A Fiber to Every Premises

CTgig's public-private, open-access model aims to provide economic development and low-income support to every address in Connecticut.

By Bill Vallée / *Connecticut State Broadband Office*

There is ample demand for affordable, gigabit-level access across Connecticut. High-tech businesses and higher education institutions, both well represented in the state, depend on digitally manipulating massive data sets and transferring results around the world for manufacturing, health and medical processes, and educational resources.

In spite of that demand, gigabit broadband in Connecticut is either unavailable or prohibitively expensive, a problem equally significant for small businesses, community anchor institutions and residential premises.

The state, too, has essential public policy goals that depend on access to broadband. It has the widest demographic gap of any state for student educational achievement, and, even though it has the highest per capita income in the United States, it has several of the poorest, most crime-ridden cities in the country. Supplying low-cost broadband access to every address could ameliorate these problems, at least in part.

The state's long-term vision is one fiber line to every premises, including residences, businesses, and community anchor institutions – just as there now exists one electric line, one water line and a road to every premises.

MUNICIPALITIES GET INVOLVED

To remedy the lack of affordable, reliable broadband, Connecticut municipalities want to find highly motivated, high-caliber private sector partners that will finance, build and manage communitywide, open-access, fiber-to-the-premises (FTTP) networks.

Municipalities traditionally build infrastructure such as roads and bridges to create economic development and jobs. They have stepped up to address broadband infrastructure because they are aware of the problems their neighborhoods, businesses and community anchor institutions confront. After all, municipal leaders are the ones who get the phone calls when city systems fail.

Though the Internet is located in cyberspace, municipalities own the ground and have a central role in regulating the physical elements of the Internet located in the public rights of way (streets, utility poles and underground conduit).

In short, justice in today's municipalities requires equal access to the Internet and other utility resources, and local leaders are responsible for making certain that all residents and businesses have a fair share of digital resources. The digital divide may be only one division among people living and companies operating in Connecticut, but in the 21st century, it is one of the most profound and potentially damaging disruptions.

For background on CTgig, see Gigabits Across Connecticut *in the January-February 2015 issue of this magazine.*

www.bbcmag.com/2015mags/Jan_Feb/BBC_Jan15_GigabitsConnecticut.pdf

A NEW TYPE OF PUBLIC-PRIVATE PARTNERSHIP

Fortunately, private partners for municipalities are now available. The international private infrastructure investment sector has discovered that fiber makes an excellent long-term investment. Obtaining 30-year money from the pension and insurance money markets is feasible because warranties for fiber cable now extend for 30 years or more.

Privately borrowed investment capital for broadband is low-cost when a municipality that owns fiber can guarantee that it will pass through broadband service payments from broadband consumers to a borrower or fiber builder.

Unlike general obligation bonds, revenue bonds or other common debt structures, this type of public-private partnership structure places the debt on the private partner's books, not on those of the municipality. A municipal guarantee lowers a private partner's borrowing costs and thus lowers all related expenses.

These public-private partnerships involve investors, fiber network developers and managers and government entities that seek to achieve new public telecom goals and satisfy citizens who have been frustrated in their quest for faster, better, cheaper broadband. These partnerships demonstrate the power of combining local control of broadband access with global investors and fiber network developers willing to assume the risk of borrowing investment capital and the responsibility for the performance of the fiber resources.

CONNECTICUT'S RFQ

In September 2014, a number of the state's municipalities joined together to issue a request for qualifications (RFQ) for one or more private partners that could deliver a state-of-the-art, open-access, fiber optic network, using private capital to underwrite and assume the risk of the construction and performance of that network over a 30-year term. The RFQ resulted in several bona fide responses from investors and fiber network builders. These have subsequently been vetted through a series of public vendor interviews and conferences.

> Connecticut's request for qualifications produced several bona fide responses from potential funders and builders of gigabit-capable fiber networks.

One respondent, Macquarie Capital, has attracted the most attention to date and has been the focus of talks by numerous municipalities and regional groups. For example, a meeting in May 2015 at the Yale School of Management that featured Macquarie drew more than 200 attendees, representing about 80 of the state's 169 towns.

Many readers will recognize Macquarie as the investor/developer selected for the 3,000-mile middle-mile KentuckyWired project; the company has also owned and operated the largest water utility in Connecticut, Aquarion Water, for nearly a decade.

Each Connecticut municipality will make its own decision about which vendor and partnership model (if any) to select and what process to use to reach a selection. In addition to Macquarie, several other investors and fiber builders are in discussions with Connecticut towns about a variety of proposed models. No decisions have yet been made. In the remainder of this article, however, I will discuss the Macquarie model, as it is the most fully developed and has attracted the most interest.

MUNICIPAL ROLES

Under the Macquarie model, the role of each participating municipality will be to own the fiber network, offer free access to the public rights of way and lend its good name as a financial

A NEW STATE OVERSIGHT AGENCY

To help coordinate the CTgig project and related efforts, the Connecticut General Assembly created a new Connecticut State Broadband Office (CSBO) within the public utility advocacy Office of Consumer Counsel, both of which are now under the direction of state Consumer Counsel Elin Swanson Katz.

The CSBO is charged with facilitating "the availability of broadband access to every state citizen and increas[ing] access to and the adoption of ultra-high-speed gigabit capable broadband networks." The statute directs the CSBO to work with public and nonprofit entities, state agencies, municipalities, local officials and private corporations to maximize "opportunities for the expansion of broadband access in the state and fostering innovative approaches to broadband in the state."

As its first official act, the CSBO partnered with the UConn School of Business to create two surveys – one for businesses, one for residents – to find out about Internet speeds, costs, usage and satisfaction levels.

Household: https://uconn.co1.qualtrics.com/SE/?SID=SV_8uBWcGF4BsJIJ1P

Business: https://uconn.co1.qualtrics.com/SE/?SID=SV_2osKNfYhiQuVSRf

backstop to lower the cost of the private partner's borrowings from the long-term capital markets of the world.

This model is identical to that used in the building of a road, bridge or any public infrastructure construction, in that a developer may finance and deliver title to the asset to the municipality upon commencement of its useful life, subject to repayment of the construction investment over a term, such as 30 years.

The municipalities will repay the private investment funds for CTgig using availability payments they assess from all premises passed (probably on the order of $20 per month added to property taxes for 30 years). This will provide incentives for the long-term global financial markets to invest in the project.

Though standard municipal network projects often place all risk of investment, development, marketing and maintenance in the hands of the municipality, Macquarie's proposed public-private partnership model shifts most of the design, construction, maintenance, operations and finance risk to the private partner. Ownership and demand risk are shared by the municipality.

BENEFITS OF THE MODEL

Using low-cost private infrastructure financing repaid over a 30-year period will reduce wholesale and retail broadband access costs below current levels and widen potential profit margins for ISPs. This makes possible a highly competitive retail market in which private ISPs, including existing incumbent providers, can flourish. New, competitive ISP entrants will not face the current significant hurdles to enter this market. By attracting a wide variety of general and niche ISPs, CTgig will enable the creation of new broadband services that will spark new and expanded consumer demand.

The low-cost capital that Macquarie can obtain (due to a low risk of default because of the municipal network ownership and availability fee payments) also provides an economic advantage for CTgig. Incumbent providers, by contrast, traditionally have a two- to three-year investment perspective because of their corporate focus on quarterly net income to drive dividend generation.

Building fiber to every address in each participating municipality tackles – and hopefully solves – the problem of the digital divide. Currently, ISPs have no incentive to serve low-income or high-cost areas. Once every address is connected to a low-cost fiber network, there can be no broadband access discrimination. Each premises, residential or commercial, will receive the basic service offering by virtue of making the monthly availability payment and will have the opportunity to access higher speeds at premium prices.

The basic service will consist of a fiber connection to the network, an average Internet access service (probably 10 Mbps symmetrical) and VoIP service. This basic service package will be designed to boost interest in broadband services without cannibalizing potential upselling of more advanced service at low market costs. Upsell revenues will be shared between ISPs and the participating municipality; municipalities can use their portions at their discretion, for example, to reduce monthly availability fees or provide free services to certain demographic groups.

The wide ISP margins enabled by low wholesale fiber lease costs will provide plenty of opportunity for competitive ISPs to upsell innovative, targeted, high-speed broadband, video and phone services to residents, businesses and community anchor institutions.

Finally, as broadband participation in commercial markets is maximized, economic and job growth will be boosted as businesses are able to attract, train and retain workers. With access to low-cost, ultra-high-speed broadband, businesses will be better able to utilize teleworking.

AN INTERLOCAL AGREEMENT

CTgig can realize significant efficiencies only if the project is large enough – probably at least hundreds of thousands of premises. Connecticut has the fourth-highest population density in the third-smallest U.S. state, and its population is spread almost evenly across its territory, so no single participating municipality can achieve such a scale.

The participating municipalities, each with its own, sometimes cumbersome, decision-making processes, are ill-equipped to independently coordinate such a large multidistrict construction project, which will require daily decision-making capabilities and joint funding requirements for management operations. Participating municipalities must thus first organize themselves into a cohesive representative group so they can interact on a daily basis with their investment and construction partners.

Defining a governing structure based upon an interlocal agreement that details the duties, obligations and management structure of the public partners in the CTgig Project is necessary to initiate and manage the process. The state of Connecticut addressed the formation of such a multi-municipal organization through the enactment of Public Act 11-99, An Act Concerning Interlocal Agreements.

By using a regional or statewide interlocal agreement, each municipality can share responsibilities for the network while achieving efficiencies available only through greater network scale. As each city is a partner and an enabler of the network's success, the benefit of this model far exceeds that of purely public or private projects.

An interlocal board will be empowered to act as a centralized governing body (single point of contact), authorized by state statutes

and assigned certain powers to act on behalf of each participating municipality. This board will consist of a fixed number of representative municipal officials and experts who will carry out the planning, designing, constructing, financing and managing of the statewide fiber network and other related activities.

Initial actions of the interlocal board will be to determine baseline engineering data and design criteria, demonstrate the probable costs of a fiber network deal and explore what network architecture will work best for CTgig.

CONCLUSION

Democracy relies on transparent and free communication, not on the restriction of those rights. Only through an abundance of broadband capacity can communities enjoy the low pricing and full access to bandwidth that spawns employment and the economic development gains that the Internet can produce.

The next-generation financial and technology broadband access architecture underpinning the CTgig Project is clearly a model for the future. The participating municipalities cooperating in CTgig are working to make Connecticut the first gigabit state.

Though there will be many challenges before the public policy goals can be fully realized, the visionary municipal leaders of today will meet their mandates to lead by overcoming those challenges.

The technologies of the past – canals, railroads, telegraph, telephone, the automobile and the highway system – faced the same massive financial and political challenges in their diffusion. Today's telecommunications technologies and business plans are resistant to change, but the changes are inevitable and profound.

"You'll never get it off the ground" sounds ridiculous today, when people routinely fly 6 miles in the sky at 10 miles a minute across vast oceans in comfort and safety. To those who say, "No one needs a gig," successful municipal leaders can respond that their towns already regard ultra-high-speed Internet access as a public service utility necessary for a variety of reasons and not a luxury to be thought about sometime in the future. Leaders can act with confidence that building a fiber network today will seem prescient decades from now when towns without such networks will struggle to keep up. ❖

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