Hitachi Data Systems Federal

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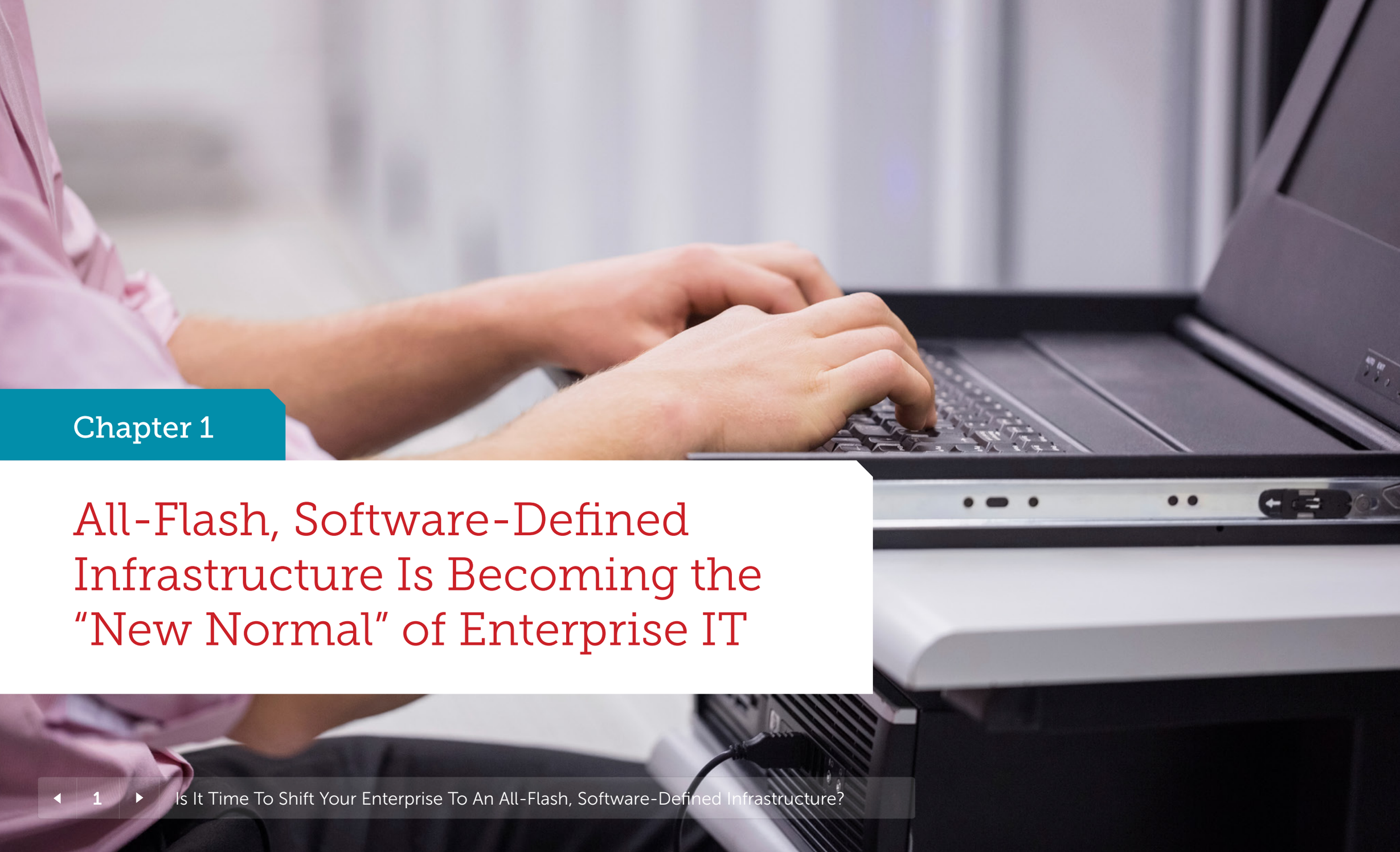
Is It Time to Shift Your Enterprise to an All-Flash, Software-Defined Infrastructure?



Chapter 1

All-Flash, Software-Defined Infrastructure Is Becoming the "New Normal" of Enterprise IT

In today's digital world, companies across every industry face increasing business demands for greater access to data and higher performance, all while reducing costs. To remain competitive, organizations are transforming their approach to IT to achieve new capabilities:

- ✓ Seamless access to data and applications: anywhere, anytime and uninterrupted.
- ✓ Faster application development (transactional and production) and speed to market.
- ✓ Reduced data center costs and accelerated data insights with powerful analytics.
- ✓ Simplified IT operations and improved return on investment (ROI) due to no bottlenecks.

For many companies, all-flash software-defined infrastructure is becoming the "new normal" of enterprise IT. But how do enterprises get there?

The first step to IT transformation is creating a software-defined infrastructure (SDI) that provides the automation, access, agility and speed required for success:

- **Automate to simplify.** Remove risk and repetition with management tools that simplify the deployment of new workloads.
- **Access more data for insights.** Build an open and agile data infrastructure that brings new levels of scale and efficiency to analytics environments with a software-defined, hyperconverged architecture.
- **Abstract for agility.** Virtualize and pool IT resources on new, cost-effective hardware platforms to provide greater choice of hardware, without sacrificing needed functionality.

With a solid understanding and direction about software-defined infrastructure, you will be ready to accelerate time to market with an all-flash infrastructure.

Moving to an all-flash infrastructure offers a wide variety of business and IT benefits. For example, it accelerates business decisions based on accumulated data and provides IT agility to launch new services faster. Both benefits give your organization an advantage over competitors.

All-flash systems are faster and more responsive than traditional disk-based processing, to your customers' and partners' delight. All-flash solutions provide technology that helps your bottom line by reducing data center costs associated with power, footprint and software licenses.

It's easy to see why enterprises are prioritizing a move to an all-flash infrastructure.

The facts speak for themselves. Flash innovation is ending the long-standing dominance of disk arrays.

- By 2020, the IT market will spend 4x more on flash devices than it does on performance disk drives.
- Reduced costs for flash systems open all new use cases. For example, Facebook is moving all of its archival data onto flash storage.
- HDS flash already offers customers a lower total cost of ownership (TCO) than performance hard disk drives (HDDs).

Many changes are driving IT teams to accelerate their journey to an all-flash infrastructure. But all-flash infrastructures are not created equal. Following are seven requirements that we believe are important for all-flash success.

"CIOs and CTOs should and will start to architect systems in a profoundly different way than those historic disk-bound systems."

Wikibon

Chapter 2

All-Flash Infrastructure: 7 Requirements for Success

1. Massive Scalability That Won't Slow Growth and Won't Create Information Silos

By scaling to massive performance and capacity requirements, Hitachi Accelerated Flash was deployed by Sify Technologies as an enterprise-grade cloud infrastructure that supports public, private and hybrid cloud options for its customers.

"Hitachi Data Systems helped us with an integrated storage architecture with high performance and large scalability in cloud economics. The best part is that we needed no additional skill enhancement, as the new flash modules are managed using the existing tools. We couldn't have asked for more."

- Ravi Maguluri, Sify Sr. Vice President for Cloud Initiatives.

sify

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2. Improved Data Reduction With Penalty-Free Block Compression and File Deduplication, Time-Tested Thin Provisioning and Space-Efficient Snapshots

Data reduction technologies allow flash storage to be used for more applications and more data, but users must be clear about the tradeoffs against system performance.

"Newer technologies must be efficiently leveraged to provide flash performance where needed and to help lower effective cost per gigabyte for primary storage, with storage efficiency features like inline data reduction, thin provisioning, space-efficient snapshots and clones, and snapshot-based replication that leverages data differentials."

- Eric Burgener, IDC Opinion

"...in many environments, compression can deliver a greater return on the efficiency investment than any other technology."

Storage Switzerland, LLC

"...when it comes to deduplicating data, there is a large potential for a performance hit."

DCIG

3. Workload Extensibility for Any Environment, Supporting Block, File and Object Access

Hitachi Data Systems has helped many organizations, including Centris, the Coop Group, and Seattle Children's Hospital, with different IT environments, including Oracle databases, virtual desktop infrastructure (VDI) environments and SAP landscapes, deploy all-flash solutions. These efforts improved performance, agility and reduced costs across a wide range of workloads.

centris more than IT.

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Seattle Children's HOSPITAL • RESEARCH • FOUNDATION

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coop

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4. Improved Resilience and a Reduction of HDD-based Disruptions to Improve Productivity and Uptime

Many new flash systems promise improved resiliency, but lack the fundamental high availability that Hitachi storage has provided to organizations for years. Hitachi all-flash solutions provide uninterrupted access to data stored in IT systems, enabling Alior bank to ensure 24/7 business continuity for its financial services.

"

"From our point of view, data availability is the key factor. Since we started using Hitachi Data Systems' solutions more than six years ago, we have never experienced any failures in our storage infrastructure. Hitachi's reliability gives it a clear competitive edge."

- Eric Burgener, IDC Opinion

ALIOR BANK

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5. Consistent Performance That's as Good in Year 5 as Day 1

Many organizations don't realize that their architecture is not built to provide long-term, fast data speeds to handle increasing data, as promoted by some vendors. Flash module drives (FMDs) within Hitachi Accelerated Flash are built to avoid these slow-downs.

Owens Corning needed a storage technology capable of improving their current performance. They wanted an integrated solution based on cost and performance, but required flash storage worthy of their data demands.

"The Hitachi Accelerated Flash was so fast and displayed off-the-chart performance for these enterprise workloads: It's a new realm of performance."

- Tim Waldock, Owens Corning Global Applications Infrastructure

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6. Improved Data Security That Offers More Than Just Encryption

Hitachi offers solutions that can verify and report full data eradication, for solid-state drives (SSDs) and self-encrypting drives (SEDs), among others, without affecting device warranties for organizations wanting more than encryption.

"It's important to include the secure erasure of SSDs and SEDs in the evaluation criteria that is used to choose SSDs and storage arrays that will store company-sensitive information."

Gartner

7. Reliable Automated Management, as Simple at 1PB as at 1TB

Gati Ltd. is India's pioneer in express distribution and supply chain solutions. With the help of all-flash solutions from Hitachi, they realized 88% lower batch times and 66% lower storage infrastructure costs.

"With a converged architecture to consolidate data and applications, the (Hitachi) solution lent itself to simpler and painless management."

- G. S. Ravi Kumar, Gati Ltd. Chief Information Officer

GATI

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Chapter 3

Benefits of Hitachi All-Flash Infrastructure for Today's Needs and Tomorrow's Real-Time Business

Powerful Enough to Run Your Business On

Hitachi all-flash arrays deliver industry-leading performance to power your critical applications, and more.

- ✓ Hitachi storage is known for high-performance and all-flash solutions. Hitachi Virtual Storage Platform (VSP) F800 offers an impressive 1.4 million IOPS. Hitachi Flash Storage offers industry-leading IOPS/U and VSP G1000's SPC-1 IOPS that outperforms other solutions.
- ✓ Hitachi's unique solutions provide consistent low latency that support the performance you can trust to drive real-time business you need for better, more-informed decision-making.
- ✓ Hitachi flash solutions give you the power to run advanced replication and unique active-active storage clusters while delivering high IOPS and low latency.

Reduce IT Budget Challenges

With Hitachi all-flash storage, you will realize improved ROI with a broad range of storage efficiencies, including:

- ✓ Accelerated flash compression (VSP F series and VSP G series).
- ✓ File deduplication (VSP systems with unified storage).
- ✓ Selectable deduplication or compression (Hitachi Flash Storage).
- ✓ Thin provisioning, and more.

These Hitachi solutions reduce TCO by enabling greater workload consolidation, without slowing down operations, and removing information silos.

Deploy Quickly and Reliably

Hitachi all-flash solutions include enterprise-ready hardware and software packaging that is designed to get you up and running fast. And, once deployed, your users will see that they are designed to quickly meet your business needs. With Hitachi, you can also improve the ROI from existing all-flash purchases by virtualizing them with Hitachi Storage Virtualization Operating System (SVOS).

Our software-defined flash solutions provide the building blocks you need to deploy the data center infrastructure that your business demands, so you can accelerate tomorrow's IT infrastructure today.

Expertise in Mission-Critical Environments With Flash Storage and Live Migrations

Hitachi is a storage market leader, with proven expertise across a wide portfolio of flash, tiered storage, servers, data protection and converged infrastructure. With extensive migration success for customers, Hitachi is ready to help you move from a disk-based reality to a new all-flash reality today.

Proven Success

- A leader in Gartner's Magic Quadrant for General Purpose Storage. VSP technology has also earned the top spot in Gartner's Critical Capabilities for High-End Storage three years in a row.
- We have shipped more than 250PB of flash capacity, nearly 100,000 Hitachi Accelerated Flash modules.
- Hitachi flash technology supports large and critical production workloads across industries (see column at right for terabytes shipped from January through September 2015).

Customer	TBs
Online Company	14, 918
Financial Services	4,278
Technology	2,471
Major Bank	2,125
Government Agency (APAC)	1,750
Tourism Company	1,027
Entertainment Company	1,006
Manufacturing	978
Telecommunications	960
Retail (Europe)	946

"Hitachi has invested in next-generation flash technologies for years, as represented by the more than 350 flash-related patents held by Hitachi worldwide – more than any other vendor in the industry."

CTR Computer Technology REVIEW

Broad Infrastructure Portfolio Enables Tailored Solutions

From faster response times and greater IT agility to 100% availability, Hitachi has an all-flash solution that can drive better business results for you. Our broad flash portfolio ensures that no data or workloads are left behind. From enterprise storage to hyperconverged solutions for scaleout analytics, we can find the right solution at the right cost for any environment.

We know that every customer's journey to all-flash is different. That's why we continue to offer the best hybrid solutions as an interim step to an all-flash infrastructure.

Future-Ready Strategy and Engineering That Delivers Innovative Technology

Hitachi's commitment to research and development helps drive innovation that benefits businesses and society.

- ✓ We have more than 3,500 storage-related patents, including 6x the flash storage-related patents of leading competitors.
- ✓ Hitachi social innovation applies technology to help solve today's greatest challenges, driving unique use case-based requirements for advanced storage, analytics and compute technologies.

Hitachi develops innovative technologies to address social issues and achieve a sustainable society based on safe and secure social infrastructure. This strategy powers us into the future, long after tactical flash storage vendor battles and mergers.

Business at the Speed of Flash: Hitachi Can Get You There

Hitachi, at our core, is a technology and research company. We continually develop technologies to transform your business with software-defined infrastructure and accelerated flash systems.

What are our researchers working on?

- High-performance flash and in-memory computing solutions.
- Optimized data placement within or across systems.
- Software-as-a-Service (SaaS) management solutions.
- Automated workflows.
- Hardware offloading that accelerates tasks with specialized processing.
- High-density flash systems.
- PCIe/NVMe converged-server flash solutions.
- Micro-services based management.

Today, flash storage is often deployed to solve application performance challenges, such as VDI boot storms and database hot spots. But the economics of flash technology are more compelling than ever. Companies that deploy all-flash solutions have a critical business opportunity to gain an advantage over slow-moving competitors and accelerate growth.

Contact our flash technical experts today. They can assess your storage challenges and tailor custom flash solutions that meet your fast-changing needs.

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