A Customer Success
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Business-Critical Continuity™

BayCare Health System

BayCare Health System is the largest full-service, community-based healthcare system in the Tampa Bay area, with 17,000 team members and a wide variety of health services. The organization is a not-for-profit partnership of three geographically defined community health alliances: Morton Plant Mease Health Care, St. Joseph's-Baptist Health Care, and St. Anthony's Health Care. The alliances represent a diversified, evolving, integrated delivery system incorporating a wide spectrum of inpatient, ambulatory, practice management and home care services based in the greater Tampa Bay Region.

Background

BayCare Health System operates nine hospitals in the Tampa Bay area. Like other leading health providers, its doctors and administrators require access to the latest medical information. An ongoing seven-year project to convert to electronic medical records, along with industry-wide issues such as regulatory compliance, patient privacy, digital imaging and growing clinical reliance on IT, increased BayCare's demand for computing capacity and performance.

Case Summary

Location: Tampa, Florida

Products/Services:

- Liebert Series 610 500 kVA UPS systems
- Liebert PPC stage one power distribution systems
- Liebert FDC stage two power distribution systems
- Liebert STS 400 Amp automatic static transfer switch
- Liebert DS precision air conditioning units
- Liebert SiteScan web-based critical monitoring system

Critical Needs: Design and implement a new data center to efficiently meet current requirements while scaling to support growth.

Results

- Increased available space and capacity to handle expected growth of 100 servers per year.
- Enhanced system availability through full redundancy of power and cooling systems and improved monitoring.
- Improved resource management and operating flexibility by enabling lights-out operation.
- Reduced energy use through more efficient room arrangement, improved cable management and hot-aisle/cold-aisle design.

EMERSON™
Network Power

The Situation

BayCare Health System was formed in 1997 when its three hospital groups came together to reduce costs and share best practices. Its nine hospitals improved efficiency by consolidating and sharing administrative departments such as human resources, financial services, purchasing and information technology. The strategy allowed BayCare to save more than $90 million in its first five years.

That same drive for efficiency led to a seven-year plan for transitioning to electronic medical records with the eventual goal of going completely paperless. It also meant changes in patient care and hospital operations, including increased reliance on IT systems for things such as digital imaging, bed tracking, scheduling, pharmacy and laboratory operations, and food and nutrition management.

"Our technological advances and overall growth were great for all of our people, our patients, our hospitals and our business," states Doug Lauterbach, BayCare's director of IS Imaging Services, "but it presented some real challenges for our old data center."

The existing data center was 13 years old and was beginning to show its age. Located in a 21,000-square-foot, single-tenant, two-story office building, the 4,700-square-foot data center sat on top of a filled-in swimming pool left over from the building's days as a physical therapy center. It wasn't using a hot-aisle/cold-aisle design so cooling was becoming a major concern. The necessary addition of more and more servers to accommodate BayCare's rapid growth further complicated matters, and space

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was shrinking to the point that it was difficult to find room for the cables that came with each new piece of equipment.

"Simply put," says Lauterbach, "it was time for a new data center."

The Solution

The first step was finding a new location. They quickly determined existing BayCare facilities were not well-suited to support the new data center and ultimately selected a large room with thick, poured concrete walls in what originally was designed as a shopping mall.

"We wanted a facility with plenty of room to grow, and we're so sure we found it that we signed a 10-year lease," Lauterbach says. "We also wanted a building that could withstand a hurricane, and we couldn't

have gotten a more hardened building if we had built it ourselves."

After identifying the site, Lauterbach and his team focused their attention on facility design. They identified four objectives for the new data center:

- Scalability: In addition to the existing IT equipment, the new data center had to be able to support future growth, estimated at 100 servers annually.
- Availability: The data center had to be designed to support 24x7 availability.
- Manageability: Improve management by ensuring remote visibility and control of data center systems.
- Efficiency: Implement best practices and new technologies to increase energy efficiency and reduce operating costs.

Lauterbach says those objectives provided the focus for their conversations with different vendors about equipping the new data center. From the infrastructure standpoint the offerings from Emerson Network Power were the most comprehensive, which was important to the BayCare team as they wanted to minimize the partners they had to work with on the project.

"We knew early on that we were going to go with Liebert precision cooling from Emerson Network Power, and there are advantages to using a single vendor for the power and cooling infrastructure," Lauterbach says, adding that Emerson Network Power's appeal went beyond the comprehensive product catalog.

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visited their facilities and toured their factories," he says. "We were very impressed with the Liebert manufacturing facilities and testing environment. The factory was organized, clean and logical. To us, those were indications that Emerson is a disciplined organization and their people take pride in what they do. Plus, they demonstrated a high level of customer care. They have a strong customer focus and that gave us confidence they could meet all of our needs."

Representatives from Emerson Network Power met several times with Lauterbach to map out an efficient, flexible, growth-ready data center infrastructure. They repeatedly mapped watts per square foot via computational fluid dynamics (CFD), tweaking the inputs each time to determine the best possible placement of precision air conditioners. They settled on a 24-inch raised floor with multiple precision air conditioning units, but Lauterbach says they continue

to run CFD calculations every three to six months, incorporating changing data captured from new thermistors, branch circuit monitoring and other tools.

"Seeing Emerson's CFD design ahead of time was important. It made everyone more confident in what we were doing," Lauterbach says. "The first time I saw that CFD modeling, the 'wow' factor was there. It's a great tool from a design perspective."

Thomas Gooch, the Liebert Representative from Computer Support Products, Inc., says the early CFD modeling showed BayCare a relationship with Emerson goes well beyond product technology.

"It shifted our role from product provider to really working hand-in-hand with the design team," Gooch says. "We all worked together to decide where the blade servers would go, where the precision cooling units would go, where we needed perforated panels, and other decisions affecting airflow and cooling efficiency. It truly was a team approach, and that was possible because of the modeling we did in the beginning."

Lauterbach adds that every decision was made with growth potential, best practices and BayCare's specific objectives in mind. The attention to detail shows in every inch of the new data center.

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The new facility has integrated lights-out capability, allowing remote control of servers from anywhere in the world. The virtually people-free facility doesn't need a command center on the raised floor, conserving valuable space. It also minimizes disruptions caused by human error, and allows managers to monitor and control the data center environment remotely using tools such as the Liebert iCOM environmental control system.

The Liebert iCOM control system provides advanced diagnostic and maintenance support for data center equipment and enables multiple units to communicate and work together as a system to precisely control temperature and humidity across

a room. The iCOM setup wizard automatically sets up all the units in a room from a single location so the efficiency of the entire cooling system can be optimized. It can display user menus for active alarms, event log, graphic data, unit view/status overview, total run hours, various sensors, display setup and service contacts.

The data center also features the Liebert SiteScan Web enterprise monitoring system integrated with Rackwise—something Lauterbach insisted upon in planning discussions. That made the move to the new data center and future server additions easier for everyone involved. Liebert SiteScan monitors and controls virtually every piece of critical support equipment in the data center, providing Lauterbach and his team complete real-time information whenever they need it.

"Being able to manage the data center remotely has many advantages for us, not the least of which is improving our ability to maintain continuity during hurricanes," Lauterbach says. "Our people have families, and they may need to be home with them. They may be traveling in another state. They could be anywhere. With remote monitoring, as long as they have a network connection, they still will be able to monitor the data center."

That monitoring ranges from branch circuits in the Liebert FDC that update electrical load data every second to temperature sensors deep in the racks. According to Gooch, all the cabinets have temperature sensors reporting back to Liebert SiteScan. Each sensor connects to a five-foot cable, allowing the sensor to be moved up and down the rack for even more detailed temperature readings. "We're able to know the temperature anywhere on the rack, and that's where we want the cooling," Gooch says. "With this kind of detailed monitoring, we only use the cooling systems when and where they're needed. That's a significant efficiency improvement for BayCare."

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The Result

BayCare's new data center went live at the end of July 2007—on time and on budget—and the last equipment move happened in early October. The new data center meets each of Lauterbach's objectives and all of BayCare's needs as it continues to grow and service the Tampa Bay region with outstanding healthcare supported by state-of-the-art IT capabilities. Lauterbach is pleased with the new facility and the room he suddenly has to expand with his rapidly growing organization. And he's not the only one.

"Prior to going live, our CEO toured the new facility," Lauterbach says. "He has been talking about it ever since, including during senior management meetings. He is thrilled with the new data center we've built."

Lauterbach credits the close partnership with Emerson for making what could have been a daunting move a satisfying experience for everyone involved.

"Having Thomas (Gooch) and the Emerson Network Power engineers engaged in making sure from a design perspective that we did what was needed now and going forward was invaluable," he says. "They have been reviewing our plans and making recommendations every step of the way, and they remain involved and engaged now that we're up and running. I wouldn't have wanted to do it without them."

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