Building the Business Case for Government Fiber Networks: There *Is* Life After I-Nets and Stimulus

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With the lucky few recipients of the federal broadband stimulus grants now hard at work building their networks, localities that did not win funding (or were not in a position to apply) would be forgiven for thinking that they have missed the opportunity to operate a government-owned fiber optic broadband network.

This would seem especially true in any community that is in danger of losing its Institutional Network (I-Net)—that hard-fought concession of cable contracts from an earlier franchising environment—because of regulatory or technical changes.

But despite the closing of the $7 billion broadband stimulus window and the ongoing shift away from franchise-funded I-Nets, there remain viable options for communities to build next-generation networks to serve governmental and institutional needs. The drivers in this new paradigm are not direct government or cable-company funding, but rather new federal E-rate regulations and innovative new ways to analyze the benefits and potential revenues from municipal fiber networks. Separately or together, these tools may be the key to a successful business case.

Opportunities Past and Future

Communities nationwide have been reaping the benefits of a bygone cable franchising environment. In the early and mid-1990s, effective county and municipal negotiators signed contracts that secured fiber optic I-Nets for their jurisdictions. These were either partially funded by cable operators as compensation for use of the public rights-of-way or built alongside the cable companies' construction paths (thereby benefiting from the enormous efficiencies of shared construction). But as many of those franchise agreements begin to expire or are abrogated by regulatory change, even the best negotiators cannot surmount regulatory changes that have given franchisees the power to reclaim the I-Net infrastructure. As a result, the functionality of many broadband networks that have cost-effectively supported governmental needs for the past 15 years will need to be replaced.

More recently, the Broadband Technology Opportunities Program (BTOP) era—which commenced with the passage of the American Recovery and Reinvestment Act of 2009 (ARRA) and culminated with the awarding, in September 2010, of the program's final infrastructure grants—held out the tantalizing prospect of federal funding as high as 80 percent for open access government networks. Even taking into account the program's required matching contributions, many cash-strapped communities were able to demonstrate viable business models with reasonable cash flow and solid sustainability.

Of course, funding from BTOP or the Broadband Initiatives Program (BIP, another stimulus program) was always the longest of long shots. But coming as they did at a time when I-Nets were being targeted for extinction, the programs did nothing if not remind municipal and county governments that they face a growing need for cost-effective bandwidth.

The surest way for communities to replace that needed bandwidth is to build their own capacity. As with any major capital investment, a new communications network requires a solid return on investment (ROI). In the absence of BTOP funding and I-Net agreements, there are now two primary ways to demonstrate the business case for building a government-owned network—one of which is on the balance sheet, while the other is off.

Benefits Beyond the Balance Sheet: Rethinking the Definition of ROI

The best business plans are built on a foundation of conservative financial assumptions; if you expect less return and end up getting more, you are obviously in a much better position than if you plan for returns that never materialize. But those assumptions typically relate to dollars on traditional financial statements.

To make the case for investing in a government-owned fiber network, many communities define ROI more broadly and consider the "beyond the balance sheet" benefits that such a network would deliver. These benefits have nothing to do with traditional financial measures. Rather, they represent the "return" to the community in terms of such largely intangible societal benefits as enhancing health care quality, narrowing the digital divide, providing enhanced educational opportunities to schoolchildren, delivering job search and placement opportunities at public computer centers, and helping isolated senior citizens make virtual social connections.

Why is this approach a justifiable and appropriate way to define the success of a network? Because these benefits are the true reasons that governments build broadband infrastructure in the first place. Local governments are in the business of providing education for their young people, job training for their unemployed, and so on; broadband to key community anchor institutions is just the latest, and newly-essential, tool to enable those government services.

On the Balance Sheet: Long-Term Cost Savings and Revenue Streams

As compelling as the beyond-the-balance-sheet benefits may be, there are also strictly dollars-and-cents ways to model a proposed network—without direct federal funding and without cable franchise support—that could put the network business case on solid footing.

This analysis comprises at least two elements. First, there are the existing and future costs that a governmental network can help the operator avoid (i.e, by replacing services for which the government previously paid third parties). Second, there are the potential revenues that a network can bring to the community—especially given new E-rate regulations that make governmental networks eligible for subsidy in serving schools and libraries. Together, these two

sides of the equation can add up to significant dollars—and potentially to sufficient amounts to justify financing the necessary construction.

Capitalizing on Cost Savings—Current and Future

Government entities of all sizes are major consumers of connectivity services, to support internal operations, public safety functions, and a range of other applications. Typically, government facilities lease circuits from a phone company or similar provider, and for that privilege they pay rates that sometimes represent many hundreds if not thousands of percent profit for the phone companies. Worse, the circuits are usually relatively low-bandwidth connections, because the retail costs of very high bandwidth services make those connections simply unaffordable.

A government fiber optic network that links all of the governmental operations eliminates the jurisdiction's ongoing cost of leasing circuits, which represents an easily quantifiable present value on the financial statement. These are as close to "guaranteed" line items as possible: Build the network and you will shave this amount from your accounts payable.

In fact, because a government network can deliver far higher-capacity connectivity than the jurisdiction had previously leased, the value is even greater than the simple cost-avoidance measure. When you own your own network, for example, you can accomplish gigabit speeds among and between the facilities on your network using inexpensive, off-the-shelf equipment and at no cost for bandwidth (because the traffic is "on network", *i.e.* on your Intranet, not going out to the Internet). You can also deliver to these facilities connections to the Internet at much lower per-unit cost, because you can aggregate the needs of all your departments to more cost-effectively purchase commodity bandwidth. This is particularly true if you are able to develop a partnership that benefits the wholesaler from which you're buying.

The cost savings generated by a government network will grow over time, too. The very lowest estimates would value that growth in lockstep with the expected inflation of retail service prices. But in reality, the government network will deliver even more value because it can inexpensively scale to meet the jurisdiction's future needs for more capacity (which are likely to grow exponentially) and connectivity to additional sites—which would be financially impossible using leased circuits.

Whether creating a business case for a new network or developing budget projections for the status quo, it is incredibly important for communities to understand how greatly their governmental bandwidth needs will grow. Capacity requirements for government operations have grown exponentially over the past 15 years, and there is nothing to suggest that the pace of growth will abate over the next 15 years. In addition, most governmental operations and community anchors are already overtaxed in terms of their broadband capacity—meaning that they already require much more bandwidth today, let alone tomorrow. (In practical terms, that means that absent a government-owned network, governments will continue to be unable to deliver the capacity they need to adequately support their internal operations and those of community anchors—and that they will lack the bandwidth to undertake all kinds of future

innovations, even if they have the necessary hardware, software, and ideas.)

With a government-owned fiber network, the cost to scale up to meet needs like this is far lower than if you are buying circuits from someone else—not just because they have a profit motive, but because they may not have the infrastructure where you need it. If the phone company has only low-speed twisted-pair copper in your footprint, the only way to get the capacity you need is to pay them to build fiber to you—and then to pay them to deliver services over the fiber you just financed for them. Viewed in that light, a government-owned network becomes even more compelling.

Creating Revenue Streams

Like a toll road waiting for traffic, a government-owned and operated fiber optic network represents a potential source of revenue for the community. (Projected cash flow generated by a government-owned network is not as certain as the avoided costs, but prudent business modeling can include scenarios ranging from best-case to worst; this is just one of many factors to consider in building the business case.)

There are, in fact, three potential revenue streams in a fiber network; two are fairly traditional, and one is both new and potentially very lucrative.

Dark or lit fiber to community anchors

The first revenue stream is a well-established aspect of network operations: providing either dark fiber or lit services for non-governmental institutions. This model hews very closely to the service delivered to governmental operations—but instead of helping the government avoid its own costs, it creates a revenue stream for the operator. By providing reasonably priced fiber to qualified non-profit and community organizations and facilities, the network operator also supports the needs of anchor institutions—which in turn support the citizens.

To understand the magnitude of revenue that a government fiber network can earn from this source, it is helpful to understand what types of facilities can be connected and what level of service they need.

"Community anchor institutions" are places where members of the community go for the kinds of services that support and sustain them, and where services like broadband Internet access (and the applications supported by broadband) are aggregated and made available to them. A government fiber network connection is a natural fit at these facilities.

Broadly defined, these anchors include government buildings, community colleges, schools, libraries, municipal utility facilities, and other public facilities such as community media centers, key non-profits, hospitals, clinics, community centers, senior centers, and public housing.

Community anchor institutions are big buyers of connectivity among and between each other, and to the Internet. Some of them, such as libraries, colleges, and media centers, often provide Internet access and broadband applications to residents who lack home broadband service. And

like government operations, community anchor institutions have seen—and are likely to continue to see—their bandwidth needs grow exponentially.

Middle-mile capacity

The second potential revenue stream derives from providing "middle-mile" capacity to private sector operators. This is a more speculative income source, but a growing body of evidence indicates that it is feasible given the proper market conditions. (A formal Request for Information process would easily enough establish a sense of just how feasible those market conditions are in a given community.) The BTOP funding rules, in fact, make this market an implicit requirement: Grant recipients must commit to nondiscriminatory, open access policies that make access available to third-party service providers.

The reasoning behind this approach is straightforward: By making middle mile capacity available where it does not otherwise exist, and at very reasonable cost, you are reducing the barriers to investment for entrepreneurial companies (and non-profits) that want to build last- mile capacity. Those companies' lease arrangements would lead to not only really meaningful revenues, but also stimulate private investment and the extension of broadband service to members of the community that otherwise would not have it, or would not have the benefits of competition. As with the lit and dark fiber services to non-governmental anchors, then, selling middle-mile capacity has both a financial and societal impact.

Because many of the BTOP infrastructure grants incorporate this business model, significant data will emerge over the next few years as to the scope of the ROI of this model. Preliminary indications from many of these projects are very good. In both metropolitan and rural areas, BTOP awardees are engaged in negotiations with last mile providers who seek access to the new middle mile fiber that will make it possible for them to affordably reach areas for last mile service.

E-rate subsidies

Another very significant potential revenue stream enabled by a government-owned fiber network is one that hinges on a September 2010 Federal Communications Commission (FCC) order. In that decision, the FCC for the first time made non-regulated non-profit and public networks eligible for the E-rate subsidy under the Universal Service Fund.

This is by no means a free lunch for network operators; the requirements for becoming an E-rate provider, including competing in a competitive procurement process and extensive paperwork, are necessarily strict. But there are simply enormous positive financial implications for governments that choose to become E-rate providers. Serving schools and libraries means realizing the benefits of E-rate subsidies that can range as high as 90 percent depending on the level of poverty in your community.

If your schools and libraries were to complete the competitive process and award your network a contract—meaning that your network provided the best service at the best price—you would have the confidence of guaranteed revenues that are independent of the fiscal position of your

government. Depending on how much E-rate subsidy you qualify for, the bulk of the funding could come from sources other than your government. This funding could go a long way toward covering your operating costs, and possibly even some of the cost of servicing the debt that you undertake to build the network. In other words, the E-rate subsidy could help to make your network more self-sustaining and less dependent on government or other external funding.

The Multiplier Effect

Both in terms of avoiding costs and increasing revenues, government-owned networks deliver one additional benefit: They keep money in your community. Whereas circuits leased from a large national provider require the delivery of a big monthly check to a potentially far-away corporate entity, monthly fees paid to a government-owned network stay in the community—to be spent on other government services, and to be multiplied when locally employed network employees go out to eat or spend money at other local businesses.

This is true of E-rate subsidies, too. The schools and libraries that benefit from E-rate never touch the actual money that subsidizes their connectivity—it usually goes directly from USAC, the administrator of the program, to the phone or cable company that provides services. So if your schools and libraries have been utilizing E-rate through a provider that is headquartered in New York or Houston or some other city far from you, the benefit of the flow of money in your community never happens—it goes directly to that other city. When the E-rate subsidy becomes a revenue source for your own locally owned and operated network, however, that money comes into your community. That has benefits for the bottom line of your network and your government operations, and also has an extended impact based on a multiplier effect. You get the benefit of the dollar itself, but also the dollar being spent over and over in your community.

Norwood Light Broadband, the municipal fiber network operator in Norwood, Massachusetts, makes that point directly to its potential customers. Visitors to the town's "Entering Norwood" website see the value proposition spelled out for them:

> Do you own a house or business in Norwood? Do you have children that go to school in Norwood? Your money will do a lot more good keeping it in town instead of lining the pockets of multi-billion dollar conglomerates like Verizon & Comcast. When you write out a check to the Town of Norwood, your money stays in town working for you.[1]

Norwood is among the minority of American communities that own and operate their own fiber optic networks. But given the potential financial benefits of the recent E-rate order and a growing understanding of broadband as a public good, it may ultimately be joined by many other communities—with higher bandwidth available for governmental operations and community anchor institutions, and more revenue staying "in town" to support local economic development.

[1] Norwood Light Broadband: "For the People, by the People." http://www.enteringnorwood.com/.