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Public Network Issues & Answers

This paper identifies and explains many of the issues facing policy makers as they try to balance public good against the needs of industry. It can also gives consumer advocates a complete set of Talking Points and helps them spot undue political influence from powerful telecom lobbyists and their large campaign contributions.

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1. Overall Objective

While campaigning against John Kerry, President George W. Bush announced his vision of *"universal, affordable access to high-speed broadband Internet connections by 2007."* That vision, if realized, would enhance innovation, job creation, and competitiveness with other nations.

TechNet, a group of tech sector CEOs, calls for a more aggressive objective – 100 Mbps *access* to 100 M U.S. households by 2010. But even their objective is a bit short sighted. The key word for state policy makers should be *adoption*, not just access. That means customers need higher value at lower cost. Many experts also say the bandwidth should be faster too – 1+ Gbps.

(For more on Bush's vision, see http://news.com.com/Bush+Broadband+for+the+people+by+2007/2100-1028_3-5200196.html.)

2. Competition

The Telecom Act of 1996 was passed to promote competition throughout the telecommunications industry, but it failed to meet that objective. Current FCC & state PUC policies continue to foster franchised monopolies instead of open competition, because they were written for legacy phone services without regard for the effects of Digital Convergence.

As state legislators attempt to reform telecom laws, the ILECs and MSOs argue that new services like VoIP and IPTV have introduced new competition into the market. But even if there's a choice of service providers, economists know a duopoly or oligopoly is not the same as open competition where three or more companies compete for the same customers.

Allowing municipalities to install their networks is the best way to encourage true competition, especially when there are no other broadband alternatives or the town is at an economic disadvantage due to slow network speeds and high costs due to few choices. This gives citizens – not service providers – control of their own future.

3. Private Sector versus Public Sector

A common telecom argument against municipal networks is that the private sector should not have to compete against the public sector, which can use public money and rights-of-way and can tax private company competitors. An analogy might be grocery stores. *If a town had no grocery store, should the town build one?*

They say the answer is no, but no state or federal law prohibits public groceries, and there are many examples where cities and towns already control public functions.

Infrastructure. Long-term municipal bonds are often used to fund expensive community projects with long payback periods since the private sector can't justify those investments. Obvious examples include roads and airports, even though there are some private toll roads and landing strips. Public water treatment is another example. We don't see high-paid lobbyists for the bottled water industry complaining that free tap water is unfair competition.

Amenities. The Internet, which is like an online public library, can be an important amenity for visitors, citizens or low-income neighborhoods; and depriving municipalities of the right to build networks for free Internet access is like banning public libraries that compete with bookstores. Another example is sidewalks, streetlights and neighborhood pools that developers build for residents. Cities also build these amenities for citizens, and the public pools compete directly with private water parks like Wet-n-Wild.

Services – Municipal broadband services and municipal cable TV services aren't much different than other public services like trash removal and mass transit. City buses compete directly with private shuttle buses, taxis and limos; and city trash collection competes with private hauling services.

4. Choice

In the long run, won't municipal networks create a lack of choice when private companies can't compete against government-run organizations? Actually, the opposite it true. Open access networks – that let service providers connect on a nondiscriminatory basis with simple right-of-way access fees – attract more competition since the service providers don't have to make the capital investment themselves.

For citizens, open access municipal networks result in more choices, not less; and the extra competition causes service providers to improve their offerings and their prices. So, it's obvious that a ban on municipal networks is not in the public's best interest and only benefits monopoly service providers that block competition.

5. Conflict of Interest

Aren't municipal networks a dangerous conflict of interest when unregulated municipalities can regulate and tax the very same telecom companies they compete with? This is a good point that can be prevented with appropriate legislation. This is not, however, a reason to ban municipal networks.

An ideal approach is the open access network model discussed above and implemented in the UTOPIA project (Utah Telecommunications Open Infrastructure Agency – www.utopianet.org).

This consortium of 14 Utah cities is deploying and operating a 100% fiber optic network to every business and household. It operates offers open access wholesale network services and promotes competition in all telecommunications services.

There are many other business models working around the country, and new ones emerge all the time, so legislators should encourage municipal networks and this sort local innovation while creating rules that limit or prevent conflicts of interest.

6. Leverage

Most local governments have too many other issues to worry about, so they aren't interested in running a public network. But the option of installing a municipal network gives them leverage and bargaining power over private firms that could serve their community. Any law that would take away that option also takes away the leverage, with the only benefits going to service providers.

7. Use of Public Funds

Don't municipalities have a competitive advantage over commercial firms since they can use tax revenues and rights-of-way? That might be an issue if tax revenues were used to directly fund the municipal networks or pay off bonds that fund them, but most of the networks pay for themselves. In addition, local stakeholders are often willing to guarantee the bonds and absorb any risk that the city might otherwise face. The list of potential stakeholders is extensive and can include:

- Chambers of Commerce
- Convention & Visitors Bureaus
- Various Government Agencies
- Emergency & Transportation Services
- Parks & Recreation
- City Utilities
- Healthcare Providers
- Large Employers (telework)
- Restaurants
- Apartments & Hotels
- Retailers / Restaurants
- Banks / Financial
- Service Companies
- Clubs / Organizations
- Churches
- And MANY more

8. Due Diligence

Local officials already answer to their constituents and must ensure that public funds are spent appropriately and not misappropriated, so there's no need for state legislators to add additional onerous requirements that are designed to limit the spread of municipal networks. Instead, states should encourage these projects.

Note that both private and public organizations "red-line" (or prioritize) investments, but they have different objectives. Private firms are driven by profits, so they invest in projects with the greatest return before ones with less ROI. This naturally means that high-value customers or easy installations (green-field) get high-speed Internet access before low-income or rural communities.

Governments, on the other hand, serve the public good and prioritize projects base on which ones that offer the most public benefit for the dollar. At least that's the way it should work. This naturally leads to municipal network projects that start as small projects for specific purposes (pain points), and once those projects are proven beneficial, others are considered.

What this means for legislators is that they should avoid onerous requirements that stifle small project experimentation, since this sort of local innovation leads to large benefits later. Instead, legislators should actively encourage, fund, and guide (through a collection of best practices) municipal network projects and find ways for them to expand into public-private partnerships that promote competition. Ensuring that service providers have open access to public broadband infrastructure is an ideal way of doing that.

9. Right-of-Way Access

Giving service providers open access to public fiber optic networks on a nondiscriminatory basis is similar to giving them access to other public facilities, like streets, conduits, light poles, rooftops, rack space in transmission substations, and rooftops. Because there's a cost to providing such access, cities often charge ROW access fees, and this is no different for open access network infrastructures. It's the best way to give all service providers the ability to compete on a level playing field.

Private service providers can also access citywide wireless networks or powerline networks to offer services like VoIP telephony, VPN security, surveillance monitoring, telemedicine, etc. Local governments need the right to limit certain types of traffic that could overwhelm the network and impact other services.

Cities that collect franchise fees from service providers in exchange for monopoly control would need to revisit that practice in an open access model where other service providers are invited in. ROW access fees could replace the franchise fees, but since each municipality is different, it makes sense that this decision be made at the local level and not by state legislators.

10. Skills

The telecom lobby argues that cities are NOT telecommunications companies and asks, *"Don't cities lack the skills needed to install, maintain, secure and support reliable networks? And what about billing?"*

There are several flaws with those arguments. First is that cities don't want to be telecom companies and will hire qualified companies to manage their networks if needed, such as to install and operate open access fiber optic networks. Second is that many municipal networks use simple and inexpensive wireless technologies that can be installed by volunteer technicians, high school students as part of Eagle scout projects, or certainly with less skill than used for old fashion phone and cable networks.

Billing is not an issue when wireless networks are free amenities for visitors or free services for low-income families, but cities do have experience billing for electricity, water, trash removal, and other public services.

11. Network Reliability & VoIP Telephony

The ability to make calls on the Internet is rocking the phone industry with good voice quality, low prices, and new features that will change how phone companies do business. But VoIP does more than disrupt the economics of the phone industry. It also affects state tax revenues since the FCC ruled last year that states couldn't impose new regulations or taxes on the service, at least not now.

The feds want VoIP to evolve without regulatory burdens that would slow growth. They know VoIP still has problems for many users and that it will be many years before most of them switch. Alarm systems and fax machines don't always work when connected to VoIP lines, security issues still must be resolved, and power outages or network failures disable the phones. That causes concerns about lifeline support and e-911 location tracking.

The phone industry is proud of its reputation for five-nines (99.999%) reliability and argues that VoIP over public networks would not be as reliable, even degrading public safety. That's why many cities plan to outsource network operations to trusted private firms, including the phone companies if they can agree to act as infrastructure landlord without blocking competition from other service providers. They want choices, not an extension of the phone monopoly to the Internet.

Lifeline and 911 issues must be addressed no matter who installs the Internet connection, but these issues have become less important these days due to the large numbers of mobile phones that act as backup. Eventually, all of the VoIP issues will eventually be resolved, and the number

of subscribers will grow from about 1.2M subscribers in 2004 to nearly 7M by 2007 (per New Paradigm Resource Group).

VoIP calls are more efficient because there's no physical circuit and voice packets share the same network as other information. The equipment if far less expensive than conventional voice-switching equipment, so analysts predict voice will eventually be an add-on used for selling more profitable services like videoconferencing and multimedia entertainment.

Network reliability and VoIP telephony are not reasons to prohibit municipal networks or to pass laws that determine winning technologies, companies, or industries.

12. Technology Selection

Each municipality may have different objectives (amenity, service or infrastructure), physical characteristics (flat, hilly, densely populated), or legacy infrastructure (fiber, copper, powerline). So, technology selection should be done at the local level even if it's a mix of technologies. Legislators should avoid placing limits on local officials and their ability to adopt the best network configuration for their needs, the best business model for their objectives, or the best negotiation power for their budget.

13. Bandwidth

Telecom-driven legislation tends to view broadband in terms of old DSL or cable modem service, but that's not even fast enough for today's applications, much less tomorrow's. Modern apps need Big broadband, so TechNet recommends 100+ Mbps for 2-3 streams of HDTV using MPEG-2 video compression. Even faster speeds would shorten the time it takes to download movies to mobile devices. "The Matrix," for example, is a movie that on DVD takes 7.8 GB of space. To download that much information over a DSL line can take 10-12 hours, so you might as well FedEx the DVD or drive to the video store and rent it. But the download takes just 1 minute with fiber optic networks at 1 Gbps.

When bandwidth is symmetrical – the same speed in each direction – consumers and businesses can contribute content over the Internet, take part in videoconferences, enable video surveillance, and exploit telemedicine, as just some examples. But ILECs and cable companies intentionally limit the up-link speed of their networks so they won't compete with older and higher-margin services. $40/month consumer DSL, for example, may offer 1.5 Mbps down but just 256 Kbps up so it doesn't compete with $1,000/month T-1 service that offers 1.5 Mbps in each direction.

Because of the important role the Internet plays in education, healthcare, public safety, and economic development, legislators should expand their broadband objectives and avoid being constrained by old telecom thinking.

14. Wireless

Wireless phone competition finally happened when the FCC opened PCS and gave customers a third choice among service providers that use licensed spectrum.

The FCC is especially pleased with the level of competition among products using unlicensed spectrum for short-range networks. According to FCC rules, Wi-Fi products operating in 2.4 GHz or 5.8 GHz frequency bands must contend with RF interference from other products that also use those bands. But this shared use of frequencies has resulted in intense competition. In just 2-3 years, the price of wireless LAN access points and PC cards have fallen from $1,500 and $200 respectively to just $40 and $20 today. At the same time, today's products offer much greater performance and much easier installation so consumers can do it themselves. And cities can do it themselves. This is NOT the sort of thing that legislators should discourage with an onerous regulatory environment.

Wi-Fi is an evolving standard based on different variations of IEEE 802.11. Today it supports speeds of 11 Mbps to 54 Mbps in each direction, and soon it will support well over 100 Mbps.

Multi-hop mesh topologies allow short-range Wi-Fi networks to blank whole towns with high-speed Internet access, and emerging WiMAX technologies will make that even easier with much longer range – up to 30 miles in some cases. All of this means it's becoming easier for municipalities to install wireless networks at low cost and with low risk and effort. Legislators should embrace these trends, encourage deployment of these low-cost networks, and help find ways for public and private sector organizations to work together to maximize what each does best.

15. Broadband Over Powerline

The FCC in October 2004 issued a statement encouraging continued development of broadband communications over power line (BPL), noting its tremendous potential to provide competitive choices for customers and improve power supply system efficiency and reliability. The FCC also issued new rules governing the technology to ensure that it does not cause RF interference problems with radio reception.

New BPL technology is starting to be used by municipal electric utilities for remote meter reading, load management, real-time pricing, and customer communications, while at the same time offering an alternative for high-speed Internet access. This new competition gives customers and cities leverage when negotiating with commercial service providers, as well as new options for building public-private partnerships. The technology is on track to reach 100 Mbps in a few years, so legislators should join with the FCC and give BPL a strong endorsement.

16. Fiber Optics

Fiber has the greatest potential for its speed and ability to promote competition, but it can also kill competition entirely. That's because the FCC in its Triennial Review removed all requirements for ILECs to share access with competitors. The plan was to give ILECs an incentive to invest in fiber-to-the-premise, but with FTTP installed, overlay networks become far more difficult to justify, and the result will be less competition. This is probably not what the FCC intended.

Fortunately, there's another way to encourage fiber networks. Treat them as public infrastructure – an information superhighway that's paid for just like roads, bridges, airports and other public infrastructure. The UTOPIA project used a business model that is like that of an airport. Funding comes from a combination of municipal bonds and private investments, just like Delta and American Airlines contribute to public airports rather than building their own. Network construction and operation is outsourced to companies that manage reliability, security, and wholesale access so retail service providers can connect to it on a nondiscriminatory basis. ROW access fees are used to pay off the bonds, just like gate fees and leases for restaurants and shops pay off airport construction bonds. In that Utah project, no taxpayer revenue was required. Policy makers should encourage this sort of creative thinking, not prohibit it.

17. Volatility of Market

How good of a job will cities do in keeping up with technological evolution that requires constant network upgrades? After all, this is a volatile, risky business.

This question, posed by telecom lobbyists, applies to anyone, including the companies that make networking their business. Their anti-competitive actions seem driven by a desire to slow progress, not to advance it, and legislators should not associate themselves with bills that would slow progress.

Wireless is possibly the most volatile of all networking technologies, and the least expensive. With prices falling fast and performance improvements, won't local investments in the technology be short lived? One answer is yes, but who cares? Since the infrastructure investment is so low, it's easy to replace equipment as needed. And as long as the network serves its purpose, there's no pressing need to upgrade just to chase the technology curve.

18. Failed Projects?

What about the many reports of failed community networks or examples where taxpayer money was lost? This question is designed to spread fear, uncertainty and doubt (FUD) and to point to reports that intentionally spread false information. ILECs and MSOs have invested heavily in the organizations that create these reports and model legislation but conceal their hidden agendas and the fact that they represent these incumbent service providers. They reference each other's reports and hire academic researchers to make them appear credible and balanced, but a deeper look unveils the truth. Here are just a few examples from many:

- **American Legislative Exchange Council (ALEC)** is a membership-based organization that publishes model legislation, including a Municipal Competition Act, which bans municipalities from installing broadband services that might compete with private service companies, even when they don't yet offer such service. What is not disclosed is that ALEC members include the incumbent carriers that would benefit from such a ban, and only ALEC members can view this model legislation.
- **Cato Institute** promotes itself as a non-profit public policy research foundation that supports limited government. To appear independent, they accept no government funding, but they do take contributions from foundations, corporations, and individuals. Some of their biggest contributors include Comcast, Freedom Communications, SBC, Time Warner and Verizon.
- **Heartland Institute** pretends to be scientific and objective but really represents industry. Their 2/1/2005 article, "Why Muni Wi-Fi Is a False Hope," is designed to scare consumers and policy makers, saying Muni Wi-Fi is yet another example of "government spending taxpayer dollars in questionable ways, using money they probably don't have on a project that probably won't work."
- **New Millennium Research Council.** NMRC is a subsidiary of Issue Dynamics, Inc. (IDI), a consumer and public affairs consulting firm that promotes solutions to complex policy issues for clients such as BellSouth, Comcast, Qwest, SBC, Sprint, U.S. West, and Verizon. In a report titled, "Not in the Public Interest – The Myth of Municipal Wi-Fi Networks," the NMRC pretends to be unbiased but is anything but.
- **Progress and Freedom Foundation.** PFF describes itself as "a market-oriented think tank that studies the digital revolution and its impact for public policy." They too have published reports that promote the agenda of clients such as Bell South, Comcast, Nextel, Qwest, SBC, Sprint, Time Warner, and Verizon.

A closer look at municipal networks finds a very good track record with very little investment required. Once these networks prove that market demand exists, the service providers that first refused to provide broadband service cry fowl. If anything, legislators should fund these networks and help them grow through public-private partnerships and open access models.

19. Carve Outs

What if we make allowances in our bill for free Internet access in public libraries, schools, parks, and government buildings? And what if we "grandfather in" existing projects? These sorts of carve outs are a telecom tactic designed to divide opposition, satisfying some constituents in hopes of reducing public pressure and showing a good faith willingness to negotiate. The problem is that this tactic is almost never done in good faith.

When carve outs are inserted, they invariably leave out provisions that are important to some constituents. The examples above, for example, don't allow for services provided to low-income households, amenities for convention visitors that drive economic development, or fiber infrastructures open to all service providers and designed to drive competition.

20. Population Size

What if we limit the restrictions to towns smaller than 30,000 residents? The intent of this carve out is to show concern for rural towns with no broadband service, but it ignores other needs.

Even two providers (a duopoly) is not effective competition. Bigger cities like Austin, Dallas, Houston, and San Antonio have areas with no access or no competition, such as in low-income neighborhoods. And big cities may want to offer community networks with a consistent brand image as an amenity for visitors in convention centers, business districts, and other places where the investment drives economic development.

21. Social Justice

One reason the American Civil Liberties Union has joined the fight against bills that would ban municipal networks has to do with the way the Internet improves one's access to jobs, education and government. By prohibiting municipalities that serve low-income neighborhoods and rural towns, the residents (including the kids) are intentionally placed at an economic disadvantage.

A report prepared in May 2004 for the Texas Department of Information Resources by the Telecommunications and Information Policy Institute at the University of Texas at Austin sheds light on the broadband digital divide in Texas. The report shows that metropolitan Internet users subscribe to broadband at twice the rate of rural users (50 versus 23 percent). Researchers also found different rates of use among demographic groups, showing, for example, that Anglo Texans use broadband at a higher rate than non-Anglos. The study shows that ethnicity, educational attainment, and household income, in addition to geographic location, all influence a citizen's likelihood of access to advanced telecommunication services.

This difference is leading to poor educational and hiring opportunities across rural, urban and economically challenged communities, and municipal networks can offer immediate solutions.

22. Impact on Jobs

Incumbent service providers will often remind politicians of their size and importance to state economies. *"We employ 30,000 people who could lose their jobs if municipal networks are to compete with ours."* That tactic was tried in California, and the legislators called them on it and named them extortionists.

A study by TeleNormic Research, which investigated the economic benefits of investing in broadband, estimated 1.2 million new and permanent jobs would be added, specifically:

- 166,000 jobs in the telecommunications sector;
- 71,700 manufacturing jobs generated by the direct purchase of network plant and equipment and customer premise equipment; and
- 974,000 indirect jobs created if a next generation network were built.

These well-paid, high-skill jobs would be a welcome boost to our economy. And in addition, mothers would not have to quit their job when they decide to stay home with a new baby, and employers would not have to lose those valuable employees. High-speed networks that support videoconferencing support effective telework programs.

23. Motivations

Balancing public good against the needs of industry can be a challenge when policy makers hear more often from powerful lobbyists than from citizens, or when campaign contributions are as important as constituent votes. Politicians want to be reelected, so unless they hear an overwhelming message from the public, they are more likely to be swayed by the telecom lobby.

Legislators generally understand the motivation behind messages they hear from lobbyists, but they may not understand the hidden motivations of skunkworks like Issue Dynamics, a telecom-

lobbying firm that has been described as part of an underground network of political deceit in the telecom and broadband industry. It is made up of very well-funded fake or co-opted consumer groups, research firms, lobbying groups, and PR firms throughout the United States, that are out to fool reporters, state legislatures, Congress, the public and the FCC that they represent the public interest. For more on this disturbing topic, search Google for “issue dynamics” and skunkworks.

24. Paid Lobbyists

The Telecom Act of 1996 was meant to encourage competition, but the ILECs and cable companies resisted with litigation and lobbyists at the state level. Some reports put the investment, which is hard to quantify, at thirty times that of R&D. So with comparatively little emphasis on R&D, the telecom industry has dug itself a big hole, causing some analysts to say that lobbying has become their core competency.

To understand the size of the telecom lobby, look at SBC. The company is said to have 107 paid lobbyists, with one of them earning nearly $1.5M per year. These lobby efforts also include huge campaign contributions, sponsored research, and co-opted control of many non-profit consumer advocacy organizations. It’s no wonder that consumer advocates feel they are vastly outgunned.