Consolidate and Accelerate Your Advantage With Agile NVMe Flash

Hitachi Virtual Storage Platform (VSP) 5000 series is the culmination of over half a century of innovation in the IT sector. No other vendor is as committed as Hitachi to helping you and your customers.

Artificial intelligence (AI) based applications looking at real-time data telemetry: This is what your business will be moving towards in the next few years. To improve your productivity, manage risk and drive down costs applications and infrastructure, you need to use AI with machine learning (ML).

To accelerate their businesses, 40% of your rivals will be investing in predictive analytics. This, along with the collection of IoT data streams, generates huge volumes of data. Such volumes must be processed rapidly and drive the need for all-flash performance that is accelerated by nonvolatile memory express (NVMe) technology. Colder datasets can be automatically tiered to the cost-effective capacity of hard disk drives (HDD) or migrated to the cloud.

VSP 5000 series future-proofs your organization. It is the first storage in the industry to offer a mixed NVMe solid-state disk (SSD), serial-attached SCSI (SAS) SSD and HDD environment that can scale up in capacity but also scale out for performance. This approach gives you the composable data platform for all your workloads.

Enterprise Agility

There are four models in the VSP 5000 series: The all-flash VSP 5100 is a scale-up enterprise storage platform with a dual-controller block supporting open and mainframe workloads. You then have a nondisruptive upgrade path to the all-flash VSP 5500, which starts with a single quad controller block and scales out to three blocks as you grow. Both models are also available in hybrid array models: VSP 5100H and VSP 5500H.

The VSP 5000 series starts as small as 3.8TB and scales up to 69PB of raw capacity and 21 million IOPS of performance, which allows for massive consolidation of workloads for cost savings. And with response times as low as 70 microseconds, your business partners will be delighted by how fast their applications run.

Our patented Hitachi Accelerated Fabric allows Hitachi Storage Virtualization Operating System RF (SVOS RF) to offload I/O traffic between blocks. It uses an architecture that provides immediate processing power without wait time or interruption to maximize I/O throughput. As a result, your applications suffer no latency increases since access to data is accelerated between nodes even when you scale your system out.

Enterprise Resiliency

You can place your business data within our solutions, relying on 57 years of Hitachi engineering experience to deliver reliability. The VSP 5000 series builds on that experience, offering a superior range of continuity options, all backed up with the industry’s first and most comprehensive 100% data availability guarantee. Migrate data from older systems nondisruptively so operations can continue, nonstop.

The new scale-out architecture protects against local faults and performance issues with our active-active controller architecture. With global-active device we enable full metroclustering between data centers that can be up to 500km apart. Replicate to a third data center using
Hitachi Universal Replicator software, which offers bidirectional replication, to make use of all your investments. Your system can be monitored in the cloud via Hitachi Remote Ops to proactively predict and prevent downtime.

With the VSP 5000 series, you gain rock-steady hardware, but what about your application’s continuity and recovery? This series is supported by Hitachi Data Instance Director, which provides application-aware snapshots, copy data management and instant recovery. You can recover from a data disaster in seconds, not hours!

Security compliance is essential, and in the VSP 5000 series Hitachi has taken steps to improve the security of how data is stored and administrated. We have greatly reduced the risk of data falling into unauthorized possession with FIPS 140-2 encryption on our media. The erasure services align with NIST SP 800-88r2 and ISO/IEC 27040:2014. Finally, we have hardened system access to safeguard against illegal access and hacking: The VSP 5000 series uses TLS1.3 for secure communications to stop improper access by other systems on the fabric.

Management Automation

Simplifying the management, provisioning and performance of data platforms can become a demanding never-ending cycle. This is the potential of AI operations, where the VSP 5000 series can take control of repetitive tasks to reduce and even eliminate the need for any human intervention. Your staff is freed to focus on innovation and tactical business efforts.

AI is used to constantly monitor the environment and make sure that resources are performing, based on service level agreements (SLAs). If issues are noted, the AI can predict and prescribe changes to improve the operational efficiency. AI can also be used to simplify complex decision-making, such as predicting when additional storage might be needed or how quality of service (QoS) should be configured.

Automation is a critical aspect of AI operations. Automation software handles configuration, provisioning and common management tasks instead of humans. Automation is often leveraged at the start of a deployment to ensure resources are set up based on best practices and no steps are missed that could result in data loss. It can also be used in concert with AI to automate infrastructure updates.

See how your organization can benefit from Hitachi Accelerated Fabric, designed for Hitachi Virtual Storage Platform 5000 series. Download the white paper.

Hitachi Vantara Federal

Corporate Headquarters
11921 Freedom Drive, Suite 900
Reston, VA 20190 USA
www.hitachivantarafederal.com

Contact Information
HQ: 1-703-787-2900
Support: 1-844-943-7333
HitachiVantaraFederal.com/support-center

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### TABLE 1. HITACHI VIRTUAL STORAGE PLATFORM 5000 SERIES SPECIFICATIONS

<table>
<thead>
<tr>
<th></th>
<th>VSP 5100</th>
<th>VSP 5100H</th>
<th>VSP 5500</th>
<th>VSP 5500H</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Performance</strong></td>
<td>Up to 4,200,000 IOPS</td>
<td>Up to 4,200,000 IOPS</td>
<td>Up to 21,000,000 IOPS</td>
<td>Up to 21,000,000 IOPS</td>
</tr>
<tr>
<td><strong>Max. Drives</strong></td>
<td>96 NVMe 192 FMD 768 SFF SSD</td>
<td>96 NVMe 192 FMD 768 SFF SSD/HDD 394 LFF HDD</td>
<td>288 NVMe 576 FMD 2,304 SFF SSD</td>
<td>288 NVMe 576 FMD 236 SFF SSD/HDD 1,152 LFF HDD</td>
</tr>
<tr>
<td><strong>Max. Raw Capacity</strong></td>
<td>23PB</td>
<td>23PB</td>
<td>69PB</td>
<td>69PB</td>
</tr>
<tr>
<td><strong>Drive Packs (sold in packs of 4)</strong></td>
<td>7.6TB NVMe SSD 3.8TB NVMe SSD 1.9TB NVMe SSD</td>
<td>7.6TB NVMe SSD 3.8TB NVMe SSD 1.9TB NVMe SSD</td>
<td>7.6TB NVMe SSD 3.8TB NVMe SSD 1.9TB NVMe SSD</td>
<td>7.6TB NVMe SSD 3.8TB NVMe SSD 1.9TB NVMe SSD</td>
</tr>
<tr>
<td><strong>Host Interfaces</strong></td>
<td>FC: 32x32Gb/s FC: 32x16Gb/s IBM FICON: 32x 16Gb/s iSCSI: 16x10Gb/s</td>
<td>FC: 32x32Gb/s FC: 32x16Gb/s IBM FICON: 32x 16Gb/s iSCSI: 16x10Gb/s</td>
<td>FC: 192x32Gb/s FC: 192x16Gb/s IBM FICON: 192x16Gb/s iSCSI: 96x10Gb/s</td>
<td>FC: 192x32Gb/s FC: 192x16Gb/s IBM FICON: 192x16Gb/s iSCSI: 96x10Gb/s</td>
</tr>
<tr>
<td><strong>Max. Cache</strong></td>
<td>1 TiB</td>
<td>1 TiB</td>
<td>6 TiB</td>
<td>6 TiB</td>
</tr>
<tr>
<td><strong>RAID</strong></td>
<td>Support for RAID-1, RAID-5, RAID-6</td>
<td></td>
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</tbody>
</table>

* RAID-1 selection mirrors blocks across two drives and then creates a striped set across multiple drive pairs. This is commonly referred to as RAID 1+0.
1 TiB = 1,000,000,000,000 bytes; 1 TiB = 1,099,511,627,776 bytes.
SAS = serial attached SCSI, NVMe = non-volatile memory express, SSD = solid state drive, FMD = flash module, FC = Fibre Channel, iSCSI = internet small computer systems interface.