



Green and clean it for environment conservation

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Abstract

Today, a world without information and communication technologies is unthinkable. Their widespread use has changed people's lives dramatically and boosted economic growth. But, in the wake of global warming and concerns over its impact due to environmental degradation, there is an urgent need for the IT industries/practitioners to come forward and integrate a green agenda into their industrial/manufacturing and business models. The concept of 'Green and Clean IT' is awakening India to IT's responsibilities towards environment conservation. IT professionals, have the onerous responsibility to develop new green and clean technologies which are energy efficient and eco-friendly. IT users can pick and choose the solution that they want to use to reduce costs and can dip a toe in the eco water with simple assessment tools to see where and how much money is spent on energy and cooling and how it can be controlled using the right solution.

Keywords: global warming, IT professionals & green and clean IT

Introduction

Rising energy costs, an economic slowdown and environmental awareness have introduced serious strategic challenges to enterprises worldwide, prompting searches for efficiency and cost reductions across the board, including in IT. Enterprises that don't alter their ways and challenge their IT organizations to operate in more ecological-friendly ways will miss key opportunities to increase IT efficiencies and reduce costs via the implementation of greener IT solutions [1-3]. There are a variety of new and existing technologies available that aid in green IT, such as virtualization and more efficient hardware that demand less power and cooling. However, changes in processes and current infrastructure can also improve efficiency that leverages existing infrastructure and culminate in not only a greener environment, but an improved bottom line [4-5]. Developing an overall green IT strategy that identifies opportunities for greater efficiency and areas that would benefit from new technology or improved processes can be difficult without visibility and transparency into the state of the existing IT infrastructure. This article will discuss how organizations can develop a green IT strategy through visibility into existing IT assets and state of the overall IT environment.

Green ICT - Why?

Information and Communication Technology systems (ICT) should be a core element of any organization's green strategy. However, they are often not explicitly recognized or incorporated into most sustainability plans. There is significant opportunity to capture value by designing and implementing a sensible green element within the ICT realm. ICT systems typically account for about 25 percent of direct electricity use in commercial office buildings, and in energy inefficient buildings or locations with a high density of IT gear, that figure may be as high as 60 percent to 70 percent.

On a global scale, some analyst reports have calculated that ICT represents 2 percent to 2.5 percent of the total global carbon emissions, equivalent to the global aviation industry. But, for the more advanced and technologically-centered economies of the US, Japan and Europe, the number is more likely on the order of 5 percent to 6 percent and growing at double-digit rates. The ICT industry's carbon footprint is expected to triple during the period from 2002 to 2020. Japan's METI has forecasted that by 2025 ICT will consume 20 percent of all electricity in Japan. Achieving the greening of ICT is a very viable and high-value first step in any green strategy. The impact of a greener ICT is multi-fold:

- Smaller physical footprint (e.g. smaller and more modern data centers)
- Lower carbon footprint (updated devices)
- Lower heating/cooling costs
- Compliance with government regulations
- Good marketing

We should note that from a holistic view, "greening" IT is not just about reducing direct power consumption. With a personal computer, for example, 60 to 80 percent or more of the lifecycle carbon footprint of the device comes in fact from the manufacturing of the device. IT equipment and consumer electronics are very energy and materials intensive in manufacturing, have short life spans and become toxic e-waste at the end of their useful lives.

Challenges in going green

There are many challenges involved in going green. Green computing is the practice of optimal usage of computing resources which requires a knowledge mix of both technology and policies. The policies may be both IT and non-IT related. The following are the possible challenges in going green:

- Determining the return on investment (ROI) from using

green IT products.

- Adopting and implementing a green IT Strategy.
- Convincing top management about rolling out the strategy.
- Choosing the right partner to assist you in effective implementation of the green strategy.
- Dearth of equipment & skills to go green.

Discussion

The greening of ICT systems can be achieved in many different ways, including:

- Improving usage of what you already have: maximizing utilization of current IT assets and putting in place disciplined asset management policies;
- Consolidating servers, data centers, storage into more efficient physical plants and hardware;
- Using new technologies such as virtualization to improve use of all hardware assets.

Generally, a combination of all the above is required to achieve comprehensive results. This entails putting in place a plan that identifies the sources of opportunities, defines the critical challenges and success factors and tracks measurable progress toward the defined goal in a timely fashion. Typically, such plans require a “top down” approach and the executive leadership and sponsorship of senior executives. The first step generally involves the least amount of effort and spend and can achieve a substantial outcome in a short time period and can be frequently driven from within IT itself, with minimal big-bang oversight

Steps towards greenness

The various measures towards greenness may be the following:

- Reality check of IT infrastructure
- Management restructuring according to latest trends
- Policies & its compliance
- Monitor & PC management
- Server virtualization
- Be energy smart
- Systematic disposal of e-waste
- Telecommuting as per end user satisfaction
- Thin client solutions (Photonic ICs)

Conclusion

In the wake of global warming and concerns over its impact due to environmental degradation, there is an urgent need for the IT industries/practitioners to come forward and integrate a green agenda into their industrial/manufacturing and business models. The concept of ‘Green and Clean IT’ is awakening India to IT’s responsibilities towards environment conservation. IT professionals, have the onerous responsibility to develop new green and clean technologies which are energy efficient and eco-friendly. IT users can pick and choose the solution that they want to use to reduce costs and can dip a toe in the eco water with simple assessment tools to see where and how much money is spent on energy and cooling and how it can be controlled using the right solution.

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