

STEP



WHITE PAPER

Secure, Fully Managed CIPA Compliant Connectivity

That Extends Your School's Network
to the School Bus and Beyond



Overview

K-12 students and teachers depend on laptops, tablets, cloud apps, data-driven instruction, and nonstop Internet connectivity to enhance learning. Due to widespread shifts such as online testing for Common Core and the rapid rise of cloud-based applications, many school districts are seeking networking solutions that meet their evolving needs without complicating network management or creating new security vulnerabilities.

K-12 IT teams are asked to adopt new technologies while solving an array of challenges related to bandwidth, cybersecurity, reliability, flexibility, scalability, and cost-effectiveness. Because of these needs, LTE-based broadband and Wi-Fi have become vital components of K-12 network architectures.

Wireless WAN connectivity is no longer a luxury for school districts; it's now essential for personalizing learning — from main offices to school buses and the students' homes.

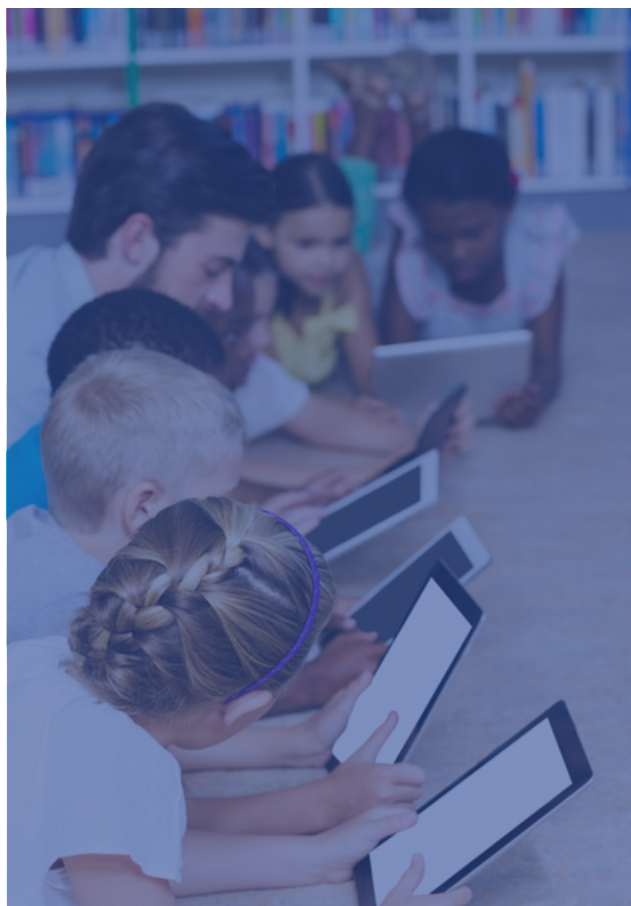
This white paper explores the most popular education technology trends in K-12 education, and the role and importance of truly extending the school's network to reach the students where they are – from the building to the bus and into the home.

Cloud Applications

K-12 education is one of the most essential mainstays of society, but the way it is administered continues to evolve and change. Schools and districts need to provide Internet connectivity on and off campus, thanks to a vast and growing list of technologies, trends, and advancements.

Instead of constantly replacing textbooks and computer programs, schools can use cloud-based applications and Massively Open Online Courses (MOOCs) to hone students' skills in coding, math, foreign languages, and other areas. These services can even be extended onto school buses that provide Wi-Fi and into students' homes for remote learning.

Meanwhile, teachers can post grades, assignments, attendance, messages, and lecture videos online through cloud-based portals that are accessible to students anywhere. Resources are always available as long as network access persists. Uninterrupted Internet and ample bandwidth are critical.



The Advantages of Wi-Fi on School Buses

Benefits for K-12 School Districts



Remote access for video monitoring

Use in-vehicle video cameras and STEP's Remote Connect feature set for instant remote access to monitor students' behavior.

LTE makes it possible for a bus driver to alert school administrators and/or stream live surveillance footage back to district headquarters if there is ever a dangerous incident that takes place. Also, the district can automatically offload less-essential footage via Wi-Fi the next time the vehicle parks at headquarters.



Secure Wi-Fi for on-board extended learning

On-board Wi-Fi enables students to use their time on the bus to study and do homework to and from school or out-of-town sports and extracurricular events. STEP solutions feature Wi-Fi and CIPA-compliant web filtering, along with centralized management capabilities that allow IT teams to monitor and control the network from anywhere.



Buses as Wi-Fi hubs in underserved areas

Parking Wi-Fi-enabled buses in areas where many students lack Internet access allows them to study from a vehicle parked nearby.



Secure Wi-Fi for on-board extended learning

On-board Wi-Fi enables students to use their time on the bus to study and do homework to and from school or out-of-town sports and extracurricular events. STEP solutions feature Wi-Fi and CIPA-compliant web filtering, along with centralized management capabilities that allow IT teams to monitor and control the network from anywhere.

School Bus Wi-Fi Funding is E-Rate Eligible

As school districts move forward with post-pandemic plans, technology trends and funding opportunities are intersecting. Starting with Funding Year 2024 schools will be allowed to use federal E-rate funding to pay for school bus Wi-Fi, under a change approved by the Federal Communications Commission. This helps to ensure schools and libraries can use connected devices and broadband routers to enable remote teaching and learning. This funding is essential for schools that have been asking this question: How can we use school bus Wi-Fi to expand students' daily learning?

"We wanted to make sure that our students have 24/7 access to the Internet — because learning does not stop at the end of the school day. We realized we had to provide this service to our students in order for them to compete in the 21st century."

– Coachella Valley Unified School District

Success Story

School Buses Bring Wi-Fi To South Bend Students & Residents

Online learning (and dependable Internet access) became essential for K-12 students in South Bend, Indiana, as part of the COVID-19 pandemic response. Some students lacked access or were challenged by network congestion.

In response, South Bend Community School Corporation (SBCSC) began sending dozens of buses — connected by STEP routers — to strategically selected locations. The students' Chromebooks automatically connected to one SSID. STEP's solution enabled SBCSC to centrally monitor network performance, data usage, and students' online activity, and to easily make fleet-wide configuration adjustments related to CIPA compliance and other factors.

Now for years to come, South Bend has the technology in place to help students stay connected whether they're in a classroom, on the bus, or even at home the middle of a national emergency.

The Urgent Need to Think Beyond “Hot Spots” and Protect Students

While MiFi and mobile hotspots offer connectivity, it is a connection “out in the wild,” with very little security or compliance, and no manageability to speak of. A mere hotspot can allow access to literally anything and everything on the Internet. Not a comforting thought.

This lack of security and manageability is a critical concern because to comply with the Children's Internet Protection Act (CIPA), content filters must prohibit students' access to inappropriate content over the Internet on school computers. If schools don't comply with CIPA, they won't be eligible for the E-rate program, which helps schools afford communications infrastructure and information technologies.

STEP solutions bring the ultimate in security in manageability, including the ability to lock down the router so Students cannot access sites like Netflix, etc. The same is applied to home access, so it's impossible for them to burn up bandwidth on non-school related sites.

STEP's equipment and set-up is nearly identical to the type used for police and first responders to ensure the best end-use connectivity possible:

- Configure all devices from one location
- Manage & update firmware of each device
- Manage clients
- Monitor signal strength & carriers
- GPS
- Ability to track bus locations while they are in route
- Security applications included with device
- Compliant with CIPA
- Content Filtering
- IPS/IDS
- External difference-maker antennae

Extending a School's Network Into Students' Homes

Extending a school's network into students' homes for essentially the same budget, STEP can deploy a similar "bus solution" by putting commercial routers in students' homes. Forced CIPA compliance, and secure for the home. A secure network solution, easy VPN capabilities, robust network segmentation, multiple SSIDs, content filtering, and the ability to remotely manage updates and add-on security integrations with industry-leading platforms through the cloud. And the ability to lock the router and blacklist Netflix, gaming sites, etc., so only the school network is accessible for homework.

STEP can also offer data plans or couple with existing commercial data plans.

Flexibility & Cost-Effectiveness

With limited budgets, school districts need network solutions that make sense today and for years to come. Integrating LTE Internet into existing wired architectures can be complex, fiscally burdensome, and prone to human error — especially for districts that don't use a cloud management service for monitoring, managing, and troubleshooting from headquarters. The rapid rate of technology advancements and school expansion creates a frenetic pace of change that can be difficult for IT managers to accommodate on limited budgets. IT administrators need to be able to manage and troubleshoot mobile deployments remotely with as little impact on staff and finances as possible.

By deploying an all-in-one network solution STEP accommodates both wired and wireless links, with high-performance LTE connectivity supporting multiple carriers and modems simultaneously. A solution that is packaged with a cloud management service, also allows for instant updates, carrier switching, and troubleshooting from anywhere.

Further Cost-Efficiencies

Some fleet managers require in-vehicle connectivity to enable AVL solutions and to reap insight from rich telematics data that can deepen cost-efficiencies. They also use GPS to keep track of where their buses are at all times. Some schools even offer phone apps that show parents and kids the bus's location.

Students Can Take Their Classroom Along For The Ride Today and Tomorrow

Making sure students have 24/7 access to the Internet is a necessity since learning no longer stops at the end of the school day.

E-Rate-eligible LTE and 5G routers provide reliable connectivity and Wi-Fi that can be centrally managed from anywhere — and that can be purchased with help from the Emergency Connectivity Fund. Using E-Rate funds to deploy wireless edge solutions today enable the latest cellular technologies while preparing for devices and applications that are in your district's future.

And best of all, you can achieve peace of mind by putting enterprise-grade solutions in place that protect students from unapproved web searches while meeting industry-wide security requirements.

“The ability to have network access anywhere we desired provided not only network flexibility but cost savings. The solution has saved SHS thousands of dollars because there was no need to run fiber through the ground, and we don't have maintenance or replacement costs.”

– Phil Elliott, Springhill Schools Director of Technology

STEP is a highly innovative, award winning, nationwide IT services engineering firm headquartered in Northern Kentucky/ Greater Cincinnati. STEP solutions are powered by strategic experts and best of breed technologies solving our customers' most complex IT challenges. Our expert engineers provide customers with solutions for cloud, security, collaboration, core infrastructure, and managed services. STEP is where innovation meets execution.