

WHITE PAPER

The Strategic Role of Services in Application Optimized Storage Solutions

Sponsored by: Hitachi Data Systems

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EXECUTIVE SUMMARY

In today's competitive landscape, corporations have become aware of the imperative to closely align their IT infrastructure and applications with their business strategies. Application Optimized Storage solutions from Hitachi Data Systems are designed to address this challenge by assisting customers in understanding their business requirements and then in building, managing, and optimizing their storage infrastructure to support current and future application requirements. As such, Application Optimized Storage represents both a framework for business-centric discussion with customers and an optimized storage solution for deploying critical enterprise applications.

Because this framework focuses on aligning business requirements and IT, Hitachi Data Systems consultative services are a critical component in the process of assessing and optimizing integrated solutions to meet the business requirements through a structured process to improve efficiency, reduce cost, and mitigate risk in the storage environment. The Hitachi Data Systems consultative framework provides a stepping-stone to achieve business value and cost-effective operations.

INTRODUCTION

Key Corporate Challenges

Today, businesses face three basic challenges that must be dealt with simultaneously: grow revenue, reduce cost, and manage risk. The way that businesses choose to manage these issues, in turn, has a direct impact on their applications and IT infrastructure, including their storage environments. The reality is that business strategies cannot be successful if IT organizations do not properly align their IT investments with the business processes they support. The upside is that proper business and IT alignment can be the basis for a firm's ability to compete successfully in an increasingly challenging market landscape.

Each of these three basic challenges requires its own specific set of IT-related responses. One way that organizations attempt to grow their revenues is by rapidly deploying key applications and then scaling them out across the enterprise, enabling the business to grow quickly. Time to market can make or break new business initiatives, and in today's highly competitive environment, these are not options but imperatives. Unfortunately, incremental storage growth typically means a growth in

complexity. This problem is compounded by the fact that organizations also are under constant pressure to reduce costs. In a typical enterprise storage environment, managers are often aware that operational process efficiency can be improved, but they may lack the time, resources, or best practices that would allow them to significantly reduce operating expenses (OPEX) and drive greater storage efficiencies. The Hitachi Data Systems goal is to match the appropriate class of storage with the right application, at the lowest possible cost. Achieving this goal may require, among other steps, that customers classify data based on its importance to the organization, with the understanding that the value of data can change over time, though not necessarily in a linear fashion (e.g., not all data becomes less valuable to the organization as it ages). Depending upon the organization, the task of carrying out a companywide data classification project may overwhelm the internal resources that are available to participate in such a project.

Risk management poses possibly the greatest set of challenges to customer organizations. Enterprises are wrestling with new regulations pertaining to corporate governance, which are driving new data capacity, retention, and availability requirements.

Enterprises also face ongoing data security challenges. In the IT realm, one way that customers attempt to deal with risk is by making sure that they provide the proper level of availability for each application. This approach is part of an overall business continuity strategy that typically encompasses every aspect of IT, including storage. The reality is, of course, that availability needs may change over time, as organizations revise their strategies and different (or new) applications become more critical to their overall corporate mission.

Ultimately, from a storage and data management perspective, organizations want to improve application performance and scalability, reduce operational costs, and provide service level availability, all from an optimized storage infrastructure that can be managed easily and effectively.

Storage Management: The New Imperatives

Storage managers face rapidly increasing requirements around capacity, complexity, management, and reliability of the storage infrastructure and the growing need for reducing the cost of ownership as applications are rolled out to meet new business requirements. Meanwhile, IT budgets now more than ever require solid economic justification for additional funding pertaining to new initiatives and projects.

At the same time, storage managers no longer live in the stove-piped environment that characterized IT infrastructure administration only a few years ago. Divisions pertaining to business units, applications, and IT infrastructure still exist in many companies. Old methodologies and perceptions do not go away overnight. But now it is more clear than ever that storage performance and availability directly impact the ability of the enterprise to support users of critical applications — and these applications, in turn, are more than ever intrinsic to the overall health, regulatory management, and agility of the business. Unlike in the past, today storage managers play a crucial role in making sure that IT is complying with business policies that have been established at the senior management level.

This elevated role for storage means that storage managers face a host of new issues that need to be resolved over time, including the following:

- ☒ Networked storage provides greater performance and capacity utilization but also introduces new complexity to the environment.
- ☒ Data must be protected in an efficient, cost-effective, and measurable way, but the organization cannot afford to pause or take applications offline to facilitate remote copy and backup operations.
- ☒ Data must be managed within both production and archives to meet business, regulatory, and compliance requirements.
- ☒ Increasingly, IT managers want to deliver storage capacity as a usage-based service to their internal customers to ensure application service levels, an approach that requires new management practices and tools.
- ☒ Storage solutions must be implemented with the assumption that data will continue to be generated and stored at record levels within the organization and that regulatory retention requirements will become even more stringent over time.

A recent IDC survey of 149 C-level executives reflects current customer concerns about business performance, data availability, and reducing overall IT costs. Respondent's to IDC's *Project Barometer III* survey listed the following improvements as the top 4 "most urgent" within their organizations:

1. Real-time/near-real-time monitoring of business performance
2. Lower costs of IT infrastructure supporting business applications
3. Improved, integrated access to relevant information/data
4. Improved security of information and information systems

Clearly, businesses more than ever understand the increasingly integrated role of applications and IT in driving business performance.

APPLICATION OPTIMIZED STORAGE SOLUTIONS: MATCHING STORAGE WITH APPLICATION ATTRIBUTES

Application Optimized Storage solutions from Hitachi Data Systems essentially take the standard approach to managing storage — that is, focusing on building a storage infrastructure and then adapting applications as best as possible to this infrastructure — and turn it around. Under this approach, storage is configured, integrated, and managed in service to a business' key applications. The goal is to create a common platform for supporting diverse application solutions, including ERP, CRM, data warehouses, Web portals, and messaging/collaboration. In an Application Optimized Environment, data delivery is based on an application-centric quality of service (QoS) focused on a number of variables, including cost, performance, availability, and

protection requirements. The platform is managed using a common set of software tools to better ensure repeatable management practices and also to reduce overall training requirements for the organization.

Clearly, Application Optimized Storage goes well beyond data classification, tiered storage, information lifecycle management (ILM), or data lifecycle management (DLM) practices, although it encompasses all of these elements. This platform consists of an integrated framework of hardware and software services, including the following:

- ☒ **Application services:** Performance, chargeback, provisioning, problem management
- ☒ **Content services:** Archiving, indexing, search, retrieval
- ☒ **Data services:** Backup, migration, replication, security
- ☒ **Storage services:** Multitier capacity, universal connectivity, heterogeneous management

As mentioned earlier, consulting services play an essential role in Application Optimized Storage solutions, as a deep understanding of a customer's key business requirements is required.

HITACHI DATA SYSTEMS GLOBAL SOLUTION SERVICES

With a view to the importance of services in delivering Application Optimized Storage solutions, Hitachi Data Systems has made significant investments in its professional services organization, with a focus on consulting services capabilities. The company has also implemented consistent professional services methodologies and business processes globally to ensure that customers receive consistent service levels no matter where they are located. These methodologies are based on industry best practices and open standards, such as SNIA and ITIL. The goal is to deliver the following benefits to customers:

- ☒ Reduced operational risk
- ☒ Cost-effective storage environments
- ☒ Simplified storage environments from a management standpoint
- ☒ Deployed storage environment

HITACHI DATA SYSTEMS GLOBAL SOLUTION SERVICES: STRATEGY AND OFFERINGS FOR APPLICATION OPTIMIZED STORAGE SOLUTIONS

Services as an Essential Enabler of Application Optimized Storage Solutions

For most customers, moving to an Application Optimized Storage strategy represents a more broadly integrated approach to storage procurement, implementation, and management. In the traditional IT datacenter, storage infrastructure (e.g., systems) has been managed as a silo that is virtually divorced from the business' applications.

At the management level, applications development organizations often are out of touch with their counterparts on the infrastructure side. Despite the fact that optimal application performance and availability depend heavily on infrastructure, most large organizations have not managed applications and infrastructure in a manner consistent with optimal enterprise strategies. This means, among other things, that the introduction of an Application Optimized Storage approach to applications and storage creates an opportunity for organizations to properly align business requirements and applications and IT systems and infrastructure management.

To facilitate this alignment, Hitachi Data Systems Global Solution Services engages with a customer early in the process and focuses on addressing key issues, including:

- What are the customer's key business applications, and how is its storage strategy aligned with these applications?
- Is the customer currently meeting required service levels for key business applications?
- What is the customer's current total cost of ownership (TCO) pertaining to storage? In some cases, the TCO requires a quantification of the cost of storage, data, and information ownership.
- What kind of return on investment (ROI) can the customer expect as a result of implementing an Application Optimized Storage solution?
- What does the customer's current data protection plan look like? What are the customer's recovery objectives (RPO and RTO)? Can backup and recovery be successfully tested? Are other important storage-related processes in place?
- How standardized is the customer's storage environment, and what would be the result of the introduction of additional standards?
- What kinds of data retention policies are in place, and how is the customer impacted by current regulations pertaining to data storage (if at all)?

Clearly, most businesses that are interested in implementing an Application Optimized Storage strategy will want assistance in understanding these issues, and most will look to external sources for at least some support.

Hitachi Data Systems Service Offerings for Application Optimized Storage Solutions

Hitachi Data Systems Global Solution Services organization has developed several consulting services offerings designed to accelerate the adoption of Application Optimized Storage solutions and help customers gain maximum benefit from those solutions. The offerings include those mentioned in the following sections.

Assessment and Planning Service

Overview

Under this service, Hitachi Data Systems provides design and deployment assistance that takes advantage of the company's technical capabilities to better align business requirements to the storage environment. The service consists of business process mapping, archival policy development, and assistance in gaining efficiencies from tiered storage.

Customer Problems Addressed

This service is designed for large organizations, typically Fortune 1000 businesses, that have several major applications installed, such as SAP or Oracle. These are customers with high data growth, spurred by business or regulated retention requirements, or both, that are struggling to keep up with the growth because of costs, complexity, and lack of means to classify data for access and availability. In this customer segment, data growth of 30% per year is not unusual; these firms may have 500 or more terabytes of storage under management, and their backup windows are shrinking.

These firms employ storage-savvy IT managers and storage administrators who understand the benefits of an Application Optimized Storage-based strategy. However, these customers often are unable to develop a coherent architecture or a workable plan for deploying a tiered storage infrastructure and data lifecycle management processes by themselves. They typically need assistance in planning and implementing the necessary tools and best practices to move their storage environments to the desired level of application alignment.

Methodology/Deliverables

Under this service, through a structured, interactive, interview-based process, Hitachi Data Systems works with the customer to evaluate the existing storage management and applications environment. Global Solution Services specialists then formulate the results of the review, noting specific areas in which to improve data retention and management. In addition, the assessment identifies multitiered storage options to leverage the customer's existing storage and help define a high-level road map of multitiered storage solutions that will mitigate risks, leverage value, and provide higher continuity options within a viable economic model.

From the assessment requirement findings, Hitachi Data Systems develops a recommendation for multitiered ILM/DLM-based storage options. It also provides recommendations for a technical design and implementation road map deployment options that will be used to guide the future development and deployment of the storage architecture.

Based on these inputs, a final recommended model with respective options is formulated and presented for review to the customer.

Customer Benefits

This service provides customers with a framework for quickly assessing their organizations' business governance and data retention policies. In particular, Hitachi Data Systems focuses on areas of potential cost reduction and improved efficiencies that are obtained based on overall improved alignment of key applications and each customer's storage architecture.

Risk Analysis Workshop

Overview

This service represents the first step in evaluating a customer's disaster recovery investment strategy and priorities. The customer and Hitachi Data Systems identify environmental and natural risks and exposures that could cause an outage and determine expected business losses. Customers receive a Risk Analysis Summary that describes each risk and exposure and presents a prioritized matrix of exposure, projected losses, and expected occurrence. They also receive a customized operational risk model organized by corporate and regional area.

Customer Problems Addressed

Business continuity is a growing concern for almost every organization today. However, large firms with a significant information asset base are particularly under pressure to develop broader, more intelligent strategies regarding business continuity, as major constituencies — shareholders, customers, and partners — demand that a well-developed plan be in place.

Customers face the following challenges in this area:

- IT departments need to develop a clearer picture of their organizations' asset risks and business continuity readiness.
- IT departments need a quantitative approach to assessing risk in the organization and provide business justification, through cost-benefit analysis, for selecting the business continuity solutions.
- IT departments need to articulate the potential risks to executives so that everyone understands the trade-offs before a problem occurs.
- Given budgetary constraints, IT departments must adequately address which types of risk (downtime and/or data loss) their organizations are willing to live with and develop the necessary infrastructure to support that risk most cost-effectively.

The Risk Analysis Workshop is geared toward a cross-section of key IT managers from both the operations and applications sides of a customer organization. These managers must have a common base of reference to assist them in making rational business continuity choices. The Risk Analysis Workshop is a tool designed to allow high-level managers to quickly pinpoint weaknesses and limitations relative to business continuity specific to their organizations.

Methodology/Deliverables

The following deliverables are included within the scope of this workshop:

- ☒ **Risk Analysis Scorecard.** A cross-functional, diagnostic matrix, this scorecard identifies major areas of the customer's continuity environment and measures them for status, quality, process, industry evolution, technology, and exposure.
- ☒ **Risk Grid Analysis.** Designed to analyze the data gathered through the workshop via Likert charts, this report depicts the customer organization's strengths and deficiencies while ranking major limitations that should be addressed.
- ☒ **Risk Aversion Road Map.** The workshop's final document depicts the current and desired state with analyses of logical design options. This report includes high-level cost options.
- ☒ **Findings Presentation.** This multifaceted deliverable includes scores, charts, and a high-level project plan.

Customer Benefits

The reality is that there is no "one-size-fits-all" business continuity solution. Through this service, customers gain business justification, through cost-benefit analysis, for selecting the optimal answer for each particular environment. The Hitachi Data Systems framework is a proven quantitative risk management approach that allows management to identify whether a risk is worth reducing because they understand the risk's sense of size and cost to reduce or mitigate.

The purpose of this quantification is to provide decision makers with a clearer picture about the exposures they are likely to experience so that they can make prudent allocations of limited resources. Quantifying the high risks and critical exposures will enable organizations to fully understand how function-rich technologies from Hitachi Data Systems (such as Hitachi TrueCopy Remote Replication software, ShadowImage In-System Replication software, and Hitachi Universal Replicator software) can improve their operation and which of these solutions will offer the greatest benefits for their particular environment. A quantitative risk approach demonstrates how best to take advantage of Hitachi technology to reduce or alleviate the consequence of disruptions.

Storage Economics Strategy Service

Overview

This offering is designed to enable customers to reduce OPEX in the storage environment by receiving an objective analysis from Hitachi Data Systems of their storage infrastructure. Hitachi Data Systems helps customers objectively assess their current storage environment (either direct-attached or networked) and make tactical and strategic plans to take advantage of newly available storage architectures.

Customer Problems Addressed

IT continues to be a target for reducing costs in many companies while still being required to deliver critical services. The storage environment provides opportunities for reducing OPEX. The IT or finance departments are the two audiences that would typically be motivated to pursue this type of service. The following list of conditions indicates potential areas where OPEX may be reduced and where an in-depth economic analysis may be in order:

- The IT organization has a lot of direct-attached storage (DAS) — which is generally viewed as being more difficult and expensive to manage than networked storage — spread throughout the enterprise.
- Storage outages exist preventing the IT department from meeting business application service levels.
- IT plans and strategy include application and server consolidation.
- Many RAID storage systems are already in the datacenter (small to medium-sized systems that can potentially be consolidated).
- The IT department needs to reduce operating expenses immediately.
- Finance and IT work together, a sign that IT really wants to reduce costs.

This service will most benefit customers and key economic IT buyers struggling with incremental storage growth and the prospect of new incremental storage spending; those managing through recent mergers and/or datacenter consolidations; those with storage infrastructure environments greater than 50TB; and those looking at SAN consolidation strategies.

Methodology/Deliverables

Hitachi Data Systems employs a workshop approach to rapidly review a customer's business and IT infrastructure, operational capabilities, and risk areas. During this workshop and discovery process, Hitachi Data Systems evaluates the storage assets, assesses and documents IT requirements and business drivers, provides a logical design for the storage environment, and most importantly, provides the economic model and justification for the solution.

Building a defensible ROI model and reducing TCO are the goals of this service, with a detailed written report outlining the inventory results, options, design parameters, design descriptions, and economic justifications within 10 days of the onsite assessment. Clients are provided with a road map describing the status of their current storage environment, what options they have to improve efficiencies, and the economic justification to move forward.

The service is delivered in five phases:

- ☒ Phase 1: Discovery of Existing Enterprise Storage
- ☒ Phase 2: Storage Infrastructure Assessment
- ☒ Phase 3: Logical Design Solution Workshop
- ☒ Phase 4: Economic and Return on Investment (ROI) Analysis
- ☒ Phase 5: Detailed Written Report

The service is collaborative in nature, involving Hitachi personnel and appropriate company staff such as storage administrators; network engineers; systems servers administrators; tape and backup managers; database administrators; security personnel; customer advocates; finance, procurement, and facilities personnel; disaster recovery planners; and system architects.

Customer Benefits

The service can help customers accomplish the following:

- ☒ Discover their total existing storage environment
- ☒ Assess their storage infrastructure and needs
- ☒ Design their new architecture in a collaborative workshop
- ☒ Analyze ROI for multiple design options using Hitachi Data Systems HiReturn investment analysis tool
- ☒ Justify and quantify their storage choice using a report generated by Hitachi Data Systems

With a limited time frame and minimal economic commitment, customers will have a defensible economic case and defined road map with which to justify storage purchases. This road map enables IT to review their operations in terms of OPEX-reduction activities to enhance their IT operations. IT is positioned as a business stakeholder by assessing its storage environment in economic terms, not just in technical specifications.

IDC ANALYSIS

As a leading storage systems supplier and innovator, Hitachi Data Systems has been helping customers tackle data storage management issues for many years, focusing on not only traditional datacenter implementations but also open systems environments. With its latest technology introductions, the company now addresses the next key area of storage technology development, virtualization, as customers move to implement always-available "pools" of storage capacity.

With its Application Optimized Storage strategy and services offerings, Hitachi Data Systems has developed an approach that can address the breadth of customer issues and challenges pertaining to storage and data management, which it understands is an intrinsic part of supporting the applications that drive ultimate value and revenue for customers. In particular, IDC believes that the company's deep experience in traditional datacenter environments provides its services professionals with strong expertise regarding availability, centralized management processes and tools, and best practices regarding storage and data management.

Faced with several competitors that are strongly promulgating their own visions of the future of storage and storage management, Hitachi Data Systems will need to move aggressively to explain and proselytize the Application Optimized Storage strategy and approach. The company has not built as high a profile around its professional services as it has regarding its technology, so it will need to develop greater awareness of its professional services capabilities and offerings. It can accomplish this goal through a combination of marketing initiatives and — more important — a crisp and measurable delivery of results achieved through its offerings. Nothing succeeds in the services business like delivering and overdelivering to customers; therefore, Hitachi Data Systems has an opportunity with its Application Optimized Storage offerings to truly help customers achieve new levels of storage efficiency, availability, and reduced costs.

CONCLUSION

Customers today are highly aware of how important it is for their IT infrastructure, including storage, to be aligned with their critical business applications. In the old model, organizations procured and implemented IT infrastructure and then attempted to customize their applications to adjust for the limitations inherent in their infrastructure. The Hitachi Data Systems Application Optimized Storage strategy turns this approach on its head by taking the more effective approach of aligning infrastructure — in this case, storage — with a company's application vision and strategies.

By providing consultative services as part of its overall delivery of Application Optimized Storage solutions, Hitachi Data Systems can help customers achieve greater alignment of business and IT through improved levels of availability, reduced storage costs, and enhanced risk mitigation. This approach supports customers' business strategies and missions by allowing them to more quickly implement their Application Optimized Storage solutions and achieve greater ROI in a shorter amount of time.

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