

Complex automation and lack of visibility limit traditional storage in virtualized environments: It's hard to avoid over-provisioning data storage and services. Deploy VMware vSphere on Hitachi infrastructure with a VASA provider from Hitachi to simplify IT and realize virtualized IT infrastructure benefits.

DATASHEET

Hitachi Storage Provider for VMware vCenter v3, a VASA Provider

Infrastructure administrators seek to enhance their virtualization or private cloud infrastructures. They want to support policy-based automation and improve operational insight into the storage or converged platform hosting that environment. A key component being deployed as part of that infrastructure is Hitachi Storage Provider for VMware vCenter. This VASA provider allows a unique implementation of VMware vSphere API for Storage Awareness (VASA) capabilities: It supports traditional datastores (VMFS and NFS) and newer VMware vSphere Virtual Volumes (VVOL) based datastores. Storage Provider for VMware vCenter, as part of the infrastructure, communicates with VMware vCenter to indicate storage capabilities and state information. It supports policy-based management, operations management and resource scheduling functionality.

VMware vSphere Virtual Volumes, introduced with the VMware vSphere 6.0 platform, largely solves storage limitations. It abstracts one or more physical storage pools into a logical pool of capacity (called Virtual Datastore or VVOL Datastore) that can be more flexibly consumed. Storage administrators create this storage container and can define capabilities (IOPS performance, latency, snapshot backup needs, replication, disk and RAID type, and other custom attributes) for each individual pool in the storage container. Virtual machines (VMs) are created directly on the storage system: The VM administrator

can define the storage capabilities that the VMs require via storage policies in vCenter, which allow an identical match of storage resources to VM needs. The Hitachi solution leverages this same concept for VMFS, as well.

Whether VVOL- or VMFS-based implementations are used, Hitachi Storage Provider for VMware vSphere 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 software-defined, policy-controlled data center. The solution enables better virtual collaboration between respective storage and VM admin teams, allowing them to scale to meet VM growth.

Hitachi Storage Provider for VMware vCenter

Hitachi Storage Provider for VMware vCenter (a VASA provider) sets up a communication management path between one or more vCenter and Hitachi Unified Compute Platform (UCP) offerings. The Hitachi virtual-appliance-based implementation deploys easily into the environment. It translates those vCenter management operations, such as Create VVOL or Snapshot VVOL into Hitachi-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 VASA provider package to support VASA versions 1.0, 2.0, 3.0 and recently introduced new tag-based capabilities for vSphere 6 across VMFS or VVOL. Availability techniques such as VMware high-availability (HA) and vSphere Fault Tolerance are supported.

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) and we support Fibre Channel and iSCSI PEs. The Hitachi implementation with Hitachi Virtual Storage Platform (VSP) G series or VSP F series allows environments to 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 via the PE LUN) in conjunction with PE multipoint allocation across some or all ports.

Web User Interface (UI)

This new web interface, as seen in Figure 2, allows the VM admin to manage the VASA provider virtual appliance from Hitachi, storage interactions and all storage-policy-based-management (SPBM) activities.

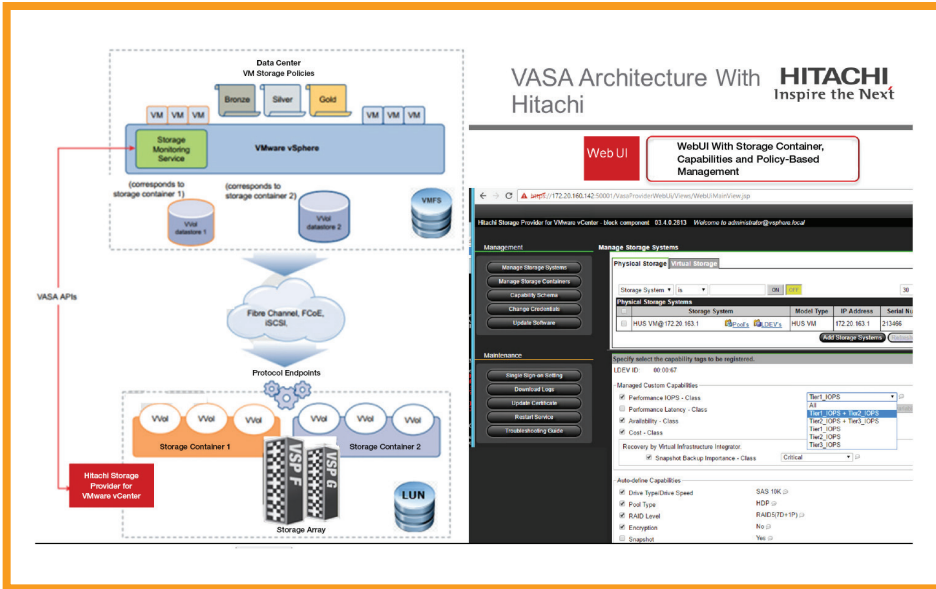


Figure 1. Key Components for Hitachi Storage for VMware vCenter (a VASA provider)

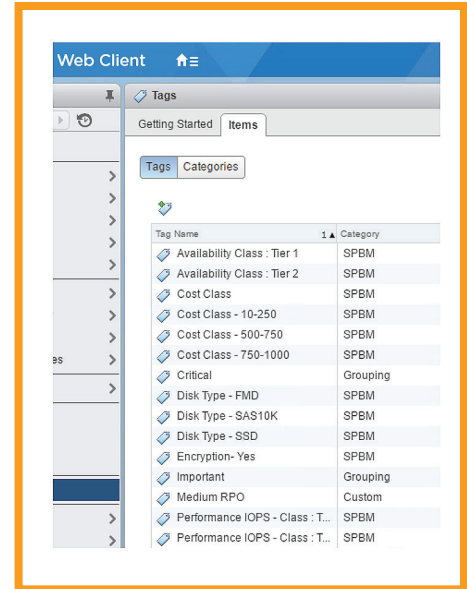


Figure 2. Sample: Automatic SPBM vCenter Tags Generated for VMFS Deployments

These SPBM capabilities are now available for VVol-based datastores and VMFS datastores using new vSphere tag capabilities released with v3.4.

Storage Policy Capabilities Supported

The Hitachi solution provides both auto-generated and managed storage capabilities. With this 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. Infrastructure teams can use it to avoid the issue of business group or tenants requesting Tier 1 performance for all their VMs when lower cost-class resources would meet their business app performance needs. The snapshot backup class provides the hook for automated operational backup

TABLE 1. HITACHI STORAGE PROVIDER FOR VMWARE VCENTER

Supported Systems	Hitachi Virtual Storage Platform (VSP) Gx00, VSP G1000 and VSP G1500, 80-05 or later; VSP Fx00, 80-03 or later Non-VVol: VSP and Hitachi Unified Storage VM (HUS VM)
Supported Protocols	Fibre Channel and iSCSI
Software Requirements	VMware vSphere 6.0 or 6.5 VASA Provider software: Minimum of Hitachi Storage Provider for VMware vCenter, v3.4

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capabilities when leveraging Hitachi Data Instance Director (HDID) and accompanying Hitachi Virtual Infrastructure Integrator component.

These SPBM capabilities are now available for VVol-based datastores and VMFS datastores using new vSphere tag capabilities released with v3.4 (see Table 1).

Hitachi Delivers Simplified and Efficient IT Storage Operations

Hitachi's implementation ensures IT operations are more efficient: Precise granular resource allocation matches VMs needs. And, performance-efficient offload of data services (snapshot, clone and so forth) lead to higher VM density, lower operational cost and reuse of resources for new services.



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