Connecting America's Students: Opportunities for Action

An analysis of E-rate broadband spending offers key insights for expanding educational opportunity

In June 2013, President Obama announced ConnectED, an initiative to connect 99% of America's K – 12 students to high-speed broadband in five years. He called for a gigabit to every school and Wi-Fi to every classroom. He also joined a bi-partisan group of policy makers, business leaders, and education advocates to urge the Federal Communications Commission (FCC) to modernize E-rate, America's largest program for connecting schools and libraries to high-speed broadband.

ConnectED Connectivity Standards

Current Goals

- Internet Access: 100 kbps per student
- Wide Area Network (WAN): 1 Gbps connection per school
- Local Area Network (LAN): 1 Gbps inside each school
- Wireless Network: High-speed Wi-Fi capable of supporting 1:1 learning.

Five-Year Goals

- Internet Access: 1 Mbps per student
- WAN: 1 Gbps connection per school
- LAN: 1 Gbps inside each school
- Wireless Network: High-speed Wi-Fi capable of supporting 1:1 learning.

The FCC is now undergoing a data-driven process to update the E-rate program. To provide the FCC with the information it needs to make effective modernization decisions, EducationSuperHighway conducted the most comprehensive analysis of E-rate spending ever performed. Over an eight month period, EducationSuperHighway collected, coded, and analyzed over $350 million in 2013 E-rate funding requests from 1,044 school districts in 45 states representing over 11,000 schools and 6 million students.[1] This unprecedented analysis provides key insights into the state of America's K-12 broadband infrastructure, the major issues preventing schools from meeting the current and five-year ConnectED goals (*see sidebar for connectivity standards*)[2], and policy changes that can enable the E-rate program to upgrade America's schools to the ConnectED standards and expand educational opportunity for all students.[3]

[1] Data was gathered from Form 471 Item 21 attachment information submitted by school districts as a part of the 2013 - 14 E-rate application process.

[2] In February 2014 the FCC announced that there would be insufficient funds to fully support any requests for internal connections from Funding Year 2013 due to the growing demand for E-rate "Priority 1" services, which include telecommunications and Internet access. As a result, in order to best reflect how E-rate funds are being spent today, EducationSuperHighway's analysis focused on Priority 1 services, which do not include LAN and Wi-Fi despite the fact that internal connections are vital to ensuring adequate connectivity for digital learning.

[3] Libraries are important beneficiaries of the E-rate program and provide critical educational resources and facilities in many communities. While EducationSuperHighway's analysis focuses on schools, the insights from our analysis are also applicable to the FCC's goal of upgrading the broadband in America's public libraries.

Insight 1: We face an urgent challenge to ensure that our students do not fall further behind.

- 40 million students do not have adequate access to high-speed broadband.
  - America's wealthiest districts are twice as likely to be meeting the current ConnectED goals while our most financially challenged schools are 30% less likely to be meeting the current goals.
  - Rural schools are more than twice as likely to be without access to high-speed fiber networks.
- The rate of change is not fast enough to meet the president's goals.
  - At our current pace of upgrades, it will take 7 years just to meet today's goals.
  - By that time, our schools will need 10 times more bandwidth.

Insight 2: Schools are not meeting the ConnectED goals because high-speed broadband is not affordable.

- Schools that are meeting the current ConnectED goals buy at lower prices and have bigger budgets
  - Schools that are meeting the goals pay on average 1/3 the price for broadband vs. those that are not meeting the goals.
  - Schools that are meeting the current ConnectED goals also have Internet access budgets that are on average 450% larger than those that do not. They invest $7.16 per student from their district budget vs. the $1.59 per student that districts not meeting the goals invest.

Insight 3: Schools that are able to afford high-speed broadband provide an actionable roadmap to enable every school to meet the ConnectED goals.

- **Migrate to fiber:** Districts with fiber connections have approximately nine times more bandwidth and 75% lower cost per Mbps compared to districts without fiber. Without fiber, all but the smallest schools will not have a fast enough connection to meet the five-year ConnectED goals.
- **Purchase at scale:** Buying 500 Mbps, which the average school will need to meet the five-year ConnectED goals, is 73% less expensive ($15/Mpbs) than the 36 Mbps that the average school buys today ($55/Mpbs). At higher speeds, which might be accomplished by aggregating purchases across multiple schools and districts, schools can reduce their costs to as little as $2/Mbps.
- **Take advantage of competition:** Schools with access to competitive options pay 2 - 3 times less for their WAN connections compared to schools that are only served by incumbent telephone and cable companies. Increasing competitive options can also dramatically reduce Internet access costs.
- **Take local initiative:** Regardless of where they are located, schools that have the option to take the initiative to lease fiber, self-provision a fiber network, or access an existing city network, pay the lowest prices for high-speed broadband.

Insight 4: 96% of schools could meet today's Internet access and WAN standards[4], if the FCC focused the E-rate program on broadband, but meeting the five-year ConnectED goals will likely require a combination of lower prices and more resources.

- Re-investing the $1.1 billion per year of E-rate funds that are spent on non-broadband services (telephony, mobile, web hosting, and email) would provide enough funding to enable 96% of schools to have a gigabit WAN connection and 100 kbps/student of Internet access.
- However, without improving the affordability of broadband, the $1.1 billion per year increase in support for broadband will still leave 80% of schools with too little bandwidth in five years.

Summary: America's Students Need a Smarter E-rate Program

E-rate modernization is the most impactful action available to policymakers to connect America's students to digital learning and equal educational opportunity. The E-rate program has been a hero for America's schools and libraries, but it is no longer meeting their capacity needs – especially for our poorest and most rural students. To meet both the current and five-year ConnectED goals, the data in EducationSuperHighway's analysis shows that E-rate modernization should be holistic and comprehensive in scope, addressing the core issues of access to fiber, affordability, and resources that prevent schools and libraries from obtaining the bandwidth they need.

About EducationSuperHighway

EducationSuperHighway is the leading non-profit focused on upgrading the Internet infrastructure in America's K-12 public schools. We believe that digital learning represents an unprecedented opportunity to provide every student with equal access to educational opportunity and that every school requires high-speed broadband to make that opportunity a reality.

EducationSuperHighway's data-driven programs help accelerate upgrades in America's schools. We work to raise awareness of the school connectivity gap, provide technical and procurement expertise to states and districts, and advocate on behalf of students to influence policy decisions. Our work has helped shape President Obama's ConnectED initiative and served as a catalyst for modernization of the Federal Communications Commission's E-rate program.

[4] Does not include the additional resources necessary to upgrade to the LAN and Wi-Fi standards.