

California Law School Achieves Education Technology Vision



Thomas Jefferson School of Law installs Cisco technology to support advanced network infrastructure.

Executive Summary



Thomas Jefferson School of Law

- **Industry:** Higher Education
- **Location:** San Diego, California
- **Number of Employees:** 1000+ students; 135 faculty and staff

CHALLENGE

- Update antiquated network infrastructure with modern technology
- Increase student learning opportunities without expanding costs
- Unify technology solutions and communications tools

SOLUTION

- Provide single-source interoperability, network support, and solutions
- Consolidate data center and energy expenditures
- Accommodate new types of teaching and learning with consistent wireless

RESULTS

- Enabled virtualization and eliminated 29 data center servers
- Provided about 80 percent return on investment in desktop energy savings
- Enabled borderless wireless learning environment with no data outlets

Challenge

In 2009, Thomas Jefferson School of Law (TJSL) set out to realize a lofty goal, which was to become the most technologically advanced law school in the United States. Located in San Diego, California, TJSL was in need of a more modern and resourceful campus that would be a functional fit for its academic community. The then 40-year-old law school's antiquated infrastructure was not able to provide its 1000 graduate learners and 135 faculty and staff with advanced education technology (ed-tech) support. In fact, to overcome its challenges, TJSL's campus – spread over three buildings – was retrofitted for years with no long-term success.

Delays and frustrations forced faculty and staff to spend extra time and attention keeping courses on track. TJSL's IT staff was over-utilized; on countless occasions, the IT department took out hours of the day to install learning equipment meant for simple tasks such as audio and video recording. In addition, a growing number of student complaints surfaced, which required daily end-user support at the law school's help desk. TJSL's new chief information officer (CIO), James Cooper, knew he had to make a change that would positively transform the education experience for students, faculty, and staff.

Cooper's vision was to convert TJSL invisibly, from the inside out. He believed that with a strong core and top-quality education network, the law school would function effectively and efficiently. Cooper and the IT team did not want a "cool" or "pretty" campus; they wanted a home that was technically superior. The number-one priority for TJSL was student achievement. And with nearly all learners bringing their own devices to campus, cohesive communication, collaboration, and information-sharing across the network were critical. TJSL had to get rid of its unreliable, slow, and sticky wireless network as well as update its phone functionality.

TJSL's vision included an eight-story, 305,000 square-foot downtown campus with access to resources indoors, outdoors, and throughout the city. The law school wanted to create a "hotel experience" for its community where the technology was customized to each student's needs. Sustainability was also a large concern. If a new campus was to be constructed, the school wanted to give back to the environment and make learning as energy-efficient as possible. At this time, three years ago, Cooper knew the next step was to uncover the best technology partner to achieve TJSL's goal.

Solution

Cisco and its partner, TekWorks Inc., were able to deliver on TJSL's roadmap and made the law school's dream a reality. Besting three competitive bids from prominent technology vendors, the Cisco team offered TJSL an infrastructure blueprint that would not only improve performance but also be simple to manage. Cooper

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knew that Cisco was the right fit for TJSL after the company took the law school’s building and budget needs into careful consideration. “We gave serious thought to a couple different lines, but we really trusted Cisco based on its reputation, similar work, and effort to cut costs,” says Cooper. Cisco even offered to leverage old equipment from TJSL’s former building to help the IT team cut costs. “Our concept was to create a consistent, intuitive learning environment that would enable TJSL to reach each student each day with the right content,” says Joaquin Develasco, senior manager of technology and network services at TekWorks.

The biggest reason that TJSL chose Cisco to outfit their new campus was interoperability. The simplicity of managing one network, support from a single manufacturer, and the quality of the products saved the IT team numerous areas of concern; no other vendor could provide TJSL with a truly unified system. “The superiority of our IT network was crucial for us to avoid wasting time and pointing fingers,” says Cooper. “Cisco offered us a solid reputation and a solid product line that was fully integrated.” Once TJSL decided to move forward with the Cisco and TekWorks blueprint, the project could proceed.

Borderless Education

After initial construction, the technology deployment began in November 2010 with high expectations for a quick turnaround. In less than two months, Cisco and TekWorks had carried out the technical installation, and the building was ready to welcome students for the 2011 spring semester, which totaled less than three months of installation and training. Cisco brought in wireless, video, telephone, and infrastructure technology to make TJSL a true borderless learning environment.

With Cisco Catalyst® 6509-V-E and 4500E Series Chassis, TJSL consolidated the data center and installed 12 switches throughout the floors of the buildings and smart classrooms. Cooper and his team also used Cisco® 5500 Series Wireless LAN Controllers to create high throughput bandwidth for video requirements. Cisco Unified Communications (UC) Manager, Cisco Unity® Connection (CUC), and Unified Wireless IP Phones integrated all of TJSL’s voice, video, data, and mobile applications to allow for interactive collaboration. Along with other shared spaces, this sophisticated technology infrastructure was devised to support 12 classrooms, two learning centers, one moot courtroom, two recording studios, and five conference rooms.

When TJSL initially deployed the Cisco solutions, the IT team was unfamiliar with the new equipment. However, the intelligent design provided by Cisco and TekWorks laid-out the strategy, configuration, and testing of the technology simply and smartly. This advanced planning allowed IT staff members and TekWorks to have the Cisco systems ready for over 1300 community members in less than 72 hours.

“In a very tight, untested turnaround time, our team was able to move swiftly to get the wireless functional,” says Cooper. “We immediately experienced faster and more reliable service that worked in all corners of our new building.” One of the top concerns

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for Cooper was consistent connectivity to the network without any cabling. Cisco’s wireless system was able to accommodate this fast-paced learning need instantly with multiple wireless controllers that helped ensure a consistent uptime.

Commitment to Excellence

Students and faculty were immediately affected by positive changes in the classroom. According to Cooper, the IT department’s audio and video design, created by Cisco and TekWorks, was magnificent. Microphones were able to pick up the students in classrooms so clearly that audio from every part of the classroom came through during video conferencing and lecture recording. Students using assisted listening devices were able to hear questions from other students for the very first time, and all in-class question-and-answer was captured during lecture recording, which was another first for the law school. Cisco also worked with TJSL to fit requirements for its sustainable vision; the construction project became Leadership in Energy and Environment Design (LEED) Gold certified with the help of packaging bundles.

“One of the great parts of working with Cisco and TekWorks was their commitment to support,” says Cooper. “Leaders from both groups remained in our building more than a month after our move was completed to address any issues and provide training to faculty and staff.”

The advanced Cisco technology infrastructure also formed the foundation for virtualization at TJSL. The law school became one of the first commercial or education facilities in the country to complete nearly 100 percent virtualization of its desktops. Each unit is now running virtually due to the Cisco and TekWorks network infrastructure design, which was created to support advanced technology needs.

Results

Cisco and TekWorks were able to address all of TJSL’s technology challenges with the completion of the new building’s infrastructure. The law school experienced such outstanding results that Cooper was honored with San Diego Magazine’s Top Tech Exec Cox Business Exemplary Award for 2011 for the vision and creation of the new campus. “Our reality is that anyone can walk into TJSL and be immediately connected to a personalized learning environment,” says Cooper. “Students no longer have to rely on an IT staff member to make ed-tech functional. I’ve seen our department train faculty; the process is so fluid that now faculty members train each other without IT support.”

The reduction of service demands gives IT staff back valuable time. Instead of managing help desk and classroom requests, the IT team is now able to focus on more pressing, forward-looking matters. In fact, reluctant faculty members are now enthusiastic about incorporating more types of ed-tech tools into their coursework. Professors are

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Product List

ROUTING AND SWITCHING

- Cisco 2900 Series Integrated Services Routers
- Cisco Catalyst 4500E Series Chassis
- Cisco Catalyst 6509-V-E Chassis

SECURITY AND VPN

- Cisco ASA 5510 Series Firewalls
- Cisco IronPort® Email Security

VOICE AND IP COMMUNICATIONS

- Cisco Mobile Connect
- Cisco Unified Business Attendant Console
- Cisco Unified Communications Manager Version 8.6
- Cisco Unified IP Phone 7975G, 7965G, and 7945G
- Cisco Unified Wireless IP Phone 7925G
- Cisco Unity Connection 8.x
- Cisco VG224 Analog Voice Gateway

WIRELESS

- Cisco 5508 Series Wireless LAN Controllers
- Cisco Aironet® 1140 Series Access Points
- Cisco Wireless Control System (WCS)

able to interact with classroom features and implement teaching technology with touch screen buttons. The design enables in-room content sharing, and the student portal can link students directly to courseware made available by professors. In this way, Cisco has helped to increase ed-tech use and lower administrative burden.

Now all learners can walk onto the TJSL campus, log into their portable devices, and be automatically directed to a customized landing page. "This intuitive technology identifies students and provides them with content specified to their individual needs," says Cooper. "There are 1000 students at our law school and not a single public data outlet. We wanted to create a consistent, seamless, and 'invisible' learning environment for our students, and Cisco responded to that request completely." Custom content including course information, announcements, and events are delivered directly to a student's customizable landing page.

A benefit to the students and faculty, TJSL actively uses two recording studios that it outfitted during the design of the campus' new infrastructure. Both studios are fully equipped with video conferencing solutions, which enable the law school to bring in guest lecturers, teach to off-site students, interact with other institutions, and even host large events by bridging the two rooms together. Cooper notes: "The recording studios are an investment in savings. Not only are we able to bring in guests but we also encourage faculty and staff to participate remotely without the cost of travel."

IT is now a core part of TJSL's sustainability efforts and policy as well as LEED goals. All desk phones and wireless access points are powered through Cisco switches using Power over Ethernet (PoE), which eliminates the need for additional power outlets. The phones even "go to sleep" when not in use to conserve energy. In addition, the virtual desktops use 20 percent or less energy than an actual desktop and allow TJSL to run 20 fewer servers than the old building. Finally, TJSL's data center is designed to run on an Advanced Power Conversion (APC) system. This "hot aisle containment" model exhausts hot air away from servers, eliminates by-pass airflow, and occupies only 400 square feet in the data center. These efforts, enabled by Cisco technology, combine to significantly lower TJSL's carbon footprint.

One of the chief environmental accomplishments at TJSL is the law school's highly advanced 49 kilowatt solar array with 270 modules. "Incorporating sustainable design into the blueprint for our new building was a chief concern for Cisco and a critical desire," says Cooper. "Our current infrastructure enables us to feed electricity back into the grid every day; we run the data center, intermediate distribution facilities, wireless, and phone off of the energy of the sun, which creates a wash when looking at output versus usage in the data center. We're tremendously proud of this accomplishment."

The integrated energy design is a contributing factor in TJSL's technical superiority. In the fall of 2011, San Diego County lost power in its entirety; however, TJSL did not

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For More Information

To find out more information about Cisco Wireless, go to: <http://www.cisco.com/go/wireless>.

To find out more information about Cisco Routing and Switching, go to: <http://www.cisco.com/go/switching>.

To find out more information about Cisco Voice and IP Communications, go to: <http://www.cisco.com/go/voice>.

To find out more information about Cisco Security and VPN, go to: <http://www.cisco.com/go/security> and <http://www.cisco.com/go/vpn>.

go dark. “Because of the way our law school is designed, the servers and switches are protected by a large back-up system that ties into a generator,” says Cooper. “When the county went dark, none of our core services went down, including phones, wireless, Internet: the works. We had full technical accessibility, and it made us feel like rock stars.”

TJSL has also experienced a great deal of financial savings by working with Cisco. By utilizing efficient systems that require less IT staff support, and equipping classrooms with self-functioning systems, Cooper and his team have saved valuable time and are rarely required to work overtime. Cooper has also noticed a marked rise in job satisfaction among his staff. IT team members are now able to respond to requests thoughtfully and without haste.

“Our satisfaction lies in those issues, bugs, and roadblocks that did not occur during deployment,” says Cooper. “We no longer have small- or large-scale networking issues arise. All of the solutions we use to educate our students, train our faculty, and support our staff rely on the Cisco backbone that’s been installed.”

Next Steps

TJSL is continuing to fine-tune and enhance its virtual environment enabled by Cisco technology. Cooper and his team are looking increasingly at cloud options for student data-sharing as well as the ability to back-up and secure data off-site. Spurred by the unexpected savings that TJSL experienced during its technology upgrade, the law school is considering even more cost-effective ways to leverage its core network and is examining new integrations.

“We’re inspired; we want TJSL to achieve LEED Gold certification on the operational side,” says Cooper. “In some ways we got to build our dream, but we’re still young; we never want to find ourselves out of innovative solutions.”

