WHITE PAPER

Is Your Infrastructure Agile Enough To Support Data Center Modernization?

Build the Agile Data Infrastructure You Need To Modernize Your Data Center With Hitachi Vantara

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Executive Summary

Today, data center managers are being asked to do more than ever before: Bring on more applications at a faster pace, add more capacity to existing applications and deliver more performance. Do more analysis of data to unlock insights, store more data types — block, file and object — that are generated from more sources. And make all this data accessible to more users who are running more applications on more devices. All of this must happen without sacrificing ever-expanding requirements for security and privacy.

The only way to meet these challenges is to modernize your data center because older architectures simply can't keep pace with the rate of change. Digital transformation initiatives require new and faster systems as well as newly designed processes. Just storing and retrieving data is no longer enough because digital transformation puts data at the center of your business, which means that data must be manipulated with in brand new ways.

Introduction

A key element of data center modernization is an agile data infrastructure. Infrastructure agility means the ability to move fast regardless of the obstacles that are preventing more advanced technologies and the intrusive processes slowing you down. Your infrastructure needs to run fast, with nonstop availability, but you need to have workload-optimized architectures in place to store your data.

Because a one-size-fits-all approach won't meet the requirements, a use-case-optimized data center includes powerful all-flash arrays (AFAs) or hybrid arrays for transactional processing. It also includes converged or hyperconverged solutions for cloud-delivered services and object storage for longer-term retention of data for both compliance and data lakes. These architectures should never operate in silos because you need the ability to easily move data to the system where it optimally resides and set policies in an integrated fashion.

Hitachi Virtual Storage Platform (VSP) F Series and VSP G Series: Enterprise Scale and Reliability

Hitachi has recently enhanced our VSP F series and VSP G series to reliably deliver data faster than ever. We've raised the bar with nearly three times more performance at 25% less latency and the backing of the industry's most comprehensive 100% data availability guarantee. By combining VSP with Hi-Track Remote Monitoring for cloud-based monitoring and Hitachi Infrastructure Analytics Advisor (HIAA) for predictive analytics, you can enjoy industry-leading uptime.

As the number and types of workloads your organization supports grows, many vendors' flash arrays lack the performance and capacity scaling needed to consolidate multiple workloads, resulting in poor utilization and data center sprawl. The newly expanded VSP family is designed for cloud-scale deployments. With 2.5 times the capacity scalability, OpenStack and container integration, plus support for eight times more volumes, the VSP family grows with your data and modern workload needs.

All VSP F series models have a true symmetric active-active controller design, which reduces the cost and complexity of path management. Other arrays only let one controller access its assigned data at a given time, but VSP F series accesses data volumes via host ports on any controller to prevent wasted resources. VMware users can activate the round-robin policy for better network utilization.

Hitachi's VSP F1500 and VSP G1500 are designed with our patented, Hi-Star crossbar switch architecture. In this architecture, the virtual storage directors are shared across the cache, front-end directors and back-end directors. This approach provides immediate processing power without wait time or interruption to maximize I/O throughput. It allows for a highly granular upgrade path and for the addition of drives and chassis components as processing needs increase. The VSP F1500 and VSP G1500 provide the critical compatibility required for use as IBM® mainframe storage that is enhanced with Hitachi value-added technologies. These high-end systems are tested and qualified with IBM mainframe operating systems and critical features, including parallel access volumes (PAV), HyperPAV, dynamic volume expansion (DVE), extended address volumes (EAV) and peer-to-peer remote copy (PPRC). Advanced metroclustering with VSP's global-active device is available to enable robust business-continuity solutions among multiple data centers. Global-active device offers zero downtime and data loss protection and can be paired with asynchronous replication for true, enterprise-level, 3-data center

protection. Hitachi Storage Virtualization System RF (SVOS RF) has been enhanced to ensure performance stays high, even when data protection is running.

For additional agility, all VSP models can be *unified* with our Hitachi NAS Platform gateways to consolidate *block and file workloads* or Hitachi Content Platform for *block and object workloads*. Or, they can be part of a converged solution in our Hitachi Unified Compute Platform.

Flash-Powered Cloud Platforms

Your business partners can access self-service templates for provisioning and protecting data for their applications. This gives them a public-cloud-like experience when accessing IT resources, allowing for a flexible consumption environment to align better with business benefits.

Container Support

VSP F series and VSP G series models also offer support for containers to allow DevOps to accelerate cloud-native application development. Not only can we provision storage in seconds, but we also can provide persistent data availability orchestrated by industry-leading container platforms (Docker, SWARM, Kubernetes). Where Hitachi differs is in our ability to enable these workloads to be moved into an enterprise production environment seamlessly, not only saving money but also reducing support and management costs.

Powerful Storage Efficiency With SVOS RF

Hitachi provides industry-leading data management powered by Hitachi Storage Virtualization Operating System RF. The benefits of SVOS RF include an all-new enhanced software stack, offering up to three times greater performance than our previous models, even as data scales to petabytes. Performance from SVOS RF accelerates read and write operations for a lower response time. We offer higher workload consolidation than ever before by combining high-capacity storage media and data placement on the optimal performance tiers. Advanced quality of service (QoS) controls ensure that applications get the right level of resources according to their priority rank.

The storage virtualization feature of SVOS RF abstracts data management from the underlying hardware, enabling multiple physical storage systems to be managed as a single, consolidated resource pool. It moves data nondisruptively between hardware platforms, so infrastructures can be modernized with no downtime. External storage array virtualization converts older systems into capacity for VSP systems and maximizes resource utilization to simplify ongoing infrastructure improvements.

SVOS RF adaptive data reduction (ADR) enables organizations to improve storage utilization, reduce the footprint of their storage, and control costs. ADR offers selectable inline compression and deduplication, which can be turned on at a volume level, making the system tunable to customized service level agreements and capacity needs. An average data reduction rate of 5:1 saves on not only capacity purchases but also floor space consumption, utility charges and support costs. Even further data reduction rates can be achieved with the data migration to cloud feature. This feature allows aging file data to be transparently moved to public or private clouds according to automated policy settings to free up more capacity and resources for top-tier application requirements.

Modern Data Protection With Guaranteed Data Availability

Hitachi understands a successful information-based enterprise must ensure that data is constantly available for employees and customers. To protect the lifeblood of your business, safeguard your data, and ensure positive customer experiences, Hitachi provides the industry's most comprehensive 100% data availability guarantee. Built on legendary Hitachi reliability, VSP F series and VSP G series offer complete system redundancy by leveraging hot-swappable components, nondisruptive updates and outstanding data protection. VSP is the best choice for all-flash storage operations that need to stay up and running.

Every VSP system includes a suite of data protection software that eliminates backup windows and accelerates recovery via snapshots. System configuration is handled with a simple, easy-to-use policy management and workflow solution.

Advanced data replication software is available to enable robust business-continuity solutions among multiple data centers. These solutions include active-active metro clustering with global-active device. Available across the VSP family, global-active device ensures the highest data protection.

Data Availability Solutions Impact Long-Term Company Health

Selecting the right solution is a critical investment that impacts an organization's long-term health. While costs vary by business type, there are some general downtime benchmarks to consider:[1]

- The average cost of a data center outage is $740,357.
- Duration of unplanned outages averages 130 minutes.
- Mean cost per minute of unplanned outages averages nearly $9,000 per incident.
- Business disruption, loss of revenue and end-user productivity loss make up 80% of downtime losses.

Our 100% data availability guarantee ensures that organizations meet their information availability requirements. Hitachi markedly believes in the importance of our customers' data availability: If there is a loss of data availability caused by a malfunction of the storage system that makes it unable to read or write data, we will credit them for replacement equipment. VSP systems are also backed by our Hi-Track remote monitoring and analytics capabilities, bringing 28 years of recorded experience to proactively support your cloud solutions and infrastructure. By looking at all performance and support detail from all our Hi-Track customers, we can predict when an issue might arise and proactively act to mitigate downtime.

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[1] Ponemon Institute Research Report, sponsored by Emerson Network Power, Published January 2016.

AI Operations Software

Managing and maintaining a data center infrastructure is time intensive. Manual processes can result in errors and lead to longer resolution times whenever problems arise. Hitachi offers artificial intelligence (AI) operations software, which monitors the infrastructure for you and frees up time for driving innovation.

All VSP models (VSP G1500 excepted where it's optional) include Hitachi Infrastructure Analytics Advisor, with AI-powered analytics "out of the box." Unlike other solutions that only monitor storage, HIAA provides real enterprise analytics. HIAA constantly analyzes telemetry data across hypervisor, server operating system, network and storage to optimize application performance and prevents extended outages. Optional built-in analytics enable budget planning and forecasting, delivering the best customer experience available. When security is critical, you can run HIAA on-premises only, to gain superior insights without sending any data off-site.

To simplify management and prevent errors impacting performance and uptime, the VSP F series and VSP G series can be paired with Hitachi Automation Director (HAD). HAD software orchestrates management of virtual machines, network zoning, storage and data protection to accelerate deployments. It also integrates with IT service management tools as well as HIAA and Hitachi Data Instance Director (HDID) to simplify change management.

Smart Approach to Data Center Modernization

Consider the following three factors when modernizing your data center to enable intelligent innovation (see Figure 1):

Figure 1. Harnessing data requires modernization.

Accelerate and Create New Opportunities for Intelligent Innovation

Agile Data Infrastructure
Deliver data fast and consistently for better experiences, new go-to-market (GTM) approach

Modern Data Protection
Protect the business and customer experiences

Intelligent Operations
Leverage AI to manage infrastructure and processes for greater return on investment (ROI)

Simplify Modernization of Your Data Center

Hitachi's VSP F350, VSP F370, VSP F700, VSP F900 and VSP F1500, as well as VSP G350, VSP G370, VSP G700 and VSP G900 systems come packaged with a rich set of value-added software at no additional charge. And new packaging makes it even easier to add advanced features. Benefits include superior operational efficiency through advanced management, analytics, automation and protection.

Select the level of modernized data center management and protection your organization needs. The Foundation software package includes:

- Hitachi Storage Advisor to simplify operations.
- SVOS RF to improve efficiency and agility.
- Local replication to protect and accelerate business.
- Hitachi Data Instance Director for modern data protection.
- Analytics to monitor, identify and resolve IT events.
- Data mobility to optimize performance and efficiency.

The Advanced package includes everything in Foundation package, plus remote replication for business continuity, global-active device for nonstop, scalable data access and Hitachi Automation Director to reduce IT time and risk.

Conclusion

Having a long-term transition plan in place is critical to a modernized data center. Without a solid plan, you risk wasting investments that don't set you on the path to true data center modernization. It is also important that you work with a partner who has the professional services expertise to successfully and continually navigate your data center into the future.

IT leaders modernize to create next-generation data centers. Though priorities vary, the following are the top reasons why you should consider data center modernization:

- Increase operational efficiency and reduce capital expenditures.

- Accelerate time to market for new projects and programs.

- Improve customer experiences.

- Minimize risk to the business.

Our technology and professional services expertise are trusted by the world's largest companies with the most demanding requirements for modernizing virtual data centers in today's multicloud world. 85% of the Fortune 100 telecommunications companies are Hitachi Vantara customers, as are 87% of the Fortune 100 financial services companies and 100% of the Fortune 100 communication, media and entertainment companies.

Hitachi helps you successfully provide a better experience for your customers, while also creating new data-driven services that lead to additional revenue streams and optimizing your operations for cost reduction. We do this by listening, understanding your needs, and working together to achieve market-leading, digital transformation results.

For more details on how we can help you modernize your data center, contact your Hitachi Vantara representative.

Hitachi Vantara

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