

Making the Third Way For Broadband Work

Open-access networks are the best hope for universal broadband, says a veteran of the fiber-to-the-home and utility industries. However, making them successful may require changing some long-held assumptions.

By James Salter ■ *Atlantic Engineering Group*

When I read Dr. Andrew Cohill's article *The Third Way for Broadband*, in the May/June issue of this magazine, I thought of my first encounter with him in 2002. To Dr. Cohill's credit, he has been a consistent, long-time proponent of open-access networks. The first time we met, I was giving a short-list presentation to his client, the city of Los Alamos, N.M. My firm, Atlantic Engineering Group, was trying to be selected as the design-build contractor for the city's FTTH network (the city never went forward with the project). In front of the vendor selection committee, in a community that wanted to create an open-access network, I un-

"Open Access" Advantages & Disadvantages

<ul style="list-style-type: none"> ■ Altruistic – no "Public vs Private" Competition ■ Possibility of multiple vendors for same services ■ Easier – let the "experts" provide the services 	<ul style="list-style-type: none"> ■ Hasn't worked financially – "private partner" wants all the money ■ Same old service problems as incumbents presently enjoy ■ Markets the size of Los Alamos haven't enticed multiple vendors (more than 2)
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Open-access networks were conceived of as toll roads. In the early days, some of them generated barely enough revenues to pay the toll takers.

wisely engaged in a passionate argument with Dr. Cohill about the virtues and problems of a community-owned, open-access solution! Shown here is the slide that got the argument started.

During the years after that initial debate, our firm developed a bit of a reputation for being anti-open access – and in a sense we were. Our concern was that any failure of an open-access network in the nascent municipal FTTH arena would arm incumbents with a strong po-

litical argument in support of their "municipal don't belong in telecom" stance. I thought that open access, and in particular its early poster child, UTOPIA, could

destroy the entire municipal broadband experiment if it failed financially.

Using Dr. Cohill's analogy of telecom with transportation infrastructure, our view of early open-access networks was that most of them were built to be toll roads; that, like toll roads, they were financed with government bonds; and that they simply didn't generate enough toll-paying traffic to pay off the debt. In fact, we were concerned that some of them wouldn't generate enough traffic

About the Author

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For open-access networks to succeed, network builders must find sources of revenue beyond the triple play. The smart grid offers a revolutionary opportunity to make these networks more financially viable.

to pay the booth workers to collect the tolls!

Why didn't they have enough toll-paying traffic? First, incumbent providers didn't have any incentive, either financial or political, to encourage their traffic to use the roads. They had their own roads. Joining an open-access network as a service provider would have forced an incumbent to do one of two things – abandon its existing copper or coax infrastructure or compete against itself for customers.

Neither strategy made any sense; the incumbent would have to either abandon and write off its plant asset or turn its high-margin legacy customers into lower-margin, open-network customers.

In addition, although nonincumbent retail service providers joined the open-access networks, they didn't deliver as many cars and trucks to the road as network owners had hoped or anticipated. In early deployments, the service providers were all relatively small, underfunded enterprises trying to create entrepreneurial opportunities for their businesses. These providers had a powerful incentive to try negotiating with municipalities to keep all the money they collected (“Lower the toll, and I'll deliver more traffic to make up the difference”), thus reducing the revenue dollars available to repay the municipal indebtedness. Tight cash-flow requirements made these service providers scale their level of service to meet immediate capex needs or cash-flow availability. Poor service quality, in turn, reduced the number of toll-paying customers.

Both these issues – no incumbent traffic and low take rates – put tremendous pressure on the business plans for repaying the bonds issued to build the early open-access fiber networks.

Fortunately, times and viewpoints have evolved. I'm here to tell you that I believe Dr. Cohill was right in his view about the virtues of open access in 2002, and he is right today. Open access is the deployment model that will get broadband networks built in smaller and rural markets, and it is the model that will increase universal bandwidth availability the fastest. As Dr. Cohill said in his article, the standard “bucket model” for broadband (if users empty the bucket, the service provider refills it) is broken and can't be fixed. I really like that analogy.

CITIZEN INVOLVEMENT WITH NETWORK COSTS

How will we get the third way for broadband to work?

First, we must accept that open-access networks may not work financially without some public money. For the model to work, I believe citizens will have to buy down the cost of networks, using a sort of “Consumer Communications Savings Index.” Lack of direct citizen involvement in the cost of these networks is the primary reason that the United States is 23rd (and flailing) in terms of broadband deployment worldwide.

The majority of the 22 countries ahead of us have decided that some form of governmental involvement in the cost of broadband deployments is the only way to make the buildout happen as quickly as it needs to happen. If you analyze the real consumer savings associated with a competitive FTTH network, you will realize that the idea of citizens, either individually or through local governments, buying down a portion of network costs may not be such a terrible idea at all.

Where will this consumer savings come from? One source is the savings associated with competition. Residents of Atlanta, where I live, pay about \$165 per month for basic voice, video and data services provided by a duopoly of telephone and CATV incumbents. In a typical muni FTTH network that my firm has built, the competitive triple play costs around \$110. This consumer savings of \$660 per year would repay the cost of the network (\$2,500 per home served) in about four years. This is an oversimplification, of course, but my point is that we must develop alternative thinking for a community-funded model. UTOPIA's experiment in Brigham City, in which consumers prepurchase their FTTH connections, is a perfect example of direct consumer involvement in funding the networks.

TELECOM AND THE SMART GRID

Another important part of the open-access success equation is leveraging the network for multiple purposes, not just the telecom triple play. This has the effect of providing economies of scale, or spreading the capex and opex costs over more service units.

Network operators can achieve economies of scale in many ways, from sharing IPTV video headends to forming multigovernmental networks. Those strategies can all contribute to the financial success of open-access networks, but I'm convinced there is an even bigger, revolutionary opportunity available to make these networks more viable through cost sharing: the smart grid.

Muni electric utilities such as Bristol Tennessee Essential Services (BTES) and Chattanooga EPB, even though they both use retail telecom models, are amortizing significant portions of their networks for their value to the electric system. Both these communities are convinced that smart-grid requirements are going to necessitate advanced communications capability to their electricity customers, and they are convinced that FTTH will meet that need.

My personal view is that this marriage of the smart electric grid with telecommunications is the single biggest opportunity for the cost sharing that

will ensure the financial success of open-access networks. Dr. Michael Browder, CEO of BTES, was originally driven to consider building an FTTH network because a severe ice storm destroyed much of the utility's electric system, and he wanted a better outage reporting system, which required communications capability to individual residences. Similarly, Harold DePriest, CEO of Chattanooga EPB, has often said that EPB didn't build its FTTH network for cable television; it built it for better electric system performance and reliability.

As an old electric utility guy myself, I believe that smart-grid technologies for electric utilities are inevitable, not because of Al Gore and some "green conspiracy" but rather because the cost of inefficiency in the American electric grid is too high to ignore any longer. Just look at the numbers: The electric generating capacity in this country is approximately 900,000 megawatts. However, the average hourly usage of electricity throughout the year is about 450,000 megawatts, so on average people use only about 50 percent of the capacity of these expensive power generating plants. The only time we use all 900,000 megawatts is on hot summer afternoons during a nationwide heat wave, when every family is running its air conditioning wide open.

Building a new power generating plant costs about \$4 million per megawatt. Think about that staggering number – \$4 million per megawatt to build and, on average, we've got 450,000 megawatts of unused electric generation available to us. That is \$1.8 trillion extra dollars invested in a system that isn't used very efficiently. This usage curve must be changed nationwide, or electricity costs will skyrocket in the future. This is what creates the real need for a smart grid that will give consumers feedback and choices about how to use their electricity resources. This smart grid will have tremendous data requirements, making it a perfect partner to help amortize the cost of the open-access network. The community doesn't have to have a municipal electric utility to make the scheme work, but having the local electric company as a partner should be a cornerstone goal.

To induce incumbents to offer services, open-access community networks might provide incentives, such as buying out depreciated assets or offering favorable prices during the transition.

GETTING INCUMBENTS INVOLVED

Finally, how do we get incumbents involved in these open-access networks? Not an easy question, but here are a few thoughts:

- As for CATV incumbents – well, sell your CATV stock now! If video remains the cornerstone of their business, they are in trouble. Studies show that 8 percent of Americans will pull the plug on traditional CATV or satellite services this year and get their video entertainment from the Internet, including from such services as Hulu and Netflix. Those are the 8 percent of households that have broadband connections fast enough to allow video options. I'm not young and cool, but even I am watching online video, although I haven't quit paying my exorbitant satellite TV bill each month (\$150 per month for "all in"). I'm now paying about \$25 per hour for the six hours of satellite TV I watch in a month. CATV has a decent broadband pipe with DOCSIS 3.0, but it's not a pipe that will compete long-term against FTTH. My advice to cable providers is to get on community-owned, open-access networks as retail service providers while they still own the customers. They could use their current cash flow to transition their basic business model to a service model, rather than the capital-intensive network ownership model they are presently trying to keep on life support. Maybe we should give them "most favored nation" status on our new open-access networks for a few years.
- The incumbent telephone companies are a different matter. One of them, Verizon, has embraced FTTH as its

technology of choice. But the truth is that Verizon and AT&T are making less and less margin from wired services and more and more margin from wireless services. If my mobile phone bill is \$150 per month and my DSL/wireline phone bill is \$50 per month, where do you think they should put their focus? I'll bet if "the people" could make the ILECs an offer for their depreciated wireline networks and convert them to open networks, the incumbents would jump at the chance to dump them – which would essentially take the wireline business back to being a regulated entity. This would allow a net-neutral broadband pipe while leaving the wireless business model alone.

I wish I had a more definitive answer for what to do about enticing the incumbents to join in our reindeer games. I do know that it isn't good for the country when an incumbent obstructs a community that wants to build its own network to improve its communications infrastructure. As Google is doing with its open-access experiment, Americans must think in new, fair, but radical ways to encourage innovation in the broadband arena.

The United States isn't entitled by birthright to be number one in preparedness for the information age in which we now live. We must continually earn the number one spot, and we're way behind – which could cost this country dearly in the years ahead in the competitive world economy. We should be applauding all those communities willing to take the risk of building FTTH networks in an attempt to facilitate positive change on behalf of their citizens, whether they employ a retail model or an open-access model. **BBP**