

2025-26 DCIG TOP 5



ENTERPRISE SDS BLOCK STORAGE SOLUTIONS

Hitachi Vantara VSP One Block Solution Profile

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DISTINGUISHING FEATURES OF VSP ONE BLOCK

- Hitachi Polyphase Erasure Coding (HPEC): Patented approach for improved data protection and performance.
- Distributed storage architecture: Runs on x86 servers powered by Hitachi SVOS offering flexibility and scalability.
- Scale-out design: Linearly scales-out performance and capacity from 6 TB up to 3.38 PB
- Integrates with Hitachi Ops Center: Provides AI-powered management on-premises, in the cloud, or for hybrid clouds.
- Flexible deployment options: May be deployed on multiple different enterprise server hardware platforms.

SDS Block Storage Solutions Ready for Enterprise Deployments

Software-defined storage (SDS) block storage solutions have come of age. Sometimes viewed in the past as too hard, too risky, or unproven, those days are over. Rather, any enterprises that still view SDS block storage solutions through this lens do themselves a disservice.

SDS block storage solution providers have made significant strides to mitigate the risk and perceived stigma associated with deploying their solutions into enterprise environments. For instance, these providers now:

- Certify their SDS block storage solution with multiple leading application, database, hypervisor, and operating system providers.
- Configure and ship SDS block storage solutions directly from one or more hardware providers as preconfigured, ready-to-use hardware storage appliance.
- Make their SDS block storage software available on hardware from multiple providers.
- Offer ample evidence and proof points to demonstrate their SDS block storage solution performs as well or better than comparable storage appliances from hardware providers.
- Offer enterprise levels of upfront and ongoing technical support and customer training to ease deployments and ensure successful ongoing operations.

These and other factors should give enterprises the assurances they need to confidently move forward with deploying SDS block storage solutions. They also help explain why researchers forecast the market for SDS storage solutions will grow significantly. Two research firms forecast an increase in the SDS market from about \$US50+ billion in 2024 to as high as \$US260+ billion by 2029.¹

Its SDS block storage's other features that should contribute to its accelerated growth and adoption in the coming years. For instance, depending on the SDS block storage solution, enterprises obtain new flexibility to virtualize multiple types of storage. Storage choices may range from storage arrays to disk drives available in x86 server hardware to cloud block storage.

SDS block storage solutions also help simplify the tasks associated with managing environments with block storage networking protocols. This simplification can range from migrating data between systems to centralizing the volume management of the virtualized storage. It may also alleviate complex zoning, LUN masking, and other storage networking tasks commonly associated with managing block storage environments.

Drivers for Enterprise SDS Block Storage Solution Adoption

DCIG identified over 20 different enterprise SDS block storage solutions that enterprises could deploy in various ways. Deployment options could include software for deployment on-premises, in the cloud, a preconfigured hardware appliance, or a combination of these.

Some providers also partner with hardware OEMs so that enterprises may order appliances from their preferred OEM. A few providers even make infrastructure-as-a-service (IaaS) available as an option. If electing to use IaaS, the provider manages the software after an enterprise deploys it.

Enterprises increasingly encounter new use cases that demand the use of storage solutions other than traditional storage hardware appliances. While edge locations may be the first that come to mind, enterprise IT environments possess additional business drivers for adopting SDS block storage solutions:

SDS block storage solution providers have made significant strides to mitigate the perceived risks and stigmas associated with deploying their solutions into enterprise environments.

- **Common storage management experience.** Deploying SDS block storage solutions in the cloud immediately emerges as a common enterprise use case. Enterprises may want to have the same block storage management experience both on-premises and in the cloud.

Many of the SDS block storage solutions meet many if not all enterprise requirements. In some cases, the provider bases its SDS block storage software on the same software that runs on the provider's enterprise storage systems. This software may offer features such as replication, snapshots, data reduction, and data migration.

Additionally, some enterprises seek a more robust hybrid cloud experience. Some SDS block storage solutions give them the flexibility to host the same workloads both on-premises and in the cloud. In some cases, they can even move the workloads back and forth between on-premises and the cloud.

- **Identifying a VMware vSAN alternative.** Broadcom has further incentivized enterprises to explore alternative SDS block storage options. In December 2023, Broadcom announced that vSAN had become part of VMware Cloud Foundation (VCF) and VMware vSphere Foundation (VVF).² As a result, enterprises may no longer acquire vSAN as a standalone solution. This may prompt existing vSAN enterprise clients to identify a new SDS block storage solution.
- **Cybersecurity and ransomware concerns.** Enterprises have increased concerns about cybersecurity attacks in general and ransomware attacks specifically. To address these concerns, DCIG evaluated the various cybersecurity capabilities of each SDS block storage solution.

DCIG used the National Institute of Science and Technology's (NIST) Cybersecurity Framework to focus its research in this area. Using these guidelines, DCIG evaluated how well each SDS block-based storage solution delivered on the NIST's five cybersecurity categories: identify, protect, detect, respond, and recover.

Common Features across All Enterprise SDS Block Storage Solutions

DCIG evaluated 21 different SDS block storage solutions in preparing this report. Across these 21 SDS block storage solutions DCIG evaluated over 325 features on each software product. In evaluating these solutions, DCIG often finds that all evaluated products support a subset of the evaluated features which held true again in this report.

However, the number of evaluated features that all evaluated products supported was lower than normal. DCIG only identified three features of the 325+ evaluated features that all 21 products universally offered and supported. These included:

- **Deployment of a cluster in a single physical data center.** Every SDS block storage solution that DCIG evaluated supported at least one type of cluster configuration to provide high availability. In most cases, each SDS block storage solution supports multiple different types of cluster deployments. However, a single physical data center cluster represents the only one of the six configurations that all 21 products supported.
- **Web-based GUI.** Using a web-based GUI to access and manage a product has become a de facto standard. This standard carries over to managing SDS block storage solutions.
- **24x7x365 technical support with 4-hour response times.** The availability of technical support 24 hours a day, 7 days a week, 365 days a year with 4-hour response times represents the baseline for enterprise solutions. All providers of SDS block storage solutions offer technical support packages that met this standard.

Despite these 21 solutions only sharing support for these three features, DCIG identified nine other features that 85 percent or more of the products supported. These included:

Enterprises have increased concerns about cybersecurity attacks in general and ransomware attacks specifically.

- 1. Back-end NVMe and SAS storage connectivity.** SDS block storage solutions often support multiple storage networking protocols to communicate with backend storage. While no one back-end storage protocol was universally supported by all SDS block storage solutions, 85 percent supported either NVMe (Non-volatile Memory Express) or SAS (Serial attached SCSI).
- 2. Data encryption.** Encrypting data at-rest takes on added importance in SDS block storage solutions. Enterprises may manage the SDS block storage software and underlying storage hardware separately. As a result, storage hardware removed from the SDS block storage environment could contain data in a readable format. Encrypting data stored on the storage devices mitigates this possibility. 85 percent of the SDS block storage solutions support at-rest AES-256 encryption to help prevent this occurrence.
- 3. Email, online knowledge base, and phone support.** The methods that providers offer for support and contacting them continue to evolve. Contact methods and support options that enterprises could once assume would always be there may no longer hold true. That said, contacting providers by email or phone or the ability to access an online knowledge base still holds true for 95 percent of the SDS block storage solutions evaluated.
- 4. iSCSI storage networking protocol support.** Being focused on block storage, one might expect all the SDS block storage solutions to share support for one block storage networking protocol. This was not the case. 85 percent did, however, support the iSCSI storage networking protocol. The next most supported storage networking protocol across all evaluated solutions was NVMe/TCP.
- 5. Multiple data protection options.** Quickly creating copies of production data on multiple storage types represents one of SDS block storage's key benefits. Enterprises may then use these copies for backup, archiving, testing, and other purposes. While all the evaluated SDS block storage solutions do not universally support one replication technology, they do support several. 85 percent or more support asynchronous replication, clones, and crash-consistent snapshots.
- 6. Non-disruptive upgrades.** All the SDS block storage solutions reviewed offered multiple non-disruptive upgrade options of a minute or less of downtime. No one of the four non-disruptive upgrade options was supported by all SDS block storage solutions. However, 85 percent supported non-disruptive virtual appliance or controller replacement. One way to upgrade non-disruptively includes migrating data from one virtualized storage target to another. These upgrades without downtime can be performed while adding or replacing a virtual appliance controller, or when doing a code upgrade.
- 7. Options to scale the SDS block storage solution either up or out.** 85 percent or more of the SDS block storage solutions supported either scale up or scale out deployments. Scale up allows enterprises to add more storage resources into a single virtual or physical appliance. Scale out lets enterprises add virtual or physical storage appliances or controllers that are part of a single namespace or clustered instance.
- 8. REST APIs.** More enterprises want to centrally manage their IT infrastructure using a single third-party tool or console. To achieve this end, they expect any new hardware or software they introduce into their IT environment to support this objective. 95 percent of the SDS block storage solutions offer REST APIs to support this type of centralized management.
- 9. Role-based access controls (RBAC).** SDS block storage solutions often host data that is both critical to an enterprise's operations and sensitive in nature. These conditions make it imperative that enterprises control who can access these systems, under what conditions, and the changes they can make. 85 percent of these solutions offer role-based access controls to help enterprises meet these requirements.

VSP One SDS Block serves as a unified data services platform that can operate as an appliance, software-defined storage, or in public cloud environments. Its open APIs allow for hardware-agnostic service consumption to permit applications to access VSP One data services regardless of storage location or deployment type.

Hitachi Vantara VSP One SDS Block

Upon DCIG's completion of reviewing 21 enterprises SDS block storage solutions, DCIG ranked the Hitachi Vantara VSP One SDS Block as a TOP 5 solution. Hitachi Vantara represents the first major storage provider that virtualized storage residing on other providers' storage arrays. It began doing so more than two decades ago in its high-end enterprise arrays. It has since passed down that capability to its software-defined storage.

Hitachi Vantara builds its Virtual Storage Platform (VSP) One based on the Virtualization Operating System (SVOS) used in its storage arrays. To make SVOS easier to manage, Hitachi Vantara also simplifies the VSP One Block's deployment and operation.

Additional features that helped the Hitachi Vantara VSP One SDS Block earn a spot among the TOP 5 Enterprise SDS Block Storage Solutions include:

- **Same management functionality available both on-premises and in the cloud.** Hitachi Vantara's VSP One SDS utilizes the Storage Virtualization Operating System (SVOS) to separate the data and control planes, enhancing management efficiency. It offers consistent management functionality both on-premises and in the cloud. This provides the same features available in Hitachi Vantara's enterprise appliances and enables integrated management across hybrid and multi-cloud deployments.
- **VSP One serves as a unified data services platform that can operate as an appliance, software-defined storage, or in public cloud environments.** Its open APIs allow for hardware-agnostic service consumption to permit applications to access VSP One data services regardless of storage location or deployment type. This approach simplifies replication and data movement, improves cyber resiliency, and providing a seamless management experience.
- **Unique, efficient data protection algorithms.** VSP One SDS Block includes Hitachi Vantara's patented HPEC (Hitachi Polyphase Erasure Coding) that increases capacity and accelerates performance. VSP One SDS Block includes three data protection options – HPEC 4D+1P, HPEC 4D+2P, and mirroring. It also supports mirroring and HPEC +2P with fault domains. VSP One also features DARE (Data At Rest Encryption) for secure data migration to public cloud environments.
- **Multiple enterprise-level deployment options.** VSP One SDS Block supports deployments on Dell PowerEdge, HPE ProLiant, and Supermicro SuperServer hardware. Each VSP One SDS Block requires a minimum of three nodes and can support up to 32-node maximum.

Hitachi Vantara also offers a VSP One Block scale-out pre-integrated storage appliance for small enterprises and midrange environments. The 2U appliance has 32 host ports, scales to a 65-node cluster, and 1.8 PB of NVMe all-flash storage.

VSP One SDS Block may run as bare metal on-premises or in the cloud. Enterprises may obtain VSP One through the AWS marketplace or via Hitachi professional services for deployment on AWS EBS and EC2 IaaS. ■

Sources

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