

NEW MATH OF VIRTUAL DESKTOPS

Beacon High School students reclaim 60 hours per year of learning with Web-based applications powered by Dell Netbooks and Intel technology



SOLUTIONS

- CONNECTED CLASSROOM
- MOBILITY
- DESKTOP/LAPTOP REFRESH
- VIRTUALIZATION



CUSTOMER PROFILE

COUNTRY: United States

INDUSTRY: Education

NUMBER OF STUDENTS: 3,400

NUMBER OF EMPLOYEES:

450 faculty and staff

WEB ADDRESS:

www.beaconcityk12.org

CHALLENGE

Beacon City School District needed a way to upgrade its aging data center while improving its delivery of applications. The goal was to create a virtualized data center, including new user services, storage and disaster recovery capabilities as well as additional laptops in classrooms.

SOLUTION

The district deployed about 300 Dell™ Latitude™ Netbooks with Intel® Atom® processors running Stoneware Web-based learning applications to its Beacon High School students.

BENEFITS

- Four-fold faster deployment through Dell Services
- Up to two weeks of reclaimed learning time per school year
- Disaster recovery in hours instead of days
- Near-zero learning curve for 300 new Netbooks and Web-based software
- 20 percent savings in power usage
- Wireless netbook solution deployed without added IT staff

It has been a while since the concept of terminal computing was in vogue. The idea that a smart, omnipotent mainframe computer would drive multiple users on so-called dumb terminals was mostly driven by the high expense of the limited processing power of the day. The concept worked until the personal computing revolution of the late '70s brought applications and storage directly to the desktop.

“I HAD A DISTRICT VISION AND DELL TRANSFORMED IT UNTIL WE GOT THE RIGHT PRODUCT AND APPLICATIONS INTO IT. WE WERE EVEN ABLE TO GET THE DELL LATITUDE 2100S IN YELLOW AND BLUE—OUR SCHOOL COLORS. EVERYONE LOVES THEM.”

Charlie Symon, assistant superintendent for media and operations, Beacon City School District

Now the pendulum is swinging back. With the recent advent of flex computing, the balance of power is shifting back to centralized processing.

But flex computing is more than just terminal computing with a new name. Dumb terminals have been replaced by swift, portable devices and the mainframe has been supplanted by the private cloud. Now graphic-rich applications can be delivered over the Web to devices such as netbooks, smartphones and desktop computers without the need for local applications and storage.

It's a model that works particularly well for the Beacon City School District in upstate New York. Looking for a way to upgrade its end-of-life system while providing its students and teachers 24/7 access to applications and work files, the IT team set out to create an online education solution that would offer end users a uniform experience from just about any access device.

“The ease of use for the end user was the most important part for me,” explains Charlie Symon, assistant superintendent for media and operations at Beacon City School District. “If it's difficult for a teacher or a student to launch the application, they won't use it; if they don't use it, we just wasted a lot of money.”

TEACHER, THERE'S A SCHOOL IN MY PHONE

So Beacon City schools turned to the team of Dell and its K-12 education partner Stoneware for an integrated software and hardware solution to manage and distribute materials while inspiring students to learn.

Using webNetwork from Stoneware, the district has created its own private cloud, providing students with a Virtual Web Desktop of applications and services that follow them anywhere they have access to the Internet—at home, at school or somewhere in between when students are on their smartphones.

HOW IT WORKS

SERVICES

- Dell Infrastructure Consulting Services for virtualization
- Dell Infrastructure Consulting Services for education

HARDWARE

- Dell™ Latitude™ 2100 Netbooks with Intel® Atom® processors
- Dell PowerEdge™ R900 servers with Intel® Xeon® 7400-series processors
- Dell EqualLogic PS6000 Series iSCSI SAN

SOFTWARE

- Adobe® Digital School Collection
- Microsoft® Office®
- Microsoft® Windows Server® 2008
- Stoneware Inc. webNetwork
- VMware Virtual Infrastructure 3

“THE STUDENTS HAVE EMBRACED THE STONEWARE WORKFLOW ON DELL LATITUDE 2100 NETBOOKS. IT’S SO USER FRIENDLY.”

Charlie Symon, assistant superintendent for media and operations, Beacon City School District

The Stoneware software is virtualized on Dell PowerEdge R900 rack servers with Intel Xeon 7400-series processors and broadcast to nearly 300 Dell Latitude 2100 Netbooks around the Beacon High School campus.

Now when students fire up their Intel Atom-powered Dell Netbooks in the morning, instead of running local programs, they’re logging into and streaming applications faster from the private cloud.

“We camouflage Stoneware to almost look like a Windows screen, but it’s not,” Symon explains. “When a student or staff member logs in, a Web browser launches, and that Web page basically becomes the desktop.”

From there, the icon-based Web interface provides students and staff with easy navigation of the day’s work, whether they’re editing images in Adobe Photoshop or writing a report in Microsoft Word.

FOUR-FOLD FASTER DEPLOYMENT WITH DELL SERVICES

The transition was nearly painless. “The simplicity of Stoneware being delivered to Dell Latitude Netbooks over the Web is amazing,” Symon relates. It’s a benefit that allows teachers to get down to the business of teaching their students without having to come up to speed on new technology. “We trained all of our teachers in 15 minutes. They were ready to roll almost instantly. That’s been a positive result for us.”

And through Dell Deployment Services, the entire solution was created and installed over summer vacation. “It started beginning of June and finished

up when school opened,” Symon explains. “The level of expertise Dell brought to the table saved the district at least a year of planning and execution. Without Dell, we wouldn’t have been able to accomplish it.”

MORE THAN A WEEK OF RECLAIMED LEARNING AND TEACHING PER YEAR

The district’s previous system—a combination of streaming desktop programs and local applications running on Citrix servers—was creating learning interruptions each time an application would hang up or the system slowed down. Now students and teachers are reclaiming learning and teaching time.

“The applications are running better and faster,” Symon explains. “Before, if 20 or 30 students logged into the system at once, then you’d start hearing complaints. Whether it was the fault of the user or the fault of the network, it doesn’t matter. It’s the fault of the IT staff when it doesn’t work.” Less system lag time and fewer minutes spent digging through backpacks to find books, notes and homework translate into 20 minutes of reclaimed learning time each school day.

It means Beacon City schools will reclaim more than a week of learning and teaching time per school year.¹

“The students have embraced the Stoneware workflow on Dell Latitude 2100 Netbooks. It’s so user friendly—we’ve been in school for two weeks now, and I haven’t heard any complaints. Only positive comments about how easy it is to use,” says Symon.

USING 20 PERCENT LESS POWER WITH VIRTUALIZATION

Equally important improvements have been realized in the district’s data center. Since making the decision to virtualize 28 of its business-critical application servers onto three Dell PowerEdge R900 rack servers with VMware Virtual Infrastructure 3, the team at Beacon City schools is already seeing the monetary benefits of its system architecture simplification.

“We’re starting to see a drop in our power needs. We have a fairly large UPS that we were watching climb up into the 85 percent bracket. And now it’s down in the 65 percent of usage. So, it’s dropped substantially,” Symon explains.

RECOVERY IN HOURS, NOT DAYS

The district also purchased four Dell EqualLogic PS6000 iSCSI SAN storage arrays—two for its production site and two for a new disaster-recovery site across the street.

Using the VMware vCenter Site Recovery Manager (SRM) feature set within VMware Virtual Infrastructure 3 to work with its Dell EqualLogic SAN, the team is on track to realize improvements in its recovery time objective (RTO) as well as its recovery point objective (RPO).

The team uses the built in Auto-Replication capability that is directly integrated with SRM via the vStorage APIs to move virtual machines and their datasets between its two locations to provide faster recovery for the district in an emergency. “We ran a failover test, and had everything up and running within 3 hours,” Symon relates. And because Auto-Replication is an included

feature of the EqualLogic arrays, the total DR solution cost stayed low.

“Before, I can’t even envision how long it would have taken us—probably a week, and we could have lost a lot of data. What would we do? We have 3,500 students and 450 staff to serve. And now we have an answer to that. Using Dell EqualLogic and VMware vCenter Site Recovery Manager, we can quickly fail over to the DR site.”

SAVING 50 PERCENT ON TIME AND TAPE

And because the team is relying on the Auto-Replication features of its Dell EqualLogic storage, regular snapshot-based backups are providing a better recovery point for the district’s data. Backing up nightly to tape in its previous environment, the team was taking a calculated risk every day. Because backups were occurring after the end of each business day, an end-of-day failure would mean an entire day’s data could be lost.

Now when the team backs up to its Dell PowerVault TL2000 Tape Library, it only backs up the production site. And because it is backing up snapshot data—only the data that has changed since the previous backup—the team is saving both time and tape.

“When we were running full backups they were running way too long—16 hours—and they were giving us a lot of issues. So, we had to find a way where we could cut the time and still have the backup that we required,” says Symon. “Now the backups take less than 8 hours.”

BRINGING THE SOLUTION TO THE EDUCATORS

With the transformation of its IT environment complete, and staff and student productivity on the rise, Beacon City School District enters a new decade ready to meet new learning challenges head-on.

The team gives the credit to Dell. “I had a District vision and Dell took that vision and transformed it until we got the right products and applications into it. We were even able to get the Dell Latitude 2100s in yellow and blue—our school colors,” Symon says. “Everyone loves them.”

¹ 20 minutes per day x 180 school days per year average = 3,600 minutes per year. 3,600 minutes = 60 hours. Average school week = 35 hours.

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