Accelerating virtualization performance with Dell EqualLogic and VMware vSphere 4.1

The combined strength of Dell and VMware® can deliver significant benefits for small, medium, and large organizations across all industries and sectors. Specifically, integration of the Dell™ EqualLogic™ PS Series family together with the VMware® vStorage APIs, can:

- Increase operational flexibility and efficiency: Quick deployment of storage systems and services for fast time to productivity
- Realize transformative cost savings: Low total cost of ownership (TCO) from virtualized IT infrastructures that enable effective use of budget resources and help decrease operational costs
- Minimize risk and enhance IT service levels: Zero-downtime maintenance capabilities and rapid recovery times for high availability and streamlined disaster recovery scenarios across the data center
- Optimize IT environments: VMware vSphere 4.1 virtual infrastructures help optimize and manage the enterprise across the Dell product portfolio, including PowerEdge servers, Dell OptiPlex™ desktops, Dell Latitude™ laptop PCs and Dell EqualLogic PS Series storage arrays

Dell and VMware vSphere helping clients build the private cloud

VMware® vSphere™ is the industry’s first private cloud operating system that provides a comprehensive framework from which Dell can help deliver enhanced virtualization capabilities to clients. VMware vSphere provides two key services that aid virtualization: the first, infrastructure services, defines a key group of vSphere components that virtualize server, storage and network infrastructure, allocating resources as required. Application services define the second grouping and provide the benefits of virtualization and client control at the application level.

The vSphere operating system includes VMware vCompute for server virtualization; VMware vNetwork, which enables optimal administration and management of networking resources; and VMware vStorage, an infrastructure service that helps storage vendors provide the most efficient utilization of storage capacity in virtualized environments. VMware enables further extension of the benefits of VMware vSphere through APIs that enable seamless integration with technology partners. As a certified partner of VMware, Dell is committed to helping clients get the most from their VMware installations by integrating enhanced capabilities as VMware continues to introduce new functionality.

vStorage: Technologies & Partner Integrations

![vStorage Diagram]
Dell EqualLogic optimizing data with VMware vStorage

VMware vStorage APIs for Array Integration (VAAI) is an ongoing technology initiative that provides new enhancements for intelligent SAN integration with vSphere. vStorage base functionality enables virtualized storage and centralized management. vStorage VMFS provides file system services that enhance the performance of virtual storage environments. For example, 72% faster virtual machine deployments can be achieved with EqualLogic and vSphere 4.1 for greater productivity*. VMware vStorage also provides vStorage API’s that enable integration with leading hardware and software vendors providing solutions for data protection, high availability and disaster recovery. Dell™ EqualLogic™ PS Series iSCSI storage arrays leverage VMware vSphere and the VMware vStorage API’s to help provide more efficient, integrated data services for our clients.

Auto-Snapshot Manager/VMware Edition

Auto-Snapshot Manager/VMware Edition (ASM/VE) is an innovative data protection feature of the EqualLogic PS Series family that integrates the VMware Data Recovery and Snapshot functionality provided in vSphere enabling fast, online protection of VMware virtual machines and VMFS file systems. ASM/VE provides an easy-to-use graphical interface that coordinates the creation, recovery and scheduling of PS Series snapshots, clones, and replicas with vCenter enhancing protection, storage utilization, and performance of VMware-based virtual infrastructures. The resulting Hypervisor-aware snapshots (Smart Copies), clones, and remote replicas can now be easily and rapidly created, managed, and recovered.

VMware Site Recovery Manager

The VMware vCenter Site Recovery Manager (SRM) Storage Adapter is tightly integrated with Dell EqualLogic PS Series and VMware vCenter Server. SRM guides users through the process of setting up and configuring recovery plans for their virtualized IT environment. Additionally, SRM provides the functionality to test these recovery plans with no impact to production environments and at the time of failover, automatically run the recovery plan—starting virtual machines in the proper order with updated networking configurations. Using the PS Series’ native Auto-Replication feature, SRM enables non-disruptive, automated testing of recovery plans and automates the recovery process, while the PS Series provides cost-effective and easy-to-configure replication over any distance using existing IP networks.

Dell’s continuing commitment to virtualization

As part of the ongoing relationship with VMware, Dell plans enhanced integration of the EqualLogic PS Series with VMware vSphere and VMware vStorage. Planned integration with intelligent data offload operations can significantly enhance data movement processes within the SAN such as Storage vMotion, cloning, and deploying. Advanced vStorage Thin Provisioning integration capabilities are also being developed to leverage array thin provision awareness to vSphere. Our goal is to provide our clients with the best integrated services for the virtual environment.

VMware Multipath Extension Module for vSphere 4.1

With the release of VMware’s vSphere 4.1 suite of virtualization products and its vStorage APIs for Multipathing, Dell can now provide customers with improved performance and scalability through advanced features such as fault-tolerant load balancing and intelligent management of multiple network connections. Basic multi-pathing software provides multiple redundant network connections to a storage solution such as Dell’s iSCSI-based EqualLogic array removing a single point of failure from the storage network. Advanced multipathing extends this functionality beyond simple fault tolerance and provides storage-aware, end-to-end management of the data path between the host and storage. Dell’s Multipath Extension Module for VMware vSphere introduces additional advanced capabilities such as automatic connection load-balancing without any additional configuration.

Simplify your Storage at www.dell.com/PSseries

*Based on testing performed by Dell Labs in May 2010 comparing Dell EqualLogic Firmware v. 4.3 to Dell EqualLogic Firmware v. 5.0. Actual performance will vary based on configuration, usage and manufacturing variability.