



EDUCATION SOLUTION BRIEF

The Connected School Bus

COMMSCOPE®

RUCKUS®



CommScope envisions a connected future for everyone, regardless of where they learn.

School Bus Wi-Fi Get in Gear

Out of nearly 55 million students in the U.S, 12 million are at risk of falling behind academically. Whether it's socio-economic inequality or the unavailability of broadband infrastructure, the "homework gap" is expanding in rural and low-income communities. In response, some school districts have adopted innovative solutions to extend the reach of the classroom. By repurposing some of the estimated 480,000 idle school buses across the country, districts are creating Wi-Fi hotspots in under-privileged communities so that their students can get online.

In addition to helping students keep pace with the digital transformation, Wi-Fi-enabled buses can also deliver meals and other services formerly provided by the schools. With pilot programs across the country getting rave reviews, the trend is growing and helping kids in need to bridging the digital divide.

Local challenges become a national effort

School districts, solution providers, ISPs and the Federal government have teamed up to fight the battle against the digital divide. The FCC has introduced bills to expand the E-Rate program to include Wi-Fi-equipped school buses as reimbursable expenses. Subsidies and programs like the Rural Digital Opportunity Fund, Connect America Fund (CAF), and Lifeline Program (monthly subsidy for internet), are part of the national effort to help those facing the challenges of digital inequity.

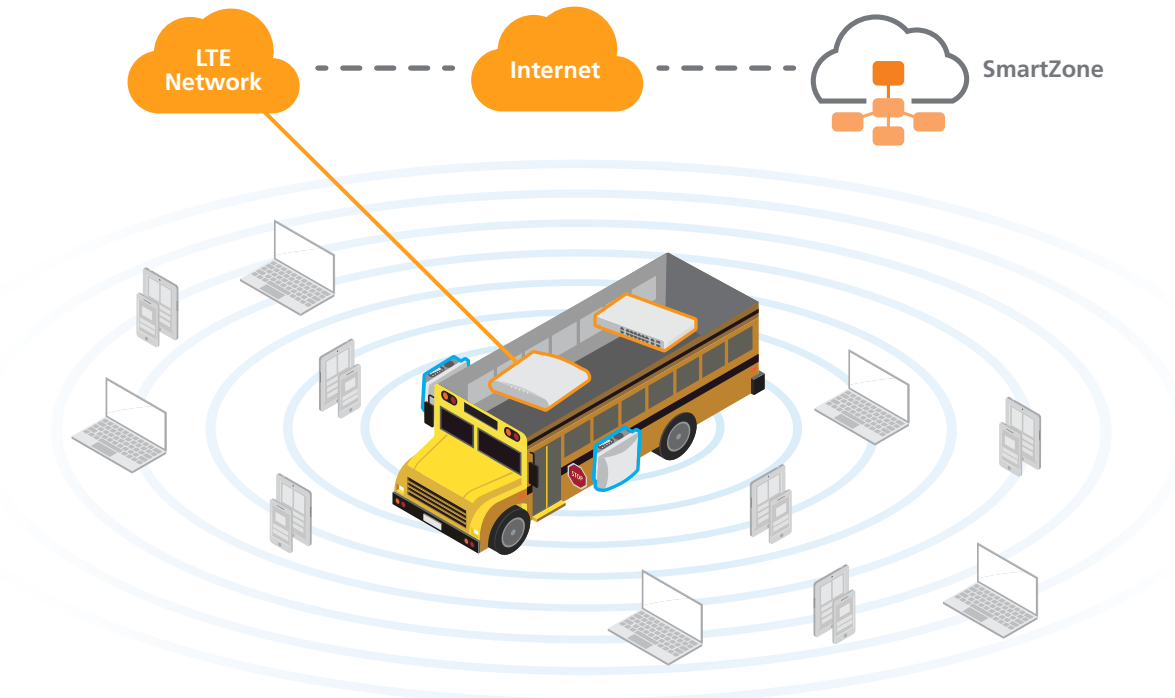
The school bus "hot spots" use an access point (AP) with LTE backhaul, and pocket Mi-Fi to deliver obvious benefits. But schools must address several technical challenges, like co-channel interference, lack of a central management system, data plan

management, security, and coverage range (school bus Wi-Fi range under 300ft.) CommScope is proud to play our part in helping schools overcome these challenges.

CommScope Wi-Fi connectivity kit

CommScope has developed a simple and reliable connectivity kit to help educators address the technical challenges of deploying school bus Wi-Fi. The kit includes CommScope RUCKUS indoor and outdoor APs (M510, T310 or T610), a PoE-enabled ICX switch (7150-C08 or 7150-C12) and the hardware needed to mount the APs on the buses' exterior. In addition, we are available to provide guidance in installing and using the mobile Wi-Fi solution.

The CommScope RUCKUS connectivity kit is being implemented in several pilot programs for school districts in northern California. With the support of CommScope engineers, the school districts will be able to provide safe and reliable, high-speed broadband access to students and families who do not have the means to get broadband connection at home.



School Bus Wi-Fi utilizing the M510 LTE backhaul

The M510 AP provides the robust connection necessary for effective online learning that keeps students engaged. Designed to provide mobile Wi-Fi with an LTE backhaul, the RUCKUS M510 enables expanded coverage and redundancy, allowing educators to maximize their classroom reach. Combined with a central management system like Unleashed, SmartZone or Cloudpath, the CommScope RUCKUS intelligent onboarding system provides a complete out-of-the-box solution for any application.

The school bus Wi-Fi connectivity kit highlights:

- Superior outdoor Wi-Fi performance
- Can be used off-site then recommissioned for use on school grounds
- Supports URL filtering, application-based policies, and regular ACLs
- Extended Wi-Fi coverage, up to 1200ft, with patented BeamFlex+ technology
- ChannelFly™ technology automatically detects least congested channels for highest throughput
- Connects more devices simultaneously by adding outdoor APs with MU-MIMO
- Simple and easy centralized management platform with integrated GPS and Cloudpath

Wi-Fi connectivity kit configurations and descriptions*

Options	Configurations	Parts Description	Notes
Option A (Recommended)	<ul style="list-style-type: none"> M510 AP T310/T610 APs (1 to 4) ICX 7150-C08P or C12P switch Mounting kit 	<ul style="list-style-type: none"> M510, 802.11ac dual-band indoor AP; 2x2:2, BeamFlex+; LTE backhaul, AT&T 120° x 30° sectorized outdoor T310 APs; 802.11ac Wave 2 2x2:2; 120° sector, dual-band concurrent AP; One Ethernet port, PoE input, -400 C, DC input and USB port 	Depending on area and/or location, one to four sectorized APs can be installed.
Option B	<ul style="list-style-type: none"> M510 AP Power adapter Mounting kit 	<ul style="list-style-type: none"> Sectorized T610 outdoor AP; 802.11ac Wave 2, 4x4:4 stream, MU-MIMO; 120° sector Beamflex+ coverage; 2.4GHz and 5GHz concurrent dual-band transmission; dual 10/100/1000 Ethernet ports, PoE in, IP-67 outdoor enclosure, -40 to 65C operating temperature 	Provides coverage in and around the vehicle.
Option C	<ul style="list-style-type: none"> CradlePoint or equivalent router T310/T610 AP (1 to 4) ICX 7150-C08P or C12P switch Mounting kit 	<ul style="list-style-type: none"> ICX 7150-C08P or C12P switch with PoE – (cigarette lighter connection); right-angle DC plug; 2.5 x 5.5 x 10 mm (ID x OD x L) female, positive center Power adapter for RUCKUS M510 APs PoE adapter (10/100/1000 Mbps) for T310, T610 APs Mounting kit with Regency stainless-steel speed rail hanger (2-pack) for T610/T610s and T310 series APs 	If AT&T service is not available, then another vendor's LTE router can be used in combination with the CommScope RUCKUS products. Central management is not available with this configuration.

*Licenses for SmartZone and Cloudpath not included.

Moving forward together

If the current health crisis has emphasized anything, it's our need to connect. As we shelter in place, broadband connectivity is our link to each other; but for students and those working from home, it is much more. Reliable, high-speed internet access can mean the difference between success and failure. CommScope envisions a connected future for everyone, regardless of where they live. Now more than ever, we're dedicated to creating technology that equalizes and enables. We invite you to join us.

Contact your CommScope reseller/partner today and explore what we can do to help you navigate the available technology to provide simple, reliable, and adaptable wired and wireless solutions for now and the future.

Ready to get onboard with CommScope?

- Get more resources on how schools can navigate [COVID-19](#)
- Find out more details about the [M510 mobile access point](#)
- Check out the latest [Blog](#) about the benefits of a connected school bus



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