

APPLICATION-AWARE DATA PROTECTION WITH DELL EQUALLOGIC AUTO-SNAPSHOT MANAGER



By Sarah Doherty

Creating application-consistent point-in-time data snapshots at the storage area network level can work well in traditional environments, but can also be a complex, manual process. Dell EqualLogic™ Auto-Snapshot Manager allows IT administrators to quickly and easily create and restore snapshots, clones, and replicas at the application level—helping simplify data management, reduce business disruption, and improve data integrity.

As the demand for enterprise-class storage continues to rise, storage area network (SAN) technology has emerged as an excellent way to provide scalable, high-capacity storage for business applications. SANs—and in particular virtualized SANs such as Dell EqualLogic PS Series arrays—allow organizations to decouple applications from the physical direct attach or physically oriented networked storage systems that support them to help deliver improved efficiency and scalability in a cost-effective, high-capacity storage environment.

Although SAN deployments offer organizations significant benefits, they create challenges as well. For example, in a SAN environment, application management and storage management are generally performed separately, and organizations often employ different personnel for managing applications and managing storage. However, some management tasks—such as creating application-consistent point-in-time data snapshots—require significant coordination between applications and storage systems to help prevent inconsistencies in data. Coordinating these and other data management and protection tasks can be cumbersome and disrupt productivity.

An emerging direction in data management integrates storage management tasks into the host,

enabling application managers to protect and manage data at the application level. Dell EqualLogic PS Series storage arrays provide a comprehensive SAN platform that includes Dell EqualLogic Auto-Snapshot Manager, a data management tool that integrates with Microsoft® Volume Shadow Copy Service (VSS) software to enable application-aware data protection and management. Auto-Snapshot Manager helps IT administrators create and restore snapshots, clones, and replicas of Microsoft SQL Server®, Microsoft Exchange, and NT File System (NTFS) data at the application level, enabling simplified data management and enhanced business continuity and data integrity. Auto-Snapshot Manager is included at no additional cost with all Dell EqualLogic PS Series SAN arrays.

COORDINATING DATA MANAGEMENT AT THE SAN LEVEL

Protecting and recovering data only at the SAN level can create the risk of inconsistencies in copies of application data. For example, if a snapshot is initiated while an application, such as Microsoft SQL Server, is in the middle of a write operation, the resulting point-in-time copy may be inconsistent with the production environment. To avoid such discrepancies,

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snapshot, clone, replica, and restore operations must be coordinated at both the storage and application levels.

Executing such tasks manually, however, can be complex and time-consuming. For example, creating an application-consistent snapshot can require several coordinated manual steps. First, the application manager must pause the appropriate application and ensure that all outstanding writes have been written. Then, the application manager must notify the storage manager, who can then initiate a snapshot. After the snapshot is completed successfully, the storage manager must notify the application manager, who can then safely restart the application.

The time and effort required to coordinate and execute such tasks can create significant business disruptions, which in turn may compromise data integrity and recoverability. When applications must be paused for a significant amount of time, application performance may be degraded, availability may be disrupted, and certain operations may fail altogether. The many steps necessary to coordinate data management at the SAN level may increase the chance of error and may compromise data integrity. Furthermore, the extensive time required to perform data protection operations often leads organizations to increase the interval between backups. And difficult data copying processes can complicate other tasks, such as data mining, application test and development, and data validation and maintenance.

Dell EqualLogic Auto-Snapshot Manager allows operations to execute on the application server with no disruption of online applications and with little or no impact on application performance. Operations can be performed by the application manager alone and require no manual coordination with the underlying storage layer. In addition to being initiated manually, data management operations can also be scheduled for convenience, and advanced scripting capabilities for further customization of operations are available as well.

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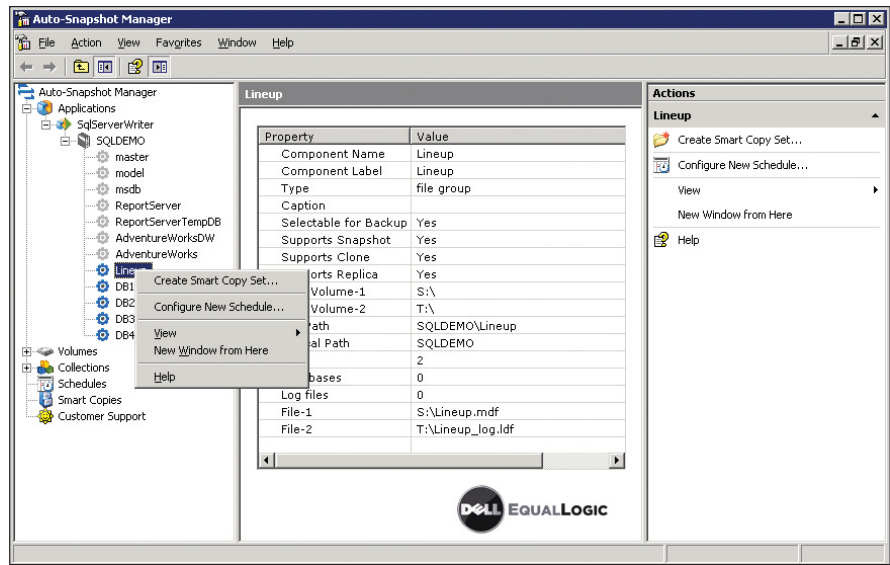


Figure 1. The Dell EqualLogic Auto-Snapshot Manager GUI helps simplify application data management tasks

Besides supporting comprehensive data protection and recovery, the functionality available in Auto-Snapshot Manager can support many common data center management tasks. For example, by making it easy to create duplicate or “cloned” environments, Auto-Snapshot Manager can help simplify and streamline data mining, application test and development, and data maintenance and validation operations. Also, Auto-Snapshot Manager offers application-aware replication capabilities, which allow application-aware copies of data to be sent from one Dell EqualLogic PS Series SAN to another at a remote site for disaster recovery purposes.

MANAGING DATA FOR WINDOWS-BASED APPLICATIONS


Dell EqualLogic Auto-Snapshot Manager utilizes Microsoft VSS capabilities for delivering application-level data management of Microsoft Windows® OS-based applications on Dell EqualLogic PS Series SAN arrays. Tight integration of Auto-Snapshot Manager with VSS can provide comprehensive support for managing SQL Server, Exchange, and NTFS data. The VSS broker service can integrate, coordinate, and automate data protection and recovery tasks among Windows-based applications to help facilitate storage management tasks.

Unlike many third-party application-level data management tools, which can be costly, Auto-Snapshot Manager is available with PS Series SANs at no additional cost. In addition, the tool can be enhanced with features and support for future applications: updated versions of the tool are available for download at no additional cost for PS Series SANs covered by warranty or other service agreements.

Storage and application management software packages that integrate with VSS can initiate VSS operations such as creating, importing, or deleting snapshots from the application level, helping eliminate the need to coordinate data management among applications and storage. This type of integration allows administrators to schedule operations such as data protection and recovery and data mining to take place without affecting the performance, availability, or integrity of online applications such as Microsoft SQL Server, Exchange, and NTFS.

Through a simple graphical user interface (GUI), Auto-Snapshot Manager allows administrators to easily create and manage application-consistent snapshots, clones, or replicas that can be restored (see Figure 1). In particular, administrators can create and restore full or differential copies of Windows application data, including SQL Server databases, Exchange storage groups, and NTFS.

PROTECTING AND MANAGING APPLICATION-AWARE DATA

By automating the coordination among Microsoft Windows-based applications and the underlying storage systems that support them, Dell EqualLogic Auto-Snapshot Manager is designed to dramatically simplify application data management. Because applications remain online during data management operations and application data can be quickly recovered in the event of a failure, Auto-Snapshot Manager can also help minimize the disruption to business processes that is often associated with data protection and recovery. And by avoiding the need for manual coordination, Auto-Snapshot Manager helps reduce the potential for human error and ensure the integrity, safety, and recoverability of critical data. 

Sarah Doherty recently joined Dell as a senior product marketing consultant. She has over 20 years of experience in services marketing, sales, and product marketing, and has a B.A. in Economics from Brown University.

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