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OPTIMIZING DATA PROTECTION, SECURITY, AND COMPLIANCE FOR REMOTE AND BRANCH OFFICES

Data protection can be challenging for remote or branch offices, particularly when sites are supported only by central IT resources or local IT staff dual-tasked with other functions. Combining Dell™ EqualLogic™ PS4000 series storage arrays and disk-based backup with the Dell PowerVault™ DL2100 - Powered by CommVault® helps simplify data protection through scalable storage solutions.

Exponential data growth within organizations today is escalating the cost and complexity of storage environments. Data centers and remote sites face growing storage sprawl and rising operating costs, and IT managers find it increasingly difficult to maintain a consistent approach to storage management and data protection. In addition, stringent regulations and budget constraints are pressing many organizations to rethink their IT strategies for remote or branch offices.

Organizations rarely find it cost-effective to maintain a full-time IT staff at remote offices. Instead, many remote or branch office sites rely on a part-time staff sourced from other internal business functions. Although this practice can help reduce costs, it can also lead to problems—for example, part-time staff members may lack sufficient training to manage a remote IT environment or the special skills required to manage advanced storage networks.

Despite the best efforts of remote IT staff, the result is often noncompliance with backup and data protection policies, placing data at risk of loss and running afoul of regulations such as the Sarbanes-Oxley Act (SOX), Data Protection Act (DPA), Health Insurance Portability and Accountability Act (HIPAA), and Fair Credit Reporting Act (FCRA). The alternative—leveraging a central IT

staff to support remote teams—can lead to unbudgeted travel costs and unacceptable response times. Fortunately, advances in Internet bandwidth, virtualization, storage, and networking along with powerful, flexible Dell EqualLogic PS Series and Dell PowerVault storage systems provide opportunities to create innovative best practices for remote or branch office IT environments that help address these challenges.

DRIVING ENTERPRISE-LEVEL CAPABILITIES BEYOND THE CENTRAL DATA CENTER

Organizations can drive significant enterprise efficiencies by leveraging remote or branch office IT best practices such as the following:

- Consolidating direct attach server storage through Internet SCSI (iSCSI) storage area networks (SANs) at remote or branch offices
- Copying data to central or regional data centers for protection, retention, and analysis
- Using data deduplication and compression to help reduce bandwidth requirements
- Sizing storage capabilities to suit individual site requirements
- Virtualizing the infrastructure and implementing backup and recovery

- Consolidating regulated and critical data within centralized architectures protected by governed access control

The breadth of solutions offered by Dell and its partners—including hardware, software, and service offerings—can help organizations readily achieve these goals. Hardware solutions include Dell EqualLogic PS4000 series iSCSI SAN arrays and the Dell PowerVault DL2100 - Powered by CommVault. EqualLogic PS4000 arrays are designed to simplify management for both central and remote IT teams. Disk-based backup and recovery with the PowerVault DL2100, coupled with EqualLogic asynchronous auto-replication and integrated storage management software, enable a central IT staff to gain control over and visibility into backup environments across remote sites.

Software solutions such as the EqualLogic SAN HeadQuarters (SAN HQ) management suite together with the Dell Management Console Powered by Altiris™ from Symantec™ help simplify management. The suite provides built-in solutions for virtualization, data deduplication, and wide area network (WAN) optimization. In addition, Dell ProConsult Services, Dell ProManage™ Managed Services, and Dell ProSupport Services are available for designing, deploying, or managing remote IT operations and for recovering and recycling replaced hardware. IT managers can use these solutions to efficiently and cost-effectively meet the needs of their organizations.

SIMPLIFYING IT ENVIRONMENTS WITH A SCALABLE ARCHITECTURE

The Dell EqualLogic PS Series architecture is specifically designed to provide integrated storage for remote sites and departments, using advanced solutions that were previously limited to central or regional data centers because of cost constraints. For example, EqualLogic PS4000 iSCSI SAN arrays offer an entry point to the EqualLogic PS Series to help provide simplified administration, enterprise-class software, and a

virtualized architecture. A cost-effective SAN designed for small remote or branch office environments, EqualLogic PS4000 arrays feature extensive integration with the larger EqualLogic PS6000 series arrays, providing scalability for growth. EqualLogic PS4000 and EqualLogic PS6000 arrays both support high-performance Serial Attached SCSI (SAS) drives and capacity-oriented Serial ATA (SATA) drives, with EqualLogic PS6000 arrays offering the additional option of high-performance solid-state drives (SSDs).

EqualLogic SAN HQ software is included with EqualLogic PS Series arrays at no additional cost. This management suite can provide consolidated performance and event monitoring across multiple virtualized EqualLogic SAN groups from multiple locations around the world.

The Dell PowerVault DL2100 - Powered by CommVault incorporates CommVault Simpana® software to provide a disk-based backup and recovery solution that allows organizations to quickly begin protecting critical data. The PowerVault DL2100 is a full-featured backup appliance where the backup storage is automatically managed by CommVault Simpana software, helping remove the need for storage administration tasks. With integrated CommVault deduplication capabilities, the PowerVault DL2100 is designed to minimize the bandwidth required to send remote backup data sets to centralized, consolidated backup servers and significantly reduce storage requirements. Combining the asynchronous auto-replication features of the EqualLogic PS Series with the deduplication and disk-to-disk-to-tape backup functionality of the PowerVault DL2100 can

enable organizations to create an advanced, highly scalable storage solution.

Deploying EqualLogic PS6000 series arrays at central or regional data centers along with EqualLogic PS4000 arrays at remote offices helps simplify storage consolidation. IT managers can connect these arrays between remote sites and a central site for cost-effective data protection leveraging asynchronous auto-replication. In a small branch office where recovery time objectives (RTOs) can be met more easily because of low data change rates compared with central sites, data can be replicated over IP to the central site for centralized disaster recovery using the replication technology included in all EqualLogic PS Series arrays. When local disaster recovery is necessary to help accelerate response times or when data change rates are high, organizations can deploy a PowerVault DL2100 at the remote site to provide that capability. In fact, the PowerVault DL2100 can be used in dual roles—supporting both local backup and disk and tape storage at a central site. If WAN bandwidth constraints are a consideration, the deduplication capability in the PowerVault DL2100 provides an alternative to costly compression technology.

BUILDING AN EFFECTIVE APPROACH FOR ORGANIZATIONAL GROWTH

As organizations grow, they may acquire multiple remote sites of varying sizes and with varying functions. Examples include banking organizations opening new branches, manufacturers adding subsidiaries, and organizations acquiring other entities that become part of their infrastructure.

“The Dell EqualLogic PS Series architecture is specifically designed to provide integrated storage for remote sites and departments.”

Large organizations require an infrastructure that can span multiple remote sites and a central data center. If they are not already consolidating their storage and data protection in a central location, they may consider doing so by deploying Dell storage. The amount of data, the data change rate, and the bandwidth available at a particular site dictate the appropriate solution. The principal challenge for large organizations is that no single solution can necessarily fit every site.

To meet this challenge, organizations can use a variety of integrated Dell solutions for different remote sites. For example, an organization headquartered in New York City with offices of different sizes in London, New Delhi, and Tokyo could meet its remote or branch office requirements with a scalable architecture of integrated Dell solutions (see Figure 1). Consider what happens when this New York-based organization first opens its London location. This site can initially use a single EqualLogic PS4000 SAN, which replicates its data to an EqualLogic PS6000 SAN at the New York headquarters. As business at the London site grows, the organization adds a local EqualLogic PS6000 array to increase storage capacity and accommodate the

increased data volume. The EqualLogic PS4000 array integrates with the EqualLogic PS6000 array, and the site can continue adding arrays as it grows—there is no need for the organization to throw out what it already has deployed.

Eventually, the organization may designate the London site as a regional disaster recovery site to help protect data in case the New York data center goes down, with comprehensive replication of data at that central site. The arrays replicate across the WAN using compression and need to send only changed data sets through the EqualLogic PS Series auto-replication functionality, rather than the complete data set.

When the organization acquires a second site located in New Delhi, IT management may determine that this site has a relatively small data volume and a low data change rate. Therefore, a single EqualLogic PS4000 array at this location can handle the needs of that remote environment, and can integrate directly with the EqualLogic PS6000 SAN at the central New York site while using built-in replication functionality to back up to the central site. Because RTOs can be met more easily than at the other sites and the built-in EqualLogic replication functionality can

handle the change rate without overtaxing the WAN, management may decide not to deploy disk-based backup with a PowerVault DL2100 at this location.

Later, when the organization acquires a subsidiary in Tokyo, this site is identified as having a high change rate, where the WAN may become a constraint for backing up data to the central New York site. To help solve the problem without the need to invest in a compression solution, the organization can take advantage of the built-in data deduplication in the PowerVault DL2100. Data deduplication helps reduce the amount of data that must be pushed over the WAN for consolidated storage and data protection at the central site. The PowerVault DL2100 also provides local backup at the Tokyo site, which requires fast response because it is a regional office providing customer service throughout Asia. The PowerVault DL2100 integrates well with the EqualLogic SAN at the Tokyo site and can handle disk-based backup for multiple EqualLogic PS4000 and EqualLogic PS6000 arrays as the site grows.

Data from all three remote sites can be sent back to the New York headquarters and managed there. As a result, the organization needs full-time storage personnel

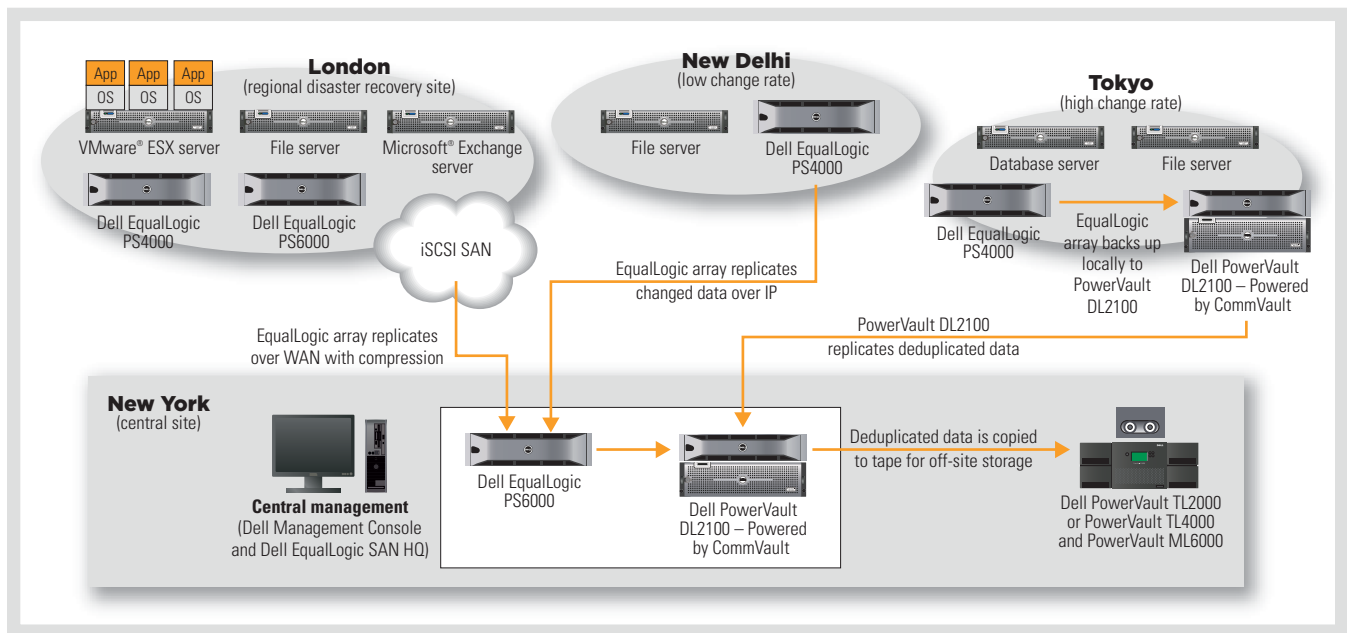


Figure 1. Dell storage-based infrastructure for a large organization with varying remote and branch offices

only in New York. Disk-based backup with a PowerVault DL2100 at the central site sends deduplicated data to tape for off-site storage. The EqualLogic SANs are also designed to fit well within virtualized environments, if the organization elects to optimize their infrastructure with virtualization in the future.

The Dell Management Console can provide a single view of the entire IT environment, including deployment, inventory, monitoring, and updating the infrastructure. Storage administrators can also launch the EqualLogic SAN HQ tool from within the Dell Management Console. EqualLogic SAN HQ provides consolidated performance and event monitoring and visibility into the efficient use of EqualLogic PS Series SANs across the organization, allowing the IT staff to manage the storage architecture from the central site and offload management requirements from the part-time personnel in the field (see Figure 2). In the example scenario, the central IT team in New York could use EqualLogic SAN HQ for consolidated views of alerts, I/Os per second (IOPS), capacity, latency, and network activity.

OPTIMIZING DATA PROTECTION

For remote or branch offices and departments within large enterprises, the combination of Dell EqualLogic PS4000 iSCSI SAN arrays and disk-based backup and recovery with the Dell PowerVault DL2100 – Powered by CommVault can offer an effective solution for optimized data protection, regulatory compliance, consolidation, and security. Disk-based backup with the PowerVault DL2100 integrates CommVault Simpana software to provide local backup and built-in deduplication to help economically send data over a WAN to a central data center. The backup data can then be managed at the central location using the PowerVault DL2100 device's integrated CommVault console. The EqualLogic SAN HQ software included with EqualLogic SANs offers event monitoring and visibility into the efficient use of EqualLogic PS Series storage across the organization.

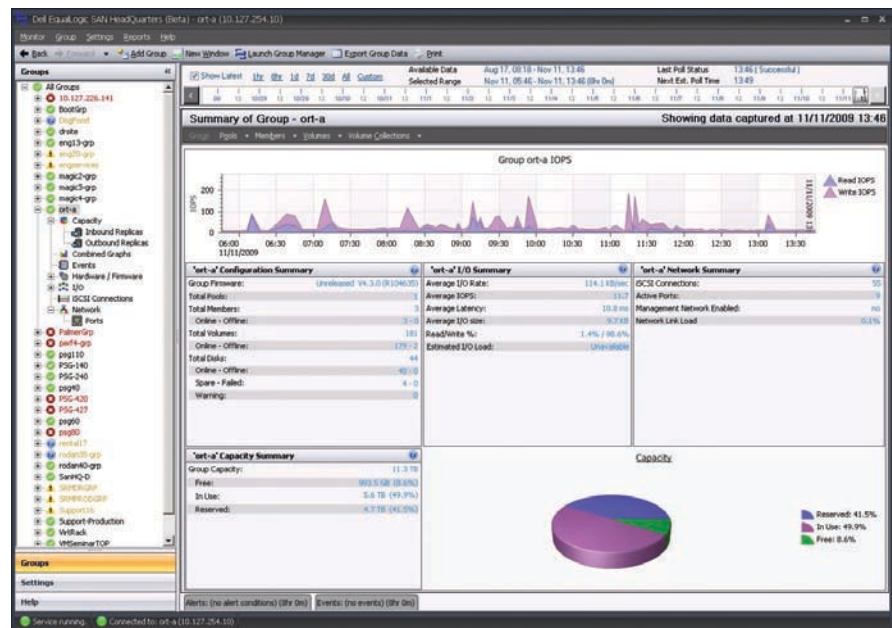


Figure 2. Performance and event monitoring in Dell EqualLogic SAN HQ

A combination of easy-to-use, automated storage at remote sites and the visibility to manage the entire architecture from a central site helps take the burden off part-time IT staff members at remote or branch offices, who are frequently dual-tasked with other functions. Implementing best practices at remote or branch office sites using Dell and partner solutions can help cost-effectively ensure data protection, regulatory compliance, and security at these sites even as the organization grows.

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