

THE POWER PROBLEM

Some years ago, I was chatting with a group of colleagues over coffee at the company where I worked at the time. We were debating what the most difficult sales job in IT was and, full of youthful enthusiasm for the 'feeds and speeds' of technology, we decided the toughest sell was undoubtedly the UPS (uninterruptible power supply). After all, we concluded, users always need bigger, better and faster processors; they always need new application packages to meet changing business requirements and tools to improve performance and availability. But power? Come on, who gets excited about power?

Well, thinking back, we were probably wide of the mark even at that time. But today the question is easy to answer. EVERYONE is getting excited about power - generating it, guaranteeing the future supply, cooling it down, finding ways to use less of it. As the Data Center Institute predicted earlier this year, "Over the next five years, power failures and limits on power availability will halt data center operations at more than 90% of all companies."

Think about that. We've spent the last decade making just about every business process dependent on IT only to find that unpredictable power supplies are starting to bring the whole infrastructure to its knees. Forget application integration, change management, all those 'logical' issues that have challenged the data center over the years. Today's challenges are distinctly more physical:

- * do we have enough room for all this stuff?
- * can we provide uninterrupted power?
- * can we stop it overheating?

I was talking to one data center manager at the recent 7x24 Exchange chapter meeting in London, and he said that power management is now at the top of his agenda. "We're the victims of our own success," he admitted. "IT is growing so fast that we're ordering blade processors in tens and hundreds. It's hard to communicate to senior management the fact that we don't have the infrastructure to support such rapid growth."

Mind you, I can see senior management's point of view. I can imagine them saying, "Those data center guys are never happy. They've been arguing for years that all our distributed servers should be re-centralized in the glass house, where they can be properly controlled. Now they're telling us to slow down, as they don't have the space or power to accommodate the growth!"

But it's not just IT that needs to slow down. Our planet is rapidly running short of energy resources and those power cuts are not just a problem for data centers. Global warming is a reminder that we need to rethink the way we push the power grid to the limit. Energy is now a political issue worldwide, and businesses and government departments are beginning to fall under regulatory pressure to demonstrate that they are managing scarce resources efficiently.

As a focus of technology and engineering expertise, data centers need to be leading the way in exploiting new, reliable sources of power -- and there is plenty of evidence that this is happening. I see data centers now that run their generators on bio-diesel, for example, and many astute CIOs are choosing specific locations for new facilities

because of the plentiful supply of cheap power. Look at Google, currently building a vast new data center on the banks of the Columbia River, drawn by hydroelectric power. Microsoft and Yahoo are apparently doing likewise up in Waashington State. Suddenly, power is dictating not just the availability of data center services but also their location.

There's a great deal of research underway to find ways to make data centers (and indeed homes and factories) more energy-efficient, but there's a long way to go if supply is going to continue to meet burgeoning demand. For some years, the IT vendors have been driving down the power consumption of their products, and now those investments are paying off. IBM promotes its new low-power mainframes as a way of consolidating distributed servers, not only reducing hardware and software costs but also slicing a huge chunk off your energy bills. Meanwhile, over at the Sun campus a few weeks back, a number of vendors recently came together for a landmark demonstration, showing how a new direct current architecture could be used to power data centers, potentially saving thousands of gigawatt-hours of energy every year.

Who'd have thought that power supplies would replace 'feeds and speeds' in the vendor press releases? Yep, I guess we're all getting excited about power.