



A comparison of disk storage technologies

A Management White Paper

Network Attached Storage (NAS)

Storage Area Network (SAN)

NAS and SAN

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Network Attached Storage (NAS)

Network attached storage (NAS) is a file based storage system that is accessible to users on the network, e.g. for a users home directory. NAS systems are effective for low to medium performance requirements such as general-purpose file storing.

NAS has the following characteristics:

- + Moderate performance
- + Simple set up and configuration
- + Low cost of implementation (no additional equipment is required)
- + Well suited to storage consolidation and file serving
- + Allows file sharing between heterogeneous operating systems
- + Suited to multiple small file transactions
- Ideal in general office and business environments
- Database vendors do not support their product on a NAS, these include Oracle, Sybase, Microsoft SQL and Exchange
- Performance dependent upon LAN bandwidth and design
- Degradation in performance as number of users increases
- Not suitable for large data / file transaction

Storage Area Network (SAN)

A SAN provides high performance, high bandwidth access to disk storage for data centric and database applications. SANs are effective for performance critical applications, which typically require low-level access to data, rather than 'file-level'.

A SAN has the following characteristics:

- + High performance storage supporting performance critical systems
- + Well suited to storage consolidation for high performance systems, server consolidation and clustering
- + Database vendors support their product on a SAN, these include Oracle, Sybase, Microsoft SQL and Exchange
- + High bandwidth, independent on LAN architecture
- + Independent of number of users
- + Scales extremely well
- + Ideal in data centre environments

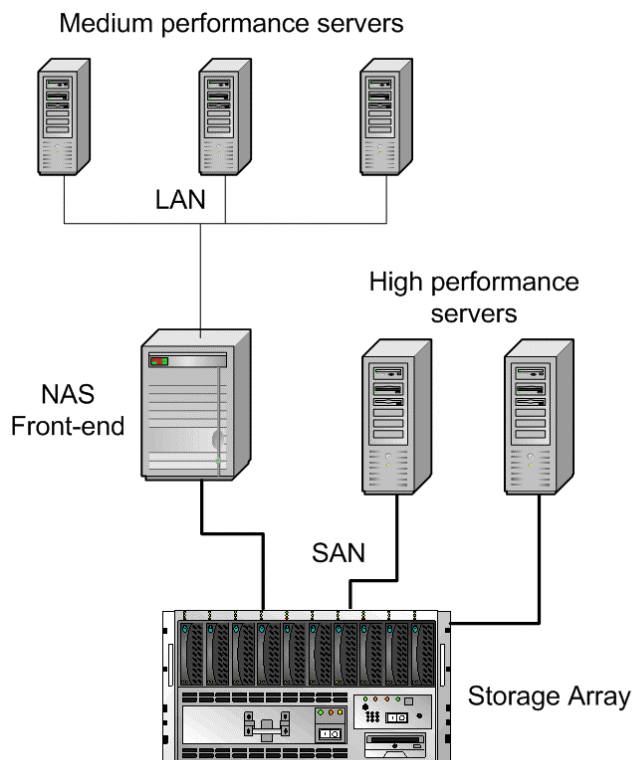
- Additional hardware required for each server
- Skilled configuration required
- Does not facilitate file sharing
- Not best suited to many small file transactions

NAS and SAN

NAS is superior for quick and easy access to data, where performance isn't critical, but where file sharing is. SAN is imperative for high performance data access such as databases and transaction processing. Most organisations have a requirement for both types of storage connectivity, but have often been forced to compromise. This is no longer the case.

It is now possible to combine both NAS and SAN within the same solution. Databases can be stored on a high performance SAN and by deploying a dedicated NAS front-end that connects directly into the SAN storage, enabling a general-purpose file store to heterogeneous clients, the best of both worlds can be achieved – storage without compromise.

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The NAS front-end connects over the SAN to the storage in the same way as the high performance servers. The NAS front-end then makes this storage available to the medium performance servers on the LAN. Additional servers can be added to the LAN and assigned storage, making medium performance access to the storage low in cost and easy to deploy.

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