

Stronger Together For and With Great Broadband

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Many thanks.

Last week, I gave a speech in Wilson, North Carolina, at a conference on Expanding the Gigabit Ecosystem. I wasn't there to make a partisan statement but began by agreeing with 75% of an assertion of one of the presidential candidates: that it is time—because it's always time--to Make America Great.

I suggested the real topic of that conference is how we make America great with great broadband.

That is also the topic today, though in the spirit of bi-partisanship, I would like to title this speech, Stronger Together for and with Great Broadband.

As I will discuss, I think this county will be much stronger in its broadband efforts by virtue of four of your cities coming together in a common effort.

It should be obvious that in this global information economy, we should aspire to assure that bandwidth never constrains economic growth or social progress. So we need affordable, abundant bandwidth.

You already understand that, which is why you have taken the steps you have. And they are very impressive steps; steps that put you at the forefront of all communities in delivering that affordable, abundant bandwidth for your enterprises and residents.

Congratulations on what you have already accomplished.

Today I would like to address four questions related to further steps along that journey:

- What is the impact of next generation broadband?
- Why not just wait for current market forces to deploy such networks?
- What are some models for communities to act to accelerate deployment?
- What other steps are useful for expanding the value of the gigabit ecosystem?

So what has the impact of next generation broadband been to date?

We are in the early innings but in the last 3 years, North America has experienced record growth in fiber, now reaching about 30 million homes, with 2016 year over year growth of 16% tying the previous record.

The accelerated growth rate is not surprising given the value people place on quality broadband. A recent study showed that more than 90% of respondents said quality broadband was “very important” in choosing a community in which to live — second only to “safe streets.”

They are right to do so. Because while most people don’t know the underlying data, that data confirms the importance of great broadband for thriving as a place to work and live. The data indicates that improved broadband leads to improved metrics on a number of fronts, including:

- *Economic growth and better jobs.* There is all kinds of anecdotal evidence that the early gigabit adopters, like Chattanooga and Kansas City are enjoying all kinds of growth in entrepreneurial activity and jobs associated with their networks. As Tom Friedman wrote in his piece on the broadband driven Chattanooga Choo-Choo “by coming together to make the city an attractive place to live and getting both parties to agree to invest in a fiber-to-every-home-and-business network in a 600-square-mile area, Chattanooga replaced its belching smokestacks with an Amazon.com fulfillment center, major health care and insurance companies and a beehive of tech start-ups that all thrive on big data and super-high-speed Internet,” one that has taken “a slowly declining and deflating urban balloon, to one of the fastest-growing cities in Tennessee.”

But it is not just anecdotal evidence. A 2014 study showed that communities with widely available gigabit access enjoy per capita GDP that is 1.1 percent higher than communities with little to no availability of gigabit services. In dollar terms, the 14 gigabit broadband communities studied enjoyed approximately \$1.4 billion in additional GDP. Conversely, the 41 communities in the study that didn’t have widely available gigabit broadband likely experienced forgone GDP of as much as \$3.3 billion.

A more recent study concluded that it is particularly important for the fast growing segment of home businesses, where fiber averages about \$73,000 in revenues, significantly higher than the second place cable with \$43,000.

- *Increased property values.* A recent study showed that very high speed broadband has been shown to add nearly \$10,000 in value to a \$300,000 single-family residence. It is the number one amenity sought by MDU homeowners and the number two amenity sought in single-family homes.

- *Lower prices for broadband services.* A recent study found that in areas where gigabit service is introduced, the cost of slower tiers drops significantly. When gigabit is available, tiers of 100 Mbps or faster drop in price by as much \$27, while pricing for the lower-priced 25 Mbps service decreased between \$13 and \$18 monthly.

And when prices go down, so does the digital divide.

These are far from the only benefits. Fiber also enables communities to enjoy all kinds of next generation education, health and public safety related services.

But this raises the question: *if such broadband produces those kinds of results, why aren't current market forces producing the affordable, abundant bandwidth that communities seek and that next generation networks can deliver?*

In a way, the answer is simple. All of the benefits I just mentioned are benefits that inure to persons and entities other than the owner of the network.

But the only benefits that matter for the investment case are the benefits that matter to the investors in the networks.

As to those entities, what we saw when we doing the national broadband plan, was that for the first time since the beginning of the commercial internet, there was no national carrier with plans to build a network with greater capacity than the current best network.

For both the cable companies and the telephone companies, it made more economic sense to harvest previous investments in networks than to invest in networks that would produce affordable, abundant bandwidth. As cable generally had both the better network and the cheaper upgrade path, market segmentation—with cable going after the mid to high end customers and telcos going after low end customers—made more sense than both competing to deliver affordable, abundant bandwidth.

This is not a moral issue. It is simple economic logic.

In illustrating how the benefits to private providers are generally less than the cost, we have found it helpful to break that simple cost-benefit idea into the following equation:



Figure 1: Broadband Cost-Benefit Equation

That is, for all the current and potential providers, the sum of new or incremental Capital Expenditures and Operating Expenses for a next generation network is greater than the new or incremental risk- adjusted Revenues plus System Benefits (the benefits to the service provider’s overall system beyond the local network) plus the Threat of Competitive Losses.

That equation, however, can be and has been reversed by many cities, much in the way that cities often negotiate with private real estate developers and potential facilities locations to make an otherwise difficult investment possible. At the heart of these negotiations, is a search for *asymmetric value creation*. That is, the opening question is what can party A do that costs relatively little but creates a larger benefit to party B, so that party B will act in a way to benefit both party A and party B.

Here, both the city and a potential provider want to improve the investment opportunity in next generation broadband networks. The question is what can the city do, at a minimal cost to the city, that provides a larger benefit to the partner, that in aggregate reverses that equation by reducing Capital Expenditures, Operating Expenses and Risk and increasing Revenues, System Benefits and Competition.

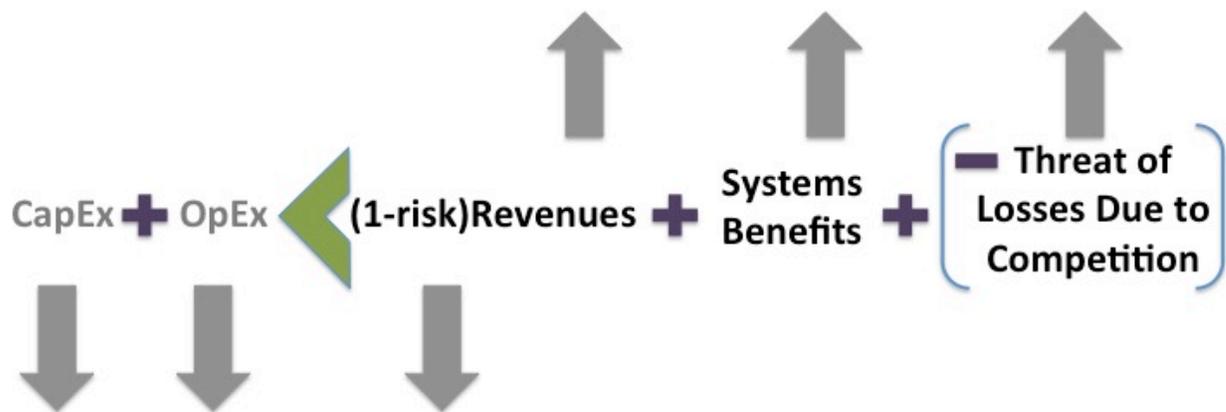


Figure 2: Revised Broadband Cost-Benefit Equation

The first step, therefore, is for the city to *understand* how its policies and practices affect the economics of deployment and what actions it can take, at minimal cost, to improve those economics.

This leads to a second, and related, step. The city needs to *organize* itself in a way that improves those economics while also *improving its own leverage* in a negotiation. To attract any investment into next generation networks, the city has to do a certain minimum in terms of improving the economics for the network. To maximize its ability to negotiate certain terms, however, it has to have leverage in the negotiation. For example, many cities want commitments to serve certain areas or facilities. The more the city has done to lower the costs of deployment or organized demand for the new offerings, the more willing the private provider will be to agree to such requests.

Further, the more the city does to attract competitive offerings, the more likely it is that the city will be able to further its own goals in the negotiation.

This leads to the third question: *what models are useful in thinking through what Westchester County and its towns should do?*

There are many things that have to be done to be able to offer a service that provides affordable, abundant bandwidth.

These include designing, financing, constructing, equipping a network, and creating, marketing and serving the product for the customer.

We can break this down even further, for example, by noting that as to the network, it can be designed to provide access to the metro area, access to the neighborhood, or access all the way to the customer end point.

Communities have approached these tasks in different ways.

For example, the Research Park communities in North Carolina wanted the private sector to do all of these tasks but committed to take a number of policy steps to lower the cost of private companies performing many of these tasks. It worked and in a year or so that community will have the most competitive broadband market in the United States.

But that effort was done when Google Fiber was actively expanding its fiber efforts. It is possible, but not as likely, that similar efforts would be as effective today, as the perceived competitive dynamic is not as strong.

Another example worth noting is Lincoln, Nebraska. There, the city created a Public Private partnership with the city owning the conduit and the private sector owning the fiber. The system is made up of multiple sizes of pipe using such things as traffic conduit, abandoned water, and wastewater lines. The system now has seven partners and has driven over \$150M in private investment since 2013, creating, over 300 new jobs in the community, and causing broadband prices to drop dramatically.

Another model is what Huntsville, Alabama and Westminster, Maryland have done. They designed, financed and constructed dark fiber and leased that fiber to a private party—in Huntsville's case to Google, in Westminster's case to a small company named Ting—who then took responsibility to perform the rest of the tasks.

Other communities have taken on the responsibility of all the tasks, basically going into full competition with existing providers. These communities tend to be smaller, rural communities, quite unlike Westchester. While some large cities have looked at this model, none have adopted it.

And there are numerous creative variations. For example, South Portland, Maine did a deal with a private company in which the company undertook all the tasks but the city agreed to use the network for all its own enterprise purposes—effectively becoming an anchor tenant--and also received a 25% interest in the profits of the network.

The fundamental trade off is between risk and control. The more the community wants to control the outcome, the greater risk the community must undertake. Conversely, the community can lower its risk profile but it will inevitably have to give up commensurate levels of control.

There is no generic answer as to what is right for you. You have different assets, different ambitions, and different demographic profiles than all the examples listed above. You have to do a certain kind of analysis to determine what is best for you. But in doing so I would urge you to remember three things.

First, you really are stronger together. Scale matters. If only one town in Westchester were interested, it would be hard to get the attention of potential providers. By virtue of greater scale you will garner greater attention and greater options.

Second, the process will involve a complicated relationship with the incumbent providers. Relative to the status quo, this process is unlikely to be helpful. But that does not mean they are your enemy. They are driven by investment math and your task is to make the investment math as positive as possible. What we have seen in a number of communities is that when pressed by the change in the equation noted above, they often step up and accelerate the upgrade of their network in ways that achieve the goal of offering affordable, abundant bandwidth. As in any negotiation, both sides will have different points of view but you should work with them as you would work with others to achieve what is best for the county.

Third, this does not happen overnight. Even Google, one of the fastest movers on the planet, took years to build its networks. If you go too fast you are setting yourself up to fail. So you have to have a long-term perspective that includes a 3-5 year time horizon for planning and deploying the network.

Finally, the effort should not just be about the broadband network. It needs to be about the entire broadband ecosystem.

And this leads to the fourth and final question for the day: *what else should be done to assure that the network actually drives economic growth and social progress?*

There are many paths up the mountain. I suspect many in this room have better ideas than I would when it comes to how Westchester should proceed. But let me offer a couple of thoughts based on my experiences with other communities.

First, get everyone on. Adoption is a vexing problem, combining elements of affordability, literacy and relevance. But it is also viral; the more members of a community who are on, the greater the incentives for others to get on. And once universality is achieved, it opens the door to all kinds of community improvements not available to those communities half on and half off. The FCC's reform of its Lifeline program and many successful community adoption programs create new opportunities and models for achieving this goal.

Second, use the platform to better deliver public goods and services. All large enterprises are moving off the old analog platform and moving strictly to the digital platform. If you want to sell them something, if you want a job, if you want information from them, you have to be on line. They don't do this because they are nerds. They do this because it improves their ability to constantly improve how they deliver goods and services.

Government, because it has to serve everyone, cannot migrate as easily, another reason it is important to get everyone on. But government should also aspire to constantly improve how it delivers goods and services. That means ending the era of lines and paper and making all government services web based, providing greater transparency, always on, and above all, using more reliable data to improve performance.

Third, help every enterprise to become a networked empowered enterprise. Amazingly many small businesses are not online. This not only undercuts their ability to sell, it makes it more difficult for improved efficiency in buying, operating and accounting made possible by cloud based services. Not every company needs to be a web-based company. But every company can benefit from the services now available on the web.

And fourth, make sure your network accommodates the next technology shifts. The next two great networks to be built are the 5G next generation mobile network and the civic Internet of Things, bringing intelligence to the infrastructure underlying our communities. Both will share a need for, and operate over, the fiber network you already have. Now is the time to start adopting the network to those emerging needs.

In closing, let me be clear that having a gigabit network will solve all our problems. Addressing other challenges—from climate change to quality of education to affordable housing, to the ability to attract an educated and diverse workforce, among many other things—are critical issues must be part of the policy agenda.

But at some point in the near future the kind of network you that you have started working on, one that thousands of communities wish they had, will be the new table stakes for addressing both the challenges and opportunities of this century to build a better life for ourselves, our children, and the generations to follow.

And when those generations arrive, I hope that America is still great. I hope its residents and the world will see it as a shining city on the hill that we have aspired to be since our earliest days. And I feel confident you, and your example, will be a big part of the story.

As the great Yankee Yogi Berra usefully reminded us, Predictions are tricky, particularly about the future.

But these two predictions are 100% certain: America will not be great if it does not have great broadband.

And we will not get it if we do not work together.

Many thanks.