Craig Moffet of Bernstein Research was asked to testify before the Senate Commerce Committee on the subject of Net Neutrality. His comments were of course right on the money. The interesting conclusions that can be drawn from his testimony are just as relevant to the discussion of the future of media on the net as they are to net neutrality.

Craigs sites facts and figures that should make anyone who believes that the net as alternative to TV is just around the corner, or will happen this decade for that matter, rethink their position.

'Some of the nuggets from Craigs testimony

"despite a great deal of arm waving from "visionaries," our telecommunications infrastructure is woefully unprepared for widespread delivery of advanced services, especially video, over the Internet. Downloading a single half hour TV show on the web consumes more bandwidth than does receiving 200 emails a day for a full year. Downloading a single high definition movie consumes more bandwidth than does the downloading of 35,000 web pages; it's the equivalentof downloading 2,300 songs over Apple's iTunes web site. Today's networks simply aren't scaled for that.

In a series of recent research reports that I entitled *"The Dumb pipe Paradox"* — which I believe provided the original impetus for the Committee's invitation to testify today — I tried to address the expectation that the telcos are rapidly rushing in to meet this need and to provide competition for cable incumbents. In fact, by their own best estimates, **they'll be able to reach no more than 40% or so of American households with fiber over the next seven years**.

And **most of that will be in the form of hybrid fiber/legacy copper networks**, such as that being constructed by AT&T under the banner of *"Project Lightspeed."* These hybrid networks are **expected to deliver 20Mbs average downstream bandwidth**. After accounting for significant standard deviation around that average, **that will mean many enabled subscribers will actually recieve far less**. I and many others on Wall Street harbor real doubts as whether these hybrid networks will provide technologically sufficient to meet future demands

More importantly, **in 60% of the country, there are simply no new networks on the horizon**, and the existing infrastructure from the telcos — DSL running at speeds of just 1.5Mbs or so — **simply won't be adequate** to be considered "broadband" in five years or so. That includes wireless networks, by the way. Current and planned wireless networks — including the over-hyped Wi-Max technology — offer the promise of satisfying today's definition of broadband, but simply can't feasibly support the kind of bandwidth required for the kind of dedicated point-to-point video connections that will be required to be considered broadband tomorrow."

Craig is right. The last mile into our homes wont have enough bandwidth to support all that we will want to do via our internet connections at home. There is no moores law for bandwidth to the home. THere is a huge misconception that bandwidth will just continue toexperience unlimited expansionfor every broadband household. Its what we are used to with hard drives, processors, all technology. It gets faster, cheaper, bigger. Thats not the case for the next decade with bandwidth

The net result is that TV is going to be TV, delivered like TV for a long time to come. (I consider IPTV to be regular TV). There wont beenough bandwidth for it tobe any other way.

The problem is that our consumption of digital media at home will continue to grow. The bandwidth we want to consume will many times exceed the bandwidth available to us at that time.

The viewing of internet video will continue to grow. We will upload and download more and more video, consuming increasing amounts of bandwidth. We will want to download movies in High Def quality. Digital pictures will increase in resolution, and we will upload and share our lives through digital pictures that consumes multiple mbs per picture. Too do all of the above without limit, where and when you want to do it just cant happen. For the vast majority of us, there wont be enough bandwidth for at will , unlimited downloads.

You heard it here first. In the next few years, if you have multiple heavy net users at home, you will be scheduling your internet time and downloads. Instead of Net Nanny at home, you will have Download Nanny on yours and the kids or roommates PCs. If your roommate tries to download a 2gb movie at 9pm, and you still have to work to do later, you cant face the risk of the connection slowing to a crawl and timing out . You are going to set Download Nanny to pop up the dreaded "I dont think so Tim" window that reschedules the download to whatever open time it calculates is available based on the average download speed at any given time of day for your internet connection.

We will reach a point in the next few years where we are complaining about internet speed all the time. This wont be a corporate issue, it will be a home issue. We wont be able to do all the things we want to do on the net how and when we want to do it.

As far as the idea that everything we will ever want to watch on TV, the concept of unlimited video on demand from the internet ? The videos will be out there, stored on the net somewhere. THe problem is, you wont be able to download them and watch them whenever you want. You will be able to download them when you have bandwidth available and can schedule time to do it.

Kind of like the way it workswith cable and satelliteTV PPV and VOD today

It will be fascinating to see how it all plays out.