School District Modernizes for Power Continuity to Support Accelerated Remote Learning Needs

A Vertiv Case Study

Background

The Henry County School District, comprised of a 327 square mile area just south of Atlanta, Georgia, supports the educational needs of more than 43,000 school children who use 50 different school building facilities.

In order to help the district's 5,000 employees better prepare students for the global workplace, the district's information systems network — a centralized data center and dozens of distributed sites and facilities — has to maintain uptime. Classroom disruptions for its students and teachers must be kept to a minimum.

Challenge

The Henry County information technology (IT) team is responsible for managing the systems and networks that support the district's educational and administrative activities. Over the years, the IT staff has been tasked with a growing list of responsibilities as the district evolves to a more digitized educational environment.

Several years ago, for instance, school district leadership made the decision to provide every student in the district with a connected tablet device. This required the technology team to support a rollout of approximately 35,000 Chromebooks and more than 10,000 iPads.

"We realized that our data center and network closets would need to be modernized in order to support the new education initiatives," said David Carter, Henry County School District's director of network operations. "As we looked to perform our technology refresh, we knew we also needed to upgrade the required power systems."

HENRY COUNTY SCHOOLS

To provide stable network services across a multi-building, multi-campus school district, Henry County's IT team relied on a centralized UPS and remote management capabilities — an architecture that enabled improved visibility and control for minimal downtime.

Manageability and power stability present issues

For years, the team had been relying on rack-based uninterruptible power supplies (UPS) for the extended runtime needed to recover from downtime-inducing power glitches. However, managing the health of these UPS batteries was proving to be labor-intensive work.

"The quality of the power coming into the building was not ideal. As a result, power sags and spikes would occur on a regular basis, which over time, drained the batteries. Our technology staff then found themselves having to troubleshoot or replace these batteries quite often, which was both costly and time consuming," said Matt Thompson, Henry County School District's network supervisor.

In order to come up with a better solution, the district's technology team turned to its longtime technology advisor, Joe Powell and Associates, the local Vertiv office.

These expert on providing mission-critical power and cooling solutions to local Georgia schools and businesses quickly realized the school district needed a solution that would simultaneously enable both centralized power protection and management capabilities that would easily provide visibility into distributed power systems.

"Their existing in-rack battery solution did not provide much management capability," said Channel Sales Manager Jason Parton. "For instance, the staff technicians ran into issues when trying to determine which power cords within one device were connected to the two different batteries that were in place for redundancy. During critical situations, they needed to identify these issues quickly, without any unnecessary time delays."

Together Vertiv and Joe Powell and Associates performed a full site survey and analysis of the district's electrical infrastructure including the natural gas backup generator. In configuring a solution, the team made sure that data center electrical loads were accounted for, and that the proposed centralized UPS solution was properly sized to work with the district's natural gas power generator.

If a power outage were to occur, the UPS and generator would need to work in sync in order for the backup power to continue running until the main utility power was restored. Within the IT racks themselves, intelligent power strips were installed to ensure power redundancies down to the individual rack levels.

Solution

After performing the analysis, Parton and his team recommended a 40 kW N+1 redundant Vertiv™ Liebert® EXM UPS with external wrap-around bypass for the main data center and more than 100 Vertiv™ Liebert® GXT5 single-phase UPS units to protect the routers and communications components in the district's

Liebert® EXM UPS

Liebert® GXT5 UPS

distributed environments. In addition, Vertiv™ Environet™ alert monitoring software was recommended to allow for remote troubleshooting and management.

“Moving to a centralized power solution consolidated our data center UPS management function and reduced stress by greatly simplifying day-to-day workloads,” Carter said. “Now if a component within our power system is experiencing an issue, we receive an alert that tells us exactly which power distribution unit (PDU) is at fault. This greatly eases our diagnostic and troubleshooting activities.

“Our staff also has the ability to monitor our power equipment remotely using a cell phone. If we have a tech working in a particular building, we can alert him to the fact that an issue has occurred in that building and can have him troubleshoot on the spot. This helps to make our servicing workflow much more efficient. We no longer have people running around everywhere just trying to keep up with faulty power issues. We can now cover 50 remote sites with just four or five of our people.”

Not long after the installation of the new equipment, the Vertiv solution was put to the test. The district experienced a full power outage due to bad weather. Fortunately, the Liebert® UPS equipment worked as advertised and acted as a power bridge until the gas generator engaged, ensuring the district experienced zero system downtime.

A partnership built on strong collaboration

When deciding how to implement its new solution, the Henry County School District received multiple responses to its requests for proposal (RFP) from organizations across the country. However, the IT team was particularly interested in working with an organization who could provide both local support and act as an implementation advisor and long-term partner.

“The proposal from Vertiv and its Joe Powell and Associates partner was particularly attractive and unique because it offered more than just technology,” Carter said. “They understood our business requirements and offered advice on designing a comprehensive solution. They also offered clear explanations of how their solution would work.”

According to Parton, his organization’s ability to offer strong local support represented a critical success factor.

“By utilizing our services for annual preventative maintenance, the school district could keep its centralized UPS under a Vertiv™ services maintenance agreement which guarantees four-hour on-site response. We also have access to a Vertiv parts distribution warehouse 10 miles up the road. Plus, we are only 15 miles away from Atlanta’s Hartsfield-Jackson Airport should parts need to be shipped quickly,” Parton said.

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> **- Matt Thompson, Network Supervisor**
> **Henry County School District**

Carter echoed those sentiments. “We wanted the peace of mind of knowing that when we need support, the right experts would be just a quick phone call away and available to us when we need them on site. With our distributed Liebert® GXT5 UPS units, for example, we have a three-year warranty with service that includes overnight battery replacement.

“We view partnerships as a long-term progressive relationship. Because of the way our budgeting works, we try to anticipate our technology challenges five years ahead of time,” Thompson said. “Working in partnership with reliable organizations like Vertiv and Joe Powell and Associates gives us the confidence that we are making the right long-term decisions.”

Results

Solution essential to overcoming imposed restrictions

As was the case with school districts across the country, the Henry County School District’s IT team also had to cope with pandemic-driven operational disruptions. “When the virus hit the school district, all of our staff was quickly asked to work remotely. Over a period of several weeks, no one was allowed back in the facilities without special permission from the superintendent. Yet, we still needed to support the remote teaching and learning that was happening through our data servers and communication networks, said Thompson.

“Thankfully, our new ability to remotely monitor our power solutions gave us the visibility we needed to keep the network up and running, without having to be physically on site. This provided assurances to our superintendent that our data center would continue to operate during this period of operational challenge. We were able to very quickly support remote learning over a very long time, under a situation of tight constraints.”

Vertiv™ Environet™ monitoring software

- Quick visualization of power, cooling, space, and other key metric data for simplified asset management and maximum uptime
- Rapid response to potential system issue with email or text notifications when alarm nears a threshold
- Ability to analyze facility energy use and identify opportunities for improved efficiency
- Clear visibility of electrical infrastructure with a single-line diagram, enabling easier infrastructure changes
- Comprehensive database of past, present and future events that can be used for reporting

Solution benefits include proactive management

Since the new Vertiv systems have been installed, the school district has experienced fewer power glitches. However, in the past, there was no means of predicting when an issue was imminent.

Now through remote monitoring, the IT team is alerted when systems deviate from defined thresholds signaling potential problems.

“We can act before those problems result in system downtime. We have much more detailed visibility in to the health of our UPS across our entire geography,” Thompson said. “Thanks to the Vertiv solutions provided to us by Joe Powell and Associates, our technicians can now spend more time doing what they do best — acting as network operations and security experts so that our students, faculty, and staff can work with systems that are always available.”

"Our guys can't be everywhere, all the time, but we have a system that is everywhere. It acts as our eyes and ears when we can’t be there."

- Matt Thompson
Network Supervisor
Henry County School District

Go online to learn more about how Vertiv critical digital infrastructure solutions can safeguard the uptime of on-premise, hybrid, and remote classrooms or contact Joe Powell and Associates.

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