

Los Rios Community College District

Challenge:

In 1916, in the midst of World War I, the Sacramento City College was founded in Sacramento, Calif. Since then the college has grown into a college district that includes four college campuses, several education centers and more than 70,000 students, faculty and employees in a 2,400 square mile area. Over the years the Los Rios Community College District has developed and maintained a cabling infrastructure that supports the needs of the second largest community college district in California. But the demands don't stop there.

In early 2004 Los Rios embarked on a multi-million dollar building project that includes the building, enhancement or modernization of facilities at all four campuses, as well as establishing four additional outreach centers – all in a 10-year time frame. Such aggressive growth requires well-thought out plans, especially in the area of technology.

Solution:

The Technical Services Division of the Los Rios Community College District Information Technology Department, enlisted the expertise of RCDD Deryle Rowe and RCDD Bill Buckingham, of Angus-Hamer Networking to develop an "intelligent building design" to satisfy the communications needs of a growing community college district.

Angus-Hamer Networking, a Northern California based consulting firm, specializes in intelligent building planning, design and implementation management services.

As the team began designing a communications system for Los Rios, several factors had to be considered. One consideration is the electronic

communications enhancements to the college's diverse curriculum. "Faculty are using email, chat, and web-based communications to enhance the curriculum, sharing information a lot differently than we used to," said Joe Kramer, Cable Plant Administrator. "Also, communication between campuses and the district office has changed. We're supporting those changes with the installation of our fiber backbone, copper cabling and the entire support infrastructure."

The Los Rios Community College District, the second largest in California, is currently undergoing vast expansion.

Another challenge is updating existing buildings. "With the emergence of intelligent building design and standardization of the physical cabling infrastructure, we are continually challenged to create smart buildings that were built very dumb in terms of their ability to support today's dynamic information technology requirements". Kramer said.

Currently, the Los Rios District network is divided into 512 secure virtual local area networks (LANs). The backbone systems at the various campuses feature a physical star wiring topology. More than 200 telecommunications rooms (TRs) connect the backbone and horizontal distribution systems via high-performance fiber optic cables.

“In our typical TR we use a 19” freestanding rack with ladder rack supported by angle iron kits with double-sided, six-inch-wide wire managers,” said Kramer. “Some shelving is used, but mostly fixed, rack-mount equipment. In our server rooms or main closets (MCs) we’ve gone to a four-post style rack as opposed to cabinets or enclosures. This allows us to easily install, maintain and service the equipment. This type of open architecture allows us to easily see equipment indicators – it stays cooler as well.”


There are also satellite closets located throughout various buildings, which divide the cabling demands, reducing the overall cost and labor of adding or moving network cabling. Conversely, when cables span the entire length between a TR and the work area, maintaining that cable can be disruptive to the classroom environment.

Similarly, enclosures and wall-mounted racks are located within many of the classrooms, creating a mini TR for the copper or fiber backbone. This helps prevent a concentration of cable back in the MC. “Our network architecture uses second level backbone cabling instead of home run cabling,” Kramer said. This type of structure provides a consolidation point so that when a network connection is changed, only the cable located between the consolidation point and the work area is affected - an ideal solution for growing environments like that of Los Rios.

At Sacramento City College campus there is a server farm in the school’s library. It features both two- and four-post racks. Once again the open architecture allows the room’s air conditioning to keep the servers cool. When cabinets are used, Kramer uses both top and bottom-mounted fans. Raised floor cooling is not available.

Seismic protection must also be considered. To meet Zone 4 requirements, seismic bracing kits are used for rack installations.

The district currently uses Chatsworth products and is very satisfied with the results. And as the planning team considers future growth, CPI remains the product of choice. The request for proposal (RFP) specifies the exclusive use of Chatsworth products. “We don’t accept any equivalents – I don’t believe there are any equivalents out there,” said Kramer, who has worked in telecom since 1985.

“Chatsworth runway accessories are interchangeable, and the flow of cable from the runway to the rack is easy because all of the holes and accesses line up – nothing infringes on anything else’s space, leaving viable pathways and transitions from the ladder rack to the rack itself. There’s a natural flow in terms of being able to add or take away from an existing infrastructure,” Kramer explained. 

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