

Power Protection — With



Backup

Having the right hardware means nothing without the right support services.

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A major component of a product's valuation is the support services that stand behind it — a truth that Michael Chahino employs when evaluating new technology for Elgin Community College (ECC). This was foremost in the mind of the director of network operations and information security recently when a comprehensive power protection solution was needed on the Illinois campus.

Located in the Fox River Valley between Chicago and Rockford, ECC meets the higher education needs of nearly 17,000 students each year. As an institution committed to enhancing learning through the use of technology, Elgin relies on computer-based instruction throughout its curriculum, while its complex of ultra-modern buildings is infused with state-of-the-art equipment.

One of the college's most recent technology additions is a Voice over Internet Protocol (VoIP) solution, which was deployed in July. As a result, ECC also sought an effective power protection strategy that would not only safeguard the new equipment against area power anomalies but would also ensure that phones remain up and running for at least 90 minutes in the event of a prolonged outage.

Finding the Right Solution

At the same time, the college was struggling with the reliability of its two existing uninterruptible power supply (UPS) systems, which were responsible for protecting servers, firewalls and the primary core switch within the campus' main data center. ECC wanted to upgrade these aging units in order to maintain high availability and uptime for its critical equipment.

“One of our main concerns in a UPS manufacturer was support,” notes Chahino. “It's important to have reliable equipment, but it's also important to have superior support for that equipment and maximize our ROI [return on investment].”

To help him flesh out the power protection solution that would best meet the campus' needs, Chahino turned to his CDW•G account managers, Eric Cheng and Gabi Rubeck, who set up meetings with several UPS companies.

One product quickly emerged as a standout for ECC's needs: the Powerware 9125 Rackmount UPS from Eaton, which offers advanced backup power and power quality management with an innovative feature set. Not only was the UPS an ideal fit for Elgin's VoIP application, the college also reaped a high degree of comfort from Eaton's reputation as a leader in the power quality industry.

“When we asked for references for Eaton, they came very highly recommended based on their products and support services,” Chahino reports.

Joel Sullivan, field sales engineer for Eaton, visited the campus three times to discuss ECC's application needs and make product recommendations, ultimately homing in on the Powerware 9125. “It's an online product in a small format,” he explains, “so it gave the college flexibility to accommodate all of their power protection scenarios.”

Chahino agreed, and — impressed by both the UPS and the manufacturer — opted to deploy 30 units, placing 16 of the 3,000VA models and 14 of the 6,000VA models in the data closets that house Elgin's VoIP equipment.

Looking at the Details

The compact Powerware 9125 UPS, which conserves valuable rack space by delivering up to 3,000VA of UPS power in only two rack units (2U) or up to 6,000VA in 5U, protects critical applications from downtime and data loss by providing continuous power to all connected equipment.

With a double-conversion online design, the UPS constantly conditions AC output, assuring zero delay when transferring to backup power in the event of a power failure.

“It’s another layer of security to keep the network up and running,” explains Chahino, adding that the college also relies on generators and produces its own electricity.

Of key importance to ECC was the Powerware 9125’s ability to meet its runtime requirements through optional Extended Battery Modules (EBMs). Having attached an

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EBM to each UPS, the college can rest assured that its phone system will continue to operate for at least an hour and a half during a power outage.

Another benefit to the Powerware 9125 is the unit’s load segment control, which allows runtime to be extended for more critical equipment by managing scheduled shutdowns and sequential startups of protected loads.

The college is also taking advantage of the UPS’s optional PowerPass power distribution module, which includes a maintenance bypass switch to upgrade or replace the UPS without interrupting power.

In addition, ECC implemented Powerware’s ConnectUPS Web/SNMP cards, which enable each UPS to directly connect to the Ethernet network and the Internet. In doing so, administrators have the ability to conveniently monitor and manage the UPS with a standard web browser, while simultaneously ensuring graceful shutdown for multiple computer systems over the network.

To further supplement its power protection solution, ECC purchased a Powerware Environmental Monitoring Probe (EMP) for each UPS. The device allows IT administrators to remotely monitor environmental conditions within the college’s network closets using a standard web browser.

In addition to monitoring the ambient temperature and humidity of the remote environment, the device will also track the status of additional contact devices, such as smoke detectors or open-door sensors.

“Most data closets don’t have their own air-conditioning,” Chahino explains. “In case anything happens to any of the

equipment, [the EMP] will report back and prompt us to go make a physical check.”

Passing the Test

Bud Miedema, the college’s telecommunications specialist who installed the majority of the new equipment, reveals that the Eaton products are earning high marks at Elgin. “The solution is working out really well,” he says.

In fact, the system was already put to the test when a major outage recently wiped out power to the college. “We were unable to bring up our co-generator,” explains Miedema, “and those 9125s stayed up and running for the full hour and a half, just like they were supposed to.”

Not only did the amount of battery backup afford college administrators ample time to notify people of the outage by phone, but the UPS software performed a graceful shutdown of connected equipment when power failed to be restored after 90 minutes.

“As a result of the new power protection solution, our critical systems are not subject to downtime,” says Jeff Boyd, interim dean, business and career technology at ECC. “This allows our IT staff to focus on other matters, without worrying about availability issues.”

The Powerware 9125s will also play a key role in ECC’s upcoming implementation of a video surveillance system that it plans to deploy in fall 2008. “We’re beefing up our security on campus to create an even safer environment for our students, faculty and staff,” explains Chahino. “Those UPSs will keep the system up and running in the event of a power outage.”

In addition to ensuring high availability to its VoIP system, Elgin Community College was able to upgrade protection for its main data center with the purchase of two Powerware 9170+ UPS devices. With a scalable, modular and redundant design, the Powerware 9170+ was a perfect fit for the critical environment, providing the highest level of power quality.

“The units have been great,” Chahino reveals. “We have had no issues at all.”

Available in three-, six-, nine- and 12-slot configurations, the Powerware 9170+ UPS eliminates single point-of-failure with N+X power and logic redundancy. The UPS grows with changing IT environments by incorporating a scalable design in which additional power or battery modules can be easily installed to support more applications and devices.

Scaling Up

This type of UPS scalability offers organizations better control of their infrastructure and the ability to reduce operating expenses, reveals Farah Saeed, senior consultant with the energy and power systems team at market research firm Frost & Sullivan.

Organizations often overbuild their data centers with the anticipation of adding more equipment in the future, Saeed notes, which can result in excess UPS capacity. This, in turn, drives up power and cooling costs.

“Organizations can realize significant savings by deploying scalable and modular systems,” Saeed explains. “You can buy what you need right now, with the ability to build as you grow.”

The Powerware 9170+ further lowers total cost of ownership with its high wattage output, which is capable of powering more of today's modern power supplies. The unit isolates connected equipment from all incoming power problems with a double-conversion online design that provides the highest degree of protection.

Reliability is further enhanced with the unit's advanced battery management (ABM) technology, which doubles battery service life and provides advanced warning of the end of useful battery life.

Furthermore, the Powerware 9170+ conditions incoming power without depleting the battery, preserving battery power for complete power outages. In addition, hot-swappable, lightweight power and battery modules simplify setup and service of the unit.

To optimize the ongoing health and longevity of the UPS systems, ECC purchased Eaton service plans, which include onsite, start-up standard maintenance coverage, the convenience of onsite service and technical support.

The Right Fit

Overall, the college invested approximately \$100,000 in its complete power protection solution, which Chahino

says is a small price to pay for the magnitude of defense it provides — safeguarding millions of dollars worth of critical equipment.

Elgin Community College also valued the ability to customize such a comprehensive, end-to-end solution from a single source.

“In the UPS market, what we're seeing is that there isn't really a cookie-cutter solution for data center and telecom applications,” Frost & Sullivan's Saeed points out. “Requirements vary quite a bit on how each data center is configured. Because of that, we see a lot of variety.”

“Joel from Eaton helped us put together a fully specified solution with registration pricing, which allowed Elgin Community College to get a custom solution perfect for their needs at a great price,” adds CDW•G's Cheng. “This just goes to show the trust customers place upon CDW•G to find them the best solution for their opportunities, as well as the great partnerships CDW•G has with manufacturers.”

Chahino agrees, noting that “CDW•G comes in as a consultant — not a sales representative — which is something I value tremendously,” he says. “They offer advice, with no specific agenda.”

Powerful ROI

Implementing a power protection strategy is a small price to pay for the benefits it provides.

It pays to be protected because no matter how you assess it, downtime carries an enormous price tag.

Regardless of the government entity or location, there is no escaping the costs and consequences of power problems. Consider some staggering statistics:

- Research from utility distributor NPL reveals that the average location will experience 107 power events each month.
- The cost of a 15-second interruption is estimated at \$70,000, according to Pacific Gas & Electric.
- A Duke Power Survey found that during a one-hour power outage, 91 percent of work is halted.
- Frost & Sullivan estimates that the overall impact of power-related problems can cost U.S. organizations more than \$26 billion per year.

- One in four local area networks (LANs) is completely vulnerable to disaster or disruption, and 64 percent of organizations do not have an effective plan to protect their wide area networks (WANs), according to FEMA.

In many instances, there is very little lag time between system downtime and financial losses. Yet one of the most simple and cost-effective methods of safeguarding against power problems — and their potentially devastating consequences such as lost or corrupted files, hardware malfunctions and the inability to access critical systems — is the installation of a UPS.

For many organizations, measuring the return on investment (ROI) of a UPS is simple, since a single downtime event can cost more than the entire expense of network protection. A solid power protection solution not only reduces the risk of downtime, but also decreases total cost of ownership by extending equipment life and reducing replacement costs.

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