> Eaton worked very well with us. I really appreciate their helpfulness and the great business relationship we enjoyed. It was a very positive experience.
>
> Tom Pietsch, data center operations manager

Eaton lends expertise to green data center builds

Location:
Melbourne, Fla.

Challenge:
As it transformed two facilities into new "green" data centers, the company needed high-density, high-efficiency and scalable power solutions.

Solution:
Eaton Computational Fluid Dynamics (CFD) services, Independent Containment System (ICS), Heat Containment System (HCS), Paramount Enclosures, Profile Console and Remote Power Panel

Results:
Eaton's solutions are projected to save the company up to 30 percent on cooling. Additionally, based on CFD data, Harris was able to reduce its CRAH and CRAC distribution profile, leading to additional cost savings.

Background

Headquartered in Melbourne, Fla., Harris is an international communications and information technology company serving government and commercial markets in more than 125 countries. With some 14,000 employees—including 6,000 engineers and scientists—the company is dedicated to developing best-in-class assured communications® products, systems and services.

Challenge

Harris Government Communications System (GCS), located in Brevard County, Fla., implemented an aggressive plan to renovate its two data centers, Palm Bay Data Center (PDC) and Wickham Data Center (WDC). The goal of these renovations was to significantly drive down the cost of operations, a challenge that was realized by implementing industry best practices into every facet of the data center designs.

"The green data center initiatives were a component of a broad comprehensive effort to organize and run our data centers at the lowest possible cost," explains Tom Pietsch, data center operations manager (DCOM) for the two Harris GCS locations. "This took commitment and team work from a spectrum of organizations: EIT Management, Facilities, Integration Engineers, EIT Stakeholders and an array of support personnel. Because cooling is the major cost of running a data center, we were very focused on green data center initiatives."

To that end, the company sought out guidance and expertise from Eaton's applications engineering group which provided an experienced and certified team member trained on state-of-the-art computational fluid dynamics (CFD) modeling software. The results of the initiative, designed to improve data center energy performance, helped Harris make solid decisions regarding the products that would best meet its objectives.

Solution

The WDC and PDC now feature high-density, high-efficiency and scalable solutions from Eaton. "We took the previous server rooms and overhauled, expanded and reconfigured them," explains Pietsch.

With the Wickham site completed first, followed by Palm Bay in 2012, the company's move toward its goal of developing state-of-the-art, green data centers began with a CFD analysis, which is designed to improve data center energy performance and help organizations add high density servers while increasing rack density. It also analyzes and improves energy performance; determines efficient cooling methods; uncovers existing problems; and predicts design limitations of new or expanding facilities.

Using the CFD, Harris was able to construct a virtual representation of the WDC, modeling the impact of load distribution within the facilities, as well as the flow of hot and cool air.

"Eaton teamed us with a CFD engineer and we built the WDC on the computer, adding in heat loads," Pietsch explains. "We used several computer models to scale the WDC to its maximum capacity, thus projecting heat loads and our

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ability to efficiently manage them."

Following the assessment, "Eaton gave us numerous recommendations for ASHRAE Class 1 specifications for data centers; Air Management Systems (AMS), rack hygiene and other suggestions, and we used all of their recommendations," Pietsch reveals. "That's when we started to look at using their HCS and ICS. We chose the most energy efficient of all selections."

Among the products deployed by Harris in both data centers are Eaton's ICSs, Paramount Enclosures with Heat Containment Chimneys, Profile Console Systems and Remote Power Panels (RPPs).

"WDC product selections were able to meet all of our Return on Investment (ROI) requirements and we were able to cost effectively integrate this technology into the PDC," Pietsch says.

ICS

In each of its new data centers, Harris installed Eaton's ICS, which offers a modular, building-block design with complete flexibility and room for growth, increasing initial ROI. Designed to provide maximum flexibility in all environments, the ICS is assembled within the footprint of a standard aisle and constructed with a tubular steel frame that is designed to be freestanding and meet seismic NEBS Zone 4 standards, which allows them to handle various storage array racks from different vendors.

The scalable design of the ICS—offering the ability to extend aisles with load growth—makes the product an ideal solution for co-location and other highly evolving data center environments that require on-the-fly modifications. The ICS also provides vertical blanking

panels that ensure containment integrity and are easily removed in sections to allow quick installation and positioning of new IT racks. In addition, the unit can be easily deployed as a cold aisle containment solution with or without a down flow chimney system. Furthermore, the ICS has the ability to support virtually any brand of server or network rack in any depth, height and size, with on-demand reconfiguration of the row.

"It went together very well," Pietsch reports of the product, noting that in Harris' facilities, the ICSs were installed free hanging from the ceiling. "We had to use it that way because we had to maximize our floor space."

Paramount Enclosures

To meet its server enclosure needs at the two data centers, Harris selected Eaton Paramount Enclosures with HCS chimneys. Installing 60 units between the two sites, the company offers high praise for the industry-leading enclosure system, which is compatible with virtually all major servers, switches and other networking equipment. Providing unparalleled levels of storage, cooling, power integration, cable management and a broad range of rack accessories, Paramount Enclosures boast a modular, scalable design for high-density equipment.

The 24-inch wide enclosures also offer unsurpassed cable management features for today's demanding network infrastructure. With unobstructed front, rear and top cable access, the system provides ample cable management along the sides for increased copper and fiber cable loads, as well.

Profile Consoles

With Command Information Centers (CICs) at each of its data center sites, Harris also

needed a console system offering flexibility, modularity and a solid design.

"This is where the administrators work to run operations," Pietsch explains. "It's the nerve center of the data center."

Created specifically for high-density flat panel display monitoring applications, Eaton's Profile Console System was a perfect fit, featuring a versatile design that makes it ideal for technology-intensive environments such as network operation centers, call centers, process control settings and medical imaging reading rooms.

With a revolutionary design and durable steel construction, the ergonomically friendly Profile is available with both manual height-adjustable keyboard platforms and electronic height-adjustable work surfaces. Universally recognized for offering the most advanced technology access and integrated cable management solutions in the industry, Profile was engineered to maximize the ability to service and store technology while maintaining a progressive, state-of-the-art console appearance.

Another benefit for Harris? "It was a cost-effective product," Pietsch reports.

Remote Power Panels

Harris also turned to Eaton for its power distribution needs, installing remote power panels (RPPs) that deliver unmatched distribution with up to 168 factory-installed branch breakers in a highly compact footprint. The products offer ease of installation through standard top and bottom cable entry provisions within a free standing structure, and also include extensive monitoring options such as branch circuit monitoring to ensure effective monitoring and power management.

With the Eaton solution in place, Harris is now able to:

- Operate state-of-the-art, energy efficient, green data centers constructed with industry-leading equipment

- Significantly reduce cooling expenses through the ICS and HCS

- Adapt to changing data center requirements and house high-density equipment with Paramount Enclosures

- Integrate technology at its CICs with Profile Consoles

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