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Transforming education digitally

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Across the country, the school year is drawing to a close. Students are taking tests and packing up their backpacks. They are counting down, as they always do, to the last day of class. Though no comparable countdown exists, what is also drawing to a close is the analog era of education.

Digital-age broadband and cloud computing are not only revolutionizing our economy, they are transforming education as we know it. In time, traditional classroom teaching tools like blackboards and books are bound to be delivered through high-speed bandwidth. This means students learning about cell technology through a digital rendering in an interactive book. It means using gaming to explore math concepts like the Pythagorean theorem. It means developing videos to experience historical events.

If all this sounds gee-whiz and futuristic, consider that these changes have already taken place in so much of our lives. The smartphones in our pockets, growing ubiquity of tablets and arrival of big data have brought us always-on connectivity and endless access to information. They have revolutionized the way we communicate, connect and create at home and at work. It's time for a similar upgrade in the classroom.

Of course, new technologies are already filtering into our schools. But to have really successful digital classrooms, we need bandwidth — and lots of it.

Yet today, too many of our schools access the Internet at speeds of 3 megabits or less. This is too slow for high definition video and not fast enough for the most innovative teaching tools. In fact, a recent survey from Project Tomorrow found that only 15 percent of schools believe that they have the bandwidth they need for instructional purposes. In the United States, out of 42,000 high schools only 2,100 — 5 percent — offer computer science courses. Meantime, our world counterparts are pouring resources into these subjects, into schools and into connectivity.

The good news is that we can do something about it. Even better, we can do something about it by updating an existing program at the Federal Communications Commission called the E-Rate.

E-Rate is the nation's largest education technology program. It was put in place following the Telecommunications Act of 1996. In the years since, it has been churning along as a quietly reliable place for schools and libraries across the country to turn to for support for communications services and basic Internet access. But it's time to update the program for the challenges of the digital age. We should reboot, reinvigorate and recharge the E-Rate program. Call it E-Rate 2.0.

E-Rate 2.0 needs to have clear capacity goals. The fact that the program has already

been successful connecting so many schools and libraries is good. But the job is not done. We are moving rapidly toward a world where what matters is capacity, not just access. So let's reshape the program to meet that need. By the end of the 2015 school year, every school should have access to broadband at 100 megabits per 1,000 students. Then let's dream big and chart our course. By the end of the decade, every school should have access to 1 gigabit per 1,000 students. Libraries, too, will need access on par with these capacity goals.

By using the E-Rate program to uniformly increase bandwidth, we can avoid fracturing this bandwidth update through every local school jurisdiction. This will yield greater opportunities for consortia and purchasing savings. Moreover, it will bring scale that will help develop a market for exciting new digital age education materials and teaching tools.

We should do this now because in the world we live in broadband capacity is not a luxury. It is a necessity for our next generation to compete.

So before that final bell rings at the end of the school year, let's get to work on E-Rate 2.0. Then, a year hence, as students return to school, fill the hallways and take seats in the classroom, we can put our students on course to have the skills to succeed in a world that is built on bandwidth and growing more digital every day.

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