

## Telecom Issues affecting Rural & Underserved Populations

**Rewrite of the Telecom Act** – It's been 10 years since the Telecom Act of 1996, and the rewrite that Congress is working on will likely last another 10 years. So, in addition to addressing today's problems, the new Act must anticipate tomorrow's, taking into account the global technology, application, market, and demographic landscape of 2015.

**More Aggressive Goals** – President Bush has an objective of "universal access to affordable high-speed Internet service by 2007," but his objectives for how fast and how universal are not aggressive enough to restore our nation's leadership status. Compared to other nations, we've fallen from #1 to #3, then to #8, to #16, and now to #20; and with this fall, we've also lost our 60+-year technology leadership. We need universal "adoption," not just "availability," and that implies more value (function & performance) at lower prices. So an example objective would be 100 M households subscribing to broadband service at 100 Mbps speeds in both directions by 2010, with half connected at gigabit speeds by 2015.

**More Realistic Measurements** – By defining high-speed Internet access as anything exceeding 200 Kbps in any one direction (barely faster than dial-up) and measuring success by the number of zip codes with access, the FCC actually hides the problem and takes our eyes of more aggressive goals that would help our world competitiveness. Service in Japan and South Korea, for example, is more than 10-times faster and costs half as much as here (100 Mbps symmetric service for \$40/month).

**Next Generation Network Definition** – Public records show that in 1992 the big phone companies, including AT&T (SBC, Southwestern Bell, Ameritech, Pacific Bell, SNET & soon BellSouth) and Verizon (Bell Atlantic, GTE, NYNEX & soon MCI), promised to rewire the country with fiber optics for networks that would carry high-definition video. They convinced Congress, state legislators, and the FCC to approve subsidies and favorable legislation so they could build broadband networks with speeds of "at least 45 Mbps in both directions," which was described as critical to our nation's future. They received the money (an estimated \$120 billion) but never delivered on the promise. To make their deployment progress look better, the Bells then convinced the FCC to define broadband as anything faster than 200 Kbps in any one direction. They even seem to have convinced the FTTH Council to dummy down its own definition of NGN to 30 Mbps downstream and 5 Mbps up. That's still well below the 100 Mbps objective of TechNet executives; below what is being installed in Japan and other countries; and far below the national objective of South Korea -- at least one gigabit! Instead of continuing policies based on what Bell operators have provided so far, the FCC should promote policies based on our nation needs for the future.

**New Essential Service** – Since fast Internet access is an essential service in knowledge economies, rural and underserved populations with inferior (dialup) connections are taking matters into their own hands rather than face an ever widening digital divide that limits access to education, employment, entertainment, and government. It's a defensive move. Without broadband, businesses leave, college kids don't return home, and the town dies.

**Flexibility and Freedom to Innovate and Compete** – Telecom policy should support maximum flexibility at the local level since size, geography, logistical challenges, and objectives vary so much. It should not favor one particular technology or business model. Wireless, for example, may be ideal for small, underserved communities with a flat and wide-open geography; but broadband over power lines may be better for mountainous terrain or communities in dense forests; and citizens of other municipalities may choose optical fiber as

their best long-term technology. Government regulators should not prevent local governments from doing what is needed for their prosperity or survival. Municipalities must be free to obtain essential services such as water, electricity, telephone, television, and high-speed Internet access, even if that means providing the services themselves instead of relying on private industry; and this philosophy should extend to any local government that feels threatened by a lack of real competition.

**Public WiFi** – New wireless technologies have lowered the cost of entry to such a point that phone companies in India and Africa are now making a profit with monthly subscription rates as low as \$5. These new networks are not only less expensive to install than landline infrastructure used for switched voice calls, but they are also easier to operate. That's one reason so many rural communities have been able to bypass reluctant phone and cable operators who refuse to offer broadband service to their “unprofitable market.”

**Public Fiber** – Fiber optic cabling complements wireless networks since the more wireless you have, the more fiber you need. And since BIG Broadband (at speeds exceeding 100 Mbps and approaching 1 Gbps) is not yet possible with wireless, that's another role for fiber. Unfortunately, private industry, facing the relatively high cost of installing fiber, needs a near monopoly to justify the investment. The FCC and US Supreme Court gave them that by eliminating rules that gave competitors access at wholesale rates. Still, most communities not wanting to be held hostage to one provider for all content and services have another option: fiber as public infrastructure. Often it's in an "open access" business model where any service provider can connect and compete for customers without investing in network cabling themselves, thus encouraging competition and giving consumers more choice of services and content.

**Wholesale versus Retail** – Related to Public Networks and Open Access is the concept of separating the rules governing (wholesale) network transport from those of (retail) application services and content, where wholesale is highly regulated and retail is not.

**Television Program Bundling or Unbundling** – A la carte programming relates to the TV broadcast versus on-demand debate and whether consumers will pay less or more with unbundling. The ideal may be a mix of the two, and new pay-TV competition may resolve the issue on its own. Ideally, content with wide interest (Desperate Housewives, NCAA championships, Presidential debates, etc.) makes sense for the broadcast model since streaming that content would clog the Internet. Good examples for IPTV include narrow interests; such as parents at work keeping tabs on kids by watching classroom video, grandma in another city watching a soccer game or Eagle Scout ceremony, or sports fans reliving the winning touchdown by UT's quarterback, Vince Young, against USC – over and over again.

**ROW Fee versus Franchise Fee** – Congress is considering a streamlined process for pay-TV franchises on a national basis to increase competition, but after reviewing the historical purpose of video franchise agreements, one might question the need for franchises at all. Cities once granted franchised monopolies to cable TV companies that agreed to (1) pay a franchise fee, (2) serve the entire community, and (3) carry public-education-government programming. But the marketplace has changed, and a right-of-way (ROW) fee structure may be more appropriate to cover the costs of providing access to public property (streets, sewers, light poles, roof-tops, and public fiber networks). New broadband technologies such as wireless, BPL and fiber offer alternative ways of reaching the entire community. And with IPTV, content can come from anywhere. Schools, churches, scout troops, and civic groups

can all use fast up-stream connections and a \$250 video camera to produce and host their own content. But first they need the fast connection.

**Net Neutrality** – Network operators investing billions in network infrastructure don't want to sell just a "dumb pipe." They want to maximize profit and increase market share and average revenue per user by bundling more lucrative content and application services. But detractors argue that control of the transport gives them an unfair competitive advantage if they can restrict access to competing services or make their own apps perform better. They worry that Bell operators might charge competing services a premium fee for faster service and want rules to neutralize this advantage by requiring that all apps and content are treated equally. Cable MSOs, however, already offer a multi-tier network with cable modems that have limited bandwidth to prevent live streaming of television programming that would compete with cable broadcasts. Streaming HDTV programs compressed with MPEG2 would require about 20 Mbps, which is not possible over cable or DSL services.

**New Pricing Model** – To understand how the move from broadcast to IPTV could cripple the Internet, consider a city with 1 million homes, each receiving 500 channels of broadcast TV today. Even if these were all high-def channels, the total bandwidth needed in the cable plant would be just 10 Gbps (500 channels \* 20 Mbps each). But if all 1 million homes were watching different IPTV programs (or the same program at different points in time), the bandwidth needed might be 2 Petabits per second (1 million \* 20 Mbps), assuming that only one TV is tuned in per home and it's not viewing picture-in-picture or picture marquee or recording multiple programs on a DVR. New peer-to-peer applications that allow consumers to share their own video programming have a similar effect on network loading but with no revenue generated for the service provider. To avoid these issues, a new pricing model is needed that moves away from fixed monthly fees and more closely tied to actual usage.

**Universal Service Funds** – USF, initially designed to promote deployment of switched voice services, must be extended to broadband, but how it's funded is a different matter. Taxing network services would discourage use by raising fees. Since broadband Internet access is becoming so important to all citizens and the competitiveness of our nation, another option is to use general public funds.

**Public Awareness & Involvement** – *(better fit for the Consumer Affairs & Outreach WG)* Industry is more likely aware of pending rulings than consumers, because they hire attorneys and policy analysts to follow such things. The fact that public notices and comments are posted in the Federal Register does NOT mean consumers know anything about them, their existence, or their significance. This is made worse by deadlines for public comment, the legalese of language that makes it too difficult for consumers to understand the issues, and convoluted procedures for submitting comments that actually discourage public comment.

**Information Resources** – Consumers and commissioners would both benefit from a list of credible resources covering various issues facing the FCC. To avoid the perception that the FCC is controlling information flow, that list would ideally grow dynamically (like a Wiki) with contributions from the public. Consumer & Community Resources is an early pilot site at Telecommunity.us that illustrates this concept. [This list of links](#) can be used as a starting point. It includes sections on Big Broadband; Federal Legislation and Telecom Policy; Municipal Networks and State Telecom Policy; Fiber Optics; Wireless Networks; Powerline Networks; and Telework, Telemedicine & Distance Learning.

**Best Practices** – Municipalities could also benefit from the list of resources if it also included Best Practices for Partnering, Funding, Operations, Open Access, Promotion, and other governance topics aimed at local officials and stakeholders.

**Telepresence** – High quality video conferencing over broadband networks that is almost like being there can eliminate travel to a large extent, improving the productivity of teleworkers and the effectiveness of telemedicine, distance learning, and e-commerce. The benefits from these applications are well documented.

TAC's 2003 Telework America Survey Report, "[Teleworking Comes of Age with Broadband](#)," concludes a teleworker with broadband in the home can save their employer up to \$5000 a year. Other telework benefits include:

Employer:

1. Boost Employee Effectiveness
2. Stretch Available Office Space and Reduce Overhead Costs
3. Expand the Potential Labor Pool and Attract & Retain Top-quality Employees (including stay-at-home moms, the disabled, and the elderly)
4. Strengthen Continuity of Operations
5. Expand Customer Service Hours Across Time Zones
6. Create 21st Century Workplace Where Products Count More Than Presence

Employee:

7. Eliminate unproductive Commute Time
8. Improve Work-Life Balance
9. Improve Employment Options with more choice of Careers and Employers

Community:

10. Reduce Peak Traffic Congestion and need for More Highways
11. Reduce Air Pollution and need for Federal Controls

These benefits go on ... and on ... but they largely depend on broadband access.