



High-Speed Telecommunications: Infrastructure Growth and Market Penetration throughout Nevada and the Nation

Ben Colton, Graduate Research Assistant, Department of Resource Economics

Thomas R. Harris, Economic Development Specialist, University of Nevada Cooperative Extension; Professor, Department of Resource Economics; and Director, University Center for Economic Development

Brian Whitacre, Assistant Professor, Agricultural Economics, Oklahoma State University

The Internet has dramatically changed many aspects of our everyday life, in both the state of Nevada and the nation. Whether it is the way we work, communicate, gather information, or just pass the time, Nevada’s residents have become increasingly dependent on the World Wide Web. Like all technologies, the Internet continues to evolve and grow. Many factors such as infrastructure investment, technological advancements, and lower costs have allowed the Internet, particularly high-speed connections, to reach more people and at higher speeds than ever before.

Internet connection growth and the emergence of broadband

The penetration of the Internet into households across the United States has increased at a staggering rate. Figure 1 shows the upward trend in Nevada, the West, and the nation during the first decade of the new millennium.

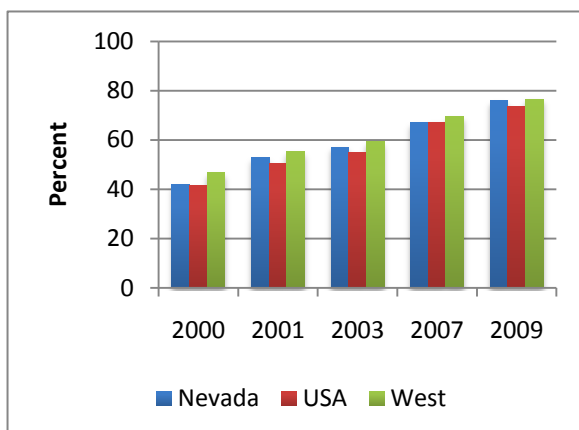


Figure 1. Household Internet access for Nevada, the West, and the nation; 2000-2009. Source: U.S. Census Bureau Current Population Survey Report.

Broadband connections¹, which are synonymous with high-speed², have been consistently replacing the technologically inferior dial-up or 56k modems as a means for Internet access. Figure 2 shows how the access mix has changed from 2000 to 2009.

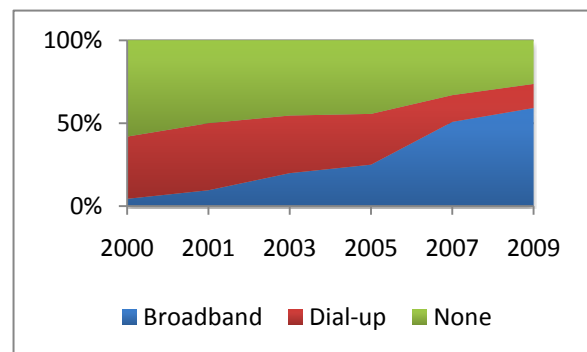


Figure 2. U.S. household Internet access mix from 2000 to 2009. Source: U.S. Census Bureau Current Population Survey Report, 2000, 2001, 2003; GAO Telecommunications report to Congress, 2006; NTIA Current Population Survey, 2007, 2009.

Most broadband connections require unique infrastructure and are thus more readily available in populous areas. The nature of more rural areas, lower density populations spread out over relatively wider distances, make broadband infrastructure more costly. Nevertheless, the market penetration of broadband Internet connections in rural, as well as urban, households across the U.S. has been remarkable. Figure 3 illustrates the growth of broadband in urban areas, rural areas and the total U.S. from 2000 to 2009.

¹ defined as DSL(Digital Subscriber Line), cable, or any other connection with data transfer rates equal to or exceeding 256 kb/s.

² As of 2009, high-speed connections known as “basic broadband” are defined by the Federal Communications Commission (FCC) as 768 kilobytes per second (Kbps) of data throughput in at least one direction.

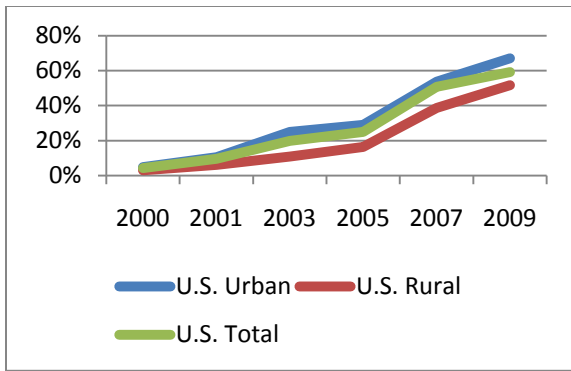


Figure 3. Household broadband Internet access for U.S. total, urban, and rural, 2000 to 2009. *Source: U.S. Census Bureau Current Population Survey Report, 2000, 2001, 2003; GAO Telecommunications report to Congress, 2006; NTIA Current Population Survey, 2007, 2009.*

Broadband access in Nevada has been consistent, on average, with national trends overall in both urban and total areas. The rural areas in Nevada have significantly higher broadband access rates compared to the national average. Figures 4 and 5 compare the household broadband access in Nevada and the United States in 2007 and 2009, respectively.

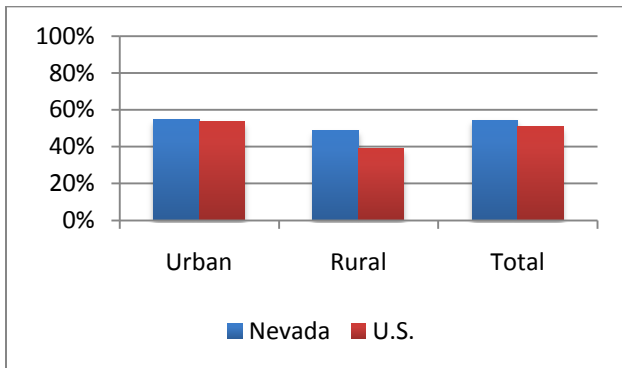


Figure 4. Household broadband Internet access in Nevada and the nation; urban, rural, and total, 2007. *Source: NTIA Current Population Survey, 2007.*

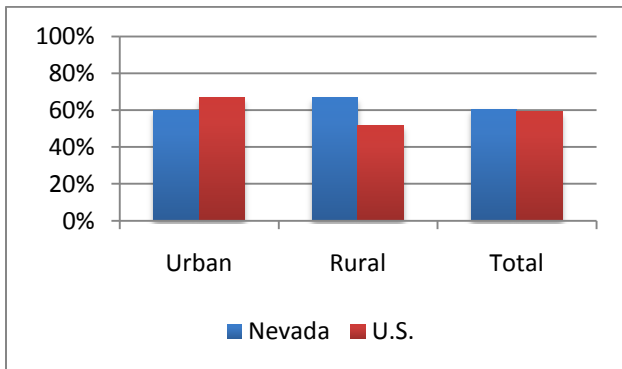


Figure 5. Household broadband Internet access in Nevada and the nation; urban, rural, and total, 2009. *Source: NTIA Current Population Survey, 2009.*

The mix of Internet access type for Nevada, the West, and the nation in 2009 is described in more detail in Figures 6 through 8. Figures 6 and 7 show Nevada to be on pace with the national and regional averages from an urban and cumulative perspective. More interestingly, Figure 8 reinforces the penetration of Nevada’s rural broadband access rates relative to the regional and national averages.

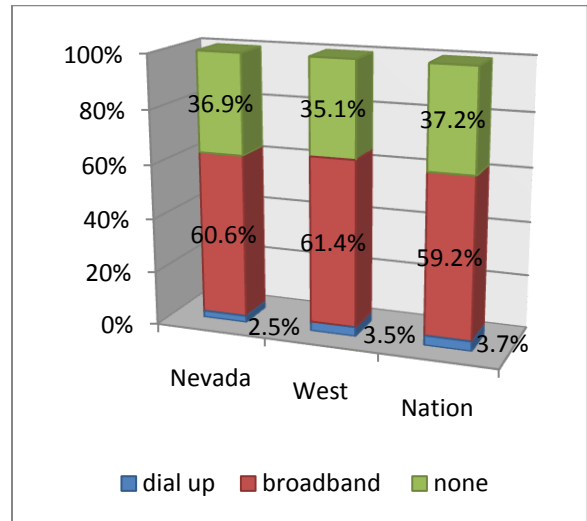


Figure 6. Internet connection type mix for Nevada, the western states, and the nation; 2009, total. *Source: NTIA Current Population Survey, 2009.*

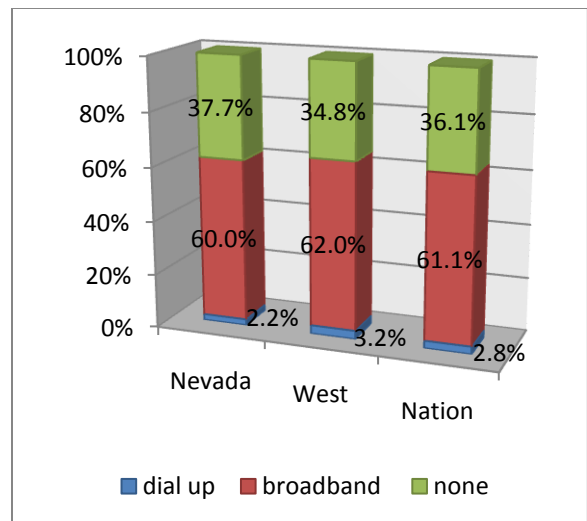


Figure 7. Internet connection type mix for Nevada, the western states, and the nation, 2009, urban areas. *Source: NTIA Current Population Survey 2009.*

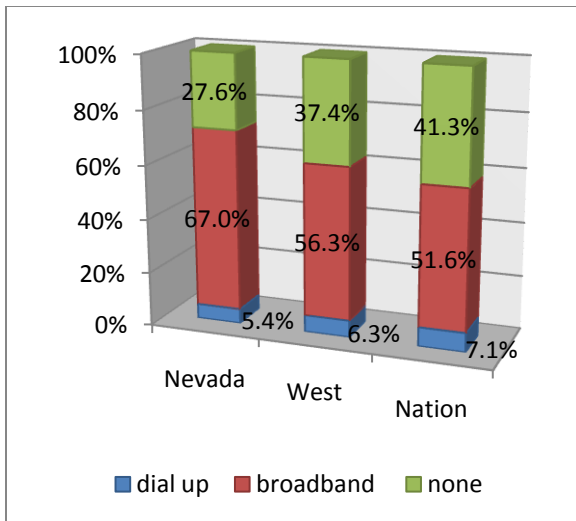


Figure 8. Internet connection type mix for Nevada, the western states, and the nation, 2009, rural areas. *Source: NTIA Current Population Survey 2009.*

The importance of high speed telecommunications infrastructure

The expansion of broadband infrastructure can be partially explained from a cost perspective. As the supply has increased, primarily for Digital Subscriber Lines (DSL), the costs have decreased. Figure 9 compares the average monthly costs of DSL and cable Internet connections. DSL has experienced an approximate 50 percent decline in its average monthly cost during the first half of the decade, while the average monthly cost for cable connections has remained relatively constant. By 2004, the average monthly cost for DSL had fallen below that of a cable connection. At the beginning of the decade, cable connections accounted for nearly 66 percent of residential broadband connections but had fallen below 50 percent by

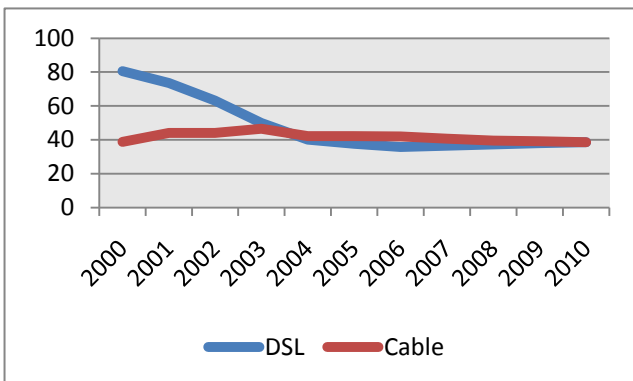


Figure 9: Average monthly broadband fees in the U.S., from 2000 to 2010, in dollars. *Source: TIA Market Study (In-Stat; TIA; WilkofskyGruen Associates).*

2010³. The declining monthly cost of DSL Internet access, as well as the emergence and growth of mobile wireless connections, are likely fundamental reasons for the decline in market share.

High-speed Internet opens up many opportunities for both households and businesses alike. For example, businesses benefit from broadband connections because of increased market exposure, ease of transactions, increased efficiency, better customer service and loyalty, and many other reasons. Households find uses in broadband connections, among other reasons, for entertainment, social groups, increased communication channels, a method of income and education.

What Communities Can Do

Communities should be concerned with the two distinct components of broadband access noted above: supply and demand. Measures need to be taken to ensure that community members have access to broadband infrastructure (supply) and also to promote knowledge about what the Internet is and how it can be useful so that individuals will be interested in having it in their own household or business (demand).

There are a number of ways a community can obtain broadband infrastructure. The most popular is the private sector route, where private providers such as the phone or cable company invest in infrastructure for a community. Unfortunately, there is often little incentive for these companies to provide broadband infrastructure in rural communities, since the low population densities and inferred low levels of demand may not provide enough return to justify the initial investment. Nevertheless, notifying these companies that a demand for high-speed access exists in your community provides some additional incentive for these private companies to upgrade to broadband infrastructure.

There have been recent pushes by the federal government, particularly the Federal Communications Commission (FCC), to continue the penetration of broadband connections throughout the union. On Feb. 17, 2009, the American Recovery and Reinvestment Act of 2009 was signed

³ <http://www.fcc.gov/wcb/iatd/comp.html>

into law. Together with the National Telecommunications and Information Administration (NTIA), this act aims to strengthen broadband deployment in unserved, underserved and rural areas. The efforts to increase jobs and other positive externalities from increased high-speed connections can be found beyond this act. Listed below are places to search for both help and funding.

- Federal Communications Commission
- U.S. Department of Agriculture
- National Telecommunications and Information Administration Broadband Technology Opportunities Program External website
- National Telecommunications and Information Administration Public Meetings External website
- National Telecommunications and Information Administration Ex Parte Meetings External website
- Mapping Broadband External website

Rural communities may also consider satellite technologies to avoid implementing costly infrastructure investments. On Jan. 27, 2004, the FCC Satellite Rural Forum was held to address satellite technology as it related to the following areas in rural communities.

- Farming and Agricultural Services
- Critical Public Safety Activities
- Telemedicine and Education Services
- Internet Access and Mass Media Entertainment Services

Nevada has a significant Native American population that can also benefit from federal programs. The Indian Telecom Initiatives (ITI) is overseen by the FCC and seeks to ensure all Americans, including those living in tribal communities, have access to affordable, quality telecommunications services.

A more complete overview of the national broadband goals called “The National Broadband Plan: Connecting America” can be found at <http://www.broadband.gov>.

Also, for the state of Nevada, a map of the current broadband service is available at www.connectnv.org.

In addition to the resources listed previously in this section, more information is available at The National e-Commerce Extension Initiative’s website: <http://srdc.msstate.edu/ecommerce/learningcenter>

Conclusion

The Internet provides an endless amount of opportunities and has quickly become a standard both nationally and globally. Implementing the Internet, particularly high-speed connections, should be a priority for any communities lacking proper infrastructure. Falling costs in the private sector and new public programs such as the American Recovery and Reinvestment Act of 2009 have made it substantially easier for communities to achieve their broadband implementation goals.

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