



Solution Brief

vSphere Virtual Volumes on Dell Storage

Virtualization delivers tremendous value to organizations of all sizes by enabling greater server consolidation and utilization, increased workload mobility and availability, and improved data protection and recovery, all while lowering the overall cost and improving service delivery. Although server virtualization provides enormous benefits for the modern data center, it can also be daunting from a storage perspective. Provisioning storage to match the exact virtual machine (VM) requirements has always been challenging, often ending in a series of compromises. Applications and virtual machines have different performance and data requirements, which can create an inefficient use of storage. A virtualization administrator would have to provision storage in a static manner while trying to closely match it to a virtual machine requirements. Provisioning in this way is time consuming and doesn't possess the VM-level granularity required to meet specific applications needs.

VMware® vSphere® 6.0 introduces the biggest change to the ESXi™ storage stack since the company's inception through Virtual Volumes. It solves the previous challenges by closely matching the requirements for a virtual machine to the external storage functionality in a granular fashion. Virtual Volumes adds many benefits to VM environments, and even more when combined with Dell™ Storage PS Series arrays.

vSphere Virtual Volumes

Virtual Volumes is a new management and integration framework designed to deliver a more efficient operational model for external storage. It encapsulates virtual disks and other virtual machine files, and natively stores these objects on the storage array without the need for a file system. This transforms the external storage from a LUN/Volume centric model to a truly VM-centric storage solution, enabling data services and data placement at the virtual machine level. Hence, Virtual Volumes will improve the offloading of data management services to storage arrays.

Virtual Volumes helps simplify operations and the delivery of services levels as well as improves resource utilization of storage systems.

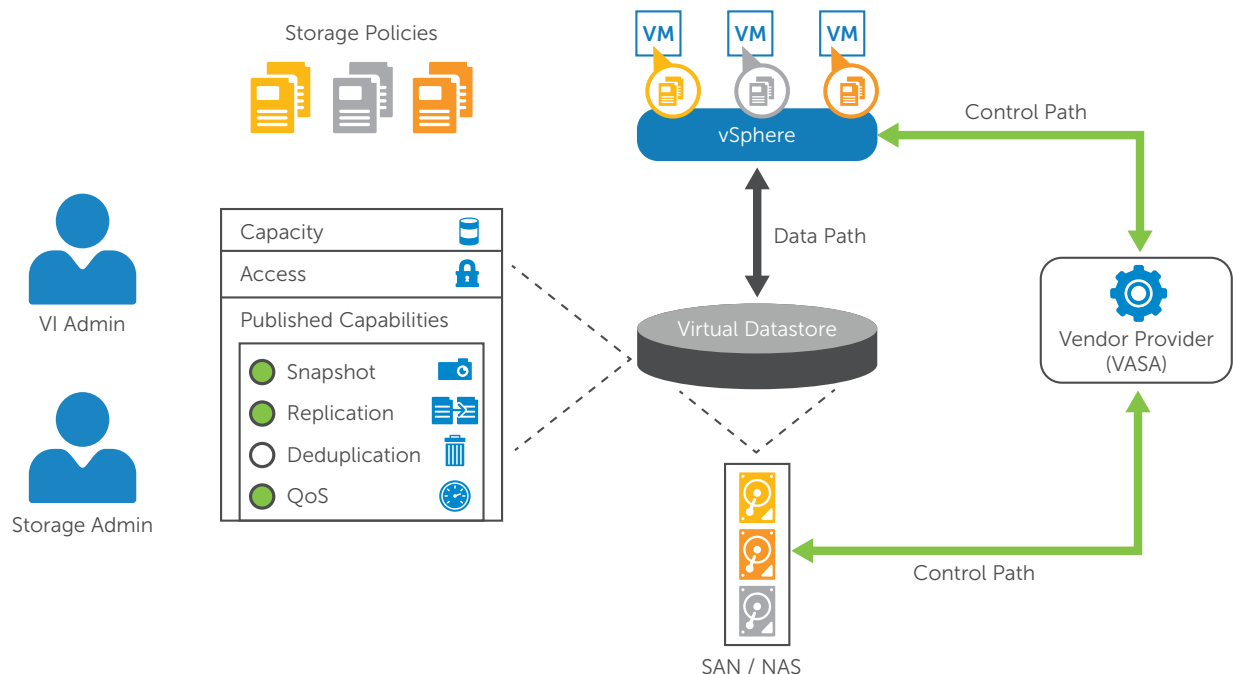


Figure 1. vSphere Virtual Volumes Architecture

Source: <http://www.vmware.com/products/vsphere/features/virtual-volumes>

Dell Storage PS Series support for Virtual Volumes

The PS Series virtualized iSCSI SAN storage perfectly complements VMware virtualization deployments. The PS Series is tightly integrated with the latest versions of VMware vSphere and its APIs to help improve manageability, reduce overhead and realize breakthrough performance. As a VMware Global Partner, Dell offers broad and deep virtualization expertise, helping organizations successfully achieve their business goals.

At no additional cost, the PS Series arrays include EqualLogic Host Integration Tools for VMware for simplicity in local and remote data protection and ease of management, all tightly integrated from within vCenter®.

The latest Dell Virtual Storage Manager for VMware (VSM 4.5) enables vSphere Virtual Volumes¹.

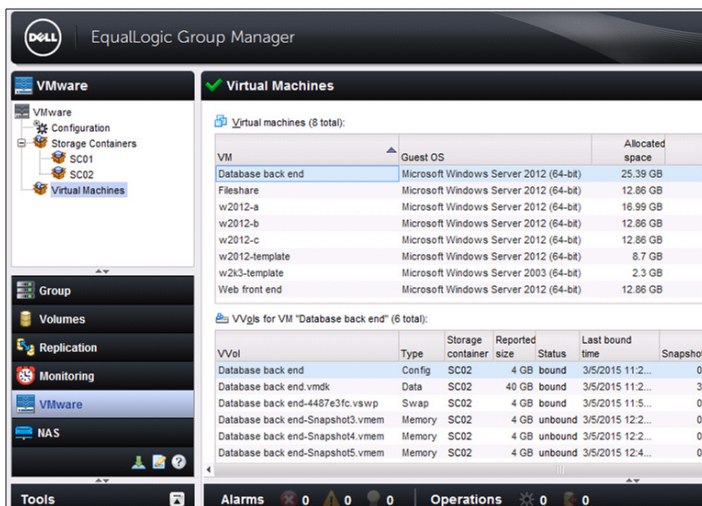


Figure 2. Virtual Volumes in PS Series arrays

With Virtual Volumes support, the PS Series arrays are shifting from a datastore or volume-centric model to a per virtual machine model. Previously a virtual machine, which consisted of a collection of files on a datastore, was backed by a volume on the array. Now with Virtual Volumes, a virtual machine consists of

a group of volumes on the array, thus enabling the offloading of several VMware operations to the storage array. Benefits include:

- VMware snapshots are now array based snapshots that can be kept indefinitely and restored within seconds.
- Virtual machine deployment tasks which previously took minutes, are completed in seconds.
- Array side storage metrics can now be mapped to individual VMs and individual virtual disks, enabling both vSphere and Storage administrators to use their preferred tools such as vRealize Operations.
- Storage administrators gain visibility to per VM and per virtual disk storage consumption

Additionally, with VASA 1.0, storage vendors were only able to add a concatenated string of information about a volume to advertise its capabilities to a vSphere administrator. This limited the profiles that could be created. But with VASA 2.0, which is compatible with Virtual Volumes, there is now the ability to advertise multiple individual capabilities about the storage arrays. This enables vSphere administrators to create granular storage policies that contain just the capabilities that they need to meet their business needs.

Dell Storage PS Series: Changing the storage game for virtual infrastructure

Dell continues to make significant investments in virtualization and has been the market leader in iSCSI technology². The Dell Storage PS Series virtualized scale-out architecture naturally complements clustered virtual infrastructure deployments. Dell is consistently one of the first storage partners to bring VMware integration features to market. By leveraging the PS Series virtual storage, customers can break through barriers and enable the full benefits of virtualization to meet both IT and business objectives.

¹ Virtual Volumes will be supported on the PS Series in Spring 2015.

² IT Brand Pulse awarded Dell EqualLogic iSCSI Market Leader award for the fourth year in a row.

For more information, please visit Dell.com/virtualvolumes.

