Automate and Eliminate Tiered Storage Complexities to Maximize Efficiency

Ongoing rapid growth of data storage capacity requirements and escalating storage performance requirements increasingly challenge today’s companies. In tiered storage environments where application quality of service requirements are matched to storage assets, Hitachi Dynamic Tiering for Mainframe offers automated optimized management. It can manage data across a full range of high-performance and low-cost tier options.

No elaborate decision criteria or data classification exercises are needed; data is automatically moved between tiers according to simple rules. From 1 to 3 tiers of storage can be defined and used within a single virtual volume, via any of the storage media types available, including virtualized external storage. Tier creation is automatic, based on configuration policies, including media type and speed, RAID level and sustained I/O-level requirements. Using embedded performance monitoring and periodic analysis, the data is moved at a sub-LUN, page-based 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 by fully utilizing higher tiers.

Dynamic Tiering for Mainframe complements existing mainframe storage provisioning processes while offering the full benefits of Hitachi Dynamic Provisioning to improve performance and simplify performance and capacity optimization. By automatically spreading application data sets across large numbers of physical disks, the software optimizes performance and throughput and reduces performance management concerns. Existing SMS-provisioning processes can be aligned to different tiered storage pools.

Dynamic Tiering for Mainframe complements the Hitachi Virtual Storage Platform family (VSP and VSP G1000) and its larger extended address volumes (EAV) capability. In addition, Dynamic Tiering for Mainframe supports both internal and externally attached heterogeneous storage, and is fully compatible with Hitachi replication products on VSP.

Dynamic Tiering automatically optimizes storage usage. Storage utilization rates improve and the entire storage system becomes tuned for maximum efficiency. Coupled with the advanced features and reliability of Hitachi storage systems, Dynamic Tiering offers reduced capital and management expenses and an improved return on storage investment.

Benefits

Efficient Administration

- Automates and simplifies management of up to 3 storage tiers as a single volume.
- Eliminates manual data classification and offloads data movement between tiers.
- Moves most active data to highest performing tier, automatically.
- Adjusts to dynamic workloads and capacity requirements, automatically.
- Moves pages between tiers for optimal placement over time, according to their I/O heat index.
- Significantly reduces administration time, while delivering improved performance.
Reduce Storage Acquisition Costs
- Reduces media costs through self-optimized use of storage tiers.
- Achieves space efficiency through thin provisioning.
- Reduces operational overhead.
- Improves storage utilization; provides savings in space, power and cooling requirements.

Advanced Mainframe Feature Support
- Coexists with DFSMS and improves flexibility, complementing both horizontal and vertical storage groups.
- Can employ larger volume definitions by using EAV.
- Leverages dynamic volume expansion (DVE) to seamlessly grow physical and logical capacity.
- Simplifies capacity expansion; does not require new hardware configuration definition (IOGEN).

Compatible Replication Capabilities
- Compatible with all Hitachi storage-system-based replication products on Hitachi Virtual Storage Platform.
- Further enhances cost benefits in replication environments, where savings from thin provisioning are multiplied; enables space savings gains in replicated data and bandwidth, since only occupied portions of volumes are replicated; supports savings in replication license fees, which only apply to the occupied space.

Tiering Elements | Media Type, RAID Level, Drive Speed
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Virtual volume emulation | 3390-A
RAID-level support | RAID-1, RAID-5 and RAID-6; RAID-6 recommended
Media types | Accelerated Flash, SSD, SAS (15K, 10K and 7.2K), up to 3 tiers of virtualized external storage: up to 3 media types per pool
Number of tiers supported | 1, 2 or 3 per pool
Wide-stripping performance optimization | Automatic
Maximum number of pools | 128 (maximum shared with Hitachi Dynamic Tiering and Hitachi Copy-on-Write Snapshot)
Maximum total pool capacity | 5PB
Page-level tiering page size | 38MB
Maximum number of volumes | Approximately 62K maximum across all pools
Maximum volume capacity | 218GB = 262,668 cylinders
Host-initiated reclaim | Supported
Dynamic volume expansion (DVE) | Supported
Automatic pool rebalance after expansion | Supported
Controls | Virtual volume tier ranges, individual tier characteristics and sizes, I/O level requirements per tier, workload analysis cycle duration, movement cycle frequency, last cycle or continuous analysis mode, manual or automatic relocation scheduling

Complementary Software Solutions
- Hitachi ShadowImage for Mainframe.
- Hitachi Universal Replicator for Mainframe.
- Hitachi TrueCopy for Mainframe.
- Hitachi Compatible Mirroring for IBM® FlashCopy® and services.
- Hitachi Compatible Software for IBM® FlashCopy® SE.
- Hitachi Business Continuity Manager for Mainframe.

Hitachi Data Systems can also help you address your mainframe data and storage needs through a variety of planning and implementation services for mainframe environments.

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