A Customer Success
from the Experts in
Business-Critical Continuity™

CDW Berbee

Founded in 1993, CDW Berbee is a proven partner for IT solutions, including unified communications, security, remote managed services, information worker solutions, and virtualization and optimization. The company's data centers support hosted applications, co-location, and managed services for clients nationwide. CDW Berbee is a leading provider of technology for businesses and is among a handful of companies worldwide to achieve the highest level of partnership with Cisco, IBM and Microsoft. CDW Berbee has offices in Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin.

Background

CDW Berbee began offering managed services in 2000 and currently operates two enterprise data centers built on a redundant infrastructure to provide 7x24 managed services to customers worldwide. The data centers — located in Madison, Wisc., and Minneapolis — together include more than 24,000 square feet of space. In addition, CDW Berbee is currently constructing a new enterprise data center in Fitchburg, Wisc., which is scheduled to be operational in spring 2008.

Case Summary

Location: Minneapolis, Minnesota

Products/Services:

- Liebert XDH Horizontal Row Cooler
- Liebert XDC Coolant Chiller
- Liebert Deluxe System/3 Precision Cooling System
- Liebert Series 610 UPS System
- Liebert SiteScan Critical Facility Monitoring System
- Liebert FPC Power Conditioning and Distribution Cabinet

Critical Needs: A scalable, adaptive cooling infrastructure to eliminate emerging hotspots while providing a platform to support future business growth.

Results

- Eliminated 15°F to 18°F temperature variations in the data center, providing a consistent, stable environment for IT systems.
- Implemented a next-generation cooling infrastructure that can support future growth without disrupting data center operations.
- Increased efficiency and scalability of cooling systems by bringing cooling closer to the source of heat.
- Secured a utility rebate for installing the energy-efficient Liebert XD system.

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The Situation

When CDW Berbee began delivering managed services, the demands on the company's data centers rose dramatically. Not only did the data centers have to support additional technology, but they were also integral to the solution CDW Berbee was offering its customers. Downtime wouldn't just impact internal operations; it would impact customer support.

Growth in the managed services business came so quickly that adequately planning for growth was a luxury Wayne Rasmussen, CDW Berbee data center manager, did not have. His attention was focused on addressing the challenges caused by rising densities and growing customer needs, most notably cooling.

"Five years ago, I stayed up nights worrying about how space constraints would hinder my business and data center growth. But with form factors shrinking, concerns about space were replaced by concerns about heat density," says Rasmussen. "All of a sudden I was laying awake at night worrying about rising heat density."

Rasmussen is not alone in that concern. According to the 2007 Data Center Users' Group study released by Emerson Network Power in November, heat density and power density were two of the top three network/facility concerns noted by respondents. Space constraints came in at number five.

"Hotspots were a major issue in my data center. It was a challenge just trying to maintain a consistent temperature throughout the room," says Rasmussen. "There were days when I had some units at 63°F and others between 78°F and 80°F. It's not equipment-threatening level yet, but it is worrisome—and not energy efficient."

The Liebert FPC brings power distribution closer to the load, dramatically reducing the amount of cable needed to distribute power from the UPS. It also provides flexibility to change and add electrical distribution in the future.

Wayne Rasmussen, data center manager (pictured)
CDW Berbee

The 12,000-square-foot data center was arranged in a hot aisle/cold aisle configuration. It featured a nine-inch raised floor and held approximately 600 racks and 30 blade center chassis, which averaged 10 blade servers in each. It was cooled by 10, 30-ton Liebert Deluxe System/3 precision cooling systems in a downflow configuration and the power protection was provided by Liebert Series 610 UPS systems. He also utilized the Liebert SiteScan critical facility monitoring system and the Liebert FPC power conditioning and distribution cabinet. The Liebert FPC brings power distribution closer to the load, dramatically reducing the amount of cable needed to distribute power from the UPS. It also provides flexibility to change and add electrical distribution in the future.

While the precision cooling units provided reliable control of room temperature, humidity and airflow, they were not enough to address the rising heat density.

"Because of technology changes, my data center was out of capacity with only two-thirds of the actual floor space being used. We installed additional CRAC units along the wall but that was only a partial solution, and there was a limit to how much air we could push through the floor," says Rasmussen. "Even with the additional room cooling units, we still were experiencing hotspots because of air distribution limits."

Rasmussen soon realized that the only way he was going to solve his hotspot problem was to move the cooling closer to the source of heat.

The Solution

Rasmussen did his research and looked at a variety of supplemental cooling solutions. But it wasn't until he talked with Eric Ollerman and Andrea Janssen from Data Center Systems, Inc, a local representative for Emerson Network Power's Liebert critical support systems and services for mission-critical operations, that he found a solution that would meet his needs.

"We invited Rasmussen to the Emerson Network Power AdaptiveXchange 2006 conference and showed him the new Liebert XDH horizontal row cooler. Then we took him to a site to see it in operation," says Janssen.

"Paul Hydukovich, a HVAC project manager with Gilbert Mechanical Contractors, was a great asset," says Rasmussen. "He was excited about the Liebert XD system. He thoroughly researched the technology and worked closely with Data Center Systems and Emerson Network Power during the installation. The fact that Emerson Network Power always does a great job of working with local experts was a benefit."

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Wayne Rasmussen, data center manager
CDW Berbee

As further proof of the efficiency gains for bringing cooling closer to the load with the Liebert XD, the team explored an opportunity to receive a rebate from local utility company Xcel Energy for installing the Liebert XDH in the CDW Berbee data center. This would be the first time this utility had ever offered such a rebate for utilizing the Liebert XD system for data center cooling.

"The team encouraged us to approach the utility company," Rasmussen notes. "They did all the energy efficiency calculations and paperwork, and presented

our energy savings to the utility company."

In July 2007, Gilbert Mechanical Contractors began installation of eight, 20 kW Liebert XDH horizontal row coolers and one, 160 kW Liebert XDC coolant chiller. The Liebert XDH is part of Emerson Network Power's Liebert XD line of high heat-density cooling solutions that improves business continuity by supplementing traditional cooling and targeting high density areas. Liebert XD modules are available for both horizontal cooling within a row of racks (Liebert XDH), or in a vertical cooling configuration above the racks (Liebert XDV and Liebert XDO).

The Liebert XDH draws in air from the hot aisle through the rear of the unit and discharges cool air into the
cold aisle where the electronic equipment air inlets are located. Because the Liebert XDH draws directly from the hot aisle, it takes advantage of higher heat transfer efficiency. It can cool more than 30 kW per rack and features flexible piping with quick-connect fittings that allow adaptive and scalable expansion, and re-positioning without any interruption of cooling. When installed on both sides of a rack, capacities can scale up to 60kW. In addition, Liebert XDH horizontal row coolers can be combined with overhead Liebert XD modules for even greater capacity and flexibility alternatives. All of these Liebert XD modules can use quick connect piping for fast and easy system expansions and modifications.

The indoor Liebert XDC coolant chiller is specifically designed to support the Liebert XD cooling modules. The Liebert XDC connects directly to the Liebert XDH and provides coolant circulation and control while maintaining the coolant at a temperature always above the actual dewpoint. The pumped refrigerant turns into a harmless gas in the unlikely event of a leak.

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Wayne Rasmussen, data center manager
CDW Berbee

The Results

With the installation of his new Liebert XDH horizontal row cooler, Rasmussen is now able to maintain a consistent temperature throughout his data center.

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Rasmussen is also pleased with the performance of his Liebert team and Hydukovich. "So as not to cause any interruption to our clients, we had to install the equipment while the data center was live. To their credit, the installation went as smoothly as planned with our clients not experiencing any inconvenience.

Ollerman and Janssen worked closely with me and Hydukovich throughout the entire process. They did a great job addressing our needs."

The initiative with Xcel Energy resulted in a rebate of $1,725 based on the documented energy savings and energy efficiencies of the Liebert XD system when used appropriately with traditional computer room cooling. By deploying the Liebert XD system, CDW Berbee was able to save 11 kW per hour in operating costs.

"I see a lot of 'new and improved' products in my role," says Rasmussen. "Some I consider as 'nice-to-have,' some as 'should-have,' and then there are those rare few that are 'must haves.' For my data center, the Liebert XD system is definitely a must have!"

For more information on Liebert technology, visit **www.Liebert.com.**