How a Cloud-Managed Network Can Support the New Normal for In-Person Learning

While the pandemic has shifted many schools to hybrid or remote learning, all schools want to eventually make a safe and effective return to in-person learning. However, many operational and logistical challenges exist to do so.

Not only are schools trying to keep students socially distanced throughout the day, but they are also grappling with how to support quarantined students or those who've elected not to return in person.

These changes have impacted on-the-ground logistics like reconfiguring classrooms and school schedules, as well as the wireless network. Wi-Fi needs to be extended to outdoor learning spaces, which are considered safer, and teachers are streaming classes, dramatically increasing bandwidth.

Because the wireless network is such a critical part of in-person learning, school and district IT professionals are working hard to adapt it. Even with tightened budgets, having a cloud-managed network can make IT's job easier and reduce overall costs. Here's a look at how.

WHY IT'S TIME TO MOVE TO A CLOUD-MANAGED NETWORK

Modernizing network infrastructure to gain more agility and scalability is always a good idea, but in today's current environment where there are significantly more network demands, it's a must-have.

BENEFITS OF REMOTE MANAGEMENT

One of the biggest advantages of a cloud-based network is the ability to manage issues remotely. At JeffCo Public Schools, because so much of the work on the wireless network can be done remotely, the IT team can be much more responsive — and during a pandemic also much safer — when issues do arise.

"Our infrastructure team responds to any network outage just as we did prior to COVID — if the network's down, we're going in. But in the majority of cases, we can do it all remotely, and that keeps the variations of who's been in contact with who down and keeps any potential virus spread down," says John Fuller, senior wireless engineer at JeffCo Public Schools in Colorado.

Having remote capabilities also ensures the wireless network is always working as it should, no matter where your team is.

"If I'm not by a computer and there's an emergency, I can make modifications to 7,000 wireless access points when necessary from my smartphone. It's incredible," says Fuller.

"We've had some school districts that have seen huge increases in new devices or additional IoT tools that are causing capacity issues," says David van Schravendijk, senior product marketing manager at Cisco Meraki.

There has also been an increase in upstream bandwidth in most schools. "I would say about 90 percent of our bandwidth being utilized prior to COVID was downstream," says Fuller. "This year, we're starting to see huge spikes in our upstream, which shows there are a lot of remote video feeds going out of our buildings."

Fuller notes that its cloud managed network solution, as well as a robust infrastructure, has allowed the district to support this drastic switch. A cloud-managed network solution can provide the following benefits:

Improved visibility. A cloud-managed network makes it much easier to identify where there are network issues and resolve them by giving IT the ability to monitor everything through a centralized dashboard. Having this visibility allows IT to quickly see new trends or identify bottlenecks, helping determine which apps or devices to prioritize.

It can also help identify where there are capacity issues.

"A cloud-managed network gives you the visibility you need to see where you are bumping up against the capacity of the network, which will help you determine if it's time to upgrade to a Wi-Fi 6 network or add new wireless access points," says Schravendijk.

Increased scalability and manageability. Maintenance and troubleshooting can be done remotely, and schools have the option to scale as demands on their network dictate. This helps ensure high reliability, which is essential when teachers are trying to stream classes to quarantined or remote students.

For Fuller, having a cloud-managed network has allowed his team to manage more with fewer people.

"We run a 750-square-mile infrastructure with two wireless engineers," he says. "We don't have controllers failing on us, and if an access point goes down, the algorithms throttle up the ones in the other locations to cover it. With our previous system, if the controller went down, the entire building and Wi-Fi went down."

A cloud-based network also allowed JeffCo Public Schools to extend the Wi-Fi to outdoor classrooms. Because outdoor Wi-Fi needs to be strategically deployed or its signal can interfere with those inside the building, having a quick, easy and flexible process to turn the outdoor Wi-Fi on and off has been a huge benefit.

"It's a couple of mouse clicks," says Fuller. "All we did was leverage the RF profiles feature in the dashboard to assign an outdoor profile."

Improved insights. A cloud-managed network solution also provides access to real-time data through its centralized dashboard. This data can be used to improve insights and for logistical purposes.

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"You can use location analytics to see where students are moving around and where hotspots are popping up within the school building," says Schravendijk. "For example, you can see if there's a giant cluster happening at 11 a.m. outside of the cafeteria so you can then alleviate it."

Real-time analytics can also be used to track attendance to different classrooms to know how densely populated they are, which can help dictate where to locate certain classes to ensure the greatest amount of social distancing possible. Bluetooth and Wi-Fi devices can also be connected to the network, such as using cameras to get accurate population counts.

CONSIDERATIONS WHEN DEPLOYING A CLOUD-MANAGED NETWORK

Once you're ready to deploy a cloud-managed network, it's important to find an experienced cloud-managed network partner who will work closely with you to make sure your infrastructure is set up appropriately. You will also want to conduct a site survey in advance of deployment to ensure access points are in the proper locations and your Wi-Fi network covers the entire area.

Finally, select a cloud-managed network with a robust ecosystem of partners. It will be easier to use APIs to build solutions on top of the wireless network and take advantage of its data. For example, schools can use APIs to connect sensors for contract tracing or wayfinding. It will also allow you to use APIs to transfer some of your existing network settings, even if you're not currently on a cloud-managed network, speeding deployment.

FUTURE-PROOFING IN-PERSON LEARNING

Having a cloud-managed network gives IT teams much more flexibility in how, when and where they support a school or district's wireless network. This ensures the wireless network is always available to support the in-person learning experience, while also working to make it safer and more effective.

This piece was developed and written by the Center for Digital Education Content Studio, with information and input from Cisco Meraki.

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