

Green IT



A **xerox**  Company

Green IT? It's about using all your company's assets wisely, including people. A greener environment involves physical changes in the data center and behavioral changes among employees.

At ACS, we've developed a comprehensive "Green IT" initiative in our own organization. It establishes best practices for implementing and adopting a solution that reduces costs, while creating a replicable solution for our clients.



Going Green

"Green IT" is certainly a hot topic these days. It's overused, underdefined and, in some cases, just a catch phrase to sell product.

We define Green IT as using our assets more efficiently – from the design of our data centers to the way our people interact with one another. (The fact is, consolidating servers to reduce space and save power won't have any impact if employees continue to forward documents around the company for approvals.) Conservation must extend enterprise-wide.

By the very nature of what we do – optimizing resources and driving operating efficiency – we reduce waste. Part of that commitment is our internal Green IT initiative, where we test our strategies, evaluate the results and, in essence, do the heavy lifting.

We determine what works and what doesn't. Then we identify best practices for implementation and adoption, and share our findings with you. As a result of these ongoing efforts, we not only run a "greener" global IT operation, but a leaner one as well. And that helps save our clients money while we help save the planet.

Green IT

Creating a Greener Data Center

Data centers require power and cooling to function properly. But that doesn't mean these centers have to be wasteful. By changing the way we configure our data centers, we can reduce consumption and continue to deliver a high rate of response.

One opportunity is in the use of virtual servers. For example, a typical data center may consist of 15 to 20 servers, all operating at 20 to 30 percent capability. Using server virtualization software, we can consolidate processing into a single unit operating at nearly 100 percent capacity. So, we accomplish more with less, and reduce the physical size of our facilities and the power they consume.

Typically, a server runs a single operating system and one application. But with virtualization software, that server can run multiple operating systems and applications, doing the job of as many as 30 devices. In fact, the Uptime Institute estimates that turning off just one \$2,500 server will save

up to \$1,270 per year in direct electricity and cooling costs – not to mention associated software and maintenance costs. (Ghahremani, Yasmin, "The Other Green," 15-July-2008. CFO, 09-Sep-2008 www.cfo.com)

Changing Behaviors Enterprise-Wide

Sure, we can create a green data center. We can put solar panels on our rooftops. We can change all our vehicles to hybrids. But if our people continue to conduct business in the same way, day after day, our greener goals will go unrealized. The fact is, the biggest roadblock to a successful Green IT operation is behavioral change.

Yes, data centers are the worst power hogs on a per-machine basis. But front-office computers are actually responsible for a larger percentage of energy costs in most companies. One energy-saving technique is literally at our fingertips: turn on the power-management functions that already exist on PCs, or use power-management software for even greater savings.

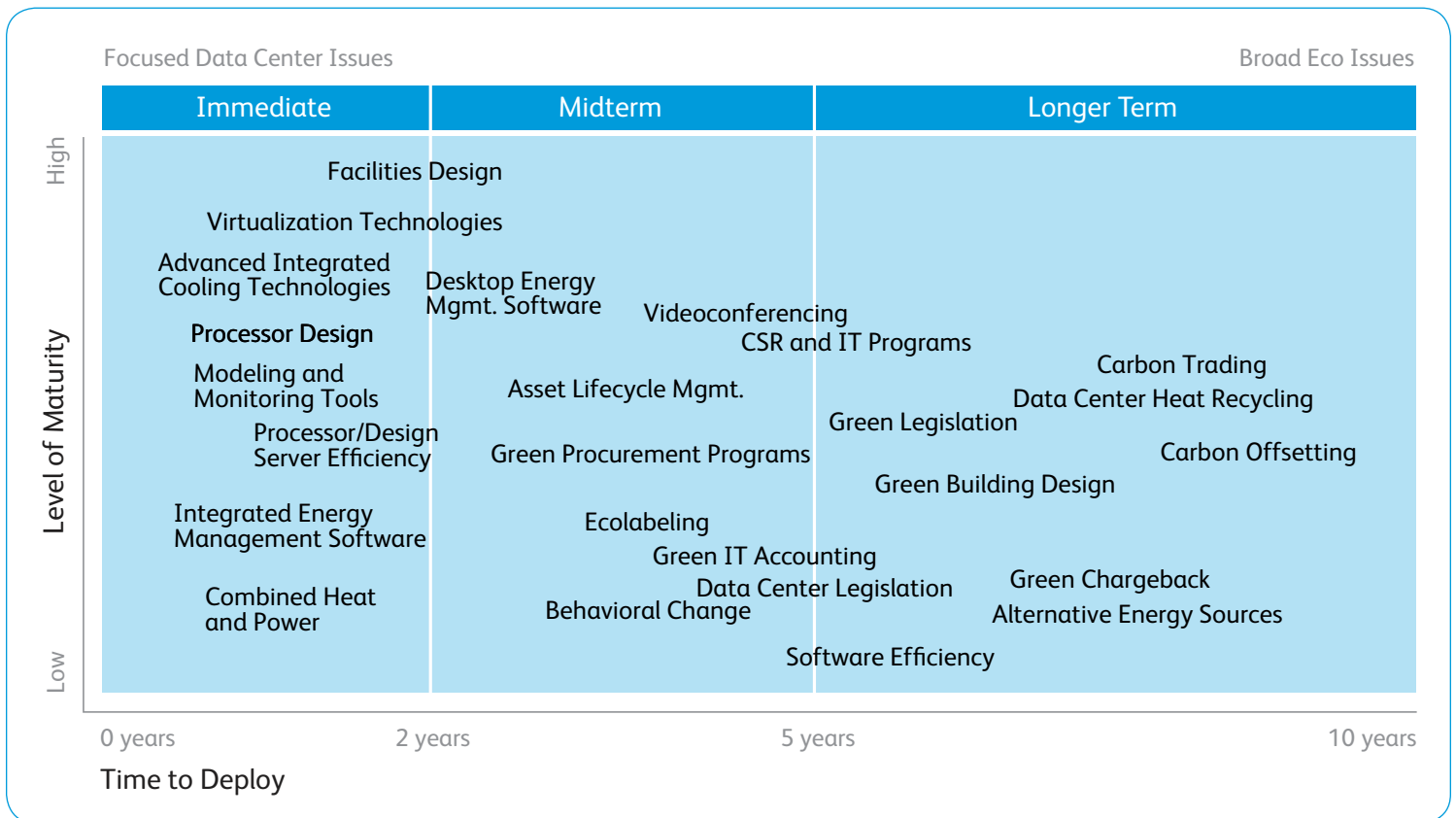
"Depending on the practice, you can see dramatic savings – around 50 percent on the electricity bill for your PC population," says Christopher Mines, senior vice president at Forrester. (Ghahremani, Yasmin, "The Other Green," 15-July-2008. CFO, 09-Sep-2008 www.cfo.com)

Saving Time, Saving Money, Saving the Planet

As a responsible corporate citizen, we're committed to reducing our carbon footprint and making smarter use of all of our resources. As we go forward with our Green IT strategy, we're acting as our own test case and:

- Determining what works and what doesn't
- Identifying ways to speed new tool adoption
- Developing metrics to measure success.

In the end, we'll have not only a more cost-efficient, greener operation, but also a road map for you to use to make your own organization greener and leaner.



Keeping Our Cool

Directing cool air where it's needed most – through the use of hot aisle/cool aisle configurations – dramatically saves energy.

Computer systems have front-to-back airflow systems. By installing these systems front-to-front and back-to-back, we funnel the cool air in through the front of the rack, where cooling is needed, and vent the hot air through the system's back exhaust, up to the air conditioning unit's return ducts. This configuration eliminates the flow of hot air into the intake air of another system and creates a cooler computing environment without increasing energy consumption.

HP, for example, has devised a scheme called Dynamic Smart Cooling (DSC). It links servers' temperature sensors to air conditioners, so that blasts of cool air can be directed toward particular servers only when needed. These systems can reduce cooling costs by 25 to 40 percent, according to Paul Perez of HP. (*Economist* staff "Going Green," 5-March-2007. CFO, 09-Sep-2008)

If a computer rack has empty spaces, cool air is going where it's not needed. Inserting blanking panels in these empty vertical component slots can reduce this problem, maintain proper airflow, and concentrate cooling where it's needed the most.

We're also researching the logistics of replacing the roofs of our data centers with Green Roofs. These consist of vegetation planted over a waterproofing membrane. This structure filters pollution, while also reducing building temperatures by as much as 12 degrees without lowering the thermostat.

Alternative Energy and Conservation

We continue to explore the use of alternative energy to power our data centers, including:

- Biodiesels
- Solar power
- Hydro power.

We've already invested in a wind turbine to power a data center in the United Kingdom. To put that in perspective, these alternative energies can reduce charges by 10 to 12 cents per kilowatt hour, depending on location, to 2 to 33 cents per kilowatt hour.

At the same time, we're examining where we can cut back consumption with more-efficient lighting systems. In addition, a "lights out" policy turns lights off and powers down equipment that's not being used.

These small changes add up to big savings. A typical desktop PC with a 17-inch LCD monitor requires about 100 watts to operate a day – 65 watts for the computer and 35 watts for the monitor. If this same desktop system is left on 24/7 for one year, it will consume 874 kilowatt hours of electricity. That's enough to release 750 pounds of carbon dioxide into the atmosphere, and the equivalent of driving 820 miles in the average car.

Reducing Paper, Saving Trees

The environmental importance of reducing paper use is undeniable. Trees absorb carbon dioxide and other dangerous gases. And, in turn, they replenish the atmosphere with much-needed oxygen.

We promote a paper-free environment, eliminating individual printer stations and encouraging a totally electronic workplace. Cutting office paper use by just 10 percent prevents the emission of 1.6 million tons of greenhouse gases. Thus, a little effort adds up in a big way.

Recycle, Recycle, Recycle

Every year, nearly two million tons of computers, monitors, cell phones and VCRs were discarded in the U.S. alone. About 70 percent of these discarded computers end up in landfills, leaking lead, mercury and arsenic into our ecosystem.

We have a strong recycling program for all of our technology, after thorough data cleansing. We work with an outside company to harvest salvageable parts and recycle the rest, with a zero-landfill policy. The key to sustainability is to let no salvageable part go to waste.

More-Efficient Collaboration

In a typical business environment – ours included – e-mails fly, forwards flourish, and the phone constantly rings. We're currently testing a full range of collaboration and communications tools to help our people work smarter and greener.

For example, instead of forwarding documents through multiple people to gain their insight, we put the document in a shared team space and have team members go to it. Everyone can see each other's input, margin of error is reduced, and computer resources are conserved.

If an employee has a quick question, an instant message or text message is far more efficient than a phone call. Ideas can be exchanged in blogs. Resource material can be created in Wikis. And employees can have their own "home pages" populated with the resources, news and up-to-the-minute communications they need at their fingertips.

Going Virtual

These new tools not only drive efficiency, but they also make the virtual office a productive reality. As a result, fewer cars are on the road, less space is needed, and more time is spent working instead of commuting.

These tools also eliminate boundaries. When they are implemented, established and, most importantly, used, collaboration goes global. Employees can easily exchange ideas, regardless of world time zone. And they can "meet" virtually, via videoconference, without ever checking a bag or showing a passport.

Green IT

Contact Us

ACS ITO Communications

ito-communications@acs-inc.com

About ACS

We are part of Xerox's \$22 billion global enterprise with 140,000 employees serving our clients in 160 countries.

You can learn more about us at www.acs-inc.com.



A **xerox**  Company

Source: Gartner (August 2008)