



BACKUP/RECOVERY/ARCHIVING

CLUSTERING

CONSOLIDATION

DATABASE

MANAGEMENT/UTILITIES

MESSAGING

VIRTUALIZATION

CHALLENGE

Conserve energy and cut expenses at Dell by reducing the power used by approximately 50,000 of its computers during non-business hours

SOLUTION

Dell installed 1E NightWatchman® and SMSWakeUp™ software on its desktop and notebook computers: NightWatchman helps reduce energy waste by turning off computers overnight, and SMSWakeUp repowers machines from a centralized command

BENEFIT

Dell expects up to a 40 percent reduction in energy costs for desktop and notebook computers, leading to an estimated savings of US\$1.8 million annually

Dell on Dell: Energy Efficiency

Dell IT cuts energy costs by up to 40 percent with a new power management plan

Energy conservation is an increasingly important issue for organizations in a wide range of fields. Recent forecasts showing that electricity rates will likely rise almost 20 percent in the next decade¹ have grabbed the attention of corporate managers. As the cost of energy continues to rise, corporations are on the lookout for ways to reduce consumption. At the same time, government programs around the world are encouraging—and sometimes requiring—businesses to reduce energy waste. For example, the U.S. EPA Energy Star program, which promotes energy efficiency benchmarks in computers, appliances, and lighting equipment, encourages manufacturers of those products to meet efficiency and power consumption limits. Additional energy savings programs are in effect and in development in the European Union, China, Japan, and Australia/New Zealand. The goal is real and lasting results. In keeping with the spirit of the programs listed above, Dell sought a holistic approach based in technology that moved beyond specifying the efficiency of individual components and could even be employed on legacy systems.

Dell is firmly committed to meeting energy conservation benchmarks in manufacturing its products. The company is also determined to conserve energy within the corporation by improving the power management of approximately 50,000 in-house computers. “We want to take an industry-leading approach to energy conservation,” says Jay Taylor, senior engineer global strategist at Dell. “The

“ We thought that if we were going to be the leader in the industry in energy-saving programs, we should evaluate promising technology by testing it on ourselves first. We could then offer the lessons we learned with our experiences to benefit customers, enabling their energy efficiency through system improvements, tools, and best practices.”

— **Jay Taylor**, Senior Engineer Global Strategist, Dell

technology is now available to make significant improvements in conservation, and we set out to deploy that technology to both conserve energy and cut costs.”

Power management of company computers presented a significant untapped opportunity for conservation. In many offices, Taylor says computers are left on overnight, wasting power for those approximately 100 hours per week that they are not being used. “During the off-hours, those computers are creating heat,” he adds. “And by creating heat, computers require buildings to use more cooling, which uses even more energy.”

Dell develops a company-wide power management plan

To develop an energy conservation plan, Taylor’s team brought together several departments at Dell, including Product, Facilities Management, CTO, and IT groups. “We pulled together stakeholders from across the Dell organization and started talking about ways to save energy,” Taylor says. “The groups brought a wealth of knowledge about how the company operated.”

The team recognized that the power management plan had to ensure continued administrative access to computers. “We had to be sure that if an emergency patch was needed, IT administrators could access systems immediately,” Taylor explains. “That assurance is essential for our company, and we knew it would be important for any other companies that might adopt our power management model.”

At the same time, individual computer users needed to know that they could access information as required and that information would not be lost when computers are shut down or put to sleep. “Users might worry that they would lose information if an application is left open,” Taylor explains. “We had to address those questions with whatever solution we chose.”

1E NightWatchman and SMSWakeUp help Dell conserve without restricting access

The challenge was to adopt software that integrated with Dell’s corporate Microsoft® Windows Server® and Microsoft Systems Management Server (SMS) environment. The Dell team chose two applications from industry leader 1E. 1E NightWatchman software saves files and closes

applications and shuts down or places into sleep mode computers in the Microsoft Windows environment while preventing data loss and application errors. It also allows computers to be turned off from a central location, at a specified time, while providing extensive reports for management.

NightWatchman works with SMSWakeUp, which repowers computers in synchronization with Microsoft SMS. Administrators can boot computers from a centralized command so they can deploy security patches or new applications during off-hours.

While Dell pinpointed a select number of systems that should not be shut down, the project team decided that a great majority of office computers could be turned off after hours. “We separated the systems that needed to be on 24/7, such as building management systems or manufacturing control systems,” Taylor says. “But about 95 percent of the systems inside Dell do not need to be on all the time.”

Dell established a process to allow individual users access to their computers at night, if necessary. “Every computer is first considered as eligible to be shut down, and then exceptions are considered,” Taylor explains. “Exceptions are approved by a Dell vice president.”

With 1E software, the Dell team was also able to assure users that no data would be lost, even if applications were left open. “The program automatically shuts the application down, saves the document in a safe place, and allows the system to sleep,” Taylor says. “Once it’s shut down, a computer consumes just three to five watts per hour, as opposed to the average 89 watts consumed by desktops when idle.”

The 1E applications can also enable authorized administrators to make any necessary off-hours changes. “NightWatchman and SMSWakeUp allow you to maintain the network security and the availability that administrators require by allowing them to power up PCs, push a patch, and power them back down—all remotely,” Taylor says. “Administrators can accurately monitor desktops and retain control over the infrastructure, enabling proactive, immediate management.”

1E NightWatchman and SMSWakeUp tools also provide reports that help IT and facilities managers monitor how much energy is being consumed. “The system tells you how many systems are out there, how many went off, and how long they were off,” Taylor says. “If you input energy rates, the system can report the amount of energy saved in both kilowatt hours and costs.”



Dell helps maximize the effect of the power-saving initiative

The Dell team learned to develop best practices for implementing NightWatchman and SMSWakeUp. For example, the team established a staggered schedule for powering up computers to avoid overburdening network servers. Says Taylor, "By waking up all the computers at the same time, you can strain your network infrastructure and get a spike in your energy bill because it may trigger peak energy demands."

The team knew that the new power management process would have minimal impact on users, but the team still made sure to educate users before deploying the applications. "It helps to discuss the program's aims, inform users of their options, and explain how they will interact with the system," says Taylor. "Of course, right now, we have thousands of computers going to sleep and waking up on schedule. Our success means that, for the most part, our users don't even know the process is working."

Energy conservation results in US\$1.8 million savings

By deploying 1E's NightWatchman and SMSWakeUp applications to its 50,000 client computers, Dell expects to realize up to a 40 percent reduction in computer-related energy costs, which could translate into US\$1.8 million in savings annually.

Energy consumption for its desktop computers dropped to 5 watts per hour, down from an average of 89 watts per hour, and power consumption for notebook computers declined from a range of 15 to 25 watts per hours to 3 watts per hour. "These are significant cost savings that put us far out in front of regulatory benchmarks and show the rest of the industry what can be achieved," Taylor says.

In addition to delivering significant energy and cost savings, the Dell power management program has achieved its successes without disrupting

HOW IT WORKS

HARDWARE:

- Dell™ OptiPlex™ desktop computer
- Microsoft® Systems Management Server
- Microsoft Windows Server®

SOFTWARE

- 1E NightWatchman® and SMSWakeUp™ tools

operations. "We thought that if we were going to be the leader in the industry in this energy-saving program, we should test it on ourselves first," Taylor says. "We could then offer the lessons we learned with our experiences to benefit customers, enabling their energy efficiency through system improvements, tools, and best practices. We had confidence that the experiment would work well, but it turned out even better than we anticipated."

Although most regulatory standards today are focused on efficiency, smart employment of technology allows Dell to practice good corporate stewardship by achieving real reductions in energy usage. Improving energy efficiency in Dell products is an evolutionary activity included as a part of the Dell product development cycle. And ongoing efficiency improvements require investment in research and development and devotion of company resources. Taylor concludes, "Our energy conservation efforts go beyond allowing Dell to demonstrate its commitment to the environment—they offer a real-world example that empowers our customers to duplicate our success."



Microsoft



¹ Edison Electric Institute, "Rising Electricity Prices: A National Perspective," June 1, 2006, page 23. www.icc.illinois.gov/downloads/public/en/060602ecSolutionsPresEEI.pdf
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