

Drive-In Wi-Fi for Schools

7 Questions with Chadd Giles, Resound Networks



Based in Pampa, Texas, Resound Networks is a wireless internet service provider (WISP) that is providing Wi-Fi connectivity to schools during the COVID-19 pandemic. To support digital learning initiatives, Resound Networks is setting up Wi-Fi access points in school parking lots so students can download and upload assignments. Chadd Giles, chief operating officer at Resound Networks, explains how they set up these networks and how students are using Wi-Fi to continue their education from home.

What is Resound Networks doing to support schools and learning from home initiatives?

We were initially contacted by the Pampa independent school district (ISD), which includes a total of five campuses: middle schools, grade schools and a high school. We were called to provide 380 students with Wi-Fi access because they didn't have internet at home, and we had to meet that goal within one week.

After meeting with the Pampa ISD superintendent and the city's mayor, we presented a plan that we knew would be executed quickly. During our meetings, we identified a fiber network that was already in place. All we had to do was extend the school's network out into the parking lots. Within four days of the meeting, we set up Wi-Fi access for an elementary school, middle school, administrative building and the city's armory.

Who are the target Wi-Fi users for the drive-in Wi-Fi?

Our goal is to provide internet access to students. The schools control the network and only allow access to four websites for schoolwork; they want to make sure it is used as intended.

To spread the word about the network, the school district sent information to the families via email. At Resound Networks, we mapped everything on Google Earth to make it easy for families to see where the Wi-Fi access points (AP) are. We also posted signs in the parking lot to direct families where to park for Wi-Fi connectivity.



How was the network designed and deployed?

For the purpose of quick deployment, we identified existing fiber assets and the RF planning came later. Afterward, we extended the network into the school parking lots and connected the APs. We decided to work with sector APs so we could control the RF and create our target. Some schools have two APs while some schools have one AP. Additionally, we needed more gain to cover the large areas, which is why we chose Cambium Networks' equipment. We handed the MAC addresses over to the schools, and they created their SSIDs and passwords.

After we set the target in the parking lot, we put signs in the parking lot to show people where to pull up. People have connected to the APs anywhere from nine in the morning until midnight. We cover large areas in the parking lots so they can keep their distance from each other.

Two fully equipped tower crews are working on this project. Depending on the size of the school, they can complete three installations per day. Extending the networks outside the schools makes it simpler for both our team and the schools' IT teams to manage. To make management even simpler, we use cnMaestro to configure and monitor our APs. With remote management, we don't have to go to each site, and the whole process is streamlined.



Have you heard any feedback from the schools and students?

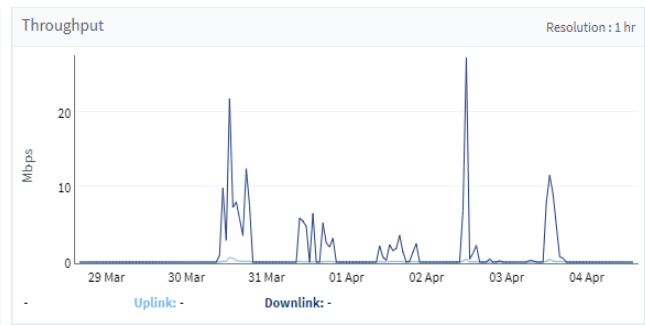
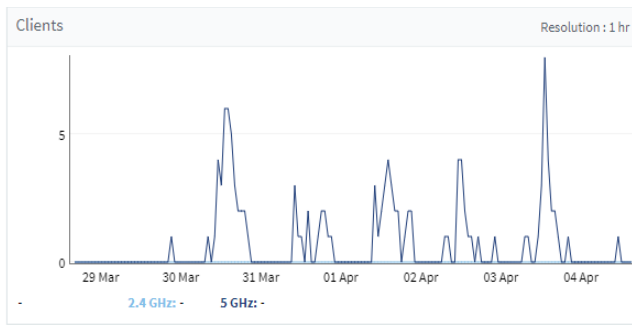
So far, we have 20 APs deployed for schools in Pampa, White Deer, Skellytown, Levelland and Miami in Texas. These APs were all deployed within the first week, and they're usually achieving anywhere between 20 and 30 Mbps. This allows the students to download assignments and classroom work for the day. Students can go home, do their assignments, come back to the parking lot to upload their completed work and download the next day's assignments.

Schools passed out devices to the students in late March, and the students began using them on March 30. We began seeing some traffic the following Saturday. It's a little too early to see the usage rate since there's not enough data yet. However, we're seeing spurts of traffic up to 40 Mbps at times, so they're definitely using the services provided. It seems to be working well.



Do you have any similar projects that you are working on?

In one of the towns, we recently backhauled into a church with millimeter wave and dropped a connection on our network. More ISDs in the Western Texas area are reaching out to us to complete similar projects. Currently, only students can use the Wi-Fi APs set up in the school parking lots. To help the public, we are working with the city of Pampa to set up free public hotspots that anyone can use. We're also thinking of permanent situations where we can do traffic shaping and steer different traffic, for example. To prepare for long-term connectivity, I imagine that schools and cities will have intense meetings.



Do you have any best practices that you can share with others setting up similar networks?

First, find the core assets and an infrastructure you can connect to. When someone says that they need something done in a short amount of time, you need to make quick decisions and use quality APs that work well. Make sure that you aren't turning on a high-gain AP and creating more interference and issues than you're fixing. Then, get the right engineers to deploy them. Remote management, monitoring and configuration are essential to do things quickly and efficiently.

How do you feel about helping others by providing them with connectivity?

Wi-Fi connectivity is something these cities need urgently, and I don't know how else they would do it without WISPs. We've read about people deploying Wi-Fi on buses and parking them in neighborhoods, but it didn't seem that this would provide adequate service. We didn't want any of these schools to waste their time or money, and we wanted to provide them with connectivity as soon as possible. This may just be a short-term solution, but we're glad to work with the schools to come up with permanent plans to handle these situations in the future.



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