

**REMARKS OF
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Good morning. Thank you, Sheryl Abshire, for your kind introduction. Thank you also to the Consortium for School Networking, the International Society for Technology in Education, the Software & Information Industry Association, and the State Education Technology Directors Association for sponsoring this event. So many interesting and active organizations. That you come together for this event is a testament to the power of education and technology to come together and do really great things. As individuals, too, so many of you here dedicate your time, your energy, and your careers to improving educational opportunities for students across the country. You have my respect. You have my admiration. And today I want to challenge you to work with the Federal Communications Commission and reboot, reinvigorate, and recharge the nation's largest education technology program—the E-Rate. I want to talk about the E-Rate of the future, what I call E-Rate 2.0.

But before going forward, I want to look back. Way back. I want to start by talking about the dark ages, or just a few decades ago—when I went to school.

There was, of course, the blackboard. This was our common medium, our shared platform for knowledge. Introducing new ideas involved no graphics, gameification, or video. Just the swipe of an eraser and some dusty chalk.

There was also the mimeograph or ditto machine. Tests and math sets were printed out in blotchy purple ink. That ink had a smell that even today I would recognize in an instant.

There was also the great heft of biology textbooks and the stubby guides covering grammar. They weighed down your backpack and cluttered your locker.

Fast forward to the here and now. In school, my children are not going to know the fine art of clapping together erasers. That purple ink has been replaced by the infinite capacity of digital distribution. Texts are being remade and rethought as tablets change the ways we access information.

In my time at the Federal Communications Commission, I have had an opportunity to see this transformation first hand. In places as far-flung as cool Alaska and sunny Florida, I have witnessed just what the combination of education and technology can do in the hands of creative school administrators and inspiring teachers.

By Kotzebue, Alaska, at a rural school in a village 30 miles north of the Arctic Circle, I watched teachers and students working together with online learning tools to create personalized lesson plans in mixed-grade classrooms. With video conferencing, they were able to reach students in innovative ways in a district the size of the state of Indiana. Superintendent Norman

Eck described how connectivity meant that his really rural students, isolated by uncompromising geography, nonetheless had the ability to connect to learning opportunities worldwide.

At an urban high school in Miami, Florida, I saw a vision of the future that is fast approaching. I was led through iPrep Academy by Superintendent Alberto Carvalho, Dr. Sylvia Diaz, Dr. Anthony Machado and others. What I saw was amazing. Students have fully traded in chalkboards and textbooks for video screens and laptops. In a program that blends online learning with in-person instruction, students and teachers clustered together to discuss history and work on the Pythagorean theorem using interactive digital content. I left with the powerful notion that going forward learning will never be the same.

Though these two communities could not be more different, they had one thing in common. They were uniform in their praise for the power of E-Rate to bring basic connectivity to their schools and libraries. They believe it is absolutely essential for digital age opportunity—and digital age success.

I agree. I have had the opportunity to work on this program for some time: in my current capacity as Commissioner, back when I had the privilege to serve as counsel to the Senate Commerce Committee under the leadership of Chairman Jay Rockefeller, and even back before that when I worked on the agency staff and in private practice. So I am versed in the E-Rate program—and I am committed to building on its record of success.

Let's talk for a moment about that record. Following passage of the Telecommunications Act of 1996, only 14 percent of public schools were connected to the Internet. Today, more than 95 percent of classrooms are connected.

Impressive! But laurels are not good resting places. Because great programs do not thrive without continuous reassessment and support. Already, year-in and year-out, the demand for E-Rate support is double the \$2.3 billion the Commission now makes available annually. Moreover, the agency's own survey indicates that 80 percent of schools and libraries believe that their broadband connections do not meet their current needs.

Let's be honest. Those needs are only going to grow. School administrators are facing tough choices about limited bandwidth in the classroom. How to divvy it up, what grades and classrooms get it, and what programs they can run on it. Furthermore, nearly every state has adopted the Common Core educational standards. A key part of adopting these standards is conducting an online assessment of students. These online assessments are going to take bandwidth—lots of it.

This means that without adequate capacity our students are going to fall short. They will be unable to realize the full potential of digital learning. That's a serious problem.

But this is not just a matter of getting schools and libraries connected; it's a matter of our global competitiveness. Welcome to the world that is flat. Knowledge, jobs, and capital are going to migrate to places where workers have digital age skills, especially those in science, technology, engineering, and math—or STEM fields. In fact, the Bureau of Labor Statistics tells

us that here at home over the next five years we will have over 1 million STEM-related job openings. STEM jobs are growing at a rate three times faster than other occupations. And even opportunities outside of STEM will be increasingly digitized, and students will need technology skills to become competitive in the worldwide workforce.

But we fail our students if we expect digital age learning to take place at near dial-up speeds. A recent Harris survey found that roughly half of E-Rate schools access the Internet at speeds of 3 Megabits or less. That is too slow for streaming high-definition video and not fast enough for the most innovative teaching tools. Add to this that in the United States, out of 42,000 high schools, only 2100—five percent—offer computer science courses.

Contrast this with efforts underway in some of our world neighbors. They are pouring resources into these subjects, into schools, and connectivity. For instance, in South Korea, 100 percent of schools are connected to broadband. With so much capacity, an effort is underway to transition all students from traditional textbooks to digital readers. In Uruguay, through a national program, nearly all primary and secondary schools have been connected and every primary school student has access to a free laptop. Uruguay also has revamped its secondary school science and math curricula adding robotics and national math competitions.

We can all recognize that these two countries are smaller than the United States. They have different cultures. They have different education systems. But we can still take from these examples that improving broadband capacity to schools for digital age learning must be a national priority. If we fracture this effort and leave it to every local school jurisdiction we miss opportunities for scale and savings. Yet in the end the point is a simple one. Access to adequate broadband capacity in our schools and libraries is not a luxury—it is a necessity for our next generation to be able to compete. Just like in my day you wouldn't have a classroom without a blackboard, today we shouldn't have a classroom without broadband.

So we have a choice. We can wait and see where the status quo takes us and let other nations lead the way. Or we can choose a future where all American students have the opportunity to gain the skills they need to compete, no matter who they are, where they live, or where they go to school.

For my part, I believe that it is time to compete. It is time for E-Rate 2.0. We need to protect what we have already done, build on it, and put this program on a course to provide higher speeds and greater opportunities in the days ahead. Here's how.

First, E-Rate 2.0 means more funding. The current program size was last set in 1998. That was when .03 percent of American households had Internet access at any speed above dial-up. That was when gas was just over a dollar a gallon. It was a long time ago.

To develop more funding opportunity, I think the Commission first needs some housekeeping of its own. The E-Rate program is one of four universal service programs. These programs support infrastructure for rural and high-cost areas of the country, broadband for healthcare institutions, and telephone service for low-income households. The low-income program, called the Lifeline program, is an important part of keeping everyone in this country

connected. After all, having access to telephone service is essential for calling emergency services, being able to secure a job, take care of loved ones, and manage routine interactions with government and with healthcare providers. But for this program to continue to work, we need to do more to ensure that it is free of waste, fraud, and abuse. Over the last five years, it multiplied in size. To the credit of my colleagues, they took action. Their reform efforts have already saved more than \$200 million in 2012 and are on track to save as much as \$400 million in 2013. But we can double down and do more auditing. And we should. This is a program that needs more mending, but not ending. Mending it will generate savings and these savings can be put into the E-Rate program. More funding will mean more opportunity for E-Rate.

Second, E-Rate 2.0 means clear capacity goals. The fact we have connected so many schools and libraries with E-Rate is good. But the job is not done. Because we are fast moving from a world where what matters is connection to a world where what matters is capacity.

If you are a school and you want to run the most up-to-date educational materials, you need capacity. But a recent survey from Project Tomorrow found that only 15 percent of schools believe they have the bandwidth they need for instructional purposes. The same story is playing out at our libraries, where the bandwidth available dictates how many people can use facilities to access new media, look up information, and apply for jobs.

So, again, it is time for capacity goals. Here's what I propose. By the 2015 school year, every school should have access to 100 Megabits per 1000 students. Before the end of the decade, every school should have access to 1 Gigabit per 1000 students. Libraries, too, will need access on par with these capacity goals. I think Gigabit to anchor institutions like schools and libraries is the ticket to Gigabit cities, and the ticket to digital education and economic growth.

But to reach these capacity goals we also need more data collection. That is why I propose that we update our E-Rate forms. Going forward, every E-Rate application should collect information from applicants about their existing capacity and projected needs. Armed with clear data about what schools and libraries are using, we can track our progress. We can better understand what is needed and where. That way we can steer this program more effectively toward the capacity goals we establish.

Third, E-Rate 2.0 means we need new and creative public-private partnerships. Because increasing capacity alone is not enough to make digital learning a reality.

Students and teachers need access to content and devices. So let's look to the private sector and challenge technology companies to invest in the future of America's workforce by investing in the creation of cost-effective technologies, educational applications, and devices. Our capacity goals will yield greater scale for new services and teaching tools everywhere. We can use them to facilitate partnership opportunities that will bring education-enhancing technology to classrooms in communities across the country.

Fourth, E-Rate 2.0 means a simpler process for applicants. We need to take a fresh look at how the complexity of our existing E-Rate system can deter small and rural schools from applying. I want to see us consider multi-year applications. This will reduce paperwork and

administrative expense. I also want to see the Commission encourage greater use of consortia applications. They can mean greater scale and more cost-effective purchasing.

Last but not least, call this the addendum or the caboose to the discussion of E-Rate 2.0. We cannot forget that in a world where students must increasingly rely on online resources and digital content in the classroom, they also need access to broadband when they go home. Nearly one in three Americans do not subscribe to broadband services at any speed—citing lack of affordability, lack of relevance, or lack of interest.

The good news is that studies show that access to broadband in classrooms can encourage broadband adoption at home, as students demonstrate why it is compelling to their families. In Portugal, for instance, households with students in schools with high-speed access were 20 percent more likely to adopt broadband at home. That is a tremendous spillover effect. Plus, by bringing high-speed broadband to our anchor institutions like schools it becomes incrementally less expensive to provide service to nearby homes and businesses.

But the not so good news is that when it comes to access outside of school hours we still have work to do. After all, for families that cannot afford broadband services, adopting broadband at home may not be an option. While there is increasing Internet access from smartphones in low-income homes, researching a paper or applying for scholarships may not be realistic on a small, pocket-sized device.

A few months ago, *The Wall Street Journal* published a sobering article about students without web access at home studying at fast food restaurants—because they have Wi-Fi. It described parents in cars in parking lots with their children sitting in the back seat doing their homework—just to get the wireless signal they need to complete basic school assignments. This is a hard problem. It highlights the importance of libraries. It also suggests the power of the Commission's E-Rate School Spots program, which simply allows the school doors to stay open after classroom hours for community broadband access. The School Spots program has been in place for nearly three years now. So I think we need to study its impact and see how it can help close this digital learning gap.

So those are my ideas. We need a modern conversation about E-Rate funding, capacity goals, public-private partnerships, simplifying the application process and studying the need for access outside of school hours. I welcome your ideas. E-Rate has already done so much good—and there is opportunity to do so much more. It can become the platform for expanding digital age learning, growing opportunity, and preparing a 21st century workforce to compete. So we need to seize it. We need to reboot, reinvigorate, and recharge the E-Rate program. Now is the time for doing it. Now is the time for E-Rate 2.0. And I want to challenge everyone in this room to identify how you can help, and how we can do this together.

Thank you.