The Case for Everyday Sustainability

peak 10®

Efficiency Practices

When it comes to saving energy in data centers, sometimes a few simple changes can accomplish a lot.

Variable frequency drives

Cold/hot aisle containment

Leveraging virtualization technology

Lighting efficiency

Investing in the implementation of so-called "green" practices can deliver great benefits to customers — and the planet — in terms of overall energy efficiency and sustainability. That's our philosophy at Peak 10. We make energy efficiency practices "business as usual."

Outsourcing: A Greener Alternative

It's not just the benefits of colocation and the cloud that are driving more organizations to outsource portions of their IT responsibilities. Increasingly, both are being seen as "greener options."

Many companies lack the budget for investing in the latest energy efficient equipment and practices. Nor do they have the resources to build their own state-of-the-art "green" data centers. It's far more cost effective to move some of their IT infrastructure to data centers that already have made these investments and are employing best practices for sustainability and energy efficiency.

But just how "green" are the data centers themselves that provide these services? Should you only consider data centers that hold certifications for achieving a checklist of sustainability measures or that have garnered awards for their efforts? Or, is it more important that a data center makes energy efficiency and sustainability a normal way of doing business?

The Challenges

As Kermit the Frog famously said, "It's not easy being green." That is especially true for data centers. According to an often-cited industry statistic, data centers are responsible for close to two percent of U.S. energy consumption.

That's not surprising given that they run and maintain numerous computer systems, servers and associated high-performance components. Protecting this equipment requires the use of energy-intensive air conditioning systems, fire suppression systems, redundant/backup power supplies, redundant Internet connections and technically advanced security systems.

Therein lies some of the problems that data centers face in greening up their operations. Measuring energy efficiency and usage is extremely complex because there are many facets to it.

Is an increase in data center energy consumption offset by the energy savings customers realize through colocation or moving their data to the cloud? Is it better to replace data center equipment with more efficient models, even if doing so expands another company's carbon footprint because it has to manufacture that equipment? And what happens to the old equipment? Even if it's ultimately recycled in some manner, doesn't that require energy consumption? How do you measure the tradeoffs?

The Little Things

Let's not forget that data centers must operate 24 hours a day, seven days a week while providing agreed upon response times and storing a virtually unlimited amount of data. It takes a lot of energy to pull that off.

That doesn't mean there aren't ways for data centers to reduce energy consumption, increase efficiency and minimize overall carbon footprint — defined as the carbon emissions equivalent of the total amount of electricity a particular data center consumes.

In fact, it is often the little things that can make the biggest impact on a data center's energy efficiency. That includes shifting from rack servers to less power-hungry blade servers; the use of virtualization, which allows multiple operating systems to run on a single machine; and " thin client" PCs that draw far less power than conventional desktops. Advanced cooling technologies and more efficient AC systems also help minimize power use, as does just simply turning off lights when they are not in use.

The Peak 10 Way

At Peak 10, we make environmental sustainability and energy efficiency part of everything we do, from building new data center facilities and upgrading existing ones to our daily work habits. We don't invest in certifications and awards programs to prove our efforts. We choose instead to make being environmentally conscious our standard way of doing business.

Our efforts to promote a greener way of thinking, acting and working involve a variety of energy efficiency practices, some of which go into the building of our facilities while others are part of our daily actions. The tactics vary from data center to data center but include the following at various facilities:

- We reference ASHRAE thermal guidelines when developing our newest data centers to optimize interior temperatures while reducing power consumption for cooling.

- Variable-frequency drives (VFDs) are installed on the air-cooled chillers to improve their efficiency by reducing the rotational speed of a compressor in response to off-peak, lower-load conditions. This reduced rotational speed means the compressor does not have to work as hard, so the chiller consumes far less power during off-peak conditions.

- VFDs are also used on the pumps, so they only pump the necessary amount of fluid and generate very little wasted energy.

- Air conditioning units are equipped with unloaders to provide four-step capacity control, allowing the units to run at as low as 25% capacity.

- Computer room air conditioning units are equipped with variable-speed fan drives (VSDs) to help save energy when data center loads fluctuate.

- On cool days we shut down all compressors in some centers, and use the outside cool air.

- We employ cold/hot aisle containment, which uses physical barriers to reduce the mixing of cold air in data center supply aisles with the hot air in their exhaust aisles. This results in lower energy consumption and more efficient cooling.

- We employ raised floor designs with conditioned air provided under the floor and dispersed up into the room through diffuser tiles or blowers to ensure even cooling with minimal wasted energy.

- We eliminate cooling bypass valves in the data center once we are under reasonable load to increase efficiency.

- Computational fluid dynamics (CFD) analysis is used to track where cold air losses occur.

- Rack blanking panels are used to eliminate gaps in the server racks and create a contained server rack environment, which helps increase usable cooling unit capacity and maximize the effectiveness and efficiency of the cooling infrastructure.

- Simple data center enhancements are employed, such as strip doors, row caps and floor tile cuts fitted with "cold-lock" air locks, to maintain a high level of air conditioning efficiency.

- We leverage virtualization technology to minimize the number of physical servers and resulting power consumption needed to run our IT infrastructure.

- New UPS systems are being installed that are rated at 90% plus efficiency.

- We employ efficient lighting ballasts, motion-activated lights and a "lights out at night" policy.

- We have covered some of the roofs with a white mastic to reduce heat load, which has resulted in up to a 16 degree temperature difference.

A Better Way to Work

These are just a few of the measures we are taking to improve our overall energy efficiency, minimize our impact on the environment and reduce costs for our customers. Our engineers are routinely researching other methods we can deploy, and we actively seek out suggestions from our employees too. We know it's what our customers want — and we know it's good for our planet too.

Peak 10 is your partner in success today and tomorrow.

Find out more at:
peak10.com

Or contact us at:
info@peak10.com
(866) 473-2510