

Re: Backup question

Source: <http://www.derkeiler.com/Newsgroups/alt.computer.security/2005-06/0738.html>

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Date: 06/29/05

Date: 29 Jun 2005 10:18:06 GMT

In article <slrncd3r7r.cr.ibuprofin@compton.phx.az.us> you wrote:

> *In the Usenet newsgroup alt.computer.security, in article*
> *<[d9rkbd\\$9k7\\$1@home.itg.ti.com](mailto:d9rkbd$9k7$1@home.itg.ti.com)>, News wrote:*
>
>>*Ive got a 120G harddrive with about 40G worth of files for my photography /*
>>*graphics files. These are very important to me.*
>
> *"How important are they?" Translation – what is it worth to you? Side*
> *question, what are you guarding against? Hardware failure? Software failure?*
> *Theft? Fire/Flood/Earthquake? Fumbling fingers?*
>
>>*I use Retrospect to guard against problems, but obviously need a backup*
>>*to another drive or archive on CD-ROM.*
>
> *40 Gigs can't be shoehorned into a CD-ROM. How often do these files change?*
>
>>*I am a student also, so cost per MB is important too.*
>
> *What are you guarding against? At the least, you would want a removable*
> *media of sufficient capacity (so that it can be elsewhere when your main*
> *computer is crushed by stampeding yaks). Thing is, 120 Gig capacity is*
> *huge, and even 40 Gigs is going to be expensive. Tape drives of suitable*
> *capacity (DDS/4 mm can do 20 Gigs normal "40 Gigs" compressed – the later*
> *unlikely if the data is already in a compressed format) are very expensive,*
> *but we've had good luck with Seagates. DLTs are even more expensive, but*
> *the media is "comparable" in cost. Avoid Travan drives – reliability.*

I'm going to assume you want reliable offsite storage.

Tapes are a good solution if you do a *lot* of backups – the cost per GB of storage is about as good as you can get .

If you are willing to buy tape drives from eBay and the like, though, prices can be pretty acceptable. Think \$ 40 for a SCSI adapter (if you do not have it already), \$ 70 for a DDS-2 drive (4 GB/tape, '8 GB compressed') and something like \$5 a tape. Which, according to vendor specs, can be reused 100 times [and, if you're willing to take the chance, will probably last quite a bit longer]. That's pretty close to \$

0.01 a GB, excluding initial costs, guaranteed to retain data for 10 years. [If you're willing to shell out more for a tape drive, this cost will be even lower, as tapes are pretty much the same cost regardless of capacity, up to DLT at least.]

The initial cost is worth considering, but not too high to be feasible. The *other* thing worth considering that backups to tape are most useful if you can read the tape somewhere after your main computer has been thoroughly destroyed by, for example, stampeding yaks. You should also consider getting some tapes with better capacity, as the above solution would require about 10 tapes. (Universities may have this capacity; ask your local operator. If you're really lucky, they might also be dumping tape drives...)

Burning to CD is easy, but not a good long-term solution – it's inconvenient, as it'll take about 15 CD's to do a full backup, and CD-Rs are hideously expensive (close to \$ 1 a GB, if you're willing to store them on a spindle and use no-name media). They are also not likely to be readable after ten years, especially if mistreated (as they are wont to be, if you're anything like me).

CD-RW's are less expensive, a couple of \$\$\$ per (re-usable) disk, but are not exactly reliable, especially when re-used often. This makes them less suitable for backups. [I dislike them, partly for no good reason, so do not take this at face value. A lot of people happily back up to CD-RW, and presumably those backups remain restorable...]

CD-writers can be had for about \$ 50, and the drive will read CD and DVD media at that price.

Burning to DVD is more convenient, but DVD writers are expensive. The initial cost is in the 'tape' ballpark, and the cost in the 'CD-R' ballpark. That being said, this isn't too inconvenient and DVD's are likely to be readable everywhere.

External hard drives are another option, but aren't exactly 'removable media' – the main effect of which is that, though you *could* place them offsite, you likely won't. The cost is a few \$\$\$ a GB; they are pretty much infinitely reusable. Reading them should be possible on newer machines, after some fiddling.

The last option, of course, is to get the cheapest computer you can find, put a decent 40 or 80 GB drive in it, and synchronize data nightly. Place it somewhere it'll not be bothered too much, and be sure to use encryption while sending your stuff over the net. You should be able to get the computer for free by asking around, so this will just cost you a single drive and some time. Be sure to place it with a friend or somesuch. You might want to look into rsync, or some rsync-derivative that will keep old data around for a while. This is cheap, but data will only be kept for a couple of weeks and it'll take you a while to assemble a stack of CD's or tapes as large as a computer. Or noisy...

alt.computer.security: Re: Backup question

I have, personally, used CD's for a couple of backups, as that's what was available, but cringed at the cost and made far too little backups. I own an ancient 1/2 GB /tape tape drive, which I plan to use for incrementals (and possibly the full backup as well) as soon as the system it's attached to becomes stable (currently being installed). If this works out, I intend to purchase a slightly more modern tape drive. My personal backups take about 12 GB (after compression) for a full backup, and are likely to be 15–20 GB for a full backup plus a month's incrementals. A DDS–2 or DDS–3 drive seems reasonable.

My students' association, for which I manage the computers, has close to the same storage requirements, but those are expected to grow. It was decided to use DVDs here, as backups should be readable without special knowledge or hardware. There are plans to mirror data across redundant servers, which would also take care of part of the backup problem (notably, head crashes, which are not unlikely given the quality of hardware I'm forced to work with – in fact, we've had one hard drive stop functioning already. After it had cooled down, we were able to restore the data on the disk in apparently good condition; the system portion was restored from backups).

In both cases, nightly backups are written to an internal disk. Those are not intended to guard against disaster, but are quite useful in case of an operator error. Yes, I've used them (after 'chown –R root:root /', 'rm –rf /var/someimportantdir', editing configuration files into un–usability, or removing important personal data).

In all cases, get some decent backup software that will let you do incremental backups.

Joachim