Empowering 21st Century Learning with EcoStruxure for Data Centers

Moreno Valley Unified School District deploys Schneider Electric Prefabricated Modular Data Center to Support Academic Excellence
Overview

Empowering 21st Century learning and teaching is a core value of California’s Moreno Valley Unified School District (MVUSD), and its Information Systems Technology Department believes delivering on this mission requires technology to be seamlessly integrated with the educational process.

The department, led by Director Aaron Barnett, supports the training, robust infrastructure and technology necessary to accomplish this task for 40 school sites, 34,000 students, 31,000 Chromebooks and nearly 3,500 teachers, administrators and support staff.

Research, project-based learning, collaboration, state testing, Google classroom and G-suite access, were all being enabled by an aged computer room, subject to overheating and power outages, which became unsustainable.

“We knew we needed a proper data center,” says Aaron, “but did not have enough space, so we started to explore other options. Through this process, we determined that a free-standing prefabricated modular solution from Schneider Electric was the best fit.”

Challenge

The district purchased its office about 30 years ago, at a time when the widespread technology we see today did not exist. With no dedicated space for a data center (and with more women in the building than men), the decision was made to take a men’s room out of service and use the area as a computer room.

Back then, the room only housed a server, router and switch. Capacity had to be expanded over the years as the need for tech support grew, but without appropriate infrastructure, equipment overheated and systems were subject to power disruptions.

Aaron explains, “We have numerous power outages in this city, and downtime has a huge negative impact on the schools, affecting the children’s ability to learn. It was during one of these outages when we realized the situation was critical.

We see kids as young as second grade using digital tools to learn and collaborate. Knowing how dependent students are on Internet and cloud access from early on motivated us even more to get the project started. Technology helps the students achieve academic excellence, and it’s our responsibility to make sure the resources they need are available at all times.”

Challenges:

Frequent power outages, space constraints, need for deployment without disruption, and budget requirements, drove Moreno Valley Unified School District to come up with an alternative solution to building a traditional data center.

Goal:

Align data center infrastructure strategy to meet the increasing demands of technology in student education.

Approach:

Deployment of a modular scalable data center architecture based on Schneider Electric’s customizable prefabricated data center solution.

Solution:

Moreno Valley Unified School District was able to rapidly deploy a fully integrated solution while minimizing impact on student learning. All the schools in the district are now reliably connected to the central data center through high-speed fiber in a hub and spoke model.

• The prefabricated modular data center single, all-inclusive IT module incorporates IT racks, backup UPS, cooling, power distribution and fire suppression.

• The comprehensive solution also provides system and security monitoring.

“We believe that effective use of educational technology will help promote lifelong learning and foster academic excellence while preparing students for a collaborative global environment.”

— Moreno Valley Unified School District, Information Systems Technology
Aaron says school board leadership and the district superintendent recognized the importance of a new data center and were extremely supportive of the project. Nevertheless, he had to bring a solution to the table that was cost effective and could stand the test of time.

In exploring possible options, and with a traditional data center in mind, the district considered building or buying a facility, but that expense did not align with the budget. “Through the discovery process,” Aaron says, “we realized that the trends towards hyper-convergence and cloud meant we didn’t actually need a huge space.”

**Approach**

Instead, a prefabricated modular solution from Schneider Electric was chosen because it met the parameters of the budget, would deliver efficiency, redundancy, scalability, ease of deployment, and allowed for rapid implementation versus a more traditional solution. Plus, it could be placed on the grounds at the district office where there was plenty of open space.

“We were already an APC by Schneider Electric shop, so we submitted an RFP through our partner CDW,” says Aaron, “Schneider Electric then worked with us to gather requirements and develop a basis of design (BOD) for the solution.”

Once an initial data center conceptual design was created, Schneider Electric arranged a site visit for MVUSD’s teams to another California school district that had implemented a similar solution.

“Our facilities department and maintenance operations played a huge role in this project and went with us on the site visit. We spoke with the IT director there and were very impressed,” says Aaron. “It was key for us all to see a ‘portable’ unit in place. Schools have portable classrooms, so there was a preconceived notion of what that meant in the context of a prefabricated data center. Seeing the solution first hand helped everyone understand that, in this case, portable meant encased, airtight and secure.”

**Solution**

The team at Schneider Electric was able to offer a fully integrated solution and one that provides built-in scalability to meet future technology demands.

“**We have big smiles on our faces every time we go into the data center knowing that our hard work will pay off for the kids.**”

— Aaron Barnett, Information Systems Technology Department
Director, Moreno Valley Unified School District
MVUSD chose a prefabricated modular solution consisting of one single, all-inclusive IT module, which incorporates IT racks, backup UPS, cooling, power distribution and fire suppression. The solution also provides the necessary system and security monitoring through a single software platform — StruxureWare for Data Centers.

The APC Symmetra PX UPS system provides a redundant, scalable, power protection system for cost effective assurance of high availability. This UPS is essential in serving critical circuit demands and delivering power reliability to the data center.

Future growth is supported by the ability to simply add power modules to the UPS frame as demand increases which defers initial capital investment in the entire system until the expanded capacity is required.

Schneider Electric’s data center infrastructure management (DCIM) solution, StruxureWare for Data Centers, was implemented to monitor, collect and manage real-time data related to the data center’s assets, resource usage and operation status — across all systems. The information is integrated, distributed and applied to help optimize performance on demand and meet the fluctuating needs of IT.

Results

According to Aaron, deployment day was “dramatic.” A large crane lowered the prefabricated modular unit onto a foundation, which had been constructed in the weeks leading up to the installation and included a protective wall. A video crew documented the installation and drones captured overhead shots.

Upon startup, all the schools in the district were connected to feed back to the central data center through high-speed fiber in a hub and spoke model. Each school has a router and switch that connects them to the local area network on site, and Internet and cloud access run through the district office. Aaron says they needed even less space than originally thought, as virtualizing has enabled scaling down to 2.5 racks filled, with 4 - 5 racks empty and ready for expansion.

“The need to have a data center in a secure location for all your digital resources and connectivity to the Internet is crucial, as is continuous uptime,” says Aaron, “I have a feeling other school districts will come look at our site now. A prefabricated modular data center is a great solution when you don’t have space — it’s the best option I could imagine.”

Moreno Valley Unified School District's student tech advisory committee consists of representatives from each high school, and the district tech committee is made up of teachers. Both were formed by Aaron Barnett, Information Systems Technology Department Director, and meet on a regular basis.

He says, “It’s important to get first-hand feedback from your end users. Kids will certainly tell you what’s working and what isn’t. We are implementing technology for the students and staff, so we want to hear what their needs are. They help inform our technology decisions.”

— Aaron Barnett, Information Systems Technology Department Director, Moreno Valley Unified School District
Learn More

Watch how MVUSD addressed the ever increasing role of technology in education.

Learn about Schneider Electric’s Prefabricated Data Centers.

Find out more about how MVUSD deployed their Prefabricated Modular Data Center.

Explore practical considerations for implementing Prefabricated Data centers.

Find out more about why you should consider Prefabricated Data Centers.

See how EcoStruxure™ ensures continued learning at Bainbridge Island School District.