

# FINANCE AND COMMERCE

## Tech and Energy

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### Packet Power’s goal: Helping data centers measure energy use

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Imagine that you want to cut down on your cell phone bill, but can’t get any specifics about who you’re calling, or for how long, or how much each call costs.

A similar problem is confounding data center managers, who are being asked to slash their electricity bill without accurate consumption data.

Data centers are akin to gas guzzlers in the way they consume power – one report found that the total electricity bill for operating servers and associated infrastructure was about \$2.7 billion in 2005. And now, with energy costs rising, information technology budgets falling and pressure to maintain the same level of service for users, energy efficiency is becoming increasingly important for those operating the centers.

And that is the sweet spot in which a new Minnesota startup – Packet Power – is gearing up to play. Founded in January 2008, the company has developed a system – composed of a “smart cable,” a USB-plug-in device and related management and reporting software – that can monitor, measure and report how much power is being consumed by each piece of computing equipment in a data center.

Steve VanTassel, the CEO of Packet Power, said mass manufacturing of the cables will begin in October, after the product wins a key safety certification. And even without that certification, some businesses have tested the product, and a few have already bought it.

Managed hosting and Internet connectivity company ipHouse, for instance, will have spent \$55,000 on the Packet Power system by end of next year. CEO Bil MacLeslie, who has been using the technology since November, 2008, can barely contain his enthusiasm:

“The reality is this that there is no comparison with any other product and I have looked at what’s offered from ... various electrical manufacturers,” MacLeslie said. Packet Power “is really cool.”

MacLeslie loves the system for both its simplicity and the fact that it’s automated. In a data center, computing equipment sits in separate racks – the equipment or devices could be servers, storage units or a network switch. Ordinarily, understanding how much power each rack is consuming would require monitoring equipment analogous to a residential electric meter placed at every rack – and someone visually reading the numbers on each meter.

Packet Power fully automates this process. The cable, which is a “smart” power cable with digital technology and stamped with a barcode, can be inserted into a server rack, thereby powering it and also wirelessly relaying power consumption data to a USB device, which looks like a memory stick with a tail. The related management and reporting software can be installed on a PC.

“The other systems that we looked at were like a meter so I had to do the collection and compiling of the data myself,” MacLeslie said.

Another feature of this product will be sweet music to data center managers’ ears – installing Packet Power causes no disruption to the data center operations. In other words, servers don’t need to be shut down. “Uptime” – the amount of time the computer equipment has been up and running – is not hampered. Alternative systems typically require adding the monitoring capability into the electrical infrastructure of the data center itself.

“Then you are ripping out the floor, drilling things in the wall. It’s much more disruptive and more expensive,” VanTassel said.

For managed hosting companies like Minneapolis-based ipHouse, knowing how much electricity each customer is drawing is key to appropriately charging them for energy consumption, just like a utility sends a bill to residential users. This is valuable to the end customer – they can see that when they add a server or take down a server, their bill goes up or down accordingly.

In the past, things weren’t so easy. MacLeslie recalls a customer who saw that there were open power sockets next to their server equipment and mistakenly assumed they could add a server.

“They see, ‘Oh there’s four outlets left in my power strip, plug another server in.’ POW. You went over the limit, dude, and it blew the circuit breaker and all the servers crashed,” he said. “It’s like having checks in your check book. I still have checks, I must have money.”

With the Packet Power system in place, customers can make a more informed decision of whether to add servers, take them down or buy more energy-efficient equipment.

One strategy that many companies are using to reduce their energy bills is called server virtualization. It’s a technology that consolidates server capability and reduces the need for having multiple physical servers in a data center.

VanTassel of Packet Power contends that after installing the system and virtualizing a portion of its IT equipment, a data center can see significant cost savings. For instance, say a 14,000 square-foot data center housing more than 4,200 pieces of computing equipment decides to

virtualize 40 percent of those devices in a six-to-one ratio – six devices are virtualized into one. They can immediately see their electricity bill go down by nearly \$900,000 annually, because the five not being used can now be taken down.

Other than the desire to lower energy costs, there is a larger even more expensive reason to look at energy monitoring and managing capabilities such as Packet Power. As the volume of data explodes, requiring even more servers, there just isn’t any capacity left in data centers to house them. Thus, companies that own their own data centers – and most do – must build a new one.

To construct a 100,000-square foot data center can cost around \$100 million, said Bruce Taylor, chief strategist of the Uptime Institute, a research and advisory group for the data center industry professionals. That is a commitment that few would like to make, especially in a recession.

“So the only way we are going to get the capacity we need if data centers continue to grow the way they have been growing in terms of processing (power) is by buying back that capacity – by becoming more energy efficient,” Taylor said.

Still, some think Packet Power may have an uphill climb convincing data center facilities engineers of the product’s utility.

Jason Schafer, a senior data center analyst at Tier1 Research, who has been briefed on Packet Power’s products, but has not tested them, said he has been impressed by its simplicity and ease of use. But he worries that the people running the infrastructure side powering IT equipment are conservative and in general risk averse.

“Because uptime is so important right now, we approach new technologies with a bit of caution,” he said.

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