5 WAYS TO BACK UP YOUR DATA

The data on your hard drive is the most critical item inside your computer, and the only item which cannot be replaced. It may be an unwanted hassle and expense to replace a defective memory module, monitor, or processor, but there is no replacing data once lost.

In addition to the possibility of a simple hard drive failure, the threat of internet borne worms and viruses has become an increasing risk to data loss or corruption. Although you may not be able to provide absolute protection to your hard drive, there are various ways that you can ensure that the data on your hard drive is protected. Five methods of backing up your data are summarized below.

1. USB Flash Drives

Although I am not recommending that flash drives be used for the actual data storage, they are a convenient means of transferring data from one computer to another. Important files can be quickly loaded

onto a device such as the MINIDISK-512-DGRY-CS USB 2.0 Flash Drive, and transported to another computer for safe keeping. Installation and operation is extremely simple, and other than perhaps having to install a software driver, the use of a USB flash drive is a matter of having an available USB port on your computer. Just about every computer produced over the last several years has USB ports included, with more modern systems supporting the USB 2.0 standard. USB 2.0 allows for data transfer rates of up to 480 MB/s, which is a tremendous improvement over the original USB speed limit of 12 MB/s, and allows a user to fill their drives with data in a relatively short period of time.

Although the storage capacity of flash drives has increased greatly over the last year or so, users are still limited to common sizes of 512MB and 1GB. Mass storage is obviously not an option, but even 512MB may be enough to backup your "My Documents" folder, several albums of MP3s, or other important files to be stored elsewhere.

2. CD and DVD Writers/Re-Writers

The falling prices of CD and DVD writers/re-writers have

made them a staple of just about every modern computer.

These devices can typically be found installed in a

computer case, but external devices supporting USB 2.0 or Firewire are

available for greater flexibility and ease of installation.

A combination drive, such as theNU Technology DBW-521, will

provide the user a high speed CD reader/writer, as well as a DVD

reader, for under $40. The extremely low price of the drive (and the

blank media) makes for an inexpensive means of creating data

backups, and the re-writable media increases the convenience by

allowing the same disc to be erased and reused many times. The main

limitation of using a CD writer for data backups is that the discs are

generally limited to a capacity of 700MB per disc. Not nearly enough

for a full backup, but adequate for archiving key files.

The popularity of DVD writers/re-writers has surged thanks to

dropping prices, and they are pushing the stand alone CD burner

towards extinction. DVD media affords the user far more storage capacity than a CD, and DVD burners can generally burn CDs as wells as DVDs. The recent availability of double layer DVD burners, such as the Sony DW-D22A-DO-N, represents a large boost in the capacity of writable DVDs, taking the previous limit of 4.7GB per disc and nearly doubling it to 8.5GB.

With proper storage, CD/DVD media can provide long term storage that can not be jeopardized by hardware failure. The data on a CD or DVD can easily be read by just about any computer, making it a good choice for archiving files that aren't excessively large.

3. External Hard Drives

As the name might imply, external hard drives are generally the same type of drive you might find inside your system, but housed in a smaller, external enclosure of its own. The enclosure will feature at least one data interface (such as Firewire, USB, or Ethernet), and the capacity is only limited by the size of hard drives presently available

and the user's budget.

The Ximeta NetDisk is an example of an external hard drive that provides a user the option of connecting an additional 80GB, 120GB, or 160GB of storage to their system by using either a USB 2.0 or Ethernet connection. Installation for such a device is rather simple, and may involve the installation of some basic software, as well as making the necessary connections between the computer and the external enclosure.

The capacity of external hard drives makes them ideal for backing up large volumes of data, and many of these devices simplify the process by including software (or hardware) features to automate the backup.

For example, some Seagate External drives feature a "one-button" backup option right on the case.In addition to being a convenient method of backing up large volumes of files locally, most external hard drives are compact enough to be portable. The inclusion of a common data transfer interface, such as USB, allows an external hard drive to be

connected to just about any modern computer for data transfer, or for more than one computer to share the external hard drive as a back up.

4. Additional Hard Drives

By simply adding an additional hard drive to you system, you can protect yourself from data loss by copying it from your primary drive to your secondary drive. The installation of a second hard drive isn't difficult, but does require a basic understanding of the inner working of a computer, which may scare off some users. We do offer a "how-to" section on our site for many tasks such as installing a hard drive into a computer system.

To take the installation of a second hard drive to another level of security and reliability, the hard drives may be installed in a RAID array. RAID stands for a Redundant Array of Independent (or Inexpensive) Disks, and can be configured in several manners. A thorough discussion of RAID and all of its variations would be an article all by itself, but what may be of interest to this discussion is

what is known as RAID 1. A RAID 1 array requires two hard drives of equal size to be installed on a RAID controller, which will then mirror one drive to the other in real time. Many motherboards now come with RAID controllers onboard, but the addition of a PCI slot controller card, such as the Silicon Image Sil0680, is an inexpensive purchase that will add RAID to any system. With a RAID 1 array in place, if one hard drive should ever fail, the system won't miss a best by continuing to run on the remaining good drive, and alert the user that one drive may need to be replaced.

5. Online Storage

Online services, such as Xdrive, allow users to upload their files to a server for safe keeping. Although it may be convenient to have the data available wherever an internet connection is available, there are a few limitations.

The services generally charge a monthly fee relative to the amount of storage space required. At Xdrive, for example, 5GB of storage costs $9.95 per month, which can quickly add up to more than one would

spend on any of the other options discussed.

Security is supposed to be very tight on these services, but no matter how secure it may seem, it is still just a password keeping prying eyes from your potentially sensitive documents.

The speed of your internet connection will also weigh heavily on the convenience of your backup, and no matter what type of connection you have; it can't compete with local data transfer rates.