



rural broadband

Relief for rural America's broadband shortage?

Millions of rural Americans can rightly bear a grudge about their second-class access to high-speed Internet connections.

Not being on the Internet is no trivial matter, of course. As a recent Boston Consulting Group study put it: "Delivering fast broadband to rural areas is not simply a matter of providing convenience or faster downloads. Access to fast broadband has profound economic implications. The rise of industries, such as precision farming, remote patient care, e-commerce, smart energy, and emergency services, as well as the increase in opportunities for online education, are only some of the ways fast broadband can transform the quality of life for rural populations."

True, a lot of money has gone into trying to right this imbalance, starting with the massive Universal Service Fund (USF). Through USF, billions of tax dollars have subsidized rural phone service, focusing special attention in recent years to digitizing rural landlines to support reasonable data speeds.

In 2011, the FCC began focusing its efforts on modernizing the four programs in USF: Lifeline, High Cost, Rural Healthcare and Schools and Libraries. What was once the High Cost Fund became the Connect America Fund (now in Phase II) created "to preserve and advance voice and robust data service." The Rural Health Care program created the Healthcare Connect Fund in 2012. Congress and the FCC have long put a special emphasis on modernizing the program that brings broadband to schools and libraries (since 1996 called the E-Rate Program).



University of New Hampshire
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Other federal agencies have run other rural broadband programs, including the National Telecommunications and Information Administration (Dept. of Commerce) with its Broadband Technology Opportunities Program (fueled by billions of post-2008 American Recovery and Reinvestment Act dollars). Then there's the Department of Agriculture with packages of grants and loans under its Broadband Initiative program.

Through all of these programs progress was made, even as bureaucracies proliferated and the quality of execution varied.

The result has been a patchwork of varying degrees of "broadband" serving rural America. Digital subscriber line (DSL) enhancements to existing wirelines were joined, in lesser measure, by fixed wireless solutions, which have been gaining growing access to federal subsidies. A smaller sliver of market share is going to geosynchronous satellite services led by DishNET, despite their inherent latency issues.

Meanwhile, mobile wireless carriers, led by AT&T and Verizon, have been quite happy to welcome rural Americans to the party as consumers worldwide have rushed first to data-enhanced cellphones and then to the wildly popular smartphones (and to a lesser extent wireless-capable tablets). The gradually improving mobile wireless technology (3G, and now 4G LTE), while not necessarily competitive with fixed broadband, seems to be meeting the needs of at least some rural Americans. It's no wonder that mobile service providers are asking: Who needs wireline or fixed wireless data services? So who in rural

Yet the sentiment is strong — especially at the FCC — that today's patchwork quilt of broadband service to rural Americans leaves millions very disadvantaged. In its 2015 Broadband Progress Report, issued in January and ratified by FCC Commissioners by a partisan 3-2 vote, the FCC formally re-defined "broadband benchmark speeds" upward, to 25 Mbps downstream and 3 Mbps upstream as the federal government's idea of speeds achievable with today's technology.

FCC requirements for federal funding have gradually risen, from 768kbps downstream/200kbps upstream back in 2008 to 4 Mbps/1 Mbps in 2010 to 10 Mbps/1 Mbps in USF-funded programs today. As of early 2015, the requirement for most federal funding (notably Connect America) remained 10 Mbps/1 Mbps, but in other programs (such as the FCC's \$100 million "Rural Broadband Experiments" competition), the 25 Mbps/3 Mbps level of service is already a requisite.



America is still being denied access to broadband? That depends on the benchmark. The FCC has noted:

- Using 4 Mbps/1 Mbps, 20% of rural Americans (14.5 million) lack broadband access;
- Using 10 Mbps/1 Mbps, 31% lack access;
- With the newest 25 Mbps/3 Mbps benchmark, 53% of rural Americans (22 million) lack access (in urban areas that figure falls to 8%).

FCC Chairman Tom Wheeler has recently called 4 Mbps access "a joke" and complained that broadband is not being deployed "in a reasonable and timely fashion, especially in rural areas, on Tribal lands, and in US Territories."

The 2015 Progress Report declares that providers offering anything slower than 25 Mbps/3 Mbps are "failing to keep pace with today's advanced, high-quality voice, data, graphics and video offerings," specifically noting that "a significant digital divide remains between urban and rural America."

Defenders of carriers, including the two dissenting Republican commissioners in the recent 3-2 vote, accused the FCC of "overreach" and "moving the goalpost" with its 25 Mbps/3 Mbps benchmark, presumably to justify further federal intervention and big-spending programs. The FCC's defenders counter that Congress's mandate to the FCC for two decades has been to monitor changing technologies and work to make them widely available.

Then there's the matter of choice and pricing. The 2015 FCC report notes that at 25 Mbps, 75% of Americans have exactly zero or one provider to choose from. An NTIA study found that, of people who choose not to purchase broadband service, 28% complained of its high price. A New America Foundation study asserts that four to five carriers would have to be competing in a market to cause significant price competition.

Broadband Benefits

The benefits of broadband access, alluded to earlier, are multifold:

- In a 2013 study, Professor Sharon Strover of the University of Texas's College of Communications found that rural counties in which more than 60% of people use broadband exhibit more rapid income growth and slower unemployment growth than similar counties with fewer people online. For rural residents, Strover noted, "having broadband is simply treading water or keeping up. Not having it means sinking."



- In a media interview, Professor Lawrence Wood, Director of the Communication and Development Studies program at Ohio University, stressed the importance of the non-work side of broadband. Having a smartphone or a fast Internet connection, he said, "is really a matter of being a part of contemporary life in the United States."
- A USDA-funded study by Oklahoma State University researchers found that high-performance broadband network usage in rural America correlates with economic growth. The research team however stressed the importance of actual broadband adoption, not mere infrastructure-building: "There's not much being spent on showing people what can be done with broadband, or getting people to use it productively," they said in a summary.
- A joint study by equipment maker Ericsson, consultants Arthur D. Little and Sweden's Chalmers University of Technology, which analyzed hundreds of academic papers and intergovernmental studies, concluded that access to fast broadband networks correlates positively with economic advantages and improvements in household income.

The powerful combination of federal assistance and technology advances is doing a lot to compensate for the fact that bringing expensive broadband service into sparsely populated regions hasn't been the greatest way to make money. President Obama's announcement in January 2015, of the planned formation of a Broadband Opportunity Council which would coordinate the efforts of more than a dozen government programs, may bring more efficiency to federal spending. And ongoing advances by wireline, fixed wireless and mobile wireless carriers should improve the cost equation.

One player, Google, may merit special mention as a challenger to existing players. Google has invested \$1 billion in a Low Earth Orbiting (LEO) satellite system of Elon Musk's SpaceX, and has stated it hopes to use LEOs in its own "Project Loon" to bring Internet service to "every square inch of the planet." Google is also exploring alliances by which to become a mobile virtual network operator (MVNO) and hence a significant force in rural broadband. Other companies exploring ambitious technology visions include Dish Network and Facebook.

For bandwidth-hungry rural America — farmers and ranchers, random businesses, state and county officials, educators and healthcare providers — a chance to truly catch up with cities can't come soon enough.

