IT and the Environment: Part 2

Making IT green

By David Tebbutt, January 2008

In a nutshell:

IT needs to understand its power requirements to create an effective energy saving strategy

Key points:

- Understanding IT's energy requirements means breaking with tradition and finding out
- Data centre energy goes on cooling running equipment and the UPS
- Addressing smarter cooling, utilisation and consolidation
- Systematic analysis of IT components is key: is the resource is appropriate to the task?

Say 'green' to most enterprise IT suppliers and they fire back with 'energy'. They see energy issues as the number one threat for organisations, and IT departments in particular. They also see it as their number one opportunity to hook their sales teams into your refresh cycle. The twin evils of faltering energy supplies and rising prices deliver hardware and software suppliers a chance to offer IT departments what amounts to an energy-related 'get out of jail free' card.

'Faltering energy supplies and rising prices deliver what amounts to an energy-related 'get out of jail free' card'

Dig a little deeper and each supplier will lay claim to a green agenda. As we saw in the previous report in this series, some have a genuine history of environmental concern and try to be ahead of the regulators while others simply do what they are obliged to. It might help your company's own environmental credentials if you ensure that your own suppliers are credible in this respect.

Most vendors agree that IT equipment usually runs inefficiently. Servers and desktops alike only run to a fraction of their capacity yet, whether fully occupied or idle, they still gobble power. The cost of power is rising and demand for computing resources shows no sign of abating. Making IT equipment and its surrounding infrastructure more energy efficient saves money and improves your company's environmental performance.

The first step is for IT departments to figure out how much energy they use. Traditionally, this is not something they have had to worry about. Electricity is bought and paid for by facilities and accounts and a proportionate charge slapped on IT by the bean counters. Unless, or until, IT can measure its power requirements and identify exactly where the energy goes, it cannot put an effective energy saving strategy into operation.

For many organisations, this need to manage energy usage comes at the same time that the company is growing, placing increased processing demands on the IT department. These

contradictory forces will be shaping the IT agenda very soon, if they are not already. One good thing is that computer power continues to grow while occupying the same amount of rack space.

If you're running a data centre, a large chunk of incoming energy goes on cooling. The next large slice is taken by the IT equipment itself. The next chunk is used by the UPS. If you are running racks of x86-based servers, the news is good because these are currently the least efficiently used pieces of equipment. And they throw out a lot of heat, which is usually wasted to the atmosphere although some companies try to put it to good use, feeding it into the space heating system, for example.

'A more efficiently run server could shrink energy budgets or enable growth'

A more efficiently run server farm with a more intelligent use of cooling equipment could pay cost and environmental dividends, either by shrinking energy budgets or by enabling growth. You'll find better designed racks and cooling systems on offer. Some, such as Hewlett Packard's Dynamic Smart Cooling can be retrofitted to existing installations.

Moving to the servers themselves, let's be generous and say that the average server is running at 20 percent capacity (estimates start at five percent). Obviously, you won't crank that up to 100 percent but, through virtualisation, 60 percent might be achievable. That's a tripling of capacity or a shrinking of the equipment and its surrounding infrastructure by two thirds.

What about consolidation? If your computer operations are spread across multiple locations, could they be brought together? To take an extreme example, IBM consolidated 150 data centres to ten and 31 networks to one. It also went from 3900 servers down to 33 mainframes running Linux. The savings were astronomical and are ongoing. Sun went through a similar exercise, slashing its data centre floor area by 80 percent and its energy usage by 65 percent. The IT folk checked out the function of every server and powered down hundreds whose function couldn't be determined.

Sun estimates that the average desktop is run at around one percent of capacity. It advocates a thin client approach using its 4 watt SunRay devices. But, regardless of whether its figure for PCs is accurate, it does raise the issue of the appropriateness of equipment. Do people need the PC power that they're given? Do they know that standby mode consumes less energy than a screen saver? Do they switch off their machines at night? In the data centre, are the servers, storage and cooling over-specified for the job at hand? Would it matter if lower-power processors or slower drives were used?

Whichever way you look, the question "is this resource appropriate for the task?" can be asked. It's not a case of fork-lifting in a new data centre, although some vendors would love that, it's about systematically considering each component in a green/energy light in advance of your next equipment refresh.

And, when the time comes to refresh, don't forget to plan for the environmentally friendly disposal of old equipment and the packaging of the new equipment. An increasing number of manufacturers will be happy to make this part of the deal.

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