



Technology Brings the World to Remote California School District

About Klamath-Trinity Joint Unified School District

The Klamath-Trinity Joint Unified School District serves slightly more than 1,000 students from the valley of the Klamath and Trinity Rivers in northern California, including many children who live on reservations of the Hupa, Yurok and Karuk tribes. It provides an academic core curriculum that is augmented with career-oriented and technical coursework to promote high standards for all students, with special attention given to problem solving, critical thinking and personal accountability. To best serve its students, the district actively seeks partnerships with parents, local agencies and local tribes.

Situation

Despite the fact that many of Klamath-Trinity's students come from economically disadvantaged homes, nearly all of them finish high school and many continue their education at universities or technical schools. Preparing them for post-secondary education or the workforce is challenging, since Klamath-Trinity is a small district with very limited resources. While Internet access could greatly enhance the curriculum and bring many advantages to students, the district's isolated location complicated efforts to network classrooms and administrative buildings. The district wanted to connect its seven schools and give students resources from beyond the four walls of their classrooms.

Solution

A robust, stable network brings a world of knowledge into Klamath-Trinity classrooms. AT&T collaborated with Cisco to build a platform to support the district's local- and wide-area networks and enable Internet access and cost-effective Voice over IP services for the school district. The network lets students and teachers attend college classes via videoconferencing or utilize VBrick® solutions to transmit live or on-demand video across the IP network in real-time. It helps administrators communicate better with parents and teachers, and supports sophisticated techniques like bio metric data collection in the cafeteria and also paves the way for improved security at district schools.

Closing the Distance with Technology

Klamath-Trinity covers 940 square miles and is located in the heart of Six Rivers National Forest along the Trinity and Klamath Rivers. A majority of the students are from the Indian reservations and Rancherias within the district boundaries. The district has extremely limited resources, and the majority of its students are from low-income families. Deep in the mountains of northern California, Klamath-Trinity is near the Oregon border, far from any major cities. One of its schools is so inaccessible that it's powered by a generator and uses radio phones to communicate with other schools and satellite Internet connectivity with the rest of the world. Landslides and floods sometimes make it impossible to travel between schools.

Klamath-Trinity Joint Unified School District Facts

• Business Needs

Support communications for geographically-dispersed schools; provide educational resources to better prepare students for college or the workforce

• Networking Solution

IP platform delivers universal Internet access and reliable connectivity among schools and district offices

• Business Value

Access to online university classes, enriching video-on-demand presentations and videoconferencing capabilities for isolated schools

• Industry Focus

K-12 Education

• Size

1000+ students



Technology Specialist Bea-Ann Ziegler says the district uses computers to close the distance between schools and help students take advantage of opportunities beyond the remote region in which they live. "We want students and teachers to understand and use technology because it makes learning come alive," she said. "Technology keeps students interested, so their performance will be better."

There is evidence that Klamath-Trinity is doing a good job of engaging its students. Despite the poverty of the area, the district boasts a graduation rate of 93-percent, and many students have won college scholarships. Last year, two of the high school's 58 graduates won the prestigious Bill Gates Scholarship.

Technology Coordinator Wanda Childers believes students are taking full advantage of the opportunities that technology offers. They attend college classes online and use libraries, programs and textbook tools available on district Web servers. Some are learning to make movies, while others create sophisticated portfolios as they explore what they want to study in college. "It's pretty impressive what the kids here are doing with technology," she said.

Younger students are eager to learn with programs that use gaming effects, and students with learning disabilities have computers with touch screens and large keyboards, along with programs that help them learn.

A Rich World of Opportunities

How can a small, disadvantaged district offer its students such advantages? A combination of vision, strategic partnerships and smart use of technology funding has made a world of difference for Klamath-Trinity students.

Just a few years ago the district had limited local area networking; schools had to use dialup routers and or a wireless connection that ran over a small fraction of a shared T-1 line. "All of this required hands-on maintenance for troubleshooting," Childers said, "and connectivity would get congested 95 percent of the time, which required the district staff to unplug the schools' connection in order to submit payroll to the county office of education. It was a bad situation."

The district technology committee knew a wide area network would not only eliminate the current communications problems, but could create amazing new possibilities for students and teachers. To fund the technology initiative, Klamath-Trinity took advantage of the Federal e-rate program, which allows eligible schools and libraries to receive 20-90% funding for new and existing network services. "AT&T taught me everything I know about e-rates," Childers said. "The funds gave us the opportunity to create a reliable and functioning network. Our schools now have the ability to infuse technology rich curriculum into the classroom and communicate with the world."

She estimates that the district has improved its telecommunications environment by 100 percent, while simultaneously cutting costs. "We had been paying full price for our telecommunications services," she said. "Thanks to e-rate funding, the district saved more than \$200,000 on a network that increased bandwidth significantly and improved overall communications. Savings continue to increase each year."

Converged Network Advances Classroom Opportunities

AT&T helped the district connect school sites with point-to-point T-1 lines; larger schools use multiple lines to give them multicasting, video streaming, as well as Video and Voice over IP capabilities. Childers can remotely manage the entire network, including switches, routers, servers, IP phones, and computers. "It makes my life so much easier," she said. "It's just awesome."

The network has also given teachers educational materials never before available in the district. "Since we're so remote we don't have a lot of local resources. We depend on technology to provide resources to our teachers and their students," she said.

"We probably would not have accomplished what we did without AT&T. Being able to move forward with people that know what they are doing has made a huge difference for us."

– Wanda Childers, Technology Coordinator
Klamath-Trinity Joint Unified School District

Klamath-Trinity vastly increased classroom use of technology with video streaming, videoconferencing, Internet research, online educational programs and access to high level education courses through universities. Teachers use digital document projectors and interactive boards to engage students fully. Because the network supports the VBrick communications system, students can view videos that are streamed live or stored on district servers.

Teachers have email accounts they use to communicate with parents and students who have home computers, and access to Internet applications such as Odyssey, an electronic curriculum that uses the Internet to prepare students for the digital workplace. Younger students get instant reports from various assessment programs such as Renaissance Place Home Connect, which helps students practice reading and math at home and allows parents to follow their children's progress. "Thanks to what our technology team has put together, we have really advanced all of our classrooms," Childers said.

A few of the district's new initiatives seem to come straight from a James Bond movie. A Bio Cuisine biometrics program, for instance, lets students conveniently scan an index finger in the cafeteria line rather than carry a meal ticket. The system protects the privacy of students who receive free or reduced-price lunches, since every student going through the line is scanned. Officials are considering using bio metrics to take attendance in the classroom and at after school programs.

While the benefits of the new network are many, what teachers appreciate most is the ease with which they can now continue their education. "Traveling for professional development is very time consuming, and can be dangerous in our region in the wintertime due to road conditions," Ziegler said. Now teachers attend college classes by videoconference technology, saving them a two-hour drive to Humboldt State University. "The solutions that AT&T has come up with let us offer professional development to all of our teachers at each one of their sites," she said.

The solution also gives the district virtual private network capabilities; soon students and staff will be able to access their files and certain applications from remote locations and parents can check on their children's assignments.

Staying Connected

District officials are pleased with what technology has enabled them to accomplish. "We've come so far with advanced technologies," Childers said. "We do assessments for the board every year and some of them are just flabbergasted by our solutions and what we have done with the district."

In the near future Klamath-Trinity will use its network to expand IP video to all school sites and upgrade school bell, clock and paging systems. "In this way we're enhancing homeland security using converged technologies with VoIP," she said. In case of emergency, the automated phone system can alert parents simultaneously to issues like early school closings. The district already uses this system to automatically let parents know if their child is absent.

The network supports a new Student Information System with grading capabilities accessible by teachers on and off campus. Increased videoconferencing capabilities are also on the horizon. "Currently we

only have two videoconferencing systems, but with more we could provide more classes and virtual fieldtrips for the students," she said.

Expanding the videoconferencing program would make it easier for Native American students to learn tribal languages and give students in outlying schools access to qualified teachers beyond their school site. Videoconferencing could also be used to educate students in schools cut off from the rest of the district by floods or other disasters. "Recently, one of our schools was isolated for three weeks because the road was washed out," Childers said. "It would have been wonderful if we could have communicated with those students through videoconferencing."

Since the district has benefited significantly from its networking solution, Klamath-Trinity IT officials enjoy being in a position to help other schools. "One of our goals is to give them technology advice to help them get on their feet," Childers said. She lets other schools know about the beneficial relationship the district has with AT&T. "AT&T has been an extremely supportive partner in every aspect. They've incorporated some of the best design and field engineers, and training-support teams for all their products and services," she said. "They provided ongoing support to our district without reserve."

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