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SOLUTIONS BRIEF

## VMware and Dell Solutions for Small to Medium Businesses Ensuring Rapid, Reliable and Affordable Disaster Recovery

### High Availability and Disaster Recovery Provide Key to Survival for Small and Medium-Sized Businesses (SMBs)

Ensuring that all of the systems and applications that run the business are protected against outages has never been more important. However, SMBs continue to face challenges and tradeoffs as they implement disaster recovery programs. Traditional solutions for protecting against outages have been costly and complex, forcing organizations to accept lower levels of protection for all but a few key applications. According to primary research, the key challenge for all SMBs is providing effective back-up, recovery and high availability (HA) of key applications and data, and addressing planned and unplanned downtime issues. Most SMBs have at least a basic level of data protection (such as tape backup), but backup and restore alone cannot deliver the rapid and reliable DR capabilities that today's organizations need. Affordable HA and DR solutions are critical to the survival of all SMBs in the event of a disaster. Building on years of helping businesses of all sizes protect their information, VMware and Dell provide cost-effective and robust data protection, disaster recovery, and high availability solutions.

### The Risks of Inadequate Planning

The risks of poor disaster recovery (DR) planning can be catastrophic. It has been estimated that between 60-90 percent of small and medium-sized companies (less than 1000 employees) without proactive DR plans find themselves out of business within 24 months of experiencing a major disaster. *The Underwriting Guide for Insurers* by A.M. Best found that only 6 percent of mid-sized companies that suffer catastrophic data loss survive – 43 percent never reopen, and 51 percent close within two years of the disaster. Implementation of a reliable DR strategy has traditionally been expensive and overly complex, largely because of equipment and networking requirements along with costly replication software licenses. As a result, many small and medium businesses (SMBs) were required to make difficult compromises, such as limiting disaster coverage only to critical applications, employing manual recovery processes on dissimilar equipment, or simply backing up to tape and hoping they will have access to working backups when needed. These tradeoffs are only complicated further by budget constraints, from both an OPEX and CAPEX perspective. Many companies are therefore forced into operating their businesses with insufficient protection in terms of application coverage, acceptable downtime and reliability of recovery.

### Components of a Sound DR Plan

Reliable backup and high availability strategies are essential components of any DR plan:

#### • SAN-Based, Application and Hypervisor-Aware Snapshots and Backups

Backups provide the first layer of protection in a comprehensive DR plan. IT staff must ensure the integrity of all media and test the backups regularly to make sure data can be easily restored. It is also essential to store backup copies off-site in case of local or regional disasters, such as fires or earthquakes. Tape is still the most common and affordable backup media, but restoring from tape can be very problematic. Although efficient and reliable backups form the foundation of a complete DR strategy, IT teams still face several hurdles to retrieve critical information from a restore operation. They have to obtain replacement hardware, reinstall operating systems, and reconfigure all software applications. In a traditional DR model, prior to virtualization, all of these processes can be very difficult and time-consuming since it is essential to restore every setting to exactly the way it was before the disruption.

To enhance recoverability and help maximize server uptime, organizations often choose to augment traditional backup methods with SAN-based snapshots. Dell™ EqualLogic™ includes SAN-based snapshots as a standard feature, eliminating costly add-on licenses for SMBs. Snapshots provide another important level of data protection for the virtualized IT infrastructure.

For data protection at the application level, Dell EqualLogic PS Series Internet SCSI (iSCSI) storage area network (SAN) arrays include EqualLogic Auto-Snapshot Manager / Microsoft Edition. This data management tool enables administrators to quickly and flexibly create and recover application-aware snapshots of Microsoft® Windows®, Exchange®, and NT File System (NTFS) data as well as standard PS Series snapshots for non-Microsoft operating systems. For data protection at the VM level, EqualLogic PS Series iSCSI SANs also include Auto-Snapshot Manager / VMware Edition, a data management tool that enables administrators to create and recover hypervisor-aware SAN-based snapshots of VMs.

#### • High Availability and Fault Tolerance

The next layer of a comprehensive disaster recovery plan is ensuring high availability of applications and servers. To help maximize the uptime of physical storage components, EqualLogic PS Series iSCSI SANs help achieve 99.999 percent availability, and when used with VMware High Availability failover protection software, help ensure the availability of virtualized IT environments. SMBs can now achieve their DR goals and more by leveraging cost-effective virtual infrastructure solutions. VMware and Dell enable small and medium businesses with simple and affordable, yet powerful DR solutions

that go well beyond creating backup copies of all data, to encompass high availability and comprehensive disaster recovery capabilities.

## Leveraging VMware and Dell Virtualization to Optimize Availability

Until now, always-on coverage capabilities were not possible for SMBs, largely because of cost and complexity. VMware and Dell virtualization solutions allow SMBs to eliminate planned and drastically reduce unplanned downtime, deliver HA, and be better prepared for a disaster – without large investments in duplicate hardware or the complexity normally associated with clustering. VMware vSphere 4.0 simplifies IT computing architecture by providing a layer of abstraction between the computing, storage and networking hardware, and the software that runs on it. VMware and Dell satisfy the requirement for SMBs to create affordable DR, enabling businesses to lower IT costs through increased efficiency, flexibility and responsiveness. The PS Series has built-in storage features once relegated to top-tier data centers, enabling best practice storage for every size organization. Unlike traditional storage arrays, the EqualLogic PS Series arrays include a comprehensive set of enterprise data services and software features with no additional software licensing fees.

VMware vSphere 4.0 has several key technologies, enabled with EqualLogic SANs that can make it easier and more cost-effective for SMB IT organizations to implement data protection and disaster recovery services.

- **VMware High Availability** provides rapid and automated restart and failover of virtual machines without the cost or complexity of solutions used with physical infrastructure. For server failures VMware HA automatically and intelligently restarts affected virtual machines on other production servers.
- **VMware Fault Tolerance** is a new capability that provides true continuous availability for infrastructure and applications to further enhance service continuity for SMB and ROBO environments. It enables critical applications to run with zero downtime and data loss in spite of hardware failures. VMware Fault Tolerance complements and is integrated with VMware High Availability. (See Figure 1 below)

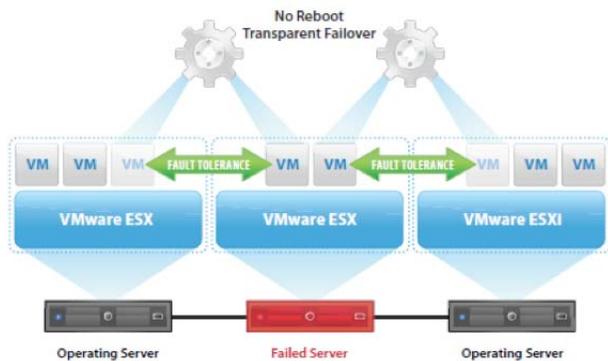


Figure 1

VMware Fault Tolerance enables a transparent failover with no disruption of service in the event of hardware failures

- **VMware VMotion** reduces planned downtime from server maintenance activities by enabling the live migration of running virtual machines from one server to another with no disruption or downtime.

- **VMware Storage VMotion** eliminates the need to schedule application downtime due to planned storage maintenance or during storage migrations by enabling live migration of virtual machine disks with no disruption to users or loss of service.
- **VMware Data Recovery** is a new disk-based backup and recovery solution that delivers quick, simple and complete data protection for your virtual machines. Designed for SMB it is fully integrated with VMware vCenter Server to enable centralized and efficient management of backup jobs and also includes data de-duplication to save on disk storage for your backups. (See Figure 2 below)

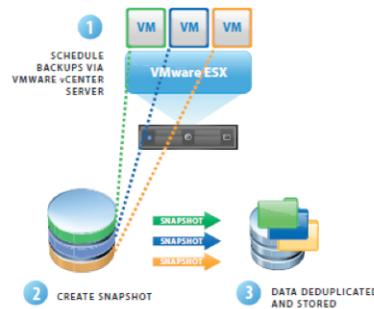


Figure 2

VMware Data Recovery provides quick and efficient backups of your virtual machines to disk

In addition to Data Recovery, VMware provides VMware consolidated backup that integrates existing data protection solutions for archival to tape and physical system backup/restore.

## VMware Solutions for SMBs

### All-in-One Solutions for Small IT Environments

Designed especially for small IT environments with fewer than 20 physical servers, the VMware vSphere Essentials Editions delivery enterprise-class capabilities in a cost-effective solution package for organizations that want to optimize and protect their IT assets with minimal up-front investment.



Both editions are all-inclusive packages that enable you to virtualize and consolidate many application workloads onto three physical servers running vSphere and centrally manage them with vCenter Server for Essentials.

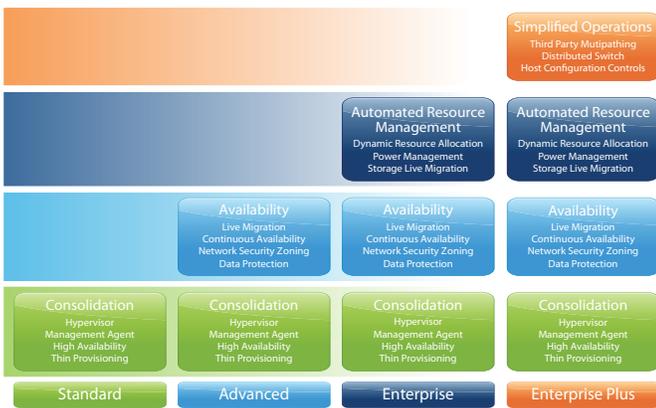


- **VMware vSphere™ Essentials** provides an all-in-one solution for small offices to consolidate and manage many application workloads while reducing hardware and operating costs with a low up-front investment.
- **VMware vSphere™ Essentials Plus** adds high application availability and data protection for a complete server consolidation and business continuity solution for the small office IT environment.

### Scalable Solutions for Mid-Sized Businesses

vSphere is available for midsize and larger businesses in four main offerings targeted for various deployment scenarios. Each edition is licensed based on the number of processors on the physical server hosts that you want to virtualize and scales easily by adding more licenses to your environment.

- **VMware vSphere™ Standard** provides an entry solution for basic consolidation of applications to slash hardware costs while accelerating application deployment.
- **VMware vSphere™ Advanced** provides a strategic consolidation solution that protects all applications against planned and unplanned downtime to provide superior application availability and data protection. VMware vSphere Enterprise provides a strategic platform for minimizing downtime, protecting applications and data, and automating resource management.
- **VMware vSphere™ Enterprise Plus** includes the full range of components and features for transforming datacenters into dramatically simplified cloud computing environments that can provide the next generation of flexible, reliable IT services to their businesses.



### Management and Automation:

VMware vCenter Server is the central management tool for configuring, provisioning and managing distributed virtual IT environments. Purchased separately, it is required for managing VMware vSphere server hosts and enabling many of the features.

- **VMware vCenter Server Standard** enables SMBs to scale up their virtual infrastructure to achieve the highest levels of efficiency, automation, simplicity, and security, with centralized management for organizing, monitoring, and configuring the entire IT environment through a single interface, resulting in lower operating costs.

- **VMware vCenter Foundation** provides users all the benefits of vCenter Server, but is designed to serve the needs of a smaller IT environment with the ability to manage three or fewer physical servers.

- **VMware vCenter Site Recovery Manager** accelerates recovery by automating the recovery process and simplifies management of disaster recovery plans by making disaster recovery an integrated element of managing your virtual datacenter operating system. The solution ensures reliable recovery by eliminating complex manual recovery steps and enabling non-disruptive testing of recovery plans.

### VMware vSphere 4 Acceleration Kits

The VMware vSphere 4 Acceleration Kits provide cost-effective options for work groups or small-and-medium businesses to take advantage of enterprise-level virtualization features including manageability, IT agility, and business continuity.

### Find the Kit that Fits your Needs, Whatever Your Size and Budget

- **VMware vSphere Advanced Acceleration Kit** delivers superior application availability and data protection together with centralized management for mid-sized businesses. The Acceleration Kit includes vSphere Advanced for 6 processors and vCenter Server Foundation.
- **VMware vSphere Advanced Acceleration Kit With Training** delivers superior application availability and data protection together with centralized management for mid-sized businesses. This Acceleration Kit includes vSphere Advanced for 6 processors and vCenter Server Foundation plus 30 PSO credits that can be used for a wide variety of VMware education offerings.
- **VMware vSphere 4 Enterprise Plus Acceleration Kit (for 6 or 8 Processors)** includes the full range of vSphere features together with scalable central management for transforming datacenters into dramatically simplified environments for the next generation of flexible, reliable IT services. The Acceleration Kit includes vSphere Enterprise Plus for 6 or 8 processors and vCenter Management Server.

### Storage is a Key Component of DR

A key component for an SMB to successfully implement a DR strategy is to ensure that the right storage solution is deployed. Dell EqualLogic iSCSI network storage extends the value of virtualization and delivers a cost effective, simplified SMB solution.

The Dell EqualLogic PS Series is designed to meet and exceed the rugged requirements of the data center. Each array comes standard with fault tolerance capabilities through fully redundant and hot-swappable components — dual-controllers, multiple fan trays and power supplies, and disk drives with hot spares.

Simplifies Networked Storage	Enhances Consolidation ROI
Helps simplify deployments	Affordable hardware
Extends existing infrastructure	Helps reduce deployment and acquisition costs
Ubiquitous networking knowledge	Helps reduce ongoing management costs

The Dell EqualLogic PS Series has key DR features, including Auto Replication, which can lower the cost of DR through automation, thus enabling SMBs to implement the right, cost effective DR solution for their environment.

- Simple, intuitive virtualized iSCSI SAN can enable VMware® VMotion, High Availability, Distributed Resource Scheduler, and Site Recovery Manager
- Application-aware snapshots are designed to protect Windows Applications
- High performance, space-efficient hypervisor-aware SAN-based snapshot support
- Enterprise Class SAN architecture helps provide 99.999% data availability
- Scalable HW-based solution for online data protection of virtual infrastructure
- Built-in-replication enables Automated Disaster Recovery

### Sample Customer DR Architecture

The following diagram illustrates how VMware allows SMBs to build a dynamic IT environment that serves as the foundation for an effective DR plan. With VMware Vmotion, Distributed Resource Scheduler (DRS) and HA, local and remote sites become “resource pools” that dynamically allocate VMs to best serve the needs of the business and provide continuous uptime during a disaster.

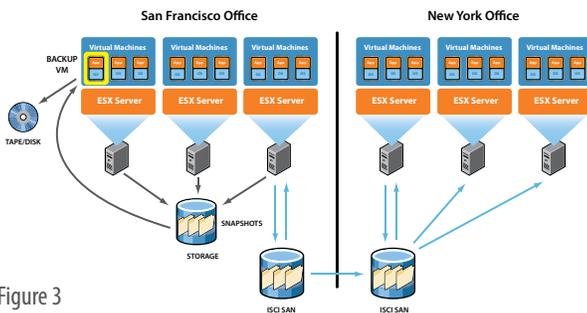


Figure 3

### Virtual Storage Solutions Enable a Highly Available, Simplified Virtual Data Center

Virtual iSCSI SANs are helping administrators overcome some of the barriers to implementing and protecting advanced virtualized data centers. The Dell™ EqualLogic™ PS Series SAN is designed for 99.999% availability while utilizing iSCSI to help enable advanced storage virtualization capabilities such as seamless scalability, simple management and comprehensive data protection and disaster recovery. EqualLogic storage technology virtualizes the entire SAN to simplify deployment and ongoing management. In the SAN, volumes are automatically provisioned as a single, scalable pool of storage that utilizes all storage resources within the SAN. As workload demands shift or migrate between virtual machines and their physical host servers, a virtualized PS Series SAN is designed to automatically apply storage resources where and when they are needed without intervention or manual tuning. VMware and Dell prevent and minimize downtime by making effective DR and HA affordable, simple and reliable. With VMware and Dell virtualization solutions, SMBs can:

- Minimize outages and unplanned downtime-- 99.999% availability
- Eliminate planned downtime for many types of maintenance by migrating running workloads to other servers, without downtime or service interruption.
- Dramatically reduce infrastructure costs by consolidating servers and storage.
- Build recovery infrastructure using existing servers, rather than installing identical duplicate servers for recovery.
- Cut operational costs related to power, cooling and infrastructure management.
- Eliminate dependencies of recovery plans on physical server hardware.
- Enable realistic, frequent tests of recovery plans, without the cost and complexity of traditional DR testing.
- Make rapid DR attainable, rather than relying on time consuming restoration from tape or disk backups.
- Extend DR protection to all important systems, not just a privileged few, with EqualLogic's all-inclusive software pricing model
- Increase availability across all applications independent of OS and hardware used.

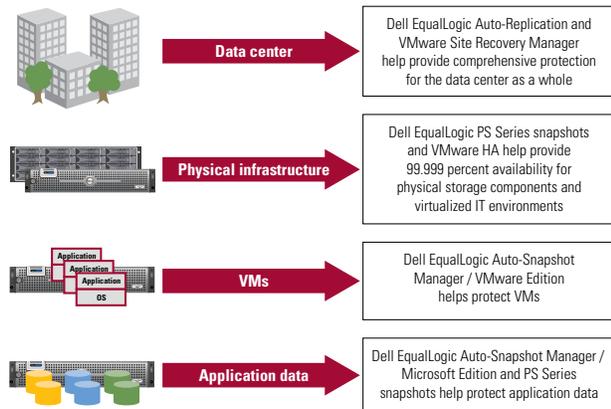


Figure 4

DR environment inclusive of VMware, Dell PowerEdge servers, and Dell EqualLogic storage

With a Multi-Layer data protection and disaster recovery approach for the entire IT infrastructure, administrators are able to support their organizations' service level agreements and achieve faster, more reliable data recovery. Dell EqualLogic is integrated with VMware to provide comprehensive data protection and disaster recovery tools without costly add-on licenses. Dell and VMware have unique and affordable disaster recovery and data protection solutions for your company. VMware's 10 year track record of providing extremely reliable virtualization solutions combined with Dell's innovative approaches to data storage and management can help you to recover quickly when a disaster strikes.

### Find Out More

For more information or to purchase Dell and VMware SMB products, go to [www.dell.com/smb](http://www.dell.com/smb) or go to <http://www.vmware.com/smb/>