Backing Up Your Computer

First, some background so that you understand how your computer works and stores its information.

All of the information and programs on your computer are stored on a large capacity mechanical disk drive known as your computer's internal hard drive.

Getting information to and from your mechanical internal hard drive is a rather slow process in computer terms. If all of the information necessary to work with a program or on a document were accessed directly from the internal hard drive, your computer would operate painfully slowly. (Think internet access via dialup.)

To allow your computer to operate quickly, there's some much faster temporary electronic storage built into your computer known as its Random Access Memory, or "RAM".

When you "open" a program or a document on your computer, the necessary data is copied from the slower mechanical hard drive to the much faster electronic Random Access Memory. There, it's available for the computer to use as long as you are working with that data. (Think access via a high speed internet connection.)

When you save a document the information that has been "saved" is written to your internal hard drive. When you close a program or document, or turn off your computer, the information in RAM is forgotten.

The only place your information is stored on a permanent basis is on your internal drive.

The problem is that when your computer is on its internal hard drive is constantly spinning at over 5000 RPM and its expected life is only 3-5 years. Those numbers are averages. Your drive could last for 10 years, or it could fail the next time you turn on your computer.

If your keyboard stops working, you can easily replace it and continue computing. If your internal drive fails, and you've not adequately backed up the data it contains, you've lost all of your programs and all of your data.

BACKING UP YOUR DATA

There are a number of backup approaches that can be employed to guard against that inevitable hard disk crash.

The good news is that regardless of which approach you decide on, it shouldn't cost you more than $150 to purchase the necessary software and equipment.

On-Line Approaches

There are many on-line backup services that, for a fee, will store a copy of your data files (usually not your programs) on their computer.

Advantages include ease of use and online access to the computer back up system from anywhere in the world. The back up is also safe from damage that could befall your personal computer from a natural disaster like a fire or flood, or a theft.

Disadvantages include inherent risks of placing data on a server than is not owned by you, and over which you have little ultimate control. They are also rather slow, since they rely on your internet upload speed to transfer your data to the on-line storage.

It's also important to note that you cannot run your computer directly from an online remote backup. This means that you'll have to install a new internal hard drive in your computer and then download all of your data (this can take many hours) to the new drive before your computer can be used.

Off-Line Approaches
These are much faster than on line backup solutions but require you to have a safe place to store your backup should there be a theft or natural disaster. They all require that you initially purchase 1 (or 2) replacement hard disk drives, external cases for the the drive(s), and a software program.

The replacement drives should be at least as large or larger than the one that is currently in your computer, and it should be compatible with the existing drive (check your computer manual or call their tech support to be sure).

You can certainly purchase your replacement drives from the manufacturer, but don't be surprised if the costs are exorbitant compared to the identical products available on line. And they probably wont be able to offer the external case.

A good resource for new bare drives, and the external enclosures that they are housed in is www.newegg.com

Some examples of costs are:

Older EIDE Technology

Desktop
500GB $69
External Case $20

Laptop
250GB $60 (from www.tigerdirect.com)
external case $20

Newer SATA Technology

Desktop
1 Terabyte (1000 gigabytes) $84
External case $15 -$20

Notebook
500GB $89
external case $27

Software

Acronis True Image Home 2011 $49.00

BACKUP APPROACHES

Approach #1
Use software to make a" disk image" of you system. A disk image is one large, compressed file that takes up far less space than "cloning" or copying a disk. In the event of an internal hard drive failure, the image can be used to recreate your information on a new hard drive.

The advantage of a disk image is that it consumes a relatively small amount of space. A disadvantage is that it cannot be directly accessed, but must be restored by the software that created it. This can mean booting from a proprietary CD to access the restoration process. Though the procedure is not complicated it can be a little nerve wracking to have to "jump through hoops" to get the system rebuilt.

Approach #2
“Clone” your internal hard disk to a second hard disk. (A “clone” is an exact, bootable copy of your original disk) If the primary disk fails, just plug in the “cloned” copy and you’re up and running almost as if nothing ever happened*. No restoration is required, no downtime, and no hassle. You simply boot from the back up drive and go about your business.

* The “almost” is because 1) You may have to re-authorize some software programs like Adobe Photoshop and some others in order to continue to use them, but this is usually a quick and painless process. 2) Any data and documents that you created after your last “clone” will still be lost.

Software like the popular Acronis™ ($49.95 from www.acronis.com) can clone your disk to a second disk in a matter of minutes.

The secondary disk should be housed in an external enclosure. This drive should be stored separately from the computer and better yet in a fireproof box and/or at another physical address.

I personally use 2 external hard disks and alternate them when cloning. That way I have 2 incremental copies of my original drive.

The nice thing about this type of computer back up system is that there are no hoops to jump through and you don’t have to wait for a replacement drive to continue working. Your clone is ready from the moment the main drive fails.

Approach #2.5
Not really a new approach, but it adds a thumb drive to store your most recent documents.

You can also use Acronis’ new on line storage in conjunction with their clone technology. They charge 49.95/year for up to 25 GB of storage space.

Other add ins include burning documents to a CD/DVD on a regular basis and storing those in chronological order. This will protect you from the possibility of an older corrupt file being transferred from clone to clone.

The choice is yours
The choice is certainly yours and can be tailored to your specific needs. The important thing is to do something that you can live with both before and after the crash.