

A CommVault® White Paper

Efficient Data Management in 3 Simple Steps

**Transform your Data Management Operations
with CommVault® Simpana® 10 Software**



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The Perfect Storm for Data Management: Big Data, Cloud and Mobility

Cloud computing is overhauling the ways in which IT is built, used and delivered to end users and customers. The prospect of using IT rather than owning IT to deliver reduce costs and improve efficiencies while at the same time increasing the agility and responsiveness of business services is too compelling to ignore. But unanswered questions abound: Which services are best moved to the cloud and which should remain on-premise? Perhaps most importantly to many customers, what about the data that drives all these cloud-based applications and services? How are we protecting and securing it while at the same time allowing role-based access? Most concerning, with 71% of employees using unsanctioned cloud services¹, how can you deliver wide scale, safe access to corporate data to regain control and reduce risk?

On the Business Intelligence side, we are only at the beginning of the so-called “Big Data” wave, and already the volume, velocity and variety of data is overwhelming legacy infrastructures from a management perspective. But simply getting a handle on managing the data it is not enough – leading companies are recognizing that there is value in that data that will allow them to fundamentally transform their businesses for increased competitive advantage.

And finally, mobility is transforming the ways and locations in which we all work. Customers are accessing applications, services and data from new locations and using non-traditional devices to perform these tasks. This is quickly making anywhere, anytime, any device access to data a critical requirement for any enterprise.

The Perfect Storm? Or the Perfect Opportunity?

The technology industry in the early 2010’s is an industry in the midst of massive change. For the second straight year, Gartner reports that “Business Intelligence”, “Mobile Technologies” and “Cloud Computing” rank 1-2-3 as the 2013 Global CIO Technology Priorities². The combination of these game changing technologies promises to reshape the face of the IT industry, both inside the data center and across the landscape of technology vendors.

This so-called “Perfect Storm” of disruptive and transformational technologies promises to deliver more efficient, more responsive and more dynamic IT services and operations. But it also means massive shifts in the ways IT applications and services are architected, deployed, maintained and consumed. These trends are transforming every link in the IT value chain. Of course these waves of innovations will involve some measure of risk, but the opportunity for business transformation that achieves real competitive advantage is tremendous.

Go Beyond Modern Data Protection

In the midst of this fundamental transformation, a quiet revolution has been underway in the way data is protected, managed and accessed. The rise of “Modern Data Protection” initiatives is not a new trend, but it is one of growing importance. According the Gartner, “Legacy Modernization” remains in the Top 5 CIO Priorities in 2013³, while ESG ranks “Improve data backup and recovery” as the #2 priority for IT organizations⁴ with year. This reflects recognition that legacy backup and archival methods are simply not built for the modern data center with rapid data growth rates, highly virtualized workloads, converged infrastructures and a rising expectation for data that is available and accessible to support true 24x7 operating requirements. This is making data protection modernization absolutely critical to IT success.

Modern data protection solutions are largely focused on faster, more efficient and more scalable approaches to protecting data. The objective is two-fold. First, minimize the impact of protection operations on the front end (applications, physical and virtual platforms and networks). Second, optimize the use of backend to deliver the right equation of retention, recovery and cost to meet line of business requirements. To meet these objectives, IT is now going through a sea-change in deploying an array of advanced feature sets that include methodologies such as array-based snapshots, global and source-side deduplication, replication, and integrated archiving and search.

¹ 2013 State of Cloud Application Access Survey Results, Jan 31, 2013, OneLogin, Inc.

² April 2013, Gartner Inc. “IT Spending Forecast, 1Q13 Update: The Nexus of Forces”

³ April 2013, Gartner Inc: “IT Spending Forecast, 1Q13 Update: The Nexus of Forces”

⁴ Feb 2013, Enterprise Strategy Group: “2013 IT Spending Intentions Survey”



But consider what these MDP technologies all have in common – the primary objective is in the area of efficient operations. When you peel back the cover, the benefits around scalable management, ease of use or access to data and business insights are largely non-existent. So, Modern Data Protection initiatives are a tremendous step forward away from the legacy protection solutions deployed as little as five years ago. But they do not address these emerging customer requirements of streamlined management and secure access to data.

Efficient Data Management with CommVault: Enabling the Data Driven Organization

So if we put the goals of Data Protection Modernization into the larger context of the massive waves of transformation happening with the data center and you'll see that there is still a ton of work to be done in the data management side to make these innovations (Big Data, Mobility and Cloud) truly valuable.

Most customers indicate one or more of the following as objectives of their Data Protection Modernization initiatives:

- 1) **Modernize protection to run more efficient, more scalable operations:** From a technical perspective, any storage or backup admin can tell you that traditional backup is one of the most resource intensive operations in the data center (consuming huge amounts of I/O, network and CPU resources). But this truth has only recently come to the attention of IT leadership largely because of our historical ability to schedule these tasks to run on off-peak hours and the fact that the cost of these resources continues to collapse thanks to Moore's Law. However, in the modern data center where resources are highly consolidated on converged infrastructures, workloads are highly portable and dynamic, shifting along virtual and cloud boundaries and data growth spirals with no end in sight, we can't sweep these challenges under the rug anymore. Any CIO who has been faced with a costly 10 GigE network upgrade to support more stringent data protection and recovery SLAs, driven by data growth and shifting expectations by line of business or applications owners, has seen the direct impact to the bottom line that legacy backup technologies continue to have.
- 2) **Streamline management:** Data continues to grow on a relentless upward spiral, the complexity of IT delivery continues to evolve and IT budgets are being allocated to support strategic initiatives like Big Data, Cloud and Mobility/BYOD programs. However, very few IT budgets include significant growth in headcount to manage these new mandates. So the old mantra of "do more with less" continues, or at a revised mantra of "do more with no more". As the complexity of the infrastructures used to deliver IT services continues to rise and as data growth continues at pace, new data management techniques are required that let a few managers and administrators handle the "Petabyte World" of massive amounts of data, both structure and unstructured. Techniques and capabilities that automate day to day tasks, enable orchestration of more complex tasks across multiple software tools and enable intuitive, actionable reporting back to business owners and senior management.
- 3) **Deliver secure access and insights into data:** IT leaders across the globe tell us that one of the key impediments to employee productivity today is the ability to use, access and share data across the organization in a simple, seamless experience while remaining within compliance and security requirements. This is no easy task, currently being made even more difficult as BYOD initiatives introduce and increasingly complex array of systems and devices that are accessing (or even generating) data, and those unsanctioned cloud services result in a proliferation of data outside the control of the IT department.

Underpinning the need to deliver access and sharing of data is a fundamental concept of getting more from the data that resides within the organization. The average organization has somewhere in the range of 10 to 15 copies of data residing on various tiers of storage – from recovery copies to retention, DR and archive copies. So there is a massive proliferation of data throughout the typical organization. Many leading organizations are recognizing that there is tremendous untapped value in all this data that is primarily lying dormant on cheap tiers of storage waiting for recovery events that occur with limited frequency. They are recognizing that this data could be put to work. We could allow end users and line of business owners direct access into the data – skipping the help desk entirely

CommVault Simpana® 10 Delivering on Efficient Data Management

When CommVault recently introduced the 10th generation of Simpana® software, 2 years in the making and delivering over 300 new features, it was with the specific challenges to data management posed by the triple threat of emerging cloud computing, mobility and big data initiatives in mind. This release represents the next big step for enterprises to continue on their journey to holistic, end to end, software-centric data management and to truly becoming a data driven organization.

Laying the Foundation: ContentStore™

Efficient data management, from CommVault Simpana software, starts with the ContentStore. The best way to think about the ContentStore is as a single virtual repository for data across the organization. ContentStore is foundational to the CommVault Simpana software-centric approach to holistic data management and is one of the key enabling features for Efficient Data Management. All Simpana-managed data resides within the ContentStore—a secure, deduplicated virtual repository. Data is automatically stored and tiered according to user-defined policies, while a shared, intelligent index catalogs and automatically manages data across various locations and copy types for snapshot, backup and archive copies to drive efficient search and retention.



The CommVault Simpana® ContentStore

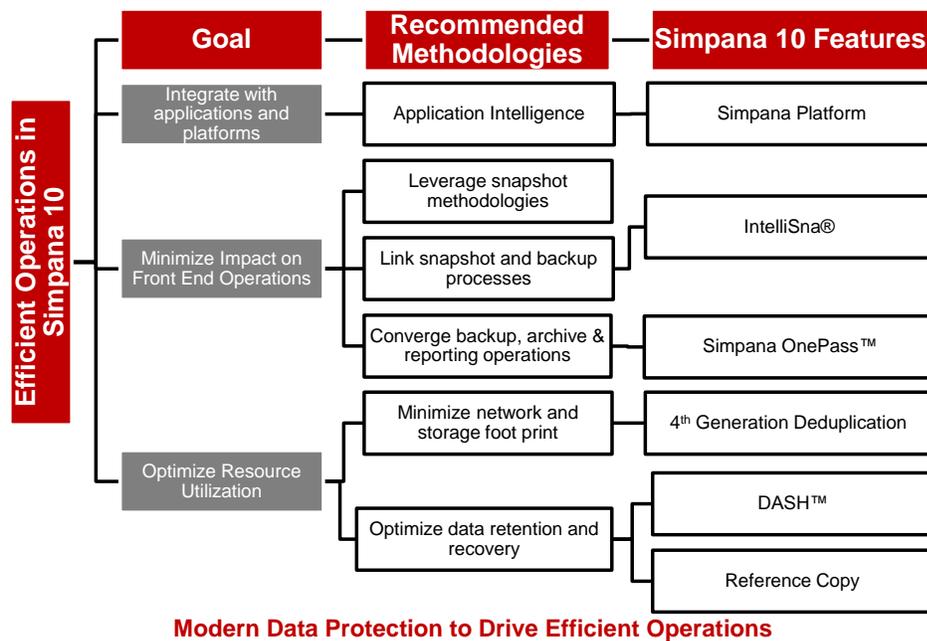
Step 1: Modern Data Protection for Efficient Operations

CommVault® Simpana 10 software continues to extend its lead in solutions designed to deliver more efficient, more scalable operations through Modern Data Protection. But beyond the specific features and enhancements delivered, consider the thought and philosophy behind those enhancements, which can be summarized by three important ideas: 1) Integrate deeply with applications and platforms; 2) Minimize the impact on the front end and; 3) optimize utilization of storage resources and infrastructure.

With this in mind, CommVault Simpana software follows through on this promise by delivering a full set of deeply integrated, modern data protection capabilities designed to work seamlessly within your environment – whatever the unique characteristics of a given data center. The key elements of this approach are

- 1) IntelliSnap® technology – IntelliSnap technology is the industry's broadest and most mature approach for linking the speed and efficiency of array-based snapshots with the long term retention, search, and granular recovery of backup processes. With coverage for 19 out of the top 20 storage arrays and the ability to enable granular recoveries from within a snap (even for virtual machines) and copy snaps off to tiered storage for long term retention and archive, no other solution comes close.
- 2) Simpana OnePass™ - the Simpana OnePass feature will forever change the way you think about archiving data. By combining processes for backup, archive and reporting into a single operation, Simpana OnePass™ technology delivers a 2x performance improvement in protecting and archiving large file or Exchange email environments.

- 3) 4th Gen Deduplication – CommVault continues to deliver industry leading innovations in data deduplication. Now in it's 4th generation, data deduplication embedded in CommVault Simpana software is global in nature, and enables either source or target deduplication to meet changing requirements of the business.
- 4) DASH™ COPY – Possibly the least known gem in Simpana software, DASH Copy will change the way users think about data replication. DASH Copy leverages a unique approach to managing deduplication that allows users to generate multiple copies of data while remaining in deduplicated format. Think of it as WAN-optimized, deduplication-aware replication of data. Customers can use DASH Copy to rapidly generate off-site copies of data for DR without having to rely on expensive array-based replication. DASH Copy is also great for remote and distributed office deployments where users may want to keep a local, deduplicated copy of data at the remote site while also quickly and efficiently sending a secondary copy back to the central site for retention purposes.
- 5) The Simpana® Software Platform – All these and many more important features are delivered through the singular approach to data protection and management that is at the heart of Simpana software. All features are built integrated from the ground up, with no technology acquisitions, no bolt-on additions, and most importantly, no complex scripting requirements to make the solution work. This is the foundation and the driver of everything else CommVault does. And it is the fundamental reason why so many customers say “this solution just works”.



Step 2: Streamlining Management

The fundamental goal in streamlining management processes is generally speaking to “do more with less”, or at a minimum, “do more with no more”. This is where CommVault Simpana 10 truly takes exponential leap forward, letting users: 1) automate routine day to day tasks; 2) orchestrate complex workflows; 3) generate intuitive and actionable reporting.



Policy-based Automation of Routine Tasks

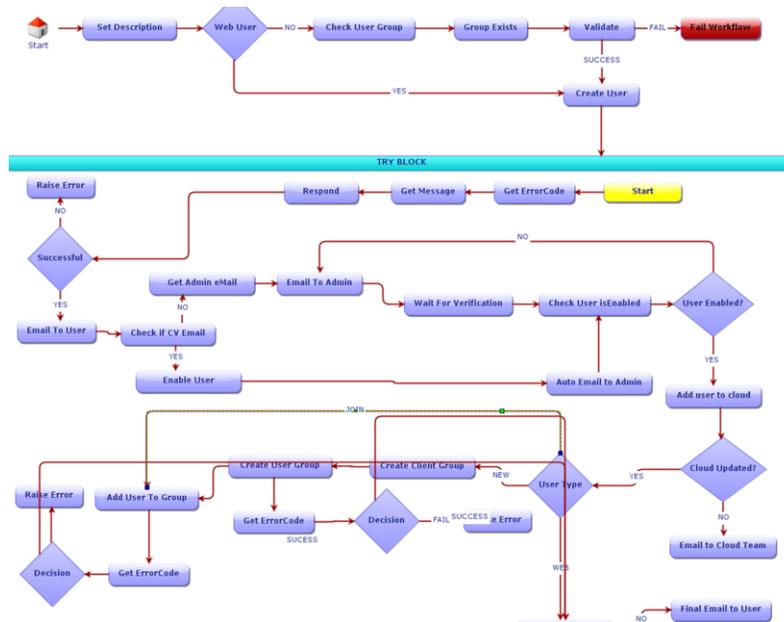
Deeply embedded in the CommVault Simpana platform (and a fundamental part of the ContentStore) is the ability to create storage policies and customized protection SLAs. This policy-based approach to data management allows managers to easily encompass every data management tasks possible with CommVault software (from snapshot copies to backups, archives, as well as off-site retention and DR copies). Automated approaches proliferate so extensively throughout the Simpana GUI and platform, that it would be unwieldy to list them all. However a couple of key compelling examples include:

- 1) Automated storage tiering – through the use of storage policies, users can quickly automate the creation of multi-tiered data protection strategy to balance the competing requirements of retention, recovery time & granularity and cost to meet business requirements. For example, rapid recovery snapshots can be automatically scheduled at granular intervals. Periodically, snapshots can be automatically copied to a secondary disk target for medium term retention and granular recoveries. And a final copy can automatically be generated for long retention to either tape or cloud storage. Through the storage policy approach native to CommVault Simpana 10, these actions can be set up to automatically run on a schedule with zero manual intervention. Operational reporting can then easily summarize these policies for success rates, consumption of resources and long term planning.
- 2) Auto-protection of virtual machines – by leveraging a policy-based approach to VM protection, users can automatically detect virtual machines by using various affinity rules for datastores, VMs, ESX hosts and many more options. Using this approach and default settings, users can be assured that their VMs will be protected.
- 3) Auto-deployment and auto-update – during the initial configuration, CommVault Simpana agents can be configured to automatically deploy based on agent type. Once deployed, automatic updates can be scheduled based on pre-defined parameters.

Workflows

The workflow automation capabilities in Simpana 10 are designed to let you automate repetitive or highly complex data management tasks. Admins may select from an extensive catalog of typical tasks (such as "Register New Clients") or create their own custom workflows using an intuitive graphical user interface. With these advanced tools, admins may automate business tasks by bringing together sets of individual tasks in a specific order or decision tree. A few key example of workflow automation include:

- Laptop registration – this workflow automates the process to add laptops to a [CommVault Edge™](#) protection solution. This is actually being used by CommVault IT to automate the process of deploying laptop protection for our own employees.
- File System Backup Restore – this workflow allows you to back-up data from a client and restore it to a specified destination. Backup and restore operations are performed on demand.
- Execute Process On A Group – this workflow allows you to execute a command (or process) on each client computer that belongs to a specific client group. Great when you have to apply a common change across a large number of clients under management.



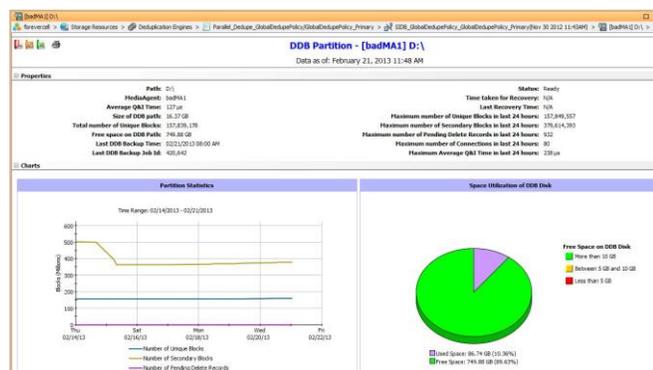
A Workflow Automation Example

Intuitive and Actionable Ops Reporting

In the storage industry, delivering truly intuitive, and actionable reporting capabilities is sort of like finding a unicorn. Most vendors talk a great game around the importance of reporting and dash boarding capabilities, but few actually deliver on the rhetoric. Given the importance and value of delivering great summary views with drill down capability into the status on the data infrastructure, this is no real surprise. Yet many so-called modern data protection solutions continue to rely on .csv data dumps, imports into Excel or other manual processes to generate customized summary views. There a couple key points to understand about the new reporting capabilities available in Simpana 10:

WEB INTERFACE: Newly revamped reporting capabilities in Simpana 10 are one of the hidden jewels in this release. Reporting in Simpana 10 begins with a completely revamped web-based GUI. The new interface delivers powerful, intuitive and easy to view summary reports that can be accessed securely from any browser, anywhere in the world.

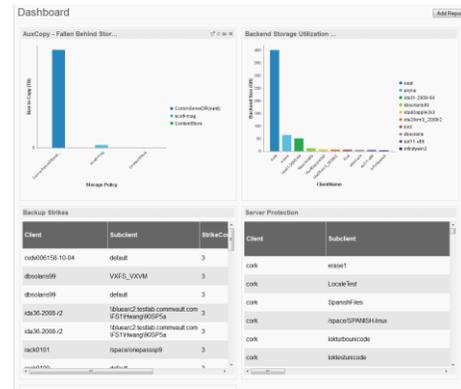
INSTRUMENTATION LEVEL REPORTS: A great example of instrumentation level reporting shown here is the deduplication policy summary, which can be configured to indicate up to date stats on storage consumption, deduplication ratio, size and status of the DDB and much more.



Deduplication Policy Instrumentation Level Reporting Example

While there is an extensive set of canned reports that can be immediately selected, the real power is in the ability to fully customize reports. The custom report capability in Simpana 10 not only allows admins to create fully customizable views of the operating environment (from status to storage consumption to SLA attainment and dedupe/compression ratios). Custom reports also let users create their own reports and dashboard views that be shared with other administrators or up the chain to management. Sharing of reports and dashboard also ties in with the embedded RBAC controls in Simpana 10 so that administrators or management only see reports they are permitted to see for a fully customizable management experience.

DASHBOARD & SUMMARY VIEWS: The detailed reports on instrumentation and job level statistics are great for day-to-day tasks performed by storage administrators. But what makes a good reporting solution a really great reporting solution is its ability to quickly provide dashboard summary views that are easily read and understood by senior management to assist in driving decision making, rather than just providing a view of “what happened last week.” A great example is the SLA report, which provides a quick at-a-glance view of Service Level delivery, rather than simply job success rates. This type of report can be integrated into a custom dashboard, along with reports like storage consumption, network traffic reports, and other higher level summary views that allow senior IT staff to determine the overall health of the data management infrastructure and to begin to plot strategy, rather than simply react.



Custom Dashboard

TREND REPORTS AND HEALTH CHECKS: One critical piece in the reporting puzzle new in Simpana 10 is the ability to track long term trends occurring within the data infrastructure, compare them to best practices and provide recommended actions based on those reports. Operating conditions in the modern data center are in a state of ongoing change. This comes with the agile nature of the converged infrastructures and virtualized workloads. New applications are rapidly developed, tested, and brought online. Existing workloads shift resources based on service delivery requirements. New users are added as the business expands. And so on. Even seemingly innocuous changes like quarterly patch or service pack releases can have downstream consequences on the operating environment. And when things do go south, it is critical to baseline data and trending information that can quickly help hunt out what changed, when and what was the impact of that change. This is the value of the CommVault trend and health check reporting new in Simpana 10. As in the example here, the CommVault Simpana Health Check reports can provide summary views for current conditions with the operating environment. A simple red/yellow/green dashboard provides at a glance status for the environment that compares existing conditions with known best practices. These reports also include a full set of drill down options that includes details on why a parameter may have fallen out of spec and also provide recommended measures to take to resolve any red or yellow conditions.



Health Check Reporting to Optimize the Environment

COMMVAULT MONITOR (MOBILE) APP: One of the most popular reporting capabilities in Simpana 10 out of the gate is the CommVault Monitor App. This option delivers reporting capabilities for admins on the move. With support for iOS, and Android admins can track the health of their environment while on the road and can quickly drill down into any problem areas all from the road.



Reporting – CommVault Monitor App

Step 3: Gain Access and Insight into Data

The drive to the cloud is in large part about self-service for applications and/or data. At the same time, mobility and BYOD initiatives are about letting employees, customers and IT users consume applications and data the way they want from the location they want and with the device of their choosing. Finally, a key enabling capability in many Big Data initiatives is the ability to manage, access and analyze vast quantities of disparate data type via specialized tools and viewers. The common theme here: Access. Access that is secure. Access that is fast. And Access that is customized for context and flexible to meet users' unique needs.

CommVault Simpana 10 delivers on this challenge with what might be the industry's most extensive set of options for secure, self-service access to data that increases productivity and can help deliver insight. This includes:

- Access via a secure http web console
- The CommVault Edge™ application for mobile devices (including android, IOs and Windows 8 platforms)
- Application Specific Plug-ins for MS Exchange, vSphere and MS Windows
- Specialized Industry Viewers for Healthcare and Legal/Compliance needs

Each option for accessing data delivers a seamless search experience across all protected data that resides within the CommVault ContentStore. In other words, if the data is protected or managed with CommVault Simpana software, it is holistically searchable and can be accessed from any of the long list of supported access points.

To understand how this all works under the covers starts with back with the ContentStore. Recall from our earlier discussion that the ContentStore delivers to the Enterprise a single virtual repository of all data under management that stored in a highly secure, deduplicated, fully indexed, and hardware agnostic manner. The global nature of the ContentStore ensure that when users need to search for and access their data, it is truly a reflection of all data in the organization – there are no gaps. The secure nature on the ContentStore flows through advanced encryption options as well as RBAC (Role Based Access Controls) policies and single sign-on capabilities to ensure that users search for and accessing data only see data that they are approved for. The embedded indexing options, document preview and advanced search capabilities ensure that searches are fast, efficient and deliver the relevant results.



The Payoff in Efficient Data Management

Efficient data management is an emerging concept that fundamentally recognizes that while a great start, Modern Data Protection is really just the tip of the ice-berg for meeting the rapidly evolving demands of today's data center. IT departments that look to begin their journey (or to continue along the journey) of Efficient Data Management should expect to see a myriad set of benefits, in particular around:

Modern Data Protection for Efficient Operations:

- Collapse protection windows from hours to seconds (or days to minutes)
- Double performance for backup and archive operations (files and Exchange)
- Eliminate network bottle necks and defer costly network upgrades

Streamlined Management:

- Reduce management costs by up to 50%
- Manage rapid data growth with 0 new headcount

Secure Access and Insight into Data

- Increase workforce productivity by up to 50%

Begin the Journey to Efficient Data Management

The massive waves of transformation IT industry happening in the IT industry are in the early stages. Modernization of data protection and data management techniques is a critical component of this transformation for IT managers looking to successfully navigate a journey not only to modern data protection, but ultimately to a highly efficient data management solution that can deliver the protection, management, secure access and business insights required in the modern data center. Of course the transformation is massive and IT is best served by thinking of the transformation as a journey toward a better, more efficient data center. With this in mind, consider implementing the critical technologies and methodologies outlined in the paper in a stepwise manner starting with Modern Data Protection; moving along into more Efficient and streamlined management; then implementing secure access points into data and finally extending the data under management out into more insightful tools that can deliver real value back to the business.



For more information about Simpana® software modules and solutions, and for up-to-date system requirements, please visit www.commvault.com

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