Silicon Valley confronting energy costs
Power now a major expense at data centers

- Matthew Yi, Chronicle Staff Writer
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When it comes to building large data centers, speed and performance have been key selling points. But that's not the case anymore, say executives from some major high-tech companies in Silicon Valley.

With rising energy costs and server computers that now suck up more electricity than ever, power bills have become such a significant expense that they are forcing chief financial officers to take notice, said Greg Papadopoulos, chief technology officer at Sun Microsystems Inc., which is hosting a two-day conference beginning today that discusses the issue.

The summit will include presentations from such companies as Intel Corp., Advanced Micro Devices Inc. and Hewlett-Packard Co. as well as speakers from the federal Environmental Protection Agency and Pacific Gas and Electric Co.

Google is a prime example of a fast-growing company that faces huge power demands. The company "has stated that power is (one of their) top operating expenses for the company," Papadopoulos said.

The Sun executive estimates Google already spends $100 million to $200 million on its energy bill each year and that number will likely grow as the search engine giant continues to add more server computers.

The problem isn't limited to just Google; other companies, especially online services such as AOL, Ebay, Yahoo and Amazon.com also face similar challenges, he said.

The problem arises from the large amounts of electric power needed to cool the tens of thousands of microprocessors at today's data centers.

Indeed, the cost of electricity to cool these server farms account for about half of the power bill of these centers, said Jon Koomey, a consulting professor at Stanford University's civil engineering department who will also speak at the meeting.

There isn't a clear consensus on how much power U.S. data centers consume, organizers of the conference say. Papadopoulos' own conservative estimate pegs the yearly energy consumption by U.S. data centers at about 25 gigawatts. And that (would require) tens of power plants," he said.

Also, when it comes to server systems, there isn't a common way to measure how energy efficient they are, they noted.

Ben Williams, AMD's vice president of commercial business, agreed on the need for some guidelines. "Just like we need standards in software and hardware, we need standards in power utilization and power savings," he said.

Bill Dunckel, senior project manager of PG&E's customer energy efficiency, said that awhile companies have made strides in saving energy in office buildings, labs and data centers have been largely ignored. "Per square foot, the data center consumes 10 to 15 times more energy than an office space," he said.

Dunckel, who will represent the utility company at the conference, said he hopes for increased energy savings in future data centers. However, he doesn't think in the long run data centers will actually consume

less energy.

"Do you see the high-tech industry saying we don't need more space, we don't need more performance?" he said.

Still, organizers say the problem needs to be addressed. "We need to get everybody on the same page about the problem that we have to solve," Papadopoulos said. "If we're able to start the process of articulating the problem, then we can go work on the solution."

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