



Data Centers are Adopting Green Initiatives but are Wary of Vendors' Marketing Messages

Survey shows that while organizations are adopting initiatives to cut their environmental impact, few trust the claims vendors make about 'greener' equipment

Introduction

The IT industry and business in general are slowly waking up to the impact they are having on the environment. While the newspaper headlines target the growth of cheap flights as a leading cause of global warming, some commentators have suggested the IT industry is responsible for more carbon emissions than aviation.

Organizations have to be seen to be environmentally aware, but how much of it is PR bluster, and how much of it is backed up by action?

This Aperture Research Institute™ (ARI) survey shows that although 70% of organizations are adopting a green initiative, 19% admit the data center has been overlooked and 13% don't know how the data center is affected by the policy. Such a policy is unlikely to effect any change on the data center, despite the importance of cutting electricity bills at a time when two-thirds of data centers are experiencing a rise in power usage.

On a practical level, data center management has identified many opportunities to cut energy use, but only 27% of those surveyed was looking to use virtualization or consolidation to more fully exploit existing resources. Most were hoping to buy more energy efficient equipment, and dumping old equipment clearly carries an environmental cost of its own.

While vendors are increasingly using 'green marketing' to sell, data center management is yet to be persuaded that vendors' claims are genuine. 42% complained that they have no way to validate the claims, and 26% dismissed them outright as hype.

In the first of two research notes, we explore attitudes and trends in the green data center. The second paper, to follow in Spring 2008, will report on the actions that data centers are taking to reduce their impact on the environment.

The results are based on a detailed survey of more than 100 data center professionals across a range of sectors including the healthcare, banking and insurance, retail, telecommunications, government and pharmaceutical industries.



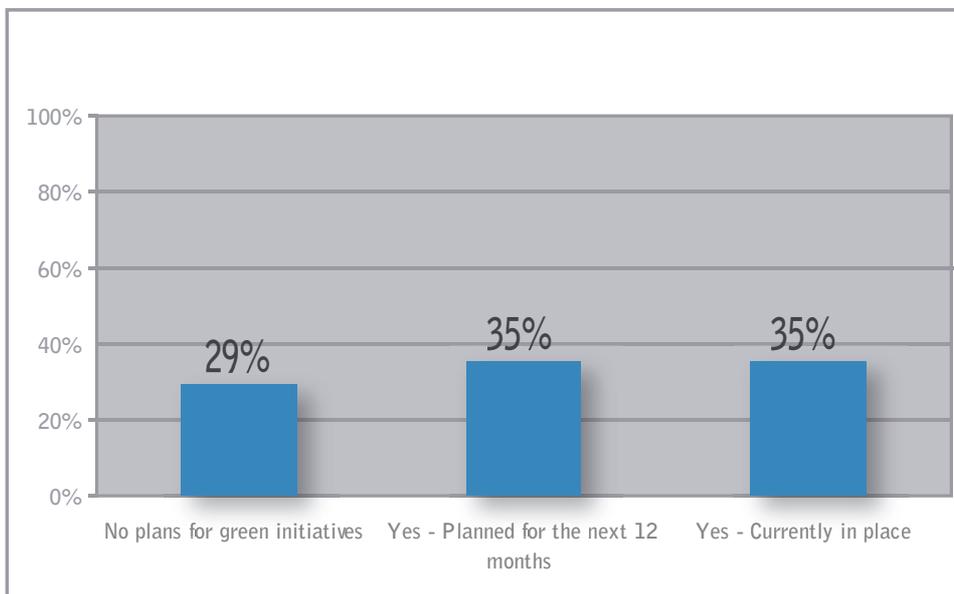
The green initiative and the data center

In recent years, companies have been encouraged to make a public commitment to cut their impact on the environment. Green initiatives are company-wide policies that explain how an organization will cut energy and materials consumption, and increase reuse and recycling. At their most effective, green policies include targets for cuts in energy or materials use, with a firm deadline by which they will be met.

We asked whether organizations had such a policy and found that 29% had no plans for such an initiative. It's possible that some organizations are reducing their environmental impact without having articulated such a policy, but it's more likely that these organizations have yet to begin their journey towards having a greener business.

Just over a third of companies have a green initiative in place already, and a further third are planning to introduce one in the next year. The fact that such a high number are still drawing up their policy and many have no firm plans to introduce one suggests that green initiatives are still in their infancy. But that will rapidly change - assuming that companies stick to their plans, 70% will have a green initiative a year from now.

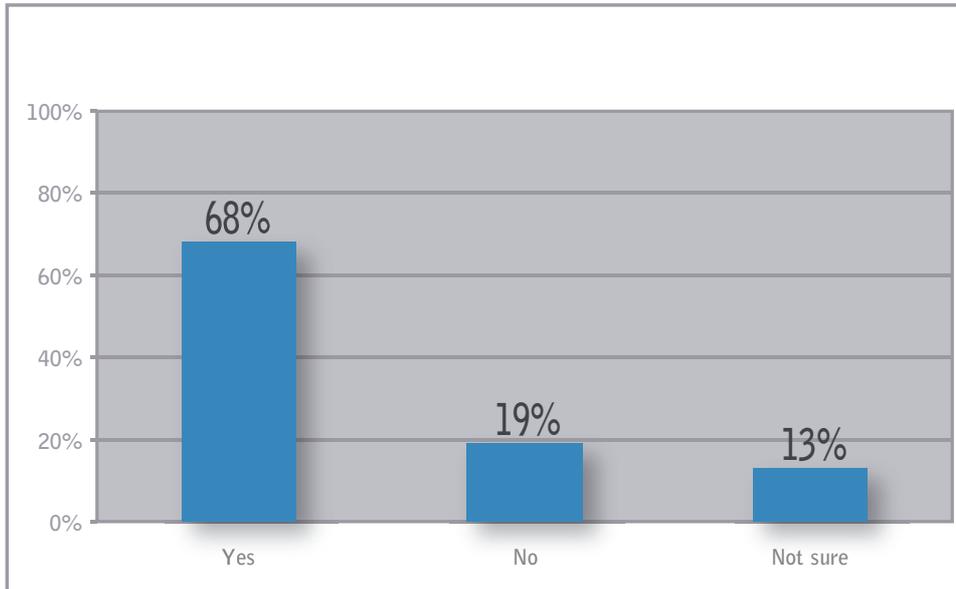
Do you have a company wide green initiative?



We also asked whether the green initiative included the data center. A full 68% of those who had a green initiative said that the data center was included, which represents about half of the total sample size. That figure is encouraging, but 19% admitted the data center had been overlooked or excluded, and a further 13% didn't know. Given that the respondents were all responsible for managing data centers, it suggests serious flaws in communicating the green policy. If data center management knows there is a policy but does not know whether its data centers are affected by it, the policy is unlikely to have any effect there.



Does your company wide green initiative include the data center?

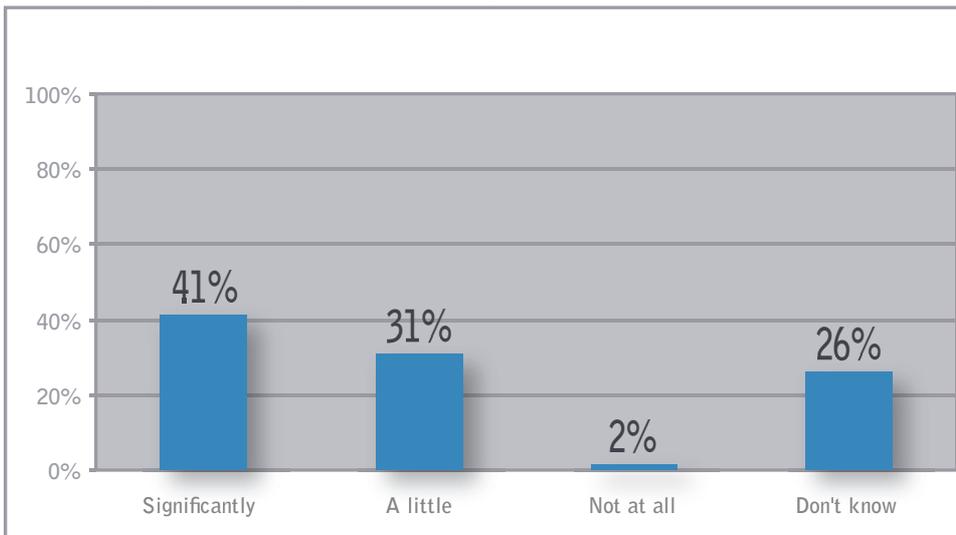


Survey participants were asked what effect they believe their organization’s green initiative for the data center will have on its carbon footprint. The results showed there is much faith: 41% believe their initiative will reduce the data center’s carbon footprint significantly, and 31% thought the initiative would change the carbon footprint ‘a little’.

26% didn’t know what effect the initiatives would have. The carbon footprint is an abstract metric that few organizations can measure accurately, and this is perhaps reflected in the managers’ uncertainty about the effectiveness of their policies. Equally, it could reflect uncertainty about how the organization consumes most resources and what impact the policies will have on resource consumption. As we will see in the second report in this series, part of the problem is a lack of tools to measure power consumption, and hence an inability to measure any fall in energy use.

Only 2% were cynical enough to suggest the green initiatives wouldn’t cut the carbon footprint at all.

How much does your data center green initiative reduce your carbon footprint?



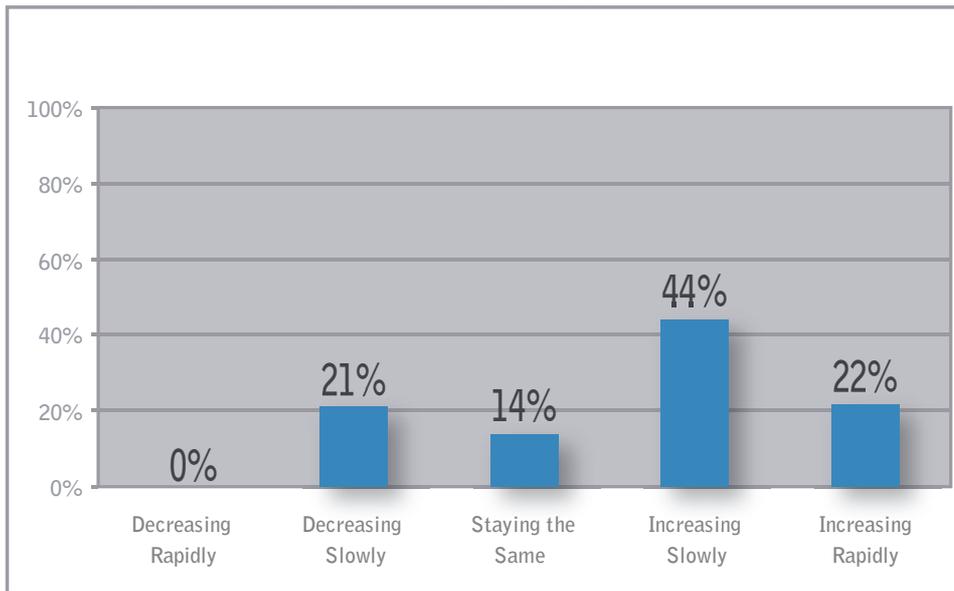


Trends in power consumption

In recent years, business growth has become synonymous with data growth, and with an increased demand for data storage and processing. In many data centers, demand for physical resources, including cooling and power, has become highly contested as older sites have reached full capacity. The introduction of high density devices has solved the space problem, but has had serious implications for power consumption. Reducing energy consumption should be a part of any attempt to cut the data center's impact on the environment, so we asked data center management what is driving the increase or decrease they see in their power use.

Two-thirds of data center managers reported that the power consumption of their data centers is rising. More surprisingly, about a fifth said that power consumption was falling. Only 14% believed their power consumption was remaining the same.

How is the total power consumption of your data center(s) changing?

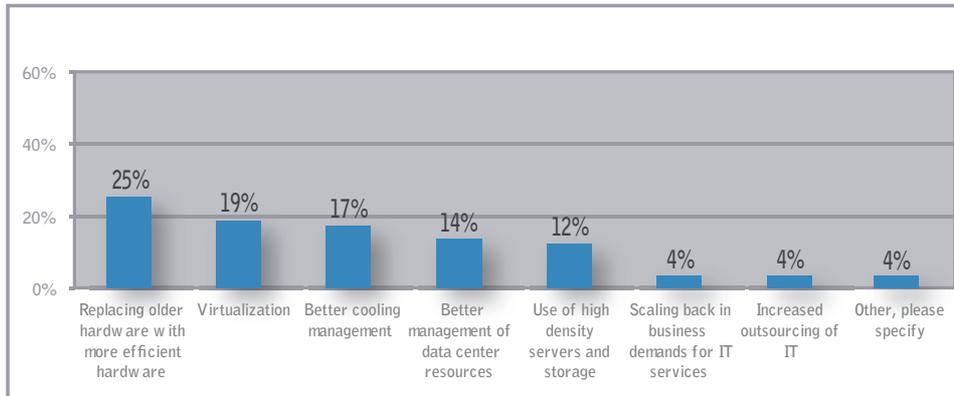


Those who said that power consumption was decreasing in the data center cited a wide range of reasons. A quarter attributed a drop in power use to upgrades, replacing older hardware with more efficient devices. Virtualization has formed part of the solution for 19% by enabling servers to be consolidated into fewer physical units. Better management of cooling (named by 17%) and of other data center resources (14%) also scored highly. Only 8% said that a decrease in power usage was attributable to a drop in demand for IT services or increased outsourcing.

High density hardware was credited with the drop in power use by 12% of the people we questioned. Although high density devices use less power per device, their more compact form tends to result in greater power consumption and cooling per rack. The 12% who noticed a drop in power use could be beginning to use high density devices, and might well find the power benefits unravel as more are deployed. Indeed, 40% of those seeing a rise in power usage attributed it to high density devices.



Causes of DECREASING power usage in the data center

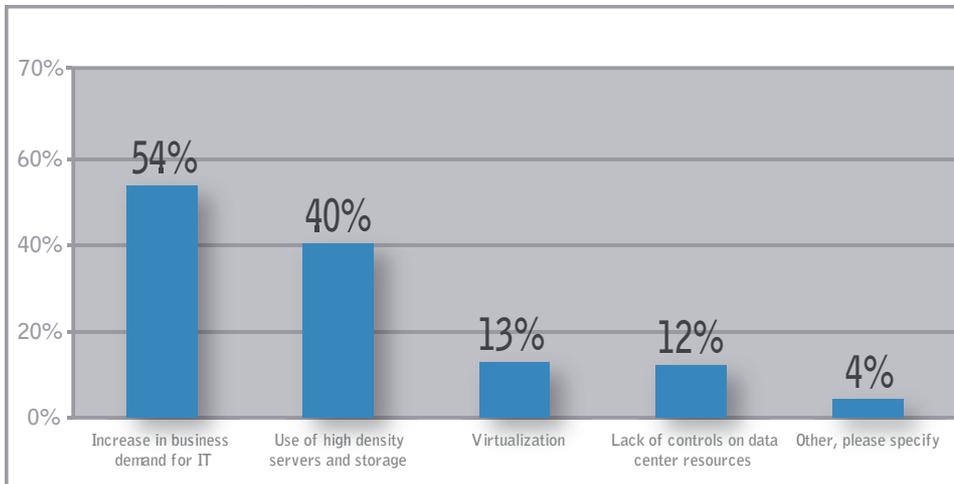


The reasons for an increase in power use were much less fragmented: over half (54%) said an increase in business demand for IT was to blame, and 40% said it was down to the use of high density servers and storage.

Of the two-thirds of managers who are experiencing rising power demand, 13% said that virtualization was a cause. There was also a small group that is seeing a fall in power use and that named virtualization as the reason why. As with many technologies, it seems the benefits depend on how virtualization is used. The advantage of virtualization is that it enables discrete servers to be consolidated into a single unit. The downside is that this one unit will consume more power than a standard server, albeit less than two servers. As the data center becomes populated with more virtual server units, the power density of the data center is likely to increase. As a result, more power will be required to cool effectively.

A lack of control over data center resources was cited by 12%, suggesting there is room for better management processes to help cut the growth of power use.

Causes of INCREASING power usage in the data center



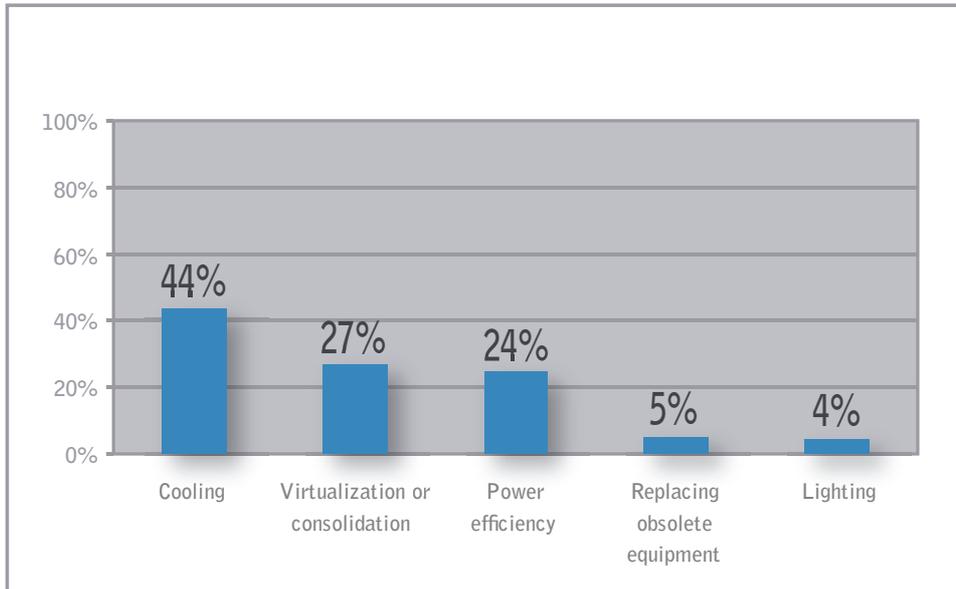
Where energy savings can be made

We gave respondents a free choice to tell us where the greatest energy savings can be made in the data center. Among the suggestions we received were to cut back on printing, to power off unused CPUs (ghost servers) and to switch to DC power (the last of which was named by three respondents). Two respondents suggested that greener energy sources should be used, with one going so far as to say that the data center should be located near to a hydro electro facility.

Despite the free choice and the number of people participating in the study, there was significant consensus on where the top opportunities are:



Where do you think the greatest energy savings can be made in the data center?



44% named cooling. There were calls for equipment that can run at higher temperatures and for better use of ambient cooling, although many were calling for more efficient air conditioning equipment. 24% asked for equipment that used power more efficiently and 5% recognized the opportunity to improve efficiency by replacing outdated equipment with more recent energy-efficient models.

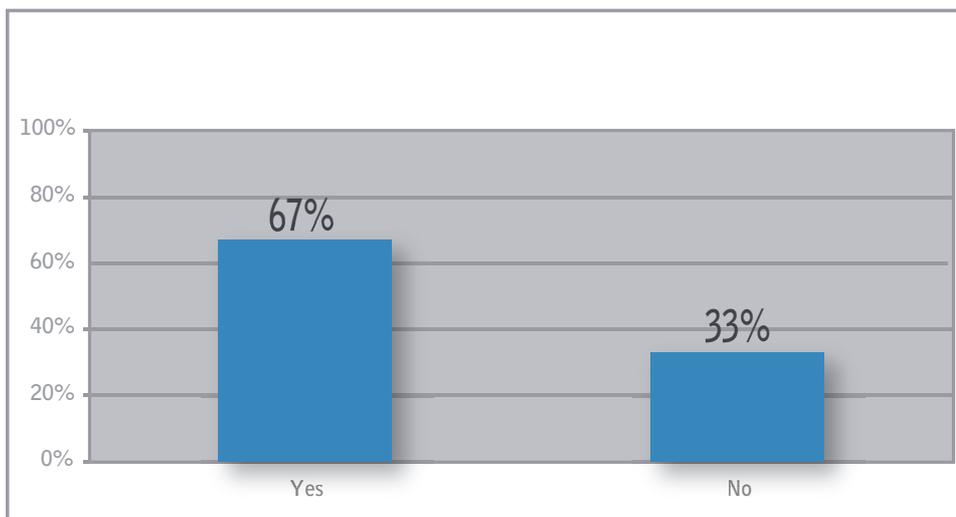
The 27% who advocated virtualization and consolidation were looking to more fully exploit the hardware they use and eliminate hardware that isn't necessary. It's promising that this group was so large because its members showed they were willing to take responsibility for solving the problem. Many of the other respondents appeared to want vendors to solve the problem for them in the hope they could buy a solution later.

Marketing the green data center

Vendors are increasingly marketing equipment and services as being 'green' or environmentally friendly. This reflects a greater awareness of two things: firstly, the device manufacturer's responsibility to help data centers be more environmentally responsible; and secondly, the potential power of a green marketing message.

67% of those we questioned said they had been approached by vendors using a green marketing message.

Have you been approached by vendors about 'green' products and services?

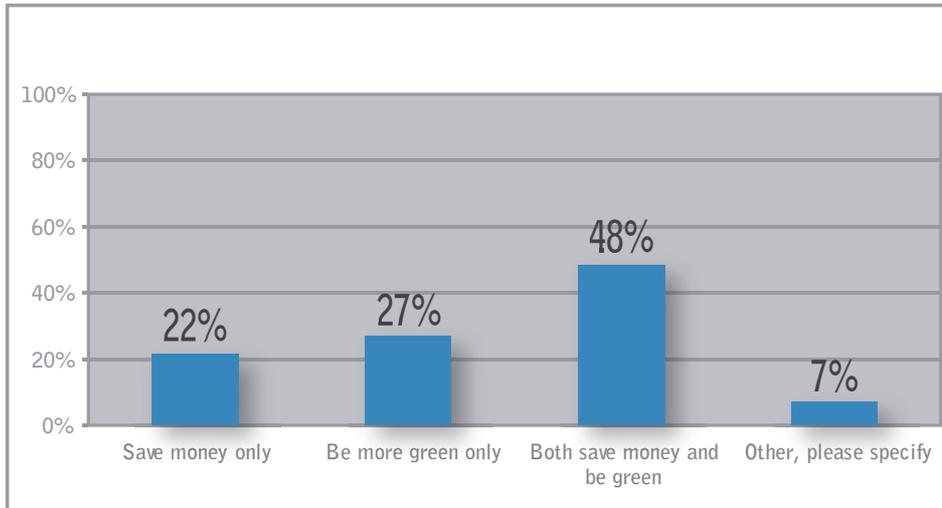




One way that vendors make the green message more palatable is by emphasizing that greater efficiency also saves customers money. This also gives vendors the chance to hedge their bets, and reach out to customers with a green conscience and those who are focused purely on the bottom line, as well as those with loyalties divided between the two priorities. Nearly half (48%) of our survey participants said that vendors had used both arguments as part of their green marketing.

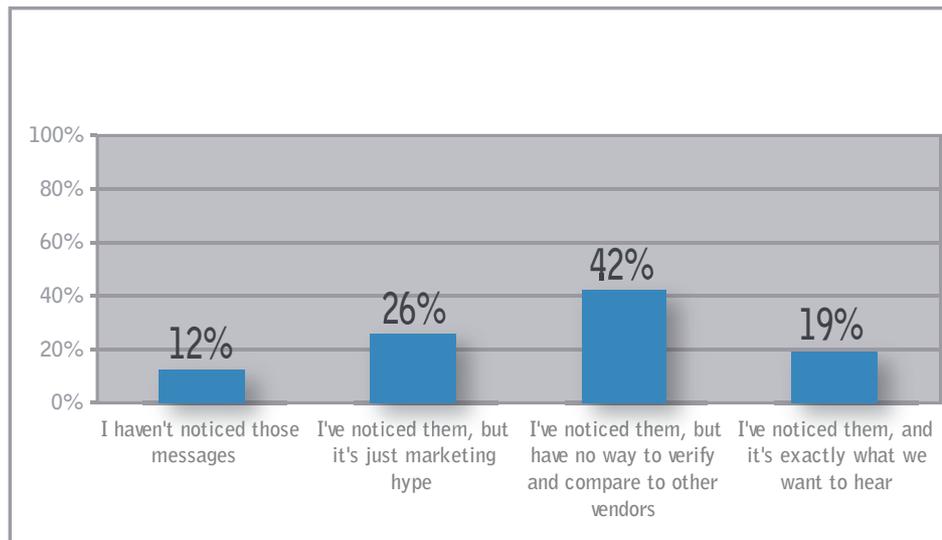
27% of data center managers said that vendors were only using the green angle, and 22% said that they were only emphasizing the cash savings.

What do vendors say about their 'green' products?



With so many organizations touting environmentally friendly technology, most data center managers are yet to be persuaded that such claims are genuine. Although 87% of managers had noticed green marketing claims, 26% dismissed them as mere hype and 42% said that they had no way to check their validity or benchmark them against rivals. Only 19% agreed that green marketing was exactly what they wanted to hear from vendors.

Vendors are increasingly marketing devices as being 'green'. Select the most appropriate statement:





Survey methodology

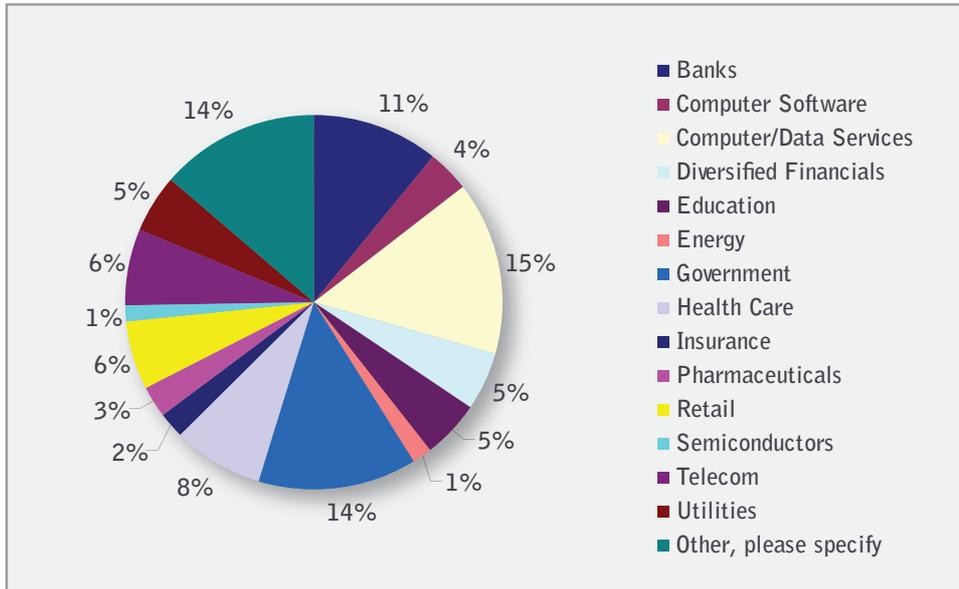
More than 100 data center professionals and executives from a variety of industries participated in this online survey. Survey participants were solicited from an industry database of Aperture customers and prospects. The charts below illustrate the demographics of companies that took part in the survey.

Annual Revenue of Participating Companies



The chart below shows the cross section of types of businesses that participated in the survey. It includes companies across various vertical industries and ranges from smaller businesses to Fortune 100 companies.

Primary Industry of Participating Organizations





Conclusions

Although 70% of organizations are adopting green initiatives, one could argue that the road to environmental destruction is paved with good intentions. The success of such initiatives will depend on how well they encompass the firm's operations, how specific they are in setting targets to cut energy use, and on how thoroughly they are executed. Our research found two alarming gaps: 19% of those with a green initiative admitted it did not include the data center, and 13% of those with an initiative did not know whether it did. Since we were interviewing those with responsibility for planning and managing data centers, the green initiative would be unlikely to have any effect in a data center where management does not understand the initiative's implications.

The data center deserves to be a focal point for any green initiative: two-thirds of those surveyed reported that power consumption was rising, and 22% of those said it was rising rapidly. The chief cause is an increase in demand from the business for IT services. It is essential, then, that business departments are accountable for the energy their IT consumes. In the second paper in this series, we will investigate whether organizations are charging the cost of power back to business departments effectively.

Numerous opportunities have been suggested for cutting energy use in the data center, with 44% naming cooling and 24% naming power efficiency. 27% proposed virtualization or consolidation as a strategy, but only one person suggested powering off unused CPUs. The minority of managers appear willing to adopt strategies that will help them to use existing assets more effectively. Most are calling for more energy efficient equipment to be invented, bought by their organizations and then installed in their data centers.

Despite that, data center management is unconvinced by vendors' claims to be marketing more environmentally friendly equipment. 26% dismissed such claims as hype, and 42% said they had no way to validate the claims. It seems that even those organizations that are committed to reducing their environmental footprint do not trust vendors to help them do so.

In this first of two research notes, we have explored attitudes and trends in the green data center. The second paper, to follow in spring 2008, will report on the actions that data centers are taking to reduce their impact on the environment.

The Aperture Research Institute is dedicated to providing the market with current information and trends on enterprise data centers. The institute plans to publish new research notes on a quarterly basis. To read the latest research findings, visit <http://www.apertureresearchinstitute.org/>.



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