

The Case for Broadband Evangelism

“**D**espite enormous progress in deploying Internet technology and services over the past 15 years, many of the goals for use of the public Internet in education and research, particularly for support of e-learning, remain unrealized.” These words introduce “Broadband America: An Unrealized Vision,” a recent paper written by the EDUCAUSE Net@EDU Broadband Policy Group (BPG).¹ The paper is intended to encourage policymakers to implement programs and policies that enable the full potential of the public Internet.

IT leaders in higher education have long been active in planning and deploying advanced network facilities. Their achievements include the formation of the regional NSFnet links in the late 1980s, the successful effort to generate congressional support for scientific and academic networks culminating in the High Performance Computing Act of 1991, the creation of the Internet2 consortium in 1996, and most recently, the National LambdaRail effort to build an all-optical, facilities-based network for leading-edge science and research.

As a result, the benefits of advanced cyberinfrastructure are clearly visible in such “big science” fields as physics, astronomy, seismology, and genomics. Yet the potential of the technology to infuse and transform many other academic fields has hardly been touched. And unmet requirements for technology-mediated instruction, collectively known as e-learning, are numerous. Although educators have long recognized the need to extend learning to students wherever

they are located, at most one-fourth of U.S. households today utilize broadband Internet access. In most cases, the so-called broadband access that is available—cable modems or the somewhat slower digital subscriber line (DSL)—is technically inferior to that routinely provided to students residing on campus. Higher education thus has an important stake in the national effort to widely deploy a state-of-the-art broadband public network, since many of its goals cannot be realized without affordable and ubiquitous access to such a network.

Three Principles

The BPG developed a set of three principles to provide a consistent frame of reference for pursuing policy initiatives: (1) affordable broadband access; (2) a new regulatory structure; and (3) federal R&D support.

The *first principle* is that affordable access to advanced communications services and capabilities by individuals, households, businesses large and small, nonprofit organizations, and public-service agencies is a matter of the highest public interest. It has been an established fact of law and public policy in the United States for nearly one hundred years that communications services must be provided in a manner that serves both the public interest and the private business interests of the companies that undertake to provide these services. The Internet, whose public access is barely a decade old, initially occupied a new and special niche in the panoply of technology-based communications. But its technical architecture, which cuts across the vertical orientation of older systems, its implemen-

tation in semiconductors and fiber optics, which has produced revolutionary cost and performance advantages, and its increasing commercial use herald a seminal change from this “niche” status to that of core transport protocol.

The *second principle* is that progress in the deployment of public broadband services requires a new and streamlined regulatory structure based on sound economic and social concepts, a recognition of the advantages inherent in new network technology and a new network structure, and a willingness to undertake the difficult transition away from current, obsolete telecommunications facilities and the regulations governing their use. Initiatives to liberalize regulatory structures and to open business sectors to competition based on product and service innovation are widespread. At the same time, there has been a major shift toward an economic structure based on information technology rather than one based on industrial manufacturing technology. These twin forces—free market economies and a global economy based on information technology—have brought into question much of the telecommunications regulatory structure erected to ensure social benefits in an earlier time. As the economy is remade by new technologies, so must the regulatory structures designed to ensure social benefits be remade. In particular, we must be alert to situations in which the timely elimination of obsolete services is not inhibited by the perpetuation of subsidies that no longer serve the purpose for which they were enacted. Regardless of which alternatives for regulatory reform are adopted, the revised goals must

embody principles of affordable access to the full range of services that are now enabled by the Internet. The goals must also provide incentives for continued technological innovation and for efficiency in the implementation of a new universal service structure.

The *third principle* is that the federal government must renew its leading role in funding and sponsorship of network and computational research. The Internet is perhaps the best single example of public-private partnership in discovering, developing, and deploying new technology. Much of the original research was sponsored by the federal government and was conducted at U.S. universities. The first large-scale deployment of the technology occurred when the National Science Foundation funded NSFnet in 1987. Web browsers are a product of creative genius at federally sponsored research facilities in Switzerland and Illinois. To achieve its promise as a powerful instrument for economic and social betterment, the Internet must continue to be closely linked to communications and computing research endeavors. Many important architectural and operational issues in the current network environment require sustained research and proof-of-concept funding.

Five Action Areas

Articulating and fulfilling the vision for Broadband America requires many activities, of which those in higher education are only a part. The BPG places the highest priority on the following five action areas.

First, we need a revitalized and well-articulated national broadband vision. Today we face the reality of an Internet that is beset by a variety of troubles and whose progress has been slowed by the lack of a unified view toward the future. A market and regulatory structure inappropriate to realizing the potential of emerging communications- and network-

related technologies has produced not only a punctured Internet “bubble” but a network that no longer commands the respect of scholars and the public at large.

Second, we need new telecommunications legislation. The legislative history of telecommunications has reached a major crossroads, stemming from frustration with failures of the 1996 Telecommunications Act, the rapid deployment of Internet technology, and other factors. Viewed in hindsight, the 1996 revision to the federal Telecom Act appears to have done little to prepare industry, consumers, and

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regulators for the Internet. Many observers, including the BPG, are calling for a reexamination of the nation's regulatory structure for telecommunications.

Third, we need new competitive players in the provisioning of local communications services. Telephone companies have been successful in a number of states in obtaining prohibitions on network access being provided by public or nonprofit entities. As stated in the first principle above, affordable broadband Internet access must be treated as an essential public service, whether provided publicly or privately. This is the case for other utility services such as water, sewer, and electricity. Internet access should be treated similarly. Thus, the test should be based not on provider status within the public sector or the private sector but on whether a truly affordable, high-quality broadband access is being made available to all residents and businesses.

Fourth, we need new approaches to universal service. The telecommunications universal service program is funded by a surcharge levied on telephone bills and is thus threatened by loss of revenue due to migration to currently unregulated and untaxed Internet voice and other services. Universal service should be revised from a program supporting subsidized legacy services to one promoting an accelerated migration from

narrowband legacy voice to broadband Internet transport services.

Fifth, we need the continued contributions of federal research sponsors to the design, development, and deployment of the Internet. These research endeavors are the basis for future commercial products and services that will contribute to health, safety, economic security, and other national goals. They are essential to the dynamic process by which innovations in technology find their way into everyday lives.



The demise of traditional telecommunications services and their manifold regulatory structures is finally upon us. In the next several years Congress, the FCC, and state governments are all likely to enact new legislation affecting the Internet. The openness, flexibility, and frequent innovations that we have become accustomed to may be threatened. Campus CIOs should be concerned, should be aware of national developments, and should ensure that their federal relations and academic staff are kept up-to-date. Coordinated evangelism made a big difference in Washington when the Internet was launched fifteen years ago. We may need that same team effort again!

Note

1. See <<http://www.educause.edu/ir/library/pdf/NET0409.pdf>>. The BPG has met with congressional leaders and staffers, has submitted to the FCC formal comments concerning IP-enabled services, paying special attention to the proposed regulation of voice-over IP and providing information on the campus use of and dependencies on wireless local area networks, and has initiated the filing of an amicus brief before the Supreme Court in support of the right of municipalities to provide telecommunications services (see Brenda Van Gelder, “The Case for Municipal Provision of Competitive Broadband Infrastructure,” *EDUCAUSE Review*, vol. 39, no. 3 [May/June 2004]: 62–63, <<http://www.educause.edu/pub/er/erm04/erm0438.asp>>).

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