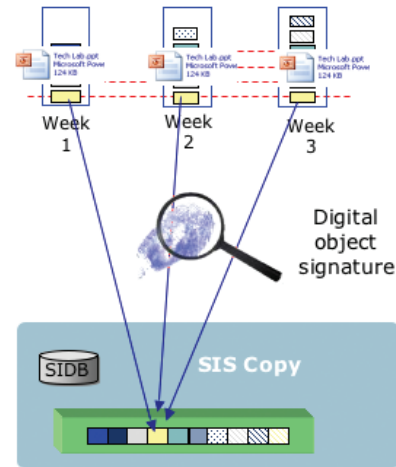
- Eliminating duplicate files across backup cycles
- Eliminating duplicate files across backup and archive copies
- Consolidating tape copies of data to SIS disk copies for search and discovery

SIS copies can use any type of disk storage device, including de-duplication devices which remove duplicate blocks that may be present in the same file.

## Get More Data Managed in Less Time: Data Classification Enabler

This feature works with the Windows Journal to capture and track changes written to the Windows file system, and eliminates 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 option. Only CommVault is providing the Data Classification Enabler to avoid multiple disk scans. CommVault's exclusive 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.

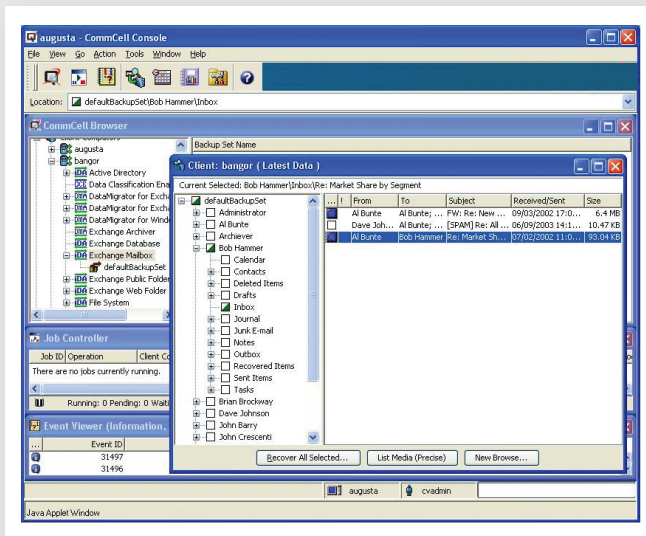
*Backup or Archive Logical Copy Sets*



## Single Pane-of-Glass Control: CommVault® Single Console

CommVault software gives you unmatched control of data management from a single, unified browser console. This console is easy to learn, efficient to use, and comprehensive in its capability.

This includes the capability to search for any data managed in the CommCell™ deployment using a single search process. Leverage administration time and talent more effectively by lowering training costs and management burdens.



Use the Single Console to:

- Configure
- Monitor
- Search
- Snapshot
- Backup
- Copy
- Retrieve
- Report
- Restore
- Archive
- Replicate

## Secure Data Management: Built-In Encryption

The Common Technology Engine also builds in encryption options, to ensure that data moved across networks and data stored on devices is secure from hacking, sniffing and theft when tapes go missing. Select from AES, Blowfish and other algorithms.

Because encryption is only as secure as decryption, robust key management makes CommVault encryption better. Keys can be stored where and how required with passphrase encryption. Also, the same encryption policies can be applied to replication, backup and archive data copies with comprehensive key management automated as part of the process.

## Efficient Data Movement: Auxiliary Copy

Getting the best value from a tiered storage environment requires the capability to move data efficiently from one class of device to another as data ages, becomes less frequently accessed and less valuable. The CommVault Singular approach builds efficient data movement into the process, by providing Auxiliary (Aux) Copy capabilities.

Aux Copies of backup and archive data can be made at any time, on-demand, and from any copy under management. Aux Copies can be made inline, at the time the initial backup or archive copy is made, such as by creating a backup copy on disk and tape at the same time. Aux Copies can be made from other copies, such as by making a copy from near-line to less expensive off-line storage after the short-term retention period expires. Aux Copy prunes the data copy from the original disk, to free it for other use as part of the copy process.

Aux Copy capabilities are automated by one or more CTE Storage Policies to optimal efficiency, and span any type of disk, tape, and optical devices for maximum cost-savings options. Because the Singular approach applies to everything, automated Aux Copy makes it simple for archive pools to span disk and tape media along with backup repositories.

## Higher Reliability: GridStor™ Services

GridStor operations are built into the CTE which raises the reliability of getting your data management job done. GridStor failover capabilities complete jobs when servers and networks go down, by resuming those jobs on alternate network paths. Jobs are resumed – not restarted – which helps critical jobs complete when windows are tight and you cannot restart long jobs.

The Singular approach means that GridStor capabilities benefit all data management jobs – including backup, recovery, copy, archive and retrieve. GridStor capabilities also span storage devices and drives, and append data copies to partially full tapes. This typically results in less disk and tape used. The CTE preserves easy, one-step recovery – making it practical to get the best value from your storage equipment.

## Safeguarding Removable Media: Vault Tracker™ Capabilities

Tracking removable media – such as tapes – can be easy when it is built into the normal process of managing data. Data is only useful when it can be found and recovered. Data stored on removable media is most often rotated to off-site locations, significantly increasing the challenge of tracking and finding the data.

CommVault Vault Tracker capabilities simplify the challenge by building in capabilities for managing rotation cycles, tracking the location of individual media and bins, and notifying administrators when media are due back. All of the bells and whistles are included, like FTP notification, foreign media tracking, bar code capabilities and easy, fast reporting.

## Fast, Point-and-Click Verification: Built-In Reporting

CommVault software enables easy, fast reporting as part of the process. Selected with the touch of a button from the Unified Console, you can create reports for replication, backup and archive with point-and-click simplicity.

Schedule reports, attach them to email for easy distribution, and export them in comma-delimited format for spreadsheet analysis. Prove the value of data management with easy, comprehensive reports.

## Scalable, Self-Managed Index: An Enterprise-Class Foundation

Unique self-managed, self-describing index capabilities are the foundation of the CommVault Singular approach to data management. The CommVault “master” server, called the CommServe™ system, stores only a small amount of meta-data in a SQL Server index. The vast majority of the CommVault meta-data is managed and stored by CommVault Media Agents in a dual-commit process which reduces administrative requirements for managing the index while simultaneously raising its reliability.

For easy disaster recovery, CommVault SQL Server index protection is built into the regular backup cycle by default. You can rebuild an entire CommVault data environment at a hot site, quickly and easily, using just the catalog contained in the SQL Server index.

CommVault Media Agents manage the majority of the work of indexing the backup and archive data copies, and use a distributed relational database to ensure fast performance and scalability. As operational loads increase and change, you can easily add and re-allocate Media Agents. The distributed index is self-managing, because it is written in chunks to storage along with managed data. In the event that the index cannot be found on the Media Agent – or when tapes are being read at disaster recovery sites – the index is read directly from the storage device along with the data.

In short, the normal headaches associated with index management just do not exist with the CommVault Singular approach: tape scanning, dedicating tape pools to index protection, and manual management of index protection are all overcome with CommVault software.

CommVault Media Agents run on your choice of UNIX, Linux, NetWare and Microsoft Windows systems – in any combination. In this way, CommVault software gives you the power of enterprise computing as the foundation for data management across your environment.



## Application-Aware Capability: CommVault® Core Competency

The CommVault Singular approach of managing all copies of data, for all of your key systems and applications with a single solution, provides you with unmatched efficiency, control and capability for managing data across your entire environment. In this way, CommVault software provides an environment for Solving Forward™ as you change and expand your systems deployment over time.

File Systems	Applications	Database	NAS NDMP Systems
AIX	Lotus Notes Services	IBM DB2	Archivas
FreeBSD	Lotus Notes/Domino Server	IBM Informix	Agami
HP-UX	Microsoft Exchange Server	Microsoft SQL Server	BlueArc
Macintosh	Microsoft SharePoint Technologies and Products	Oracle Systems	EMC Celerra*
Microsoft Windows & Active Directory	Novell GroupWise	Oracle RAC Systems	Hitachi
Microsoft Virtual Systems	SAP R3 and NetWeaver Solutions	Sybase	NetApp
NetWare Server			ONstor
Red Flag Linux			Pillar Data
Red Hat Linux			*EMC Centera is also supported, for data archive
SGI Irix64			
Solaris			
SuSE OES Linux			
Tru64			
VMware Virtual Machines			



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