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Cisco Extended Wireless Connectivity for Students and Communities

Bridge the digital divide

Millions of low-income students and households do not have access to fast and reliable internet in their home. What if you could bridge that gap and enable consistent remote learning experiences for all children during the pandemic and beyond? Internet access is more important than ever – not just for students but also for those looking for jobs and trying to efficiently manage life. Cisco® Extended Wireless Connectivity is a solution that enables secure and fast Wi-Fi to any household, helping schools and communities bridge the digital divide.

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Key benefits

Cisco is uniquely positioned to help build the bridge to securely connect all students and homes. The solution offers:

- **Cost-effective operations:** Uses existing network infrastructure and internet services to extend connectivity to students and families in their home. This eliminates additional operating fees, as no broadband LTE-based services are required.

- **Cisco Secure:** Cisco's industry-leading security provides the capabilities and policies to protect against cyber risk and control the data that students access.

- **Simple and fast deployment:** A streamlined, complete solution from Cisco speeds deployment.

- **Improved remote learning, working, and quality of life:** Provides the needed reliability and bandwidth speeds in the home to bridge the digital divide, creating parity across the student body and the community.

- **Control:** Offers the flexibility to deploy the service by household or by area to benefit those who need access the most. It also enables control over the data that students can access.

- **Ability to lower costs further with public funding:** Federal and local governments are offering programs to fund all or part of projects to bridge the digital divide. For example, the U.S. CARES Act (Coronavirus Aid, Relief, and Economic Security Act) opened up a $30.75 billion Education Stabilization Fund to assist K-12 schools with the pandemic. Look for what is available in your area.

- **Readiness for the future:** Leverage the solution to create a secure, multiservice, and scalable network infrastructure that is suitable to support other applications across the school or community.
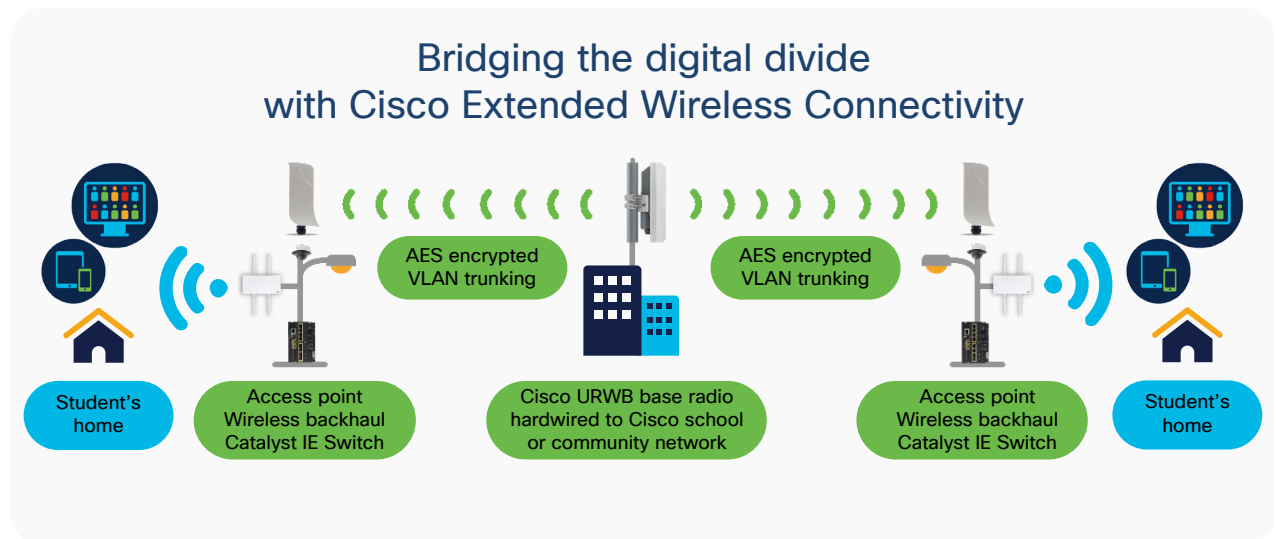
Overview

The global pandemic has impacted schools and communities significantly. Overnight, students were learning from home, people were working from home, and many others were put out of work. While difficult for most, lower-income families and households were the most affected. Not everyone has access to reliable and fast internet in their home, impeding the ability to learn, work, and find jobs.

In a recent study, 43% of lower-income parents reported that their children use a cellphone to complete their homework*. Compounding the issue, 40% reported that they must use public Wi-Fi to finish their homework, since they don't have a reliable internet connection at home.*

Cisco Extended Wireless Connectivity provides a total solution. It brings together Cisco Ultra-Reliable Wireless Backhaul (URWB) radios, Cisco Industrial Ethernet switches, Cisco industrial and outdoor access points, and integrated security to extend any fiber network, including a school's, to targeted areas or specific homes in the community. The result? Reliable, secure internet access to bridge that digital divide.

*Pew Research: https://www.pewresearch.org/fact-tank/2020/09/10/59-of-u-s-parents-with-lower-incomes-say-their-child-may-face-digital-obstacles-in-schoolwork/

Figure 1. High-level overview of how the architecture works

Bridging the digital divide
with Cisco Extended Wireless Connectivity

AES encrypted VLAN trunking

AES encrypted VLAN trunking

Student's home

Access point Wireless backhaul Catalyst IE Switch

Cisco URWB base radio hardwired to Cisco school or community network

Access point Wireless backhaul Catalyst IE Switch

Student's home

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The Cisco Advantage

To bring students and communities to the next level, high-bandwidth, reliable internet access in the home is critical. Only Cisco offers a solution that is cost-effective, highly secure, and reliable and leverages the network you already have. Using our industry-leading outdoor and industrial wireless access points, wireless backhaul technology, industrial switching, and security, you have a complete solution that is easy to deploy and secure.

Without quality internet access in the home, students and communities fall behind

Without high-bandwidth, reliable internet in the home, students, families, and communities struggle to keep up. Going to restaurants, coffee houses, or school parking lots is not always a viable option and is certainly inconvenient.

Other solutions are riddled with issues. Some schools, for example, give students a Mi-Fi device for their home. Mi-Fi is a Wi-Fi device that acts like a mobile hotspot, creating an ad hoc wireless LAN network. This solution requires wireless mobile connectivity from a service provider, incurring high monthly costs for the school or community. Mi-Fi also does not offer control over what data students can access, and it often falls short on the needed cybersecurity, reliability, and consistent speeds.

Another option is community wireless access points. These are typically installed on school grounds or around the community in libraries and other public places. Parents can take their students to the area to gain access to the internet. While this can help address the issue, it is inconvenient and also can introduce cybersecurity risk.

Schools and communities need a solution that brings together security, reliability, and data access control with consistent high-bandwidth internet access. And, of course, this all has to be done cost-effectively.

What you buy

Cisco Extended Wireless Connectivity for Students and Communities requires:

- Cisco Ultra-Reliable Wireless Backhaul: Ultra-reliable, low-latency fiber-free backhaul across the district with directional RF coverage for maximum distance. This allows you to extend your network to neighborhoods or to specific homes and buildings.

- Cisco Meraki® or Cisco Catalyst® and Aironet® Wi-Fi outdoor wireless access points: Enable secure wireless access to any device.

- Cisco Catalyst Industrial Ethernet switches for outdoor connectivity of wireless access points.

- Cisco Umbrella®: Flexible, cloud-delivered security combining multiple security functions into one solution, so you can extend protection to devices, remote users, and distributed locations anywhere. Umbrella is the easiest way to effectively protect your users everywhere in minutes.

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Bring hope today by bridging the digital divide

Are you ready to bridge the digital divide and bring hope to students and communities everywhere? Cisco's Extended Wireless Connectivity for Schools and Communities solution allows you to make a difference by leveraging the network you have and providing the security you need.

Use cases

Industry	Description
K-12 schools	Create parity in the remote learning environment by helping all children – no matter what their economic situation is – succeed. Extend the school network to low-income neighborhoods or students' homes to provide secure, reliable, high-bandwidth internet access.
Cities and communities	Create equal opportunity across income levels by providing internet access to low-income households or neighborhoods. Help people be successful when working from home, looking for jobs, or just trying to efficiently manage life.
Corporations	Give back to your community by providing free, reliable, high-bandwidth internet access to low-income households or neighborhoods.
Stadiums and other large public venues	Leverage the high-bandwidth internet that these venues have to provide internet access to low-income households, similar to the other use cases above,