School District Helps Students Succeed with Cisco Network

Customer Case Study

Desert Sands taps Cisco virtualization and BYOD solutions to boost student achievement scores and reduce costs.

EXECUTIVE SUMMARY

Customer name: Desert Sands Unified School District

Industry: K–12 education

Location: Coachella Valley, Southern California; consists of 33 schools and a district office

Computer users: 29,000 students, 2500 employees, including 1350 teachers

Business Challenge

- Serve student educational needs in and beyond the classroom in face of severe budget cuts
- Support the one-child-one-device and wireless BYOD initiatives
- Support efforts to raise state core curriculum standard scores

Network Solution

- Cisco Secure Switching and Mobility solutions
- Cisco Unified Data Center solutions

Results

- Cisco network ensures robust access to student-centered learning
- Virtual data center and desktop virtualization deliver services to teachers and students more quickly and cost-effectively
- Wireless BYOD expands access to learning resources

Business Challenge

The mission of Desert Sands Unified School District (DSUSD) is to help ensure that every student develops the knowledge, skills, and motivation to succeed as a productive, ethical, and global citizen. The large and diverse school district, located in the heart of Coachella Valley in Southern California, serves nearly 30,000 students, spanning from migrant labor camps with families at or below the federal poverty line to some of the most affluent neighborhoods in the nation. More than 50 percent of the students receive free or reduced-price lunches, and 26 percent are limited English speakers, while 13 percent are considered Gifted and Talented Education (GATE) students.

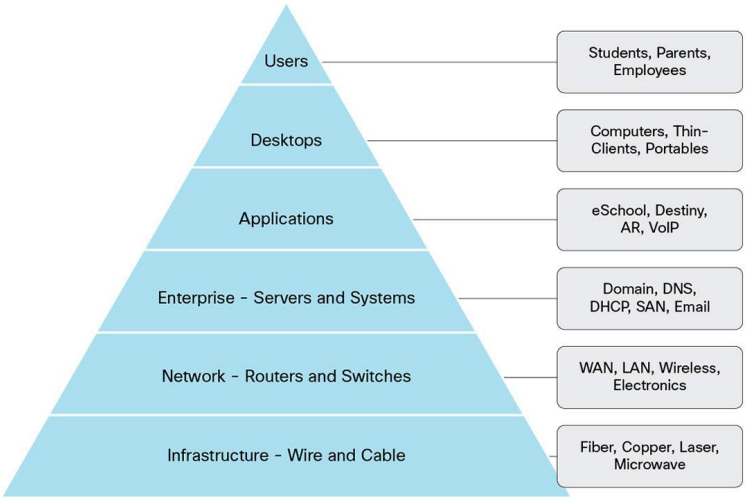
Chuck King, manager of computer network services for DSUSD, has seen big changes in the delivery of primary education content. A long-time Cisco customer, the school district pioneered the use of networking technology in schools, winning several awards over the years for its innovations, including a 2004 award from the Corporation for Education Network Initiatives in California (CENIC) for its gigabit to the desktop project powered by an end-to-end Cisco® infrastructure.

“The use of technology drives what we do in the classroom today,” says King. He notes that California’s new Common Core State Standards focus on critical thinking and 21st-century skills. The state is well aware that today’s students are the future of our digitally dependent world.

The DSUSD school board unanimously approved the concept of a bring-your-own-device (BYOD) network and the pursuit to place computing devices into the hands of all students. Those directions meant that the district’s highly secure, tightly controlled wired network access model needed to evolve to support more mobile devices. “We had to completely flip our focus from a school-owned wired device-centric model to a wireless BYOD model in less than a year,” says King.

Network Solution

"Educators tend to focus on classroom applications, but as a trained electrical engineer, I focus on infrastructure and connectivity, because if they aren't solid, you are not going to be successful in the classroom," says King. He frequently uses a hierarchical pyramid of needs in business case presentations to illustrate his winning strategy.



DSUSD is a textbook example of a well-architected enterprise network. Because the information technology (IT) team has designed and built a robust Cisco core and access network, voice over IP (VoIP) and call center applications, as well as multimedia education tools and programs, are easily incorporated. A recent move to an EMC VCE VBlock 300 FX virtualized cloud platform, replacing hundreds of bulky, power-hungry physical servers with two scalable, centrally managed virtual server and storage area networks (SANs), greatly reduces IT workload. King says, "It's truly a turnkey data center, where servers, storage, and connections are monitored and managed by VCE staff. By having VCE provide background platform support, our staff can focus on installing and delivering valuable network applications."

The prevalidated Vblock platform integrates network, computing, and storage technologies; Cisco Unified Computing System™ (Cisco UCS®) 5108 blade servers; EMC SANs; and Citrix virtual desktop infrastructure (VDI) software into a single powerful stack. "We have nearly 500 seats in production now with plans to expand to over 1500 in the coming year," King says.

To support the school district BYOD initiative, King and his team have upgraded and expanded their LAN capability and Wi-Fi distribution. Last year, 12 schools were upgraded to a 10 Gb/s backbone with Cisco access points (APs) in every classroom. An additional 7 school backbones will be upgraded this year, while the remaining school classrooms will get upgraded APs.

The Cisco BYOD solution gives teachers, students, staff, and visitors the freedom to go anywhere on school grounds and have the same experience that they would on a wired network. Everything from video applications to educational software runs smoothly on the Cisco Unified Access network no matter how many devices are connected. King uses Cisco Identity Services Engine (ISE) to identify devices along with user ID, location, time, and media; automatically apply appropriate security policies; and dynamically provision the network so everyone gets dependable access to resources.

"We have transformed the educational experience using Cisco and digital technology. Our classrooms deliver immediate access to information and challenge students to think creatively and work collaboratively. They can apply their knowledge and skills in real-time, with instantly discernable results, in preparation for their lives in the modern world."

Chuck King
Manager of Computer Network Services
Desert Sands Unified School District

He also notes that the district used the engineering and installation services of highly qualified Cisco partners to design, install, and set up the management of the advanced wired and wireless networks. Taking this approach helps to quickly deploy new technologies, fast track the deployment, and greatly expand the reach of the IT staff.

Results

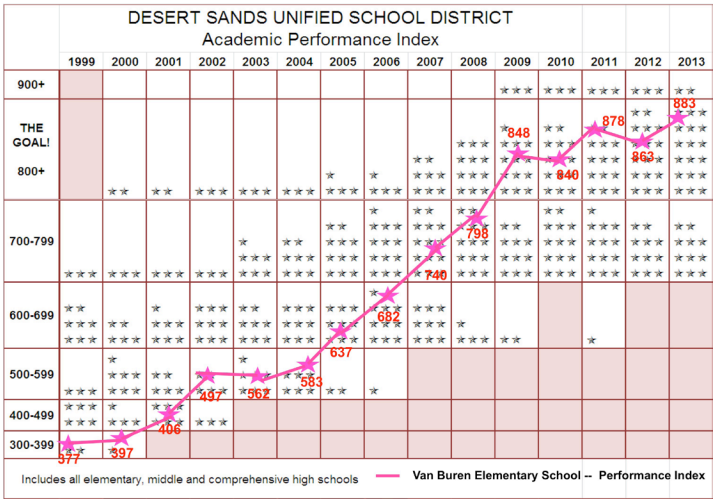
King says, "We believe that providing teachers with meaningful and appropriate technology enhances the teaching and learning process. We focus upon a more efficient teaching experience so that they can spend more time working directly with their students." As part of the district's one-child-one-device initiative, Google Chromebook computers for students are purchased by parents or donated through funds from the DSUSD education foundation and federal, state, and local grants.

Each classroom has a computer with an LCD projector over a wired network connection that teachers use as part of their daily routines. An online grading system lets teachers administer state and federal achievement tests on the projector as students respond using remote devices. Answers from each student are immediately entered and graded so teachers can view the results. Each question is referenced to the state education requirements.

"The immediate feedback has made a huge difference in the ability of our teachers to respond to the needs of students," says King. "If students do poorly on some questions, the teacher quickly knows they do not fully understand the material and can go back and reteach those modules."

Students and their families can also log on to the DSUSD Home Access Center—the district's secure, web-based student information system—anytime to review classroom activities and coursework, check homework assignments and teacher notes, download advanced or remedial math and reading programs, and view grades and achievement scores.

DSUSD's Cisco-based network ensures equal access to student-centered learning and has helped teachers and students achieve some amazing goals.



A shining example is Martin Van Buren Elementary School in Indio, an underserved community next to a large migrant labor camp. Nearly 100 percent of the families live at or below the federal poverty line, and 84 percent are English learners. A

caring, committed staff working closely with families and community leaders to create high expectations, and the creative use of technology propelled the school from the bottom to one of the top-performing schools in the district in 12 years.

The virtualization solution also makes good business sense. “Every time we power down an old server we save energy and support costs,” King says. The district’s main data center, which supports Van Buren and all of the district’s schools, was using approximately 58 kW/hour of power to support more than 120 physical servers and other equipment. At 75 percent of the way through the replacement process, more than 60 physical servers have been removed, and power consumption is down to less than 45 kW/hour.

King adds, “We will continue to lower power consumption as the remaining legacy systems are replaced by virtual servers. Ultimately, we will eliminate most of the physical standalone servers, but we gain many more virtual servers, thus expanding our ability to provide for additional services to schools.”

King says, “We have transformed the educational experience using Cisco and digital technology. Our classrooms deliver immediate access to information and challenge students to think creatively and work collaboratively. They can apply their knowledge and skills in real time, with instantly discernable results, in preparation for their lives in the modern world.”

More Information

- For more information on how Cisco K–12 education BYOD solutions bring the freedom to learn anywhere, visit www.cisco.com/web/strategy/education/primary_wireless_K-12.html.
- For more information on how Cisco Connected Learning helps educators enhance content delivery, visit www.cisco.com/web/strategy/education/us_education.html.

Product List

- Data center
  - EMC VCE VBlock 300 FX infrastructure platform with EMC 5500 Model storage and Citrix VDI software
  - Cisco Nexus® 5548 Switches
  - Cisco Catalyst® 6509E Switches
  - Cisco MDS 9148 Multilayer Fabric Switch
  - Cisco UCS 5108 Blade Servers
  - Cisco UCS B200 M2 Blade Servers
  - Cisco Unified Communications and Cisco Unified Contact Center solutions
- Wireless and LAN network
  - Cisco Aironet® 3650 Series, 2650 Series, 1252, and 1142 Access Points
  - Cisco 5508 802.11n wireless LAN controllers
  - Cisco Identity Services Engine (ISE)
  - Cisco Catalyst 3750 Series Access Switches

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