

Backing Up Your Stuff Part 2: A Solution

By Richard Lowe

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This is the second article in a series. To read part 1, see "Backing Up Your Stuff Part 1: The Problem".

<http://www.internet-tips.net/System/backup00.htm>

So what do you do when you have so much stuff on your computer that it becomes difficult, if not impossible, to back up the whole thing on a regular basis? You know that you must perform backups (the world is full of dangers to your computer and it's valuable data), but it's just become technically impracticable simply due to the volume of data.

Don't believe for a second that this problem is unique to the home user. At work I manage a staff of computer people which is responsible for about 500 gigabytes of data. In fact, we expect our data size to exceed a terabyte (1,000 gigabytes) before too long! Some of my peers now manage sites which exceed 60 terabytes! Imagine how difficult it is to come up with a backup solution to databases of those sizes!

What I decided to do for my home computer system is simple. I separated my backup tasks into small, manageable pieces. These include:

being prepared to recover the entire system in the event of a catastrophic failure.

- being able to restore each individual application (program), which is useful not only in the event of a system failure, but also if the application itself becomes unusable.

- backing up my own personal data files on a regular basis.

- understanding the location of special data such as desktop themes, outlook stationary and ICQ skins so that I can back them up regularly.

- Ensuring that all of the websites that I manage are backed up to my own hard drive regularly.

- keeping copies of this data in a second location in the event of a complete loss (such as fire or earthquake).

Before you can start any of these backup procedures, however, you must figure out what device are you going to use as a backup media. You have several choices.

Floppy disks - In days long past, we all used floppy disks as our backup media. This was in ancient times (5 to 20 years ago), when the volume of data was much less. Floppy disks are not a good choice for backups for the following reasons:

- They are expensive (when figured on dollars per megabyte)

- They are small (slightly over 1 megabyte)

- They don't last long (I've found five years is about the maximum amount of time).

ZIP or Jazz disks - You can use a device known as a zip drive to perform your backups. Zip disks were originally 100 megabytes in size, and have since been upgraded to 250 megabytes. Jazz drives went from 1 gigabyte to 2 gigabytes. I am sure that larger sizes will be released as the years go by.

At first glance, this seems like a real solution to the media problem. However, I have found several problems which make it less than desirable.

- I have found that the zip and jazz disks do not last for a long time. I have attempted to restore data from zip disks which are over 2 years old and have discovered an alarming number of data errors.

- There have been many reports in the news of problems with these products. In fact, Iomega has been the target of at least one class action suit for drive failures.

- Zip and Jazz drives are extremely slow.

- The media (disks) are extraordinarily expensive.

Personally, I have had so many problems with these products that I would not recommend them to anyone - even my worst enemy. You must be able to depend upon your backups - otherwise, why do them at all?

Magnetic Tape - One of the most difficult choices. Magnetic tape certainly has the ability to back up large amount of data, but it tends to be slow and requires specialized software to access. Out of all of the formats, I would be least likely to recommend magnetic tape.

- Very slow

- Data errors are common

- Specialized backup/restore software required.

- Attempting to restore on different tape drives or on different machines is likely to fail or to be extremely difficult.

Tapes do not support random access, so restoring single files is a long and painful process.

Writeable CDs - I have found that writeable CDs are by far the best option to use for backups. When you purchase media, you have the choice of buying write-once disks (very cheap) or read-write disks (much more expensive). I like to mix and match - sometimes write-once is good (when I want to create a permanent archive of my data) and sometimes read-write is what I need.

I recommend writeable CD drives for the following reasons:

- The media comes in two formats. Both formats are relatively cheap, especially when purchased in bulk.

- The error rate is low.

- The media will last a long time.

- You can store over 600 megabytes on each disk.

- The disks are easy to store. In fact, you can use the same jewel cases and storage racks that you use for your audio CDs.

- If you write in compatible format, you can read the CDs on any system with a CDROM drive.

- You can use the same hardware and software to create audio CDs.

On the other hand, some of the disadvantages are:

- Writing is rather slow.

- The drives do require specialized drivers and cabling to be installed on your system.

Disk-To-Disk - Disk drives are becoming extraordinarily cheap. You can easily purchase 50 gigabyte drives for under \$500 (and I've seen them much lower). One possible backup solution is to purchase a drive to match each of your other disk drives. For example, if you have a C and D drive, you could purchase two more disk drives and install them, making them E and F (or whatever).

The advantages of this scheme are:

- Disk-to-disk backup is very fast

- Data written from disk to disk tends to be very reliable.

- The data is easy to recover.

Disadvantages include:

- The data is still accessible from your system, which means viruses, hackers and environmental disasters (such as a flood) can destroy your data.

One alternative to look at if you have a small network in your house is to get a network disk drive.

These are available at the \$500 to \$1,000 range and sit on the network. You can backup and restore files from them easily and quickly.

Conclusions - So what do I recommend? Purchase a writeable CD drive and install it on your system (make sure it is compatible before you make your purchase). If you've got the money, purchase a networked disk drive which is the same size as all of your local disks put together.

Why? The writeable CD unit allows you to create backups at will of many of your files. You can store these backups off-site, transfer files between machines, and have a high expectation that the data will still be good in five to ten years. The networked disk drive allows you to create full backups of your system quickly and easily while you are sleeping. This gives you complete recovery in the event of a disaster.

Next - what about backup software?

<http://www.internet-tips.net/System/backup02.htm>

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