



Solution Brief

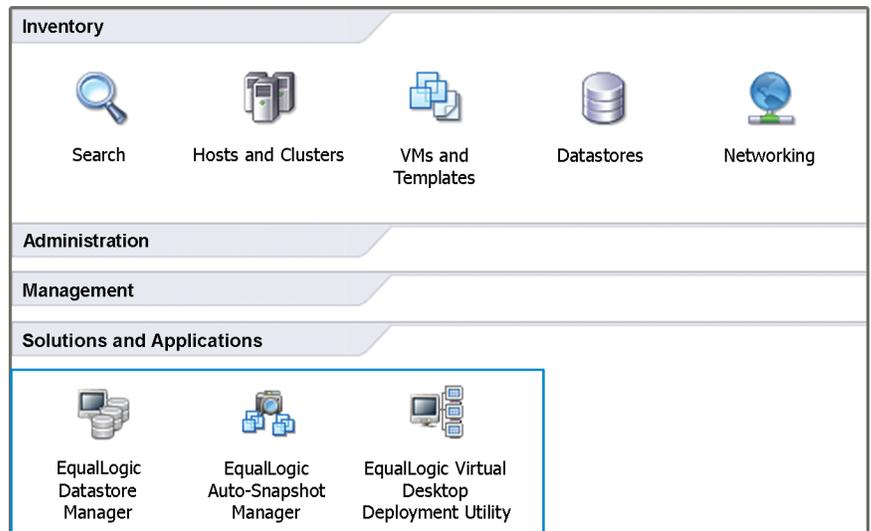
Optimize virtualization deployments with Dell EqualLogic virtualized storage and VMware vSphere 5

The combined strengths of Dell and VMware® can deliver significant benefits for businesses of all sizes. Integration of Dell™ EqualLogic™ with VMware® can help organizations:

- **Increase operational flexibility and productivity:** Quick provisioning of datastores and virtual desktop infrastructure for fast time to productivity.
- **Realize transformative cost savings:** Low total cost of ownership (TCO) from standards-based iSCSI connectivity and virtualized IT infrastructures that enable effective use of budget resources and help decrease capital and operational expenditures.
- **Enable effective business continuity strategies:** Advanced data protection and disaster recovery features as a result of tight integration between EqualLogic and VMware.
- **Achieve optimal performance:** Intelligent management of multiple data paths and array offloading of storage related tasks as a result of EqualLogic Multipath Extension Module and VAAI integration.
- **Build highly resilient virtual infrastructure:** Policy-based workload automation to optimize latency, performance and capacity utilization as a result of integration with vStorage APIs for Storage Awareness.

Virtualization and cloud computing are profoundly changing the way IT infrastructure is built, managed, and consumed by enterprises. Server virtualization helps organizations to improve their IT resource utilization, reduce complexity, and lower capital and operational expenditures. Virtualized storage platforms help enhance the benefits of a virtualized computing environment. As organizations migrate more of their infrastructure, and in particular, their tier-1 applications, into virtualized environments, they need storage solutions that enable outstanding performance, responsiveness and high-availability. The integration between storage and hypervisor plays a key role in getting the most value out of the virtualization deployments.

VMware® offers market leading solutions that help businesses address their virtualization needs. Dell and VMware have a long history of collaboration. Dell™ EqualLogic™ PS Series virtualized iSCSI SAN storage is tightly integrated with the latest versions of VMware® tools and APIs. EqualLogic's bundled software includes advanced, integrated tools designed to streamline storage management, deliver advanced virtualization capabilities, and enable effective business continuity strategies for enterprises.



EqualLogic Host Integration Tools for VMware are tightly integrated with VMware vCenter to help simplify storage management, data protection and virtual desktop provisioning.

EqualLogic Host Integration Tools for VMware

Dell offers Host Integration Tools for VMware (HIT/VMware) that helps enhance the integration between Dell EqualLogic and VMware vSphere. This software toolset is installed as a virtual appliance and offers tools to simplify storage management, streamline and optimize VDI provisioning, enable business continuity and help build resilient virtual infrastructure. Like all EqualLogic software features, HIT/VMware takes advantage of the all-inclusive pricing model. There are four components to this toolset:

- **EqualLogic Datastore Manager:**

This tool is used to create new Datastores, expand existing Datastores, and monitor Datastores from vCenter. Administrators who want to quickly provision new storage for their virtual environment can do so with this new integrated wizard. Administrators can simply provision new volumes, assign them to the ESX cluster, and format them with the VMFS filesystem. The tool automates numerous tasks when provisioning storage, thus improving productivity.

- **EqualLogic Auto-Snapshot Manager for VMware 3.0:**

EqualLogic Auto-Snapshot Manager for VMware (ASM/VMware) is an innovative data protection feature that combines hypervisor-consistent snapshots with space efficient SAN-based snapshots. ASM/VMware provides an easy-to-use graphical interface that coordinates the creation, recovery and scheduling of PS Series snapshots, clones, and replicas. It enables effective business continuity strategies that help organizations efficiently protect their virtual infrastructure.

- **EqualLogic Virtual Desktop Deployment Utility:**

The EqualLogic Virtual Desktop Deployment Utility helps streamline VDI provisioning in a space efficient manner. This tool is integrated with VMware View, and employs template volumes and PS Series thin clones to achieve space-efficiency and cost control for VDI deployments. It also enhances productivity by automating VM pool creation, VM registration, patch and update management.

- **EqualLogic VASA Provider:**

EqualLogic VASA Provider integrates with vStorage APIs for Storage Awareness (VASA). This integration allows EqualLogic to communicate storage attributes to vSphere. These attributes include drive type and speed, RAID settings, snapshot reserve space, etc. This information exchange allows VMware to become aware of the underlying storage and perform intelligent migration of workloads across Datastores on the underlying storage to optimize latency, performance and capacity utilization. Through this integration, EqualLogic enables responsiveness and agility demanded by business-critical tier-1 applications through policy-based automation.

EqualLogic Support of VMware vStorage APIs for Array Integration

VMware vStorage APIs for Array Integration (VAAI) enable offloading of certain storage intensive tasks to storage tier. Dell EqualLogic PS Series arrays were one of the first storage arrays to incorporate VAAI support into its firmware. This integration frees up network bandwidth and host compute resources by allowing EqualLogic arrays to perform tasks such as full copy, block zeroing, and hardware assisted locking. Delegating these tasks to the storage layer can enable quick deployment of virtual machines from templates, and improved storage performance for volumes shared by multiple virtual machines. Dell Labs tests show up to 95% reduction in network traffic, up to 75% lower host compute overheads, and up to 72% faster virtual machine provisioning.*

EqualLogic Storage Replication Adapter for VMware Site Recovery Manager

The VMware vCenter Site Recovery Manager (SRM) is tightly integrated with Dell EqualLogic Storage Replication Adapter (SRA). SRM guides users through the process of setting up and configuring recovery plans for their virtualized 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 designated order with updated network configurations. With support for SRM5, EqualLogic users can fail-back to the production environment when it is back online, simply and efficiently. Using the PS Series' Auto-Replication feature, SRM enables non-disruptive, automated testing of recovery plans and automates the recovery process, while the EqualLogic provides cost-effective and easy-to-configure replication over any distance using existing IP networks.

EqualLogic Multipath I/O for VMware

Through integration with VMware vStorage APIs for Multipathing, Dell provides customers with the EqualLogic Multipath I/O (MPIO) for VMware vSphere. In addition to providing multiple redundant network connections to storage arrays, the MPIO provides storage-aware, end-to-end management of data paths between the host and storage arrays. EqualLogic MPIO provides fault-tolerant load balancing and helps improve storage performance and scalability while automating multipath configuration.

Dell EqualLogic — Changing the storage game for virtual infrastructure

Dell has made significant investments in virtualization and has emerged as the market leader in iSCSI technology. The PS Series virtualized scale-out architecture naturally complements clustered virtual infrastructure deployments. Dell EqualLogic has been one of the first storage solution providers to bring many of the VMware integration features to market. As part of the strong and ongoing relationship with VMware, Dell is committed to continually enhancing integration of EqualLogic platforms with VMware. Open, capable and affordable, Dell EqualLogic PS Series virtualized iSCSI SANs are an ideal storage platform for virtual infrastructures.

* 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.

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