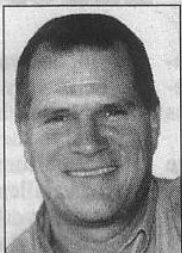


Laptops analysis could monitor earthquakes



John Deans

Probably one of the scariest feelings in the world is when you lose grip on your laptop and watch in slow motion as it falls to the ground. That split second has you either frozen in fear or clumsily grasping or even kicking to break the computer's fall.

Then it happens. The laptop hits the hard ground with keys flying, plastic shattering, and the LCD screen cracking.

You quickly pick it up and try to hold back the tears and fits of anger. The next day you take it to Harper at Computer Helpers and beg him to make it all better.

Once while carrying my laptop from room to room with the AC power adapter still connected, the cord loop caught on a door knob and pulled the laptop out of my arm. As it jerked from my hold and headed to the tile, I quickly kicked back and luckily broke the fall with the heel of my foot.

Another time I had my iPhone only a couple months and getting out of the truck at a client's home with a gravel driveway, I dropped my new precious

technical wonder on the ground. It landed right on the glass face and one small pebble cracked it. Good thing no one else was outside to hear my obscenities.

Laptop makers have actually tried to lessen the effects of those horrific drops by placing technology inside them to at least prevent data loss. In newer laptops from Apple, IBM, Acer and HP there is a small detector called an accelerometer which detects the acceleration induced by a fall.

In just milliseconds of the fall detection an emergency message is sent from the laptop's accelerometer to the hard drive to park the moving head into a secure position. This prevents the head from crashing onto the surface of the platters that would result in a catastrophic data loss.

This was news to me a couple months ago and I think it's a great idea. Even though I've been in the computer technology industry for 27 years now, I still learn something new technically every day.

This embedded accelerometer is constantly monitoring

the vibration and motion the laptop is subject to and data from those conditions is available for logging and transmission. Some really smart people in California are trying to take that accelerometer data and put it to another use.

That new application is to connect thousands if not millions of laptops all over the world and have the accelerometer data continuously fed over the Internet to a central server farm for analysis. This dynamic data analysis can serve as a monitor for earthquakes.

This project is called the Quake Catcher Network (QCN) and it is based out of the quake-prone San Francisco Bay and the Greater Los Angeles Basin areas of California.

Jesse Lawrence of Stanford University and Elizabeth Cochran at University of California, Riverside are working together to create a large test group of laptops comprising the initial matrix of the Quake Catcher Network (QCN).

Desktop computers do not have accelerometers but inexpensive USB connected devices can be purchased and installed to deliver the same capabilities. The transmitting software

is relatively small and efficient running in the background taking up a miniscule amount of system resources therefore staying transparent to the user.

This QCN software running on the laptop is smart enough to eliminate motions like a simple bump, passing truck or train, and even a drop thereby only transmitting motion traces that originate from significant earthquakes.

Though the professors do not intend to be able to predict earthquakes they may be able to quickly relay critical information that could save lives. All this personal computer based seismic data is transmitted to database servers and can be configured to alert critical entities like high speed rail operators or bridge span authorities to enable them to halt trains or evacuate bridges in effected areas of a detected earthquake.

Even a couple of minutes warning could have decreased

the death toll of major earthquake events like the devastating Northridge earthquake which hit Los Angeles in 1994.

If the QCN network grows and is configured worldwide it could then monitor very large areas of the earth for dangerous seismic activity. Remember that big earthquake that triggered a devastating tsunami the Indonesia in 2004?

Had a system like the QCN been implemented throughout that side of the world numerous low lying areas could have been warned in two to five minutes from the automated warning system rather than the 30 minutes or more it actually took, possibly thousands of lives could have been saved.

Since here in Texas things are pretty stable seismic-wise so I will not be installing the free QCN software on any of my laptops, but I would if we lived in California. Of course with my hard line political outlook

they'd be chasing me with pink eco-friendly pitchforks.

Over the years networked computers have been used for both good and bad. They exchange data like email, business data, and family photos.

They also send viruses, worms, spam and porn. Hopefully this QCN seismic monitoring system becomes one of the good ways networked computers and the Internet is used to make a world just a little bit safer.

Bottom line: The Quake Catcher Network (QCN) is trying to take a capability that protects us butter-fingered laptop handlers to save the rest of the world.

Next week's column: Defragmentation.

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