

E-Rate Modernization: A New Paradigm for Connectivity

How It Impacts You



E-Rate Changes Course: Next Stop, Connectivity

Introduction

The United States educational system is in the midst of transformational change due to widespread adoption of technologies such as video, mobile devices, and cloud services. Given their enormous potential to improve educational outcomes, increase access to information and collaboration, and reduce costs, these technologies have become the focus of schools and libraries across the nation that desire expanded options for learning. From rural farm towns to large urban neighborhoods, teachers and students alike have reaped tremendous benefits from this revolution in education. And thanks to the E-Rate program, they have enjoyed equipment and service upgrades they otherwise would never have experienced. But times change and technology advances. As a result, today's educators are now confronted with an exploding demand for bandwidth capable of handling mobile learning, online assessments, the growing numbers of devices in school settings, and digital content.

Why Modernization?

Thomas L. Friedman says, "America is the greatest engine of innovation that has ever existed, and it can't be duplicated anytime soon, because it is the product of a multitude of factors: extreme freedom of thought, an emphasis on independent thinking, a steady immigration of new minds, a risk-taking culture with no stigma attached to trying and failing... that are unrivaled at taking new ideas and turning them into global products." But as America's engine of innovation races forward, it is driving global change. With the growth of worldwide interconnectedness and the demand for technology access we are seeing a massive shift in traditional education. New rich media content, subject

"Today we start the process of rebooting, reinvigorating, and recharging the E-Rate program. It has a proud history and . . . it can have an even brighter future."

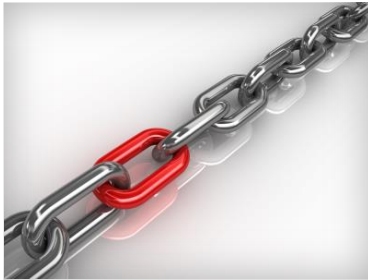
- Jessica Rosenworcel
FCC Commissioner

Statement on FCC Report and Order
Modernizing the E-rate Program for
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July 11, 2014

matter experts, greater access to the internet, an influx of mobile devices, and the appreciation of all of these by students and teachers alike, are breaking the mold of traditional education and forcing schools and libraries to change the way they deliver knowledge.

Preparing America's students with the skills they need to get good jobs and compete with other countries relies increasingly on interactive, personalized learning experiences driven by new technology. Yet fewer than 30% of America's schools feel they have the broadband capacity they truly need. School systems across the country (especially those in rural communities) lack broadband capacity and experience high costs in their efforts to deliver adequate internet access to classrooms. Capacity and cost are consistently the two greatest impediments to expanded connectivity, regardless of community type. In CoSN's 2nd Annual E-Rate and Infrastructure Survey, published in September of 2014, 84% of responding districts indicated that their needs are not currently being met by the E-Rate program. Only 9% of the districts indicated that they have adequate bandwidth to fully meet the demand for online assessments and digital content anticipated over the next 18 months.



Reliability - Excessive downtime, limited competition, and a lack of services create difficult and unpredictable learning environments for students and staff.

- CoSN's 2nd Annual E-rate and Infrastructure Survey

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The survey indicated that slow internal data connections are impacting connectivity in America's schools and libraries. The CoSN survey found that 80% of urban/suburban districts report a connection between data switches and router at 1 Gbps or greater, compared with only 65% of rural districts. And Wi-Fi in rural districts is much less likely to meet current technical standards. Only 25% of rural districts have Wireless Access Points that support the most current standards (802.11n/ac). Even among very large districts only 59% have WAPs that meet the 802.11n/ac standards. So it is clear that despite the tremendous advances brought about by the E-Rate program, work remains to be done. High costs, inadequate funding, lack of capacity and reliability continue to be key challenges for schools and districts working to transform their learning environments.

Modernization's Three Goals

Digital learning in America has largely become a reality thanks to the E-Rate program. Since its inception in 1996 as part of the Universal Service Fund, E-Rate has helped connect more than 100,000 schools and libraries to the Internet. And thanks to the E-Rate Modernization Order, funding for years 2015 and 2016 will target \$2 billion towards on-campus internal connections, improving your school or library's opportunity to expand its broadband capabilities.



Schools and libraries should take a whole network approach to planning their purchase of E-Rate eligible services - that bring connectivity both to the building and to devices.

- FCC Report and Order
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To help schools and libraries across America maximize their investment in broadband the Federal Communications Commission (FCC), through the E-Rate Modernization Order, adopted three goals for the E-Rate program. They are:

- **Affordable Access:** Ensuring affordable access to high-speed broadband sufficient to support digital learning in schools and robust connectivity for all libraries by increasing internet access and speeds, targeting WAN connectivity and improving internal connections.
- **Maximum ROI:** Maximizing the cost-effectiveness of spending for E-Rate supported purchases.
- **Simplified Process:** Making the E-Rate application process and other E-Rate processes fast, simple and efficient.

To reach these goals the Order is increasing focus on the largest and most urgent need — closing the Wi-Fi gap on school premises — while transitioning support away from legacy technologies to 21st Century broadband connectivity. The Order also adopts changes that help make sure E-Rate funds are spent more wisely and that improves the efficiency of the program’s administration.

Through the financial discounts provided by E-Rate, your school or library can now take the next great leap forward in technology. And with changes in E-Rate’s administration and application process, you can do so quicker and with less hassle. In the end, the cost of connectivity for America’s schools and libraries is something we must all share. Thanks to these changes in the E-Rate program, we can now do so in a way that can benefit every school and library in America, regardless of location, size, or finances.

How Modernization Impacts You

The New E-Rate: A Brief Overview

The FCC’s changes to the E-Rate program, as detailed in the document titled [7th Report and Order](#), shift funding priorities towards high-speed connections, including on-campus connectivity, for digital learning. This includes a target of \$1 billion for each of the next 2 years (Funding Year 2015 and 2016) for internal connections, with the intention of continuing that funding into the future.

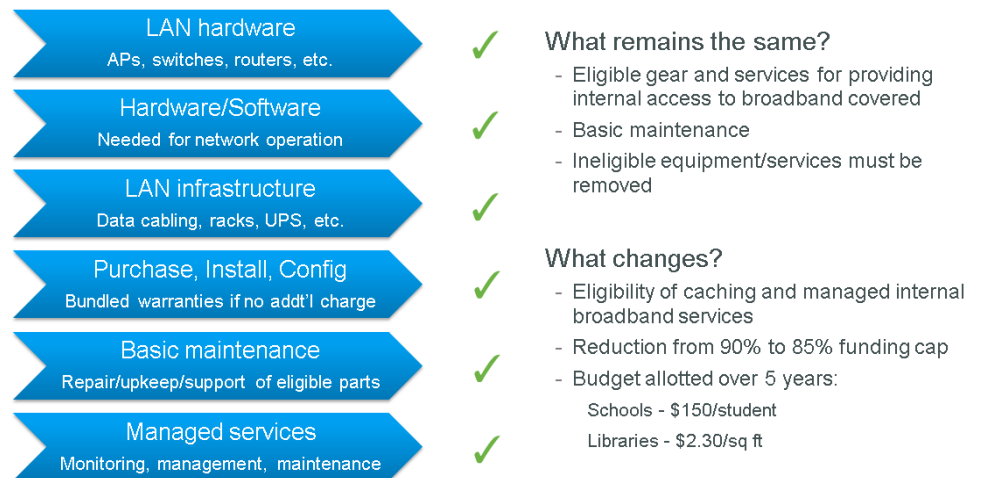
While this white paper provides an overview of E-Rate’s basic changes, please continue to check USAC’s E-Rate Modernization Order [web page](#) for links to additional information, including the final ESL (Eligible Service List).

The major changes due to the E-Rate Modernization program include:

Figure 1. Category One Coverage



Figure 2. Category Two Coverage



- **Change to Category 1 and 2:** The Priority system (P1 and P2) is replaced with two categories to better align with a “whole network” approach to E-Rate. Category 1 (C1) as shown in **Figure 1** above will be Broadband Connectivity to the schools. Category 2 (C2), see **Figure 2** will be Broadband Services within schools and libraries.
- **\$2 Billion in Funding:** There is a target of \$1 billion per year, for the next 2 years as well as budget caps put in place, to help ensure that all applicants, regardless of discount rate, will have the opportunity to apply and receive Category 2 support. If Category 2 demand exceeds available funds, requests will be prioritize based on discount rate.



The FCC is confident that the changes made in the 7th Report and Order will ensure that all eligible Category 1 requests can continue to be funded. For Category 2, the additional funding announced earlier this year will allow the FCC to make \$1B available over each of the next two years. The FCC also set a funding target of \$1B annually for Category 2.

- FCC Report and Order
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- **Category 2 Budgets:** in order to provide broader and more equitable support for Category 2 services, the FCC has adopted budgets for applicants who apply for Category 2 discounts during the next 2 funding years as the FCC continues to evaluate long-term program needs. All Category 2 funding will be subject to a 5-year per-school or per-library budget limitation, capping the amount of Category 2 funding any one applicant can receive.
 - *Schools:* individual school discounts up to total **pre-discount** budget amount of \$150 per student, over 5 years.
 - *Libraries:* individual library discounts up to total **pre-discount** budget amount of \$2.30 per square foot, over 5 years.
 - *Minimum:* minimum pre-discount budget, or floor, for either school or library is \$9,200 (with eligibility to request pre-discount support up to at least \$9,200, over 5 years).
- **Category 2 Discounts:**
 - *Maximum discount:* now 85 percent instead of 90 percent, all other discount levels unchanged.
 - *Rate calculation:* now based on district-wide percentage instead of individual school rates (calculate by dividing total number of students in district eligible for National School Lunch Program (NSLP) by total students in district, then match to discount matrix).
 - *Rural vs. Urban:* now based on U.S. census data (schools and libraries not located in urban areas, as defined by most recent decennial census, now considered rural - and districts with both urban and rural schools qualify for rural discount IF majority classified as rural).
- **Eligible Service List (ESL) Revisions:** According to the [ESL](#), the major changes focus on a multi-year transition of all program funding to broadband, by gradually phasing down support for non-broadband services. For Category 2 (internal connections), services that have been added include Caching and Managed Internal Broadband Services.

Changes to the Application Process

Under the 7th Report and Order, changes have also been made to streamline and modernize the application process for all schools and libraries. The following are key components of that change:

- **Contracts:** Streamlined application process available starting in FY 2016 for multiyear contracts filed in FY 2015 as long as the multi-year contract is five



Simplified and improved processes and procedures will help applicants receive their funding in a timely fashion, which will allow them to plan better and maximize the impact of their support.

Simplification . . . also eases the administrative burden on applicants—which is particularly important for smaller schools and libraries that lack extensive administrative support.

- FCC 7th Report and Order
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years or less, and to the extent applicable, any changes in the requested services are within the scope of the original FCC Form 470 and multi-year contract.

- **Technology Plans:** No longer required.
- **Electronic Filings:** Now required by FY 2017 (including notifications via USAC).
- **Invoicing Deadlines:** Only one 120 day extension, upon request (further extensions under “extraordinary circumstances” only).
- **BEAR Payments:** Reimbursement made directly to applicant, not service provider, effective FY 2016 (approval by service provider no also longer needed).
- **Appeals:** Must first be made to USAC, effective immediately (does not include requests for FCC rule waivers).

Additional Impacts on Libraries

- **Small Libraries:** Small libraries, as well as small schools can also benefit from the changes to E-Rate, which now includes a minimum pre-discount funding floor of \$9,200 per building, over 5 years. The E-Rate Cap for libraries is now \$2.30 per square foot. To determine the library discounts, library systems with branches in multiple public school districts should first use the address of the main administrative office to determine which public school district the library system is in. They can then calculate their discount based on the per-square-foot dollar amount.
- **Waiver Requests:** The FCC encourages library applicants to file waiver requests for the purpose of seeking E-Rate support for direct connections to school high-speed broadband networks. Schools and libraries located in areas that are not urban areas, as defined by the most recent decennial census, will be considered rural for the purposes of the E-Rate program. And any school district or library system with a majority of its sites in a rural area will qualify for the additional rural discount.



Increasing digital needs are driving the demand for broadband and robust education networks - the digital transformation to online assessments, digital content, and individual student devices have exploded access needs for students and staff.

- CoSN's 2nd Annual E-rate and Infrastructure Survey

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How to Develop a Winning Network Strategy

Getting the Most Out of your E-Rate investment

The changes in E-Rate will impact how you approach both your broadband solution and application. Be sure to spend time early on in the process considering your school or library's top priorities. According to CoSN's recently published 2nd Annual E-Rate and Infrastructure Survey most school districts seek increased internet bandwidth due to online assessments, digital content and to provide for the increase in students with devices. Will your school or library's priorities be the same? And if so, what infrastructure will be needed to address them? These and other questions will begin to shape your network strategy. While each school or library has specific and unique needs, we suggest taking the following issues into consideration:

- **High Density Network:** The network needs to support significant density of devices on a per classroom basis. Today with 1:1 and BYOD initiatives most classrooms have 20-30 devices and as many devices as students per school. Your wireless and/or wired network should be capable of supporting significant density of devices.
 - Cisco wireless and wired solutions are successfully deployed in numerous [K12 environments](#) throughout the country in high density environments.
 - [Meraki Cloud-Managed Networking](#) provides a complete and trusted solution for K-12 needs, including 802.11ac Wi-Fi and high performance wired.
- **Device Management:** Mobile devices have become the primary access in school districts. Districts across the country are rolling out thousands of mobile devices at every school. Mobile learning encourages students to use many types of devices and a robust digital learning environment demands multiple devices per student.
- **Systems Management:** Make sure your technology plan has a clear articulation of how devices are procured, provisioned and maintained.
 - [Cisco Meraki Systems Manager](#) is an outstanding tool to consider when rolling out mobile devices in volume.
- **Video:** The availability of mobile devices in classrooms enables blended, flipped and distance learning. Learning is no longer confined to the traditional classroom. It can now take place anywhere, anytime. But it must be reliable

and fast to ensure students can visually connect with each other, teachers, and remote experts without interruption.

- [Cisco Collaboration Solutions](#) including Cisco TelePresence are helping schools and libraries around the country to enable next-generation teaching and learning, improve administrative efficiency, and reduce carbon footprints.
- **WAN Caching:** Curriculum providers are racing to digitize most of the content consumed today in our classrooms. This content is high bandwidth yet common across many classrooms. Caching such content can assist schools to manage and reduce the increasing amount of bandwidth usage between schools inside the district.
 - [Cisco iWAN caching Solution](#) with Akamai Connect enables curriculum and content caching to truly enable seamless content access across thousands of devices in a school.
- **Reliability for supporting your learning outcomes:** With the advent of online assessments and testing the expectation in class is for an always on network. Ensure your digital learning strategy considers a highly reliable and redundant network design to support the mission critical needs of assessments.
 - [Cisco Wireless LAN](#) solutions have built in interference detection and mitigation capabilities to enable uninterrupted wireless network operations.
 - [Cisco Switching/Routing Solutions](#) also offer near non-stop operations for wired traffic, thereby enabling an always on experience.
 - [Meraki Wired and Wireless Solutions](#) have education-centric security, management, and identity-based features built-in, providing intuitive and robust networks.
- **Any time anywhere access:** Digital learning requires students to have access to the network, in the classroom, outdoor at the school and at home. Your technology plan should account for a common access strategy.
 - [Cisco Wi-Fi Solutions](#) offers the industry's best, indoors and out.
 - [Cisco Remote Access Solutions](#) and [Video Solutions](#) with enable students to participate in the class remotely from home.



What's The Next Step?

Now that you've read up on the changes, it's time to take action:

- 1** Take time to assess your current network capabilities and future. Consider developing a broadband strategy to support your education goals and desired outcomes.
- 2** Learn how Cisco's [Connected Learning](#) solutions can assist you in building the network architectures that can handle and evolve with new demands.
- 3** Continue to stay up to date on E-Rate Modernization developments by [subscribing](#) to USAC's weekly E-Rate news brief.

Next Steps

Summary

The modernization of the E-Rate program will help America's schools and libraries expand access to technology that will improve speeds, capabilities and reliability all in an affordable and simplified manner. These changes will help prepare students for the challenges of the next century – ensuring our nation's success in a globally competitive world.

As Cisco has worked with schools and libraries across the nation, we've learned that they must have technologies that:

- **Deliver** media-rich, robust digital learning experiences for students.
- **Prepare** students for a global environment.
- **Level** the playing field for rural students.
- **Improve** professional development to increase skills of teachers.
- **Enable** online learning.
- **Support** collaboration with teachers across districts, states, and nations.

The solution to these needs is simple: connectivity. And thanks to the modernization of the E-Rate program your school district or library can now benefit from the implementation of your own broadband solution. By using the latest technology born from America's engine of innovation you can now better prepare your students to compete in the global economy of the 21st century.

Cisco's Value Proposition for Education

Cisco's true value is not in what we make, it's in what we make possible. For education leaders who seek innovative approaches to transforming education, [Cisco's Connected Learning Experience](#) is the platform on which educational innovations are built. We offer a broad portfolio of network-centric options through Connected Learning including:

- Switching
- Mobility and Services
- Rich and Pervasive Video
- Immersive Collaboration
- Unified and Guaranteed Data Center/Virtualization/Cloud

And these are all technologies that can help your school district or library:

- Connect and Engage Students/Patrons

- Improve Teaching and Learning
- Increase Administration and Management Efficiency
- Enhance Safety and Security
- Expand Research Capabilities

At Cisco we have strong experience in and a commitment to education focused networked innovation. Combined with the breadth and depth of our intelligent networks it is what allows Cisco to meet our customers' most pressing education imperatives — improving student outcomes and providing them with the skills and knowledge needed to succeed in the global economy.

For More Information

To learn more about E-Rate and the recent changes, please visit:

[USAC E-Rate Modernization Order Web Page.](#)



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