BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Modernizing the E-rate Program	)	WC Docket No. 13-184
for Schools and Libraries	)	

REPLY COMMENTS BY CONNECTED NATION, INC.

Connected Nation, Inc., a leading technology not-for-profit corporation devoted to increasing broadband deployment, adoption, and utilization, strongly supports the Commission's initiative to modernize the E-rate program. In its Comments in this docket, Connected Nation offered three central recommendations: (1) the E-rate program should prioritize funding for high-speed broadband to schools and libraries, as well as funding for off-campus wireless connectivity for school-supplied electronic learning devices; (2) the E-rate program should incentivize E-rate applications that are a result of a community-wide technology planning process; and (3) the Commission and USAC should collect and release granular data on the E-rate program, including funding commitments by institution and service, as well as level of services supported by the program. These data should be released through comprehensive databases and user-friendly data visualization tools, encouraging transparency of the program and a more efficient use of limited resources.[1]

In these Reply Comments, Connected Nation discusses in further detail the essential nature of off-campus connectivity for school-issued devices as part of the Commission's modernization of the E-rate program. Connected student devices are a vital component of the

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[1] Connected Nation, Inc. Comments, WC Docket No. 13-184 (filed Sept. 16, 2013).

successful transition of the traditional classroom to modern education and pedagogy. Learning is no longer confined to the school day. The need for student device connectivity does not stop at 2:45 p.m., nor does it stop the moment the student leaves school and crosses the street. Connected Nation further addresses the challenges of achieving full data transparency for the program.

I.   ANYTIME, ANYWHERE STUDENT DEVICE CONNECTIVITY IS ESSENTIAL TO FULLY HARNESS THE POWER OF TECHNOLOGY IN EDUCATION

Broadband and mobile technologies are poised to transform the way students learn and teachers provide instruction. Robust broadband connectivity paired with modern technology devices and twenty-first century pedagogy has the potential to dramatically transform education in America.

School districts across the country have already determined ubiquitous mobile broadband to be an essential component of modern education, embracing the twenty-first century needs of anytime, anywhere learning. As the President's ConnectED initiative recognizes, simply placing technology within the classroom is insufficient; educators must be equipped to use technology to enhance the educational process, and students must have the access necessary to fully leverage the opportunity.

More and more, textbook publishers and content providers are transitioning textbooks and course curricula to the cloud.[2] Today's educators are increasingly reliant on digital content

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[2] Digital Textbook Collaborative, *Digital Textbook Playbook* (Feb. 1, 2012) at 24, *available at* http://transition.fcc.gov/files/Digital_Textbook_Playbook.pdf.

and cloud-based services for instructional materials, storage, student data systems, social learning, and communications systems. As schools migrate from textbooks to tablets and from print materials to digital formats, electronic devices need consistent Internet connectivity both within and beyond school grounds in order to maximize their educational effectiveness.

The conversion to digital learning is complex and requires collaboration and leadership among teachers, software and educational content developers, mobile device manufacturers, broadband providers, policymakers, and other disparate entities and individuals traditionally not accustomed to working together. Under their leadership, pilot programs have been designed and launched across the nation to test and refine innovative models that effectively utilize technology to create better learning experiences, environments, and outcomes. Although the conversion is complex, it is inevitable – and the Commission has the opportunity in this proceeding to enable E-rate either to facilitate and advance the conversion, or to complicate and delay it.

While details vary across projects, most 1-to-1 student device models highlight two distinct components as keys to success: (1) teacher training on the effective use of devices to enhance – and not detract from - the learning experience; and (2) mobile connectivity to the student devices to ensure that educational content is available to **all** students, regardless of whether they have 24/7 broadband access at home. A number of projects have already highlighted the need for effective student device programs to meet both of these keys to success.

Through its newest initiative, Edified, Connected Nation recently administered a pilot in collaboration with AT&T, Samsung, Kno, and Edmodo, to test an innovative K-12 mobile learning platform. The 11-week trial launched a shared and 1-to-1 learning model that combined Samsung tablet devices, AT&T 4G connectivity, and educational content in hopes of making

"anywhere education" easier than ever. According to the pilot's results, a mobile approach overall enriches the learning experience.[3]

Project K-Nect, developed by Digital Millennial Consulting and funded in part through Qualcomm's Wireless Reach initiative, was designed to increase student achievement in math and close the digital divide for students in Onslow County Schools in North Carolina. Participating high school students were originally supplied with smartphones connected 24/7 to wireless Internet access for use at school or beyond.[4] Smartphones were later replaced with tablets equipped with 3G/4G connectivity.[5] The program's reports demonstrated that, at a time when school administrators and teachers are increasingly concerned with digital equity issues, the tablets equipped with 3G/4G connectivity provided unprecedented anytime, anywhere Internet access.[6]

The Central Unified School District in Fresno, California announced in September 2013 that it will be providing nearly 15,000 students with tablets equipped with 3G/4G mobile connectivity provided by AT&T.[7] The program seeks to deliver individualized learning experiences and encourage student engagement through anytime, anywhere connectivity to expand education beyond the confines of the classroom, allowing access to content both in school and at home.

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[3] Press Release, AT&T, Connected Nation Pilots New Mobile Learning Model with AT&T, Edmodo, Kno, and Samsung (June 24, 2013), *available at* http://www.att.com/gen/press-room?pid=24443&cdvn=news&newsarticleid=36661&mapcode=mk-transforming-education.

[4] Project Tomorrow, *Students leverage the power of mobile devices through the Project K-Nect Mobile Learning Initiative in Onslow County* (July, 2010), http://www.tomorrow.org/docs/Project_K-Nect_EvaluationReport_Final_Jul7.pdf.

[5] Project Tomorrow, *The Project K-Nect Mobile Learning Initiative Creates Personalized Learning Environments for Math Students in Onslow County School System* (Apr., 2012), http://www.tomorrow.org/docs/PKN%20Report%202012.pdf.

[6] *Id*. at 7.

[7] AT&T, *Central Unified School District in Fresno Delivers Mobile Learning with AT&T* (Sept. 25, 2013), *available at* http://www.cbs8.com/story/23525045/central-unified-school-district-in-fresno-delivers-mobile-learning-with-att.

In 2012, Shawnee Heights High School in Tecumseh, Kansas was approved to provide the freshman class with WiFi-enabled iPads on a 1-to-1 basis for in-class use. Students could also take the tablets home for after school learning. The program has been considered a success with the extensive training of faculty and staff; however, teachers were unable to utilize the full capabilities of the tablets due to lack of at home broadband access for a portion of the student population. Out of sensitivity to this digital gap, teachers limit the assignment of homework relying on cloud content in order to ensure all students are on the same footing. The program is continuing on to its second year of rollout with incoming freshmen again receiving iPads, and sophomores retaining their devices from the previous year, in 2013.[8]

The Commission has also contributed to the education transformation through a pilot with 24/7 connectivity as a core component of the twenty-first century learning experience. Recognizing the integration of mobility into modern education, the Commission launched the E-rate Deployed Ubiquitously wireless pilot program (often referred to as "Learning On-the-Go") in 2010, offering funding to schools "to investigate the merits and challenges of wireless off-premises connectivity services for mobile learning devices" in order to enhance access to digital textbooks and other mobile learning opportunities.[9]

Interim reports from the Learning On-the-Go program demonstrate the educational opportunities provided through true 24/7 student connectivity.[10] Thanks to the mobile devices

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[8] Notice of Ex Parte of James Bachtell, WC Docket No. 13-184, at 2 (filed Sept. 30, 2013), *available at* http://apps.fcc.gov/ecfs/document/view?id=7520946579.

[9] *See* E-rate Deployed Ubiquitously 2011 Pilot Program, Order, WC Docket No. 10-222, DA 11-1181 (July 11, 2011) at 2, *available at* http://www.fundsforlearning.com/docs/2011/07/DA-11-1181A1.pdf.

[10] *See* "Summary of Interim Reports Submitted by EDU 2011 Pilot Program Schools and Libraries" in WC Docket No. 10-222, (filed by San Diego County Office of Education on Apr. 20, 2012), *available at* http://apps.fcc.gov/ecfs/document/view;jsessionid=Cj77PR8RT28G7xXC4PylN9tmhNtyH9ltgBtmrLJcmFDttGl2GdnR!-1969853125!NONE?id=7021912339

and off-campus wireless access, the learning experience was no longer restricted to certain locations or times, such as sessions in the schools' computer labs. Instead, the mobile learning programs made engaging content continuously accessible to all students and education an integral part of every day.[11] School leaders from the Orleans Parish School Board in New Orleans, LA, a partner in the program, reported that "[a]fter broadband access was made available, the observations show a marked increase in student-led learning as the teacher became comfortable assigning work to specific learners and/or learning communities within the class that can be pursued outside of class."[12]

The San Diego Unified School District also launched its Mobile Learning Program funded through the FCC pilot. In 2012, San Diego Unified provided netbooks to all middle school students at ten schools throughout the district, about 3,000 students in total. Prior to the launch of the program, Darryl LeGace, the district's chief technology officer at the time, recognized digital disparities within the district. "We know that when kids are online, they are more engaged in what they are learning, but [we] have had an equity issue – teachers can't create [high-tech] lessons because not all students have access to the Internet at home."[13] As EdTech models were being developed, teachers found they could not integrate online technology lesson plans because approximately only one-third of the district's students had online access at home, leaving the two-thirds of students who were unable to access the educational content at home greatly disadvantaged. The FCC pilot provided a solution to this stifling reality by equipping the

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[11] *Id.* at 5.

[12] *Id.*

[13] Maureen Magee, *Schools expand home Internet access for students*, (April 13, 2011, 5:42PM) http://www.utsandiego.com/news/2011/apr/13/schools-expand-home-internet-service-for-students/.

netbooks with 3G service and permitting students to use the devices both on- and off-campus.[14]
Principal Harlan Klein of the San Diego Innovations Middle School spoke of the ongoing
learning opportunities wireless access provided, saying, "[s]tudents can read textbooks on the
netbooks any time. They can continue projects that could be halted when the bell rings."[15]

However, the San Diego pilot demonstrates a vivid and common challenge, and frequent
barrier, to these innovative student device programs: providing students with interactive devices
with Internet capability will have a disproportionate and inequitable effect on students from low-
income and minority households that study after study demonstrate are less likely to have
broadband access at home. Put simply, an educational model that relies primarily on online
broadband content has at its core one basic assumption: that each educator and student has access
to online content 24/7, wherever they may reside and whatever their household income level
might be. If that assumption is not met, educators will have to make the unfortunate choice of
either delaying implementation of ubiquitous online education models, or allowing kids on the
wrong side of the digital divide to fall behind for lack of access to this essential technology.

In short, without ubiquitous connectivity, the broadband adoption gap could rapidly
become an educational achievement gap. Students, regardless of family circumstance, need the
ability to access and utilize educational technology and applications both on school premises and
beyond school grounds - at home, in the library, and wherever else they choose to do homework.

School districts across the country are increasingly considering how to address this gap.
Available estimates indicate that eighty-four percent of school districts would be interested in

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[14] *Id.*
[15] *Id.*

launching a 1-to-1 initiative within the next two years.[16] However, only twelve percent (12%) of schools have been able to implement such programs to date, typically halted by financial constraints.[17] For cash-strapped districts already struggling to provide ongoing programming, investing funds in mobile devices and wireless plans is outside the realm of possibility. Unless remedied through federal and states policy initiatives, existing economic gaps across "have" and "have-not" school districts will rapidly translate into digital learning gaps, further enhancing an already troubling educational gap across K-12 students of different socio-economic backgrounds.

Through the E-rate program, the Commission has the power to help address this divide. E-rate should not only **support very high-speed connectivity to school and library premises**, it should also empower educators interested in implementing twenty-first century learning models to **fund student device connectivity**. Educators face the consequences of the broadband adoption gap every day, and those consequences cannot be wished away. If the Commission wants the E-rate program to serve as a catalyst for the use of broadband technology in education, it cannot assume that the broadband adoption gap for the nation's low-income and minority populations is "someone else's problem." It must address the issue head-first and within the E-rate program by allowing E-rate to be used to subsidize connectivity of student devices, particularly in communities serving low-income and minority students, who are less likely to have broadband at home.

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[16] Joshua Bolkan, Report: Most District Tech Leaders Want 1:1 Deployment or Expansion, THE JOURNAL (July 18, 2013), http://thejournal.com/articles/2013/07/18/report-most-district-tech-leaders-want-11-deployment-or-expansion.aspx.
[17] *Id.*

II. THE COMMISSION SHOULD HARNESS THE EXPERTISE OF PRIVATE STAKEHOLDERS TO DEVELOP PLANS FOR THE RELEASE OF TIMELY, MEANINGFUL DATA ABOUT THE E-RATE PROGRAM

As the Commission and a myriad of stakeholders on the record have recognized, timely, meaningful data about the E-rate program funding levels and outcomes is lacking. In its Comments, Connected Nation has proposed a series of recommendations regarding what program data should be released on a systematic basis by USAC or the Commission. The data fall into two categories: (1) granular data detailing how the money is spent by type of service and beneficiary (school and library, not simply applicant); and (2) data detailing service level outcomes supported by these subsidies by beneficiary. All of these data should be available in downloadable format, as well as through an easy-to-use GIS data visualization tool, making it accessible to local stakeholders, researchers, and policymakers.

Such data is essential to address some of the pressing policy issues raised by this reform, and to monitor progress toward clear objectives as defined by the Commission. For example, we cannot determine the cost of achieving broadband connectivity goals across our schools or libraries until we ascertain the current state of broadband to these institutions. Data transparency about E-rate funding levels and outcomes will also help reduce fraud and abuse, promote competition, and inject transparency regarding educational and library technology choices and best practices.

In short, ensuring data transparency of E-rate funding levels and service outcomes supported by the program should be a top priority of the Commission as it contemplates this reform.

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Achieving these goals, however, is not straightforward. USAC's ability to analyze and release data is limited by the type and form of information it collects from applicants, as well as by existing procedures to mine the data. A comprehensive review of the data collected, the form of data collection, and the processes available to analyze the data is necessary to ensure we meet the data transparency goals called for on the record. Reform of these processes and data requirements from applicants should be carefully weighted so as not to add to an already burdensome application process faced by applicants.

Recognizing the importance of data transparency for the health of the program, and the challenges of implementing such goals , Connected Nation recommends that the Commission create a working group that will be charged with delivering recommendations for a pragmatic plan for the collection and release of E-rate data moving forward. Such a working group would bring together E-rate and data experts from the Commission and USAC, as well as private stakeholders including representatives from key constituencies such as school and library E-rate stakeholders, education technology advocates, not-for-profit organizations, consumer groups, technology companies, and broadband providers.

The working group should address the following tasks:

1. *Propose a comprehensive taxonomy of data to be released regarding service types funded via E-rate:* The taxonomy should be meaningful for E-rate stakeholders as well as local, state, and federal policy makers, and not limited by regulatory definitions tangential to the overall goals of the E-rate program.

2. *Propose metrics for service levels supported by E-rate funds.* The metrics should include actual speeds available by student and administrator, classroom, and by student and educator electronic device.

3. *Conduct a comprehensive review of data inputs currently collected through the E-rate program and propose reforms aimed to support the proposed recommendations for E-rate data release:* The review should examine reduction of current data inputs from applicants where USAC can readily obtain information through public resources; addition of new data requirements from applicants where data is not available to USAC through any other means; modifications to data input formats aimed to achieve the E-rate data transparency goals, while reducing applicant burden; and reform of USAC's procedures for data mining necessary to achieve the E-rate data transparency goals and ensure minimum burden on E-rate applicants.

4. *Propose recommendations for data granularity and format release to ensure that data is readily available for review and analysis by E-rate applicants and stakeholders, local, state and federal policy researchers, and the public at large.*

With the leadership of the Commission, such a working group can quickly identify the main programmatic hurdles existing today to deliver timely, meaningful data to all stakeholders and help USAC develop pragmatic plans to overcome them.

III.   CONCLUSION

The current reform of the E-rate program is a rare opportunity – perhaps one chance in a generation – to transform the largest federal program supporting telecommunications and Internet needs of schools and libraries into a catalyst for the educational technology transformation already underway. E-rate has for over a decade been a critical resource supporting school and library telecommunications needs. As these institutions explore and learn to harness the power of educational technology, their needs are changing, sometimes rapidly. As the Commission considers the proposed reforms, it should aim to support these transformative

processes by building rules that will allow local technology decision makers sufficient flexibility

and options to encourage this innovative process.

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