

Breaking Telecom Monopolies

In many rural areas, traditional operators have failed to invest in telecommunications infrastructure. Strategic investments by property owners, groups of owners, local associations and local governments can jump-start competition.

By Andrew M. Cohill / *Design Nine Inc.*

The current state of broadband in the United States can be described as two very different markets.

Many urban areas and larger towns have cable internet service considered adequate based on current uses, and a few communities have some fiber. Very few places have fiber widely available throughout the community.

In contrast, smaller communities and rural areas struggle with inadequate service, including mediocre DSL, expensive satellite and wireless broadband with limited availability.

This bifurcation of service has perpetuated the digital divide. At one time, people usually discussed the digital divide in terms of who could afford broadband and who could not. But today, one way of viewing the digital divide is by geography or location. Some areas of the country have adequate broadband and internet access, and other areas do not.

This new digital divide is leading to unanticipated consequences. The availability of broadband (or the lack of it) is beginning to drive land use decisions, including where people want to work and where they want to live.

Quality of family life is also affected. Where adequate broadband is limited or simply not available, families with school-age children are heavily impacted as more K-12 school systems make increased use of online learning resources that require children have internet access at home. Design Nine hears frequent complaints from mothers who have to drive their children several times a week to local libraries or even

to fast-food restaurants. A common sight today is a minivan or an SUV in the parking lot of a McDonald's at 4 p.m., with a mother and two or three children all working on laptops or tablets.

When Design Nine surveys internet use, we see a rapidly rising percentage of people who report that home is their primary workplace for either full-time or part-time work. An even higher percentage of workers who commute to office locations during the day report that they work from home on nights and weekends. What I predicted more than 15 years ago has come to pass: Neighborhoods have become business districts.

Broadband is now beginning to affect zoning, land use, real estate values and quality of life. Millennials, who grew up with the internet, smartphones, tablets and computers, simply are not interested in living in places that have inadequate broadband.

In populous areas, some incumbent and/or competitive service providers are deploying fiber in limited amounts. Google's fiber initiative was cut back, and Verizon all but stopped deploying Fios. In many markets, fiber is being installed only to deliver services to institutional customers, such as schools, medical facilities and local government facilities, and to large business customers. In many cases, that institutional-market fiber passes residential neighborhoods without offering any fiber-to-the-home service.

In rural areas, despite improvements in wireless technology, the physics of radio

frequencies has not been able to overcome line-of-sight challenges, the high cost of building towers in areas with low customer density, and the higher maintenance and repair costs of wireless broadband networks, compared with the more reliable technology and lower maintenance costs of fiber networks.

But regardless of where broadband is deployed, both fiber and wireless providers are carving up service areas to create mini-monopolies. In the fiber business, the rule of thumb is that whoever builds fiber into a neighborhood first “wins” because building two fully duplicated fiber networks to compete for the same customers is simply not economical.

Similarly, wireless internet service providers (WISPs) make efforts not to offer service in any area where there is already a competing WISP, for the same reason that fiber providers avoid areas

Competition for useful portions of infrastructure improves service quality, moderates prices and spurs investment.

where competitors are established: It is costly and yields low customer take rates.

The effect could be called the balkanization of American broadband. The main effect of telecom deregulation has been to break up large-service-area monopolies into many smaller-service-area monopolies. Though there has been some limited progress in terms of competition, the on-the-ground reality for many broadband users, both residential and business, is a continued lack of service alternatives and ever-increasing prices.

In communities in which there has been some local investment in

broadband infrastructure, ranging from empty conduit all the way to a fully provisioned network, the effects have been advantageous. When useful portions of infrastructure are no longer owned exclusively by telecom providers, service quality usually improves, prices stabilize or decrease, and incumbents begin to spend more on upgrading their infrastructure.

DISTRIBUTED OWNERSHIP

The key to obtaining improved availability of broadband, increased range of service options and competitive pricing is to distribute ownership of

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Conduit and dark fiber are relatively easy to manage because they do not require day-to-day operational responsibilities.

infrastructure among a wider range of interested parties beyond the incumbent and competitive providers.

Distributed ownership can take several forms:

- Local government can own infrastructure and make it available to private-sector companies to lease it and deliver services to customers.
- Individual property owners can invest in infrastructure for their own use, including conduit and fiber drop cable from their homes or businesses to the curb. Property owners can also erect wooden utility poles to obtain improved lines of sight to wireless broadband towers.
- A group of property owners (for example, a residential subdivision, a homeowner association or owners along a section of rural road) can pool funds to erect a utility pole to improve wireless access to the entire group or can jointly fund conduit and fiber to their homes, using a wireless or fiber backhaul connection to an ISP.
- Commercial property owners (such as business park owners, commercial building owners or apartment building owners) can provide conduit and fiber or internal cabling for their properties and make it available to service providers to serve their tenants on a competitive basis.
- Community organizations, such as K–12 schools, can build infrastructure primarily for their own use and include extra conduit and/or additional fiber for business, community and government use.

Distributed ownership forces incumbent and competitive providers to pay more attention to their customers because their control has been weakened. Once a provider no longer “owns” the customer

infrastructure end to end, it is forced to compete on a level playing field with better services, more kinds of services and competitive pricing.

OPTIONS FOR “NEW” OWNERS

Local governments have a wide range of options when they evaluate distributed ownership of telecommunications infrastructure:

Empty conduit, ideally with several empty tubes, is the least expensive option. Empty conduit can be leased to private-sector providers to generate an ongoing revenue stream. Installing the conduit concurrently with street repairs, sidewalk upgrades, and/or grinding of streets prior to resurfacing lowers the construction cost. Long-term benefits include reduced street maintenance and repairs because providers no longer have to cut streets and sidewalks to install their own conduit. Even in small communities where this is being done, multiple providers show interest in leasing conduit in business areas.

If a local government installs dark fiber in conduits (leaving some tubes empty for conduit leasing), the potential revenue is higher than if it installs only conduit. If it installs fiber drops into commercial and retail business buildings, businesses in those buildings will potentially have more provider options and better (competitive) pricing for internet, voice and other IP-related services.

Managing conduit and dark fiber networks is practical for even very small communities because there are virtually no day-to-day operational responsibilities for these two systems, unlike end-to-end “lit” networks with fiber switches and customer-premises equipment.

Several financing options are available to community groups and/

or local governments. In some areas, homeowner associations and local governments are beginning to use special assessments (sometimes called service districts by local government) to install conduit, wireless poles and towers, and fiber. These facilities are then made available to service providers. In rural areas where there are often clusters of residents on a short stretch of rural road, homeowners pool funds to install a wooden utility pole or short steel tower to provide local wireless broadband access.

Non-government entities such as HOAs, neighborhood associations or nonprofits gain access to public rights-of-way the same way incumbents and service providers do – by following the local construction permitting process. A network design firm or local engineering firm can manage the paperwork easily.

By owning a pole or tower, residents have more control over how they get service (wireless broadband can be a dramatic improvement over poor copper landline DSL) and from whom they purchase service. Similarly, a neighborhood that provides its own financing for broadband infrastructure ensures that lack of adequate broadband does not depress property values or make homes in the neighborhood more difficult to sell.

As work, school, and leisure activities increasingly require more and more bandwidth, communities that want better internet services, competitive services and better pricing have a way forward: investing in and owning some broadband infrastructure. If the cost of that infrastructure is spread over several years, even small communities can afford world-class fiber and wireless services with a choice of providers and services. The alternative is to continue to see more areas in which a single provider exercises monopoly control over the services offered and ever-increasing prices. ❖

Dr. Andrew Cobill is the president and CEO of Design Nine Inc., which has helped communities solve their broadband challenges since the early 1990s. More information is available at www.designnine.com.