Powering Down

By Heather Millar

One of the dirty little secrets of our networked, computerized "new economy" is that it actually uses an awful lot of old-fashioned power, most of which comes from coal and other polluting sources. The data centers that make search engines, online shopping, and long-distance business collaboration possible use 40 times more energy than regular office buildings, sucking up one to two percent of the nation's electricity.
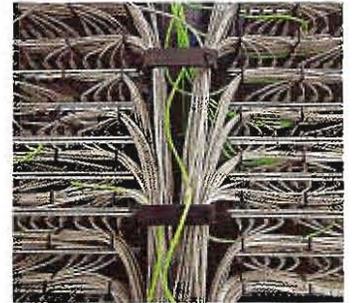
Or, think of it another way: The power used by all the server farms in the nation is roughly equal to the amount of power used by all the color TVs in the nation. With statistics like these in mind, the Environmental Protection Agency is drafting an Energy Star rating system for data centers, and the European Union recently published a voluntary "code of conduct" for green data centers.

Given the current economy, data-center power bills have not escaped executives' notice, either. As budgets contract, companies are looking into energy efficiency and more environmentally friendly IT. Here are how a few heavy hitters are going green to save some green:

Sun Microsystems /

If the boss's e-mail doesn't work, IT managers hear about it, so they tend to buy extra hardware and to prize redundancy. But this California computer company replaced energy-guzzling hard drives with flash memory chips that use half the energy of the industry standard.

Google /

Cooling data centers (which generate a lot of heat but operate best at about 70 degrees Fahrenheit) require not only power but water. As part of a five-point plan to green their IT, Google is switching to rainwater or city wastewater for their cooling needs. Google's Belgian facility, now under construction, will use 100 percent recycled water

IBM /

Consolidating servers can have a big payoff. This computer giant says it saved $250 million, partly in reduced power costs, by taking 16,000 internal servers off-line and replacing them with 30 big mainframe computers.

Unisys /

Increasing the number of outlets or installing energy-efficient air conditioning can help slash data-center energy use By raising floors 30 inches at its new green data center in Eagan, Minnesota, this technology consulting company will increase air flow and reduce air-conditioning needs.

10 Ways to Green Your Data Center

Quantify your energy usage. Powering servers will eventually cost more than the servers themselves, and a metering system will build support for green initiatives and save money in the long run.

Establish an energy savings plan that clearly lays out how metering data can be used to better manage consumption.

Reward energy savings and correct mistakes — break out energy use and savings by department or business unit.

Buy server software that takes energy into account. The new Windows Server software (with default energy savings enabled) claims to slash power bills by as much as 20 percent.

Buy efficient hardware. Server systems can waste a lot of power for many reasons, such as converting AC current into currents chips can use. Many companies are starting to market more efficient alternatives.
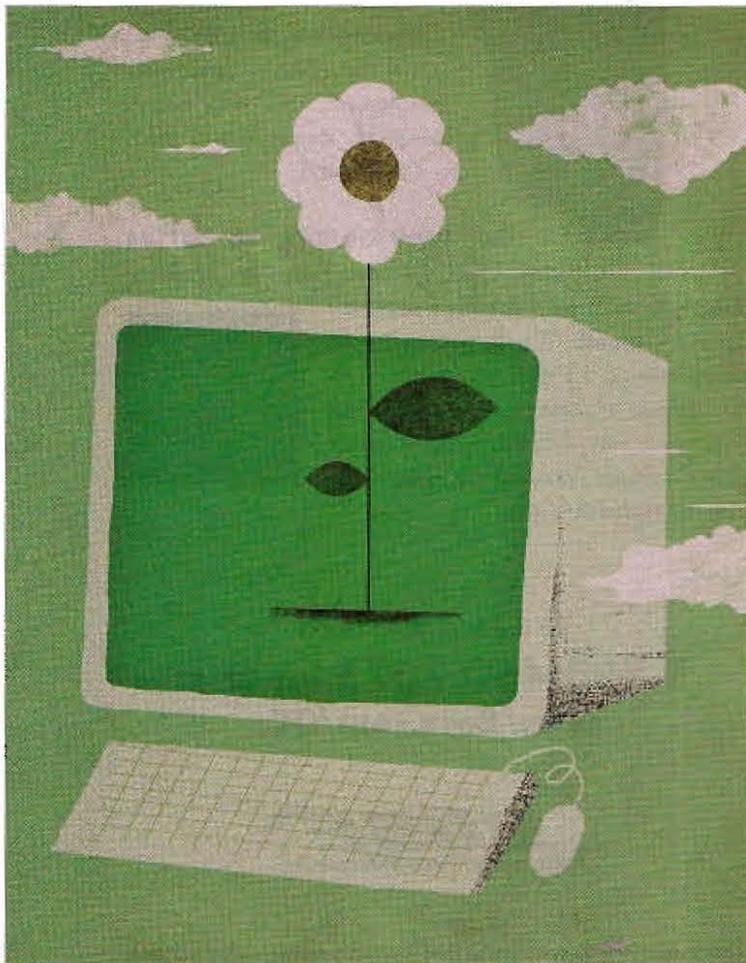
Consider "CPU throttling," or running processors at slower speeds when demand is down.

Consolidate servers — most data centers have much more capacity than they need.

Do "thermal profiling" to identify building hot spots and areas of overcooling.

Streamline electrical equipment that powers the servers, which can waste 10 to 20 percent of incoming current.

Buy more efficient air-conditioning systems.

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