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Conquering the Next Big Challenge for the Modern Enterprise – Data at the Edge

Drive Efficiency and Productivity by Centralizing Protection, Expediting Recovery and Enhancing Access for Remote/Branch Office and Laptop/Desktop Data

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Contents

Executive Summary

With more and more critical data residing at the "edge" of the enterprise in remote or branch offices (ROBOs) and on client systems, the ability to reliably protect and quickly recover this data has become more critical to business continuity and end-user productivity. In addition, an increasingly mobile workforce is creating and sharing more data outside the traditional control of those primarily tasked with protecting it. If organizations are not able to efficiently and effectively address these challenges, they face significant business risk associated with losing or having to recreate unprotected edge data, not knowing what data exists in an environment and not being able to find it in association with a lawsuit or compliance requirement. Protecting and recovering data at remote sites and at end-points using legacy technologies can consume scarce resources, require expertise that often isn't present, and is prone to failure. In addition, these isolated systems can be expensive to deploy and manage. In the case of a site-level disaster—such as natural disasters, human error, viruses, and security breaches—organizations need to have a copy of important data stored safely, far away from the remote office that holds the original copy, but that is still easily and rapidly accessible. Without a centralized strategy, organizations are at risk for lost data, which can result in reduced operational capability and employee productivity as well as a range of other business consequences.

CommVault® Simpana® software is one product built on a single platform to intelligently manage and protect data and information across locations, heterogeneous applications, hypervisors, operating systems and infrastructure from a single console, delivering a complete solution encompassing ROBOs and end-point environments. As a key part of a modern data protection strategy, it dramatically reduces the cost and risk associated with protecting, finding and recovering data at remote or local offices and on desktops and laptops by optimizing and centralizing protection, retention and recovery operations. As more and more data is created at the edge of the enterprise, Simpana software offers a dependable, secure and easy to use solution for efficiently protecting and accessing that data according to the same standards as your data center, helping ensure business continuity and workforce productivity and reducing risk.

ROBOs and End Users Present A Range of Data Management Challenges

Data outside the data center is often just as critical to the success of your organization as that residing within it. Yet, this data is often unreliably protected due to insufficient network bandwidth, a lack of trained IT staff at remote sites and the high cost associated with managing distributed multi-platform environments.

As the volume of data created and stored at the edge of the enterprise continues to grow, legacy data protection and management tools have become less capable of easily protecting it and ensuring business continuity. The data management burden on staff members at remote sites, who often are not IT professionals, is significant and continues to grow along with the data. Expecting end users to perform their own backups puts data at risk and limits your visibility into what data is in your environment. In addition, if you don't have an easy to use way for end users to recover their own data from a centralized protection plan, then the IT staff will easily become overburdened performing requests to find files for them.

Downtime, effort spent re-creating assets and data loss—the consequences of unprotected and/ or unrecoverable data—are costly. Whether you are taking busy production systems offline for backup or in order to recover data, downtime can significantly impact your organization's mission or your company's revenue, worker productivity and customer satisfaction. In the event of a temporary outage, a disaster or application data corruption, it becomes critical to access a more recent copy of your data than last night's or last week's backup. You must be able to quickly recover specific files or to specific points in time so you can prevent data loss or roll back from corruption. It's time to modernize your backup approach for ROBO and end-point data with a single platform. Simpana software replaces outdated legacy backup products that have not kept pace with today's growing data center business challenges and contributed to management complexity, skyrocketing costs and put vulnerable data at risk.

The problem with extending the traditional backup strategy used in a data center to ROBOs and end-point data is that it is not cost effective to deploy at each remote site. Traditional strategies require additional backup software and hardware that is expensive to purchase and maintain. They also require technical resources not readily available at remote sites. Instead, many organizations use local tape to back up data at remote or branch offices. But this approach requires a significant amount of effort and administration. For example, when tapes are sent off site, security becomes an issue—reports of data tapes lost in transit or delivered to the wrong client are not uncommon. For organizations that don't use tape and instead send large backups over the wire from remote locations to a central data center, a lack of sufficient network bandwidth becomes the issue. Finally, other methods, like using disparate, point appliances or localized disk and replication, are not ideal because they add cost and complexity if they are not part of a unified solution for managing data across the enterprise.

Finding an efficient protection solution for distributed data becomes pressing for organizations under a number of circumstances. For example, they may need to centralize and consolidate operations because they lack the resources to reliably protect and recover data locally at remote sites or across their desktops and laptops. In another case, they may want to implement a cost-effective disaster recovery strategy that leverages remote sites or virtual environments. This can entail efficiently distributing copies of backup data on disk at another site in order to improve RTO/RPO by maintaining a current copy of data to enable fast-yet-granular recovery to specific points in time. In both cases, they want to be able to take advantage of technologies that can reduce WAN bandwidth requirements because for many organizations the ability to centrally protect data is inhibited by limited network resources.

Simpana® Software—Modern Data Protection

CommVault® Simpana® software dramatically reduces the cost, time and risk associated with protecting, recovering, finding and accessing data across the enterprise, regardless of where it resides—in a data center, in remote or branch offices or on desktops and laptops. Simpana software provides multiple options for data protection and recovery, enabling you to select and combine multiple data gathering methods to ensure recoverability of critical data and applications. You can perform local backup at remote sites to expedite recovery, or centralize protection, retention and recovery operations to improve operational efficiency and reduce business risks associated with lost information. In addition, the CommVault solution sends only unique, source-side deduplicated data from each remote site or client, providing an extremely bandwidth efficient method of centrally protecting critical data. Finally, you can reduce the cost of storing and managing this protected data by tiering it on the most cost-effective storage platform, including heterogeneous disk, tape and the cloud thanks to the single index and policy-based automation features of the Simpana ContentStore.

Simpana® software is one product that contains individually licensable modules—all built on a single unifying code base and platform—to Analyze, Replicate, Protect, Archive, and Search your data and information. All these capabilities are integrated into a single, efficient, scalable platform that delivers a complete solution for ROBO environments, end-point protection and data centers—and it is all managed from a single console. Simpana software provides multiple backup and recovery options, a flexible IT infrastructure for data protection, the ability to find and access data quickly and easily, including a wide variety of self-service options, reporting that provides insight into your environment and disaster recovery capabilities to help ensure business continuity. It delivers the unparalleled advantages and benefits of a truly holistic approach to data and information management.

The CommVault® Simpana® Solution— Improving ROBO Data Protection and Recoverability

CommVault® Simpana® software provides multiple options that reliably and cost-effectively enables you to protect your remote data. It allows you to distribute backup copies across many locations, to consolidate data directly to a central site over thin WAN connections and to maintain a local copy for fast recovery. Once remote and client data is consolidated, in the data center or the cloud of your choosing, you can ensure your compliance and governance policies are executed, exercise more control over your data, use it for disaster recovery needs, search it and feel confident that you are meeting your long term

retention requirements. With CommVault Simpana software, all of these needs can be met easily using one interface, whether you want to deploy a consistent set of data management policies for all data in the enterprise or tailor policies to specific needs, and if tape is still part of your data protection strategy, CommVault software allows copies of data to be moved to tape in a compressed, deduplicated state to improve retention and reduce media costs.

Scenario 1:
Remote Office Protection – Featuring Client–Site Deduplication
In this solution (on the left in Figure 1 below) the data is compressed on the client side then a hash or signature is generated. This hash is then checked against a local copy, client-specific version of the Deduplication Database (SSDB).

- If the hash is already present in the SSDB, then it signifies that the data segment was already encountered in a previous backup. In this case, only the hashing information is sent to the Media Agent Deduplication Database at the central site. The hashing information is updated in the Central DDB and the Chunk Meta data is written to the disk library.
- If a signature is not present in the SSDB, then it signifies that the data segment is a delta for this subclient. In this case, the Client sends the hashing information to the Media Agent. The Media Agent then checks the central DDB to determine if the hash has been previously backed up.
- If the Media Agent finds a match to the hash in the Central DDB, then the hashing information is sent back to the SSDB to be updated. This is done so the next time the hash is encountered a remote lookup does not have to be done.
- If the Media Agent doesn't find a match to the hash a message is sent to the SSDB to send the hashing information and the block of data. The Central DDB is then updated with the hashing information and data is written to the disk library. After the data has been committed the hashing information is sent to the SSDB.

Since Simpana software's data mover based deduplication process eliminates redundant data segments in memory and writes only unique segments to the backend, only unique segments are sent over the WAN to the central site. This occurs whether you are performing full or incremental backups. The data in the central site is immediately available for secondary processing and for moving to tape or even the cloud.
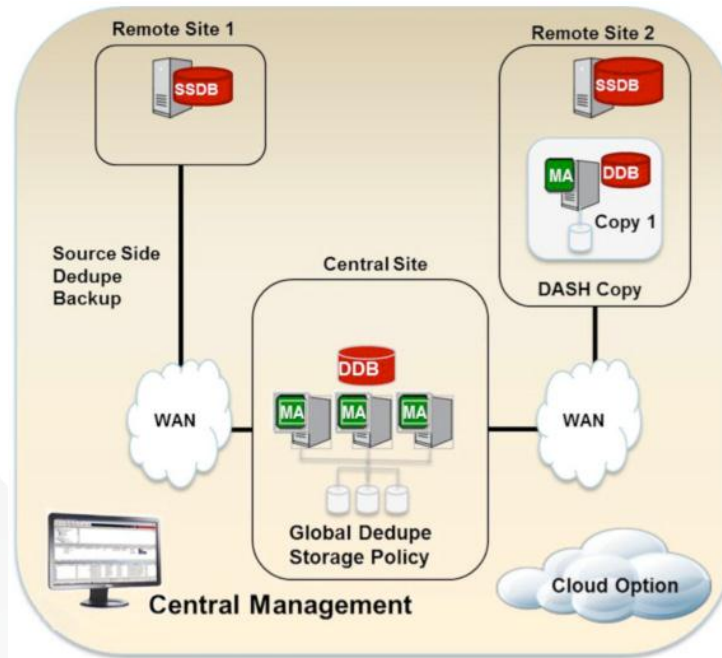

Figure 1: Remote Office Protection Options

Scenario 2:
Remote Office Protection – Local Copy On-site with Secondary Copy in Central Site
In this scenario (on the right in Figure 1 above), CommVault backup agents are installed on remote office servers that are configured to backup data to a remote MediaAgent with a local deduplicated disk store. In the central site another MediaAgent is configured with its own deduplicated disk store. A DASH (Deduplication Accelerated Streaming Hash) copy is configured between the two disk stores. When backup operations are executed on the remote servers, the remote MediaAgent writes only new or changed data segments to disk. Once the data is committed, the scheduled DASH copy transfers only the changed data segments over the WAN to the disk store in the central site. Upon completion, the data at the central site is instantly available for secondary processing at the central site via the central MediaAgent. This is similar in theory to using replication between two deduplication appliances. However, Simpana software's approach offers the advantage of having that data readily available at the central site. There is no need to transfer or restore catalogs on the central site to access the data. In the time it takes to replicate the changed data over the WAN, a disaster recovery copy is created and ready to use without any additional steps.

DASH Copy Flexibility

In addition, DASH copy can be used to have independent retention periods for copies of backup data and efficiently place them wherever you need to, so that you can control how long data remains online and where it is located for each copy. You can meet recovery and retention requirements without paying the penalty of having to rehydrate data first and then deduplicate it again on the backend.

In Figure 2 (below) you see a data center replicating copies to 3 places. In one case on the top right a local copy is being created in the same data center that's being retained online for 30 days. Below that is a retention copy being created and stored online for 2 years and, at the bottom left, a DR copy is being retained online for 90 days. Because Simpana software is dedupe aware, only changed blocks are transferred which improves performance, eliminates rehydration and reduces network bandwidth demands. Many other advanced features are also available, such as being able to have multiple hops and being able to have cascaded copies.
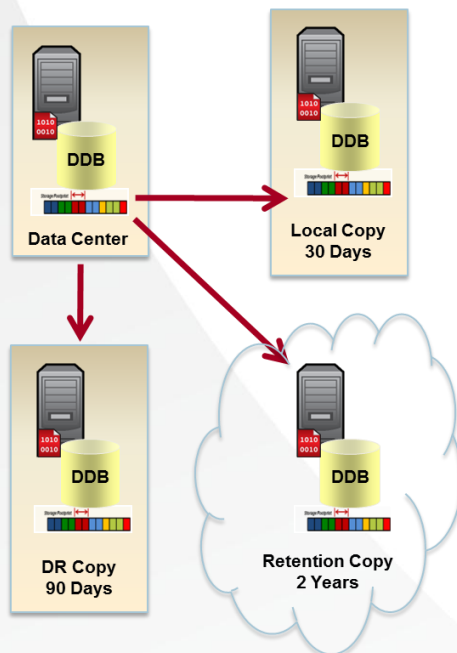

Figure 2: Independent Retention for Deduplicated Data Sets using DASH Copy

The CommVault® Simpana® Solution — An Exponential Leap in End-Point Data Protection, Recoverability and Self-Service Access

Desktop and laptop computers often hold the data that makes a business successful, some or all of which may be subject to stringent security and compliance requirements. Protecting and securing that data has become a much greater priority due to the risk to the business of losing critical information and the impact to productivity caused by employees that are required to re-create it when it is accidentally deleted, corrupted or when a notebook is damaged or lost. Legacy protection approaches have fallen short due to network, security, cost and usability constraints. Furthermore, restoring end-user data can be slow and resource intensive with legacy solutions. As part of the Simpana single platform, CommVault Edge™ is an innovative and complete edge data protection solution that meets these challenges head-on with robust features that simplify management and access, improve availability, and reduce costs while exceeding requirements for scale, security and compliance. Easily and securely protect end-point data from centralized deployments of a few hundred systems all the way up to large scale, distributed environments with thousands of systems.

The CommVault Edge™ solution enables you to:

- Reduce Management Costs—Administrators can deploy, setup, and manage large scale distributed data environments easier than ever. For example, you can easily manage up to 10,000 systems on one Commcell and leverage installation policies that can automate silent deployment and installation, recognize new clients and add them without human intervention and enable the automatic application of unique backup parameters based on predetermined user groups.

- Unify Data Management—Simpana software reduces complexity with a single platform for all backup, recovery, and archive management with consolidated reporting, security controls and auditing. Integrated compliance archive, search and e-Discovery options boost the value of CommVault Edge™.

- Improve Resource Utilization—Protecting edge data can be challenging because of WAN limitations and end-user constraints. Source-side deduplication technology, coupled with opportunistic backup scheduling, bandwidth throttling and the ability to both define connection preferences and only run a backup if a file has changed dramatically improves the ability to protect distributed data transparently to the end-user with existing network resources.

- Access and Restore End-user Data Quickly—Administrators can easily recover an employee's files (in or out of place) using backup data located centrally. End-users can find and restore files from any backup on any client they are authorized to access, without requiring administrator intervention, through a web console, native mobile apps, and a Windows Explorer plug-in.

- Transfer Data Securely—A VPN is not required for secure data transport when using CommVault Edge™. Full encryption at all stages and HTTPS can be used together instead of a VPN for strong security that is cost-effective and easy to manage.
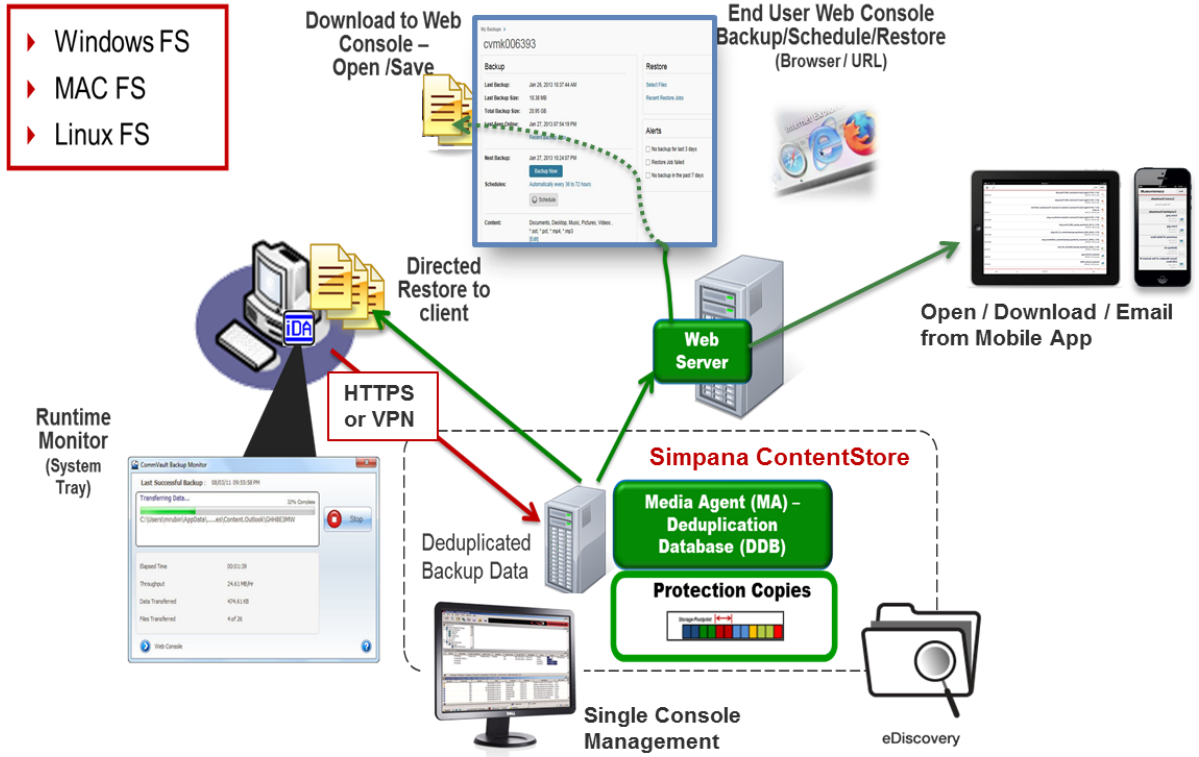
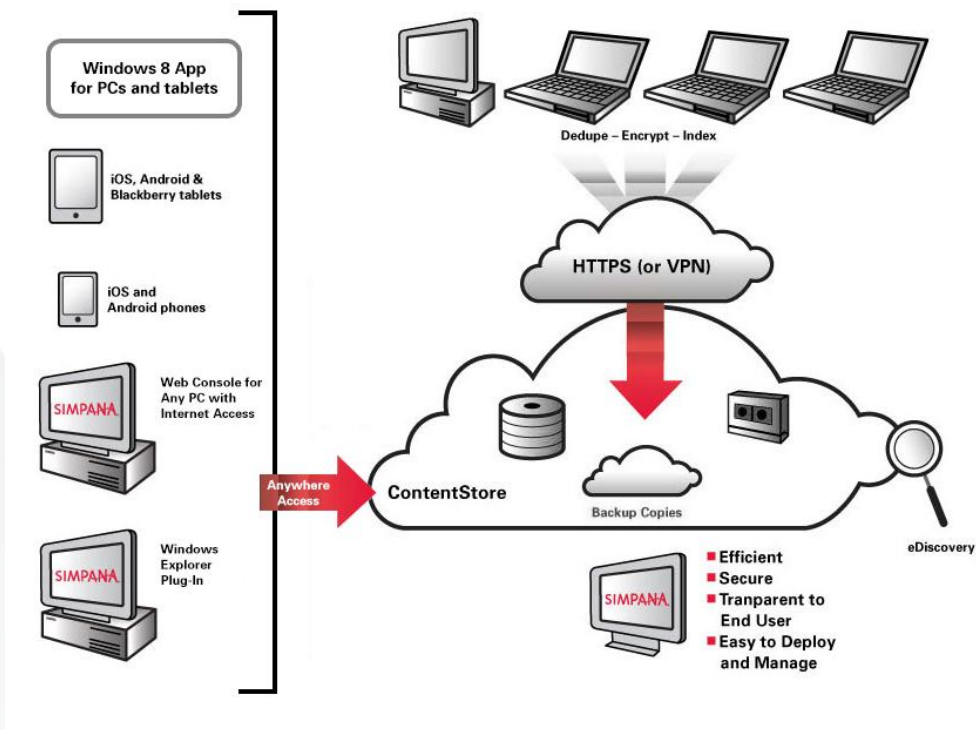Figure 3: CommVault Edge™ Solution Architecture

Figure 4: CommVault Edge™ Self-Service Access Options

The Best Data Management Solution for Distributed Data

Enterprises with distributed data need a cost-efficient, easy to use and reliable solution for protecting and, when necessary, recovering and accessing business-critical data created and stored away from the data center. Through a single console, CommVault® Simpana® software provides increased backup efficiency and reliability, multiple backup and recovery options, optimized network efficiency, simplified administration, powerful reporting and reduced costs—all to ensure you can protect and find your critical data assets, reduce risk, and ensure business continuity and productivity.

Simpana® Software Platform Benefits

Through its single platform, Simpana software can intelligently manage data and information across heterogeneous applications, virtual servers, operating systems and infrastructure from a single console. It solves the problem of protecting enterprise data – from the data center to the edge and to the cloud - with a single platform. It is designed to efficiently capture, move, retain, find and recover data from any storage tier, including disk, tape and cloud. Simpana software:
Simplifies and expands data protection and recovery options for ROBOs, administrators and end-users.

- Enables cost-effective, consolidated backup of data from remote locations and client end-points.
- Facilitates implementation of tiered storage.
- Increases application and data availability.
- Improves backup efficiency and reliability.
- Helps improve productivity with self-service access to data from virtually anywhere and any device.
- Reduces the cost, time and risk for search and eDiscovery.
- Provides one interface for data management.

Figure 5: CommVault Simpana Common Platform

With Simpana software, you are able to deploy a backup solution for edge data, in ROBO settings and on desktops, workstations and laptops, that is integrated into the CommVault enterprise backup and recovery infrastructure with the same reporting, scheduling, administration, ease of use and ability to use any storage tier, from disk to tape to cloud. As a result, you can leverage a central data management infrastructure to bring remote office and end-point data protection and recovery operations up to the same standards as your data center, efficiently manage operations, reduce costs, enhance protection, speed recovery, limit risk and increase access and visibility to the data across your enterprise.

For more information on CommVault solutions for Remote Office and Branch Office environments:
http://www.commvault.com/simpana-software/features/backup-and-recovery

For more information on CommVault solutions for Desktop and Laptop Protection:
http://www.commvault.com/simpana-software/solutions/empower-mobile-workforce

About CommVault

A singular vision—a belief in a better way to address current and future data management needs—guides CommVault in the development of Singular Information Management® solutions for high-performance data protection, universal availability and simplified management of data on complex storage networks. CommVault's exclusive single-platform architecture gives companies unprecedented control over data growth, costs and risk. CommVault Simpana software was designed to work together seamlessly from the ground up, sharing a single code and common function set, to deliver superlative backup and recovery, archive, replication, search and resource management capabilities. More companies every day join those who have discovered the unparalleled efficiency, performance, reliability, and control only CommVault can offer. Information about CommVault is available at www.commvault.com. CommVault's corporate headquarters is located in Oceanport, New Jersey, in the United States.