

Simple guide to backup

Backing up your data is backing up your business – Please take the time to understand it.

Have checks in place to make sure it is done, read the logs, assign the responsibility of checking – both internally and externally.

Run test restores regularly to ensure that data can be brought back.

Backing up files and folders

If you backup just files and databases, then those may be restored easily as long as your tape rotations and checking procedures are happening. In the event of disaster or system failure this system is slow because of the need to rebuild the system from scratch using CD's – then restore the files and data into the restored system. There are additional options on most backup software of this type to backup "system state" and "active directory" to allow users and permissions to be restored as well making the rebuild from scratch less painful, but still slow. This method of backup still has its place. Off-site tape rotation and long term archives of data are still desirable for some businesses.

Backing up the system as an image

There are now various backup systems which can take a snapshot of a server in its fully running condition and then synchronise changes from that time forward. This allows a much quicker restore in the event of disaster and forms part of a disaster recovery solution if the image is stored elsewhere. This method does not always store enough "generations" of backup to bring back something lost 6 months ago.

Using Virtual machines

In this scenario, the server is already running on an "image" and the whole machine is transportable. If you have multiple servers or a SAN (centralised storage device) – then the image can be moved from server to server easily. Some virtual machines can still be backed up using traditional methods such as tape drives – but can also be backed up as a whole by using specific software or indeed the command system. You may choose to have two servers, each with a copy of each other's virtual machine or have multiple front end servers with the servers image on a SAN.

Synchronising servers between multiple pieces of hardware

It is now possible to use software that constantly backs up to another physical server and in the event of the first server failing, the other recognises this and comes on-line and takes over. The second server could be in the same building, another building or a remote secure data centre.

Backup Mediums – the target device that contains your backup

Tape – multiple tapes rotating over weekly or fortnightly – up to 1.6TB per tape. Archiving monthly.

Hard Disc – typically external USB – usually 2 x 1TB external hard drives, week 1/2

Memory Stick – USB – small usage for files/images

CD /DVD – small usage – often archiving of project work.

Storage Devices – NAS/DAS/SAN – good for image backup and quick restore.

On-line – Backing up to the "Cloud" – on-line storage space rented per GB, per month. Can be used for files or images – often used as part of a DR solution.

Combinations

In our opinion a combination of multiple methods and mediums is the best solution.

Continue forward for the less simple information.

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What else do you need to know?

SQL Databases

These often are “running” database engines and their files are locked.

It is possible to back them up using Backup software with an “Agent” which can get the information from the database.

The SQL Database itself may have a method of backup which backs up on a schedule to a folder, then the backup software will simply backup the folder containing the backup files.

If the SQL Database does not have this, some people write command line scripts to do similar things.

Microsoft Exchange

If you have Exchange, this is similar to an SQL Database – i.e. it is locked.

An agent is usually required to backup exchange, either as a “whole” database or at “mailbox” level which means that you can open mailboxes and backup/restore individual emails.

Microsoft Exchange 2007 now has the option of a LCR database (local continuous replication) – which means that it has an almost live up to date copy of the data in a second database file. It is still recommended to have a suitable backup program and agent despite this as of course this does not necessarily place the LCR database in a secure location outside of your premises.

Are there any free packages that do backup?

Microsoft provide one that works called ntbacup (start, run, ntbacup).

This can be used to good effect but is very manual – plenty of scripts, batch files and checking procedures are necessary and it does not do mailbox level backups of MS Exchange.

You can get mailbox backups via another method – using ExMerge.

You can get a degree of backup using a combination of the above and a free or very low cost program like Allway Sync.

Grandfather Father Son Rotation (GFS) – source wikipedia

Grandfather-father-son backup refers to the most common rotation scheme for rotating [backup](#) media. Originally designed for tape backup, it works well for any hierarchical backup strategy. The basic method is to define three sets of backups, such as daily, weekly and monthly. The daily, or son, backups are rotated on a daily basis with one graduating to father status each week. The weekly or father backups are rotated on a weekly basis with one graduating to grandfather status each month. Often one or more of the graduated backups is removed from the site for safekeeping and [disaster recovery](#) purposes

See http://en.wikipedia.org/wiki/Backup_rotation_scheme

A simple interpretation of this might be to have 22 tapes as a starting point.

Week A – 5 tapes labelled – Monday A etc

Week B - 5 tapes labelled – Monday B etc

At the end of each month, remove one tape from the cycle and label Archive.

Insert one new Tape and label the same as that removed, but insert a date of replacement

That way each month a new tape is inserted giving a rolling replacement of the tapes.

Hence 22 tapes, one tape per month for one year

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