December 4, 2009

Craig Chatterton
120 Halton Lane
Watsonville, CA 95076
cc.fcc@excel4x.com

To: FCC
Subject: Comments – NBP Public Notice # 18
Reference: GN Docket Nos. 09-47, 09-51, 09-137

These comments relate to II. Business Adoption and Usage:

I am concerned that the line of questioning in this notice is likely to produce insufficient and/or incorrect answers. For example, question c.asks what applications are most critical to business productivity? Subsequent questions probe for requirements on speed, performance, latency, reliability, etc.

These questions, while very important, will probably be answered in terms of today's business requirements and challenges. Few businesses have a horizon that exceeds several quarters, particularly in this difficult economy. However, the funding, incentives, and regulations that the FCC includes in the National Broadband Plan need to address the needs over the next several decades. This is critical for several reasons:
1) The applications and demands on our broadband infrastructure are growing at an exponential rate
2) The cost of upgrading our broadband infrastructure is very high, and must be amortized over a long period
3) The USA is far behind many other countries, and it will take many years to catch up

We have an enormous challenge. If you ask a person on dial-up service what they need, they will probably ask for DSL level service (~10x improvement). If you ask a person on DSL service, they will probably ask for cable level service (~10x improvement). Even the brightest minds and architects of the internet are unable to predict our broadband needs over the next decade, yet alone 20 or 30 years. They do, however, agree that we need much more capacity and speed than we have today - they just can't quantify the numbers.

Nonetheless, we do know that the internet has already changed our lives and business value chains in many significant ways. One example is the growth of small businesses selling products and services on eBay, Amazon, etc. Before the internet, these business opportunities were not possible and/or practical. Major segments of the technology sector are also built around the internet and broadband. Telepresence and Telemedicine are not far off, and they demand 10-100Mbps.

In my humble opinion, over the next decade our businesses and citizens will need broadband services in the 50-100Mbps range with 5 9's reliability. That's where advanced applications are heading and that's where leading nations are heading.

Given this demand and growth rate, the only practical long term solution is fiber. No other technology offers the capacity headroom that can keep up with the demand. Question II.a.ii asks: Do mobile broadband services for businesses constitute a reasonable alternative (rather than a complementary solution) to wireline access? The answer to this question is clearly no. Even moderate projections and international de facto standards put end user broadband bandwidth requirements in the 50-100Mbps range over the next 10-15 years. Wireless technologies may be able to deliver 100-300Mbps per access point within a 20-40Mhz band over short distances. But that access point could then only support a small number of customers. Given the cost of towers, limited spectrum, and reliability issues, wireless services will not scale to meet this demand. They would also require the same fiber backbone to supply the bandwidth to the access points. Wireless services are invaluable, but they are not a substitute for wireline access.

Our situation today seems similar to the challenges our nation faced in creating the National Highway System and the Rural Elecrification of America. There is no low-hanging fruit solution we can fall back on. It's going to be expensive, and it's going to require an ambitious social program. The rewards, however, will be equally significant: job creation, economic growth, technology advancement, and much more. On the other hand, if we don't create and implement a similarly ambitious plan for our national broadband infrastructure, we will fall behind our world competitors and suffer economically and socially.

The good news is that the deployment will take many years. As the FCC has noted, the spectrum required for future demands will take 10+ years to roll out. High demand applications will also take time to become pervasive. The FCC estimates a 350B$ price tag for nationwide fiber deployment. Several factors can make this more manageable and affordable:

* Needs can be prioritized - for example schools and libraries first, as proposed by the Gates Foundation
* The cost can be spread over a ~10 year deployment cycle
* The portion of this cost for urban/suburban areas can be met through conventional business practices (e.g. businesses will make the investments because deployment is profitable).
* Regulations and incentives that make fiber backbone infrastructure accessible and affordable can spawn for-profit and non-profit organizations to help fill in gaps
* Existing funding for existing subsidized and stimulus programs (broadband, smart grid..) can be channeled into a comprehensive plan

As such, the incremental social funding required may well be in the 15B$ - 20B$ / year. Some of these costs should also be offset through the resulting efficiencies of shifting education and heath care costs to online services (e-books, records, etc.)

Bottom line: we need a visionary National Broadband Plan that will advance our broadband infrastructure to meet the demands of the 21st century. This needs to include the necessary regulation, incentives, funding, and coordination of national broadband resources. Such a plan is the best way to ensure our future economic growth and viability.

Respectfully,

Craig Chatterton