

## Issue Brief

# Bridging the Digital Divide for Rural K-12 Schools

High-speed Internet is critical in education, but rural districts are struggling to gain access. New satellite broadband capabilities can bridge this digital education divide.

### Broadband or Bust

From interactive whiteboards to online assessments, streaming lectures and flipped classrooms, high-speed connectivity is revolutionizing education. When teachers infuse technology into their lessons, the result is highly engaged and motivated learners who are better prepared for college and careers.

Reliable high-speed Internet has become a must-have for school districts and a critical resource to ensure all students are able to compete in the 21<sup>st</sup>-century global workforce. As education institutions increasingly rely on digital content to comply with standards such as Common Core, access to high-speed broadband will only increase in importance.

### Crippling Lack of Connectivity

While education institutions need a strong infrastructure so all students have access to high-speed Internet – both inside and outside the classroom – the reality is that many schools lack high-speed broadband access.

Addressing this problem has been a goal of the Obama Administration. In June 2013, the president announced the ConnectED initiative, a program designed to provide next-generation broadband and high-speed wireless connectivity to transform classrooms for 99 percent of U.S. students by 2017.

However, while many schools struggle to obtain high-speed broadband, the lack of access in rural schools is particularly alarming and it's creating a digital divide. According to the Federal Communications Commission (FCC), half of all schools and libraries that apply for support from the federal E-rate funding program have Internet connections slower than the average U.S. home.<sup>1</sup> Recent research shows rural schools and communities have even more significant insufficiencies in broadband coverage when compared with non-rural communities. For example, the Consortium for School Networking's (CoSN) 2014 E-rate and Infrastructure Survey found rural districts pay more for

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connections than urban and suburban districts, have slower internal data connections and are much less likely to have WiFi that meets existing technical standards.<sup>2</sup>

While all schools may struggle to afford high-speed Internet access, rural schools often lack adequate terrestrial infrastructure, whether by fiber optic lines, DSL or cable.

A 2014 report released by the Alliance for Excellent Education and the Leading Education by Advancing Digital (LEAD) Commission, *Schools and Broadband Speeds: An Analysis of Gaps in Access to High-Speed Internet for African American, Latino, Low-Income and Rural Students*, revealed that 35.5 percent of rural students attend public schools with Internet speeds of 10Mbps or less, per 1,000 students or less. This is *10 times below* the State Educational Technology Directors Association's (SETDA) recommendation of 100Mbps per 1,000 students.<sup>3</sup>

To put this number in perspective, consider this: On average, it takes a minimum of 3Mbps to stream a standard-definition movie on Netflix on one computer doing only that single function. Streaming an HD version movie on Netflix requires at least 10 to 15Mbps.<sup>4</sup>

The report also noted:

- Students in rural America are more than twice as likely to have slow Internet access at 1/10<sup>th</sup> the speed of their urban/suburban counterparts.
- 1.1 million rural students either lack access to high-speed Internet or are over-represented among students with slow Internet access.
- Only 17.9 percent of students in remote rural schools have access to Internet speeds of 100Mbps or more.<sup>5</sup>

This troubling lack of connectivity has the potential to create a significant digital divide for students in rural communities and puts them in danger of falling behind their more connected urban peers.

## Enter Satellite Broadband: A Solution for Rural Districts

Satellite broadband offers an affordable solution to bridge this digital divide. Satellite broadband is fast, reliable and secure, providing speeds up to 15Mbps with rapidly installed small satellite antennas. It is available virtually everywhere in the country, including rural and remote areas with limited or no terrestrial broadband infrastructure.

For example, robust broadband allows teachers to access open education resources and students to connect to online courses, video lessons and even to virtual schools for access to subjects that may not be available in their communities.

The FCC's recent modernization of the E-rate program is expected to provide necessary funding to help rural schools obtain 21<sup>st</sup>-century broadband connectivity, ensuring funding is spent wisely and guaranteeing greater access to help close that digital gap.<sup>6</sup>

Some rural schools are already seeing the benefits of a satellite broadband connection. Yaak School District, in north-western Montana, is a 100-year-old district with one classroom for its nine students in grades K-8. There is one main teacher, a full-time aid and a part-time clerk. Close to 90 percent of the students are from low-income families. Graduates have to travel nearly 50 miles to the nearest high school.

However, the tiny district has made significant strides since it first gained reliable satellite Internet access in 2007. While WiFi is limited to the teacher and library laptops, the district

was able to use E-rate funding to upgrade its service with new higher speed satellite broadband this August. The new equipment slashed the district's Internet bill by 20 percent and *tripled* Internet speeds. Now, multiple students can work online simultaneously on the district's hardwired computers and struggling readers can use cloud-based educational software to get back up to grade level.

"When I learned about the new satellite program, I was ecstatic," says Diane Downey, the Yaak School District's school clerk. She hopes to use E-rate funding to purchase and install a second satellite terminal so the district can be ready to take the federally mandated online assessments. "For us to do online testing and meet Common Core requirements, we need more speed," she explains.

The students at Yaak School District are just one of many possible success stories from rural schools using satellite broadband to gain access to high-speed Internet.

Bringing broadband access to rural communities and schools throughout the U.S. is truly an investment in the future of U.S. students, the nation's economy and our global competitiveness. Nothing can be more important.

## Resources

- **Fact Sheet:** Update of E-Rate for Broadband in Schools and Libraries: [www.fcc.gov/document/fact-sheet-update-e-rate-broadband-schools-and-libraries](http://www.fcc.gov/document/fact-sheet-update-e-rate-broadband-schools-and-libraries)
- **FCC's Connect America Fund:** [www.fcc.gov/encyclopedia/connecting-america](http://www.fcc.gov/encyclopedia/connecting-america)
- **Connect2Compete:** EveryoneOn.org: <http://everyoneon.org/about/c2c/>
- **ConnectED:** [www.whitehouse.gov/issues/education/k-12/connected#resources](http://www.whitehouse.gov/issues/education/k-12/connected#resources)

## Endnotes

1. Fact Sheet, Update of E-Rate For Broadband In Schools And Libraries, July 19, 2013, [www.fcc.gov/document/fact-sheet-update-e-rate-broadband-schools-and-libraries](http://www.fcc.gov/document/fact-sheet-update-e-rate-broadband-schools-and-libraries)
2. "CoSN Survey, Only 9 Percent of Districts Have Adequate Bandwidth," THE Journal, Oct. 20, 2014, <http://thejournal.com/articles/2014/10/20/cosn-survey-9-percent-of-districts-have-adequate-bandwidth.aspx>
3. Horrigan, John B., "Schools And Broadband Speeds: An Analysis of Gaps in Access to High-Speed Internet for African American, Latino, Low-Income, and Rural Students," October 2014, <http://99in5.org/wp-content/uploads/2014/10/Schools-and-Broadband-Speeds-Final.pdf>
4. "How Fast is Fast Enough? Bandwidth Requirements," [www.apartmenttherapy.com/how-much-speed-do-we-really-need-144023](http://www.apartmenttherapy.com/how-much-speed-do-we-really-need-144023)
5. Horrigan, John B., "Schools And Broadband Speeds: An Analysis of Gaps in Access to High-Speed Internet for African American, Latino, Low-Income, and Rural Students," October 2014, <http://99in5.org/wp-content/uploads/2014/10/Schools-and-Broadband-Speeds-Final.pdf>
6. FCC Modernizing E-Rate, [www.fcc.gov/e-rate-update](http://www.fcc.gov/e-rate-update)

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