EXECUTIVE OVERVIEW

451 Research

HIGHLY ENERGY-EFFICIENT DATACENTERS IN PRACTICE

Case Studies of Advanced Innovations in Datacenter Technologies and Techniques, 2012-2013

In-depth profiles of energy-efficient datacenters uncover the trends in tools, designs, deployment approaches and services at the forefront of facility efficiency.

DCT | DATACENTER TECHNOLOGIES

KEY FINDINGS

- Datacenter operators are continuing to take a more proactive and holistic approach to energy and resource efficiency, rather than token or one-off efforts implemented in a reactive manner.
- Operators (often large cloud providers) are prepared to embrace a range of emerging and disruptive technologies if the cost benefits are perceived to justify the investment and risks. These approaches include use of fuel cells as a primary power source, use of seawater for cooling, and use of direct liquid cooling of servers.
- Owners of large datacenters (more than 5,000 servers) are more likely to adopt energy-efficient technologies than owners of smaller facilities (fewer than 1,000 servers).
- There are signs that the 'facilities bias' toward energy-efficiency measures is beginning to shift, and datacenter managers are now considering a more holistic approach that also includes the role of IT.
- We expect new metrics, and holistic approaches to measuring datacenter efficiency, to be more widely adopted by operators as they gain industry acceptance. Efforts here include the approval of PUE as an ISO Standard and the Digital Service Efficiency metric developed by eBay.

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REPORT SNAPSHOT

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ABOUT THIS REPORT

Improving energy and resource efficiency is not a new issue for the datacenter industry, but it has traditionally taken a back seat to other considerations, such as maintaining uptime. However, over the last five to ten years, certain external factors – including rising fuel prices, carbon-emission reduction efforts and the credit crisis – have begun to push efficiency up the priority list.

This rise in energy-use awareness has helped drive the development of an increasing range of eco-efficient datacenter strategies and technologies by traditional datacenter suppliers, specialist startups and consultants. There is a wealth of information now available on how to make changes to datacenter design and operation in order to reduce energy and resource usage. This report is intended to look beyond theoretical solutions and supplier marketing, and instead concentrate on real-life projects and results.

TABLE OF CONTENTS

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