

CPI Intelligent PDUs Play Powerful Role in Oak Ridge Schools' 1:1 Learning Initiative



Oak Ridge City Schools wanted to ensure the success of their students by giving each one a tablet computer to be used as a learning tool. To successfully accomplish this initiative, the school system needed a robust infrastructure that would support the increasing demand for power and high-density, reliable servers.

The school district turned to Chatsworth Products (CPI) to deliver reliable power distribution units (PDUs), server cabinets with Vertical Exhaust Ducts and cable runway to support all the cabling it would need for the next few years.

A Digital Transformation Begins

Oak Ridge City Schools are some of Tennessee's most praised-learning institutions. Comprised of preschool, elementary, middle and high schools that serve a total of 4,700 students, Oak Ridge Schools are known for their excellence and advanced academics within the educational system.

The school district strives for the success of every student. This mission inspired the "One to One" or 1:1 initiative, in which every student receives a Microsoft Surface tablet to use at home and at school.

To achieve this goal, the district needed a true digital transformation.

First, the district's technology department created an infrastructure capable of handling all of the critical systems used to operate not only these devices, but other forms of communications and data storage. The various telecommunications closets that were scattered in several sites were consolidated into one new, dedicated and reliable data center that is planned to serve well into the future.

The data center also needed to support a Fiber Ring with high-speed broadband to connect every service—telephone, data storage, applications, Internet, email, etc.— among all the schools.

To make the transformation seamless, the district requested CPI as a single vendor provider to ensure that power distribution units would fit and be compatible with the data center cabinets.

CPI Power + Cabinet = Solid Infrastructure

Keeping the room temperature effectively cool was a big concern, so Oak Ridge Schools chose CPI Passive Cooling® Solutions composed of CPI F-Series TeraFrame® Cabinets with Vertical Exhaust Ducts and custom grommets.



CPI Case Study

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"It's nice to have a single-vendor solution, so we don't have to worry about someone else's PDU fitting and the compatibility with the cabinet. It's a good package to go along with the cabinet."

Robert Carneim, PhD, Supervisor of Instructional Technology at Oak Ridge Schools

"We really wanted a room that was going to stay cooler. This is the reason why we chose this solution," said Doug Cofer, Data Center Director for Oak Ridge Schools.

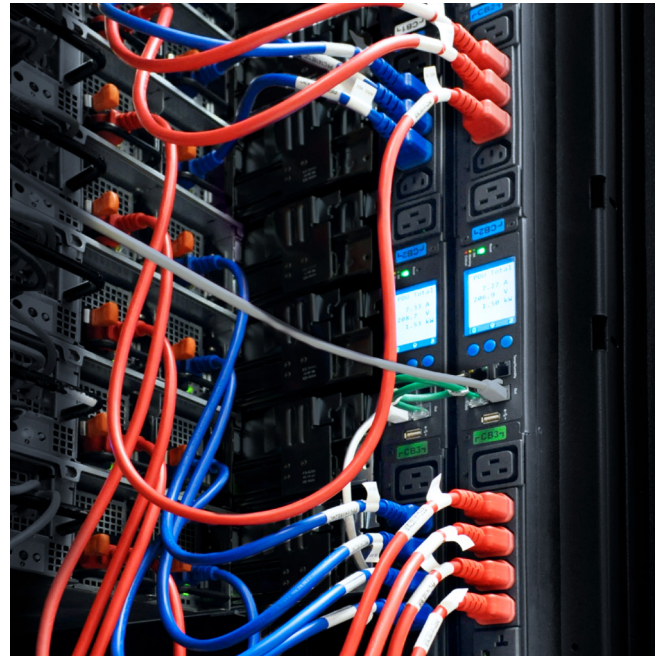
To withstand the heat loads of this high-density environment, which included high-tech fiber cabling throughout, Oak Ridge Schools also needed a reliable PDU with remote monitoring capabilities.

The solution was found in CPI's Monitored eConnect® PDUs.



With Monitored eConnect PDUs, Oak Ridge Schools would be able to monitor and measure voltage, current, power and power factor in each cabinet. Another huge plus for Oak Ridge Schools was the Secure Array® IP Consolidation feature of the PDUs, which allows for a connection of up to 48 PDUs using a single IP address.

All connected PDUs can be accessed and monitored at once via a web browser, and an alarm notification is triggered if the primary IP connection is lost or if a PDU link is dropped. In the end, this feature will allow the school district to save time and money, as it is now able to reduce the number of IP ports, deploy fewer switches and routers and reduce installation time.



CPI's Secure Array(R) IP Consolidation allows for a connection of up to 48 PDUs using a single IP address.

"Price was competitive. It's nice to have a single-vendor solution, so we don't have to worry about someone else's PDU fitting and the compatibility with the cabinet. It's a good package to go along with the cabinet," Robert Carneim, PhD, Supervisor of Instructional Technology at Oak Ridge Schools, said. "Setting them up inside the cabinet was also incredibly easy."

Different outlet configurations, and the ability to lock and secure cables were also important features in their decision-making process. eConnect PDUs come with cord retention tethers to secure power cords, which snap onto a small stud next to each outlet/inlet on the PDU.

"As smoothly as everything works in here, there are going to be vibrations that will end up causing surprise outages every now and then," Carneim explained.

With two PDUs in each cabinet (for redundancy), the staff at Oak Ridge Schools can now get detailed power measurements and even set up threshold alarms for power, temperature and humidity for each IP connected PDU.

"The [LCD] screen is pretty user-friendly. It's always nice to go to a piece of equipment and also see what it's doing. You can see the actual power when you are standing in front of it." Carneim said.

"Setting them up inside the cabinet was also incredibly easy."

Robert Carneim, PhD, Supervisor of Instructional Technology at Oak Ridge Schools

The cabinets at the new data center were configured to hold up to 30kW of heat load, so if power requirements for equipment go up, the eConnect PDUs will be able to withstand the high temperatures within the cabinets. eConnect PDUs were designed to withstand high heat loads of any hot aisle environment, with an ambient temperature rating of 149°F (65°C).

Results: On the Road to Becoming the Country's Top STEM School

Oak Ridge Schools' commitment and investment and advanced education paid off. In 2017, the district was the first in Tennessee (the second entire district in the world) to be Science, Technology, Engineering and Math (STEM) Certified by AdvancED.

Achieving the 1:1 device integration and STEM status is challenging, to say the least, but the school district is well prepared. The new and redundant data center filled with CPI's cabinets utilizing passive cooling and intelligent PDUs, should always have power available to keep all systems running.

With the reliable support from a teaching organization, the children at Oak Ridge Schools will be empowered to become proactive students and lifelong learners.



Robert Carneim, PhD, Supervisor of Instructional Technology and Doug Cofer, Data Center Director for Oak Ridge Schools chose CPI F-Series TeraFrame® Cabinets with Vertical Exhaust Ducts and custom grommets to keep the room temperature in their data center effectively cool.

About Oak Ridge Schools

Oak Ridge Schools include eight schools in Oak Ridge, Tennessee, that serve almost 5,000 students. Their core mission is to achieve the success of every student with high-quality curriculum and effective instruction.

About CPI

Chatsworth Products (CPI) is a global manufacturer providing voice, data and security products and service solutions that optimize, store and secure technology equipment. CPI Products offer innovation, configurability, quality and value with a breadth of integrated system components, covering virtually all physical layer needs. Unequaled customer service and technical support, as well as a global network of industry-leading distributors, assures customers that CPI is dedicated to delivering products and services designed to meet their needs. Headquartered in the US, CPI operates global offices within the US, Mexico, Canada, China, the Middle East and the United Kingdom. CPI's manufacturing facilities are located in the US, Asia and Europe.

CPI is listed with the General Services Administration (GSA) under Federal Supply Schedule IT 70. Products are also available through GSA Advantage and through Government Wide Acquisition Contracts (GWACs), including GSA Connections and NITAAC-ECS III. (chatsworth.com/gov)

Find more information about CPI solutions at: chatsworth.com +1-800-834-4969 (U.S. & Canada) or techsupport@chatsworth.com



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