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CHOOSING A SERVER

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One of the questions I am often asked is 'what should I look for when purchasing a new server?' Unfortunately there is no simple answer to this question.

To ensure you acquire the most suitable server for your needs, a number of factors need to be considered.

Initially, if the server is required to perform simple file sharing (i.e. files are stored in shared folders but the server has no processing requirement, other than reading and writing to disk) then the short answer is 'just about any computer will suffice, so long as the operating system supports file sharing'. However for all other situations the answer is more complicated.

The two main criteria for a file server are disk and network speed. As long as files can be read from and written to the disk fast enough to keep up with the speed of the network adapter, all requirements are generally met and even a relatively slow processor can handle these tasks adequately.

However where the server is required to perform other tasks such as:

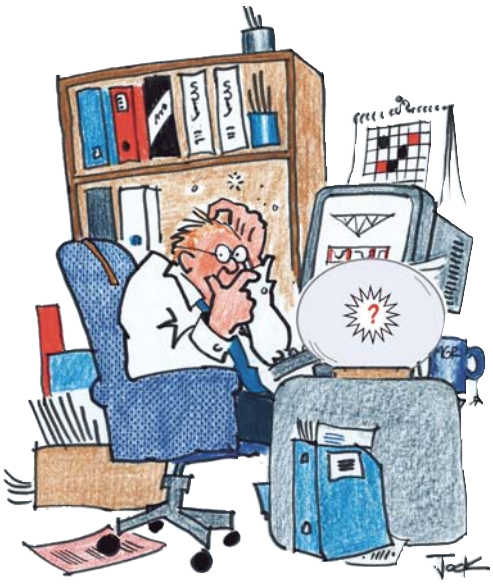
- Print server
- Logon server (domain controller)
- DHCP server (very desirable)
- DNS and WINS server
- Remote access server (dial-in access)
- Backup server (for performing backups)
- Performing the active processing of data, such as would be the case for an SQL server

then more features are required.

Added to this, anti-virus software, (an absolute "must have"), will definitely have an adverse impact on any computer's performance and a server is no exception.

There are many "entry level" servers on the market but most are little more than glorified workstations because they have no inbuilt redundancy.

Redundancy is an important requirement in a server and to help eliminate downtime when a drive does fail, servers should use RAID (Redundant Array of Independent Drives). Note however that not all RAID configurations provide redundancy, despite the name.



Normally RAID 1, 5, 10 or 50 are suitable. However choosing the most appropriate RAID is a subject in itself and cannot be covered here.

Other areas to consider for redundancy are power supplies, cooling fans and dual (or more) CPUs (for redundancy and greater processing power for those peak times).

Please note that incorporating RAID is not an excuse for failing to perform regular (daily) backups of your data to ensure you don't lose that data when things go wrong. Redundant components cannot eliminate all problems.

There are many ways to back up data but by far the most common, for dedicated servers, are tape drives. These are available to suit just about any size server.

It is also important to remember that disk drives are the single biggest cause of computer breakdowns. To ensure best performance, disk drives should be high speed, preferably of the SCSI variety.

Sample File Server Specification

Note this is merely an example, not a recommendation, for a file and print server for a fairly small network where the server is required to:

- Share files
- Serve a print queue
- Run a DHCP service

Server case with at least 5 SCSI drive bays, dual power supplies, redundant cooling fans and room for a DLT tape drive.

Server grade dual 2.4Ghz Xeon CPU motherboard with a RAID 1 array (two disks, mirrored) for the operating system and system utilities, e.g. anti-virus software.

A second RAID array, RAID 5, (stripping with parity) using three disks for the shared file base. This arrangement allows an easy and inexpensive upgrade path for when the data grows too large to fit on the existing drives.

Tape drive to have at least twice the capacity of the data drives. These can be quite expensive to purchase but normally have quite a long service life, a decade or more being common.

This configuration will ensure the server will not require upgrading for a considerable amount of time, thereby offsetting much of the initial cost.

The operating system used is open to a lot of debate but unless the esoteric features of the more advanced versions are required, Windows 2000, XP or 2003 Server are more than adequate and are popular choices. If the expertise is available, Unix or Linux are also perfectly suitable.

Although the hardware recommended in this example may appear to be excessive to those new to the server arena, the long-term reliability of such systems, as well as performance, is extremely desirable.