

## **SOLUTIONS BRIEF**

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### **Storage Reclamation Service: Regaining Control of Lost Storage**

Sponsored by: Hitachi Data Systems

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#### **IN THIS SOLUTION BRIEF**

This Solution Brief provides an overview of the current economic and architectural pressures facing enterprise IT organizations and the challenges associated with deploying and maintaining a cost-effective and efficient storage strategy. The Brief then takes a closer look at the Storage Reclamation Service offered by Hitachi Data Systems aimed at improving the efficiency of growing storage demands even in restrictive economic conditions.

#### **SITUATION OVERVIEW**

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##### **The Current State of Affairs**

Despite shrinking IT budgets within many enterprise organizations, storage growth continues almost unabated. If the business is up and running, data is surely being created and it must be stored, managed, protected, and accessed for increasingly longer periods of time. IDC expects the average compound annual growth rate of disk storage systems terabytes shipped to exceed 55% by 2013. Depending on application and business environments, many organizations are poised to well exceed that average.

At the same time, the current economy is severely crippling the budgets of many IT organizations. In particular, the pressure to reduce capital expenditures has forced many organizations to do more with less. From a storage capacity perspective, this can be a significant challenge as squeezing more utilization from existing storage investments is often an elusive goal.

Poorly utilized storage assets can result from a variety of unfortunate influences. Often the path of least resistance to solving a capacity issue is to just buy more. Many times, this tactical approach is simply purchasing additional racks of storage from the existing supplier. However, fluctuating or stagnant datacenter budgets combined with competitive pricing among various storage suppliers have often led datacenters to expand their storage environment with heterogeneous products. This insidious process of expanding in a piecemeal fashion can often lead to overall poor utilization.

In addition, datacenter consolidation and the increased activity around mergers and acquisitions have led many administrators to inherit poorly utilized, often heterogeneous environments, further exacerbating the storage efficiency issue.

### ***What Makes an Effective Solution?***

There is no one hardware or software product that can completely solve the storage inefficiencies found in many datacenters today. To be effective, a solution that achieves greater utilization among existing storage assets must include the following characteristics:

- ☒ **Identify root causes and be sustainable.** An effective solution will not merely apply a one-time fix to existing, underutilized storage arrays, but determine and remedy the pathways that originally led to storage inefficiency and adjust technology and management practices for an ongoing, permanent solution.
- ☒ **Leverage storage efficiency technologies.** Access to storage hardware and software technologies that are aimed at improving storage efficiency is critical. A strong portfolio in virtualization and data reduction technologies such as dynamic or thin provisioning will form the technological foundation of the solution.
- ☒ **Leverage people and processes.** To complement the available storage efficiency technologies, the solution must comprise the expertise and services of storage professionals who apply predictable, repeatable methodology and proven best practices to improve utilization without reinventing the wheel with every engagement.

### ***Solutions Emerging***

The advent of storage technology such as virtualization, dynamic (or thin) provisioning, and advances in data migration within and among storage systems has opened the doorways to begin solving such storage efficiency issues. However, many times, the solutions that showcase these technologies may not present a holistic view to increase utilization and storage efficiency.

Any one technology is useful and can help improve storage efficiency of an individual product or specific storage solution, but each technology on its own has a limited effect when tackling an existing, broad, often heterogeneous storage environment. The combination of such technologies under the umbrella of a services-led approach that leverages expertise in a sound methodology can lead to a powerful, holistic solution with more dramatic results.

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## **The Hitachi Data Systems Approach: Storage Reclamation Service**

Hitachi Data Systems (Hitachi) has developed a services-led solution called Storage Reclamation Service (SRS) that brings together the Hitachi storage efficiency technologies, expertise, and best practices in a single, holistic approach to reclaim allocated but unused capacity within an existing storage environment. Based on sound methodology, years of services expertise, and a legacy of proven storage technologies, the Hitachi SRS helps enterprise customers break the cycle of applying tactical capital expenditures to solve growing storage capacity issues.

## ***Leveraging Proven Technology and Services***

The combination of a services-led approach with a toolset of effective technology is powerful. The Hitachi SRS leverages a broad set of Hitachi technologies that allow customers to realize the benefits of reclaimed, unused storage capacity.

Specifically, Hitachi has spent the past several years focusing strongly on bringing storage virtualization technologies to market. These technologies allow for the management of multiple, heterogeneous storage arrays, as well as improving the efficiency in any single array within a virtualized environment. The following Hitachi technologies play an integral role in enabling the SRS solution:

- ☒ **Storage Virtualization** — among Hitachi and many third-party storage arrays. The ability to consolidate and have fewer points of management in a virtualized environment greatly eases management and reduces operational expenditure. In addition, Hitachi storage virtualization allows existing, non-Hitachi storage arrays to benefit from the Hitachi management environment.
- ☒ **Dynamic Provisioning** — allows storage to be allocated to an application without actually being physically mapped until it is used. This virtual just-in-time provisioning allows administrators to defer purchase of physical storage until needed, all while the application thinks this capacity is available. Hitachi Dynamic Provisioning is available on Hitachi midrange or enterprise storage arrays, as well as any storage array within the Hitachi virtualized environment.
- ☒ **Zero Page Reclaim** — an important software-based capability that reclaims storage space by identifying unused storage blocks and automatically returning them to an open pool of storage within the virtualized environment.

Any one of these technologies can be extremely useful in helping to improve storage efficiency. However, Hitachi has brought the power of these features together in its Storage Reclamation Service, helping customers to identify and reclaim allocated but unused capacity and lower both capital and operational expenditures associated with managing capacity growth.

To further complement the power of Hitachi's storage efficiency technologies described above, the company also brings a wealth of professional datacenter experience and sound processes that complete the Storage Reclamation Service. This is extremely important as most customers will look for the consulting and implementation assistance to realize the full benefit of these technologies over the long term. Powered by Hitachi people, best practices, and reporting tools, the SRS:

- ☒ Analyzes current storage usage and determines which servers and file systems will have storage space reclaimed
- ☒ Plans the migration with minimal downtime — understanding all application, information, and infrastructure dependencies
- ☒ Reports on storage space that is reclaimed in the Dynamic Provisioning software storage pools
- ☒ Provides recommendations for managing a dynamically provisioned infrastructure to maximize benefits over the long term

## FUTURE OUTLOOK

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### Setting a New Bar

Hitachi has an opportunity to set a new bar for managing and improving effective capacity utilization for enterprise customers. The Storage Reclamation Service is an effective solution to assess and improve storage efficiency in existing storage environments. In particular, the service should allow organizations to find dramatic short-term savings by making use of unused portions of assets already in place. In the current restrictive economic conditions, CIOs and administrators will find this a welcome solution in battling storage growth within the next 12–18 months.

In the long term, efficiencies will be realized by continued use of Hitachi technologies. Ongoing use of virtualization and dynamic provisioning should become a default operating procedure for enterprise organizations looking to maximize storage efficiency. In addition, subsequent internal consolidation and/or merger and acquisition activity will create further opportunity for the Hitachi Professional Services and storage efficiency technologies to maximize benefits and reduce cost.

### CHALLENGES/OPPORTUNITIES

There is a tremendous opportunity for Hitachi to help existing and new customers find improved storage utilization with its Storage Reclamation Service and associated storage efficiency technologies based in virtualization. With opportunity comes challenges, and Hitachi should consider the following as it seeks to expand its capabilities:

- ☒ The savings associated with a solution such as the Storage Reclamation Service are expected to be most dramatic in the short term (12–18 months). Hitachi must work to set proper expectations for optimization and savings associated with long-term deployment of virtualization and storage efficiency technologies.
- ☒ Although the Storage Reclamation Service allows for the improved utilization of existing storage assets, political barriers may still impede the adoption or acceleration of such a solution, as some CIOs or administrators may feel obligated to defend the architecture they have developed over time.
- ☒ Hitachi should work to incorporate a strategy that incorporates data deduplication technology into a broader, virtualized Hitachi environment. The eventual inclusion of both primary and secondary data deduplication will create an even more powerful strategy to control storage inefficiency.

### CONCLUSION

The Storage Reclamation Service developed by Hitachi is a powerful offering that brings together a unique combination of technology and services. The value of Hitachi's expertise and best practices combined with the legacy of Hitachi storage virtualization and storage efficiency technologies in a single, holistic approach allows users to reclaim allocated but unused capacity within an existing, often

heterogeneous storage environment. Based on sound methodology, years of services expertise, and a legacy of proven storage technologies, this Hitachi services solution helps enterprise customers break the cycle of applying tactical capital expenditures to solve growing storage capacity issues.

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