HITACHI
Inspire the Next

DATASHEET

Traditional storage management in virtualized environments has inherent limitations, such as complexity, lack of automation, overprovisioning and expensive data services. With VMware vSphere Virtual Volumes (VVOLs) and Hitachi storage, organizations can deliver simplified IT and realize the full benefits of virtualized IT infrastructure.

Hitachi Storage Provider for VMware vCenter v3, a VASA Provider

Hitachi storage and VMware VVols compose a solution that enables more efficient and flexible operational models for storage in vSphere environments (see Figure 1). Together, they provide a foundation to accelerate and simplify an organization's journey to the IT cloud provider model or the software-defined, policy-controlled data center.

VMware vSphere Virtual Volumes, introduced with the VMware vSphere 6.0 platform, is an associated policy-based management feature. The VVol framework largely solves storage limitations by abstracting physical hardware resources into logical pools of capacity (called Virtual Datastore or VVol Datastore) that can be more flexibly consumed and configured to span a portion of one, one or several storage systems. VVols use a storage container, which is a pool of resources offered by a storage administrator. On the storage container, the storage admin can define capabilities (IOPS performance, latency, snapshot backup needs, replication, disk and RAID type, and other custom attributes). Virtual machines (VMs) are created directly on the storage system: The VM administrator can define the storage capabilities their VM needs and directly consume them from the storage system.

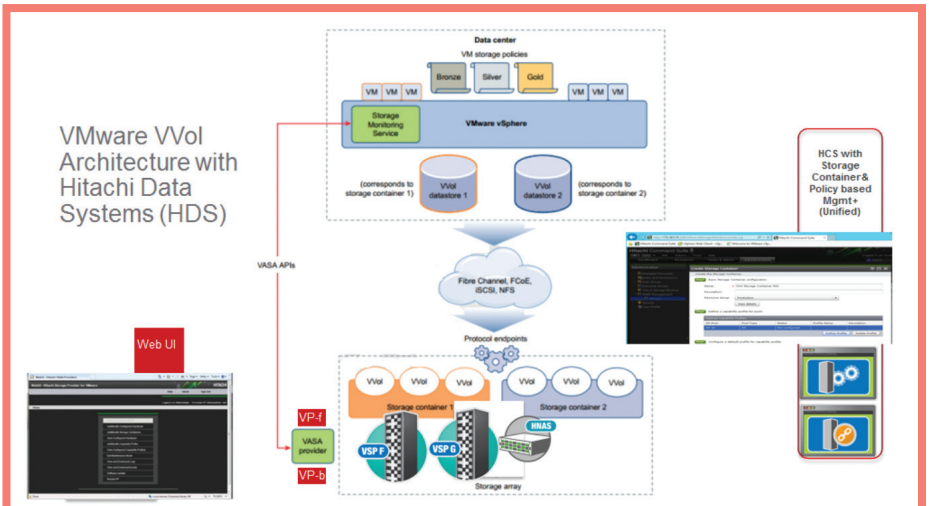
HDS provides native VVol integration in leading enterprise storage systems.

- Hitachi Virtual Storage Platform (VSP) G series (unified): VSP G1000, VSP G800, VSP G600, VSP G400 and VSP G200.
- Hitachi Virtual Storage Platform F series: VSP F800, VSP F600 and VSP F400.
- Hitachi NAS Platform (HNAS) models: HNAS 4100, HNAS 4080 and HNAS 4060.

For other Hitachi storage platforms [VSP, Hitachi Unified Storage (HUS) 100 series and HUS VM], the options are to virtualize with VSP system, or virtualize with HNAS 4000 cluster gateway to surface VVol support.

Hitachi Storage Provider for VMware vCenter

Hitachi Storage Provider for VMware vCenter (a VASA provider) sets up a communication management path between vCenter and storage platform(s). This virtual-appliance-based implementation deploys easily into the environment. It translates those vCenter management operations such as Create VVol, Snapshot VVol into HDS specific calls or offload operations. It also provides the intelligence to map requested storage services from vCenter provisioning operations with the underlying storage capabilities exposed for each storage container. We provide a single Hitachi Storage Provider for VMware vCenter package with dual appliances to enable VVol on file and block storage. For uninterrupted access to VASA provider, to create VVol-VMs and deliver data services, we provide support for vSphere Fault Tolerance (FT) and High Availability (HA). For more advanced high availability, organizations have the capability to



VSP = Hitachi Virtual Storage Platform, HNAS = Hitachi NAS Platform, HCS = Hitachi Command Suite

Figure 1. Key Components for Hitachi Storage With VMware VVol Enablement

replicate VVol-VMs between two data centers for disaster recovery of business-critical VMs. They can create, test and run their recovery plan using Hitachi replication technology.

For cloud providers and test/dev environments, Hitachi Storage Provider for VMware vCenter can be used to communicate with multiple instances of vCenters.

Protocol Endpoints (PE)

Protocol endpoints provide I/O data path connectivity between ESXi hosts and Hitachi storage systems. Protocol endpoints are compliant with both Fibre Channel (virtual LUN) and NFS (mount point). Multipathing occurs against the PEs. In the initial release, HDS with VVol supports Fibre Channel and NFS, and iSCSI PEs. With VSP G1000, environments can configure one PE without incurring any processor or queue-depth bottleneck. We take advantage of a protocol ASIC chip to distinguish I/Os and distribute I/Os to VVols directly (and not the PE LUN) in conjunction with PE multiport allocation across some or all ports.

Web User Interface (UI)

This UI allows the VM admin to manage the Hitachi Storage Provider for VMware vCenter virtual appliances and entry-level storage policy based management (SPBM).

Hitachi Command Suite (HCS)

This enterprise-level administrative interface extension allows storage admins to manage PEs, storage containers and storage capabilities. For unified systems, including VSP G400, VSP G600 and VSP G800, storage admins can manage file and block storage systems with single instance of HCS. Hitachi Tuning Manager software within HCS provides visibility into granular VVols per VM for enhanced manageability. To ensure continuous availability of HCS management console, it can be deployed in Microsoft® Windows® cluster failover mode. To reduce the complexity, a single instance of HCS can be deployed to manage multiple vCenters and VASA providers.

TABLE 1. HITACHI STORAGE PROVIDER FOR VMWARE VCENTER

Supported Systems	Hitachi NAS Platform (HNAS): HNAS 4060, HNAS 4080, HNAS 4100 ■ HNAS operating system 12.2.3753.08 or later ■ HNAS SMU 12.2.3753.10 or later ■ HNAS File Clone License Hitachi Virtual Storage Platform G1000 (VSP G1000): 80-01-42/00 or later; VSP Gx00, VSP Fx00
Supported Protocols	Fibre Channel and NFS
Software Requirements	VMware vSphere 6.0 Hitachi Command Suite v8.2.1 or later (for VSP G1000) VASA Provider: Hitachi Storage Provider for VMware vCenter v3.2 (VP-f + VP-b) for VSP Gx00, VSP Fx00

Capabilities Supported

The HDS and VMware solution provides both auto-generated and managed storage capabilities. With the Hitachi implementation, storage admins can now make distinctions among the resources within the storage container and between storage containers based on the all-important performance, availability, cost and operational recovery-class attributes.

The cost class is a control valve for use when a business group or tenants request Tier 1 performance for all their VMs when lower cost-class resources would meet their business app performance needs. The snapshot backup class provides disaster recovery and replication capabilities for VVol between Hitachi platforms. Initial replication support is for disaster recovery backup.

Scale

Hitachi provides the scale to support up to 400,000 VVols in an HNAS and 64,000 VVols in a VSP G1000 in first release of VVol implementation. In addition, we support an additional 1,000,000 VVol addressable snapshots or clones.

Simplified Storage Operations

Hitachi's implementation simplifies storage operations with the ability to both granularly deliver data services to applications as per their specific policy requirements and manage fewer storage resources. Policy-based management of storage provisioning and delivery of data services leads to more efficient storage operations. Automated mapping ensures the placement of VMs to the right resource as per their policy requirements, including assigning VVols disparate storage processing to ensure fair distribution of available storage processing. VASA provider and HCS VMs can be protected using Hitachi Virtual Infrastructure Integrator software.

Efficient IT Operations

IT operations are made more efficient, thanks to improved resource utilization in VM provisioning and performance of data services leading to reuse of existing resources for new services. Precise and on-the-fly consumption of storage resources eliminates overprovisioning. VM-centric storage provisioning essentially eliminates resource overprovisioning and inherent inefficiency in performing data services such as snapshot, replication, cloning and so forth.

Hitachi Storage Provider for VMware vCenter is a no license fee item.

For more information, please contact www.hds.com/contact-sales/.

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