

Servers are Not Afraid OF THE DARK!

HCL's **SWAPAN JOHRI** and Everest
Research Institute's **ROSS TISNOVSKY**
discuss making business green





RT Green IT is rapidly becoming a mainstream part of IT. Going Green can be both environmentally responsible and cost efficient for the enterprise. But it has been proven on multiple occasions that it is possible to start a great initiative like Green IT and fail in either one of these goals. It is important to approach Green IT investments holistically. In other words, it is important to carefully evaluate the impact of the investments across the whole enterprise, not just in a specific project. A company must look at all the aspects of the environmental impact instead of focusing only on the most obvious ones.

We must think of Green IT as a priority in the overall management of IT infrastructure. Additionally, we need to discuss Green IT initiatives in the context of the overall IT portfolio of the company.

SJ Emission norms, carbon credits and power bills: All of these words are associated with startling statistics. According to the most recent AFCOM Data Center Institute survey, power failures are likely to

of India by participating in various sustainable development projects at various levels. So we are very involved in this space. While we do all this on the energy side, this is enhanced by the fact that we are essentially a technology company. We are very active in the data center space where virtualization and consolidation in various customer environments can result in energy savings of 10 percent to 40 percent.

As a concept, Green IT is rapidly moving from environmentalist to mainstream IT business. However, there are various interpretations of the term floating around in the industry. How would you define Green IT?

RT Green IT means increasing energy efficiency of the IT hardware, IT data centers and other assets. IT consumes very large quantities of renewable and

and utility rate benefits. These days, several U.S. states offer property tax exemptions or income tax incentives for Green efforts.

Going Green also enhances customer and public perception of the company because it is seen doing the right things for the environment.

SJ While technology makes the largest contribution to efficiency, facility and management also have significant impacts. Let's consider facility first.

On average, 38 percent of energy costs in data centers are directed towards cooling. Recently built data centers offer two to three times more cooling per unit of space. This is not just achieved by increasing the cooling, but also by deploying more efficient gear in the cooling area. This reduces cooling costs significantly.

On the facility side, compliance to equipment layout principles leads to efficient cooling. When considering using environmentally friendly cooling techniques, companies should take the Green effort beyond power saving. Green IT needs to be approached more holistically. There are examples of data centers built today that bring in power from alternative sources such as hydroelectricity.

Also, management has to pay adequate attention to power management. Switching off equipment is key. Green Grid provides a power usage effectiveness grid which can be used to measure power consumption and continuously monitor it.

Another part of management is collaboration between facilities and IT departments. Looking at utility bills is a management act that must be taken up to help manage power in a data center better.

Management must also engage in eco-friendly disposal. This is required by regulations, but one has to look at it beyond regulations. Management must build into its policy that waste disposal must be done in an eco-friendly manner. This is becoming so essential.

In terms of technology, the first step is to buy technology that is energy efficient. Procurement management needs to start building Green purchasing practices into their purchasing patterns. Many technology companies are investing money behind making their products Green.

Managing this technology is also a key. All of these aspects of Green IT overlap. Companies must be sure they are getting maximum return on their technology both from a cost efficiency and environmental standpoint.

RT Yes. It is amazing how much waste we have today in a typical data center and IT environment, yet how easily achievable many of these changes are.

One example is finding and turning off unused IT equipment. All organizations have servers, printers, disk storage and other elements of IT that are not used but still running. Simple acts such as turning off lights, PCs and other devices are also

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—Ross Tisnovsky

interrupt the data center operations of more than 90 percent of all companies over the next couple of years. Similarly, it has been reported that for every dollar one spends on a new server, 50 percent of that amount is spent on the energy to power and cool it.

The Lean & Green consortium predicts that by the end of 2008, the cost of powering a server may even exceed the cost of the server itself.

Adopting Green practices will increase the availability of IT infrastructure. Not only that, but it will help reduce costs for that particular enterprise.

We at HCL were very early adopters of the Green initiatives. In fact, HCL was begun 30 years ago in India. Given that India has never had much of a power surplus, we have always needed to integrate many Green initiatives in what we produce and sell. We have used this strategy and approach since our company's inception. Most of HCL's buildings are extremely energy efficient. Our employees are aware of Green issues and conserving energy. In fact, HCL is a member of the Indian Council of Sustainable Development (ICSD), a non-government organization working towards the ultimate "Green Goal" of Government

sometimes not so renewable resources like silicon, platinum and others. Hence, a big part of Green IT, often forgotten, means reducing electronic parts waste. IT also consumes space on the planet and data centers. Thus, Green IT also means reducing the data center footprint on the environment.

There are also indirect effects such as enabling other industries or other market constituents to minimize their effects on the environment. This largely involves reducing carbon dioxide emission through minimizing company travel or through providing IT enabled optimization of large supply chains that involve a lot of transportation.

SJ Yes. It is important to define and establish metrics to measure progress. This is because there has been a rapid increase in awareness, but this has not properly translated into action.

What is the value derived in adopting Green data center technologies?

RT From my perspective, adopting Green data center technologies is about the greater good. But it is also about the additional efficiency of IT and capturing the external benefits such as tax

powerful and strikingly easy changes. I actually do not understand why lights are needed in data centers at all. Servers are not afraid of the dark; they do not get depressed or upset.

prepared to buy virtualization technology, you can consolidate your existing server. This can be done first by looking at application optimization and then drilling that down into complete requirement

management. As part of our management work, we do assessments and then use these assessments to implement programs. We have implemented virtualization programs, server consolidation and even looked

Furthermore, in many organizations the power save features are there, they just have not been activated. Energy Star standards also enable us to determine what the impact of various equipments is before we buy it.

Ross talked a bit about what we can do in data centers to be more Green. How do you think one can improve the efficiency of the data center? (HCL Green Edge Datacenter Solution Framework diagram)

SJ HCL has the Green Edge data center solution framework which is built around three important components: assets, power and cooling. There are quick wins, there is improved efficiency of existing assets and then there is the revamping of a facility and its infrastructure. (Datacenter energy efficiency opportunities)

The quick win area requires very little resources and investment. As Ross discussed, turning off lights and equipment that are unnecessarily running is extremely easy. Another key action that can be taken is improving the data center airflow. There are also ways to place racks and direct the hot and cold airflow in the right directions to increase the efficiency of cooling.

One can also revamp the design and infrastructure of the facility itself.

Specifically in terms of technology, the two keys are virtualization and consolidation.

Virtualization reduces the server footprint and therefore improves the energy efficiency. HCL typically brings in a consulting approach to make an assessment of what needs to be virtualized. We then build a customized virtualization program.

Consolidation is another option. If you are not

mapping. The next step is analyzing the application server maps that are in place and then consolidate servers according to that. These are again long term programs that need to be run.

HCL has a framework in place to give a consolidation assessment and develop a consolidation program. In addition to the technology pieces, you can look at changes in the facility itself – the big investment areas. In those areas, the beginning step is to assess the power requirement using clear efficiency metrics. One example of this is the power usage effectiveness metrics by Green Grid. Power management technology, which can be software based, can then be brought in to meet the power usage needs and to trace trends in the data. Based on that, changes should be made in terms of how the power is to be harnessed and deployed across the company's assets.

Those are facility changes that can be done. There are also very esoteric examples of using different cooling mechanisms in the data centers. Water can be a great cooling mechanism. A new data center can be built with water flow between the walls to more efficiently cool the data center than what the classic approach does.

RT Let me add a cautious note. In IT, nothing is what it seems. We have encountered this on multiple occasions. Sometimes an apparently great solution might actually generate consequences way beyond what was originally expected. Given the complexity of environmental impact, seemingly Green technologies may not be that Green at the end of the day. Planning and research is the key.

What is HCL doing to help enterprise data centers go Green?

SJ HCL does a great deal of remote infrastructure

at storage consolidation for a number of IT enterprises. For a leading specialist retailer giant in Europe as an example, HCL adopted a Green edge data-center solution and followed a Green datacenter methodology that involved DC Migration Planning, Migration strategy and project execution. A Data centre rating system, based on industry and HCL standards, was used to assess the different facilities and select best fit facility for the technical solution. HCL consolidated three existing sites into a dual site solution involving Tier 3 enterprise class facilities. This new setup resulted in 20% space reduction, energy-efficient power and cooling, optimum utilisation of rack space for the client.

Further, as part of the transformation solution, HCL undertook a phased virtualization activity which led to reduction of physical and carbon footprint leading to power and cost savings.

RT The benefit of outsourcing these services lies in having a partner to help manage the complexity that is always a part of IT. We IT geeks have to deal with complexity every day and to a large extent we actually embrace it as a necessary evil. The U.S. scientist Alan Perlis said it best, "Fools ignore complexity, pragmatists suffer it, some can avoid it, but geniuses remove it." Short of implying that we are geniuses, we can definitely manage IT. The solution to complexity is simple. It involves aggregation and looking at all the pieces holistically and systematically.

SJ I absolutely appreciate Ross' word of caution in handling complexity. A successful Green IT initiative is undertaken in a phased manner by approaching one technology at a time. I also want to emphasize, though, that very significant savings can be achieved when Green IT is implemented well. **BT0**



SWAPAN JOHRI leads Emerging Services at HCL ISD. Swapan has been the founding member in building several of HCL's Infrastructure Service Lines and had previously pioneered Information Security Services in India. He has been at the forefront of blueprinting and execution of various transformational projects for customers in the datacenter virtualization, consolidation, storage and application operations spaces. Green IT has been the overarching framework for many of these engagements. Having started his career with HCL, he is part of the Core Leadership of HCL ISD, and has been with the company for over two decades now.



ROSS TISNOVSKY, Vice President, ITO Research, has specialized in developing and implementing IT-enabled business performance improvement at Fortune 500 companies for more than a decade. As head of the Institute's ITO research, he leads a team of analysts in developing leading-edge thinking on market trends in the outsourcing industry and best practices in IT outsourcing. His strength in research stems from in-depth understanding of technology from the point of view of key market constituents, i.e., business users of IT services and technology providers, along with knowledge of fundamentals of high tech products, various technologies and industry trends.