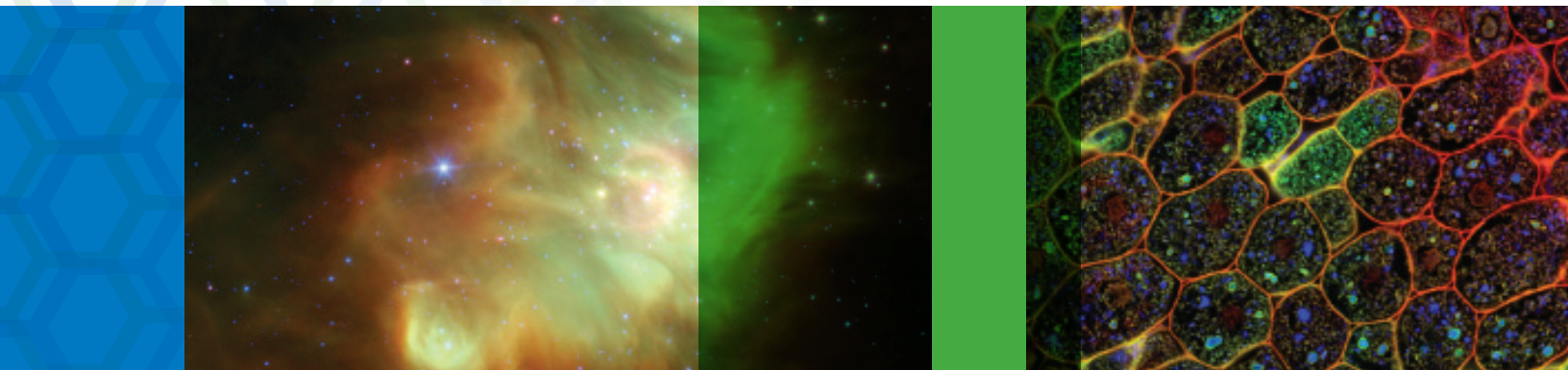# **SGI** InfiniteStorage System Manager (ISSM) for IS5500 & IS5000 systems

Simple and powerful tool to deploy and manage your IS5500 & IS5000 storage systems

Key Benefits

Powerful, Intuitive Management

InfiniteStorage System Manager Features Enable Worry-Free Technology

Configuration Flexibility

Overview

SGI InfiniteStorage System Manager Storage Manager Software offers a powerful, easy-to-use interface for administering SGI IS5500 & IS5000 storage systems. With ISSM software, storage administrators can achieve maximum performance and utilization of their storage through extensive configuration flexibility and custom performance tuning. And ISSM software's online administration, advanced protection features, and extensive diagnostic capabilities mean that data is always available and fully protected when it reaches the storage system.

With the new and innovative features found in ISSM 10.83 and 10.84, SGI has extended the "Ease of Use" strategy further by incorporating DDP (Dynamic Disk Pools) and thin provisioning features.

Intuitive GUI

Blending robust functionality and ease of use, ISSM software is well-suited for both full-time storage administrators who want complete control over their storage configuration and part-time system administrators who prefer an intuitive interface and wizards designed to simplify storage management.

Configuration Flexibility

Every environment is different, with different priorities in regard to performance, data availability, and capacity utilization. ISSM software's configuration flexibility means that an IS5500 or IS5000 storage system can adapt to wide-ranging requirements and meet the characteristics desired for a specific volume. This is especially important in high-performance environments with varying and often drastically different workloads and performance demands. This industry-leading flexibility enables ISSM software to best match application requirements, resulting in higher performance, more efficient utilization, and lower storage costs.

Dynamic Disk Pools (DDP) = Effortless Data Protection

Patent pending Dynamic Disk Pools (DDP) greatly simplifies traditional RAID management by distributing data parity information and spare capacity across a pool of drives, also enabling easier future capacity expansion and greater protection. DDP offers improved data protection by quickly recovering a failed up to 8X faster than traditional RAID while maintaining greater performance.

A key concept of DDP is the dynamic rebalancing of data during changes in the number of drives, whether adding drives or in the case of drive failure. Unlike a traditional RAID volume group's rigid configuration with a specific number of drives, Dynamic Disk Pools can optimize from a minimum of 11 to the maximum supported by the IS5500 or IS5000 system. The result is protection of data in MINUTES VS DAYS.

The four key tenets of DDP technology are:

- Elimination of complex RAID management
- No idle spares to manage
- No reconfiguring of RAID when expanding
- Significantly reduces performance impact following a drive (or multiple drive) failures when compared to traditional RAID schemas

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High Availability and Data Protection

When data is trusted to your storage system, accessing and protecting that information 24/7 is crucial to a company's future. ISSM software goes above and beyond the basic high-availability features to significantly improve data availability, integrity, and protection. Its automated I/O path failover and extensive online configuration, reconfiguration, and maintenance capabilities mean that your data is always available. And with ISSM's advanced protection technologies such as data-at-rest encryption, proactive monitoring, background repair, extensive diagnostic, remote mirroring, volume copy, and SnapCopy features, data is fully protected when it reaches the storage system.

With the new IP Mirroring feature found in ISSM 10.84, customers now have a cost-effective way to leverage common ethernet infrastructure, for protection from site failures through the use of existing ethernet networks. Available for both 1G and 10G, the use of network convergence reduces costs and complexity over comparable FC deployments.

Online Administration

With ISSM software, all management tasks can be performed while the storage remains online with complete read/write data access. This allows storage administrators to make configuration changes, conduct maintenance, or expand the storage capacity without disrupting I/O to attached hosts. ISSM software's online capabilities include:

- Dynamic expansion enables administrators to add new drive modules, configure volume groups, and create volumes without disrupting access to existing data.

- Dynamic capacity expansion adds up to two drives at a time to an existing volume group, introducing free capacity for volume creation or expansion and improving the performance of the volumes residing on that volume group.

- Dynamic volume expansion (DVE) allows administrators to expand the capacity of an existing volume by using the free capacity on an existing volume group. And DVE concatenates (combines) the new capacity with the original capacity for maximum performance and utilization.

- Dynamic RAID level migration changes the RAID level of a volume group on the existing drives, without requiring the relocation of data.

- Dynamic segment size migration enables administrators to change the segment size of a given volume.

- Dynamic mode switching allows administrators to switch from one remote mirroring mode to another—for example, from synchronous to asynchronous—without suspending or breaking the active mirror.

- Dynamic defragmentation rearranges volumes and consolidates free capacity within a volume group, resulting in optimized access patterns for existing and newly created volumes.

- Nondisruptive controller firmware upgrades mean no interruption to data access.

Thin Provisioning - Improve Storage Efficiency by up to 33%

Eliminates over-provisioning of storage by automatically allocating storage internally, only as it is actually used while reporting full allocations to hosts, significantly lowering storage use and future storage purchases.

This results in reduced storage TCO (Capex and Opex) by reducing initial acquisition capacity and improving utilization.

The key tenets of Thin Provisioning are:

- No more guessing how much storage an application really needs…

- Eliminates initial storage purchases based on inflated estimate usages

- Eliminates error-prone emergency, out of space activities

- Significantly improve storage utilization rates, up to 33%

- Easy One-time Management at volume creation

  - Auto grow takes care of usage expansion up to the maximum

Premium Software Features

SSD Cache provides intelligent read caching capability to identify and host the subset of the data that is hot on the SSDs. Since this caching approach works in real time and in a data driven fashion, it remains always on. Users are not required to set up complicated policies to define the trigger for data movement between tiers. Set it and forget it. SSD Cache accelerates data access through the caching use of Solid State Disks located in the drive trays and is expandable to 5TB per storage system.

Thin Provisioning delivers significant savings by separating the internal allocation of storage from the external allocation reported to hosts. In essence, unallocated storage is shared across multiple volumes to drastically reduce the amount of total storage capacity due to over provisioning for unknown usage.

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SGI SafeStore™ encryption services provide comprehensive security for data at rest without sacrificing storage system performance or ease of use. Drive-based, government-grade encryption means data security in the event of drive theft, as well as for routine activities such as the return of defective drives for servicing or the decommission or repurposing of drives. Key management is transparent to day-to-day storage administration, making self-encrypting drives as easy to manage as traditional drives. And for customers who want even more peace of mind, SafeStore offers "instant secure erase," providing an even higher level of data erasure over traditional methods.

Storage partitioning can create up to 512 logical systems from a single IS5500 or IS5000 storage system. Its heterogeneous host support enables storage consolidation implementations in multiplatform environments. Logical partitioning—any available volume can be mapped to any attached server—combined with InfiniteStorage System Manager software's robust configuration capabilities enables administrators to choose from a range of volumes with different characteristics to meet a server's exact needs for a given LUN. This flexibility allows a range of hosts with different capacity, performance, or data protection demands to effectively share a single IS5500 or IS5000 storage system.

SnapCopy software creates a point-in-time image, or logical copy, of a storage volume, enabling secondary servers to access a suspended version of production data for a variety of applications including backup, application testing or development, information analysis, and data mining. The capacity-efficient SnapCopy volume, which functions as a full copy but requires far less disk space, can also be used

for fast file restoration, saving the time and expense of going to a tape archive. SnapCopy groups can be established to more efficiently create multiple images of a volume with less capacity usage and performance impact. Volume Copy creates a complete physical copy (clone) of a volume in a storage system. The clone volume is a unique entity that can be assigned to any host and used by applications that require a full point-in-time copy of production data (such as backup, application testing or development, information analysis, or data mining) without affecting the performance of the production volume. And because the clone volume can have completely different characteristics from the original volume—for example, it can reside on a different volume group with different RAID level and different configuration settings—Volume Copy gives storage administrators maximum flexibility.

Remote volume mirror (RVM) protects the information stored on your SGI IS5500 or IS5000 storage system by continuously replicating (mirroring) local data to a remote storage system. For each set of volumes that make up a mirror pair, RVM supports a variety of replication options to give administrators the flexibility to optimize data protection and utilization. RVM's robust functionality includes multiple data transfer modes (synchronous and asynchronous), dynamic mode switching from one mode to another without suspending or breaking the active mirror, suspend/resume with delta resynchronization, and the ability to create a volume SnapCopy copy of the remote data while the mirror remains active. Additionally, support for cross-mirroring enables two separate systems to function as remote disaster recovery sites.

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