

current



In data centers, cool is a requirement.

A market heats up

The data center industry is facing the need for high-dollar investments in upgrades, facility replacements, and the recruitment of new workers. **by Dan Carazo**

Increased demands for data center power efficiency and computing density are generating new construction—and excessive heat. All of this activity is creating significant opportunities for distributors providing power efficiency and distribution, air handling, and cable management solutions.

Today's businesses and organizations literally run on data—thus making the world of data centers a vital market that plays a critical role in the U.S. economy.

AFCOM, an association supporting the data center industry, represents the professionals at the heart of data center operations. In 2006, in order to find out what is shaping current concerns and future planning among data center administrators, AFCOM's Data Center Institute surveyed more than 1,000

AFCOM members. The published findings, entitled *Five Bold Predictions for the Data Center Industry That Will Change Your Future*, reported that by 2016, 53% of data center managers expect to physically expand their data center facilities, with 45% of them planning to make major improvements to these facilities. Of those that were surveyed, 32% said they will have to relocate their data center operations. Reasons for this included 41.8% reporting business growth, 33%

claiming aging facilities, and more than 32% indicating their need for newer technology.

When asked to identify the greatest facility problems facing data centers, the AFCOM members listed three that are directly linked to the massive increase in computing density: insufficient power, excessive heat, and insufficient raised floor area.

"All of these problems happen to be related issues," explained Mark Guymon, director of product management for Leviton's Power Solutions Products. "Wattage-hungry servers and other types of equipment are requiring more and more electrical power to feed the ever-increasing processing power.



PLUGGED IN: The U.S. data center cabling market is poised to grow to more than \$2.2 billion by 2011.

These faster, more powerful processors in turn generate more heat, which leads to a need for more cooling—and a need for more raised floor space for power and cooling infrastructure.”

EFFICIENCY SAVES

According to a 2006 report to Congress by the EPA, in 2006, “Data centers in the United States have the potential to save up to \$4 billion in annual electricity costs through more energy-efficient equipment and operation.” The report indicated that the energy consumption of servers and data centers has doubled over the past five years, and that existing technologies and strategies could reduce server energy use by approximately 25%.

“When a data center is being designed, computing density is a critical engineering concern, and a primary requirement for older facilities,” said Roger Jette, president of Snake Tray. “Because one server cabinet can generate a 4,000W thermal, load cooling is extremely important. Access floors are the primary means of delivering cooling air to the cool aisle, so reducing congestion under raised floors by designing higher floors and installing cable tray closer to the floor allows greater circulation of cool air.”

“A well-run data center is a core competency for any major organization,” said William DiBella, president of AFCOM. “A few years ago, 1kW power per rack was the norm; however, power has since grown to 14kW to 24kW per rack. The proliferation of blade servers in the data center has increased computing density, which, in turn, is causing power consumption and cooling issues. As a result, the question for today’s data center manager is: How do we continue to increase computing power without increasing energy consumption?”

“Power and cooling are the industry’s squeaky wheels that are getting much of the attention,” continued DiBella. “We’re seeing a greater reliance on modeling software to help data centers manage their power efficiency and cooling needs. These tools help identify potential hot spots before hardware gets laid out, and help design the most efficient airflow patterns to unavoidable hot spots, which allows you to reduce your overall cooling costs.”

Guymon noted that one way that data centers are dealing with the need for more power is by using 208V input power rather than standard 120V power. “A lot of servers and other equipment accept either 120V or 208V, but 208V is about 73% more efficient in terms of how it uses the available amperage,” he said.

CABLING CONCERNS

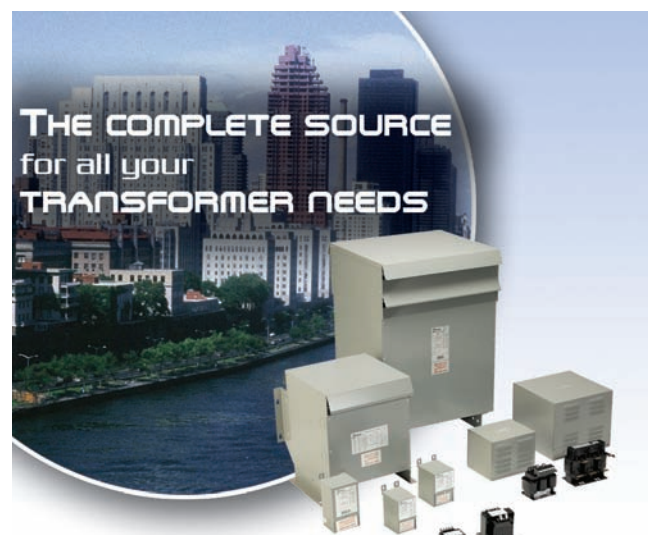
According to a study from FTM Consulting, the U.S. data center cabling market is poised to grow at an average annual growth rate of 26.8% from \$680.9 million in 2006 to more than \$2.2 billion by 2011. The study projects the data center cabling market will account for 30.8% of the total structured cabling systems market by 2011.

Frank Murawski, president of FTM Consulting, noted, “One surprising findings is that the market is strong for both fiber and copper cabling. We found the market is segmented into three distinct groups of users: small sites with an all copper cabling architecture; medium sites with hybrid copper/fiber cabling; and large sites with all fiber cabling.”

A key driver for this growth is the increasing storage requirement, which leads to the centralization of databases at servers within data centers. “Storage has become so cheap that data centers are getting much bigger, with many IT departments outgrowing their older facilities,” noted DiBella. “Many older data centers are relocating to areas with cheaper power.”

DiBella also projects a shift from the explosive growth seen in server/rack installations. “We’ve seen a shift away from mainframes, which greatly increased server density, space requirements, and heat generation,” said DiBella. “Now we’re seeing a cycle back to using mainframes in place of a far larger number of servers. It’s easier to manage 30 mainframes than 3,000 servers.” ■

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