Making IT Green

Canadian Government EXECUTIVE
September 2009, Vol 15, Number 7

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From emerging trend to mainstream priority, green IT has flourished in recent years, even defying the economic odds of recession. Here's an overview of how the industry is evolving and where its impact is most evident.

By Paul Khawaja

Paul Khawaja is Vice President of Advanced Technology Solutions at xwave, a division of Bell Aliant and a longtime supplier of information technology to all levels of government. Named one of Canada's Top 5 Green Solution Providers in 2008, the company offers a complete portfolio of consolidation and virtualization services, including a Core Technology Program that aligns technology infrastructure and investment with business goals.

A new water-cooled supercomputer in Switzerland promises a carbon reduction of 85 percent and a decrease in CO2 of up to 30 tonnes per year. A power-reduction strategy announced by an international hotel chain will see the automatic shutdown of all desktops and laptops after an hour of activity, helping to save 2.5 million kilowatt-hours of electricity and 1,356 tonnes of CO2. The U.S. Senate has tabled a bill — the Electronic Device Recycling Research and Development Act — to improve the recycling of electronic equipment. Here in Canada, Ontario is the latest among several provinces to introduce an electronics surcharge to support environmentally-friendly disposal.

Just three or four years ago, these kinds of initiatives were almost unheard of. Today, they are proliferating at a rapid speed. Despite a global recession that has private and public organizations tightening their belts, many have maintained their focus on environmental, sustainable computing. Why? Because the same attributes associated with green IT are good for business.

"More than ever, C-level executives are asking themselves, 'How do I do more with less? How do I lower data-centre costs? How do I manage the continual growth of information?'" says Steve Collins, Principal Consultant with the Advanced Technology Solutions business at xwave. "These are questions that revolve around not only IT but also ROI and increasing the bottom line."

The result is that almost everyone has a green strategy of some kind, and IT often is considered fundamental to fulfilling it. IT-security firm Symantec states in its 2009 Green IT Report that 89 percent of survey respondents think IT should play a very or extremely significant role in green efforts, while 82 percent have a corporate green advocate, with more than one fifth of those advocates focused exclusively on green IT initiatives.

Of the green IT initiatives now underway, a recent study commissioned by IBM suggests two of the most common are:

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- storage consolidation, with about 25 percent of survey respondents completing some form of consolidation or virtualization, and another 50 percent planning to do so in the next 12 months
- remote conferencing and telecommuting, with more than three quarters of the firms surveyed reporting related initiatives that had met or exceeded cost-savings targets

Virtualization is indeed proving an effective means of controlling data-centre sprawl while improving output. By placing multiple virtual server and storage environments on relatively few pieces of hardware, organizations not only free up space and bring down costs; they also centralize management, improve load-balancing and make backup more secure. With this shift comes an increased focus on the IT management tools and practices of the organization.

An average data centre, for instance, with 250 servers can be reduced quite feasibly to 10 or 20, and there is a growing number of organizations who are consolidating their infrastructure to that degree.

One of them is xwave's parent company, Bell Aliant, which reduced 90 physical servers to two. And in fact, one alone does the work; the other provides redundancy. Completed five years ago, the project was one of the few of its kind at the time.

So was the eBusiness Computing Infrastructure (eBCI) project, launched by Canada Revenue Agency to provide CRA with a more powerful platform for new services. Under xwave's guidance, the eBCI saw the replacement of nearly 200 servers with four UNIX servers.

At the provincial level, xwave works with one east-coast government that, just a couple of years ago, operated approximately 1,000 different physical servers. Today, about 50 percent of that environment is virtual.

The key business drivers behind these kinds of initiatives are, according to Symantec, reducing electricity consumption (90 percent of respondents) and lowering cooling costs (87 percent). However, while organizations have definite and quantifiable reasons for greening their infrastructure, their business cases are often built on soft rather than hard financial targets. Typically, when making an investment, organizations look for a return within 24 months — in publicly-traded organizations, the timeline is 12 months. For green strategies, these rules don't tend to be as apparent.

What is apparent is that optimizing infrastructure is almost always more cost-effective than expanding it. An IT department may be looking at potentially millions of dollars to add space — versus using the current space more efficiently. Consider the recent example of an xwave client looking at possible ways to increase data-centre capacity. The client weighed two options: a) Add more servers and undertake the renovation necessary to support them and their increased bandwidth; or b) consolidate and virtualize them. The client chose the latter.

Admittedly, green technologies such as virtualization still make some people nervous. Their concerns stem from the need to change their cost models and, on a more abstract level, manage what they can't see. This need to 'see your data' is much less prevalent in younger IT professionals who, comfortable Twittering, Facebooking and YouTubing, are not as concerned with 'where things are'.

Moreover, the reality is that organizations need to change their thinking around how they manage those 'things', given the exponential and ongoing increase in data and the proportionate need for horsepower to contain it. In addition, there's the double-whammy of cooling: every unit of energy expended to house the data requires yet more energy to cool the facilities. As an aside, the IT community is now beginning to acknowledge that data centres don't necessarily need to be cooled to the 20 degrees that has long been the industry standard. In fact, says a recent article in Network World, servers, storage and networking equipment are often certified to run in temperatures exceeding 37 degrees, with

many large data centres running comfortably around the 32-degree mark. Regardless, with the emphasis on cooling and the costs it incurs (up to half of all data-centre expenses, according to ComputerWorld Canada), systems such as the aforementioned Aquasar supercomputer in Switzerland are certain to become more prevalent.

It's important to keep in mind, however, that not all greening of IT involves optimizing the data centre. HP, for instance, lists on its website a number of simple yet effective ways to save energy, many of which also help extend the life of the equipment. Tips range from disabling screen savers (they use significantly more energy than 'standby' mode) to adjusting your computer to have it backup during the day (so it doesn't have to be left on at night). Proper use of Energy Star-compliant desktops and laptops that power down when not in use can lower energy consumption anywhere from five to about eight percent. With that in mind, organizations such as Capital Health, Nova Scotia's largest provider of health services, are adopting standards such as EPEAT — the Electronic Product Environmental Assessment Tool. EPEAT is used to evaluate the environmental performance of electronic products throughout their life cycles, with specifications related to everything from Energy Star compliance and recycled materials to mercury content and toxins in packaging. Meeting EPEAT criteria is expected to lower Capital Health's infrastructure costs by 30 percent. In addition, through eProcurement, Capital Health has streamlined its IT acquisition, eliminating much of the paper pushing that often accompanies it.

Research group Gartner reported in April 2009 that despite organizations now having less available capital, they are continuing efforts to improve IT efficiency. Of the 620 organizations Gartner surveyed worldwide — each with between 1,000 and 10,000 employees — the general consensus among them was that the recession will not diminish their green IT priorities.

Clearly, green IT has come into its own and is here to stay. And as much as it's propelled by optimizing assets and doing more with less, it's also rooted in societal and cultural convictions. Right behind reducing electricity consumption and lowering cooling costs, the Symantec report notes the third driver of green initiatives is, quite simply, the pressure to be green. In Steve Collins' experience with clients, "Yes, it's about improving efficiency and lowering energy costs — but, increasingly, there's a general awareness that this is the right thing to do."

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