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WHITE PAPER

Upgrade Your Enterprise

Economics and Technology Together Make This the Time to Move

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Executive Summary

Experience has shown that the true cost of storage infrastructure is not its purchase price, and that “paid for” does not mean that it is not still costing you real money. As an industry leader in proven, cost-efficient storage virtualization platforms, Hitachi Data Systems (HDS) has a long history of helping organizations save money. HDS designs, deploys and leverages economically superior storage architectures across the data center.

For organizations that have legacy Hitachi enterprise storage systems and face increasing maintenance costs and possibly performance or media availability issues, there is good news. It is possible to save money by moving up to the cost-saving capabilities of Hitachi Unified Storage VM (HUS VM) or Hitachi Virtual Storage Platform (VSP).

This white paper examines 4 key areas of benefits from upgrading: consolidation, virtualization, automation and private cloud. It considers how they can enable IT organizations to reduce costs, improve service and deliver new capabilities to the enterprise.

Significant new capabilities can both reduce capital and operating expenses (capex and opex) and bring new value to your business through unified views of all your data. They can enable advanced analytics and information sharing.

Introduction: Why Upgrade Your Storage?

Reality check: The true cost of storage is not its purchase price, and “paid for” does not mean that it is not costing you.

For organizations facing increasing maintenance costs, performance or media availability issues on existing storage assets, it is actually possible to save money by moving up to the cost-saving capabilities of Hitachi Unified Storage VM or Hitachi Virtual Storage Platform. It is not uncommon to drop space, power and cooling costs by half, while also reducing operations overhead, and with 50% more performance!

Challenges of Aging Enterprise Storage Systems

- Increasing maintenance costs.
- Operations costs (labor, space, power and cooling).
- Application performance issues.
- The need to encrypt data on physical media.
- Increasing space constraints in the data center.
- Capacity increase of storage media availability and cost.
- An imperative for no downtime in system migrations.

These are all challenges that can be solved with VSP or HUS VM.

Economics and technology have come together to make now the time to move.

For savings from **increased consolidation** HDS offers a broad range of powerful new storage options to solve capex and opex cost concerns and application performance issues in any type of storage environment. Our upgraded VSP and new HUS VM combine big space, power and cooling savings with advanced solid state and hard disk drive technologies, cost saving thin and dynamic provisioning, and advanced replication. With the targeted performance advantages of a hybrid flash array and the flexibility and reliability that is expected of Hitachi storage, these storage options deliver. Upgrading to a VSP or HUS VM dramatically speeds up multi-application and virtualized server environments. And, by adopting an “archive first, backup second, consolidate more” strategy, you can cut backup operations and media costs and improve compliance and recoverability.

For savings from **virtualizing**, Hitachi storage virtualization solves migration problems and transforms legacy silos of stranded capacity to virtualized resources that are ready to be deployed. It adds advanced application support, dynamic provisioning and tiering, flash acceleration options, and improved return on investment (ROI) to existing storage assets.

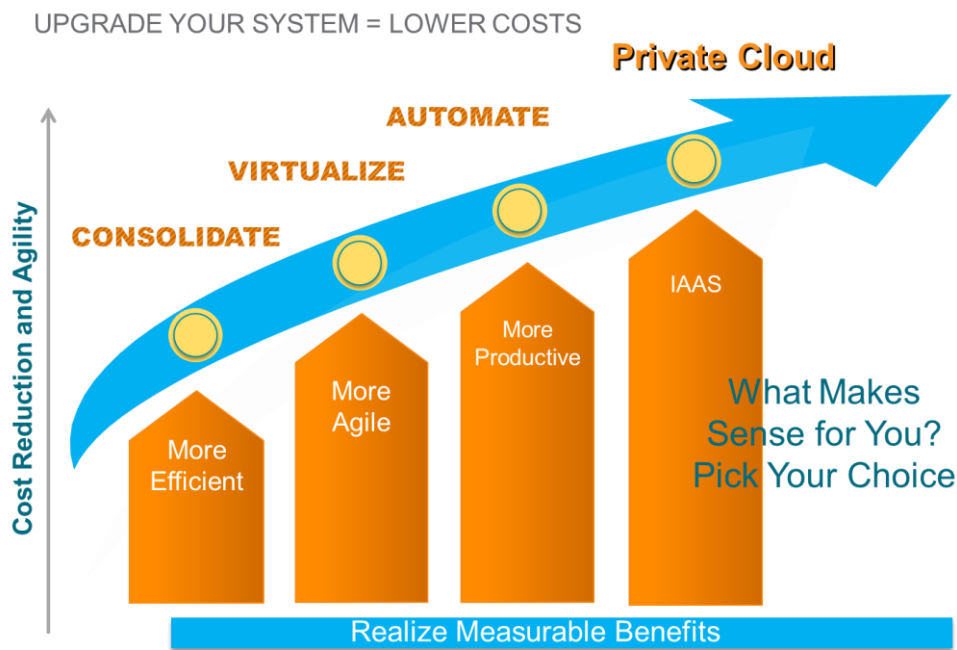
Savings from **automation** come in many areas. For VSP, Hitachi Dynamic Tiering (HDT) for Mainframe offers the automated and optimized management of data placement according to your workload. It can manage data across a full range of high-performance and low-cost storage tiers. These tiers can be created from any of the storage media types available on VSP, including standard hard disk drives, flash media or virtualized external storage. It accelerates performance and reduces capacity costs by only using the right amount of costly, high-performance media to enable you to hit your service level objectives (SLO).

Automation of reporting, planning and alerting starts with Hitachi Command Suite and Hitachi Command Director. Hitachi Command Director automates reporting of lower-level instrumentation data into meaningful application-specific

storage service level views. This automation enables meaningful real-time dashboards and alerts, as well as ongoing capacity and performance planning.

For savings from combining the abovementioned storage technologies and moving toward a **private cloud** infrastructure management model, consider simplifying purchasing, integration and deployment with Hitachi Unified Compute Platform. By combining and pre-integrating best-of-breed servers, networking and storage in a single, ready-to-deploy package, enterprise IT operations overhead is drastically reduced: You can move to an infrastructure-as-a-service (IAAS) model. (See Figure 1.) There is no need to take all the steps at once, you can see what makes sense for you and start there.

Figure 1. Steps Toward an Infrastructure-as-a-Service Model



IAAS = infrastructure as a service

Consolidate

If you are using Hitachi Universal Storage Platform (USP), Hitachi Network Storage Controller (NSC), Hitachi Universal Storage Platform V (USP V) and/or Hitachi Universal Storage Platform VM (USP VM) you likely consolidated your storage assets with the system purchase. But significant added savings are possible. VSP provides the maximum degree of consolidation and protection for business-critical storage assets, with significant savings from power, space and cooling cost reductions. In many cases, these savings can pay for a new VSP in a short time.

Once consolidated, capacity is easy to deploy, manage and redeploy. Administrators can create pools of performance- and capacity-specific storage to meet their application needs, and manage them as shared resources across multiple environments.

One of the things you get when you upgrade is improved application performance with the accelerated flash option. This option enhances performance of targeted applications, and works with Hitachi Dynamic Tiering for lower-cost higher-performing storage for all applications.

With the unified VSP and centralized management of block and file storage, organizations can eliminate separate file servers and storage. This action eliminates the administrative workload associated with managing and patching these additional systems.

VSP supports multiple advanced technologies for reducing capacity provisioning requirements, including thin provisioning, file-level deduplication, and data compression. These technologies can reduce the average capacity requirements over time by up to 50%.

With VSP, we supply adapters and interface support for VMware, Oracle and Microsoft, which allow you to manage storage and data protection from those applications. We provide the latest adapters, supported interfaces, reference architectures and best practices. Reference architectures for VMware, SAP, Oracle and virtual desktop infrastructure (VDI) improve the fit into your infrastructure.

With file and block data consolidated and centralized, your organization can gain control over data protection and backup, eliminating distributed tape devices and the network load associated with backup operations. In addition, system-based snapshots simplify backup of live applications and provide far more granular restore options.

For older USP and NSC customers, upgrading to VSP now offers a future proof path to perpetual storage. Next-generation platforms won't offer Non Destructive Migration (NDM) capabilities to these systems, so the time to move is now.

Virtualize

Managing aging file, block and object independently is expensive, difficult to manage and does not scale for the future. Silos of storage and applications cause captive data and poor utilization. Managing different systems independently is complex, costly, prone to errors, and inefficient. It is much more difficult to predict and manage capacity and more difficult to search, analyze and protect.

With storage virtualization, you can pool and access all information and resources seamlessly. You can scale and provision dynamically and cost-effectively and increase data center efficiency and flexibility through improved operations.

Consolidating storage assets enables delivering multi-tenancy and SLA-oriented storage services. You also increase enterprise-class security and privacy and guarantee high levels of availability and continuous access to information.



Automate

Hitachi Dynamic Tiering enables auto-tiering, the automatic and granular (page-based) movement of block-level data among up to 3 storage tiers that the underlying storage media define. Automation eliminates repeated, error-prone, routine, redundant tasks, maximizes capacity utilization, and reduces operations costs.

- Combining Dynamic Tiering with Hitachi Accelerated Flash storage saves over 30% on the cost of a hard-drive-only-based system.

- Robust policy options at the block level with Dynamic Tiering and at the file level with Hitachi NAS Platform (HNAS) and Hitachi Base Operating System F (BOS F).
- Automate application-to-storage mapping based on service levels translated into policies.
- Automated file migration from 3rd-party storage.
- Automatic routing of data to the right tier and protection level according to its value.

For improved capacity utilization and planning, Hitachi Command Director gives administrators storage visibility across the data center, provides end-to-end views and correlation from applications and virtual machines to virtualized storage resources. These capabilities support complete monitoring of the storage infrastructure.

- Service-level compliance for business applications ensures that each business application is meeting its defined storage-service-level requirements.
- Analyze actual capacity consumption to efficiently improve utilization of existing storage resources and effectively plan for future growth.

Working with you, the Hitachi Data Systems Global Solution Services team combines best practices and Hitachi technology to offer a “reduced-touch infrastructure,” decreasing the need for human intervention. And delivery of storage as a utility enables enterprise IT to apply differing storage service levels to business units, applications and file servers with appropriate chargeback capabilities.



Private Cloud

Infrastructure consolidation, automation and virtualization are the 1st steps. Combined, they not only achieve solid measurable cost and efficiency savings goals, but also enable higher levels of IT transformation. With the development of a virtualized, pooled and automated infrastructure, a private cloud, you can deliver on the new business requirements driving increases in your company's bottom line. At HDS, our integrated strategy focuses on 3 layers of technology that provide the systems needed for organizations moving to and capitalizing on a private cloud IT model.

Virtualization Infrastructure

Beyond just storage, Hitachi Unified Compute Platform (UCP) delivers a strong foundation with a complete virtualized infrastructure. It aggregates enterprise storage services for agile, scalable, service-level-based delivery. It reduces complexity, simplifies management, improves integrity and reliability, and lowers operations costs. Further, it leverages existing investments and improves return on assets (ROA).

Content Cloud

Hitachi Content Platform (HCP) is the next layer up and solves content problems, allows application independence, gives media independence, and enables seamless integration of new and future capabilities. Using HCP as the content engine enables cloud storage, data migrations, lifecycle management, and integration of data across applications. With the growth of unstructured data and content, HDS has added rich capabilities to search, discover and integrate content, independent of the applications that create it.

Information Cloud

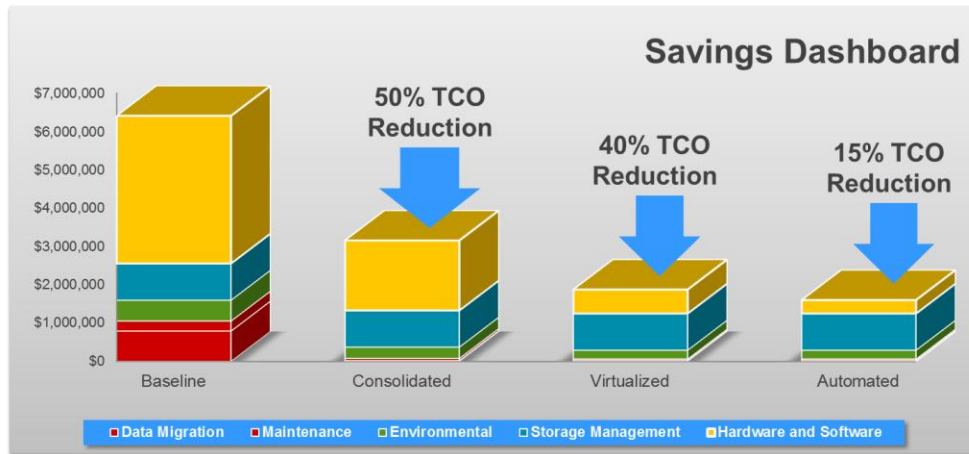
At the highest layer, when you are able to extract new information and insight from your content (data), you can achieve new levels of business value and competitive advantage. HDS understands and is focused on helping you develop the environment needed for analytics, integration, greater intelligence and big data solutions.

Conclusion

Significant cost reductions can be achieved by upgrading older systems. By understanding your true costs over time, the total cost of ownership (TCO), you can uncover cost savings while improving your technology.

HDS offers improvements in space, power and cooling requirements. New efficiencies offered by capabilities, such as storage virtualization, flash, Hitachi Dynamic Provisioning and Hitachi Dynamic Tiering can result in significant capex and opex savings along with dramatically improved application performance. Figure 2 illustrates the savings possible with each strategy: consolidate, virtualize, automate and private cloud can help save.

Figure 2. Savings Dashboard



The true cost of storage is not its purchase price, and paid for does not mean that it is not costing you. Organizations facing increasing maintenance costs, performance or capacity availability issues can save money by moving up to the cost-saving capabilities of a new HUS VM or VSP. Contact your Hitachi Data Systems or Hitachi TrueNorth Partner sales representative and let us help analyze where and how much you can save by moving to Hitachi Unified Storage VM or Hitachi Virtual Storage Platform.



For more information on Hitachi storage systems, technologies and services, visit www.HDS.com.



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