

The Federal Lawyer in Cyberia

MICHAEL J. TONSING

Hard Times Ahead in Data Storage?

This month's column is about hard drives. As you may have noticed, traditional hard disk drives (HDDs) are getting cheaper every year, and the capacity of these traditional hard drives is growing every year. Most notably, the capacity of laptop HDDs has been expanding. Less obvious, perhaps, is the fact that these traditional hard drives are also consuming less and less battery power as the technology improves. Currently, it is possible to purchase a laptop HDD with up to 640 gigabytes (GB) of capacity.

The 17-inch laptop that I own and use for trials has a 500 GB traditional hard drive plus an external hard drive that is just as large. The external hard drive automatically creates a mirror image of the internal hard drive so that I will never have to fear the loss of my hard drive due to a crash during a trial.



Now, there is an alternative way of overcoming the fear of a hard drive crash while gaining other advantages as well. That is by using a hard drive that is not of the traditional type, but is instead what is called a solid state drive (SSD). A traditional hard drive stores data on to spinning plates or disks. These spinning plates are fairly slow and are susceptible to failure at any time. Solid state drives are akin to the so-called thumb drives that many of us use to transfer relatively small amounts of data back and forth between two computers. That means that there are no moving parts—leading not only to greatly improved transfer speeds but also to vastly improved reliability.

As with all things new in Cyberia, SSD technology is more expensive and most commentators believe that prices of HDDs will continue to drop at the same percentage rate as SSDs. However, a lawyer looking for light, reliable, portable hard drives or a way of speeding up his desktop PC can reap enormous benefits from converting to this newer technology. Data transfer speeds are much faster.

Even more attractive for peripatetic Cyberian lawyers is the fact that the solid state technology of SSD drives makes them far less prone to failure.

The main difference between SSDs and HDDs is that hard disk drives are electro-mechanical, which inevitably means that they have moving parts. In a traditional HDD the hard drive has an actual magnetic disk. That disk needs to spin. It has a moving read/

write head that is the instrument that records the data. So HDDs are always going to be slower because they need to wait for these whirring parts to get into position before they can save data to the hard drive's plates or before they can read files that have already been stored there.

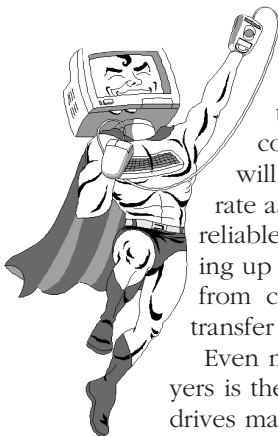
In contrast, SSDs have absolutely no moving parts. They store information in microchips—much like a thumb drive (but much faster than a thumb drive)—and they thus can instantly start saving information or reading files without having to wait for any whirring plates to get into position. Solid state drives, consequently, have no “spin up” time. They are always ready to read or write to the drive—which means no waiting—while HDDs may need up to a couple of seconds before they can access the drive and either read or write data. As a consequence of all this, SSDs can both read and write files at about twice the speed of HDDs.

This means your laptop or desktop will boot faster and your programs will load quicker if you are using a SSD. It also means that very large files will be less likely to induce significant lag time—making a presentation to a jury less likely to have an embarrassing wait while slides flow onto the screen.

Solid state drives have other advantages, as well; for starters, they do not need to be defragmented. Experienced Cyberians know that fragmented HDDs, where data has been sprinkled over many different sectors of the spinning plates, can perceptibly reduce the read/write times of these hard disk drives and slow a computer down to a crawl. SSDs are also, of course, much less likely to break if they are dropped or if they sustain an impact (for example, from opposing counsel) because they have no moving parts. And, strong magnetic fields can corrupt an HDD, while SSDs are unaffected by magnets. This certifying is always the worry when traveling.

Newer laptops and even some desktops now combine SSD and traditional hard drive technology, including in their innards a small SSD designed to hold the operating system—keeping Windows™ responsive while also limiting the cost of an SSD drive. The SSD can be installed in tandem with a traditional drive that is used for programs and files in such a computer, thereby retaining the advantage of cheap storage by relying on the much larger traditional hard drive for that role.

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and flexibility can sometimes be just as valuable as linear progress and definitive outcomes in changing the circumstances of a given conflict for the better. Guided by his own efforts, Mayer's thesis speaks to this point. Resolution is not always the outcome of successful mediation. Fostering patience within and an honest dialogue between conflicting parties is often just as, if not more, important.

To some, Mayer's unorthodox approach might seem arbitrary, if not an outright evasion of the mediator's responsibility to confront conflict head-on and achieve real results. This assessment, however, would be mis-

guided. It is the thorough understanding and nuanced handling of conflict that is both risky and worthwhile for mediators. In many cases, getting two parties in conflict to see that resolution is not the only answer is the most valuable and courageous contribution a mediator can make to an ongoing conflict, be it a personal disagreement or an international territorial dispute. Mayer's work is a manifestation of this point. **TFL**

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jored in political science and focused on United States foreign policy decision-making. The views expressed in this article are solely his own.

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According to most sources, those of us who already have laptops should not consider upgrading the internal hard drive at the present time. The expense substantially outweighs the benefits. Desktop owners, though, can more easily justify an upgrade to SSD and can use available software products to transfer their existing operating system to the new SSD drive. (Kingston™, for example, sells a 64 GB desktop upgrade that comes with software designed to move your operating system over to the new drive. Purchasers of other brands could use a program called Clonezilla™ to assist in the transfer.)

Currently, external SSDs in the 64 GB range are available for about \$150. An external SSD with a 32 GB capacity will probably cost about \$75. External SSDs range in size from 30 GB to a massive 256 GB. However, a 256 GB external SSD drive will cost more than \$500. Even with the advantages that have been described, it is difficult to justify the expense of a \$500 drive. However, the more modest sized external SSDs

are certainly worthy of immediate consideration by trial lawyers who cannot afford to have a hard drive crash during a court appearance.

Conclusion

Cyberian trial lawyers should give some thought to converting to a new laptop with a SSD or to purchasing an external SSD to augment their existing storage. If they can justify the expense, they might also want to add a SSD to their desktop, even if it is only to run their operating system. **TFL**

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