

THE ECONOMICS OF "GREEN IT"

Leverage the Business Benefits of Eco-Friendly Computing

"Green computing" isn't just about saving the world for the next generation. The primary focus is cutting costs, improving efficiency, and getting near-term, measurable results.

The following questions and answers address the business benefits of eco-friendly computing and show strategies for how you can profit by going green.

WHAT IS THE BUSINESS RATIONALE FOR GREEN COMPUTING?

Power consumption of data centers doubled between 2000 and 2005. Gartner estimates that by 2008, 50 percent of current data centers will have insufficient power and cooling capacity to meet the demands of high-density equipment...[and that energy bills which] traditionally have accounted for less than 10 percent of an overall IT budget... soon could account for more than half.¹

"By 2010, about half of the Forbes Global 2000 companies will spend more on energy than on hardware such as servers."²

The upshot is that 80 percent of the world's data centers are now constrained by heat, space, and power requirements. Going green has become a business necessity to meet user demands within budget.

HOW MUCH POWER IS WASTED IN DATA CENTERS?

Gartner estimates that anywhere from 30 to 60 percent of energy in data centers is wasted³. Inefficient cooling systems are one problem. In addition to addressing this issue, another important step is to consolidate data centers by reducing hardware footprints and physical servers through virtualization.

Sun Microsystems™ just finished building three new energy efficient datacenters in the United States, India, and the United Kingdom with a three-pronged approach:

1. Assess Your Datacenter
2. Optimize Your Infrastructure
3. Deploy Virtualization Technologies

The results were dramatic: Sun consolidated 738 storage devices down to 225, yet increased storage capacity by 244 percent. The company also consolidated 2,177 servers to 1,240, yet increased compute power by 456 percent.

As a result of these changes, energy costs were cut by over 60 percent, saving more than \$860,000 in the first nine months. On top of that, the initiatives earned nearly \$1 million in rebates and awards from Silicon Valley Power.

WHAT ARE THE BEST PRACTICES IN GREEN COMPUTING?

In August, the Environmental Protection Agency issued a report, at the behest of Congress, recommending ways to reduce energy costs in data centers. The 133-page report identifies three sets of guidelines that define a data center: improved practices, best practices, and state of the art practices, including many Sun implemented at its own sites.

- *Improved practices* include low or no-cost activities, such as shutting down servers that aren't in use.
- *Best practices* revolve around things like "energy efficient servers" and buying more efficient uninterruptible power supplies.
- *State of the art practices* entail aggressively consolidating servers and storage, while enabling power management at the data center of applications, servers and equipment for networking and storage.

This report can serve as a good model for companies wishing to move to a higher level of eco-friendliness. "It's a function of [what] any organization needs to do good planning and implementation of best practices that currently exist,"⁴ Andrew Fanara, head of the EPA Energy Star development team, told reporters.

WHAT IS THE BIGGEST DETERRENT TO GREEN COMPUTING?

At many companies, the facilities' management department makes decisions on energy costs and availability, but has little to do with IT decisions. In the past, CIOs often had no idea about rising energy bills until power and cooling issues prevented them from adding servers to the data center. That is quickly changing. "More chief financial officers are becoming aware of the energy bill and are starting to hold CIOs responsible,"¹ says David Douglas, Vice-President of Eco-responsibility at Sun Microsystems.

WHAT OTHER FACTORS MAY FORCE GREEN COMPUTING?

In the August report by the Environmental Protection Agency their best practices include aggressively consolidating servers and storage, while enabling power management at the data center of applications, servers, and equipment for networking and storage. In the future, some believe that IT executives might find themselves held to clear governmental standards for green computing.

WHAT ACTIONS CAN BUSINESSES TAKE TO CONSUME LESS IN TERMS OF ENERGY, HARDWARE AND POWER, WITHOUT AFFECTING THE BOTTOM LINE?

New washing machines and refrigerators carry an EPA rating to denote energy efficiency. With the introduction of the eco-friendly Sun Fire™ T1000 and T2000 systems, Sun also developed an energy-efficient metric for IT products — called SWaP — which takes performance, space, and power wattage into consideration. SWaP stands for space, wattage, and performance. This metric allows IT departments to have a simple gauge to determine how "green" a piece of technology is.

WHAT TECHNOLOGY HAS SUN DEVELOPED TO PROMOTE GREEN COMPUTING?

Sun engineers and scientists have developed many products and services that provide superior computing power while requiring less space and less energy. These include the Sun Fire T1000 and Sun Fire T2000 servers with the CoolThreads™ technology, the Sun Ray™ Virtual Display Client, and the revolutionary Project Blackbox™ virtualized data center, as well as the Sun Open Work Practice services program, the Sun Eco Assessment Service for Web Tier, and much more.

"At one call center, we received a call from our local utility on the morning after we replaced PCs with Sun Rays. They were concerned about the sharp drop off in our power consumption."⁵

– Carl Eberlina, Verizon

WHAT BENEFITS HAVE COMPANIES EXPERIENCED IN THE REAL WORLD FROM GREEN COMPUTING?

Sun Microsystems can provide real-world case studies and references that are applicable to any business and any technology need. For example, Cedars-Sinai Medical Center, one of the world's largest medical research facilities, is using a Sun high-performance computing grid to make discoveries that could lead to personalized medical treatments for life-threatening diseases. What's more, this solution reduced power by 67 percent when systems are not in use, saving \$60,000 and two months' time with pre-assembled grid by the Sun Customer Ready Systems program.

eBay used the eco-responsible Sun Fire T2000 server to grow its infrastructure while reducing facilities costs for cooling, power, and space. Verizon turned to Sun Ray clients, which need only one-twentieth of the power of the average PC, to reduce the overall electric power bills at new call centers by about one-third.

"At one call center, we received a call from our local utility on the morning after we replaced PCs with Sun Rays," says Carl Eberling, Verizon Wireless, Vice President of IT. "They were concerned about the sharp drop-off in our power consumption."⁴

WHAT DOES SUN PLAN FOR THE FUTURE?

By 2008, Sun intends to introduce several new products that offer 30 times more performance compared to products offered in 2003 — while using one-tenth the energy and generating half the heat. Internally, Sun will implement a thin-client IT architecture where processing takes place on the network in all Sun facilities. This will significantly reduce both power and materials consumption.

WHAT CAN YOU DO NOW TO CUT ENERGY COSTS, BOOST PERFORMANCE, AND IMPROVE THE BOTTOM LINE?

New energy-saving hardware and improved techniques like virtualization can help any company slash energy bills, increase performance, and provide greater service. Please call 800-848-4883 for a free, no-obligation consultation about ways your business can profit from green computing.



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¹ Gartner.com, <http://www.gartner.com/it/page.jsp?id=499090>

² Businessweek.com, http://www.businessweek.com/technology/content/may2007/tc20070514_003603.htm

³ <http://www.snseurope.com/snslink/news/printer-friendly.php?newsid=5375>

⁴ SearchDataCenter.com, http://searchdatacenter.techtarget.com/originalContent/0,289142,sid80_gci1266791,00.html

⁵ Sun.com, http://www.sun.com/customers/index.xml?c=verizon_wireless.xml

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