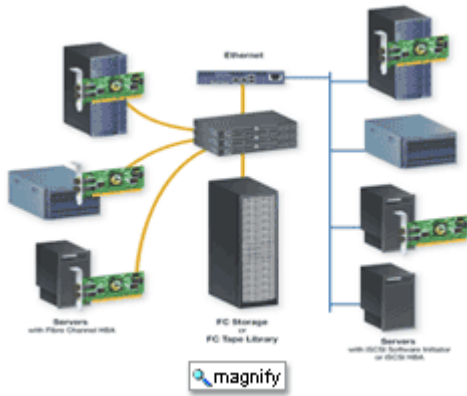


What can SANbox 6000 do for me?

Attach Low-Cost Servers via iSCSI to a Fibre Channel SAN



While approximately 20% of the servers in a data center would require the redundancy, high levels of throughput and availability offered by Fibre Channel connectivity, the remaining 80% of the servers including 1U and 2U form factor servers might have less stringent requirements. These servers might run applications like web servers, Microsoft Exchange or IT-developed applications and would usually be using Direct Attached Storage (DAS). These rack servers could also benefit from storage consolidation around highly available Fibre Channel storage if only there was a way to lower the per-server connectivity costs.

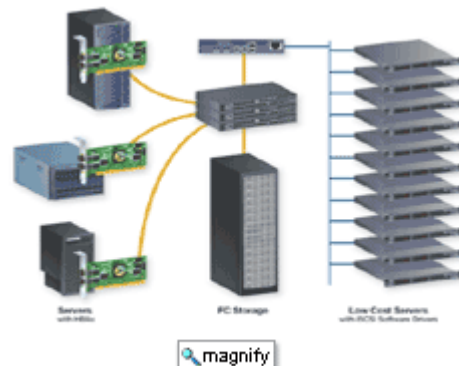
Now iSCSI software initiators (available for Windows, Linux, Solaris, and VMWare ESX 3.x) could be used with QLogic SANbox 6140 Series (or two routers mounted alongside in a 1U rack space) to allow the remaining 80% of servers to access existing highly available Fibre Channel storage. This eases the transition from Direct Attached Storage (DAS) to a storage Area Network (SAN) and improves the overall Total Cost of Ownership (TCO) by reducing the number of touch-points where storage is managed. At the same time, users of rack servers who have concerns about CPU cycles expended or who need to "boot from SAN" can use a dedicated iSCSI HBA. A dedicated iSCSI HBA would offload iSCSI and TCP processing into silicon, thus freeing up CPU cycles on the server.

Support for 512 iSCSI initiator names allows for rapid reprovisioning of rack servers without any management changes to the SANbox 6140 Series. This enables Asset Reallocation and lowers TCO.

iSCSI Interface for Native Fibre Channel Storage

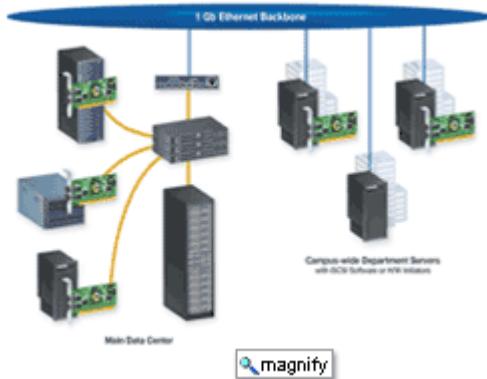
(DISK/TAPE)

Customers with existing Fibre Channel-based disk/tape storage can now front-end the storage with a QLogic SANbox 6140 Series to create a multi-protocol storage solution, in effect allowing the same storage array to now serve up both Fibre Channel and iSCSI protocols simultaneously. This provides both iSCSI and Fibre Channel hosts with a unified storage solution that provides data management, data protection and easier storage provisioning for grid applications, among others.



Campus-Wide Servers to FC SAN

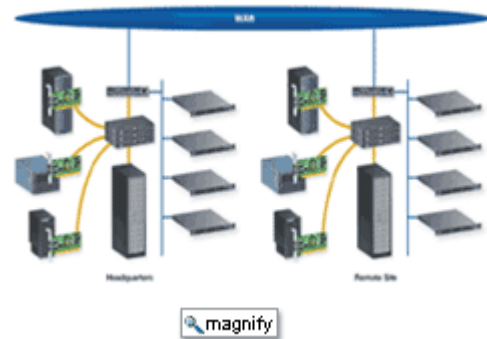
Traditionally, campus-wide department servers had their own direct attached storage (DAS), which meant multiple touch-points for storage management. While the central data center might have storage management experts resident, the remote campus-wide servers might be maintained by multiple IT generalists, adding to the Total Cost of Ownership for maintaining all the storage on campus.



If all the campus-wide servers could use freely available iSCSI software initiators or dedicated iSCSI HBAs (if they need to boot-from-SAN or would like to offload TCP/IP and iSCSI processing from the server) with a QLogic SANbox 6140 Series connecting to the

campus-wide GbE back-bone, then all DAS can be migrated to a SAN in the main data center.

This migration to a SAN results in cost efficiencies, as storage management is now a centralized function in the hands of a few storage management experts using the same set of tools previously used in the data center. Adding storage capacity becomes a simple matter of adding disks to existing arrays. All this has the end-result of lowering the TCO.



Replication for Disaster Recovery

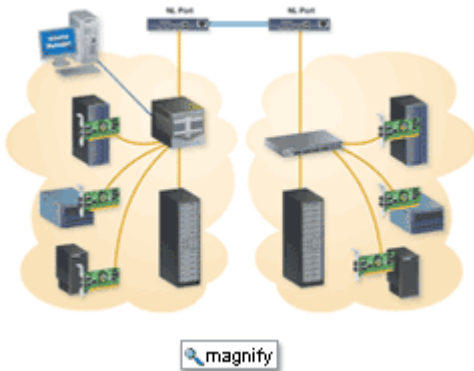
While synchronous data replication using dedicated software between two intelligent disk arrays provides for zero recovery point objectives (RPO), the solution itself is very sensitive to network latency.

Asynchronous data replication on the other hand provides low recovery point objectives and is more tolerant of network latencies. Asynchronous replication between disk arrays is the preferred choice where budget considerations don't allow for optical connections or where the distance between headquarters and a remote site exceeds 100 miles.

Now, the QLogic SANbox 6142 Series provides a cost-effective way to replicate/mirror data using storage over IP from one mid-range array at headquarters to another mid/low-end storage array at a remote site. All this can occur over an existing Wide Area Network (WAN) and more interestingly between multi-vendor arrays.

The QLogic SmartWrite™ feature provides substantial performance improvements in long distance replication write performance over DS3/T3 (44.736 Mbps) line rates. This in turn boosts the performance of third-party replication solutions over the WAN link. By reducing the number of round trip delays on WRITE operations down to one, SmartWrite becomes a "must have" feature when you implement data replication over IP networks which exhibit un-predictable latencies but in turn give you the ability to keep the sites thousands of miles apart.

Connecting A Multi-Vendor Fibre Channel SAN



In a Fibre Channel SAN, the name server maintains registration information for all ports and devices that are connected to the SAN. When a SAN grows to over 256 Fibre Channel ports, there can be issues with scaling the name server.

In addition, practical issues like security don't call for merging SANs into a "mega SAN". In a corporation, Human Resources might prefer to have their SAN isolated from an Engineering department SAN. However, both department SANs might need to share a tape library

at the data center for backup. To complicate matters, the HR SAN might use switches from one switch vendor, while the engineering department SAN might use a Director class switch from another switch vendor.

To compound this issue, multi-vendor SANs connected via E_ports invariably required losing some of the management functionality offered by one of the SAN vendors.

By using the QLogic SANbox 6142 Series to inter-connect such multi-vendor SAN switches, customers can work around this E_port connectivity issue. QLogic SANbox 6142 Series uses N_Port and NL_Ports for inter-SAN routing. Up to 4 FC SANs can be inter-connected using the QLogic SANbox 6000 Series in this manner.

The QLogic SANbox 6142 Series enables a solution where there is no longer an issue with scaling name servers nor is there a need to lose one vendor's high level switch software functionality for the sake of inter-connection with another vendor's SAN switch.

This simplifies storage provisioning across multi-vendor SANs within the data center and provides investment protection for all multi-vendor SAN equipment purchases.