

# **OLDER AMERICANS, BROADBAND AND THE FUTURE OF THE NET**

**By Richard Adler**

# About SeniorNet

Founded in 1986, SeniorNet is a 501(c)3 nonprofit organization that is one of the world's leading technology educators of adults 50+. SeniorNet's mission is to provide older adults education for and access to computer technologies to enhance their lives and enable them to share their knowledge and wisdom. On October 20-21, 2006, at the Hilton Arlington in Arlington, VA, SeniorNet will celebrate 20 years of empowering older adults through technology.

SeniorNet has benefited millions of older adults since its founding in 1986 and supports over 240 SeniorNet Computer Learning Centers throughout the U.S. and internationally. An extensive curriculum of over 30 courses are delivered at SeniorNet Computer Learning Centers via a proven 'seniors teaching seniors' methodology, by thousands of volunteer instructors and mentors. The organization also offers its membership discounts on computer-related and other products and services, holds regional and national conferences, publishes membership newsletters and collaborates in research on older adults and technology. SeniorNet also has a dynamic online community on its web site at <http://www.seniornet.org>, where individuals 50 and older, and others who are interested in a wide array of other subjects, are welcome to peruse the online resources and participate in the hundreds of discussion topics offered on the site.

SeniorNet members learn and teach others to use computers and communications technologies to accomplish a variety of tasks. They learn to use the Internet to communicate with others across the country and the world, to navigate the Internet for health and life –enhancing resources and information, to touch up photos and send and receive them in e-mail, to desktop publish documents, to write their autobiographies, manage personal and financial records, and to serve their communities, among other valuable skills. SeniorNet members share a desire to continue learning and a willingness to contribute their knowledge to others.

SeniorNet grew out of a research project funded by the Markle Foundation in 1986 to determine how computers and telecommunications could enhance the lives of older adults.

An international, nonprofit organization with headquarters in Santa Clara, California, SeniorNet is funded by membership dues, Learning Center fees, the altruistic donations of individuals and the generous sponsorship of many companies and foundations.

## About the Author

Richard Adler has been a leader in the field of aging and technology for more than a decade. He is a pioneer in conducting research on the impact of technology on older adults.

Richard is principal of People & Technology, a research and consulting firm in Cupertino, CA. His recent activities include serving as lead U.S. consultant to the Smart Senior Consortium, a multi-national initiative to develop business strategies for the mature market, and directing a project on “The Future of Aging” for the State of the World Forum. Other clients include technology and consumer product companies, non-profits and foundations, and various start-ups in Silicon Valley.

From 1990 to 1997, Richard was Vice President for Development at SeniorNet. While at SeniorNet, he created the organization’s first business plan and directed the first national survey of computer use by older adults. Before joining SeniorNet, Richard was a director at the Institute for the Future, where he headed a research program in new information services. Richard has taught at Stanford and UCLA and was a Research Fellow at the Harvard Graduate School of Education. He serves on several boards and is a member of the Leadership Council of the American Society on Aging’s Business Forum on Aging.

Richard holds a BA from Harvard, an MA from the University of California at Berkeley, and an MBA from the McLaren School of Business at the University of San Francisco. He can be reached at [radler@digiplaces.com](mailto:radler@digiplaces.com).

# Older Americans, Broadband and the Future of the Net

## Introduction and Overview

Americans over age 60 continue to lag behind younger people in the use of the Internet. Yet of all demographic groups, it may well be older adults who have the most to gain from access to the kinds of resources that the Internet can provide. Perhaps the most dramatic example of the benefits of the Internet for seniors is its potential to deliver health care services to patients when and where they are most needed. These applications could extend the ability of older adults to live active, independent lives and benefit society by generating billions of dollars in savings.

Baby Boomers (the oldest of whom are now 60), who will become the next generation of seniors, are more comfortable with using technology than today's seniors. The result as they continue to age will be a dramatic increase in the number of older Internet users. But whether they will get to enjoy the promise of the Internet will depend on its continued growth and development. Unfortunately, the U.S. lags behind many other countries in the number of homes connected to the Internet and in the use of cell phones.

To realize the full benefits of the Internet, we need a regulatory environment that encourages continued growth. The current debate over the concept of "net neutrality" is an example of the kind of critical decisions that have to be made about the future of the Internet. The concept of requiring Internet Service Providers to treat all types of content the same sounds intuitively appealing. But given the pace at which the Internet continues to evolve, it is a good idea to be cautious in imposing wide-ranging rules that could have unforeseen and unfortunate consequences. The Federal Communications Commission's (FCC) approach of announcing a set of broad principles and then acting quickly to respond to actual abuses is a more appropriate strategy for keeping the Internet healthy and growing than trying to anticipate and legislate against potential problems before they arise.

## Broadband and Older Americans

Four years ago, in a paper titled "The Age Wave Meets the Technology Wave,"<sup>1</sup> I described some of the potential benefits that the widespread availability of broadband networks could provide to older Americans. These benefits include:

- **Enhancing communications with family and friends.** High-speed networks can dramatically enhance the ways in which people communicate and share their lives

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<sup>1</sup>"The Age Wave Meets the Technology Wave: Broadband and Older Americans," SeniorNet, 2002. Online at [www.seniornet.org/downloads/broadband.pdf](http://www.seniornet.org/downloads/broadband.pdf).

on an on-going basis. Adding video to today's voice and text communications will provide opportunities for richer interactions. As the physical bandwidth of networks grows, so will the "emotional bandwidth" that will allow families and friends to stay closely connected even if they are geographically separated. As broadband becomes increasingly ubiquitous, it will be possible to maintain these enriched connections from virtually anywhere.

- **Expanding opportunities for lifelong learning.** "Continued learning," it has been observed, "is the real fountain of youth." Broadband networks will vastly expand and enrich access to the world of learning. Online "classrooms without walls" will bring engaging educational experiences to seniors at home, and will help prolong the careers of older workers by providing instant access to continued training in the workplace.
- **Improving the delivery of health care services.** Broadband technology may have the greatest impact on the lives of seniors in the area of health. As people get older, the cost of the medical services they use increases, and as the population of the United States continues to age, our existing health care delivery system is coming under increasing strain. One promising approach to improving the efficiency of health care delivery is a greater use of "telemedicine" services. Broadband networks make it possible to deliver high quality medical services to older adults, including remote diagnoses and continuous health monitoring, in ways that are convenient for both patients and providers.
- **Supporting independent living.** One of the most innovative uses of broadband networks will be to help people remain independent as they age and become more frail. Research is currently underway to develop an "aware home" that will unobtrusively track the behavior of residents, automatically provide needed services, and call for help when needed.
- **Creating new options for entertainment.** As broadband access grows, so will the range of entertainment options available to everyone, including older adults. Greater bandwidth will expand the opportunities to provide content designed for specific audiences and give individuals the ability to customize the programming available to them.

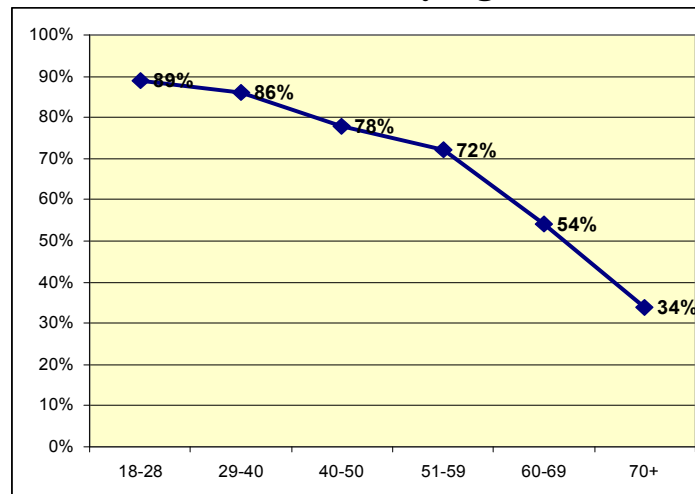
At the time this paper was written, only one-fifth of all adults over the age of 65 were online. And just about 10 percent of U.S. households had broadband Internet connections. So these benefits seemed somewhat remote.

## Making Progress—Gradually

In the past four years, real progress has been made on both fronts: use of the Internet has increased to 34 percent of adults over 65<sup>2</sup> and broadband penetration has now reached nearly 40 percent of U.S. households. While these trends are encouraging, we still have a long way to go on both fronts

In terms of seniors' use of the Internet, a recent report from the Pew Internet and American Life Project notes that seniors are “often cited as the fastest-growing demographic group online.” However, use of the Internet by seniors remains substantially below that of other age groups. According the most recent Pew data, Internet use is “virtually universal” among younger people, and is still over 50 percent among adults in their sixties, but falls to just over one-third of those over age 70. While Internet use has increased steadily for all age groups over the past decade, the overall shape of the curve, with its relatively sharp fall off after age 60, has stayed relatively constant.

**U.S. Internet Use by Age, 2006**



Source: Pew Internet & American Life Project, April 2006

The Pew report points out that the description of seniors as the fastest-growing age group on the Internet can be misleading since “most of the growth in this group...has come from long-time Internet users in their early sixties aging into senior status.” By contrast, there has been relatively little growth among Internet users over age 70.<sup>3</sup>

These data suggest that a portion of the “older seniors” who have gotten to this point in their lives without going online may decide that they don’t need to change and begin to

<sup>2</sup> Mary Madden, “Internet Penetration and Impact,” Data Memo, Pew Internet and American Life Project, April 2006.

<sup>3</sup> Susanna Fox, “Are ‘Wired Seniors’ Sitting Ducks?” Data Memo, Pew Internet and American Life Project, April 2006.

learn to use this new medium. On the other hand, the experience of SeniorNet over the past 20 years strongly suggests that there are a great many older adults who, when given the chance to learn about computers and the Internet, do so eagerly and become active users. Since it was founded in 1986, SeniorNet has introduced more than a million older adults to computers and the Internet. And demand for training remains high at 240 SeniorNet Learning Centers across the country that offer classes specifically designed for older adults. Moreover, as the capabilities and availability of broadband networks continue to grow, the reasons for going online become more compelling for people of all ages.

And with the oldest of the Baby Boomers having reached the age of 60, the number of older American online will begin to grow even faster. As the Pew report noted, millions of these Boomers are entering later life already familiar with use of the Internet. Within the next decade, it is reasonable to assume that more than half of all Americans over age 65 will be using the Internet. Which raises the question: will the technology keep up with their needs?

## **Growing Impact of Broadband**

As broadband services have continued to evolve, their potential for an aging America appear even more compelling. In the area of health care, the past few years have seen the emergence of promising new applications that are expanding the ways in which health care services can be delivered. New wireless “e-health” applications have been developed that take advantage of the growth of broadband to the home and of cellphone penetration – now in use by nearly 70 percent of adult Americans. Health care providers are now able to continuously monitor the cardiac performance of heart patients or the food intake and glucose levels of diabetics, and remote caregivers can make sure that patients for whom they are responsible are taking necessary medications on schedule.

Telemedicine promises to reduce the cost of healthcare through better management of chronic diseases, more efficient use of health professionals, reduced patient travel times, and fewer or shorter hospital stays. It can also be the critical difference in saving lives when there is a limited window of opportunity for diagnosis, such as with stroke patients. These applications raise the prospect that health care, which has traditionally been delivered through clinics and hospitals, will literally be available anytime and anyplace that is most cost-effective and most convenient for patients.

The potential impact of broadband on the economics of health care was recently explored in a study by Robert Litan, an economist at the Kauffman Foundation. Litan estimates that over the next 25 years, broadband-based health applications could result in savings of at least \$927 billion in the health care costs for seniors and the disabled. And an

additional savings of \$532 billion to \$847 billion could be realized if policies were enacted that would accelerate the growth of broadband.<sup>4</sup>

As appealing as this potential may be, the reality today is that while the number of broadband users continues to grow in this country, the U.S. is not keeping up with the rest of the world in broadband penetration. A recent report from the Organization for Economic Co-operation and Development (OECD) showed that, as of December 2005, the U.S. had fallen to 12<sup>th</sup> place in broadband penetration, down from 11<sup>th</sup> place a year earlier. While the top four countries, Iceland, Korea, The Netherlands and Denmark all had more than 25 broadband subscribers per 100 inhabitants, the U.S. had just 14.5 subscribers per 100 inhabitants.<sup>5</sup> Moreover, broadband speeds available to most Americans tend to be lower and the prices paid by Americans for broadband access tend to be higher than for subscribers in other countries.<sup>6</sup>

### **Broadband Subscribers, 2005**

<b>Country</b>	<b>Subscribers per 100 inhabitants</b>
Korea	25.5
Netherlands	22.5
Denmark	21.8
Iceland	21.7
Switzerland	20.3
Canada	19.2
Finland	18.7
Belgium	18.2
Norway	18.2
Sweden	16.5
Japan	16.4
<b>United States</b>	<b>14.5</b>

Source: OECD, December 2005

### **Growing Pains for Broadband**

One reason that the U.S. continues to lag many other countries in the deployment of high speed broadband is an uncertain and, to some degree, outmoded regulatory environment.

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<sup>4</sup> Robert E. Litan, "Great Expectations: Potential Economic Benefits to the Nation from Accelerated Broadband Deployment to Older Americans and Americans with Disabilities," New Millennium Research Council, December 2005. Online at: [http://newmillenniumresearch.org/archive/Litan\\_FINAL\\_120805.pdf](http://newmillenniumresearch.org/archive/Litan_FINAL_120805.pdf)

<sup>5</sup> OECD, "Broadband Statistics," December 2005. Online at [www.oecd.org/document/39/0,2340,en\\_2649\\_201185\\_36459431\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/39/0,2340,en_2649_201185_36459431_1_1_1_1,00.html)

<sup>6</sup>S. Derek Taylor, *Broadband Reality Check*, Free Press, August 2005. Online at [www.freepress.net/docs/broadband\\_report.pdf](http://www.freepress.net/docs/broadband_report.pdf).

The last major effort to update the regulation of the telecommunications industry took place in 1996. This effort was generally successful in revamping regulation to respond to a more competitive telecommunications marketplace, but it focused primarily on the rules governing traditional telephone service and did not – and probably could not – address all of the issues related to the ongoing evolution and growth of the Internet. After all, a decade ago, less than a quarter of U.S. adults used the Internet (compared to nearly three-quarters of all adults today); there were only about 44 million cellphone users in the U.S. (compared to more than 195 million today); and broadband access was almost entirely confined to businesses.

Last year, the Federal Communications Commission made a useful contribution to creating a regulatory environment that will support the continued growth of new broadband services. In August, 2005, the FCC adopted a policy statement that established four broad principles that designed to “encourage broadband deployment and preserve and promote the open and interconnected nature of public Internet.”<sup>7</sup> The four principles are:

1. Consumers are entitled to access the lawful Internet content of their choice;
2. Consumers are entitled to run applications and services of their choice, subject to the needs of law enforcement;
3. Consumers are entitled to connect their choice of legal devices that do not harm the network; and
4. Consumers are entitled to competition among network providers, application and service providers, and content providers.

These principles are relatively broad and non-specific. However, the Commission has shown that it is willing to act when it becomes aware of actions that violate these principles.<sup>8</sup>

## **Getting Regulation Right**

There are efforts currently underway in Congress to update telecommunications law again to respond to the reality of new technologies such as broadband and new broadband-enabled applications such as the voice calls on the Internet (VoIP) and video on the Internet (IPTV) that were difficult or impossible to anticipate a decade ago.

Policymakers need to strike a balance between two competing goals: on the one hand, it is critical to protect the openness and versatility of the Internet that have been hallmarks of its success. On the other hand, it is important that policymakers recognize that the Net is still evolving and that there are likely to be as many unexpected new developments in

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<sup>7</sup> “FCC Adopts Policy Statement,” Federal Communications Commission News Release, August 5, 2005.

<sup>8</sup>For example, see Paul Kapustka, “FCC Fines North Carolina Provider for VoIP Blocking,” *Information Week*, March 03, 2005.

the next ten years as there have been in the last decade. A good operating principle for policymakers would be to strive to create as positive an environment as possible to encourage continued growth while not trying to anticipate and create rules for every possible issue in advance.

One example of a potential pitfall is the concept of “network neutrality,” which would require Internet Service Providers (ISPs) to treat all content carried on their networks the same. Proponents argue that, absent a requirement of net neutrality, ISPs could erect “toll booths” on the Internet that would impede the free flow of information and create different classes of service for content providers. Opponents of net neutrality warn that if ISPs ability to manage their networks is restricted, they could be precluded from ensuring that their networks are capable of supporting new classes of applications. As John Chambers, CEO of Cisco Systems and a pioneer in the development of the Internet, has noted, ISPs must be able “to use innovative technology to manage their networks to provide quality of service and new features and services to meet evolving consumer needs...as long as there is no anticompetitive effect.”<sup>9</sup>

The delivery of health care services – the broadband area with the greatest potential impact on the lives of seniors – is a case in point. Broadband technology enables doctors to remotely monitor patients with chronic conditions like diabetes, asthma, rehabilitation, chronic heart and lung disease. One example, teledermatology requires high bandwidth to transmit near high-definition quality video for an effective remote consultation. The alternative method for a remote consultation in this field would be for the patient to use a digital camera and send the images to the physician through email, also known as store-and-forward. Store-and-forward has its place in the treatment process, but does not replace an interactive patient-doctor consultation where the doctor has more flexibility when examining objects. Without a secure, reliable high speed telecommunications transmission, the equipment at either end cannot perform to its full capability.

Furthermore, with all telehealth applications, and healthcare in general, privacy and security of medical records remain a paramount priority. With all the benefits that remote monitoring and home healthcare offer, they will never catch on if patients and physicians cannot be assured that their private health information is secure from hackers or other malicious behavior.

Today, most telehealth applications are delivered over virtual private networks (VPNs) because these customized network connections provide the reliability and quality that are needed in telemedicine. The more common Internet protocol, TCP/IP, treats all bits of data on a first-come or “best effort” basis. While this protocol is fine for most consumer uses, it does not work well with time-sensitive live video or real-time communications required by many telehealth applications.

Under net neutrality regulation, sensitive medical records would be treated like common e-mail or VoIP voice calls. Network operators would be precluded from customizing

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<sup>9</sup> “Network Neutrality,” Cisco Systems Position Paper, March 2006.

their networks to improve security, and patients and medical professionals would be left to their own devices to ensure the security of highly sensitive records.

A physician who heads a major telemedicine program and is generally optimistic about the potential of cell phones and the Internet to support innovative new applications observed that “If one out of a hundred instant text messages doesn’t get delivered, most people won’t mind. But if one out of a hundred cardiac readings isn’t delivered promptly and accurately, a patient can die.” Legislating net neutrality now could prevent network providers from providing priority delivery for these critical applications.

## **The Need to Keep Evolving**

As this example shows, the same quality of service that is perfectly adequate for most consumer uses may be wholly inadequate for critical applications such as health. If the Net is going to evolve to support both types of applications, network providers need the ability to provide the appropriate level of service for each application. One of the unintended consequences of a strict net neutrality policy could be to preclude this sort of useful differentiation.

Americans of all ages have an enormous stake in the future of the Net. In the end, older Americans, even though they have been slower to get online than younger people, may be the group that will benefit the most from the applications provided by a robust, ubiquitous network. And these new applications may emerge just in time to meet the burgeoning needs of an older population that is beginning to grow at an unprecedented rate as the Boomers continue to age. If we are to meet this challenge, it is critical that we get regulation right.