

## Storage Reclamation Service

The Storage Reclamation Service from Hitachi Data Systems addresses immediate storage growth requirements at a lower cost than new asset acquisition while helping you establish a solid operational approach for significantly lowering long term storage costs.

### Moving Beyond the Accidental Architecture

#### Juggling Exponential Storage Growth with Shrinking IT Budgets

Storage budgets are nearly flat or even nonexistent in the current economic climate. And yet the amount of storage to be managed continues to grow exponentially. Capital and market pressures remain and IT departments are being forced to compete for limited capital for server and desktop virtualization, applications and operations. However, most businesses overallocate and underutilize storage capacity without even realizing it. The average data center includes storage assets that are provisioned to peak capacity while yielding a significant amount of waste, which is causing IT managers to see a poor return on their storage assets.

#### Moving Beyond the Accidental Architecture

Current data center architectures can be best described as accidental, where buying behaviors are categorized into piecemeal procurements or where a short term fix is preferable to a long term storage strategy. The result is asset proliferation, stranded

assets, disparate management interfaces and a lack of productivity due to redundant asset management.

#### Applying the Principles of Storage Reclamation Technology for a Solid Return on Storage Assets

It is essential to maximize use of your IT assets. Any decisions you make must be supported with reasonable business justification. Return on investment (ROI) is often used as a benchmark, but ROI is about buying new technology and not increasing use of existing investments. Return on assets (ROA) increases the utilization of your total IT commodities through a services approach to managing storage. Reclaiming stranded storage capacity is essential to improving ROA.

Storage reclamation technology detects storage space overallocation for servers and file systems, and identifies where the space can be redistributed for use. This provides a solid ROA approach for reclaiming unused storage space and helps you defer storage procurements.

#### Detecting Unused Storage Space with the Storage Reclamation Service

The Storage Reclamation Service helps you realize capital expenditure (CAPEX) and operating expense (OPEX) savings by reducing waste in allocated but unused storage capacity. Hitachi Data Systems specialized consultants:

- Perform a comprehensive prediction analysis of the storage environment to identify which servers and file systems have available storage space to reclaim.
- Design and create Hitachi Dynamic Provisioning software storage pools to which the source data will be migrated.
- Use the Hitachi Zero Page Reclaim facility to return unused storage blocks to the storage pool.
- Reclaim storage space and produce reports for the reclaimed space.
- Provide coaching on the best practices for effectively managing a dynamically provisioned architecture.

## Hitachi Dynamic Provisioning Software Provides Thin Provisioning for Virtual Storage Capacity

Storage is often overprovisioned in an effort to minimize application disruption when a LUN must be expanded to accommodate growth. Subsequently, expensive service disruptions occur during the LUN expansion and significant amounts of storage are wasted as part of the overprovisioning strategy. Hitachi Data Systems experts harness the advanced thin provisioning features of Dynamic Provisioning software to provision storage from a virtual pool instead of a traditional LUN.

Fat or “thick” provisioning occurs on traditional storage systems where large pools of storage capacity are allocated to individual applications, but remain unused with storage utilization often as low as 50 percent.

Thin provisioning applies to large scale centralized computer systems and allows space to be easily allocated to servers on a “just enough” and “just in time” basis.

Hitachi Data Systems can extend thin provisioning to externalized storage units, which eliminates the cap on the thin provisioning pool.

## Identifying Zeros on a Dynamic Provisioning Pool with the Industry Unique Zero Page Reclaim Facility

Volumes that are initially set up on traditional “thick” physical volumes can be migrated to a dynamically provisioned volume, resulting in substantial initial storage reclamation.

## BENEFITS OF THE STORAGE RECLAMATION SERVICE

- Derive more value from your existing environment by identifying, targeting and freeing up capacity to address immediate storage growth requirements at a lower cost than new asset acquisition.
- Establish an operational approach that will lower long term costs, resulting in improved ROA and real measurable savings to the balance sheet.
- Realize cost efficiency through the ability to leverage or reuse storage assets for strategic value.
- Improve the accuracy of future storage purchases, from a timing and capacity perspective, and provide an ongoing indicator of planned versus actual use.
- Reduce labor in provisioning storage via Dynamic Provisioning software; then, segregate storage acquisition and provisioning to each application.

Hitachi Data Systems consultants employ the Zero Page Reclaim facility to examine the volumes of physical capacity on a Hitachi Universal Storage Platform® V or Universal Storage Platform VM, and where the firmware determines that no data other than zeros is found on a Dynamic Provisioning software pool page, the physical storage is then unmapped and “returned” to the pool’s free capacity.

- Firmware reads each page, and when a page of all zeros is found the page is unmapped from the volume.
- The physical page pointer is replaced with the default zero pointer.
- The unmapped page is then available for future physical capacity requirements.

## Bringing Measurable Savings to the Balance Sheet with the Storage Reclamation Service

Storage reclamation, dynamic provisioning and virtualization all have a synergistic economic impact on your storage environment. The life of existing assets is extended through higher utilization to:

- Lower the cost of storage growth.
- Reduce waste through dynamic provisioning.
- Provide significant savings through storage tiering.
- Lower capital investments through reclamation along with dynamic and thin provisioning.

## Hitachi Data Systems Corporation

### Corporate Headquarters

750 Central Expressway  
Santa Clara, California 95050-2627 USA  
www.hds.com

### Regional Contact Information

**Americas:** +1 408 970 1000 or info@hds.com  
**Europe, Middle East and Africa:** +44 (0) 1753 618000 or info.emea@hds.com  
**Asia Pacific:** +852 3189 7900 or hds.marketing.apac@hds.com

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