

***Impact of Power and Cooling
On
Data Center Design***

Panel Discussion

Moderator: Steve Conway, IDC

Session Aim

Information technology (IT) has become more critical to the mission and success of modern business and government, resulting in the pervasive growth in data centers and compute power. With these accomplishments came the unsustainable growth in power and cooling requirements and cost. Hence, data centers have become hot targets for energy efficient design and technologies. Although there is no single, best way to design a data center, there are important technologies and strategies available to minimize inefficiencies and lifecycle costs. This panel will discuss some of the approaches that are or have been used to reduce power consumptions in data centers.

Question 1

In your view, what are the most useful measures that could be used to improve the power efficiency of data centers?

In a Power and Cooling survey done by Avetec and IDC they found that 60% of the data centers track and report direct power and cooling costs for their center either at the whole or component level. While a majority of data centers monitor power usage, few actively track power efficiency, and less than a third use specific metrics or statistics to measure and report energy efficiency.

Question 2

Since the survey found that few use metrics to monitor power efficiency should there be industry developed standards and/or metrics for energy efficiency in data centers?

The survey found the chief drivers for improving energy efficiency are 1) current power is insufficient to meet the growing requirements of newer systems and 2) there is a drive to reduce or maintain energy costs at the current levels. Eighty (80%) of surveyed centers operate under energy-efficiency mandates of these 46% have external mandates.

Question 3

What are your views on third party independent testing?

The survey found that two-thirds of the data centers do no in-house testing to validate the energy-efficiency of computer hardware, relying instead on vendors' performance specifications. Many data center organizations see benefits deriving from the availability of an independent, vendor-neutral validation environment.

Question 4

What approaches and technologies other than liquid cooling do you see that are viable approaches to improving power and cooling efficiency?

In both studies it was found that there is a strong trend towards liquid cooling as a way to increase energy efficiency.

Question 5

Do you agree and if you do in your view what is that technology and will that technology be a hardware or software solution?

The survey found that the focus on improving energy efficiency in data centers is on improving component hardware efficiency. There is a strong belief that “new groundbreaking energy efficiency technology” will emerge within the next 18 months.

Question 6

What in your view will provide the critical mass to move data centers to improve their energy efficiency is it political, economical/cost, lack of power or some other factor?

The largest non-technical barrier to increased energy efficiency is financial. Although 80% of the data centers operate under internal mandates to control energy costs, few organizations today are investing additional money in new energy-efficiency initiatives. To be fair, managements today are often caught between a genuine desire to make their organizations more energy efficient and budget limitations.

Back Questions

How are growing power requirements impacting the design and retrofit of data centers?

How can a data center design for green IT while ensuring reliability and high power density capacity?

What energy efficient strategies will optimize data center design and return on efficiency?