

StorTrends Whitepaper

“ Introduction to IP Storage ”

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1. IP Storage Overview

Network storage to many customers can seem to carry a generic meaning. Whether it means keeping data in a widely accessible network, or archiving data in a fault tolerant system, network storage is all of that and more. IP Storage has grown in leaps and bounds in recent years. Low cost and increased optimization has provided the opportunity for network storage solutions with enterprise class features to be deployed across many different configurations. An IP based storage area network utilizes Internet Protocol to create a SAN or NAS environment over a company's standard Gigabit Ethernet. Figure 1.1 shows how IP storage solutions can take advantage of an existing Gigabit network to provide the storage companies need. There is no need to invest in expensive new cabling, training or products because iSCSI technology can provide the same features at a fraction of the cost.

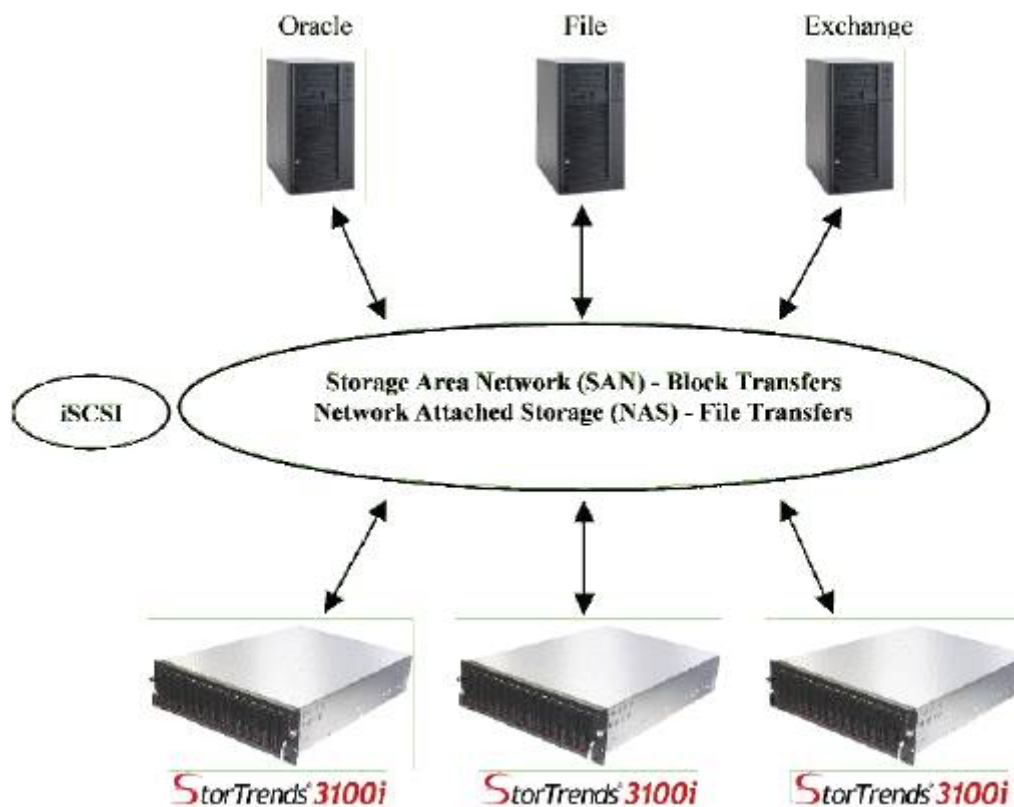


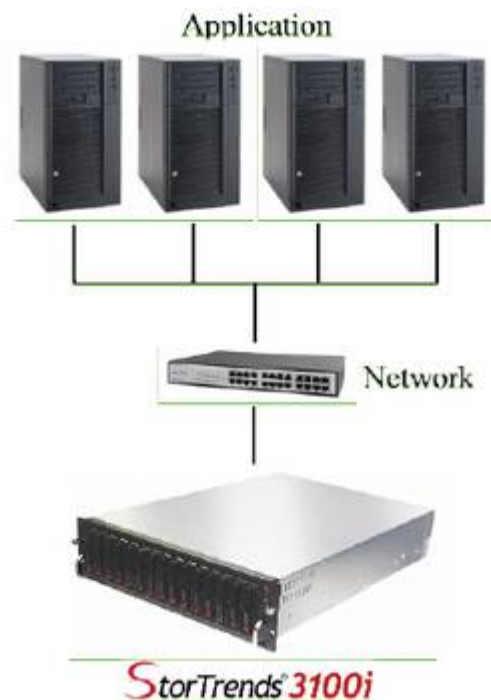
Figure 1.1 - IP Storage Diagram

2. Storage Options: IP SAN

IP based Storage Area Networks (SANs) provide block level I/O transfers across a network. These solutions are a quickly growing option to network storage requirements. An IPSAN provides all of the enterprise class features that high cost fibre channel SANs can provide while utilizing the current network. This advantage decreases cost, installation time, removes distance limitations, and provides an easy to manage network solution customers want.

An IPSAN provides the availability for a networked server to be able to connect remote targets through block level I/O transfers to disks and tape drives. Block level programs such as ORACLE or Exchange Server use this type of infrastructure. In most deployments, storage area networks sit in a special purpose network where high-speed and availability is needed. They are usually clustered together and can be extended to remote locations to provide backup in specialized storage centers.

IPSAN solutions provide features such as Snapshots, Replication, Virtualization, Disk to Disk Backup, Disaster Recovery, Storage Consolidation, and Clustering. By taking advantage of a pre-existing IP Network, IPSAN solutions can provide a network storage solution that otherwise may have been very difficult, and expensive to deploy.



*Figure 1.2 : Typical
Deployment Structure of an
IPSAN/NAS environment*

3. Storage Options: NAS

Network Attached Storage (NAS) provides file-based storage over an IP Network. This allows many users the ability to access the same files across a network without interrupting an application server. NAS storage appliances allow users to connect through a standard ethernet network to a file system. These appliances provide fault tolerant storage to network users in an attractive price range.

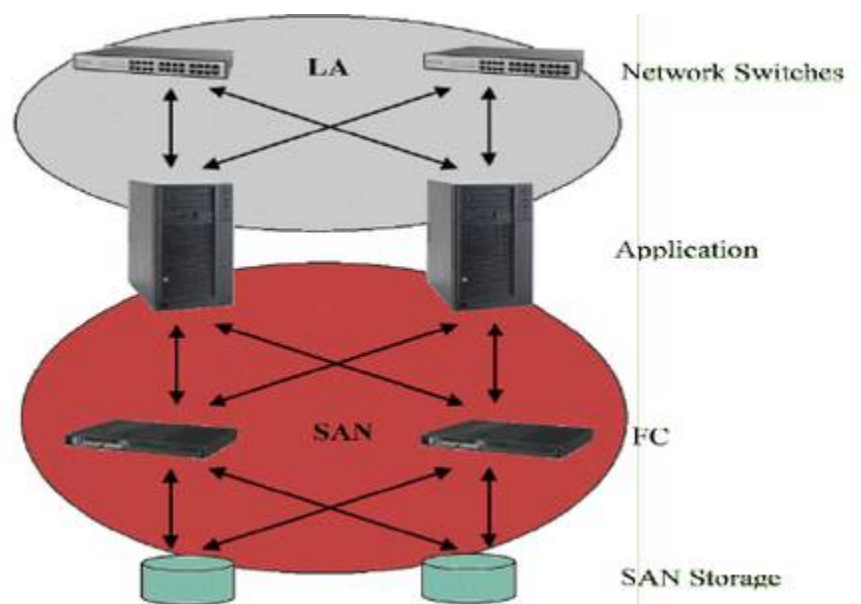
Advantages NAS appliances provide include the ability to no longer be limited by the number of disks a server can hold, use of well established protocols such as NFS and CIFS, and use of existing ethernet infrastructure. NAS appliances are gaining momentum by combining today's newest technologies with existing network functionality. SATA and SAS drives are the most common form of storage being used in NAS appliances. Combine this with dual or even quad Gigabit ethernet ports, NAS solutions have evolved into an efficient solution to network sharing.

4. Storage Options: Fibre Channel SAN

Fibre channel SAN environments are specialized, expensive, solutions in the networking world. While providing high performance, Fibre channel SANs have many drawbacks leading to difficult and costly implementations.

Fibre channel solutions have been available for a considerable time-frame, yet they still have to agree upon one open standard. Because of this, different fibre channel vendor's products may not be compatible within the same network. Fibre channel networks also require specialized personnel, networking cable, and network switches to operate. These networks also have physical limitations in that devices cannot be distributed across a network more than 10 km in length. This generates problems for Replication and Disaster Recovery to another storage site.

Figure 1.3 : Typical Deployment Structure of a Fibre Channel SAN



Fibre channel solutions are deployed across specialized dedicated networks. These networks must be managed by trained professionals, and require a great amount of planning to be implemented successfully. Some companies have reduced costs by using multi-stage switches within their networks. By saving this cost, the fibre channel network does not have dedicated bandwidth, and the switches become a performance bottleneck reducing the network's efficiency.

5. Why should you deploy IP/Storage?

IP storage is a fast growing alternative to the traditional Fibre Channel SAN environment. Fibre channel issues are frequently seen as the reason widespread acceptance of SANs has yet to be realized. With the emergence of IPSAN, taking advantage of common network hardware and technologies will provide a solution that is less expensive, less complicated, and provide the features needed in a SAN environment. Utilizing IP Storage allows for fewer interoperability issues and will allow a user to connect SANs around the world. Disaster Recovery and Replication can be performed from any location to provide the security and stability needed in a user's data storage.

What makes StorTrends the right choice for IP/Storage?

AMI StorTrends storage appliances come in 1U or 3U form factors. The 1U, 1100, can be configured with 250 or 500GB drives for storage of 1TB or 2TB respectively. The 3U, 3100, can also be configured with 250 or 500GB drives for storage of 3.75 TB or 7.5TB. These storage appliances can act as NAS and IPSAN within the same solution to reduce the number of data servers in a network. With fewer servers to manage, resources are freed to do tasks normally unavailable due to restricted schedules. AMI StorTrends appliances can help consolidate storage networks to reduce space and management costs.

AMI's newest appliances, the 1200 and 3200, offer the latest off the shelf hardware increasing performance and keeping costs to a minimum. The 1200 is AMI's 1U storage appliance which can be configured with SAS or SATA II disk drives. The 3200 is a 3U storage appliance which also can be configured with SAS or SATA II drives. The StorTrends 3200 chassis can offer up to 8TB using one single appliance. However, it is scalable to support up to 10 additional J-BODs for a total growth to 68TB of capacity.

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