

**Before the
Federal Communications Commission
Washington, D.C. 20554**

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

**COMMENTS BY THE FRIDAY INSTITUTE FOR EDUCATIONAL INNOVATION,
NORTH CAROLINA STATE UNIVERSITY, RALEIGH, NORTH CAROLINA
RELATED TO THE E-RATE 2.0 NOTICE OF PROPOSED RULEMAKING**

Contents

Friday Institute Overview	1
Introductory Remarks Regarding the Notice for Proposed Rulemaking	1
Specific Comments Regarding WC Docket 13-184	2
Contact Information	8

Friday Institute Overview

For more than 75 years, the College of Education at NC State University has prepared leaders in education. In the 21st century, we are poised to be a leader and innovator in the preparation of teachers, administrators, counselors, and other educational professionals who use technology to transform the learning process. The Friday Institute was created to change how we communicate, teach, learn, and respond to an increasingly global society. We are proud to be named in honor of William and Ida Friday, the former NC State graduate and president of the University of North Carolina system and his wife who have been passionate advocates for education for more than 50 years.

Cross-sector collaboration among education, government and private industry has been a cornerstone of the Friday Institute since its inception. The Friday Institute is on NC State University’s Centennial Campus, where corporate and government organizations and business incubators work in partnership with faculty and students in a highly innovative environment. Our location and mission capitalize on NC State University’s long history of engagement in university and business partnerships, and its leadership role in economic development.

Through cutting-edge research and cross-sector collaboration, the Friday Institute empowers educators and their students to be 21st century learners and leaders, contribute to our social and economic well being, and meet the challenges of a global knowledge workforce.

Introductory Remarks Regarding the Notice for Proposed Rulemaking

Beginning in 2006, The Friday Institute developed and implemented the School Connectivity Initiative on behalf of the North Carolina State Board of Education. The goal of this project was to provide equity of access to broadband connectivity to all 2600 schools in the state, while at the same time controlling cost and leveraging statewide purchasing consortia. As a result, all schools in North Carolina are connected to the statewide education backbone, NCREN, at adequate speeds to support 21st Century Digital Teaching and Learning. Additionally, the state provides \$20M in support to cover the non-E-rate share of WAN and ISP costs, as well as central support for network engineering and E-rate consulting.

This network has effectively leveraged E-rate under the current rule structure, and dramatically increased access while controlling cost. For example, in the Mooresville Graded School District, WAN capacity is 100x greater (all schools at 1/gbps) than they were in 2006. Additionally, upstream ISP bandwidth has increased by 16x in the same time period. The Mooresville District has the highest consumption of bandwidth per student in the state, yet through effective consortia management costs have only increased 5x. It is also worthy to note, these increases were done through the existing telecommunications provider, Windstream Communications.

When President Obama announced his ConnectED initiative in Mooresville, he heralded the district's access to connectivity as a major factor in the success of their digital initiative. We understood this paradigm early, and as a result we hope to provide meaningful feedback regarding the Notice for Proposed Rulemaking. You will see several themes in our remarks: 1) An emphasis on procuring holistic services over individual network components; 2) Prioritization of User access over "pipes to schools"; 3) The importance of leveraging consortia to build networks that work as a cohesive whole from the user's device to the content being accessed.

We look forward to working with The Commission as they undertake this long overdue and important work. We are available to assist The Commission in any way as we move forward on this process.

Specific Comments Regarding WC Docket 13-184

¶5

We concur with The Commission's findings that regarding the percentage of schools and libraries with high capacity connections. We would like to highlight the finding that many schools and libraries have access to high capacity connections, yet cost was a barrier to entry. Our experience in North Carolina was that by funding the non-E-Rate portion centrally was the only way to lower this barrier. Additionally, doing so we more effectively contained cost by leveraging economies of scale. Even if schools and libraries were able to provide additional funding for connections, without consortia purchasing, cost containment is difficult.

¶6

We concur with The Commission's findings regarding library connectivity. We believe having high capacity connections at community anchor institutions is critical for the success of ConnectED. Our comments in paragraph 5 are mirrored here. We believe in many cases libraries have access to greater speeds, but yet do not procure these services. In some cases, we believe this is due purely to budgetary constraints. In other cases, we believe this is due to the unique relationship libraries have with county and municipal governments. While libraries can access E-rate support, their technology infrastructure is often operated as part of county or municipal departments. This often leads to a situation where libraries are treated the same as fire stations and other county operations. Municipal governments simply aren't in the business of providing community broadband access, and this exacerbates library connectivity issues.

¶7

We disagree with the approach of ConnectED regarding high capacity connections. It is an over simplification to suggest that a speed metric is a sufficient measure of equitable access and success. We believe that a true measure of equitable access is a cohesive network from the user's device all the way to the content they access. This is simply not done through speed alone. We must demand that schools and libraries provide users **high capacity and highly reliable** networks to meet the goals of ConnectED. It is our experience that school districts are not successful in meeting this challenge on their own, and we recommend these factors be considered as part of the NPRM process.

¶10

We absolutely agree on the need for flexibility for schools. However, we urge caution with The Commission’s approach to allow districts to lease dark fiber as means to improve broadband access. Additionally, we believe dark fiber leases are not as standardized as service procurements, which makes The Commission’s goal of “improving safeguards against fraud, waste, and abuse” more difficult to implement. Comparing a dark fiber lease to the purchase of telecommunications services from a provider is simply not comparing apples to apples. A dark fiber lease does not fully expose the cost of operating a network, as personnel and equipment expenditures are never fully disclosed or known. Additionally, it is difficult to assess whether Service Level Agreements are in place and enforced when a school district utilizes dark fiber as an option. We believe the best method to provide safeguards against fraud, waste, and abuse are to hold schools operating their own fiber to the same standards that telecommunications providers are required to meet.

¶21-24

In our introductory remarks, we indicated that relying on the capacity of the network as an insufficient measure of success, as it does not fully address equity of access. In North Carolina, we monitor actual network utilization. When a school consistently reaches 60% utilization during the school day, that school’s circuit is automatically upgraded to the next tier of service. While the state does cover the cost of this upgrade, we do not receive an adjusted E-Rate reimbursement for the increased cost of a circuit. However, given our economies of scale this is still a net positive for the state financially, as on the whole it reduces over-subscription to network capacity. Removing the financial penalty for mid-filing capacity changes should be considered in the overall E-Rate 2.0 approach.

¶27

Again, we disagree with approaches that rely on bandwidth considerations alone. However, we do agree that wireless connectivity and other internal connections should be seen as metrics for consideration for measuring the success of ConnectED. The program cannot be deemed a success if the “last mile” connections are high capacity while the “final feet” between the school wall and the user is often inadequate.

Wireless networks require more than bandwidth considerations to support one to one computing. We have found that simply deploying a “standard wireless network” in a school isn’t enough. The technical capacity needed in a district to support that network is more sophisticated than most districts can afford. We believe if The Commission incentivizes innovative approaches to closing this gap we will see dramatic improvements in regards to internal connections.

¶28

We agree with The Commission’s finding that applications require highly reliable connections that are more than simply sufficient bandwidth. We believe that metrics for success must include these factors. We believe the best way to ensure success in this area is to require E-Rate funded “final feet” or internal connections be procured as managed services, and not internally run by the school or district. Districts simply do not have the budget or the personnel to manage these types of network measures.

¶33

We agree that utilization should be a measurement for success. We believe that network utilization is a better measure regarding equitable access than actual capacity. Additionally, measuring utilization helps determine if other goals in the ConnectED initiative are actually being met. If a school’s utilization is flat in spite of capacity growth, is the school actually engaging students in 21st century digital teaching and learning?

¶35

We would caution that directly gathering data from schools and libraries is costly, cumbersome, and the data is often unreliable. We believe data collection should be streamlined, but should be the responsibility of a state education agency, or their designee such as an education network provider or a state information technology agency.

¶37

We concur that several methods should be used to assess access to network capacity. We agree that the availability of providers should be a factor in evaluating bid requests. In cases where one or more telecommunications providers is present, zero-bid requests and authorizations for dark fiber leases should be rare.

¶40

We agree that that tying technology metrics to education outcomes is unreliable and correlations are difficult to assess. However, measuring utilization and perhaps the growth of end-user devices may be helpful additional metrics for assessment.

¶44

We completely agree with the goal to effectively utilize the funds available in the E-Rate program. However, given that the average school district in this country is small, it is unrealistic to believe that districts will be able to achieve optimal efficiencies on their own. We believe any change to the program should incentivize filers to bundle with regional, state, or national consortia to reduce cost. Additionally, we believe The Commission should modify rules to remove barriers to consortia filing. Currently, consortia filers are treated the same as individual filers—this simply does not translate into effective accountability. Audit processes, and the release of funds should be tailored to best match filer types to encourage innovative uses of E-Rate funds.

¶51

We believe that data should be collected regarding the cost for filing. In North Carolina we provide central E-Rate services that has greatly reduced the reliance on E-Rate consultants in our state. Since initiating this service, we have seen our ability to effectively utilize E-Rate funding skyrocket. Additionally, we find this central service reduces filing errors, and provides continuity when a school district experiences turnover. However, we find is concerning that the vast majority of our districts that continue to retain E-Rate consultants are also high discount districts, often with schools eligible for priority II services. We believe The Commission should do more to audit and investigate E-Rate Consultants and ensure their work aligns to the goals of equitable and efficient use of funds.

¶62

Interestingly, in North Carolina our largest recipients of priority II funds are rural districts, and not our large urban districts. It is our position that priority II funding should be scrapped in its entirety. The metric of “\$190/student” is a prime example of waste in the system. If a district is at 90% discount, there is no disincentive to procure “gold plated networks.” We believe that if priority II services are to remain a part of the program, there must be reasonable and customary cost metrics associated with the funding.

¶64

If The Commission adopts performance measures (technical, financial, personnel) to ensure comprehensive cohesive networks are available in every school, then we believe there is sufficient funding in the E-Rate program to meet this goal. The reality is, the work to accurately calculate the cost of building holistic networks in every school in the US has not been done. If ConnectED is to provide a major push forward into the new horizons of digital education, we must earnestly do this work.

¶66

We believe that the current E-Rate structure has led to schools procuring high cost, complex, and often difficult to support VoIP solutions that provide no instructional value to students or teachers. We recommend that The Commission look at this category further, and consider removing coverage in light of the goals of ConnectED.

¶67-69

We caution the diving into technical architecture is fraught with challenges, and will require constant updates to The Commission's guidelines. What matters in a managed service environment are legal and enforceable Service Level Agreements. Additionally, we believe diving into the minutia of technical architecture only encourages districts to build out infrastructure they are in no position to effectively operate or support.

¶70-74

We believe The Commission's support for school's building, leasing, or operating their own fiber network should be approached with caution, and has the potential to become a larger burden on the E-Rate fund than priority II services currently are. This is not to say we believe there is never a case for a school to operate a fiber network—though we believe there must be a compelling case to do so. The Commission should weigh funding fiber networks against the availability of high capacity connections from existing service providers. The school or library requesting funding for dark or lit fiber should be required to hold a burden of proof that they can operate such networks at a lower cost and at a same level of service as their private competitors. Schools and libraries should be required to full factor the cost of equipment and personnel into any request for E-Rate to fund fiber builds/leases. In North Carolina, we will reimburse districts for the non-E-rate portion of a dark fiber lease, but if another commercial provider is available to the school, we will not reimburse the district at a higher rate than the state contract month-to-month rate of that provider.

¶77

The Commission should remain technology neutral, however, they should not remain "service neutral." The Commission should define minimum standards for service providers. These definitions could include technical metrics such as response time, latency, etc, but should also include business processes such as support mechanisms.

¶79-80

We believe that the program should approach changes with caution that allows districts to build and operate their own WANs. We find The Commission's example school district to be lacking. How was the increased personnel expense factored in? Did instructional support suffer because of the need to support the network? If the district had access to 50 Mbps connectivity then indeed the telecommunications provider had fiber available. Was the compelling factor cost? If so, was it truly less expensive when personnel and equipment costs are factored in?

Unless the commission can more effectively measure the true total cost of ownership of schools operating their own Wide Area Networks then the E-Rate program should not fund these ventures. Additionally if schools cannot meet service levels comparable to their available telecommunications providers then funding should not be made available.

¶83-84

We believe funding internal connections is a critical component for the success of ConnectED. However, we believe that there is so little oversight of current recipients, that the program must be overhauled to be successful. When you

are funded at an 88% or higher discount, what incentive do you have to be cost effective? We invite you to review our comments again on paragraph 62 for additional commentary on internal connections.

¶86

Many schools and libraries have very poor understanding of the requirements of CIPA and how to implement such protections. As a result, many districts apply an overkill approach to monitoring that stifles instruction. Additionally, content filtering appliances are high cost, and as niche market costs are not falling. Funding the status quo would only exacerbate this problem. The Commission should consider pilot programs to encourage innovative strategies addressing CIPA monitoring.

¶88

We concur with The Commission's finding. We believe consortia procurement and central management is the only effective way for schools and libraries to effectively leverage economies of scale and contain cost.

¶92-95

None of the listed services provide educational value and should be eliminated from eligibility.

¶97-98

We believe the commission should further investigate this area. For example, with email major vendors such as Google and Microsoft provide enterprise class collaboration tools to schools at no cost. However, most states have public records and archiving requirements that are significant burdens to schools. The Commission should review this impact, and determine if changes are merited. Regardless, we believe The Commission should only continue to fund items that are truly network-based services.

¶102

These plans are often provided for administrative and technical staff, and have no impact on instruction. Support should be eliminated.

¶105-108

We concur that support for services exclusively used for voice should be phased down or eliminated.

¶109-110

We do believe VoIP is a viable option to control voice costs. However, the current model encourages districts to build and operate their own systems as opposed to procuring VoIP services. We recommend that any continued support for VoIP be procured as services from third-party providers. This reduces the support burden on district IT staff, and increases reliability. Additionally, schools operating their own phone systems should be considered a school safety concern.

¶117-125

We do not believe modifying the discount matrix alone will provide equitable distribution of funds. Additionally we are concerned about alternative calculations methods to the Free and Reduced Lunch program are potentials for fraud. We enthusiastically concur with Funds For Learning's analysis of high discount districts.

We do believe there are that a variable discount formula is a viable alternative. For example, VoIP procured as a service varies little by zip code. Similarly if priority II is to continue, is should be noted a Cisco switch costs the

same in Kansas as it does in New York City. The discount formula was designed to address regional price disparity as well as poverty. If there is no regional discrepancy in price, then a discount percentage should reflect this.

¶127-129

We do not oppose such a change, and believe this will reduce filing burdens and reduce fraud.

¶133-134

We do not believe increasing the discount percentage for rural filers increases equitable distribution. See comments for P117-125 regarding regional price variations for services as further evidence of our opposition.

¶135-142

We do believe per student cost benchmarks should be used to determine funding eligibility. Essentially, if a district is paying 4x what a peer district is paying for similar service, this should raise concerns. We believe the lack of oversight in this area, has led to many “gold plated networks” in schools across the country that do not further any instructional purpose.

¶143-148

We are enthusiastic agreement with The Commission’s proposal to eliminate the distinction between priority I and II services. We believe that this will lead to the development of comprehensive cohesive networks that not only address last mile connectivity, but also the “final feet” of connectivity.

¶175-190

We agree with The Commission’s desire to increase bulk buying and consortia purchasing. The primary goal of any changes should be to identify and address the differing needs of consortia versus single filers. Business processes should reflect the type of filer. Additionally, given that consortia are often liable for larger contracts and financial liabilities The Commission should work to ensure that funding is released in a timely manner, and not constrained in the ways required by single filers.

¶191-201

We support efforts to make bid responses a matter of public record. Additionally, any school or library building and operating their own network funded by E-Rate should be subject to the same public records requirements.

¶206-207

Any exemption should only be done if a school or district is part of a large bulk buying, master services agreement, or consortia program. Additionally, the cost for any no-bid service should be of comparable cost being funded to peer institutions.

Contact Information

For more information regarding this filing please contact the following:

Phil Emer
Director of Technology and Policy
(919) 513-8512
paemer@ncsu.edu

Lee Sartain
Education Policy Specialist
(919) 513-8512
lee_sartain@ncsu.edu

For historical information regarding North Carolina's School Connectivity Initiative see:
<http://connectivity.fi.ncsu.edu>. For information regarding current Race to the Top funded technology initiatives in North Carolina see: <http://cloud.fi.ncsu.edu>.

The Friday Institute for Educational Innovation
North Carolina State University
<http://www.fi.ncsu.edu>

Campus Box 7249
Raleigh, NC 27695

1890 Main Campus Drive
Raleigh, NC 27606

2013 All rights reserved.