What is Internet2?

Internet2 is a member-owned, not-for-profit corporation founded in 1996 by the nation's leading higher education institutions. Its members include several hundred U.S. research universities, government agencies and laboratories, companies, and regional networks that provide advanced networking for a wide range of universities, government agencies, and community anchor institutions ("CAIs").

During its nearly two-decade history, Internet2 has played an integral role in deploying and expanding advanced broadband capabilities across the country, building on the legend of the advanced research and education ("R&E") networks – such as the Advanced Research Projects Agency Network, the Computer Science Network, and the National Science Foundation Network – that pre-dated Internet2's existence.

Today, Internet2 owns and operates a premier advanced national network infrastructure ("Internet2 Network") and identity management framework, and serves such varied constituencies as the R&E community, federal agencies, and industry. Using the latest generation of optical transport equipment, the Internet2 Network supports native 100 Gigabit services with near-term potential of offering 200 and 400 Gigabit services. Additionally, the Internet2 Network has advanced Layer-2 services built on software defined networking ("SDN"), which allows users to optimize the network for their specific application needs. Internet2's current 8.8 Terabit national network positions Internet2 as one of the most advanced networks in the world. More information on Internet2 can be found here: http://www.internet2.edu

What is US UCAN?

In 2010, NTIA awarded Internet2 a $62.5 million Broadband Technology Opportunities Program ("BTOP") grant. This BTOP grant helped to fulfill the National Broadband Plan's ("NBP") recommendation that government entities work with the R&E community to facilitate a "'Unified Community Anchor Network,' that would support and assist anchor institutions in obtaining and utilizing broadband connectivity." Internet2's U.S. Unified Community Anchor Network program ("U.S. UCAN"), the outgrowth of its BTOP award, focuses on extending R&E network resources to all CAIs. Today, with the BTOP project completed, the Internet2 Network serves as the backbone for state and local networks that interconnect more than 93,000 CAIs throughout the country, including university and college campuses, schools, libraries, hospitals, state and local governments, and public safety entities. Given these recent upgrades and expansions, the Internet2 Network has become a unique national asset that already is being leveraged to support a number of national broadband policy initiatives, including other universal service programs.

How many Community Anchor Institutions (CAIs) are connected?

It is estimated higher education institutions currently sponsor Internet2 connections to approximately 93,000 CAIs in 42 states across the nation.

Type	# Connected to R&E networks nationwide**
K-12 Schools	84,146 (60% of total)
Public Libraries	4,203 (25% of total)
Colleges & Universities	1,491
Community & Vocational Colleges	799 (50% of total)
Health Care Organizations	2,237
Museums, Science Centers, Zoos, and Aquariums	200
Estimated Total	**93,076**

** Data based upon the results of the 2013 US UCAN connectivity survey.

Does Internet2 have a history of engaging K-12?

Yes. K-12 schools are the lifeblood of our nation's higher education system. Internet2 member colleges and universities depend upon students being prepared to begin their advanced studies immediately upon enrollment. Therefore, Internet2's membership has a vested interest in the success of every K-12 school in the country. Access to advanced R&E network infrastructure enables knowledge and expertise to flow seamlessly between higher education institutions and K-12, providing limitless opportunities to expand and strengthen learning experiences for all K-12 students no matter where they are located. Ultimately, strengthening ties across the educational spectrum also fortifies our country's global economic competitiveness and leadership.

Recognizing the multiple mutual benefits of engaging the education community in the development of the next-generation Internet, Internet2 launched the K20 Initiative in 2001. The purpose of the K20 Initiative, which is now part of the U.S. UCAN program, is to extend access to the Internet2 Network to K–12 schools and public libraries, as well as community colleges, cultural organizations such as museums, science centers, zoos, aquariums, and performing arts centers. Providing our nation's K-12 schools and other CAIs with access to the Internet2 Network's advanced networking resources not only supports higher education's future

scholars and research scientists, but it also provides an innovation platform where 21st century teaching and learning applications can be incubated and developed.

How do K-12 Schools connect to Internet2?

K-12 schools typically do not connect directly to the Internet2 network. To participate in the U.S. UCAN programs, schools and libraries are sponsored by Internet2 member universities for Internet2 connectivity in a particular state. This allows K-12 schools and other CAIs in the sponsored state to connect to the Internet2 Network. This connection ordinarily is accomplished through an education network in the state that is connected to a local Internet2-affiliated regional network or Internet2 connector. Higher education institutions currently sponsor Internet2 connections in 42 states across the nation. See the following link for more information: https://k20.internet2.edu/get-connected.

How are K-12 schools utilizing their connectivity to Internet2?

Internet2, through its K20 Initiative, develops programs and partnerships designed to leverage its advanced R&E networking infrastructure to deliver high quality content and learning experiences to students of all ages. For example, the Presidential Primary Source Project ("PPSP") is an annual program series developed in partnership with state and regional R&E networks, the National Park Service, the Library of Congress, and the National Archives-administered Presidential Libraries and Museums. The PPSP program series enables students to engage in dialogue with world-class presidential historians via advanced interactive videoconferencing and to access rich collections of primary source documents for research and presentations.

Also through the K20 Initiative, Internet2 is providing the opportunity for students and teachers in K-12 schools and other formal and informal learning environments to access sophisticated scientific instrumentation where they otherwise would not. The Electron Microscopy Center at North Dakota State University and the iLab Network developed by Northwestern University's Office of STEM Education Partnerships offer just two examples of how Internet2 member institutions and partner universities overseas are making high-end scientific equipment remotely accessible over advanced R&E networks.

Internet2's Muse social networking site is designed to help teachers and other CAI practitioners discover others with similar interests in utilizing advanced connectivity enabled applications and resources. http://k20.internet2.edu

Are there advantages to connecting to R&E networks rather than just through the commercial Internet?

R&E networks, like the ones operated by Internet2 and Internet2's state and regional network partners, are uniquely designed and engineered to meet the needs

of some of the most demanding Internet users in the country, namely scientists, academics, and researchers in the nation's leading academic and research institutions. They are designed to be low latency, uncongested networks that do not throttle users' connections and that allow plenty of headroom for innovation in applications without capping a users' throughput or appetite for information. These networks are fully capable of supporting library and K-12 teaching and learning applications now and in the future. Moreover, Internet2 provides flat-rate, robust connectivity to its regional partners, who then pass these related cost savings and network efficiencies on to schools and libraries, thus optimizing their Internet connection and cost structure.

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