



Breaking Down the Digital Divide: Bringing Access to the Classroom & Home

Collinsville CUSD 10 partnered with IT solutions provider STEP CG to construct a private LTE network utilizing technologies from Nokia and Cambium Networks. The network is among the first in the US built and deployed by a school district.



Collinsville Community Unit School District needed to provide affordable and secure remote connectivity to students. Expensive, unsecured and unmanaged hotspots were being utilized by students throughout the district for Internet access. STEP CG implemented a cost-effective, sustainable solution with a private LTE network that helped the school deliver internet connectivity for virtual learning in the homes of underprivileged families.

CUSTOMER OVERVIEW

Located in southwest Illinois, Collinsville Community Unit 10 School District (CUSD) is the home of the Kahoks. The district has approximately 6200 students and is made up of eight elementary schools (grades K-4), one intermediate center (grades 5-6), one middle school (grades 7-8) and one high school (grades 9-12), serving the towns of Collinsville, Caseyville and Maryville, as well as portions of Glen Carbon, Fairmont City, and Granite City. The economically and culturally diverse population is a strength of this district which allows the unique daily interaction with people from a variety of life experiences where staff and students learn to appreciate differences and gain valuable life experiences.

The mission of CUSD 10 is to create a school environment where children are intellectually challenged in ways appropriate to their individual strengths, needs, and experiences. They are committed to the pursuit of academic excellence and the development of students to their fullest potential by providing a variety of innovative experiences, a caring progressive staff, and an involved community. This mission led them to find a

way to be on the cutting edge in technology prior to COVID and already have a 1:1 initiative in place for grades 5-12. As far as the devices, it was not as difficult to implement the program for K-4 since they had already laid the groundwork. Every student received a Chromebook computer for use in the classroom and home to use as a tool for online classwork, homework, and research projects.



BUSINESS NEEDS

The excitement and enthusiasm of what is happening in Collinsville Community Unit District #10 (CUSD 10) is unmistakable. While they are faced with the same challenges as so many other districts in the world at this time, they are taking a moment to celebrate the giant steps they have earned to conquer the digital divide!

Since 2020, schools across the nation have had to deal with the dilemma of the pandemic and figuring out how to deliver remote learning and online instruction. Almost overnight, teachers and students, unfamiliar to interacting exclusively online, were unexpectedly forced to deliver a full curriculum via remote learning. Like so many other schools, CUSD 10 had more than 10% of the student population with no access to broadband connectivity at home for online learning. The goal for the district was to break down the connectivity barriers and find a way to provide equitable Internet access to ALL students.

The problem of broadband access is not new. It has been holding this district back for several years in terms of online communication and going paperless.



Learning was limited to the classroom prior to bridging the digital divide. Now learning can occur at home or at school absent of connectivity barriers that provide each of our student's equitable access regardless of their zip code.

– Dr. Stan Skertich,
Superintendent of CUSD 10



Luckily CUSD 10 already had a 1:1 initiative in place for grades 5-12 so they were able to quickly implement the program for K-4 and modify the program for remote learning for all students. The district had worked hard to move to computer-based learning and rely on using multiple applications for instruction. Although the students had the tools in hand, the extent of the digital divide began to reveal itself when over 10% of the student population were unable to connect or pay for internet access from home.

A short-term fix was to pay for use of hotspots to provide access for the students with grant funding provided through the CARES Act stimulus funding. With technology developing at an unprecedented rate, district leaders knew they needed to find a more sustainable, cost-effective, and secure (CIPA compliant) solution for the connectivity barriers they faced. Once the grant funding dried up, the district would be back to where they started and have nothing to show for it.

“We were looking for a permanent and sustainable solution to this problem, not just a band-aid,” Derek Turner said, the Director of Technology CUSD 10.

With the swift changes to remote learning, both students and teachers had to quickly adapt to a new way of learning. Districts across the nation had to move rapidly to provide remote instruction for students the best way they could, and Collinsville was no different than all the other educational institutions across the nation. They capitalized on the CARES stimulus funding by finding a sustainable and permanent solution which would grow with their students in conquering the digital divide that the world faces.

Planning for the private LTE network began in late March 2020, according to Turner. He explored many different options prior to deciding on PLTE; including hotspots, routers on school buses, routers on telephone poles, and paying for internet providers to install service in affected areas. The need for privacy, security, and safety measures needed to be in place for CIPA compliancy to protect personal information used when accessing online tools.



THE STRATEGY and SOLUTION

While most districts continue to use mobile hotspots, which are expensive, impractical, unsustainable for long term, as well pose a security risk, Collinsville Director of Technology, Derek Turner knew he needed a better solution for the district. Mobile hotspots are unable to provide network connectivity in a large capacity and coverage area for the district. PLTE/CBRS has emerged as a unique and robust solution for deploying a private cellular network. PLTE/CBRS offers many potential benefits over Wi-Fi such as better performance, mobility, and coverage in remote areas. It also has better security and is more cost-effective to administer and maintain. PLTE/CBRS is easy to deploy and can provide resilient and secure coverage to allow for more remote learning.

Leveraging market-leading technologies in PLTE, STEP CG chose the Nokia Digital Automation Cloud (NDAC) and Cambium 300/500 series for backhaul. The STEP CG PLTE/CBRS solution delivers high-performance, end-to-end private wireless networking that enables plug-and-play connectivity, reliable coverage, high data rates, and low latency



There was such a disparity with our students because we had so many students with no Internet resources at home. It's one thing to see a problem and another thing to take action. Our district took action so our students were able to have the same opportunities.

– Dr. Kari Daughtery, Principal,
Kreitner Elementary



Testing continued throughout the summer and a temporary solution was in place to determine if there were any flaws in the system. During September, plans were re-worked to provide more coverage and better reliability. By early 2021, construction was completed on the broadcast tower and microcells were installed at multiple locations. Installation was finalized and testing completed in February, enabling the network to go “live” in March 2021.

essential for effective digital transformation across the district and into student's homes. Since the students will be logging into the district, all usage will meet CIPA compliancy and comes with advanced content filtering features, which are essential to make sure students can access what is needed for their education and preventing access to unwanted websites.

Several scenarios were considered in the design before the perfect plan was devised and implemented. Over seventy-five percent of the students who did not have Internet access prior to the project now have Internet connectivity. The centerpiece of the network is an LTE Broadband Tower constructed at Kreitner Elementary School which ties into the district's Internet service. In all, the network includes four Nokia CBRS microcell installations providing approximately 5 square miles of coverage in the communities of Fairmont City and State Park. The solution allows students to have equal access to school instructional programs from home.

Success. We now have a solution in place that provides Internet access for our students, not only while the pandemic drags on, but also into the future. I look forward to building on and expanding this solution, and as the technology improves, bringing more coverage, reliability, and faster speeds to the area.

- Derek Turner's response concerning the overall project, solution and partnership with STEP CG

WHAT MADE STEP CG STAND OUT

Finding a partner who can take a vision, design it, and successfully deploy it in a short timeframe is not easy, especially during a pandemic. STEP CG

isn't like any other partner. The tagline, "Where Innovation Meets Execution" explains the level of engineering brought to a project that is unique in the industry. Turner needed a solution and a partner who could execute and STEP CG was recommended to him. From the beginning of the project, there was constant communication, information, and updates about the project. His STEP CG sales rep and engineering team spent time explaining the design and plan so he understood exactly what would be done.

Overall, I was impressed by the high-level of expertise that each STEP CG employee brought to the table. Everyone I worked with had an impressive background in technology. I was surprised to see so many qualified individuals in one place.

- Derek Turner, Director of Technology CUSD 10

"When initially speaking with STEP CG regarding the current project, I knew very little about private LTE, and how it all worked. Nevertheless, it was apparent to me that STEP CG not only understood the solution but also possessed the skills necessary to make it successful in our environment," remarked Turner when describing his first impression of STEP CG.





I did my due diligence and research and no one else was doing this. The value in the solutions that STEP CG is providing is second to none.

– Derek Turner, Director of Technology CUSD 10



STEP CG has extensive experience with traditional network infrastructure technology as well as emerging cellular networks. The DNA of the company is education environments and works with the largest higher-education and K-12 school districts in the country, as well as the smallest, offering flexible consumption models and managed services for all solutions.

Navigating the challenges and technology options during this pandemic can be daunting for any school and community. STEP CG has the experience and understanding of what schools are facing today and tomorrow and can find a solution.

