

Combine SAS servers and storage with iSCSI over a single unified SAN

LSI and Chelsio work together to extend the benefits of SAS to existing IP based storage networks



Highlights

- The LSI® SAS 6160 Switch enables servers and storage over SAS for a high performance, cost-effective SAN solution
- Chelsio extends switched SAS SANs to iSCSI networks with the Unified Storage Router USR-1100 SAS

Product Overview – LSI

- The LSI SAS 6160 Switch is a ½ width, 16-port switch in a 1U form factor. The switch extends the capabilities of SAS in direct-attached storage (DAS) environments by allowing multiple servers to connect to one or more independent storage systems. The SAS6160 switch can provide customers with a lower-cost and easier to use storage networking option for storage installations in cloud computing, mega data-center and small- to medium-sized business (SMB) environments, over separations of up to 25 meters.

Product Overview – Chelsio

- The Chelsio Unified Storage Router (USR) performs as a 10G iSCSI-to-SAS gateway that extends the SAS storage investment with the ability to integrate low-cost Ethernet-connected servers into the SAN, without requiring additional storage arrays or management costs. The USR offers a high-performance iSCSI-to-SAS mapping, providing a solution for building a modular multi-protocol SAN design with increased scalability, stability, and ROI on storage infrastructure.

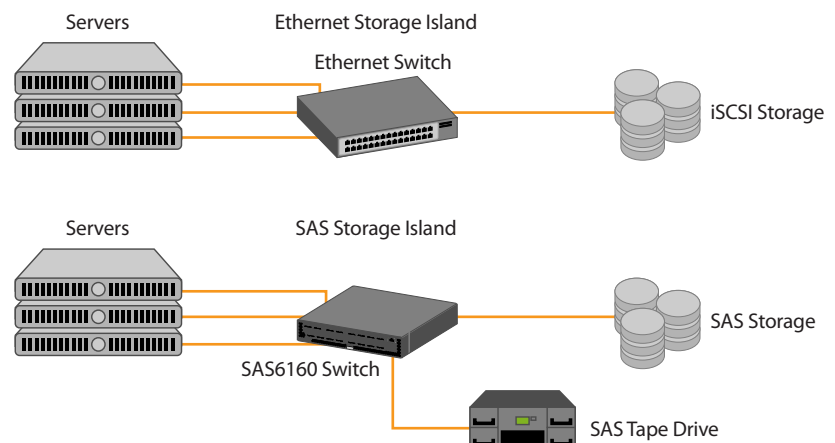
As businesses work to manage the continual growth of data they often add new servers with high performance SAS-connected storage to their data centers. This solution offers high speed access to storage, but it also creates “storage islands” in that only the server that is directly connected to the storage is able to access it. For shared storage, many organizations have turned to iSCSI. While iSCSI storage does offer the benefit of shared storage, it does not share the storage that already exists and cannot efficiently match the performance of SAS. Now, LSI and Chelsio offer solutions that are able to share storage over SAS and iSCSI on a single, unified storage area network.

Islands of Data

For all the talk of storage consolidation within the datacenter, many companies have their data spread across a variety of storage technologies and solutions. Two of the most common include SAS, either as a direct attach or as a SAN attach solution, and iSCSI. As data storage requirements continue to grow, it becomes important to be able to connect these different technologies to share data between them and to backup data efficiently.

SAS has long been the de facto standard for the connection of high performance, direct attach storage to servers. With the advent of SAS Switches, SAS became not just one of the highest performing SAN technologies, it became one of the least expensive. According to published IDC numbers*, for systems that cost less than \$150,000, the average cost of a switched SAS storage system is less than half of the average fibre channel solution. Similarly, for iSCSI as well, with switched SAS having an average cost that is a third less than iSCSI. This is despite the fact that iSCSI is generally considered the low cost network storage solution.

Due to its perceived low cost and ease of use, iSCSI has become an increasingly popular storage networking solution. According to IDC*, iSCSI accounts for more than 40% of all storage network units sold today for systems that cost less than \$150,000. The real world result is that data centers are finding themselves with a mixture of SAS direct attach storage and iSCSI SAN storage.



About LSI

- LSI Corporation (NYSE: LSI) designs semiconductors and software that accelerate storage and networking in datacenters and mobile networks. Our technology is the intelligence critical to enhanced application performance, and is applied in solutions created in collaboration with our partners. More information is available at www.lsi.com.

About Chelsio

- Chelsio is a leading technology company focused on solving high performance networking and storage challenges for virtualized enterprise data centers, cloud service installations, and cluster computing environments. Now shipping its fourth generation protocol acceleration technology, Chelsio is delivering hardware and software solutions including Unified Wire Ethernet network adapter cards, unified storage software, high performance storage gateways, unified management software, bypass cards, and other solutions focused on specialized applications.

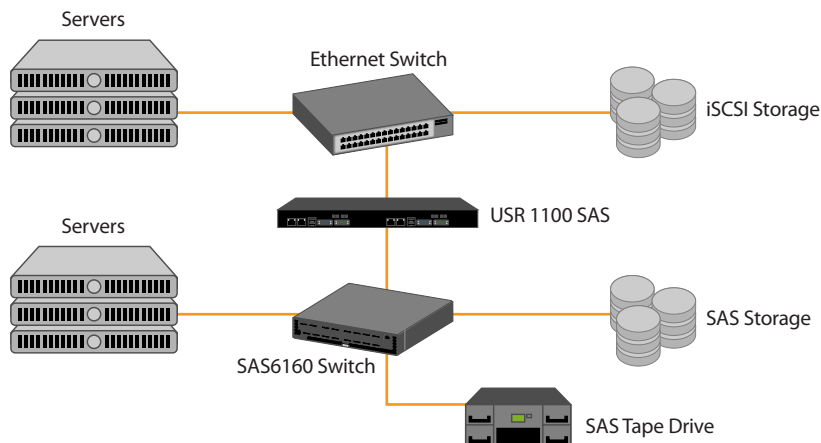
For More Information

You can use these solutions to connect your storage today. For more information contact ChannelSolutions@lsi.com for more information.

Bridging the Gap

One of the main challenges of having data spread across multiple platforms is having the ability to share that data. Now solutions from LSI and Chelsio allow data centers to bridge the gap between switched SAS and iSCSI.

Direct attach SAS has long been the standard for connecting external storage solutions to servers. However, as more and more datacenters see the need for shared storage they have looked to replace existing DAS storage with SAN solutions. The LSI SAS 6160 Switch eliminates the SAS "storage islands" of direct attach storage environments, preserves the existing storage investment and enables the independent growth of servers and storage. By allowing resources to be shared across multiple hosts and managed effectively through the SAS Domain Manager (SDM) utility program, the LSI SAS Switch helps customers maximize storage resource utilization and simplify storage management, backups and upgrades.



While the LSI SAS 6160 Switch allows servers and storage to be networked over SAS, easily connecting that SAS storage to an iSCSI SAN has remained a challenge. Chelsio is able to solve this problem with the Unified Storage Router USR-1100 SAS, which allows for 10GbE and 1GbE iSCSI to SAS connectivity. The USR-1100 extends SAS storage investments with the ability to integrate previously purchased Ethernet connected servers into the SAS SAN without requiring additional storage arrays or management costs.

A further benefit of connecting iSCSI storage to the SAS SAN is that the iSCSI storage will then have access to existing SAS connected tape solutions. Tape remains the primary method of long term data backup and SAS connected tape drives are actually growing in market share. As companies look to add iSCSI storage the ability to easily connect existing backup and archive solutions becomes critical.

By taking advantage of the LSI SAS 6160 Switch to network SAS connected servers and storage data centers are able to eliminate existing SAS storage "islands". iSCSI has become a common technology to easily add shared storage, but cannot connect to an existing SAS infrastructure. The Chelsio USR-1100 SAS solves this by bridging SAS and Ethernet networks. When combined, these solutions are able to create a single unified storage network encompassing the existing iSCSI infrastructure and enabling growth for the future in SAS.

For more information and sales office locations, please visit the LSI web sites at: lsi.com lsi.com/contacts



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*IDC Worldwide Quarterly Disk Storage Systems Tracker
2012Q1, Publication date June 7, 2012

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