

DELL POWERVAULT DL2100 POWERED BY COMMVAULT

A DELL WHITE PAPER

**BACKUP-TO-DISK AND
RECOVERY WITH
DEDUPLICATION**



CONTENTS

EXECUTIVE SUMMARY	3
THE DELL PV DL2100 POWERED BY COMMVAULT	3
CAPITAL AND OPERATIONAL COST SAVINGS WITH DEDUPLICATION	4
WHAT IS DEDUPLICATION?	5
EASY INSTALLATION AND MANAGEMENT IDEAL FOR SMB'S	6
IMPROVED BACKUP PERFORMANCE DECREASES BACKUP WINDOW REQUIREMENTS	7
ELIMINATE THE VIRTUAL TAPE LIBRARY TAX	7
RECOVER INDIVIDUAL FILES AND EMAILS	8
CONTROL PRODUCTION STORAGE COSTS BY MOVING INFREQUENTLY ACCESSED FILES TO THE DL2100	9
BRANCH OFFICE CONSOLIDATION WITH COMMVAULT SIMPANA REPLICATION	10
INTEGRATED TAPE SUPPORT FOR DISASTER RECOVERY AND VAULTING	11
CONCLUSION	11

BACKUP-TO-DISK AND RECOVERY WITH DEDUPLICATION

EXECUTIVE SUMMARY

A growing number of IT managers are concerned that traditional backup methods aren't keeping up with the needs of the business. Existing backup and recovery operations often fail due to media management issues and human error associated with legacy tape backup methods. As data continues to explode within environments, IT is having trouble meeting backup windows with standard tapebased solutions. The unfortunate reality is that many storage administrators are unsure if they could ultimately recover 100% of their data in the event of a loss.

Advancements in technology and price reductions have made it possible to use disk-to-disk based backup and recovery methods to improve the speed and reliability of backup and restore operations. As a result, backup-to-disk (B2D) has emerged as an important storage category. The Dell™ PowerVault™ DL2100 powered by CommVault® is a complete backup-to-disk backup and recovery appliance.

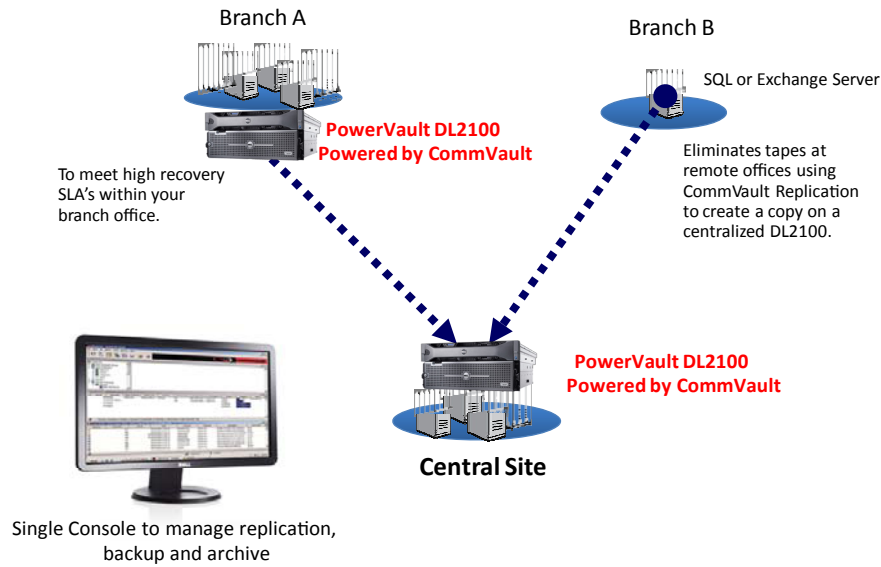
Unlike other standard backup-to-disk offerings, the PowerVault DL2100 powered by CommVault offers built-in deduplication and a built-in platform that can support the growth of an organization. File, document and email attachment deduplication delivers immediate, easy-to-quantify capital and operational cost savings relative to standard backup-to-disk offerings. CommVault Simpana offers a singular platform that delivers unified data management from one product and interface. As a result, customers can easily add advanced options to protect remote offices, implement disaster recovery solutions and archive old, infrequently accessed files sitting on expensive production tiers.

THE DELL POWERVAULT DL2000 POWERED BY COMMVAULT

The Dell™ PowerVault™ DL2100 powered by CommVault® (part of the Dell TierDisk family of products) is the industry's first and only integrated solution for faster disk-based backups and recoveries.

Dell has simplified the backup process by offering the only integrated hardware, software and services solution powered by CommVault. The PowerVault DL2100 comes factory-installed with CommVault Simpana™ software and a unique wizard driven set up and management utility. The backup software comes with integrated automated dynamic disk provisioning that configures and sets up the disks for immediate use

BACKUP-TO-DISK AND RECOVERY WITH DEDUPLICATION



FEATURE	BENEFITS
Scalable Backup-to-Disk	Up to 1.4TB per hour Scalable up to 144TB and hundreds of servers Centrally manage additional DL2100's
Operational Simplicity	Install within 30 minutes Point and click, automated interface
Built-In Deduplication	Up to 15X data reduction Store a larger number of backups on disk for faster recovery Greatly reduce the need to resort to tape for recoveries Reduced hardware footprint
Easy Integration	Virtual Environments: VMware, Microsoft Virtual Server Support for multiple platforms: Windows, Linux, Unix, Netware Database: SQL, Oracle, SharePoint Email: Exchange, Notes, GroupWise Active Directory
Replication	Cost effective disaster recovery for branch office servers Remove the need for tape at remote offices Pair two DL2100's for WAN-efficient backup replication
Archive Files, Emails and SharePoint Docs	Move infrequently accessed files and emails from expensive, primary storage No change to end-user behavior Archive data is deduplicated alongside backup data for additional disk efficiencies

BACKUP-TO-DISK AND RECOVERY WITH DEDUPLICATION

CAPITAL AND OPERATIONAL COST SAVINGS WITH DEDUPLICATION

Easy-to-Quantify Capital Cost Savings

Although the acquisition cost of disk is still higher than tape, low-cost, high density SATA drives have reduced the price difference significantly. Because the PowerVault DL2100 combines deduplication with backup-to-disk, it is significantly less expensive than standard backup-to-disk solutions on a capacity basis and in many cases below the acquisition costs of tape. The value that CommVault's deduplication brings to the DL2100 is easy to quantify. If one can reduce the amount of capacity to store backup data by 10:1, 15:1 or greater, it is easy to place a dollar amount to the cost savings. A standard disk-to-disk backup solution will require more actual capacity to store backups—in some cases, 10 or more times what the data deduplication-enabled solution needs. It is also important to consider facility costs, which include power and cooling as well as floor space. Because fewer disks are required, less heat is emitted and less power is necessary. At a 10:1 capacity reduction ratio, for example, this can be a significant savings. Additionally, floor space is at a premium. The PV DL2100 reduces physical disk growth and minimizes the amount of shelf space needed to store backup data.

Faster, More Reliable Restores from Disk save IT Time and Increase Employee Productivity.

With a greater number of backups stored on disk, IT can drastically reduce, even eliminate, the need to recover data from tape again.

Typically, data recovery is an urgent issue. It could take hours or days to recover data fully from tape. The cost impacts of not being able to rapidly and reliably recover data range from inconvenience to complete data loss. For example, an employee may have to wait a few hours, even a few days, for IT to recover a lost file they were working on. If that file is unrecoverable, the expense goes up. In addition, if that file contained valuable intellectual property, it will be extremely difficult to recreate and could have a major impact on the organization. These are the considerations that must be weighed against using outdated and archaic forms of data protection.

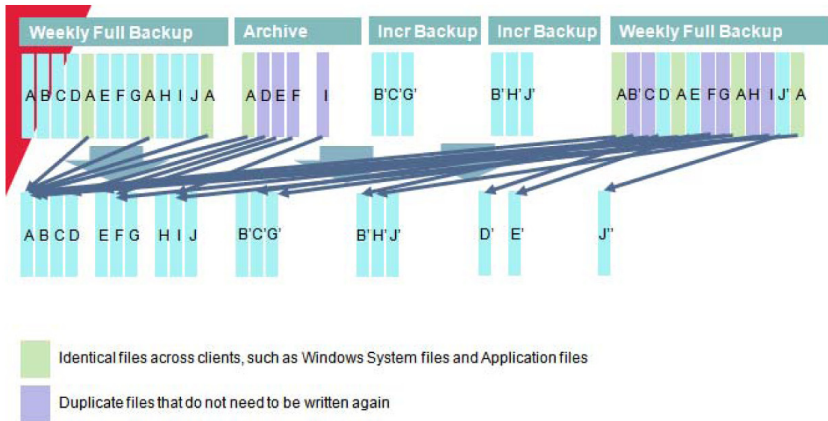
The PV DL2100 provides easier management than other backup-to-disk solutions because traditional disk-to-disk backup solutions will require more capacity and the need to rely on tape more often. Deduplication increases the amount of backup data that you can retain on disk in preparation for a recovery request. Because most restore requests come from data that is 1-30 days old, IT can use the PowerVault DL2100 powered by CommVault to drastically reduce the need of restoring from tape - and the risks and inefficiencies that come with it. Tape management issues, inability to locate tapes and mechanical problems with tape libraries can be virtually eliminated with deduplication. Backup-to-disk with deduplication offers value that is easy to quantify from not only a storage acquisition cost but also from day-to-day operational activities.

BACKUP-TO-DISK AND RECOVERY WITH DEDUPLICATION

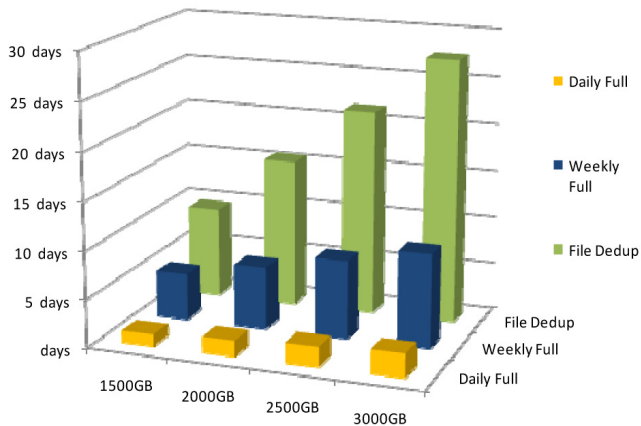
WHAT IS DEDUPLICATION?

Easy-to-Quantify Capital Cost Savings Backups are notorious for containing a tremendous amount of duplicate data. The same data continues to get backed up day after day, unnecessarily consuming large amounts of storage space. For example, consider a Word document sitting in a file share folder that is part of a completed project. Chances are that it will not be altered ever again. Yet, day after day and week after week, this same file could be duplicated and stored many times within a backup-to-disk environment. Deduplication technology can be used to store the Word document only once within this disk-based backup pool.

Data deduplication is the process of examining data to identify any redundancy. The same data keeps getting backed up over and over again, consuming more storage space and impacting cost, thereby creating a chain of inefficiency. The DL2100 can supply up to a 15X reduction in capacity needed for backup. This means that companies can potentially store up to 15 TB of backup data on 1 TB of physical disk capacity, which has potentially tremendous economic benefits. The actual amount of data reduction an organization can expect to see can vary significantly depending on the type of data being backed up, retention periods, the frequency of full backups and the data deduplication technology.



Rather than duplicate a copy of the same file, a pointer is used to a previously stored version, reducing the physical capacity needed for a backup job.



As a result, a backup-to-disk pool will store a much larger number of daily recovery points for rapid recovery (reducing the need to resort to tape).

BACKUP-TO-DISK AND RECOVERY WITH DEDUPLICATION

EASY INSTALLATION AND MANAGEMENT IDEAL FOR SMB'S

Traditional backup-to-disk solutions have required multiple products from different vendors, often overwhelming smaller IT organizations. Configuring such solutions can be difficult, time-consuming and prone to errors.

The PV DL2100 powered by CommVault is an appliance that incorporates both hardware and software. It's preloaded by Dell with CommVault Simpana and includes specially built, wizard-driven startup operations that automatically discover, provision and configure the set of disks as a backup storage pool.

POWERSVULT DL2100 CONSOLE:

PowerVault® DL Backup To Disk Appliance Console


Home Settings Support Home

Backup and Recovery Application

Launch CommVault@ Software

[Launch CommServe™ Disaster Recovery](#)

[Launch Service Control Manager](#)



Appliance Information

Current user:	MATADOR\administrator
Hostname:	COMMSERVE
Appliance service tag:	JM****
Appliance model:	PowerEdge 2950
Installed backup application:	CommVault® Software
Appliance role:	CommServe™ System and Media Agent
Disk configuration policy:	Automatic with confirmation
Disk subsystem state:	Unknown
Appliance software stack version:	1.0

Appliance Status

System:	● OK
Disk subsystem:	● OK
CommVault® Software services:	● OK

Available Disk Storage

Free: 0 GB
Used: 0 GB

Status: OK Friday, September 05, 2008

BACKUP-TO-DISK AND RECOVERY WITH DEDUPLICATION

IMPROVED BACKUP PERFORMANCE DECREASES BACKUP WINDOW REQUIREMENTS

Managing tapes is a complex, high-maintenance process fraught with the potential for errors. Backups to tape often exceed their backup window, and a high percentage of tape-based backups fail due to media or handling issues. Worst yet restores stretching over many tapes drives longer and longer recovery windows. The alternative is a disk-based backup which can run 40% faster than tape and restores which can be 90% faster, matched with overall increases in job reliability that can be 20% greater than your existing approach.

CommVault's Simpana software reduces backup windows even more than traditional backup-to-disk software. Anticipating the low-cost disk trend and the need for faster, more reliable backups, CommVault Simpana Data Protection was designed from the ground up to take full advantage of disk and to simplify the backup-to-disk process. Traditional backup and recovery software applications write to disk sequentially as though it were a tape device (one long stream). Unlike the competition, CommVault Simpana Data Protection leverages the random access nature of disk, taking advantage of the many read/write heads that allow multiple jobs to be executed simultaneously. As a result, customers find that backup speeds are up to 77% faster than competitive products, ensuring that

ELIMINATE THE VIRTUAL TAPE LIBRARY TAX

Virtual Tape Libraries (VTLs) are point products designed to help mask some of the run-time tape performance issues by treating disk like tape. However, VTL's add a new layer of complexity that often proves difficult to successfully manage. Virtual tape pools, virtual drives and physical disks need to be created, provisioned and managed from a different interface which has little to no real alerting and reporting within the backup solution. Restores are generally faster but still sequential by nature and may need data restaged from physical tape. Collectively, these virtual tape methods impose a tax on operations and locks out the pure benefits of concurrent random access reads from a B2D target. The PV DL2100 Powered by CommVault eliminates that tax by coupling all those key features into a single automated solution that is built as a native, disk-to-disk solution.

BACKUP-TO-DISK AND RECOVERY WITH DEDUPLICATION

RECOVER INDIVIDUAL FILES AND EMAILS

Recovering a single file from tape can take several minutes to several hours. For example, recovery performance is greatly impacted by tape availability (e.g. whether it is within the tape library or offsite in a box somewhere). In addition, traditional backup and recovery applications will require the recovery of entire systems - even if only one file is needed.

The PV DL2100 powered by CommVault couples the recovery performance of diskbased recovery with application-aware protection policies which put single step recovery directly at your fingertips. Cross-server, cross-version and even crossplatform options ensure your data is readily available to service your recovery needs.

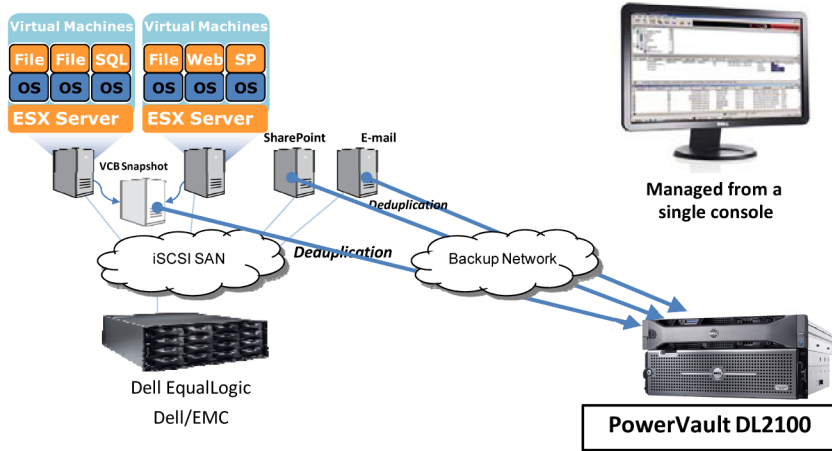
CommVault Simpana Data Protection provides the ability to backup data and index it in such a way that clients can restore individual objects instead of being forced to restore entire systems. For Exchange and Lotus Notes, this means the ability to restore that single piece of mail, directly back into the mailbox of the user without causing an inconvenience or data loss to the rest of the users. In addition, restores come directly from disk back to the user. With built in granularity for applications, CommVault reduces the downtime and potential cost of not having the data available to the user when it is needed. The simplicity with which these restores occur also significantly reduces the personnel time and cost of having to do multi-stage restores and search and discovery of data. CommVault Simpana Data Protection makes it easy for IT to browse and find data, selecting as little or as much as is needed, and then recovering it quickly and efficiently.

BACKUP-TO-DISK AND RECOVERY WITH DEDUPLICATION

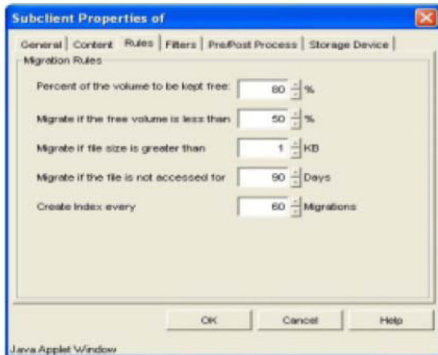
CONTROL PRODUCTION STORAGE COSTS BY MOVING INFREQUENTLY ACCESSED FILES TO THE DL2100

CommVault Simpana offers a singular platform that delivers complete information management from one product and interface. As a result, customers can easily add CommVault Simpana Archive to their DL2100 investment to seamlessly add archiving policies to control the size and growth of the production environment.

Deduplicate Backup or Archive of Virtual or Physical Servers to the PowerVault DL2100



CommVault Simpana Archive enables storage administrators to set policies that will ensure that expensive, primary storage only contains frequently accessed production files that are actively in use by the organization. Old, infrequently accessed files (e.g. files that have gone unchanged and have not been accessed for over 30 days) can be automatically moved to the DL2100 and stored alongside backup copies in a deduplicated state. Because intelligent data stubs are used to replace each archived file, end-users continue to access their data just as before.



Example CommVault Simpana Archive policy

BACKUP-TO-DISK AND RECOVERY WITH DEDUPLICATION

BRANCH OFFICE CONSOLIDATION WITH COMMVAULT SIMPANA REPLICATION

Backup and recovery of company data at primary sites typically places high demands on the resources of a company's IT department. The result is that data protection is neglected at the smaller, remote sites even though information at these regional offices or branch offices may be as important as that found at the primary data center. A lack of technical resources at remote sites further complicates the problem. Even if standard backup-to-to-disk technologies are implemented at remote sites, the data continues to sit there unless a tape DR strategy is implemented because there is simply too much data to reasonably replicate back to a centralized site for DR purposes.

The combination of backup-to-disk, data deduplication and remote replication solves this problem, offering a great deal of value by dramatically reducing bandwidth requirements to move data over the WAN from remote sites to a centralized data center. Utilizing deduplication, bandwidth costs are significantly reduced because less data is sent over the WAN. Data is protected much quicker than if all of the backup data was to be sent over the WAN (this could take several hours, even several days).

Because the CommVault Simpana platform comes standard with the DL2100 , combining CommVault Simpana Replication with the DL2100 is simply a matter of add a simple add-on module. All replication features are administered through the same interface. CommVault Simpana Replication supports all industry-leading applications, including Microsoft Exchange, Microsoft SQL and Oracle. As a result, backup data can be reduced in size with deduplication so that network-based replication can be used as an alternative to tape-based off-site archival.

For branches that require quick recovery time objectives, the PV DL2100 powered by CommVault may be paired across geographically distributed sites to efficiently replicate the deduplicated backup pools. Each remote backup pool will offer rapid recovery at the branch office, while ensuring you are doubly protected with a replica copy at your central site. The replica pool provides a constant availability copy to service DR restore needs or support the creation of tape copies.

Unlike other disk-to-disk appliances that require their own proprietary solutions at the centralized location, CommVault Simpana Replication supports any disk hardware. Data stored on a DL2100 in a remote office can be replicated back to a any centralized disk array (e.g. an additional DL2100 is not required at the centralized site).

BACKUP-TO-DISK AND RECOVERY WITH DEDUPLICATION

INTEGRATED TAPE SUPPORT FOR DISASTER RECOVERY AND VAULTING

Tape can still play a valuable role in your protection strategy when it is no longer the primary data copy to service your recovery window. Demands for offsite DR protection or selective vaulting for compliance requirements can drive the need to seamlessly integrate tape copies directly into your backup retention policies. The PowerVault DL2100 offers simple add-on options to integrate the Dell PowerVault TL1000, TL4000, or ML6000 tape library directly into the full solution. Storage policies take full advantage of backup to disk for rapid recovery, while automatically transferring selective data copies to tape for offsite protection.

CONCLUSION

The need to recover data will happen. Files are lost, viruses take down infrastructures, disk drives fail and floods happen. Organizations that continue to rely on standard backup-to-tape solutions as their first line of recovery are subject to lengthy and sub-standard restores. Data may be lost for good as a result. Disk-to-disk data protection combined with deduplication give clear economic incentive to switch from tape to disk – from an acquisition cost and operational expense perspective.

Data deduplication combined with disk-to-disk protection significantly increases the amount of backups stored on disk, reducing the physical footprint of disk and the power and cooling costs required to maintain the environment. In addition, having a larger number of backups on disk greatly reduces the need to restore data from tape, saving IT departments a significant amount of time managing, finding and loading tapes for simple restore requests. The DL2100 with CommVault Simpana Data Protection offers a compelling disk-based data protection strategy with built-in deduplication capabilities.

Save time and money with B2D combined with deduplication
• Reduced disk capacity for data protection
• Potentially fewer disk-to-disk backup storage systems over time
• Reduced power and cooling costs
• More available floor space
• More reliable data recoveries
• Faster data recoveries
• Less people-hours managing tape and disk administration

BACKUP-TO-DISK AND RECOVERY WITH DEDUPLICATION

ABOUT DELL

Dell Inc. (NASDAQ: DELL) listens to customers and delivers innovative technology and services they trust and value. Uniquely enabled by its direct business model, Dell is a leading global systems and services company and No. 34 on the Fortune 500. For more information, visit www.dell.com, or to communicate directly with Dell via a variety of online channels, go to www.dell.com/conversations. To get Dell news direct, visit www.dell.com/RSS.

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's Simpana software suite of products was designed to work together seamlessly from the ground up, sharing a single code and common function set, to deliver superlative data protection, 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.