End-to-end, snapshot-aware data protection with CommVault SnapProtect

By Darin Camp

In conjunction with Dell™ EqualLogic™ PS Series snapshot capabilities and CommVault® Simpana® SnapProtect™ technology, the Dell PowerVault™ DL2100 – Powered by CommVault enables end-to-end data protection that supports fast, flexible recovery and aggressive service-level agreements.

Today’s IT departments are facing explosive data growth along with service-level agreements (SLAs) for data availability and recovery that can often seem unobtainable. Because traditional tape-based protection typically captures data only from the previous backup event, a recovery request may mean a gap of up to 24 hours from the most recent recovery point—often unacceptable for business-critical data.

Moving the primary recovery location of critical data to a readily available storage area network (SAN)–based snapshot can significantly mitigate the risk of data loss. In conjunction with Dell EqualLogic PS Series Internet SCSI (iSCSI) SAN arrays and CommVault Simpana SnapProtect technology, the Dell PowerVault DL2100 – Powered by CommVault can help organizations create an end-to-end environment that leverages native EqualLogic snapshots to enable fast, flexible data protection and recovery. As an integrated, full-featured backup appliance, the PowerVault DL2100 is designed to significantly simplify storage and backup administration and help create an advanced, highly scalable storage solution. By incorporating EqualLogic snapshot copies, the PowerVault DL2100 with SnapProtect, and multiple copy tiers into the environment as part of a comprehensive recovery strategy, IT administrators can meet the challenges of data growth while supporting aggressive SLAs and data protection requirements for critical systems.

Enabling end-to-end, snapshot-aware data protection

The separation of recovery-copy, protection-copy, and archive-copy tiers provides the availability and speed required for today’s critical applications, and helps reduce costs by using the appropriate storage types and technologies such as deduplication to meet long-term retention requirements (see Figure 1). Forming the foundation of the local recovery-copy tier, snapshots capture the disk layout at the exact point the snapshot is initiated, providing a point-in-time (PIT) copy that can then serve as a reference for the other tiers. These PIT copies can be easily mounted to the Dell PowerVault DL2100 for nightly backups—thus enabling IT staff to use the same consistent snapshot for off-site recovery and retention copies on cost-effective disk and tape.
With the SnapProtect Enabler (SPE) introduced in CommVault Simpana 8.0, SAN snapshot management controls are coded directly into the data protection agents—delivering combined protection and recovery capabilities within a single operation from beginning to end. The SPE is the core piece of intelligence creating the CommVault open snapshot management framework. Enabling it is a simple check box option within the Simpana Intelligent Data Agent (iDA) that effectively takes the backup process and enhances it with the ability to integrate native SAN array snapshots.

The SPE integrates natively into host systems, applications, and SAN arrays to blend the speed and efficiency of hardware snapshots with robust Simpana data access capabilities. Instead of scheduling multiple processes with different solutions or scripts, Simpana software is designed to control the entire progression of data within a single protection policy (see Figure 2). This single-step process enables administrators to create, retain, and catalog the data within snapshots without the need to compile a script or take on unnecessary management overhead.

From a single protection policy, administrators can leverage snapshots on the SAN by adding SnapProtect to the backup client and then configuring it for the appropriate snapshot application programming interface (API). These snapshots are mounted, cataloged, checked for data integrity, and retained as a highly available recovery copy (see Figure 3). By using this same copy, the software moves the data to the appropriate protection copy or archive copy based on the original protection policy. Data accessibility remains the same regardless of the data location. The simple browse and recovery from a traditional backup extends to the snapshot copies, providing IT teams with a simplified, cost-effective way to incorporate snapshots into a tiered strategy to help meet recoverability requirements.

Implementing a protection-copy tier with deduplication on disk and tape provides a long-term, versioned retention strategy to help meet organizational and regulatory compliance requirements while
“Layering deduplication with cost-effective storage can help drastically reduce costs for long-term retention.”

Layering deduplication with cost-effective storage can help drastically reduce costs for long-term retention. Allowing a single protection policy to initiate the progression of data through the recovery-copy, protection-copy, and archive-copy tiers without sacrificing data availability helps optimize current and future storage hardware implementations.

SnapProtect blends the intelligence of Simpana application iDAs with native snapshot capabilities to create application-consistent PIT data copies. Application awareness enables SnapProtect to incorporate a PIT recovery copy with the cataloging of a standard backup routine from a script-free snapshot protection operation. Recovering data to a PIT is a single operation through a volume revert operation, a recovery from deduplicated data on disk or tape, or a blend of the two, depending on the specific recovery point. The process of sequencing and scripting application quiescence, initiating the snapshot, mounting the snapshot, and running protection and/or recovery procedures is managed through the CommVault CommCell.

Array-based snapshots can have significant advantages in enterprise IT environments, but can also increase operational complexity. This video from the CommVault Simpana Whiteboard Series explores how SnapProtect technology helps overcome these challenges by enabling administrators to control array-based snapshots through a single management console.

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Snapshots are initiated based on the defined schedule, after which the Dell PowerVault DL2100 mounts and indexes the snapshots as a protection copy.

The protection policy ages the online snapshot copies and creates secondary copies for retention on the protection-copy storage tier.

Data can be recovered across the range of copies, including one-click recovery of entire volumes or applications as well as individual objects from online snapshots or backup media.
interface without requiring scripting. Simpana can access the copy or copies (recovery copy, protection copy, or mixed access) necessary in a one-pass routine with minimal IT staff intervention.

**Spotlighting Microsoft Windows applications**

CommVault Simpana supports software including Microsoft® SQL Server®, Microsoft Exchange, Oracle®, and SAP® applications as well as file systems on Microsoft Windows®, Linux®, and UNIX® operating systems. In particular, Microsoft Volume Shadow Copy Service (VSS) integration with the CommVault snapshot management framework helps ensure tight application control for a snapshot routine on Windows operating systems. Taking advantage of VSS creates a simplified adoption path for organizations seeking to eliminate scripted snapshot operations or implement highly available recovery copies for the first time. By simply enabling SnapProtect, administrators can enable applications to become snapshot aware with the back-end storage array.

**Supporting comprehensive data protection and recovery**

Organizations seeking to meet stringent SLAs while enhancing data protection and application uptime no longer need solutions from multiple vendors, dedicated hardware, and custom scripting to make everything work together. With SnapProtect, the Dell PowerVault DL2100 – Powered by CommVault provides a simplified, integrated way to implement script-free data management (including deduplication) and control processes throughout the data life cycle—with the added advantages of application data file consistency and log management. Leveraging Dell EqualLogic iSCSI SAN arrays with the CommVault open snapshot management framework provides a single protection policy that creates highly available local recovery copies, protection copies for off-site storage and disaster recovery, and archive copies for long-term retention (see Figure 4). The integration with the PowerVault DL2100 – Powered by CommVault provides a simplified, integrated way to implement script-free data management (including deduplication) and control processes throughout the data life cycle—with the added advantages of reduced backup media costs, shortened backup windows, and reduced bandwidth replication requirements.

**Learn more**

- **Dell and CommVault:** dell.com/commvault
- **Dell PowerVault DL2100:** dell.com/dl2100
- **Dell EqualLogic PS Series:** dell.com/pseries
dell.com/equallogic

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