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## The Emergence of the Solid-State Drive

When you write about new and emerging technologies long enough, some of the once new and emerging eventually become old and obsolete. I recently reflected on this progression toward obsolescence as I transported old computer hardware to my local recycling facility. With the international Consumer Electronics Show (CES) a month away, I wondered that December day if I would soon learn which computer technology would next become obsolete.

The hard disk drive (HDD) has been around since 1956. Its manufacturers have kept it from becoming obsolete by constantly increasing its capacity and reducing its cost. Inside an HDD, you have a stack of round metal-oxide platters. These platters spin extremely fast as read/write

heads move across their surface and use electromagnetism to read and write digital information.

Many feel it is time for these electro-mechanical systems to be replaced with a new mass storage device that doesn't have moving me-



Jessica Nunes

**Photo 1—The semiconductor chips and other electronic components handle all read/write functions.**

chanical parts. A major switchover to solid-state drives (SSDs) has been stymied by the present high cost per gigabyte (GB) for SSD storage. Since SSD capacity keeps doubling, and its price keeps falling, one can expect that the hard disk drive will eventually be replaced with solid-state drives.

At this year's CES, I learned that Google's new Chrome OS is about to show up in a slew of new netbook computers that will all have SSDs. Google wants a netbook that starts up in seconds rather than minutes, so Google is mandating SSD drives for their speed, super-long battery life, and fantastic shock resistance.

If these new netbooks succeed, SSDs will get the push they need to



Kingston Technologies

**Photo 2—The kit contains all you need to switch from an HDD to an SSD.**

become the mass storage device of choice—at least in the relatively new netbook computer marketplace. Since Google's plans for its OS are also expected to quickly expand to other segments of the computer industry, SSDs could ride the wave into all kinds of new products. SSDs are already the mass storage system of choice in cell phones, many iPod models, and most other small handheld electronic devices.

The SSD reads and writes digital information onto semiconductor chips that are mounted onto a circuit board. (See Photo 1.) The SSDs that are designed to replace your current computer hard drive have the same dimensions and connectors, so if it is

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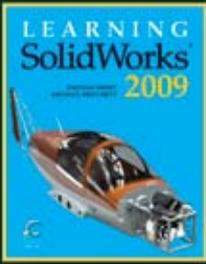
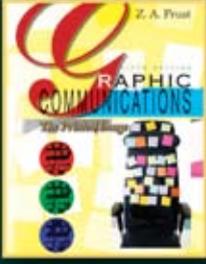
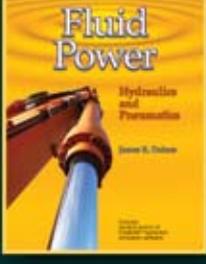
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easy to get to your hard drive, replacement is a snap. The solid-state drives are also software compatible so your computer system can access them the same way as before, just much faster, using less power, and also generating less heat.



Jessica Nunes

**Photo 3—If you have easy access, you can switch drives in minutes.**

The Kingston Technology SSDNow series is sold as an upgrade kit. (See Photo 2.) It includes all you need to replace your current hard drive and clone its operating system, programs, and your personal files to the new drive. The kit also includes an external drive enclosure that will turn your old drive into a backup drive.

If your notebook or netbook computer receives the rough handling and lap top use that mine does, you might want to take the plunge and replace its hard disk drive with an SSD. The key to performing the replacement is easy access to your computer's hard drive location. My Acer Aspire One D250-1958 has an access door on the bottom (Photo 3), which made the switchover extremely easy.

Many netbooks need to be completely disassembled to perform this same operation, so do some research before purchasing the SSD. You will need a CD drive to clone the software. Since my netbook didn't have one, I plugged in a USB CD writer and made certain it was compatible before I started replacing the drive. I also checked its location in the BIOS and moved its position so it would be the boot-up drive.

The physical switch involved removing the computer's battery,

opening the access door, removing the one screw that held the drive in place, unplugging the HHD, switching the drive bracket to the new drive, and then reassembling with the new SSD in the old hard drive's place. (Refer to Photo 3 again.) It was now a simple matter of following Kingston's directions to clone everything to the new SSD.

I no longer worry about every small or large bump causing a computer hard drive failure. I agree with Google's vision that the best fit for

the SSD, at this time, is the netbook computer. As these drives continue to grow in physical capacity and shrink in price, I expect that they will become the storage device of choice for all electronic devices.

### Recalling the Facts

1. What are the advantages of a solid-state drive (SSD) over a hard disk drive (HDD)?
2. Why do manufacturers still prefer installing HDDs in their new computers instead of SSDs? ☹

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