PC Rattle and Hum Will Soon Gnaw at You Too

Dot COMMENT
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To all you readers who work with computers, let me apologize right now for this column. After you finish reading it, you may well become dissatisfied with the machine you spend your life beside. You may become annoyed or even mad at it. Then you'll get mad at me for identifying that maddening trait, which is something so constant that you probably hadn't noticed before but will never be able to disregard again.

Sorry. But don't blame me. It's all Mike Chin's fault.

Chin is a Vancouver-based technical writer, an affable guy in his 40s who happens to believe that computers make too much noise. My first reaction on being contacted by him was something on the order of "Pshaw. What computer noise? I'm not bothered by that." Then, over the next couple of days, the meme (a term for ideas that spread through the mind like viruses) took hold. "Damn," I thought. "These things *are* loud. I'd better call this guy."

According to Chin, his awareness was born about two years ago when he bought a third computer, a then-powerful one-gigahertz model, to hook into his network. But processing power wasn't the only thing that increased. "The noise was unbearable," he said over coffee in a Commercial Drive café. So he started taking the computer apart to find the causes of all that commotion. (It should be pointed out that Chin has a lot of experience with electronics. Before technical writing for hardware manufacturers, he sold high-end audio components, which he came to after youthful encounters with a soldering iron, building amplifiers, speakers, and such. He's not shy about popping the lid off something, but you should be. The rule is: if you don't know what you're doing, don't do it.)

Anyway, Chin began communicating over the Net with other aficionados of quiet computing. Then in March, in partnership with a New York–based Web designer he's never met in person or even spoken with directly, he launched *SilentPCReview* (*www.silentpcreview.com/*), an on-line publication that has since become the centre of an international community of people, from consumers and hardware hackers to engineers for manufacturing companies, who crave quieter computers.

Not only is the site a central depot for everything on this topic located on the Web, but there are discussion forums, lists of recommended components, and methods to quiet a noisy PC. At heart, "it's also a review site. There are a lot of articles with fairly original research in them, things like: can you run a standard power supply without a fan? People have no idea whether they should or shouldn't, whether it's safe."

Well, that's the sort of thing Chin has done: disconnecting fans, taking temperature measurements, waving sound-level meters around, experimenting with components from different companies, trying various methods of mounting those components, even devising names and classifications for the types of noises computers make. Then he writes it all up and invites comments from his readership.

"The particular type of sound matters; some sounds may be a little louder but are much less obtrusive. There's also the variability of the noise and whether periodic or random noises are created. If you contrast a hard drive that's seeking [speeding along looking for information] when it's mounted rigidly to a chassis versus the same drive mounted in a decoupled way [so the chassis isn't making or transmitting noise], the mounting to the chassis makes more of a difference than the actual sound a drive makes on its own."

So what are the biggest noise polluters? "Power supplies, hard drives, and CPU coolers [fans]. Those are the three key sources. Then, of course, you've also got fans on video cards and motherboards. What they [manufacturers] do now is make fans really tiny—they're usually between 30 to 50 millimetres across—but the rule of thumb with fans is the bigger it is, the more airflow you're going to get with less noise.

"The smaller a fan is, the more it's going to whine because in order to get any airflow you've got to get it running fast. They'll usually burn out anywhere from four months to a year. They'll start making screeching noises and die. If you go to any store in town that sells computers and ask them what comes in the most for repairs, that'll be it, especially with people leaving computers on all the time. But that's what they're told to do."

Chin favours intelligent cooling systems inside computer cases, fans connected to thermostats so they only fire up when needed. He also thinks most power supplies are too big. Three hundred watts is a common size, even though most setups will never use half that. If you reduce the wattage and use components that are already quiet and mount them decoupled from the chassis and turn the fan speed down, you can make a machine that scores well below ambient room noise in the city. "I have built several machines in the teens, about 12 to 15 decibels. If I can do it, why can't the manufacturers?"

Chin is seeing a gradual change among manufacturers toward quieter components. He expects that silent computing will soon be a common marketing scheme, whether the machines really are that much quieter or not. To take his investigation to the next level, Chin hopes to interest a UBC grad student, perhaps a mechanical-engineering major, in embarking on a study project using the sealed anechoic chamber (a room designed to absorb sound waves) at that school. "I haven't had any bites yet, but we'll see what happens. I think it would be a good project."

Somebody, please help this man. The din from my desktop computer now seems like a roar to me. I'll bet yours soon will too. Sorry. ■