A Good News-Bad News Challenge for Server Makers

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It's no secret that powering and keeping cool ever-enlarging data centers has become a serious pain point for enterprises - particularly those with anywhere from 100 to thousands of servers.

Power-allocation limitations are beginning to suffocate an increasing number of IT centers. By the end of the decade, warns a recent Lawrence Livermore National Laboratory report (in PDF form), data centers will be drawing more power than all the televisions in the United States - and there are a whopping 278.5 million of them at last count, according to Neilsen Media Research. (That's 111.4 million households with televisions - or 99 percent - at 2.5 TVs per household, according to a August 2006 report .)

In other power and cooling news, the Gartner Group recently predicted that in five years energy costs will consume up to 40 percent of IT budgets. Currently, this percentage is in the 25-30 percent range.

Saving electrical energy is one of those rare topics on which everybody can agree. It's right up there with "Making a profit is good," "Terrorism is bad," and "Man, there are a lot of basketball games on TV during the month of March."

As more business data is being created, backed up and archived - thanks largely to increasing government regulation and demands for new Internet services (like music downloads, video-on-demand and telephony) - more spinning-disk storage servers and tape libraries are being fired up, taking more electrical power out of the walls and requiring more space in climate-controlled data centers.

All the server and storage hardware makers are quite aware of this issue, thank you very much, and an increasing number of them are becoming proactive in advising their customers about ways to combat this upward spiral of energy usage.

A great marketing opportunity … or is it?

Actually, it's quite a conundrum. The current answers to this, of course, are cooler, more efficient-running processors (thank you Intel, AMD, LSI Logic, et al) and the use of virtualization to consolidate these units and actually cut back the number of physical servers in a system.

Most of eWEEK's readers understand virtualization, but I keep hearing from companies on the server-sales front lines that a lot of business people do not grasp the concept.

Virtualization enables a data center to more fully utilize the resources of a server. It allows a system to run multiple single-threaded applications and absorb the benefits of multicore processors without the IT staff having to rewrite applications to be multithreaded. Thus, a single server with several virtual environments running on VMware or Xen can run several applications at the same time, using the same power stream; a regular single-core system cannot do this.

"Virtualization allows you to fully exploit an under-utilized processor. Virtualization is what we think of as the killer app for multicore. It lets customers take advantage of multicore early without having to re-architect for it," IDC storage analyst Michelle Bailey said at a recent Hewlett-Packard briefing.

Taking the good with the bad

Believe it: When an enterprise virtualizes its data center, it can cut way back on its server count - sometimes as much as 30 to 50 percent. Large enterprises with thousands of servers can take hundreds of them off line, if the virtualization warrants it. The unneeded servers eventually get stored away, resold, donated to a non-profit or recycled.

The good news: Bravo! A lot of power is saved and greenhouse gases avoided. The bad news: Fewer hardware units are sold, slowing down the vendor and, eventually, the server business economy.

On one hand, server companies want to be good citizens and do their part for the environment. That's being responsible and eco-friendly - a marketing message with which everybody can agree.

On the other hand, they need their customers to keep buying these increasingly powerful machines so they can make a profit and maintain market share. That's business. A company's shareholders can certainly agree.

The problem is now being quantified

This problem has been looming for four or five years - ever since VMware took the IT world by storm. But the news is this: It is just now beginning to show up in analyst reports. IDC this week revised its server sales forecast downward in terms of both dollar and unit sales for the next few years. This marks the first major-analyst downturn forecast in several years.

To the surprise of no one, the researcher, based in Framingham, Mass., attributes the downturn forecast to the increasing use of virtualization and more powerful servers.

IDC reported server sales fell slightly in 2006, while dollar sales improved - a solid clue that fewer but more powerful machines are being sold. Instead of a 61 percent increase in server shipments by 2010, IDC now expects server sales will still grow steadily, but only by 39 percent.

So that's where we are at this point: Solid server and storage sales, with a strong-looking chart that moves up and to the right. This scenario should continue for a few years.

But this week's IDC numbers had better be a wake-up call for the industry. That's something else upon which everybody should agree.