

SGI InfiniteStorage NAS - A Well Kept Secret

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Abstract: SGI customers are aware of its formidable NAS solutions however many mainstream corporations don't know they are even in the storage business. This ESG brief report discusses the SGI InfiniteStorage NAS system, one of the most scalable and high performance solutions in the market today.

The NAS market is very healthy with approximately \$2 billion in annual revenue with a compound annual growth rate (CAGR) of approximately 15 percent. The leading NAS vendors include NetApp and EMC with both having the lion's share of the market. The other leading storage vendors including HDS, HP, IBM and Sun are just getting around to paying more attention to NAS. The entry-level NAS market is owned by Microsoft and Adaptec with its acquisition of Snap Appliance. Additionally, there are a handful of startups and emerging storage vendors that have developed next generation, technically compelling NAS solutions that have scalable file systems, are easy to use and provide extremely scalable performance. And there is SGI.

SGI has actually sold a fairly large number of its InfiniteStorage NAS solution to its core markets including Energy, Media, Sciences, Oil and Gas, Manufacturing and Government. In fact, ESG believes that today SGI is in the top five of NAS vendors in terms of revenue. However, SGI is practically unknown to the mainstream market although InfiniteStorage NAS would provide excellent value for these customers. The SGI InfiniteStorage NAS solutions provide the following features and capabilities:

- Supports up to 100 TB in a single file system with theoretical support of up to 18 million TB (18 Exabytes)
- Up to 504 TB capacity in a single physical system
- Scales up to 64 nodes in a single cluster
- The 2000 and 3000 series that differ in physical storage capacity, processors, host ports and cache memory
- NAS gateway support
- Differential snapshot
- Synchronous remote mirroring
- NFS and CIFS support
- FC and SATA disk drive support
- Automated tiered storage

Extremely Scalable

The SGI InfiniteStorage NAS solution is a next generation storage system that is provided by a company that has nearly \$850 million in total annual revenue. The SGI NAS file system has a theoretical limit that is off the charts (18 Exabytes) and has been tested with a maximum of 100 TB. Compare this to the two leading NAS solutions from EMC and NetApp that each support up to a maximum of 16 TB. Having a large file system is much easier to manage than dozens and potentially hundreds of individual smaller file systems.

Table One: Hardware Resources per Node

SGI NAS Model	CPUs	Memory	Host Ports	Maximum Capacity
Entry	2	2-6 GB	2-6	168 TB
Midrange	4	4-8 GB	4-8	392 TB
Power	8	8-16 GB	4-15	504 TB
Altix	2-16	4-32 GB	4-32	504 TB

The hardware resources provided by the SGI InfiniteStorage NAS solution are very competitive especially when considering the system can support an extremely scalable file system. Additionally, customers can add more nodes to the cluster to expand beyond the hardware specifications described in Table One. Customers can add up to a maximum of 64 nodes. This puts the SGI in a different class compared to the other leading NAS vendors in terms of scalability. NetApp can only support up to two nodes and EMC up to 14 nodes in a single cluster.

The implications of the level of scalability supported by InfiniteStorage NAS are compelling. Traditional NAS systems have capacity limits that are rarely fully realized since other resources such as bandwidth, cache memory and processing power are likely to become the bottleneck. This is one of the advantages of the SGI InfiniteStorage NAS. It can support large amounts of capacity and also make it practical for customers to do so. Customers can scale InfiniteStorage NAS from a two-node controller configuration and just keep adding nodes as the demands of their environments change. The InfiniteStorage NAS can potentially reduce capital and operational costs significantly. With the SGI InfiniteStorage NAS system the customer only has to add another controller node, which costs far less than acquiring a whole new system, its associated software and additional maintenance charges.

Since the InfiniteStorage NAS uses a clustered network architecture it is one logical system regardless of how many nodes are in the cluster. This means that system administrators still have only one logical system to manage as more nodes are added. It should be essentially as easy to manage a two-node InfiniteStorage NAS system as it is a 64-node system.

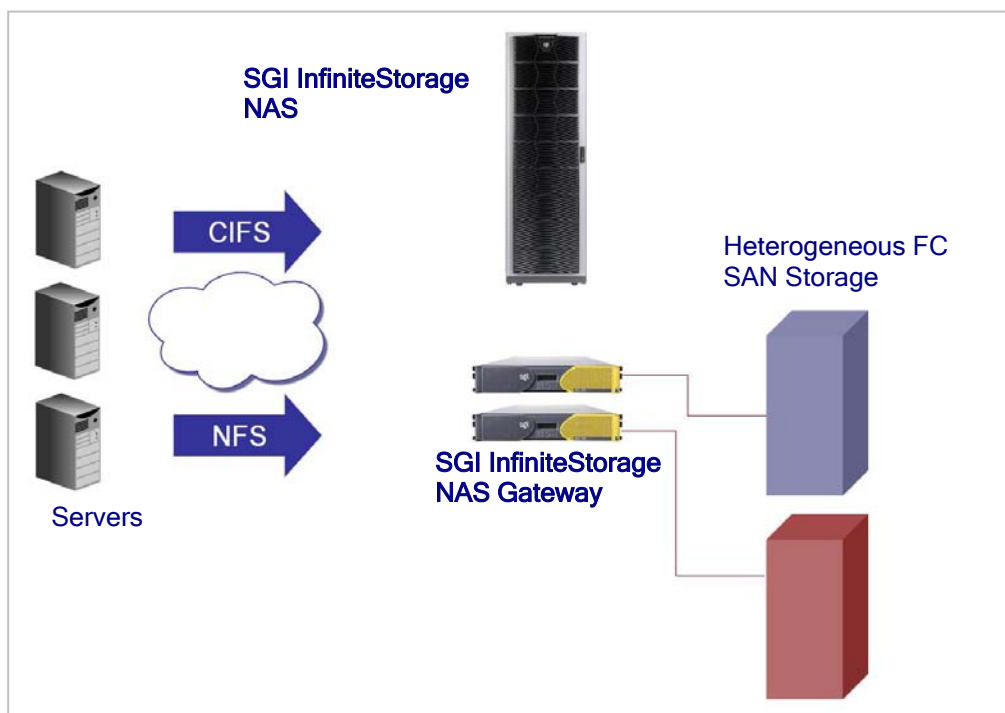
Gateway Support

The SGI InfiniteStorage NAS can also be implemented as a NAS Gateway. This enables customers to use their existing storage systems with InfiniteStorage NAS. Customers are embracing NAS gateways since it allows them to leverage the investment they have already made in existing storage systems.

Automated Tiered Storage

SGI also provides tools to move data transparently and online between different tiers of storage. Customers can move data between FC and SATA drives with the InfiniteStorage array based on price/performance requirements of the application. Customers can save thousands of dollars implementing a tiered storage strategy and SGI provides the tools to accomplish this non-disruptively.

Figure One: SGI InfiniteStorage NAS and NAS Gateway



Call to Action

The SGI InfiniteStorage NAS is a compelling and competitive solution that too few in the mainstream market know about. SGI is very focused on its core markets but rarely looks around at the rest of the world. Perhaps it is smart for them to stick to what they know. However, the other storage vendors will also go after the Energy, Oil and Gas, Sciences, Government and Media markets and seek to take away these customers from SGI. Then where does SGI go from there? ESG recommends that SGI go after its competitors' markets as its competitors go after its markets. SGI is not a startup or emerging company and can use its resources to challenge the NAS leaders. SGI is armed with a next generation NAS solution that is field proven with a large number of customers they can use as references. And even if SGI decides not to branch out to mainstream corporations directly they should consider partnering with another vendor that knows how to sell to that market.

ESG's View

The NAS market is heating up with all the major storage vendors getting into the game. SGI has an advantage over many of the other vendors since it has a relatively large installed base, an extremely competitive solution and years of experience supporting its NAS customers. The InfiniteStorage NAS is an impressive product with a large scalable file system and clustered network architecture; rich-feature set, gateway option, and automated tiered storage. It makes sense that SGI has such an impressive NAS solution since they are a file system company and have been innovating in the field for years. SGI needs to grow beyond its vertical markets and get further into the mainstream if it is to get to the next level of success. As we all know, technology is only part of the battle and they have done a good job in this regard. However, if no one knows about InfiniteStorage NAS and all the things it can do, how does that benefit anyone except for SGI's competition? This lack of awareness isn't good for SGI but more importantly it doesn't give customers the chance to evaluate a solution that could be exactly what they are looking for.

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