Neutering technology is an insult

by Jonathan Sidener

Engineers have a hard-enough time getting gadgets to work reliably, so it's astounding to think about companies' intentionally crippling a technology.

Lamborghini would never cap the speed of its cars at 55 mph, but cell phone carriers will disable portions of the wireless Bluetooth technology in some phones. They don't want people to move music files to phones for free when they could be forced to download them from company stores or via the carrier's revenue-generating data networks. And they want don't want customers to share a phone's Internet access with a laptop when they could sell a separate data plan for the laptop.

Bluetooth is designed to do both these things, so the companies have to go out of their way to neuter the technology.

While we're talking about phones, most cell phones come "locked" to make it difficult for users - the rightful owners - to take the phone along when they bolt to a competing company. If you break it, it's yours. But if it still works, it's not fully yours because the companies have added unnecessary encryption to prevent it from working on other networks.

In the music world, Apple's iPod is hard-wired to prevent it from playing Microsoft Windows Media files, the format used by competitors to Apple's iTunes. Apple's restraint of the iPod's technology has riled European regulators.

Microsoft's Zune MP3 player has similar handcuffs keeping it from playing iTunes songs. Zune also features crippled Wi-Fi that prevents it from loading music wirelessly from a computer or accessing the Internet.

Broadband Internet providers boastingly advertise the speed of their services. What they don't tell you - at

least in print that you can read without a magnifying glass - is that the upload speed is a fraction of the download rate. Upload speed is intentionally capped so they can squeeze more users onto their networks.

That was fine in the early days when people mainly looked at Web pages and sent e-mail. In today's user-content, YouTube world, crippled upload speeds are a drag.

Have you ever wondered why Web-cam video is so fuzzy and herky-jerky on a 10-megabits-per-second connection? It's primarily because the upload speeds are usually capped at a half-megabit or less.

Consumers live in a world where we spend a growing amount of time talking to outsourced, English-as-a-second-language help desks trying to figure out why the DVD, or PC, or iPod, or camera, or DVR won't work. We have more gadgets today. Most of them work most of the time, and we generally accept help-desk hassle when they don't. But when things are broken on purpose, that's just insulting.

The latest example of a crippled technology comes with the innocuously geeky acronym HDCP, or High Bandwidth Digital Content Protection. The beauty of HDCP is that it has the potential to cripple not just the device it comes in, but other devices you already own.

Hollywood sees older HD-TVs and the way they connect to movie players as a weak link in protecting movies from piracy.

If you're one of the estimated 10 million Americans who bought an HDTV before 2005, you probably bought it with the expectation that you one day would watch high-definition movies on the new TV. You probably had a sales rep tell you that Blu-Ray and HD-DVD movies and players were on their way.

Well, guess what: Sony's Blu-Ray and HD-DVD both include HDCP. That means they're capable of downgrading HD movies to play at about half of full quality on older, non-HDCP TVs. That covers most, if not all, HDTVs made before 2005 and many manufactured after that date.

The key word in the above paragraph is "capable." The electronics manufacturers and Hollywood studios say we don't have to worry. There are no announced plans to use that capability in HDCP.

Pardon my skepticism, but why would companies pay to add electronics to media players and TVs and then pay licensing fees to Intel, which devised HDCP, if it's not going to be used?

In 2004, the Federal Communications Commission approved HDCP as a content-protection technology. It protects by encrypting digital signals between the device that plays the digital content and the HDTV or audio system. Pre-2004 HDTVs, with their analog and unencrypted digital connections to movie players, are seen as a weak link that hackers could exploit to make a high-quality digital copy of a movie or song.

The HDCP system allows them to limit the playing of high-quality digital content to HDCP-protected devices.

HDCP protects premium content, primarily high-definition movies and ultra-high-fidelity music such as DVD-audio. Standard DVD movies and CD audio aren't affected.

Controversy over the technology simmered until the recent release of Microsoft Vista, which includes HDCP support. Microsoft heard from a lot of outraged customers whose PCs were connected to older hardware.

Consumers with analog connections between their monitors and PCs - that's most of us - might download a

high-definition movie only to find that Vista downgrades it to sub-HD levels.

Anyone who adds a DVD-audio player to a Vista computer could get less-than-premium music coming out of the speakers if they have the wrong sound card.

In defending the inclusion of HDCP in Vista, Microsoft said it was something Hollywood had demanded. Critics say Microsoft, Sony and the HD-DVD manufacturers offered HDCP to Hollywood as a way to remove a roadblock on the road to the high-definition future.

Again, no one has released movies or music with the HDCP switch turned on. But all a studio would have to do is add a digital trigger to a movie or audio recording, and the hardware is primed to give you half the pixels or fidelity you paid for.

The kicker to the HDCP story is that researchers already have demonstrated a way to crack the encryption. Copies of high-definition movies no doubt will circulate on file-sharing networks. The only people who stand to be hurt by the technology are people who lack the time, inclination and technical skills to pirate movies. Their only crime is having a three-year-old HDTV or computer monitor.

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