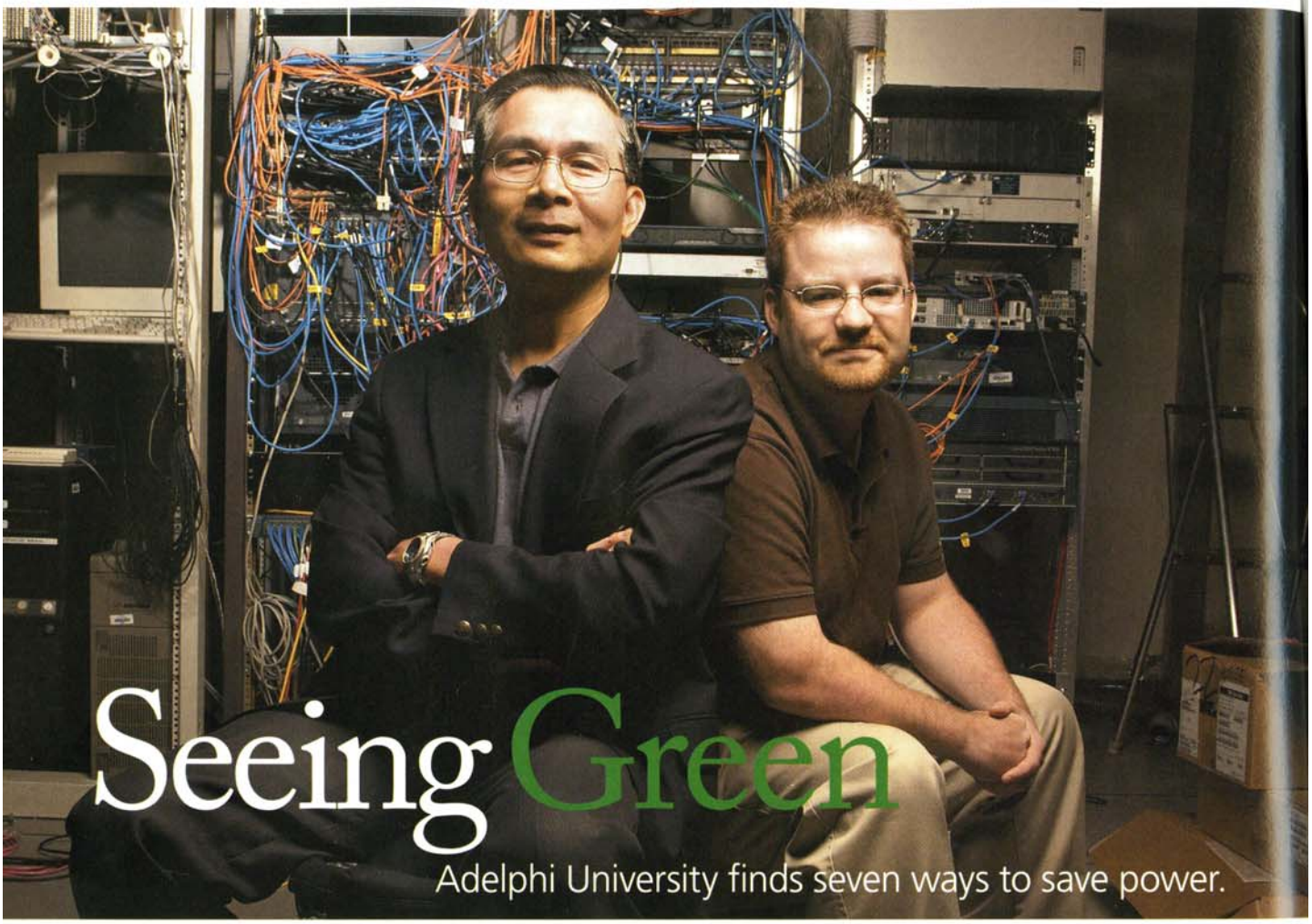

Seeing Green

Adelphi University finds seven ways to save power.

Whoever says it isn't easy being green doesn't know Jack. Jack Chen, that is. As CIO of Adelphi University in Garden City, N.Y., Chen recently revamped his department as part of a campuswide effort to go green that began three years ago. Aptly named the Green Campus Initiative, the plan is all-encompassing, from the use of organic fertilizers to environmentally smart building design.

The plan was so thorough that the information technology part of it alone included at least seven pieces, including traditional IT items such as more efficient use of hardware and software, as well as policies and even logistics. At least several of these processes would be applicable on any campus.

85% of IT buyers say green factors are important in planning IT operations.
SOURCE: Forrester Research, 2007

1. Power Down: The first part of the plan was merely to flip the switch. A year and a half ago, the department made the simple adjustment of shutting down 700 lab computers at midnight rather than letting them run all night. Chen says that saved the university $100,000 per year in energy costs. "We give instruction in the computer labs until 10 p.m.," says Chen. "But sometimes students hang around after the instruction."

2. Switch to Blades: Chen's department is also moving from standalone servers to an IBM blade center. After comparing servers from Hewlett-Packard and other vendors, Chen chose IBM because the department's software and information systems are IBM-based. "Sticking with IBM reduces our training requirements," says Chen, who expects about $50,000 a year in energy savings from the move to blades.

Switching to the blade center is the department's summer project, explains associate director of network and systems Fred Hicks. "We've got about 40 to 60 servers, and each one is an individual computer that runs a very heavy CPU load," he says. "It takes electricity, hard drives and resources for each individual system. The blade center has 14 slots so you can run 14 concurrent blades. We're going to be installing eight, so we have room to grow."

3. Make Virtualization a Reality: Also in the works is a transition to VMware's ESX virtualization software. "The virtualization software sits right on top of bare metal and emulates hardware, so we can run multiple operating

ANDREW KIST

ADELPHI'S JACK CHEN (left) and FRED HICKS help IT save money by embracing green.

systems, or multiple virtual machines, on a single blade system," Hicks says. "Essentially one physical blade will allow me to run eight virtual systems." Thanks to ESX, Hicks foresees being able to run from 40 to 50 virtual sessions on the new blade center.

The shift to virtualization software will enable the department to get full use out of the hardware. "When you have a server running a process, let's say e-mail, it's just sitting there processing mail, and its resources are averaging only 5 to 15 percent of what it can do," Hicks says. "By combining processes from different physical systems onto a virtual system, you're combining that 15 percent overhead with another 15 percent and another 15 percent until you get 100 percent utilization of your system."

4. Consolidate Storage: Centralizing storage was also part of the plan. "Each of those 60 servers has direct attached storage, so you have to manage the storage individually in each system," explains Hicks. Combining that into a storage area network (SAN) results in one storage area for all files. "It's going to give us a single point of management and it's going to be only six devices, shrinking our overall hardware footprint.

5. Stay Cool: A new cooling system, installed last year, has also helped the department cut energy consumption. Four five-ton units now do the work of two 10-ton units. "We run three units and do what we call 'exercising,' where we can rotate and alternate, so the hardware is not running all the time," says Hicks. The blade center will also help equalize the temperature in the room, according to Chen. "With all the servers on one side, one side of the room was always hot and the other side was always cold," he says.

6. Save Paper: Chen says they've also involved students in their conservation efforts by limiting the number of pages they can print to 500 per student per semester. "Before, there was paper all over the place," Chen says. "Now, we're saving not just on paper costs, but on toner, repairs and the labor costs associated with the constant restocking of paper."

22% of U.S. IT shops have written green criteria into their evaluation criteria.
SOURCE: Forrester Research, 2007

7. Easy on the Gas: Finally, the department has converted from gas- to electric-powered vehicles to transport computers around campus. "Adelphi is spread across 74 acres, so moving PCs around is a big deal," Chen explains. "Switching to electric is also good for the environment."

Fade to Green

Adelphi is not alone in its move toward green IT, but it is in the minority right now. According to a survey by Forrester Research, 80 percent of U.S. and European companies were aware of the environmental impact of their IT departments, but only 22 percent were doing something about it.

"There are a variety of barriers for IT departments," Forrester analyst Christopher Mines says. "Their goals are measured around reliability and availability, and they don't want to put these factors at risk, whether it's power management, virtualization or server consolidation. Most IT organizations don't see or pay for their companies' electric bills, so they're not [motivated] to cut back."

But Mines says he expects this to change fast, partly because of legislation. "Six states already have regulations in place regarding hazardous materials in IT equipment and disposal and recycling at the end of life, and we're on our way to 30 to 35 by the end of the year," Mines says. Also, IT vendors are increasingly offering environmentally friendly equipment. "Companies want to be seen as green, and an increasing slice of the investor world likes it, too," Mines says. "I think this is going to move pretty fast." ET

Spend Now, Save Later

You spend roughly 50 cents on energy for every dollar of computer hardware, according to analyst firm IDC. And this figure is expected to increase to 71 cents over the next four years. So if you have the budget for new equipment, these tips can save you money in the long run — and reduce your carbon footprint to boot.

- Power down all electronic equipment when not in use.
- Don't use screen savers — they consume 28 percent more energy than sleep mode.
- Run updates during the day to avoid leaving PCs on overnight.
- Set printers to sleep mode. They return to active status quickly when new print jobs are submitted.
- Buy Energy Star-compliant products. Americans saved $12 billion last year through the Energy Star program.
- Consider notebooks over desktops wherever feasible. They use up to 90 percent less energy.
- Replace CRTs with LCDs; they use one-half to two-thirds of the energy.
- Consider an all-in-one rather than separate fax, printer and copier. All-in-ones save on electricity and space, and reduce equipment heat emissions.
- Enhance the energy efficiency of your storage infrastructure by using consolidation, storage tiering, single-instance archiving, snapshot and cloning technology.

Sources: HP, EMC and IDC