

Texas School District Creates Blueprint to Bring Internet Access to All Students

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Executive Summary

Customer Name: Canutillo Independent School District, Texas

Industry: Education

Location: Texas, US

Size: 6,200 students in 10 schools

Challenges	<ul style="list-style-type: none">• The COVID-19 pandemic created a shift from the physical classroom to distance learning• 70 percent of students in the school district did not have Internet access at home, further extending a digital divide in the area with the danger of these kids falling behind in school• Repurposing parking lots as Wi-Fi hotspots for students posed potential safety issues
Solutions	<ul style="list-style-type: none">• Create a “connected community” to connect Canutillo Independent School District students• Use Cisco® Extended Wireless Connectivity, a solution including Cisco Fluidmesh ultra-reliable wireless backhaul, Cisco industrial switches, and Cisco Meraki™ outdoor access points to create an extended school network, enabling students to log onto private, secure Wi-Fi from home to continue their schooling
Results	<ul style="list-style-type: none">• The extended network is being deployed and tested in the first “pocket,” or cluster of homes, in the district so that students can access Internet at home• The pilot will be replicated across eight other pockets, covering children and families who need at-home connectivity and bridging the digital divide



A pandemic expands the digital divide

School districts across the United States faced many tough decisions in Spring 2020, as the COVID-19 pandemic reshaped how students, administrators, and teachers lived, worked, and learned. Canutillo Independent School District (CISD) was no exception. In response to the pandemic, CISD students shifted from learning in the physical classroom to taking part in distant learning at home. As district leaders assessed necessary changes—including the urgent demand for networking technology—they turned to Oscar Rico, EdD.

As a child, Dr. Rico immigrated from Mexico to El Paso County, Texas. His father died when Rico was young, and he lived with a single mother in a local housing project. As he advanced through the public

school system in the late 1990s, he recalls guidance counselors encouraging him and his peers to pursue trade or vocational school. And while he values such training, it wasn't the path he envisioned for himself. Dr. Rico was set on attending college—and he did, earning an undergraduate degree in medical microbiology.

After college graduation, Rico realized that the medical and research careers he could pursue didn't feel right. In the interim, he accepted a position teaching science in a local high school. The next year, he began pursuing his Master's-level studies and realized he could continue teaching for a second year. The rest is history, and Dr. Rico has served as a teacher or administrator in El Paso County since 2003.

Because of his personal experience, Dr. Rico has more than a theoretical understanding of the struggles and stresses CISD students may be facing, and the digital divide the school needed to close. Serving as a mentor and advocate for students remains his purpose and passion.

From crisis to connection

At the start of the pandemic, Dr. Rico was principal of the Jose J. Alderete Middle School. In March 2020, he was asked to take on a new position as Executive Director of Technology for CISD. He embraced the unknown as an opportunity to further stretch and grow professionally. The position was a new way to make a difference for CISD students during and after the COVID-19 crisis.

“When your family can afford Internet, you can get up, log in, and do your schoolwork from home,” Dr. Rico says. “But 70 percent of our students don't have Internet access at home. Maybe some have access to a parent's cell phone with unreliable Internet. But I knew most would be sitting at a makeshift desk, working their way through a pile of paper. I wanted to find a way to change that.”

In hindsight, Dr. Rico says, his technical naivete worked to the district's advantage. While IT best practice is to rigorously test network infrastructure and select devices based on test results, Dr. Rico and CISD made the decision to move quickly to procure end-user devices.

“We knew kids didn't have devices, so we decided to purchase those first,” he says. CISD invested some \$5 million in computers—securing the hardware before a spike in demand extended lead times.

Meanwhile, Dr. Rico's boss had a working vision to create a “connected community” for CISD students— an idea that led them to engage with Cisco.

“So often people will tell you why something can't be done or all the things that can go wrong. It frustrates me because then great ideas die in an email thread,” Dr. Rico explains. “That wasn't the case with Cisco. They joined forces with us and said, ‘Let's try it. Let's see what's out there.’”

“Canutillo Connect” is born

Through conversations with educators and technical experts across the state, Dr. Rico and CISD homed in on the potential to use mesh technology to support their use case. He recalls a network engineer who kept reiterating that mesh technology was designed for small, contained spaces—not to provide whole-community coverage. Initially, the team considered repurposing school parking lots as Wi-Fi hotspots for students. But as a parent himself, Dr. Rico couldn't accept the idea of requiring children and teenagers to sit out in the elements—a proposition that would be uncomfortable at best and dangerous at worst.

“The engineer eventually agreed to explore what we could do and how it might work so that we could provide equity to our kids,” he says. “We were trying to harness a technology that’s new to the district, new to Cisco, and new to the use case, but we had a moral and ethical obligation to figure it out.”

Dr. Rico lauds the Cisco team for sharing his passion for digital and educational equity. The result of their efforts is “Canutillo Connect”—an innovative initiative that aims to extend a secure, private wireless network across the district to give students Internet access from their homes.

Combining Fluidmesh ultra-reliable wireless backhaul, and Meraki outdoor access points, and Cisco industrial switches, the solution leverages the school’s existing network to bring reliable, secure, high-bandwidth access to these homes. It is being deployed and tested in the first “pocket,” or cluster of homes, in the district. Upon completion, CISD will replicate the pilot across eight other pockets, covering children and families who need the at-home connectivity. In the long term, the district envisions partitioning the network to make the connectivity available to other residents in the broader community.

Forging a better future

Cisco account manager Barbara Walker is quick to laud Dr. Rico for his creativity, perseverance, and community-building skills.

“When you’re working to close the digital divide, the technical aspects are important, but getting everyone to work together is the hardest part,” Walker says. “Oscar is bringing together all the stakeholders—from the district’s IT staff to the superintendent, school board, and community members.”

With Canutillo Connect, Dr. Rico and CISD are creating a blueprint for how districts across the U.S. can create a distributed network that provides free Wi-Fi for students to access from the safety and comfort of their homes. He believes it’s a mission whose value will extend well beyond the COVID-19 pandemic.

“After the pandemic ends, I don’t want our students and teachers to be forced to revert to old ways of teaching and learning,” Dr. Rico concludes. “I want them to continue using technology to reimagine how we engage with students and meet their diverse needs. I want them to benefit from these innovations so they can reach their full potential. We owe them nothing less.”