

Hitachi Dynamic Tiering Software

Hitachi Dynamic Tiering software simplifies storage administration, automatically optimizes data placement and gives top tier performance to information stored primarily on less expensive tiers.

Automate and Eliminate Complexities of Efficient Tiered Storage Use

Once created, most data is rarely or never accessed again. It should be moved off your most expensive storage tier to less expensive lower tiers. This is the premise and promise of data lifecycle management methodologies and tools. But how do you determine what can be moved and how to move it efficiently? The answers to this question often have been complex and problematic, until now.

With the introduction of Hitachi Dynamic Tiering software the complexities and overhead of implementing data lifecycle management and optimizing use of tiered storage are solved. Dynamic Tiering software simplifies storage administration by eliminating the need for time consuming manual data classification and movement of data to optimize usage of tiered storage.

No elaborate decision criteria are needed; data is automatically moved according to simple rules. One, two or three tiers of storage can be defined and used within a single virtual volume using any of the storage media types available for the Hitachi Virtual Storage Platform. Tier creation is automatic, based on user configuration policies, including media type and speed, RAID level and sustained I/O level

requirements. Using ongoing embedded performance monitoring and periodic analysis, the data is moved at a fine grain sub-LUN level to the most appropriate tier. The most active data moves to the highest tier. During the process, the system automatically maximizes the use of storage, keeping the higher tiers fully utilized.

Improved Performance at Less Cost

Typically, over 80 percent of data access activities involve less than 20 percent of storage. This pattern is leveraged by Hitachi Dynamic Tiering to improve both performance and reduce storage costs. In addition, Dynamic Tiering uses Hitachi Dynamic Provisioning technology and thus inherits its advantages of simplified provisioning, capital savings and self-optimizing performance.

Maximized Return on SSD Storage

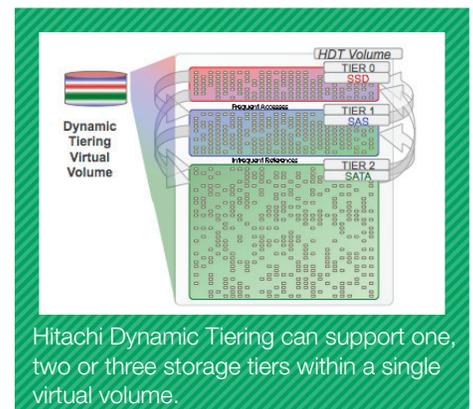
Hitachi Dynamic Tiering also takes the guesswork out of deploying expensive solid state drives (SSDs) as a tier 0 data accelerator. Because it moves only the most active data to the highest tier, SSD usage is automatically optimized, and even a small percentage of SSDs can dramatically improve overall

performance. SSD technology also requires less power than disks and, when combined with a higher percentage of energy-efficient SATA drives, can reduce drive count and improve overall system power consumption.

Business Benefits

Reduced Storage Costs

- Reduces media costs through self-optimized use of storage tiers
- Achieves space efficiency through thin provisioning
- Reduces drive counts



- Eliminates manual data classification
- Eliminates manual data movement between tiers
- Reduces operational overhead
- Reduces space, power, cooling

Improved Performance

- Employs wide striping across entire pool
- Optimizes data placement automatically for performance using an I/O rate-based heat index
- Gives SSD class performance to information stored largely on cheaper tiers via tier 0 SSD option
- Supports highest efficiency and throughput through granular page-based data movement

Efficient Administration

- Simplifies management of up to three storage tiers as a single volume
- Moves most active data to highest performing tier, automatically
- Adjusts to dynamic workloads and capacity requirements, automatically
- Moves pages up and down for optimal placement over time according to their heat index
- Significantly reduces administration time and improves results

Complementary Solutions

- Hitachi Tuning Manager software
- Hitachi Storage Command Director software
- Hitachi Tiered Storage Manager software
- Hitachi Replication Manager software
- Hitachi replication software

Services and Training

Hitachi Data Systems Global Services offers market-leading storage consultants who

HITACHI DYNAMIC TIERING SOFTWARE FEATURE HIGHLIGHTS	
Tiering elements	Media type, RAID level, drive speed
RAID level support	RAID-5 and RAID-6 (RAID-1 supported in future release)
Media types	SSD, SAS and SATA: Up to three media types per pool (external storage supported in future release)
Number of tiers supported	1, 2 and 3 per pool
Wide striping performance optimization	Automatic
Replication and mobility product compatibility	Hitachi Tiered Storage Manager, Hitachi ShadowImage® Heterogeneous Replication, Hitachi Copy-on-Write Snapshot and Hitachi Universal Replicator software; replication volumes up to 4TB
Maximum (max.) number of pools	128 (max. shared with Dynamic Tiering and Copy-on-Write Snapshot)
Maximum pool capacity	1.1PB (increases to 3.3PB in future release)
Page-level tiering page size	42MB
Maximum number of volumes	64K max., approximately 62K max. in one pool
Maximum volume capacity	60TB
Server types	All open (mainframe supported by thin provisioning in a future release)
Controls	Tier characteristics and sizes, I/O level requirements per tier, workload analysis cycle duration, manual/automatic migrations

apply best practices and proven methodologies to accelerate your benefits from a dynamically tiered virtualized environment. They install and configure Hitachi Dynamic Tiering software according to your individual business requirements.

Hands-on training classes are also available and recommended for all products, on your site or at our training centers.

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