SGI® InfiniteStorage Data Migration Facility (DMF)

Premier Solutions for Data Lifecycle Management

Features

- Lower TCO with Reduced Cost of Capacity and Administration
- Increase ROI with Higher Data Access and Productivity
- Optimize Data Management and Control
- Reduce Risk to Data Retention and Accountability
- Protect Investment with Infinite Scalability
- Integrate Seamlessly with Consolidation and Data Protection

Reduce Cost and Complexity Without Limiting Data Access

Today's most challenging computing environments require and generate mountains of data. This fact coupled with the exponential growth of information across all industries intensifies the need for increasingly effective tools to manage this explosion of data.

Every environment does data lifecycle management (DLM), however most do it manually today; an administrator moves less critical or time-sensitive data from high-performance, more expensive storage media like Fibre Channel RAID to lower performance, less expensive storage media like a Tape. This manual approach has several significant drawbacks including lack of optimization, limited accessibility and increased data risk of data alteration or loss. The result is an environment which is paying more than necessary for capacity and administration, waiting longer for data and creating an unwarranted level of exposure of it's most critical asset - data.

SGI's InfiniteStorage DLM solution - Data Migration Facility (DMF) - eliminates these problems by automating data migration for the highest possible capacity utilization, providing much faster access to data than manual data migration, and removing the human error potential from the data movement itself.

Lower TCO with Reduced Cost of Capacity and Administration

DMF automatically moves data among storage devices with different performance and price characteristics. This means that more expensive, faster storage can be augmented with less expensive storage like tape and Serial ATA (SATA) significantly lowering costs versus an all-RAID environment. It is not unusual for a DMF environment to save 60 to 90% on capacity costs.

Most storage industry analysts place the lifetime cost of storage management at 8 to 10 times the original cost of acquisition of storage products. Because DMF removes manual data migration, a significant percentage of administrative overhead is immediately eliminated, breaking the cycle of ever-increasing storage management costs. This savings scales with DMF customers reporting no increase DLM administrative costs even when data under management increased by 20x.

Increase ROI with Higher Data Access and Productivity

DMF creates a virtualized storage pool across Fibre Channel RAID, SATA, Tape and other storage devices presenting a single view of data to applications and users. This means that, unlike manually implemented migration approaches, data is persistent and visible in the live environment - users and applications do not need to request and wait for an administrator to recall the file. This capability represents a huge time-saving versus alternatives like manual data migration and archive, allowing DMF users to take advantage of DLM cost savings without the performance and productivity sacrifices imposed by manually implemented migration approaches. The result is increased productivity - analysts arrive at decisions faster, editors can identify content more efficiently, and applications can produce results faster.

Optimize Data Management and Control

Data migration under DMF is based on user-defined policies. Once data is classified, and policies regarding how each class of data should be treated are determined, DMF automatically applies the correct migration policy to each piece of data, even down to the level of granularity of a single file. Data can be identified globally by standard criteria like ownership, size, space or age, or by site unique classes like filename, priority, time frame, geographic locality, or service level, so that environments can manage whatever

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outcome is most important whether it is performance, data accountability, capacity maximization, some other priority or any combination. The benefit of this approach is that, not only does the level of possible customization ensure the maximum fit with any environment, but also that each environment can choose the speed of DLM implementation, starting simple and increasing granularity as needed.

Reduce Risk to Data Retention and Accountability

The single most important concern for any migration strategy is "Will I be able to retrieve my data when I need it?", regardless of the age of the media or time since last use. Manual archiving introduces risk to data in the form of operator error, format changes and lack of tools to verify data has not been modified in the copy process.

DMF is designed to emphatically prove that your trust in an automation tool is warranted with unique data integrity features. Through a two-step commit process DMF ensures that files have safely arrived at the destination storage device before the primary storage is released to the free space pool. And DMF automates the copy process, creating as many copies files on RAID and/or tape as site policies dictate. DMF offers data integrity checks throughout the migration and recall process, ensuring the operation of storage devices, the integrity of the storage media, verifying that the original state of data is intact, and automating recovery if hardware and media should fail.

Protect Investment with Infinite Scalability

Finding out that the DLM system implemented today can not scale to meet tomorrow's requirements can be an expensive and time-consuming mistake. The scalability of DMF guarantees investment protection in the face of data growth over long periods of time. DMF is a proven solution that can meet your capacity, connectivity and performance requirements today and fin the future.

DMF has a theoretical maximum capacity of 18 million terabytes and customers in production where DMF manages between a few terabytes and a few petabytes in a single workflow. It can be deployed in DAS, NAS, SAN or SAN/NAS gateway configurations allowing for any number or type of connection. Because DMF environments scan be configured to drive storage devices at their maximum speeds, DMF does not represent a performance bottleneck.

Deploy DMF with SGI® InfiniteStorage Shared Filesystem CXFS™, and you can even provide DLM services heterogeneously for IRIX®, Solaris™, AIX®, Windows®, Linux® and other major operating systems ensuring DMF benefits are sustained even if your environment changes significantly over time.

Integrate Seamlessly with Consolidation and Data Protection

The InfiniteStorage product line inter-operates seamlessly, ensuring you can add capabilities as the need arises. Choose any combination of consolidation, data lifecycle management and data protection, on any major operating system, at any capacity.

Find Out More

To find out more about our products, or to see how SGI customers are using InfiniteStorage solutions for Intelligent Consolidation, Data Lifecycle Management and Data Protection to raise productivity, lower costs and minimize risk, see www.sgi.com/storage

Supported Platforms

DMF is currently supported on any IRIX® 6.5 platform, and on the SGI® Altix® 3000 family, SGI® Altix® 3000 series, SGI® Origin® 3000 series, SGI® Origin® 300 server, SGI® Onyx® 3000 series, SGI® 2000 series, SGI® Origin® 200 server

- When used with SGI InfiniteStorage Shared Filesystem CXFS, DMF manages data for all CXFS platforms including: IRIX, Solaris, Windows, Linux, AIX and Mac OS® X without network data transfers
- When used in a multi-OS SAN environment without CXFS, DMF manages all data for all platforms accessible from other operating systems via NFS, FTP, and Samba® or via SmartMedia® or Horizon from StorageTek

Availability Features

- High availability configuration via SGI® FailSafe™
- DMF filesystem: Journaled, Two-phase data base commit process, backup via standard utilities
- Data availability: manages from 1 to 63 copies of files, automated recovery from failed media
- Data integrity: DMF-generated checksums and tape positioning
- Media integrity and management: volume scan, error recovery, free space consolidation

Management Features

- Persistent visibility of files
- Pre-emptive migration
- N-Tier storage hierarchy

Scalability

9 billion files, 9 million terabytes per file, 18 million terabytes per filesystem

APIs

The DMAPI Data Management API (XDSM) allows implementation of DLM management software without kernel modifications

Supported Disk Arrays and Environments

- Disk arrays
  - SGI® InfiniteStorage: SGI® TP900, SGI® TP9100, SGI® TP9400, SGI® TP9300, SGI® TP9500, SGI® RM610, SGI® RM660
- Fibre Channel and SCSI environments
- Direct attach and SAN environments

Supported Tape Drives and Libraries

Drives:

- StorageTek®: 4781/4791 (IRIX), RedWood (IRIX), Timberline (IRIX), 9840, 9940
- IBM®: 3590, 3592 (early 2005), LTO Generation 1&2 (SCSI & FC)
- HP® LTO Generation 2 (SCSI & FC)
- Seagate® LTO Generation 1 (SCSI)
- Certan LTO Generation 2
- Sony®: SDX-300C/400C/500C/700C, SDZ-100/130, GY-2120/GY-8240 with 3rd party DCP from Sony
- Ampex® DIS-DST with 3rd party DCP from Ampex

Libraries:

- StorageTek®: All tape libraries controlled by ACSLS software, release 5.1 or later; L20, L40, L80, L180, L700/700e, and 9310 controlled via SCSI; 9710/9714/9730/9740 controlled via SCSI
- IBM®: 3494 LAN attached libraries controlled by IBM TLD software running on an RS6000; 3494 libraries controlled by TCP/IP control interface
- ADIC®: All libraries controller by DAS software including the AML-series, Scalar® 1000, Scalar® 10K, and dual-aisle Scalar 10K; ADIC® i2000, controlled via SCSI; Scalar 24/100/1000/10K controlled via SCSI
- Sony® DMS-B35, DMS-PSC Petasite and CSM libraries with 3rd party LCP from Sony
- Ampex® 712 and other SCSI-attached libraries with 3rd party LCP from Ampex

Supported Backup Utilities

- XFS® Dump & Restore
- Legato NetWorker®
- Atempo™ Time Navigator®
- Other utilities that use DMAPI

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