

Before the  
FEDERAL COMMUNICATIONS COMMISSION

In the Matter of )  
 )  
Inquiry Concerning the Deployment of Advanced )  
Telecommunications Capability to All Americans )  
in a Reasonable and Timely Fashion, and Possible ) GN Docket No. 11-121  
Steps To Accelerate Such Deployment Pursuant to )  
Section 706 of the Telecommunications Act of 1996, )  
as Amended by the Broadband Data )  
Improvement Act )

**Comments of the Internet2 K20 Initiative CAI Data Collection Working Group**

**I. Internet2 K20 Initiative Background**

Please accept these comments submitted under the auspices of the Internet2 K20 Initiative's National CAI Data Collection Working Group. The Internet2 K20 Initiative brings Internet2's world-class network and research community members together with innovators from colleges and universities, primary and secondary schools, libraries, museums and other educational institutions – representing the full spectrum of America's education community, including both formal and informal education. The National K20 Initiative extends new technologies, applications, and rich educational content to *all students, their families and communities* – no matter where they're located. We have had immense success connecting community anchor institutions (CAIs); in fact, over 66,000 institutions are now connected to the Internet2 Network. Through the new U.S. UCAN project and the BTOP-funded upgrade of the Internet2 Network, Internet2 and its state and regional research and education networking partners will provide the high performance national networking infrastructure capable of fully supporting all 200,000 community anchor institutions across the U.S.—three times as many institutions as the Internet2 Network serves today.

**II. Summary**

Since 2002, the Internet2 K20 Initiative has worked with representatives from state and regional R&E networks to collect connectivity data on community anchor institutions connected to Internet2. Based upon this experience, we offer the following comments on how to improve the quality of the CAI broadband data being collected as part of the SBDD program.

**III. Section II (9) SBDD Data - Are there any other concerns regarding the SBDD Data that the Commission should factor into its analysis of broadband deployment?**

The release of the National Broadband Map in February 2011 represents an important first step in establishing a mechanism for collecting and tracking data on the availability of broadband for

residential customers and CAIs around the country. However, the underlying data collected as part of NTIA's State Broadband Data and Development (SBDD) Program to date does not include key descriptive data elements such as a CAI's measured upload/download speed, service provider, connection type, or information about connection quality such as jitter or latency. Additionally, SBDD currently only provides rough guidelines on what constitutes a CAI, leaving it largely up to individual states to interpret. This makes it difficult to compare data between states and evaluate progress toward a set of national CAI connectivity goals.

**We recommend the following steps be taken to improve the underlying data set used to evaluate CAI broadband deployment:**

*1) Work with the appropriate stakeholders to develop more specific guidance on what organizations should or shouldn't be included in SBDD-funded CAI broadband data collection efforts by sector.*

Let's consider just two of the CAI sectors – K-12 and health care - to illustrate the variability in both data collection and interpretation depending upon how these organizations are defined.

A few of the entities that could be considered "K-12 schools" include school districts, regional education service agencies, K-12 public schools (Regular School, Special Education School, Vocational Education School, Alternative Education School), charter schools (approx. 5000 nationally), K-12 private schools (Regular, Special Program Emphasis, Early childhood, Montessori, Special Education, Career/Technical/Vocational, Alternative), domestic and overseas Department of Defense dependents' schools, Bureau of Indian Education administered schools, and others located in the 50 states, the District of Columbia, and U.S. territories.

Health care organizations could be interpreted to include for-profit and not-for-profit hospitals (military or veterans administration, children's, critical access, long term or terminal care, psychiatric, rehabilitation, and acute care), and rural health clinics, for-profit and not-for-profit nursing homes, urban clinics, physician offices, small and large physician group practices, pharmacies, labs, hospice agencies, hospital units, residential treatment facilities, as well as pharmacies, and ambulance transportation services.

The case is similar for the remaining CAI sectors - public libraries, 2 and 4-Year colleges & universities, museums, and public safety. A standardized definition of what constitutes a CAI in each of the aforementioned sectors would remove ambiguity of interpretation at the state level and facilitate nationwide comparison of CAI datasets.

*2) Collect the following data points for all organizations defined as targeted CAIs across the country.*

- Federally recognized unique identifier
- Actual bandwidth performance (measured upload/download speeds in Mbps)
- Purchased circuit capacity (e.g. total available layer 2 transport capacities - 40Mbps, 100Mbps, etc.)
- Circuit type (DSL, Cable, Satellite, Fiber, etc.)
- Connection quality measures such as latency, jitter, and packet loss
- Internet Service Provider (including both commercial and R&E network providers)

- Access to a national R&E network backbone? (yes/no)

*3) Support and encourage the development an open source, standards-compliant, user-initiated broadband speed test customized to the needs of the community anchor institutions as one means of standardizing the collection of the data points described above.*

#### **CAI Speed Test Features:**

- Capable of consistently traverse firewalls and proxy servers known to exist across the various CAI sectors (particularly in K12, libraries, and health care).
- Social media friendly - easy to share speed test results and embed the actual speed test application across the web.
- Capable of returning reliable test results from all 200,000 Community Anchor Institutions located across the country. This could be accomplished by forward deploying ample numbers of properly distributed testing servers at the edge of state and regional R&E networks and partner organizations nationwide.

Virginia Tech's eCorridors Program serves as a model for deploying open-source self-reporting Internet speed testing and mapping tools on a state-wide basis to collect both residential and CAI broadband data. The measurement model they have developed could be adapted to scale across all 50 states.

#### **IV. Conclusion**

Establishing the above baseline data on community anchor broadband deployment provides the raw material needed to help CAIs determine their broadband needs, encourage collaboration around innovative uses of broadband capacity amongst CAIs, inform broadband policy makers and assist BTOP-funded and other local, state, regional, and national efforts to build and improve essential CAI broadband infrastructure.

Respectfully submitted by members of the Internet2 K20 Initiative CAI Data Collection Working Group:

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