

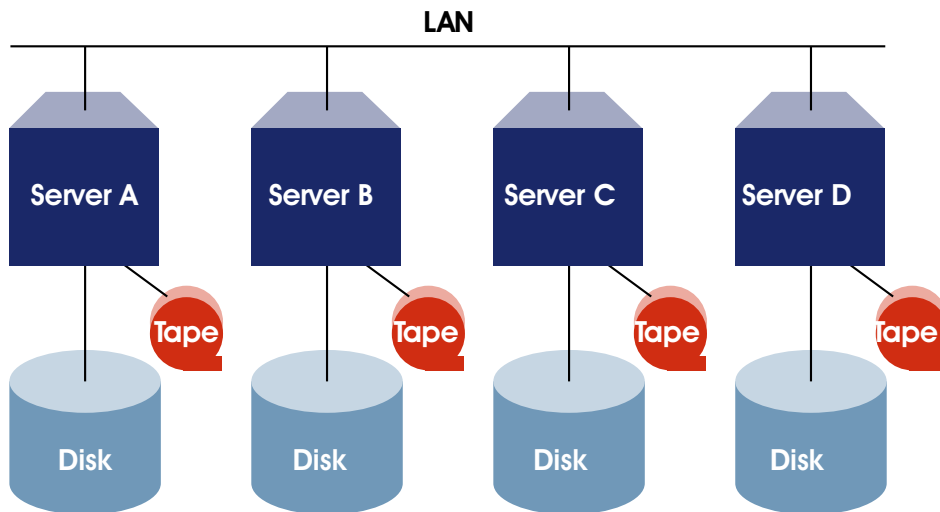


enlightenment

in a complex IT world

Storage Resource Management

The diagram below shows a typical storage environment present in many of your end user customers. Storage is inflexible, has poor availability and is poorly utilised. Management is difficult as many consoles are required to manage disparate storage systems creating inefficiencies.

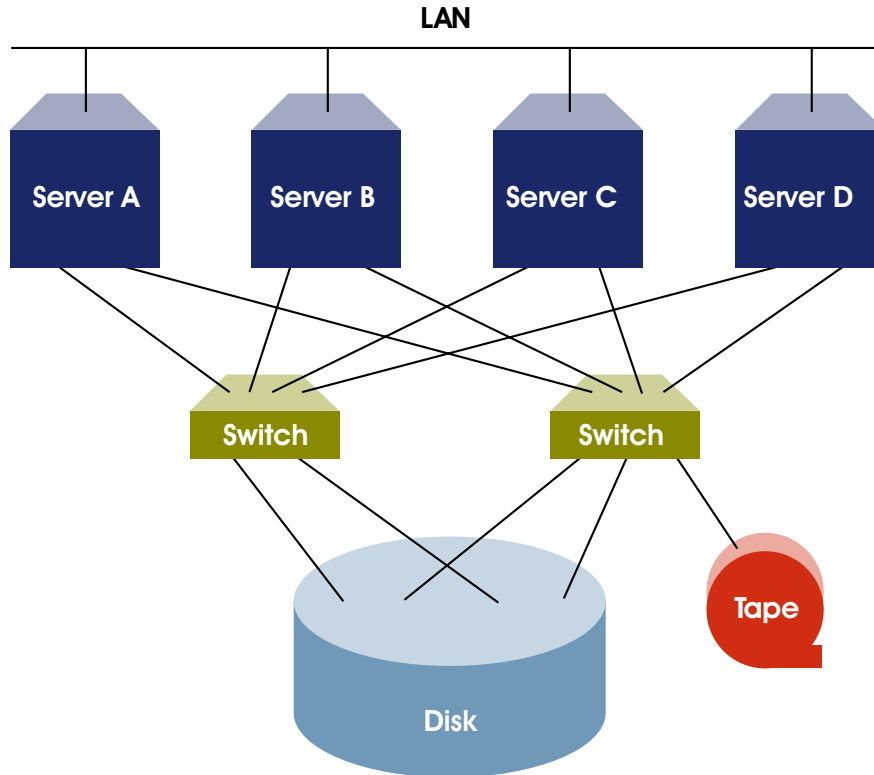


A Typical Direct Attach (DAS) or Internal Storage Environment

The table below from Gartner Group shows that consolidating storage either via a monolithic subsystem such as the StorageWorks Disk Array XP or to a Storage Area Network helps the business to scale without employing additional people costs.

Storage Type	GB managed per administrator
Direct Attach (DAS) or internal storage	200
Direct Attach – co-located	400
Consolidated Direct Attach – i.e. to Monolithic Subsystem	1600
SAN Initial Phase	2000
SAN after 18 months	8000

Also the allocation of resources throughout the environment may be poorly understood.



Typical representation of a SAN environment

Many businesses attempted to solve these problems by undertaking consolidation or SAN (Storage Area Network) projects. Whilst to an extent these would address issues such as poor storage utilisation and data availability they do not necessarily address other issues such as proactive management of faults caused either by performance or failures, asset management and capacity management (what do I have?, how is it allocated? and what do I have left?).



Customer challenges with DAS and SAN

Many of these challenges can be addressed by using Storage Resource Management software. This can be deployed in DAS, SAN and NAS environments to give a global view of storage resources across multiple platforms and multi-vendor storage systems

The key points that Storage Resource Management can address are:

Asset Management

- What storage systems there are in the environment
- A topology map of the environment

Fault Management

- Alerts for faults and errors
- Ability to launch disk system utilities from central management console to drill down and identify problems

Capacity Allocation

- What storage is allocated to which servers
- On-line allocation of storage to servers
- Data security between different operating environments

Capacity Provision

- Automated provisioning of storage from a central pool based on policies determined by the customer

Capacity Management

- What storage capacity is being used by servers so that the administrator can dynamically move storage resources around so that they are used more effectively
- How storage usage is growing in the environment and be able to predict storage growth
- Identify old and junk files so that additional storage space can be created, helping reduce spend on new storage resources

Performance Management

- Measures performance across the storage environment
- Enables identification of "hot spots" that can impact on service levels

Cost Allocation

- Metering and billing of storage usage in the environment