

BYRON UNION SCHOOL DISTRICT

VMware desktop virtualization and EMC storage consolidation help revolutionize classroom learning



ESSENTIALS

Challenges

- Outdated servers, direct-attached storage, and nearly non-functional PCs impeded integration of technology into classrooms
- School district needed to support rapid student population growth with an IT staff of one and a tight IT budget

Solutions

- EMC CLARiiON networked storage
- VMware vSphere virtualization management solution
- VMware View desktop virtualization solution

Key benefits

- Expanded, simplified student access to online learning programs with virtual desktops
- Potential of \$40,000 in annual energy cost savings due to virtualization and consolidation
- Simplified IT management has freed time for one-person IT department to provide better classroom support
- Improved scalability will enable school district to expand from 1,700 to 2,800 students over the next five years

Byron Union School District is a small public school district serving 1,700 students from Discovery Bay, a small waterfront community in Northern California. Like most public schools, Byron Union School District, which comprises two elementary schools, a middle school, and a pre-school/pre-kindergarten program, strives to advance curriculum goals with a limited technology budget.

However, the district's funding constraints and a growing proportion of non-standard, outdated and even non-functioning PCs, servers, and direct-attached storage were making it difficult to integrate technology into the classrooms. Student access to PCs was limited. In addition, teachers lacked confidence in the IT resources and were reluctant to depend on them.

To address these issues, Byron Union School District decided to pursue several aggressive technology objectives. These included providing all students with their own virtual desktop as well as "virtual backpacks" which would be an electronic record of their online and scanned school work across their entire school career. Upon close scrutiny of IT funding, school district officials determined that server and desktop virtualization and a storage area network (SAN) would enable them to cost-effectively meet these goals.

Byron Union School district began reviewing potential solutions providers and ultimately decided to consolidate its direct-attached server storage environment onto EMC® CLARiiON® CX4 networked storage. The district also implemented VMware® View™ for desktop virtualization along with VMware vSphere™ for server virtualization and management. ENS-Inc served as the integration consultant on the project, which took just three months to design and implement.

At each of its three school sites, the Byron Union School District has four VMware servers and one CLARiiON CX4 SAN with four terabytes of storage, supporting nearly 500 VMware View desktops. Four computer labs have 36 Wyse thin client units apiece, and there are four Wyse thin clients in each classroom, totaling 600 Wyse devices across the district.

Using the thin clients, students access VMware View desktops for iMath, online reading programs, web-based research, and OpenOffice applications such as word processing, spreadsheets, and presentations. The teachers also use VMware View desktops for Microsoft Office applications.

Eventually, each student and teacher will have their own login to upload custom virtual desktops, with access to their documents and other information stored on the CLARiiON SANs. Virtual backpack documents and Byron Union School District's student information system also will be stored on the CLARiiON.

RESULTS

Byron Union is a small school district, yet it has undertaken one of the most advanced technology projects for any school district in the country. It is one of the largest single implementations of Wyse thin clients, and one of the largest VMware View deployments in the United States. With virtual desktops and SANs, the Byron Union School District has made a bold and cost-effective transition to the next generation of classroom computing.

“Although we’re delivering far more advanced services to the district, our infrastructure is much more cost efficient than before,” says Willie Marlin, Network and Student Data technician. “To deliver this functionality in a physical environment, we would have needed 16 additional servers instead of the nine we have currently. We also would have hundreds of PCs and laptops, which are significantly more expensive to purchase and maintain than thin clients. And, it takes approximately 40 watts to run a thin client, compared with 145–225 watts for a PC. Overall, because of consolidation and virtualization, energy cost savings could amount to as much as \$40,000 annually, if we were to compare this to having 600 physical computers set up in the district.”

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WILLIE MARLIN
NETWORK AND STUDENT DATA TECHNICIAN

The management of Byron Union School District’s capabilities also has become simplified.

“I’m a one-man IT department and because of budget constraints, there is no plan to add any headcount,” says Marlin. “It’s very valuable that it’s so easy to monitor and manage servers, users, and storage from my desktop. I have more time to provide better support to nearly 100 teachers instead of putting out fires every time a system breaks down. Teachers also have become more self-sufficient because I can often send them a quick e-mail with instructions on how they can easily fix basic issues themselves.”

Recently, Byron Union School District expanded its IT capabilities to include customized virtual desktops and virtual backups, which will enhance students’ academic experience even more.

“Already, it’s much easier for students to access online programs and resources since virtualized desktops are far more prevalent in the classrooms and computer labs than PCs were,” explains Marlin. “Students and teachers can also jump online more quickly as it only takes seven seconds to boot up a virtual desktop compared to 10 minutes for one of the old PCs. As we transition to customized virtual desktops and virtual backups, students and teachers will be able to more closely collaborate and efficiently share and monitor schoolwork in progress.”

The new VMware and EMC infrastructure also will help facilitate rapid expansion of the Byron Union School District.

“We’re projecting to grow from 1,700 to 2,800 students over the next five years,” states Marlin. “EMC and VMware will give us the flexibility and room to grow by being able to easily and cost efficiently add desktops and storage as our student population, number of classrooms, and data assets increase in the coming years.”

CONTACT US

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