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| Help Desk – Backup Support | September 15  2010 | |
| Instructions on backing up files and the different options available. Including software, hardware and methods. | | Lyn Walsh |

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# Task 9 – Help Desk Back Up Support

## Introduction:

Backing up your data is extremely important and should be a top priority to ensure no loss of important data. There are many ways that data is lost such as hardware failure, natural disaster, power outages or spikes or human error. Another cause of loss of data is virus attack which could corrupt or delete important files. Theft of data is also another consideration.

Deletion or corruption of files and applications used could cause major damage to a company. Depending on what type of data is damaged, if for example it is payroll or accounts the damage to the company could be very significant.

There are two types of back up;

1. A system state backup - the entire computer, the operating system does not have to be reinstalled.
2. A partial backup - selected files and folders, only specific data is backed up.

There are also different ways to backup:

1. Full – all the data selected, usually done weekly
2. Differential – all data changed since the last full backup, usually done daily or more frequently than a full backup
3. Incremental – all data changed since the last backup either full or differential backup.

Another consideration will be the frequency with which you backup the data. The more data that is produced the more frequent the backup should be completed.

## The First Steps:

Create a backup and recovery plan for use in the case of a data loss event;

1. Decide what needs to backed up. Determine the importance of the different types of data to be backed up. If the financial data was lost the ramifications could be severe. Also client data bases and payroll are irreplaceable. The rule of thumb is to backup anything you can’t afford to lose.
2. Decide on the frequency of the backups. Choose how often each type will occur. Such as a full backup each Friday and a differential or incremental each afternoon at 4.30.
3. Decide on the backup media. You could decide on using a hard drive, a tape deck, CD’s or DVDs. Another option is to use an online backup site. The choice of media will depend on many factors such as cost, speed and reliability.
4. Decide on storage location of completed backup. This should be both onsite and in a secure off site location. Some companies use bank vaults to ensure that if a disaster occurs they still have protected files. A copy should also be stored onsite for ease of reinstallation.
5. Decide on where the documentation for the backup plan is to be stored and what it will contain.

## How much is Your Information Worth?

Data loss and recovery can have a very large impact upon a business. This can impact on the company in few different ways;

1. One of the associated costs of data loss is calculated by the cost per hour to recover it, which is very expensive. This will also impact upon the person who is usually using that computer, as they are unable to use it while the data is recovered therefore wasting time and money.
2. Some data cannot be recovered so someone must re-enter it, which will also lose time and money as this person is not doing the work they would normally be doing.
3. Another cost associated with data loss is that some data is irreplaceable which will cost the company monetarily and also could cost them their reputation, especially if data is sensitive.
4. To work out the cost of your data you need to work out how much per hour the loss will cost the company. So if your company brings in $1000 per hour and it takes six hours to restore it then the cost of the loss is, at a minimum, $6000 plus all the other costs as discussed above.

## What choices of hardware do I have for backing up my information?

There are many choices of hardware used for backups. Some of the considerations of choosing the type of media to use are the cost, size, speed and reliability of the medium.

Some of the types of hardware are:

1. Network Attached Storage (NAS): It is a storage unit that provides file storage to a network. It requires a basic operating system and cannot be used as a server. It has an accessible file structure.
2. Storage Area Network (SAN): A system that uses on data blocks not file systems. It connects data backup devices.
3. Online Storage: This option while more expensive than other data backup devices it will mean that the in the event of a disaster data can be more easily reinstalled remotely. It is also designed to be used with your existing infrastructure.
4. Portable Storage: Portable hard drives are becoming more affordable and larger so that more data can be stored.
5. Tape Drives: Tape drives are one of the most common types of backup media. While they are relatively inexpensive they are not very reliable as they degrade over time and they are slow.
6. Digital Audio Tape Drives (DAT): These are more expensive than standard tape drives it is faster and holds more data.
7. Auto Loader Tape System: Automated tape drive that uses many tapes in a device, called a magazine that changes tapes as required.
8. Magnetic Optical Drives: This option uses optical lasers and magnetic tapes to provide a more reliable solution.
9. Tape Jukebox: This is similar to auto loader tape systems, it uses magnetic optical disks rather than DAT tapes.
10. Extra Internal Hard Drives: This solution is a good option for fast backup; they are increasing in size and becoming cheaper in price. The only downside is that if your computer is stolen all the data is gone.

## Blank Writeable CD, DVD and Blu-Ray Disc solutions

1. CD disks (compact disk): CDs are optical disks. They are one of the most common types of technologies used in the computer industry. A drawback of the CD is the small amount of data that can be stored, typically up to 700mb.
2. DVD disks (Digital Video Disc or Digital Versatile Disc): DVDs are optical disks. These can hold up to seven times the amount of data that a CD can hold and are very inexpensive so make a good option for backup. Data stored on DVDs are secure as long as there is a device capable of reading the data.
3. Blu-Ray disks: Blu-Ray disks are a high density optical disk. They were introduced to replace DVD as the preferred medium but DVDs still dominate the market and are expected to for the immediate future. Blu-Ray costs more than DVD disks but hold much more data, up to ten times on a double layer disk. They can store 25 GB on a single sided disk and 50 GB on a double sided disk.

## Backup Solution Software

There are many types of software for backup. Some of these are:

1. Norton Ghost: This solution is very popular; it allows you to clone your hard drive to copy it to a second one. While not traditionally a backup program it also allows the user to retrieve individual files without a whole backup.
2. Acronis Online Backup: This is an online backup that allow offsite storage for easy data recovery. A down side is that this type of backup is slower.
3. Acronis True Image: This software allows the user to save the backup files as a virtual hard disk files so that they can be opened on other computer using a virtual machine and allows the user to boot directly from the Windows 7 image.
4. Nero BackItUp and Burn: This has an automatic backup option which scans the computer and suggests which files to backup. This software is reasonably priced and easy to use.
5. Carbonite Online Backup: This software is closely integrated with the windows OS. It is one of the original online backup systems. It is easy to use and hassle free.
6. Carbonite 3.5: This software is one of the most popular home backup software. It can be automated and it’s easy to use. When you purchase a new computer you don’t have to copy all of the files over to it, just install the carbonite software. Then go to the website and transfer the account over to the new computer and it transfers all the files. It also backs up incrementally so is quick to backup.

## Different Solutions - the Best Solution for Backing up Your Information

I believe that the best solution for backing up your information is to use the carbonite backup software, which is easy and simple to use, and a portable hard disk drive.

The hard disk has a large storage capacity and is reliable. It can be used on any computer so that you can work from anywhere in the event of a disaster. You don’t even have to install the backup onto a computer but run it from the hard drive itself.

Hard disks are continually growing in size and are becoming less expensive so make a good backup choice.

## USB Flash Drive Solutions

1. Secure USBs are inexpensive and are becoming larger so they are becoming a good option for data storage.
2. One of the main advantages of using secure USBs for storage solutions is that they offer embedded hardware encryption, microchips within the USB drive carry out automatic transparent encryption.
3. Some secure USBs offer the advantage of overwriting data if the wrong password is entered a certain number of times.

## How Often To Do A Backup

The frequency of backup will depend upon the amount and type of data that the users company needs to backup, the more data that a company collects and stores the more frequent the backups.

The industry standard is:

|  |  |
| --- | --- |
| Backup Frequency | |
| **Full** | Weekly |
| **Differential** | Daily |
| **Incremental** | Daily |

## How Do You Do Regular Backups?

Regular backups can be done automatically by using a software program. It will ensure that a backup is done at a specific time and day. Using this type of software will also mean that you no longer have to rely on backup media such as tapes or external hard drives because the backup is held offsite in a password protected, web based format.

There are many types of programs, some are freeware and others are commercial. Some examples of these programs are;

1. **Name:** SyncBack

**Cost:** Freeware

**Features:**

* Copy files either to another folder or to the server.
* Send files zipped or unzipped.
* Password protection.
* Web accessed backup, so that files can be accessed from anywhere.
* Can be automated by windows scheduler or within the program itself.

1. **Name:** 12Ghosts Backup

**Cost:** $30

**Features:**

* Creates a running archive for easy backup.
* Copy files to another folder or to the server.

1. **Name:** Second Copy 8

**Cost:** $29.95 per licence approx (the more licences the less they cost)

**Features:**

* Designed for Windows
* Backups up to another directory, internal or external hard drive or across the network.
* Completely user-free.
* Encrypted files.

## Restore Data from a Backup

These are the steps to restore data from a backup in Windows 7 using the built-in utility.

1. Open the backup and restore utility, click on ‘start’, then ‘control panel’, then ‘system and maintenance’, then ‘backup and restore’.
2. Go to ‘restore my files’.
3. To restore the files of all users go to ‘restore all user’s files’.
4. You may need to provide administrator password and confirmation.
5. Choose either ‘browse for files’ or ‘browse for folders’ (folder option will not allow you to view individual files inside that folder). This could be on this computer or another location such as external hard drive.
6. Click the’ add file’ or ‘add folder’ button to choose the files and folders to restore.
7. Choose the restore location.
8. Click ‘restore’ to start.
9. When files have finished restoring click ‘finish’.

## External Hard Drive Solutions

Hard drives are a very good choice for backup your data because they can have a very large capacity at a very reasonable price. They are getting larger and cheaper all the time. They are extremely reliable and are easy to store. These devices are accessed the same way that the internal hard drive is, meaning that they are very easy to use.

Most moderate to expensive external hard drives come with their own software for backup and restoring files. This software can schedule automatic backups and move files. They can include roll back capabilities and security options that can keep them safe should a virus attack or they are disconnected accidently. The hard drive can be used without the software; files can be dragged and dropped directly onto it.

One issue with using an external hard drive is that most fail at some point so the way around this is to backup data onto two instead of just one. Another issue is the problem of heat. As these hard drives do not have a fan, they run the risk of overheating which can lead to failure.

There are some considerations when choosing the hard drive that’s right for your business; choose the size that you would need. Find out what your current backup requirements are and multiply this by 3. Cache memory will determine the speed of the data transfer rate but the larger the cache the more expensive the device.

Some examples of external hard drives are;

1. **Name:** LACIE 2.5" 1TB RUGGED SAFE HDD

**Cost:** $280

**Features:**

* Capacity – 1Tb
* Data protection with encryption, fingerprint and password security.
* Shockproof.
* Up to ten users.
* Compatible with many operating systems from windows XP to MAC.
* Portable (no power cord)
* Transfer rate: FireWire 800: up to 800Mbits/s; Hi-Speed USB 2.0: up to 480Mbits/s

1. **Name:** Seagate Freeagent Desktop 3.5 2TB  
   **Cost**: $130.00

**Features:**

* Capacity – 1Tb
* Pre loaded automated backup software.
* Windows operating systems only.

## Hard Core Restoration

Hard core restoration is where your hardware fails and there are no backups available, you will need a technician to retrieve the data from the failed equipment. This is done in a sealed room with special equipment. They can also retrieve data from hardware damaged by water or fire and also by magnets.

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