Straight A's for Eaton in K-12 virtualized environment

Location:
Sacramento, Calif.

Segment:
K-12 Education

Challenge:
WUSD needed a solid power protection solution with visibility into its virtualized network.

Solution:
Intelligent Power Software, Eaton® 9390, Eaton 5PX, ePDUs, Service

Results:
Eaton's UPSs, coupled with Intelligent Power Software that seamlessly integrates with VMware, catapulted the district to the top of the class.

Everyone says their software integrates into VMware, but when challenged and asked to demonstrate in house, they couldn't do it. Eaton was the only one who could deliver that.

Tom McNinch, IT Manager

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Background

Washington Unified School District (WUSD) serves an ethnically diverse and growing population of 7,421 students, with a staff of 400 certificated employees and 350 classified employees. The district currently operates seven elementary schools, a comprehensive high school, an alternative high school, an independent study program and an adult education program. At least one additional elementary school is planned to accommodate growth.

In addition to a quality K-12 education program, WUSD offers a variety of additional opportunities to meet the needs of its student population, including a preschool programs, English as a second language education, special education, a Gifted and Talented Educational (GATE) program, and an Advancement Via Individual Determination (AVID) program.

Challenge

Ensuring that its data center remains up and running at all times is an assignment WUSD takes seriously. The fully virtualized, VMware®-based facility houses all of the district's critical services, including multiple active directories, web services, student information systems and the phone system, among others.

Several years ago, the district began investigating uninterruptible power systems (UPSs), seeking a solution that would make the grade in its demanding data center environment.

"We needed a system that was going to keep everything backed up with enough runtime, but also be easily scalable," reveals Tom McNinch, IT manager for WUSD.

Equally important was the district's desire to seamlessly manage its virtual environment.

"We were looking at different manufacturers for about a year before we made a decision, and we chose Eaton for multiple reasons."

Solution

The Eaton 9390 UPS, installed in the data center in 2012, delivers a best-in-class combination of power performance, battery management, scalable architecture, flexibility, power density, and warranty and service — all extremely important to WUSD.

But a key driving factor behind the selection of the unit was the Eaton Intelligent Power Software (IPS) Suite. Integrating with VMware, Microsoft®, Red Hat® and Xen®, IPS provides all of the tools needed to monitor and manage power devices

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across the network, even in virtualized environments. The innovative software solution combines the most critical applications to ensure system uptime and data integrity with power monitoring and management, as well as graceful shutdown during an extended power outage—something other UPS manufacturers may claim, but ultimately fail to deliver.

"All of the others say their software integrates into VMware," McNinch emphasizes, "but when challenged and asked to demonstrate that in house, they couldn't do it. Eaton was the only one who could deliver."

That ability was absolutely essential for WUSD. "First and foremost, if our power goes down, we are able to stage our shutdown process using the software," McNinch explains. "We can keep critical machines up in the virtualized environment, and we can consolidate servers to maximize uptime."

The suite encompasses two software programs, Intelligent Power Manager (IPM) and Intelligent Power Protector (IPP). IPM supervisory software enables monitoring and management of multiple power and environmental devices across the network from a single interface, while IPP provides graceful, automatic shutdown of network devices.

The software's integration with popular virtualization platforms like vCenter™ helps data center managers enhance uptime, productivity and operational responsiveness, while reducing infrastructure and operating costs. In addition to providing the ability to view critical information on power and environmental devices IPS allows users to instantly access vital information such as UPS battery conditions, load levels and runtime.

"For us, the visibility into the system and the virtualized environment has been a huge component," McNinch points out, "as well as the shutdown procedure."

Indeed, during an extended power outage, the software facilitates remote, graceful shutdown of servers in clusters. Furthermore, it will trigger vMotion and other migration applications to transparently move virtual machines to an available server on the network.

"We really wanted it to work in a particular manner and it works exactly that way," McNinch confirms.

Yet another benefit of IPS is the ability to monitor power usage and kWh, which can help users calculate power usage effectiveness and identify possible areas of cost savings. "Our energy specialist uses that feature," McNinch confirms.

Since installing the 9390 and IPS, the district has experienced two major power outages—but never missed a beat, thanks to the reliability of the solution.

"After the first outage, we were able to reevaluate how we had programmed our shutdown process and make some adjustments with the software," McNinch says. "We evaluated which devices we needed to maintain and the order we wanted to shut things down. We ended up consolidating down to two VM servers so we could eliminate the rest of the farm and maintain a higher runtime. During the second failure, it all worked perfectly."

WUSD has been equally impressed with the operation of the double-conversion, online 9390 UPS, which offers the highest reliability and availability with Powerware Hot Sync paralleling, superior batter management and inherent redundancy.

"From an uptime and reliability standpoint, it is wonderful," McNinch enthuses. "We had a tremendous number of failures with the APC unit that was in our data center previously."

The district also values the 9390's scalable architecture, which adapts to increasing power requirements with the ability to add additional power and battery modules. While

the district initially deployed a 40 kVA unit, it ultimately plans to grow the UPS to an 80 kVA model. "We really like the ability to upgrade on the fly," says McNinch.

Eaton's ABM® technology is another boon for the school district. The cyclical battery charging increases service life and reduces cost of ownership, as well as provides advanced warning when batteries are approaching the end of their useful lifespan.

"With our previous APC systems, we had failed batteries all the time," McNinch shares. "We looked at how different companies charged their UPS batteries and how they performed over their lifetime. Eaton does it differently than other manufacturers, and it's much more effective."

Meanwhile, adds McNinch, "many of our school sites had Tripp Lite units, and we experienced a lot of failures and firmware issues, and then we couldn't even replace batteries."

That problem has been remedied with the deployment of approximately a dozen Eaton 5PX UPSs, which safeguard switching equipment and a couple servers at individual school campuses. "Over the past three years, as we do refreshes and upgrade our sites, we we pull out the old UPS systems and replace them with the Eaton units the old UPS systems and replacing them with the Eaton units," McNinch says.

In addition, the district relies on Eaton ePDUs for enhanced power distribution, with six installed within the data center and another four at school sites.

Above and beyond the quality and the benefits of the products, WUSD had yet another reason to standardize on Eaton.

"One of the reasons we chose Eaton is their customer service," McNinch reveals. "They have a direct educational focus, which a lot of other manufacturers do not, so they understand the educational space and market, as well as the pricing.

"It's fantastic," McNinch says of the district's relationship with Eaton. "The proactive support we get is fabulous."

For example, routine calls and emails to check in with McNinch or to schedule the twice-yearly preventive maintenance appointments that are part of the district's service plan.

"The service plan gives me peace of mind," McNinch explains. "They complete the firmware upgrades, check the batteries, service the systems and test the power. I know the systems are healthy and working the way they're supposed to."

Reseller results

"We've been very, very happy with the Eaton systems in our environment," McNinch sums up. "We definitely don't have to worry about downtime anymore, compared to what we experienced prior with the competitors' units."

With the Eaton solution in place, WUSD has no problem making the grade semester after semester, with the ability to:

- Keep a constant pulse on its virtual environment while managing safe, orderly shutdowns, thanks to IPM software

- Achieve 100% uptime and availability with the 9390 UPS

- Easily upgrade its UPS system as equipment or runtime needs increase

- Maintain vital switching equipment at individual school sites with the Eaton 5PX units

- Gain superior power distribution capabilities with Eaton ePDUs

For more information, visit
Eaton.com/intelligentpower

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