

Did You Know!

Interesting Articles and Facts regarding SAN's



Experis Technology Group, Inc

Special points of interest:

- Virtual SAN's bring order to chaos.
- Top "real" reasons for implementing a SAN
- Networked Storage Advisor Service
- HBA incompatibility
- Networked Storage Advisor

Inside this issue:

HBA incompatibility	1
Serial ATA Takes on SCSI	1
Virtual SAN's bring order to Chaos	2
Networked Storage Advisor	2
Top "real" reasons for implementing a SAN	3
What is NAS?	3

HBA incompatibility can cause problems

When building your SAN, be aware of a potential trouble spot: incompatible host bus adapters (HBAs). Even minor discrepancies among these essential pieces of equipment may mean the difference between a SAN that works well and one that doesn't.

HBAs are storage software cards that connect a server to storage devices by plugging into the back of a host I/O bus. However, when there are multiple types of hosts in a SAN — each with different operating systems and attached to multiple vendors' storage devices — HBAs can

clash. As a result, data may not be retrieved or stored properly, and in some cases storage devices won't work.

This is essentially the same problem that plagues users of printers and other peripherals. Each printer requires its own software driver, and that driver is different from the driver that powers other printers (even those from the same manufacturer). Also, the driver may or may not be supported by the newest version of an operating system, or by a specific application in the operating system.



Experis has significant experience with integrating SAN's from multi-vendor environments.

*For more information on what works together, please call :
Experis Technology at:
240-223-0607 x110 and ask for Larry Sisle*

Serial ATA Takes on SCSI

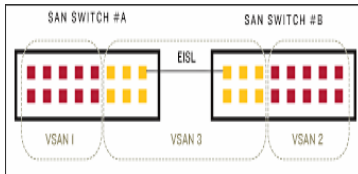
Low-cost Advanced Technology Attachment (ATA) disk arrays are already gaining ground in near-line storage and disk-to-disk backup applications, but a faster class of drive arrays that uses the new Serial ATA interface standard is likely to challenge SCSI for high-performance applications as well.

Serial ATA's biggest potential benefit lies in its price/performance. Analyst company IDC estimates that about 87% of all drives today use ATA. Economies of scale have made ATA disk arrays, at 1 to 2 cents per megabyte, much cheaper than SCSI, at 3 to 5 cents per megabyte. Serial ATA disk arrays should benefit from those same economies and could displace SCSI in small servers and even large storage arrays using the emerging iSCSI storage networking protocol.

"Five to 10 years from now, Serial ATA with iSCSI will be the dominant storage model," predicts IDC analyst Robert Grey.



Virtual SAN's bring order to chaos



VSANs enable a more flexible fabric design

Here's how a SAN could be made from two 16 ports switches that have three VSAN's: VSAN 1, which is unique to switch A, VSAN 2, which is unique to switch B and VSAN 3, which has ports in both switches. The two switches are joined by an enhanced interswitch link (EISL), which carries traffic routed between the switches as well as all

VSANs are destined to become one of the most important advances in SAN technology for many years. This new technology will let you construct fabrics as collections of ports--not collections of switches. You can also segregate not only just traffic, but fabric services, between the virtual SANs.

The result is nothing less than a new way to plan, implement, operate and manage SANs.

VSANs shouldn't be confused with storage virtualization. Instead, VSANs are all about Fibre Channel (FC) network communications. While it's true that MDS switches have excellent IP integration options, the benefits of VSANs can be achieved in a homogeneous FC SAN.

The most powerful aspect of a FC fabric is the way it spans multiple network switches to create a consistent network context for

all nodes in the SAN. In multiswitch--also called multi-element--fabrics, fabric service information is relayed over interswitch links (ISLs) and aggregated in each participating switch to form a complete, replicated instance of the fabric.

With their port-level granularity, VSANs allow a single switch to have multiple fabrics. They also allow a fabric to combine some ports from several switches. Without VSANs, you can only add to a fabric by adding an entire switch. With this flexibility, VSANs could be assigned based on the management goals of the IT organization. For instance, different business units or server/application groups could be assigned to different VSANs and managed according to cost and service level targets.

With VSANs, IT organizations can architect storage networks with distinct SAN service groups and service

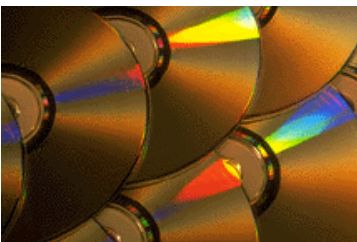
levels. There's no reason to have a one-size-fits-all fabric for every node that connects to a switch or director when it's possible to have application- or server-specific fabrics for each group of communicating nodes. A fabric that's established for a specific purpose can operate without interruption from other changes made in the SAN.

Other VSANs operating in the same switch could be created, removed or have properties changed or be connected to remote SANs through FCIP gateways--all with minimal impact on the original transaction processing VSAN. To limit the scope of changes in the fabric, VSANs create a more stable environment for all SAN users.

For more information regarding VSAN's and storage virtualization please call Experis Technology at: 240-223-0607 x110 and ask for Larry Sisle

Networked Storage Advisor

"\$5,000. Value"



Caption describing picture or graphic.

The Networked Storage Advisor is a service for IT Departments who desire to analyze and provide a comprehensive storage assessment for their company.

The instant the Advisor is installed, the IT department will have a true consolidated view of storage including used and unused disk space, total disk capacity, unallocated disk space, number of monitored servers by operating system, and utilization by application with user information.

If you would like a FREE storage assessment please call Experis Technology Group at 240-223-0607 x110 and ask for Larry Sisle, or email "lsisle@experis.com" for more information.

Can you give me the top five "real" reasons for implementing a SAN?

Experis will give you the top 13.

- Reason 1-Increased disk utilization
- Reason 2-Deferring disk procurement
- Reason 3-Terabytes (TB) per administrator improvement
- Reason 4-Reduce data center rack/floor space
- Reason 5-Deferring tape library procurement
- Reason 6-New disaster recovery (DR) capabilities
- Reason 7-Online recoverability options.
- Reason 8-Improved data path availability.
- Reason 9-Reduction of general-purpose UNIX and Microsoft Windows NT servers.
- Reason 10-Improve LAN/WAN performance, avoid costly upgrades.
- Reason 11-Reduce/eliminate backup servers.
- Reason 12-Reduce/eliminate batch, backup windows.
- Reason 13-Storage on demand.



Let Experis Technology Group send you a white paper that covers 29 complete case models of why making an investment in SAN technology is a wise investment. ROI is a very important topic especially in this economic climate. I'm sure reading this paper will help you better understand the reason SAN is such a hot topic these days. A SAN will save you money in the long run

What is NAS and why would it be implemented in a SAN environment?

Network-attached storage (NAS) is storage that is connected directly to a network such as a LAN that provides file level access to data using standardized protocols such as NFS (Network File System) or CIFS (Common Internet File System).

Computer systems can access data from a NAS over a network via a file "redirector" that changes the access to a file from the native file system (on the originating computer system) to a network operation using TCP (Transmission Control Protocol) to a remote server that is running software to provide the file system to support the individual client access. The remote server with its attached storage is the Network Attached Storage. The file system on the NAS server determines the location of the data requested by the application client whether it is in its cache or on the storage.

A simpler way to describe NAS when contrasted against Direct-attached storage (DAS) or storage area networks (SAN) is that NAS does "file-level I/O" while DAS and SAN do "block-level I/O." The file I/O done by NAS means that the NAS device is given a "File Handle:Offset" request for specific information in the file and the NAS device has the file system to be able to process that and resolve it to a specific block on a disk device. The NAS device will use block I/O to access the disk device. For DAS and SAN, block level I/O is used for all operations.



NAS is very useful for sharing files because of the file access semantics built into the protocols and because of its simplicity in installation and administration. There are valid reasons both from application requirements and from administrative issues to have SAN attached storage and NAS.



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The top five "**real**" reasons for implementing a SAN (see inside)

WWW.EXPERIS.COM

See inside for our **FREE Networked Storage Advisor Service**

Did You Know???

Did you know.... The term Open SANs, although a catchy marketing phrase, is never a given. All hardware and software on your SAN must be verified to be supported by all the vendors involved. A difficult task to complete on your own.

Did you know.... Disaster recovery for storage is not as expensive as the major storage manufacturer advertise.....Duplicating data and duplicating environments are two very different concepts.

Did you know.... With both SANs and NAS implementations growing at a fast rate, the concept of SAN/NAS integration is becoming a requirement. How is this done?

Did you know.... Many people in the industry confuse Virtual SAN's with storage virtualization. Using both together can help create an extremely stable environment.

Did you know.... Have you ever been asked why there needs to be a SAN? Inside are the REAL reasons for implementing a SAN.

Did you know.... You can find more information on the above statements inside.
