

Ten Reasons Why Broadband Infrastructure Should Be A Municipal Utility



In 1998, Wired Magazine's founder Kevin Kelly wrote a brief treatise called *New Rules for the New Economy*. Kelly's e-book turned out to be about more than the new economy. It isn't surprising, even in 1998, that Kelly could see an economy that would become increasingly dependent on communication networks. What is surprising is that Kelly could forecast the depth to which networks would penetrate our lives:

“Communication is the foundation of society, of our culture, of our humanity, of our own individual identity, and of all economic systems. This is why networks are such a big deal. Communication is so close to culture and society itself that the effects of technologizing it are beyond the scale of a mere industrial-sector cycle. Communication, and its ally computers, is a special case in economic history. Not because it happens to be the fashionable leading business sector of our day, but because it's cultural, technological, and conceptual impacts reverberate at the root of our lives.”

Kevin Kelly, New Rules for the New Economy

Kelly's premise wasn't obvious in 1998 but it is obvious now. Broadband networks are essential not just because the economy runs on them. These networks now influence our ability to understand and participate in nearly every aspect of modern life.

One metaphor Kelly invokes in *New Rules* is *The Tragedy of the Commons*. In 1833, economist William Forster Lloyd used the example of unmanaged grazing on common land ("the commons") in the British Isles. To preserve the livelihood of the entire community, it was essential for the community to organize around maintaining the communal pastures. As a metaphor, the commons can represent any shared resource that is vital for a community.

Toward More Robust Networks

Broadband infrastructure is analogous to the community pastures of the 1800's. If we accept Kelly's premise that modern communication networks now shape our culture, our humanity, our individual identity, and all of our economic systems, then we argue that broadband infrastructure should be managed as a utility because it is essential in the same way other utilities (sewer, water, etc.) are essential for the livability, sustainability and flourishing of any modern community. Note that it is the infrastructure and not the services that should be included in the utility.

Here are 10 reasons why broadband infrastructure (**not services**) should be managed as a utility by municipalities:

1) **Broadband infrastructure is now essential.**

Municipal leaders already understand that broadband infrastructure is essential in the modern world. But most municipalities still view advanced communications systems as the domain of the private sector. Because these systems are now fundamental to life in the 21st century, city leaders must have a robust conversation about the strategic importance of broadband to the city/county. Recent technological advances make it possible to separate the infrastructure from the services that run across these networks. We argue that it is the broadband infrastructure (not services) that are the domain of the municipality and should be managed as a utility for the purpose of serving the broader interests of the community. Rule #1 for infrastructure is this: “Whoever controls the infrastructure has control.” Nearly all incumbent U.S. broadband providers control both the network infrastructure

Ten Reasons Why Broadband Infrastructure Should Be A Municipal Utility



and the broadband services that run across the infrastructure. When one entity controls both the infrastructure and the services, that entity is in a position to serve its own interests rather than subscribers' interests. We need a separation of power. In the dominant Big Cable / Big Telco model, subscribers are a means to an end rather than the end. The way to flip this around and turn the focus to subscriber's interests is to design broadband networks that separate the infrastructure and services and manage the infrastructure as a utility.

- 2) **The broadband interests of municipalities align perfectly with the interests of subscribers.**
Incumbent Internet Service Providers (ISP's) are motivated by Return on Investment (ROI). That is not immoral or unethical; but it is reality. As a result, the primary interest of large ISP's is to maximize the return on their investment. Municipalities have a much broader and different set of interests related to broadband infrastructure which include economic development, livability, public safety, education, healthcare, emergency communications, smart grid, efficient government services, environmental stewardship, universal access and smart city applications. All these things are now network dependent and the value from the network to municipalities aligns perfectly with the interests of individual businesses, residents and anchor institutions who subscribe to the network. The municipality as a whole and the individual subscriber will benefit from universal access, abundant bandwidth, affordable prices and local control of infrastructure. As a result, municipalities are increasingly aware that broadband infrastructure is strategically important and should be controlled by the municipality for the good of all stakeholders.
- 3) **Local control is the value proposition offered by publicly controlled broadband infrastructure.**
The unique value proposition of publicly owned broadband infrastructure is to create local control and ownership of network infrastructure. The Private Sector should provide services running over that infrastructure.
- 4) **Municipalities can promote competition in broadband services by deploying open networks.**
The primary driver of the internet's success has been the fact that it is an open platform – available to anyone who wants to compete or innovate. The irony of today's internet is that the onramp to the internet, ISP's, force subscribers into a closed system. By closed we mean that ISP's don't allow would be competitors to utilize their infrastructure. A lack of competition is one of the fundamental problems with today's incumbent control model. The enormous cost of having each ISP own and control its own infrastructure is a barrier to entry that few companies can rationalize. Fiber optic infrastructure is a natural monopoly because we only need one robust connection per premise. When municipalities control broadband infrastructure, all services, including internet access, can be offered from a local cloud environment. This approach fuels competition because it radically lowers the barriers to entry. When services operate from an open cloud, a service provider can enter a market with a few days of provisioning at minimal cost and subscribers are empowered because they can switch their provider in less than a minute by clicking subscribe or unsubscribe.
- 5) **Municipalities can enable innovation in broadband services by deploying open networks.**
Thomas Friedman says, "my favorite renewable fuel is an ecosystem for innovation." It is in every municipality's interest to encourage incubators for innovation to increase the range of possibilities for their residents, businesses and anchor institutions. Controlling broadband infrastructure is one of the most powerful ways a municipality can enable a platform of possibilities. For innovation to

Ten Reasons Why Broadband Infrastructure Should Be A Municipal Utility



flourish, systems need to be open and can't be stifled by a gatekeeper who blocks out would be innovators.

- 6) **A model where municipalities control infrastructure and the private sector provides services from a local cloud will lead to a drop in the monthly cost for services and a substantial increase in the value to consumers.**

The first municipality to implement a model where the city owns the infrastructure and the private sector provides services from an automated local cloud was Ammon, Idaho. Before the network went live in Ammon, the average cost of internet services was \$90 per month for a 30 / 5 mpbs. connection. The network went live in September of 2016. Within ten months, the cost of internet dropped to \$44 and the average speed increased to 100 / 100 mpbs. That means the price was cut in half and the average speed tripled. The two main variables that changed were: 1) infrastructure was treated as a utility and 2) service providers were exposed to dynamic competition. Three new service providers came into the market and the consumer was empowered with the ability to dynamically switch their service provider if they were not satisfied.

- 7) **Infrastructure investment precedes economic development.**

As Kevin Kelly says, "Communication is not just a sector of the economy. Communication is the economy." Communication infrastructure is now fundamental to economic development because it provides the foundation for a digital economy. Historically, economic development has followed investment in infrastructure for all major systems including transportation, water, sewer or communications. Until now, municipalities have mostly been watching from the sidelines while private companies have taken control of communications infrastructure. With that control, these companies have decided where they will build, what they will build, what the price will be, the services that will operate on the network, and the kind of innovation that will happen on these systems. However, the network is now so fundamental to modern life and economic development that municipalities can no longer afford to watch from the sidelines. Municipalities must control their destiny and build out broadband infrastructure for the good of all subscribers, and their own economic future.

- 8) **Municipalities can fund broadband infrastructure by redirecting the money already being spent each month by subscribers.**

New municipal debt is not needed to build robust broadband infrastructure throughout a city/county. By redirecting the money already being spent and making subscribers owners rather than renters of the infrastructure, municipalities can become a powerful enabler to move control to subscribers. The businesses, residents and anchor institutions in every municipality already pay for the broadband infrastructure they use, whether wired or wireless, but they don't control these systems. Since subscribers fund the networks, why not give them real influence over the things they want from a network like: lower pricing, increased network capacity, and the services that are available? Why not make subscribers owners rather than renters of the infrastructure? The way we make subscribers owners rather than renters is by organizing the system so that subscribers have a voice and by eliminating the fixed cost of infrastructure once it is paid off. Additionally, when infrastructure is treated as a utility, the infrastructure can be financed the same way we finance water and sewer systems – but on a voluntary "opt-in" basis. A significant advantage municipalities have is that they can spread the financing of this infrastructure over a 20 or 25-year period where

Ten Reasons Why Broadband Infrastructure Should Be A Municipal Utility



private companies seek a Return on Investment in less than 7 years. By treating infrastructure as a utility, turning subscribers into owners, and spreading the financing over 20+ years, the net monthly cost to subscribers will go down and subscribers can get much more value from the network.

9) **Municipalities can leverage advances in networking technologies to solve important problems.**

The current telecommunications model is an evolution from the world of the Plain Old Telephone - a model that is antiquated and broken. A single service provider controlling everything doesn't make sense in a cloud world. Municipal networks can deliver new value by abandoning the old telecom model and leveraging the technologies that have revolutionized data centers and enabled cloud technology. These advanced networking tools include network virtualization, software defined networking, and network automation. Municipalities are the preferred owners of broadband infrastructure because it is in the municipality's interest to optimize the interest of all stakeholders by building networks that are evolvable and flexible. By designing the municipal network for a cloud world, the same infrastructure can be used to deploy Smart City applications and Fiber-to-the-Premise applications. Network virtualization makes it possible to dynamically allocate private and secure virtual channels for services, regardless of the service type. The necessary beginning for building a Smart City is to recognize the strategic value of smart infrastructure in today's world.

10) **A Smart City is a municipality that has the ability to leverage the network as a powerful enabler for the interests of individuals and the community.**

The path to guiding a municipality forward in a digital age begins with a network that can evolve and the ability to give residents those things they want from a network. Municipalities have the opportunity to build open networks which give subscribers the user experience they desire. Robust, available and affordable internet access is just one core component of a Smart City. Subscribers also want choice, a growing ecosystem of compelling services, security, privacy, competitive pricing and many would welcome the opportunity to buy locally. Not only can municipalities build very robust networks, they can leverage the network to enhance many of the things which are important to the livability and viability of the community.

If Kevin Kelly is right that modern communications networks drive the economy and nearly every aspect of modern life, it is in everyone's interest to imagine the best form for designing and building communication networks and work toward realizing that form for the good of all.

Authors

Jeff Christensen
President

Robert Peterson
Chief Technology Strategist

www.entpnt.com

