

# Fishing for the Broadband Answer

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I didn't realize how spoiled I had become until I recently took a brief holiday in Mexico. Armed with my cell phone, Palm VII and laptop computer, I was ready for some fishing and was relaxed, knowing somehow I could stay in touch. Certainly one of those appliances would get me "connected"! However, there are still places in the world where wireless technology has not reached, and the part of Mexico I was in was one of them. Forced to concentrate solely on fishing and swimming, I found myself thinking about the technology explosion and realized it was only a matter of time before I would be able to enjoy being connected everywhere. I couldn't help but wonder which technology implementation would accomplish this. At that moment, I realized this truly is the challenge we face in our industry today.

Worldwide demand for connectivity, specifically broadband access, is fueling a fire the likes of which we have never witnessed. Growth in this market segment is unparalleled and not in doubt. Couple these opportunities with the large populations throughout the world that continue to scream for just narrowband telephony and you have a market opportunity of epic proportions. Both needs will be satisfied; but in the case of broadband access, which technology and when?

The race is on and everyone has left the gate!

We have witnessed the migration from analog to digital cellular and PCS over the past five years. I often wonder where all those analog phones are now! The transition from current digital mobile devices to 3G appliances will take place next. Emerging technology and standards definition will result in true mobile connectivity. The technology roadmap for mobile handsets appears clear when compared to the broadband infrastructure challenge.

A broad spectrum of competitive technologies offers the ultimate solution to providing broadband access. As new entries reach the market, the appeal of the older technologies will diminish. The competition between fixed infrastructure technologies remains intense. Optical fiber continues to offer enormous bandwidth capability but is not available in the majority of the world. In fact, of the 700,000 or so office structures in the U.S. alone, only 5 to 7 percent have fiber deployed to the site. Where fiber is available, it certainly offers an enormous pipeline of uninterrupted data streams. Certainly optical fiber will have a presence, but is the world ready to "dig up" its current infrastructure and how long will it take? At what cost?

With 100 percent of the homes in the United States wired in copper, how can we dismiss the DSL offering? As well, 70 percent of all U.S. residences enjoy cable television and this was not unnoticed by the cable modem industry. Certainly DSL and cable will find their niche and offer bundled services including telephony, data and video. However, both technologies suffer severe bandwidth limitations and high cost for infrastructure expansion. These limitations have fueled the migration to wireless applications.

While fiber, cable and copper continue with their offerings, the satellite industry is also making its play. However, we must remember that 10 years after its introduction, only 14 percent of American homes have direct broadcast satellite (DBS) reception. Enormous payload cost coupled with long deployment cycles has limited this entry to date. Witness the sad fate of Iridium. However, programs such as Astrolink and GlobalStar hold the hope for extremely broad coverage and wide bandwidth. Unlike the previously mentioned technology offerings, once satellite constellations are in place, the service to



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