2024-25 **DCIG** TOP 5
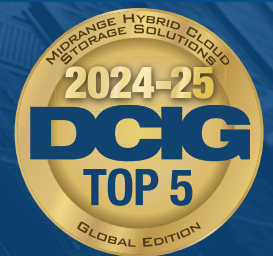
MIDRANGE HYBRID CLOUD STORAGE SOLUTIONS // GLOBAL EDITION

Hitachi Vantara VSP One Block Solution Profile

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Midrange Hybrid Cloud Storage Solutions // Global Edition
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SOLUTION

Hitachi Vantara VSP One Block

COMPANY

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https://www.hitachivantara.com/en-us/products/
storage-platforms/block-storage/midrange/
vsp-one-block

DISTINGUISHING FEATURES OF VSP ONE BLOCK

- Connects to Hitachi Remote Ops to enable remote monitoring.
- Dynamic Carbon Reduction (DCR) optimizes power consumption.
- Dynamic Drive Protection (DDP) groups provide faster HDD recovery than RAID 6.
- Offers a 4:1 "No Questions Asked" data reduction guarantee.
- Scales up to 65 nodes in a cluster.
- Utilizes the Hitachi Vantara SVOS used on its high-end storage arrays.

MIDRANGE HYBRID CLOUD STORAGE SOLUTION FEATURES EVALUATED

- Data protection and cyber resilience.
- Deployment options.
- Licensing and pricing.
- Product and performance management.
- Software options.
- Storage optimization.
- Technical support.

Hybrid Cloud Capabilities Now a Must-have Feature

On-premises, cloud, or hybrid cloud? That's a question few organizations ponder any longer as they acquire new enterprise technologies. Rather, most organizations already know the answer to it. They expect new enterprise technologies they acquire to possess hybrid cloud capabilities.

Corporate strategies drive this mindset to acquire enterprise technologies that possess hybrid cloud capabilities. Over 80 percent of organizations have a hybrid cloud strategy with about 90 percent using both on-premises and cloud services. Further, IT leaders often view hybrid cloud functionality as critical to future success as this feature facilitates corporate digital transformation initiatives.[1]

However, in the quest to choose enterprise technologies that possess hybrid cloud capabilities, organizations must exercise caution. They cannot and should not assume hybrid cloud capabilities constitute a simple check box item on any product feature list.

The ways in which providers deliver and support hybrid cloud functionality in their products can and do differ significantly. Nowhere can one observe these differences more than in midrange storage solutions that possess hybrid cloud capabilities.

At least two levels of midrange hybrid cloud storage solutions exist. Using hybrid cloud technology, a Level 1 midrange storage solution can minimally store data on-premises, in the cloud, or both.

It also offers various techniques and technologies to manage data placement. These may include default and user-defined policies, artificial intelligence/machine learning, storing data in different clouds, or a combination of these.

This DCIG TOP 5 report only examined Level 2 midrange hybrid cloud storage solutions. All these midrange storage solutions also offer the flexibility to more freely host and move applications between on-premises and the cloud.

To facilitate this movement, the Level 2 midrange storage solution provider must offer software-defined storage (SDS). This feature permits the use of the midrange storage solution's other data services such as replication and snapshots in the cloud. Organizations may then often manage the midrange storage solution in a similar manner both in the cloud and on-premises.

Two Levels of Midrange Hybrid Cloud Storage Solutions Capabilities

DCIG classifies a midrange hybrid cloud storage solution as either Level 1 or Level 2. DCIG defines these two levels as follows:

Level #1: Data Tiering to the Cloud.

Data tiering to the cloud represents Level 1 of hybrid cloud functionality. This represents the baseline functionality that DCIG expects a midrange storage solution to possess to obtain a "hybrid cloud" classification.

However, nuances exist to this Level 1 cloud tiering classification. At an entry level, a midrange storage solution stores data on-premises and then tiers aging or selected data to cloud storage. This cloud storage tier often consists of using S3 or S3-compatible storage targets.

Continued

1. https://worldmetrics.org/hybrid-cloud-statistics/. Referenced 9/12/2024.

The flexibility to move production applications and data between on-premises and the cloud represents Level 2 of hybrid cloud functionality.

The subtleties of Level 1 midrange hybrid cloud storage solutions include:

- Some midrange storage solutions offer policies (default or user-defined) that define the time for when aging or selected data gets moved to the cloud.
- Others employ more sophisticated algorithms, to include artificial intelligence and machine learning, that identify which data gets moved to the cloud and when.
- Some can simultaneously store data to cloud storage on multiple different cloud providers, be they general-purpose or purpose-built.
- Still others give organizations the ability to mix and match these different cloud tiering capabilities.

This Level 1 classification and its distinctions represent a basic implementation of hybrid cloud capabilities on midrange storage solutions.

Level 2: Flexibility to Move Applications between On-premises and the Cloud

The flexibility to also move production applications and data between on-premises and the cloud represents Level 2 of hybrid cloud functionality. Achieving Level 2 almost demands that a midrange storage solution provider offers SDS as an option. This often becomes a necessity for two reasons.

First, an on-premises application, when moved to the cloud, may not function if it must rely upon data tiered to S3 storage. Granted, an organization can theoretically restore tiered data to production cloud block or file storage. However, the application may not have sufficient time to restore data in this way. Even if restored, the application may not run, or run as expected, when hosted on the cloud provider's storage.

Second, few, if any, cloud providers permit a storage provider to deploy its physical storage solution in their cloud. While a few exceptions exist, if an organization wants to recover an application with a cloud provider, it must use the cloud provider's storage.

To meet this cloud provider requirement, some midrange storage solution providers offer SDS. Using SDS, they can virtualize the cloud provider's block, file, and perhaps even object storage. Once virtualized, the midrange storage solution provider can then re-present the cloud provider's storage to the application as its storage.

This serves a few purposes. Many, if not all, storage software data services available in the midrange storage solution now become available in the cloud. This permits use of the midrange storage solution's data services such as replication, snapshots, and others. Organizations may then even largely manage the midrange storage solution the same way in the cloud as they do on-premises.

This functionality gives organizations the flexibility to run their applications in a similar manner both in the cloud and on-premises. They may even support failing applications over to the cloud and back again with minimal or no disruption.

State of Midrange Hybrid Cloud Storage Solutions: Three Configurations

Organizations may obtain Level 2 midrange hybrid cloud storage solutions from multiple storage providers in one or more of the following configurations.

Configuration #1 – Sole Hardware Provider. In this configuration, a hardware provider delivers both the midrange array's hardware and its SDS feature. This configuration represents how most midrange storage solution providers deliver their midrange hybrid cloud storage solution.

The sole hardware provider option represents how most providers deliver their midrange hybrid cloud storage solution.

For the on-premises component, the hardware provider delivers its own midrange storage hardware. For the cloud component, the hardware provider decouples its storage operating system from the hardware and delivers it as SDS.

This configuration minimally benefits organizations in the following two ways.

- First, organizations may manage both their on-premises and storage midrange hybrid cloud deployments in the same way. This can extend to using a centralized management console to manage both the on-premises and cloud deployments.

- Second, a single provider delivers all the hardware and software support whether deployed on-premises or in the cloud. This eliminates the finger-pointing that can occur when using hardware and software from different providers.

In this configuration, organizations should keep the following in mind. The hardware provider delivers both the hardware and software. It will likely own, maintain, and deliver the storage software. However, the provider likely does not manufacture the underlying midrange storage solution hardware components. It will often rely upon a third party to manufacture them.

Configuration #2 – Hardware/Software Provider Partnership. In this configuration, a software SDS provider partners with a hardware provider to deliver a pre-integrated midrange hybrid cloud storage solution. Delivering in this manner positions both providers to focus on their respective core hardware and software competencies.

This hardware/software provider configuration option results in a flexible, feature-rich mix of hardware and software. On the hardware side, DCIG observes that these midrange solutions offer high levels of storage capacity density and power efficiency. On the software side, the providers better optimize their solution to run on multiple hardware platforms and in multiple clouds.

The primary concern that may surface here concerns technical support for this configuration. Should a technical support issue arise, an organization must clarify which provider will own the issue through problem resolution.

Configuration #3 – Hardware/Hardware Provider Partnership. The hardware/hardware provider partnership represents the latest midrange hybrid cloud storage solution configuration to emerge. In this configuration, a hardware provider makes its SDS available on another hardware provider's platform.

Hardware providers possess at least two motivations to pursue this option. First, some hardware providers do not have a significant market presence or face barriers in entering certain countries. By delivering their SDS on another hardware provider's platform that does operate in those countries, they may enter them.

Second, some organizations already have long-standing relationships with specific hardware providers. In these instances, they want to continue to use the hardware from their current provider. However, they want to use the other hardware provider's SDS. This hardware/hardware provider partnership enables organizations to get both the hardware and software they want.

Since this represents a newer configuration, the same concerns may surface here as with the software/hardware provider partnership. Should a technical support issue arise, an organization must clarify which provider will own the issue through problem resolution.

Most evaluated midrange hybrid cloud storage solutions fall under the sole hardware provider configuration. However, DCIG gave a TOP 5 award to at least one midrange hybrid cloud storage solution from each configuration.

Midrange Hybrid Cloud Storage Solutions // Global Edition
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Each provider makes its on-premises midrange storage solution available as a pre-integrated storage appliance.

Common Features across All Midrange Hybrid Cloud Storage Solutions

DCIG evaluated over 45 different midrange storage solutions of which twelve met DCIG's inclusion criteria for a midrange hybrid cloud storage solution. DCIG evaluated over 325 features across these twelve midrange hybrid cloud storage solutions. These twelve share the following core features:

1. *Provider-branded, pre-integrated storage appliance.* Each provider makes its on-premises midrange storage solution available as a pre-integrated storage appliance. The appliance arrives at an organization's site with all hardware and software components pre-installed, configured, and ready for deployment. An organization often still needs to provide power, floor space, networking, and baseline configurations for deploying it into its environment.

2. *SDS option for deployment in general-purpose clouds.* Each solution provides organizations with an SDS option to deploy in one or more general-purpose clouds. Examples of general-purpose cloud providers include Amazon Web Services (AWS), Google Cloud Platform (GCP), and Microsoft Azure, among others. They minimally offer cloud services such as computing, networking, and storage to which organizations may subscribe. The SDS option typically consists of a virtual appliance that gets deployed in a cloud. It then uses the cloud's computing, network, and storage services to present a storage interface like its on-premises appliance.

3. *At least two storage controllers.* Each midrange storage solution's support of at least two storage controllers supports its deployment as a highly available solution. Supporting at least two controllers also represents the minimum number required for DCIG to classify a midrange array as "enterprise." However, most midrange hybrid cloud storage solutions now offer scale-out configurations and support more than two controllers.

4. *In-place controller upgrades and replacements.* The support of at least two controllers ensures uninterrupted access to the midrange hybrid cloud solution during routine maintenance. Routine maintenance typically includes regularly scheduled controller software upgrades as well as possible replacements.

5. *All-inclusive software licensing.* Each provider offers an all-inclusive software licensing option for its midrange hybrid cloud storage solution. Organizations should note that the exact features and number of features included in such a license will vary by provider.

6. *Scale to at least 500 TBs of raw storage capacity and 256 GBs of DRAM.* Supporting high levels of storage capacity and DRAM has become commonplace among midrange storage solutions. Many support storage and DRAM capacities that far exceed the 500TB and 256GB baselines referenced here.

7. *Periodic asynchronous replication.* Replication in some form becomes a requirement to support the failover of workloads from on-premises to the cloud and back again. Each of these solutions offers periodic asynchronous replication. Using this technology, each solution queues up writes on the primary system for a time (1 – 15 minutes.) At the end of that period, it then replicates the accumulated writes to the secondary system.

8. *Two data center (2DC) asynchronous.* 2DC asynchronous replication offers the same baseline functionality as periodic asynchronous replication. The main difference is that either of the midrange hybrid cloud storage solutions may function as both the primary and secondary system in a replication pair. Further, each midrange hybrid cloud storage solution in this replication pair may perform both functions at the same time.

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Hitachi Vantara offers a 4:1 "No Questions Asked" data reduction guarantee for the VSP One Block. Its patented Adaptive Data Reduction (ADR) automatically switches between real-time and deferred processing to provide optimal performance and energy efficiency.

9. *Management REST API.* Supporting a management REST API provides a means for third-party software solutions to manage a midrange hybrid cloud storage solution. Each midrange hybrid cloud storage solution offers such a management REST API for this purpose. However, organizations must still verify which, if any, third-party management software solutions support and manage specific midrange storage solutions.

10. *Technical Support via Email.* Every provider of midrange hybrid cloud storage solutions offers multiple means of providing technical support, of which email is one. However, obtaining technical support using email represents the only technical support option that they all share.

11. *24x7x365 availability of technical support staff.* Each provider makes its technical support available around the clock every day of the year.

12. *4-hour Response time of technical support staff.* While all providers make their technical support available around the clock, they all only guarantee 4-hour response times.

Hitachi Vantara VSP One Block Solution Profile

Upon DCIG's completion of reviewing twelve midrange hybrid cloud storage solutions, DCIG ranked the Hitachi Vantara VSP One Block as a TOP 5 solution. Hitachi tailors its Vantara Virtual Storage Platform (VSP) One Block storage system to the storage needs of midsized enterprises. It delivers up to 1.8 PBe of NVMe all-flash storage in a 2U rack-mountable enclosure. Enterprises may add up to two NVMe expansion shelves per appliance and scale it out to 65 nodes per cluster.

Combining it with the VSP One SDS Cloud creates the Virtual Storage Platform One hybrid cloud data platform. This hybrid cloud data platform offers one data fabric, control plane, and data plane that supports multiple protocols and clouds.

The VSP One Block utilizes the same Hitachi Vantara Storage Virtualization Operating System (SVOS) technology that powers Hitachi Vantara's high-end storage arrays. To make SVOS more easily manageable by IT generalists, Hitachi Vantara took steps to simplify the VSP One Block's deployment and operation.

Additional features the Hitachi Vantara VSP One Block offers that help differentiate it from other TOP 5 Hybrid Cloud Storage Solutions include:

- *Rapid, simplified deployments.* A VSP One Block midrange array can install in about 30 minutes. Hitachi Vantara preconfigures the arrays based on Hitachi Vantara's recommended best practices. For instance, the VSP One Block midrange array utilizes Dynamic Drive Protection (DDP) groups. DDP groups provide RAID 6 resilience though DDP offers greater efficiency and faster recovery from drive failures than RAID 6. The VSP One Block midrange arrays also automatically enable FIPS 140-3 data-at-rest encryption and harden network management access to Block Administrator.

- *Simplified ongoing management.* The VSP One Block Administrator runs in dedicated hardware on the controller, not on a separately managed workstation, VM, or cloud. It then connects to Hitachi Remote Ops that enables Hitachi Vantara to monitor the system. As part of this service, it provides proactive support for the VSP One Block to include installing cryptographically validated microcode updates.

  Enterprises may also use the AIOps management capabilities of the Hitachi Ops Center Suite to manage VSP One Block. This cloud-based SaaS option provides proactive monitoring, up-to-date asset inventories, health status, risk management, copy data

management, and capacity planning. It complements those features with AI-driven insights and automations to further reduce management time and effort.

- *Smart, sustainable storage.* Hitachi offers a 4:1 "No Questions Asked" data reduction guarantee for the VSP One Block. Hitachi Vantara's patented Adaptive Data Reduction (ADR) first continuously analyzes data as writes occur. It automatically switches between real-time and deferred processing to provide optimal performance and energy efficiency.

  HV's patented Dynamic Carbon Reduction (DCR) technology also optimizes power consumption. It switches controller CPUs into their low-power ECO mode during periods of low activity.

  These intelligent data lifecycle management features contribute to Hitachi Vantara delivering solutions that optimize available array resources. Its use of CO_2 reduction technologies has enabled the VSP One Block to achieve the Carbon Footprint of Products (CFP) approval. ■

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