

So, What's The Difference Anyway?

SAN

Technically, the only real difference in a SAN and a NAS is that a SAN implies a private network dedicated strictly to storage, and a NAS implies that storage is attached to the regular network. In practice, the difference has come to mean much more. The term NAS has come to be defined as storage integrated with its own file server and operating system that can attach to the network and serve files over Ethernet. The term SAN generally applies to block level storage that attaches to a network and can be carved up and presented to diverse servers and operating systems exactly as direct attached disk space.

A SAN is O/S independent, so it works seamlessly with any combination of Windows 2003, Linux, Netware, and Unix operating systems, including their authentication services such as Active Directory and NDS, and can be easily used by applications such as Microsoft Exchange and SQL. A SAN is a block level device, with no file system overhead, so it is much faster than a NAS, and it is not vulnerable to a virus attack that could hit a NAS operating system and render the whole device inaccessible. Essentially, a SAN adds storage to existing file servers, and performs exactly as direct attached storage, even though it is actually network attached. Capacity can be added and removed without interruption to any server operations, and resources are easily consolidated for allocation and reallocation as site requirements change.

NAS

Why would anyone buy a NAS if they really needed a SAN?

A NAS works with the existing Ethernet infrastructure, and is a very simple and affordable addition to the network. Until recently, you needed a costly, complicated Fibre Channel infrastructure to implement even the simplest SAN. The cost to install a FC SAN storage device is at least 10 times the cost of a comparable NAS device. But all of that has changed with advances in technology that make it incredibly affordable to add a true, dedicated storage area network to coexist with your existing IP network. Now, you can easily build an iSCSI SAN using the common Ethernet networking components you already know and love.



The Cost Difference Between a Fibre Channel SAN and an Ethernet SAN is Staggering

The cost of the FC network is just prohibitively expensive when compared to an Ethernet network. And of course the FC storage devices are significantly more expensive than Ethernet attached devices. Optical cable costs alone are easily five times the cost of shielded CAT 5E. If you need distances of more than the 3 meters used in this example, the costs of the Fibre Channel network can multiply out of control. It is easy to see why an IT manager in a small to medium business may have decided to make due with a NAS even if it did not provide great performance, or even work particularly well with all of the important applications. But the coming of age of iSCSI technology delivers affordable SAN technology to businesses of every size.

Don't Settle For A NAS If You Need A SAN

Let's Take A Look At The Cost To Implement A Very Simple SAN.

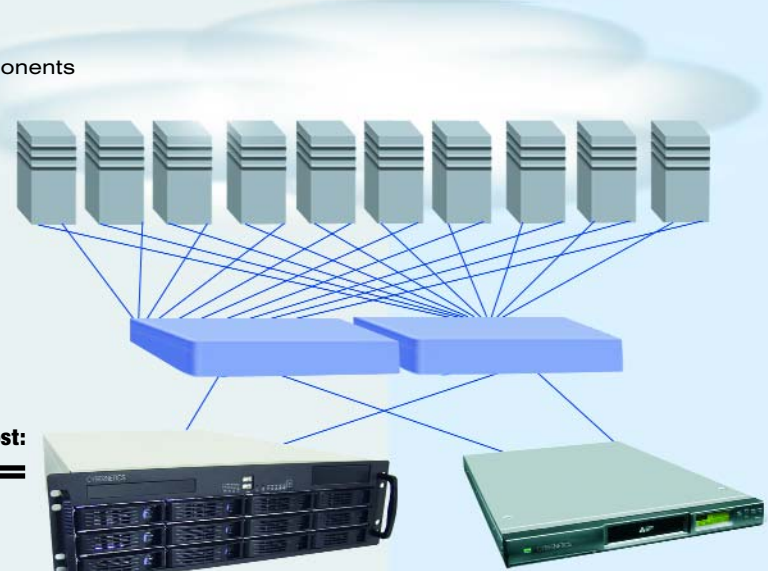
To make certain the performance comparison is completely fair, we will go with a very low cost FC network and a fairly sophisticated Ethernet network:

Fiber Channel Network Components	Ethernet Network Components
① Fibre Channel Switch, 12 Ports	① Managed Ethernet Switch, 12 Ports
⑩ FC Host Bus Adapters So Each Of 10 Servers Has Access To The SAN	⑩ Intelligent NIC's With TOE And Jumbo Frame Support To Attach 10 Servers To The SAN
⑫ 3-Meter Fiber Optic Cables, And The Necessary SFP And/Or MIA Connectors	⑫ 3-Meter Cat 5E Cables
Fibre Channel Infrastructure Total Cost:	Ethernet Infrastructure Total Cost:
\$15,000	\$2,500



Let's implement fail-over redundancy to insure uninterrupted access to your consolidated storage resources to take advantage of the excellent availability of SAN:

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⑫ 3-Meter Fiber Optic Cables, And The Necessary SFP And/Or MIA Connectors	⑫ 3-Meter Cat 5E Cables
Fibre Channel Infrastructure Total Cost:	Ethernet Infrastructure Total Cost:
\$30,000	\$5,000



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CYBERNETICS