

**Response to FCC Notice of Inquiry**  
Docket No. 09-51

Date: June 8, 2009

From: Rural Health Pilot Program Group of Internet2

Re: NOI - National Broadband Plan  
Docket No. 09-51

Internet2 is a 501(c)(3) not for profit organization whose mission is research, education, and advanced networking. Internet2 members include two hundred universities as well as medical schools, research centers, and regional networks. Internet2 members now have two years experience with the Rural Health Care Pilot Program (RHCPP). Based upon that experience, we recommend modifications to the RHCPP and new strategies for future government-supported broadband initiatives. Our comments below also reflect our specific interest in advanced networking.

### **Universal Service Programs**

<p>39. • <i>What modifications to the Rural Health Care Pilot Program (RHCPP), if any, should be considered as a part of a national broadband plan?</i></p>
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**Comments:**

The RHCPP supports the deployment of new network infrastructure in addition to subsidizing broadband services. New infrastructure funding has encouraged health care providers to create alliances with the aim of building networks that make the best use of new infrastructure. Today such groups face several barriers to building efficient and cost-effective networks. One barrier is a lack of upfront technical resources to organize and design a network. (See comments about another barrier, network restrictions, under Paragraph 40 below.)

Health care providers need assistance when adopting new technologies. ONC is establishing resource centers and an extension program to provide HIT advice and training to health care providers. Organizations that want to collaborate to form a network likewise need technical assistance from a neutral party when assessing their broadband requirements and networking options.

**The RHCPP and future broadband initiatives should provide early support to their participants for collaborative network design and organizational planning – before requiring submission of detailed plans.**

Current FCC requirements, for example, require the upfront completion of the detailed information on Forms 465 and 466, creating a barrier to an expedited process. Consider a project being managed by an organization that is already permitted to purchase off of a pre-approved vendor listing created via a competitive bidding process (examples include the federal GSA Cooperative Purchasing

Program, a universal service provider listing, or a similar statewide price agreement). The current USAC process requires repeat competitive bidding. These projects should be permitted to use existing purchasing vehicle/instrument as appropriate.

**Administrative processes should be streamlined and abbreviated to support the timely implementation of approved projects.**

Over the past five years, state-based regional optical networks have deployed over 10,000 miles of fiber-optic cable that serves state government, schools, libraries, and health facilities. These networks can provide high-capacity backbone infrastructure to extend affordable broadband to rural and remote areas while leaving last-mile connectivity to the private sector. It makes sense to leverage these networks to meet the needs of underserved sectors in a manner that addresses the broader goals of national broadband.

**Broadband initiatives should support the use of regional and middle-mile networks to provide affordable, high-speed, open-access connectivity to rural communities.**

40. • *To what extent will broadband deployment require continued funding for operations and maintenance?*

**Comments:**

An economically sustainable model for rural broadband must use infrastructure efficiently. Some projects are now delayed or blocked by funding rules that effectively create restrictions of this form:

- only nonprofits may be subsidized to use the network
- only rural areas may be served by the network,
- only health services may be provided by the network.

Rules that restrict the use of broadband infrastructure are not economically feasible and technically challenged. A rural community can best justify the expense of connecting to a broadband network when the network provides many services (health, education, libraries, and workforce development) and connects many people, including urban-based specialists.

We must broaden our vision and consider broadband as a tool to alleviate core issues in underserved communities, including job creation and access to educational resources. We can improve the economy and quality of life in all our communities by enabling access to broadband capabilities. Including both public and private entities as well as private citizens spreads the cost of a network over more users, reducing the cost per user and the need for subsidies.

**Broadband initiatives should support the efficient use of network infrastructure by avoiding restrictions on users, locations, and services provided.**

41. • *Should we give priority to funding the construction of networks, or is ongoing support for operations and maintenance essential?*

**Comments:**

The recommendations made above aim to help contain the cost of building and operating broadband networks. Adopting these recommendations may reduce or even eliminate the need for ongoing external support in some cases, but rural communities are home to a wide range of economic conditions. More affluent rural communities may be able to support a broadband deployment using a loan to cover startup costs. Less affluent communities may be able to meet the ongoing cost of operation, but not the cost for startup or servicing debt.

Sparsely populated areas may never be capable of meeting broadband operating costs. Such areas may require funding for both construction of a network and for its ongoing support. In these cases, it becomes especially important to try to maximize the value that a network can deliver, that is, to aggregate services on common network infrastructure.

**Broadband initiatives should support network construction and ongoing support based upon the needs of a particular community, while encouraging cost-efficient methods.**

## Health Care Delivery

81. • *How should we use broadband infrastructure and services to advance health care delivery?*

**Comments:**

Health care delivery in the United States has evolved dramatically over the last several decades, and its rate of change is accelerating. Accepted wisdom like “all healthcare is local” may not apply as more patients present as mobile consumers. An effective broadband plan must take into account current trends in order to anticipate emerging requirements. One clear trend is the conversion of myriad health data silos into a connected system capable of delivering higher quality and lower cost care. Broadband requirements depend upon answers to the following:

- Who will participate in health information exchange? Where?
- What types of information will be exchanged?
- What kinds of health care services will be delivered online?

Private citizens will be involved in health information exchange in the roles of patient, consumer, caregiver, and information manager. Patients will access and share Personal Health Records (PHRs) across the Internet, including ever larger image-based datasets. Patients will collect evidence including Observations of Daily Living (ODLs), store them online, and share them with their health care providers. New instruments will automatically monitor, record, and transmit critical observations based on emerging protocols. Inevitably, online patient-physician encounters will acquire more and more of the characteristics of clinic visits, pushing the need to provide homes and clinics with higher bandwidth connections. Tele-

health applications will be more widely adopted, moving into more and more care settings including the home.

**Broadband initiatives must assume an increasing need for higher bandwidth to support more demanding applications that deliver increasing levels of care to more diverse settings.**

82. • *How can broadband infrastructure and services support more efficient, effective, and secure access to medical records and to health care services?*  
• *How can broadband infrastructure support NHIN standards?*

**Comments:**

Public health and quality reporting use cases will require data exchange between diverse public and private entities. Similarly, VA patients treated in private clinics may trigger data exchanges in which the data must traverse a wide variety of networks including the public Internet as it moves between NHIN CONNECT Gateways. Bandwidth requirements today are relatively low, but they will rise once medical records contain more image data.

While the public Internet provides default transport, it is critical that a significant portion of the NHIN traffic traverse an interconnected set of networks that:

- operate transparently
- support high performance
- support advanced protocols (e.g., IPv6, IP multicast)

The local, state, and regional networks that interconnect via the national research and education backbones are the only networks that currently meet these criteria. They offer operational transparency (to fully understand the interaction between network behavior and application performance), advanced services, and a collaborative operations approach. They have experience with advanced applications and a willingness to support them, creating the best environment for deploying, testing, monitoring, and refining NHIN connectivity.

Beyond the NHIN, it's clear that the reach of networked health IT will be pervasive. To insure that the national broadband infrastructure can support the requirements of health IT, a national broadband plan should seek to maintain the end-to-end IP connectivity model by actively supporting a migration to IPv6. NHIN specifications provide for authorization and encryption functions at the end-points, so the network itself is not responsible for these functions. This approach insures the NHIN can extend to the public Internet, one of its design goals. Internet connectivity itself does, however, present a significant threat risk to the servers and facilities that connect to the NHIN. Organizations connecting to the NHIN will need to insure effective border security.

**FCC and FHA should jointly test end-to-end data exchange using NHIN CONNECT gateways with data traversing transparent networks that support high performance and advanced protocols.**

84. • *How effective are existing efforts in supporting tele-health? How can they be improved?*  
• *How might potential regulations impede or enhance the development of a vibrant nationwide tele-health network?*

**Comments:**

The FCC's Rural Health Pilot Program (RHCPP) created a new community of health care stakeholders. The RHCPP community began with great optimism, but it now finds that the program's strict focus on telecommunications infrastructure and restrictive policies have limited its potential.

Comments above in Paragraphs 39 and 40 describe some of the challenges faced by the RHCPP community. Most of the barriers arise from restrictions placed on the funding of infrastructure. For example, rural health care providers frequently need to refer their patients to specialists based in urban areas. Existing funding rules fail to incentivize urban specialist participation in tele-health initiatives.

Another way to improve RHCPP support for tele-health would be to include telemedicine-originating sites consistent with other federal programs. CMS includes skilled nursing facilities, behavioral health centers, and dialysis centers.

**The FCC and other agencies sponsoring broadband initiatives need to clearly articulate universal broadband goals and support policies most likely to advance those goals in a timely manner.**

85. • *How can the FCC work with HHS and other agencies to maximize the use of broadband and tele-health to increase health awareness, diagnosis, and treatment?*

**Comments:**

The Federal Health Architecture (FHA) has gathered more than 20 federal agencies into a coordinated effort to develop and deploy technology that enables health information exchange. By agreeing to jointly develop a common platform (the CONNECT Gateway), FHA members have accelerated health information exchange between themselves and others. The Government should consider establishing a comparable group that includes representatives from NTIA, RUS, and FCC (e.g. members from eRate and RHCPP). Additional members could be drawn from the FHA membership, for example, representatives from the CDC, AHRQ, VA, DOD, IHS, and HRSA.

**The Government should establish a multi-agency group to coordinate and align broadband goals, policies, and technologies to enable more rapid adoption of health information exchange and telemedicine initiatives.**