

Making your IT department sustainable is best done the same way you'd "green" your house or home: starting with easy, quick, high-return steps. Learn to create your baseline footprint, draft a list of green objectives, and plan real-life steps to meet them.

Executive Overview

Making an IT department environmentally friendly requires a big-picture strategy filled with incremental steps. This document is designed to assist organizations in the development of a Green IT strategy and provide them a step-by-step process to create a plan to reduce their organization's environmental footprint. This paper will cover the three steps necessary to develop a green plan including:

1. Creating a baseline of the environmental footprint
2. Developing reasonable green objectives
3. Implementing green practices with potential for significant impact

After reading this white paper, you should be able to guide the development of a Green IT plan for your organization with simple and easy-to-implement tactics that will make a significant difference in the IT environmental footprint.

Introduction

With high-profile figures such as Al Gore calling attention to the planetary crisis, and global warming becoming a part of everyday conversation, the result is a raised social consciousness that every behavior impacts the world in one way or another. The IT department is no different, and if yours is like most others in corporate America, you're starting to field inquiries about how green your operation is. Everyone from the board of directors down to the desktop users and in some cases outside customers are starting to ask more questions about the impact their organization's desktop computing has on the environment.

While a concern for most IT departments in corporate America, Green IT needn't be a crisis. A thoughtful big-picture strategy built upon incremental steps towards a cleaner, more energy efficient and environmentally friendly IT department is the key to success. This white paper is designed to help you build that big-picture view and share the incremental steps that will help your organization achieve its long-term Green IT objectives.

Before you can begin the process of creating a Green IT strategy, it is important to have a basic understanding of how IT can impact the environment. The primary environmental impact of IT is comprised of the resources and energy required to manufacture, run and dispose of IT hardware. This paper is not designed to address these issues in depth – rather it is meant to translate the issues into action items for your organization. For background information on the effects IT has on the environment, please see Verdiem's white paper, "PC Power Management - A Solution for Today."

Creating a Baseline

The first step towards creating a Green IT strategy is to create a baseline of your organization's current impact on the environment from an IT perspective. For the sake of reduction, cataloging improvements and planning for future energy needs, a solid understanding of the current carbon footprint made by your IT house, if you will, is necessary.

The need for creating a comprehensive baseline of the environmental impact of IT cannot be understated. Understanding the current state of affairs will help in examining the elements of green IT that are within the control of your organization, and those that are not. In addition, understanding your current practices will help guide any discussions about trade-offs and when a green objective will take priority over a cost or performance objective. Furthermore, the baseline will help in the evaluation of payback on any green initiatives that are slated. Armed with this baseline of information, you will be able to inform and educate others on reasonable green objectives and highlight the successes from initiatives designed to green-up IT.

Step 1 – Energy Consumption Analysis

To start this baseline, you will need to create an energy consumption baseline based on your current IT hardware: desktop PCs and associated monitors, laptops, servers and equipment, and networked peripherals

such as printers and scanners. This inventory will be used to create an estimate of annual energy use.

One method of creating this energy consumption baseline would be to take a current IT asset inventory and create a mathematical estimate of your energy consumption using industry averages from organizations such as the Department of Energy. Verdiem Corporation provides a calculator to assist in this type of simple analysis which can be found at: <http://www.verdiem.com/calculator/calculate.asp>.

A simpler approach would be to utilize software that manages the PC energy settings at a network level. These solutions, such as SURVEYOR software from Verdiem, give you a more accurate picture of energy consumption at your organization based on actual user behavior. Utilities and energy service providers are often an excellent resource when looking for this type of solution.

In addition to the energy consumed when operating the PC, take into account the heating, cooling and ventilation requirements necessary to operate your network. This can account for a major source of green impact. According to IDC, 48 cents of every dollar spent on a new server goes to power and cooling.¹

Step 2 – Catalog disposal practices

The next step in creating your footprint baseline is to catalog your current hardware disposal practices. Does your organization utilize a certified PC recycler, who ensures toxic and hazardous materials inside the PC or monitor are disposed of properly? Do you participate in the server manufacturer's disposal program where parts are returned to them for reuse whenever possible? Account for resale or donation programs as well in your catalog.

Step 3 – Examine acquisition and hardware lifecycle

The final step in creating your baseline is to catalog your acquisition and PC lifecycle practices. Understanding the average lifespan of a PC in your organization will help to determine how to consider the environmental impact of manufacturing a PC. Note the average refresh cycle of your organization's desktop, as well as the current lifespan of servers. Include any significant upgrade or replacement plans in the next 12 to 24 months. In this step also take note of any consideration your organization gives to green manufacturing practices during the purchasing process.

Green Objectives

Now that you have a baseline of your IT department's current environmental impact, start identifying and focusing on some green IT objectives for your organization. Every organization is different, and objectives will be the result of cost-reduction, regulatory and/or legislative requirements and social responsibility promises made by the organization.

The objective of going green is fraught with many trade-offs along the way – meaning sometimes what seems like the Green solution may not really be green at all. For example, if your organization sets an objective to replace existing desktop units with those that operate more energy efficiently to reduce environmental impact, a more environmentally friendly decision may actually be to keep your current equipment and operate it more efficiently. A 2004 United Nations University study showed that 1.8 tons of raw materials are used to manufacture the average desktop PC and monitor.² That means the machine's lifespan is a significant factor in how green it is. The best way to minimize the impact on the environment from a personal computer therefore is to extend its useful life as much as possible. Understanding the business driver behind an objective will help ensure the decisions made to meet objectives are as green as possible.

Small Steps, Big Gain

With an environmental impact baseline and a list of green objectives, now begins the process of implementing practices that green-up an IT department. When one decides to make their home more environmentally friendly, they don't begin the process by ripping down their existing structure and starting anew. Instead, most people start with the small things that build to big impact and savings; things like turning lights off when not in the room, fixing leaky faucets or replacing standard light bulbs with compact fluorescent ones. When it comes to creating a Green IT shop, this same strategy is a great starting point.

The following IT practices are green and will support your overall Green IT strategy.

PC Power Management

The single greatest opportunity for reducing energy consumption in most organizations is to implement a network-level PC power management solution. Historically most organizations have kept desktop PCs on 24-7 and set operating system power management settings to monitor off or standby, - both of which consume almost as much power as a fully powered, idle machine. In the past IT has been faced with an either-or decision regarding PC power management. Desktop managers needed access to networked PCs for general maintenance and urgent security updates. Inconsistencies between operating systems and software applications or network security issues made waking machines from a lower power setting such as sleep or hibernate inconsistent and unreliable. Operating system and software applications in addition to network-level PC power management software solutions address this issue and opened up a significant opportunity for organizations looking to save money and energy consumption.

It's hard to find someone who will argue with the notion of turning the light off in an unoccupied room,

and the same principal should apply to idle computers in your organization. Conservative estimates put wasted energy consumption of unused computers at a third of the overall consumption. With a network-level PC power management solution, organizations can implement policies that reflect user behavior, accommodate IT maintenance needs and ensure a reduction in energy consumption for idle computers – all done without impacting user productivity.

The simplest way to increase energy efficiency of a PC is to use a network-based solution to implement power-setting policies that reflect user behavior and turn the machine to sleep or hibernate when not in use. Most organizations that implement a PC power management strategy find they can save between \$20 and \$60 per PC annually, and reduce overall energy consumption by at least a third. For an organization with 5,000 PCs, for example, that savings translates into reducing their carbon emissions by 1.7 million pounds every year. This action can save organizations big money, and have a very significant impact on the environment.

Extend the useful life of IT hardware

Another opportunity for organizations to reduce their environmental impact is to extend the useful life of their IT hardware. Some IT articles present the misguided strategy of replacing existing equipment with equipment that is more energy efficient. What this strategy fails to consider is the impact manufacturing has on the environment. The amount of raw materials necessary to produce the average PC is equivalent to the amount of materials necessary to build a mid-sized car.³ The lifespan, however, of a mid-sized car is approximately 10 years, while most PCs have an average lifespan of three years in corporate America. By extending the life of PCs in your organization, you can significantly reduce the environmental footprint of that PC.

Another way to extend the useful life of IT hardware is to delay your refresh cycle by 6 months to a year. The delay will likely have little impact on desktop reliability while providing a big benefit to your green IT program.

To that end, when PCs are at the end of their lifecycle in your organization, participating in a PC recycling program that focuses on reselling the machines or donating them to charities that put them to use in schools or shipping them over-seas to third world countries can extend the useful life of that PC by as much as 6,000 user hours. While these programs can require a little bit more from an IT department than shipping them directly back to the manufacturer, they go a long way towards reducing the overall environmental impact caused by manufacturing the PC.

TRULY Green recycling programs

Ensuring proper disposal and recycling of the insides of your IT hardware is another green tactic. More than 1,000 chemicals used during electronics production are considered a health hazard or toxins. According to a recent e-Week article, these toxins, such as lead, mercury, and cadmium have been linked to cancer, reproductive problems and other illnesses.⁴ According to Silicon Valley Toxics Coalition, this so called e-waste is the fastest growing part of the waste stream, accounting for 2 percent of the municipal solid waste in the US.⁵ Many cities, counties and states regulate the disposal of IT hardware and require the same care and caution as hazardous waste. Most organizations already implement this green strategy. Reviewing your current recycle and disposal program to ensure that all recyclable parts are returned to the manufacturer, and that equipment bound for disposal is not sent to countries with less-stringent regulation is another green strategy that has significant impact and is easy to implement.

Considering green in acquisition

Beginning to understand the energy efficiency of new acquisitions is another green strategy that is easy for IT to implement. It is a given fact that in order to maintain your IT department, investment in new hardware is necessary. While the idea of replacing all existing equipment for the sake of energy efficiency is a decidedly bad and unnecessary strategy, ensuring efficiency in new and necessary purchases is a no-brainer. Unfortunately, most companies are not investing in energy-efficient PCs according to research from Intel.⁶ In a recent C|net news article, Daniel Fliescher, senior research analyst at IDC cites cost is the major barrier in this practice, and yet Catriona McAlister, a senior consultant at AEA Energy and Environment said “There is absolutely no correlation between the cost of the PC and its energy efficiency.”⁷

The bottom line is you won’t know unless you ask – so add some basic language around energy efficiency and environmental impact to your standard RFP and begin including this information in your buying decisions. Armed with information about the energy consumption and cooling requirements you will not only be able to accurately project TCO, you’ll also be able to see how the new acquisition fits into your overall green strategy.

Conclusion

Recognizing that going Green is a process, and often involves trade-offs, is important when creating a green strategy. The creation of an IT environmental baseline will assist in examining where your organization is at, as well as where it is going. Creating objectives that reflect both the Green desire and the business driver will ensure the strategies put in place are truly green. Finally, by implementing any or all of the strategies

included in this paper, your organization can begin the first step towards building an IT department that is environmentally friendly.

Confucius said *the journey of a thousand miles begins with a single step*. This saying is especially relevant in creating your organization's green IT strategy. While it is important to think about the big-picture of Green IT, the greatest impact is in the simple strategies that can be implemented today.

About Verdiem

Long before being Green was politically correct, Verdiem began developing SURVEYOR to provide measurable and verifiable energy cost savings. Nearly 500,000 users worldwide have installed SURVEYOR to lower their PC energy consumption. To date our customers have saved over \$27 million dollars and 275 million kWh. This savings has prevented over 232,000 tons of CO₂ from being released into the environment – that's the equivalent of taking 29,000 cars off the road.

About SURVEYOR

SURVEYOR provides organizations a simple and effective network-level control of PC power management settings. With SURVEYOR your organization can decrease energy costs while protecting user productivity and increasing maintenance success rates from one central location. SURVEYOR provides:

- › **Network-level control of PC energy policies**
 - implement power setting policies and track energy consumption from a central location.

- › **Flexible and dynamic policy implementation**
 - easily configure policies to match user needs and activity, or account for periods where energy costs increase due to high regional demand.
- › **Improved maintenance and upgrade success rates** – bring PCs to full power for scheduled maintenance windows and software upgrades.
- › **Wake or shut down PCs on-demand** – access the power status of your entire network and power-down to mitigate a threat or power-up to accept an urgent upgrade via Wake-on-WAN/Wake-on-LAN functionality.
- › **Comprehensive reporting** – detailed and verifiable reports on energy consumption, CO₂ emissions and costs savings achieved with SURVEYOR.

The development of SURVEYOR began in 2001, and was funded in part by the Northwest Energy Efficiency Alliance. SURVEYOR uses internationally recognized standards for measuring energy consumption, so after rigorous third party testing, SURVEYOR has been approved as a conservation measure by utilities throughout North America, and is a recognized partner in the EPA's Energy Star program.

To learn more about saving energy costs and cutting carbon emissions in your organization, please visit www.verdiem.com or call 1 (866)-VERDIEM today.

¹ "Green IT: Popularity due to Savings or Morals?" Johanna Ambrosio, Computerworld, September 13, 2007

² "UN Study: Think upgrade before buying a new PC", Martyn Williams, IDG Newservice, InfoWorld, March 7, 2004

³ "UN Study: Think upgrade before buying a new PC", Martyn Williams, IDG Newservice, InfoWorld, March 7, 2004

⁴ "5 steps to green IT", Tiffany Maleshefski, eWeek.com, October 12, 2007

⁵ "5 steps to green IT", Tiffany Maleshefski, eWeek.com, October 12, 2007

⁶ "Green IT: Do it for the money, if nothing else", Will Sturgeon, C|net News.com, November 27, 2006

⁷ "Green IT: Do it for the money, if nothing else", Will Sturgeon, C|net News.com, November 27, 2006