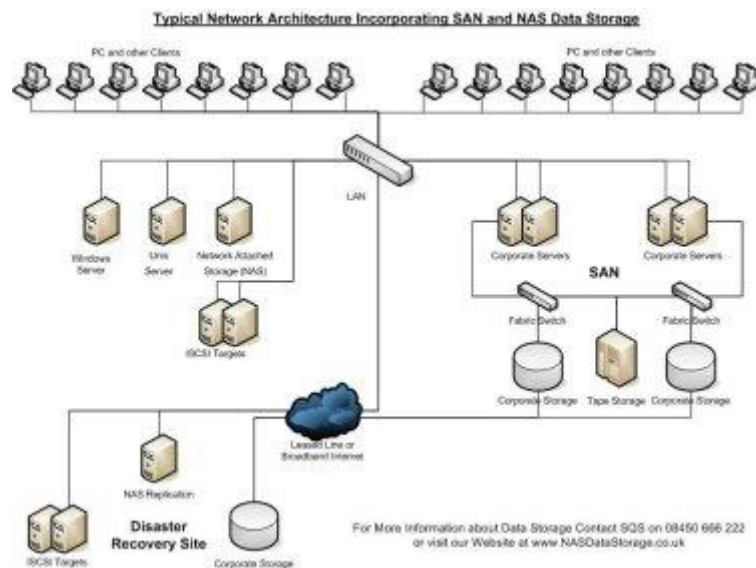


Storage Area Networks

So what is SAN?

SAN stands for Storage Area Network and is another architectural design for data storage on a corporate network. SAN networks take some advantages from [Direct Attached Storage](#) whilst retaining some advantages of the increased network performance. Data flow across the network is this time done at block level which has both advantages and disadvantages.

An advantage over [Network Attached Storage](#) is that should a file change on the SAN only the portion of the file that has changed needs to be transferred rather than the whole file, with the data being transported in a manner more akin to that seen in SCSI and other DAS systems. The SAN protocol iSCSI works by allocating a portion of the data storage to an individual server that controls the storage using an iSCSI Initiator. This method of addressing the storage allows protocols such as iSCSI to send SCSI commands over IP and this has immense benefits for the largest networks. Because the SCSI commands are now being sent over Ethernet the SCSI protocol has been freed from the short cable length limit allowing the server with an iSCSI initiator to communicate at block level with data storage perhaps hundreds of miles away and this has become ever more important for the large corporation since 9/11 and the roll of a more distant disaster recovery site has been highlighted.



True Fibre SAN or iSCSI?

Whilst a true fibre SAN is sometimes the only option for large enterprise, for many quite sizeable networks it remains too expensive to purchase and maintain whilst delivering too few additional benefits over [NAS](#) or iSCSI to be a real consideration and iSCSI is now being seen by many as the future of SAN for several reasons.

- Cable length does not restrict the location of the servers or the storage
- Cheap to deploy because existing Ethernet infrastructure can be utilised
- Easy to deploy because there are no complicated new fibre switches and HBA's to learn
- Easier manageability because existing network skills are utilised

- Better storage utilisation than local or directly attached solutions
- Lower total cost of ownership than similar fibre solutions

Common Myths about iSCSI

Myth1:

iSCSI is slower than fibre as fibre is 4Gbps and Twin Gigabit Ethernet is only 2Gbps bandwidth.

This is not so for several reasons. Firstly, for most applications the network is not the limiting factor it is actually the disk access speed. Many storage systems are not able to supply data significantly faster than 2Gbps and Dell and other manufacturers have produced several white papers showing that iSCSI has comparable performance to fibre channel. In addition, since the availability of 10 GbE network cards and infrastructure, both methods have the luxury of using these new speeds and can now have

Myth2:

Security is compromised because the traffic travels over standard Ethernet switches.

This is not true either. If Ethernet best practice is followed then there should be no security implications. Switches can be configured to use a VLAN configuration to separate the iSCSI traffic from other network traffic or sometimes a dedicated switch can be used to route the iSCSI storage traffic to the servers.

Myth3:

The manageability of iSCSI storage is more complicated

Management is actually easier with iSCSI storage because most of the management is done by the same network administrator and in the same way as before. Because of this more people already have the skills necessary to manage an iSCSI storage solution and the array management side is performed in exactly the same as a fibre solution.

iSCSI for Smaller Networks

Small off the shelf [NAS](#) boxes are now available with iSCSI for SME and midrange solutions and this brings many of the benefits of a SAN environment to smaller networks, without the disadvantage of the massive outlay once obligatory for such a solution. Since the introduction of the QNAP TS-119 Turbo NAS, iSCSI has been available to even single disk solutions and whilst most small businesses will require at least a 2 disk mirrored solution, this shows the ever expanding role that iSCSI is having in today's storage arena.

For More Information

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