



Going for Green

by Anthony Wright

Canada's efforts to green its IT continue in both public and private sectors, with trends such as virtualization, thin-client desktops and cloud computing promising another strong showing throughout 2010

IN DECEMBER 2009, THE GOVERNMENT OF CANADA pledged to buy only ENERGY STAR®-certified servers, in compliance with a new enterprise-server rating announced by the US government in May 2009. In the announcement, the US Environmental Protection Agency (EPA) said: "If all servers sold in the United States meet this new specification, energy cost savings would grow to \$800 million per year and prevent greenhouse gas emissions equivalent to those from more than 1 million vehicles."

Such figures make an increasingly compelling case for these kinds of initiatives, and there is a growing number of examples that, like the one above, underscore the continuing momentum of this movement in public and private organizations alike.

"The need to lower costs and bring infrastructure under control are key drivers behind the greening efforts of many organizations," says Steve Harris, principal consultant with the Advanced Technology Solutions (ATS) business at xwave,

a Canadian IT company and provider to the federal government. "However, without a doubt, there's also a growing sense that greener IT really is a priority; it's something we need to focus on."

Virtualization and consolidation

Virtualization is a fundamental technology underpinning many of today's green agendas. It is widely adopted, most notably in server and storage environments but also, more and more, for desktops as well. A November 2009 report on virtualization from analyst IDC stated that it's now common for large organizations to have over 50 percent of their servers virtualized. They also noted that where virtualization exists, over 80 percent of it is in production, compared with findings three years prior that showed most virtualization was used for testing and development.

The results of virtualization can be significant. One xwave client, for example – a 13-campus college – recently reduced

its number of servers by almost half, from 50 to 27. A consolidation/virtualization initiative carried out for another client, a large Toronto-based food producer, has saved the company approximately \$2.9 million.

Virtualized desktop environments, while not yet as common as virtualized servers and storage, are gaining traction for obvious reasons such as simplified management; more cost-effective application deployment; reduced downtime; and enhanced security around remote access (an important benefit considering today's increasingly mobile workforce).

Cloud computing

The term "cloud computing" comes from the cloud imagery often used to represent the abstract array of services that make up a cloud network. In a cloud network, IT resources such as software, security services and network management are shared, making them more cost-effective to obtain (payment tends to be usage-based) and easier to deploy and manage. Cloud computing is often confused with virtualization, and while the latter is a key component in and catalyst of the former, they are in fact two different technologies.



There are two types of "clouds:" public and private. "Public" in this context does not have government connotations but instead refers to IT services that are external to an organization – for example, software-as-a-service (SaaS). A private or "enterprise" cloud, meanwhile, is an IT environment that's managed internally, usually within larger organizations.

Thin-client desktops

In December 2008, IDC predicted that "thin-client deployments on the back of desktop virtualization will gain traction in 2009, and further accelerate into 2010." Thin-client desktops are indeed coming into wider use, offering obvious advantages that, similar to desktop virtualization, include lower deployment costs and enhanced security (because nothing of value actually resides on the device itself; instead, all applications are housed and managed centrally). Thin clients are also sleeker, more compact machines that consume less power and can be remotely controlled – i.e. switched off – by a systems administrator.

Another technology analyst has found thin clients to lower per-user downtime costs by up to 79 percent and maintenance costs by 34 percent, while saving 16 percent in capital costs and 19 percent in operational costs. The research showed that overall, thin clients reduced total costs by 48 percent.

Data-centre optimization

Optimizing the data centre – assessing it, streamlining it, improving its output and lowering its energy costs – has been

and remains the most significant trend in green IT. And no wonder: in the US, for instance, the EPA estimates that the federal government currently spends \$450 million to power federal data centres – a figure that's expected to leap to \$750 million by 2010 if current energy-consumption rates continue.

Natural Resources Canada estimates that as of 2008, there were some 800,000 servers installed across Canada, which together consumed 3,400 million kilowatt-hours (kWh) of electricity, in turn producing 830 kilotons of greenhouse-gas (GHG)-equivalent substances.

Some provincial governments are working to combat this daunting consumption and emission by tapping clean resources such as hydro-electricity and using them to power remotely-situated, zero-carbon data centres. As a coastal province – and one hosting this year's Winter Olympics – British Columbia is arguably the leader in this regard, having promised carbon-neutral Olympic-hosting facilities. (BC is also the first province to introduce a consumer-based carbon tax). Consequently, the province's Okanagan Valley has become a green data-centre hotspot; there, for example, is a new "Gigacentre" (\$100 million; 85,000 square feet) that will be powered by Columbia River hydro-electricity and will be able to store nearly 35,000 terabytes of data. It will generate more than 700 watts per square foot, compared with the average 300-watt maximum for most data centres.

Energy incentives

On the subject of hydro, another green trend that has emerged recently is that of green financial incentives from power providers for formal energy-reduction initiatives. "Nationally, we've seen many of the regional power-utility companies roll

out energy-saving incentives for commercial and industrial organizations," says xwave's Steve Harris. "These incentives can take the form of rebates and other financial drivers, and can apply to everything from capital building projects to data-centre consolidation."

New standards

More organizations are adopting recognized standards in IT procurement and operation. ENERGY STAR® is one example; another is EPEAT – the Electronic Product Environmental Assessment Tool. EPEAT is used to evaluate the environmental performance of electronic products throughout their life cycles, with specifications covering a wide range of IT-related criteria, from energy consumption and use of recycled materials to mercury content and toxins in packaging. One xwave client now using EPEAT expects it will lower infrastructure costs by 30 percent.

While improved efficiency, lower costs and a sense of moral obligation all appear to be influencing our decisions to go green, there is another deciding factor – one that could be termed "peer pressure." In its 2009 Green IT Report, Symantec found that though the top drivers behind green IT include the likes of reduced electricity consumption and lower cooling costs, one of them is also "a desire from corporate headquarters to qualify as green." Perhaps in this case, it could be argued that the end justifies the means. 

Anthony Wright is vice president of Advanced Technology Solutions at xwave, a division of Bell Aliant and a National Master Standing Offer (NMSO) provider to the federal government. Named one of Canada's Top 10 Green Solution Providers in 2008 and 2009, 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.