

The Vision Grows

Successful fiber-to-the-home projects along with greater awareness and public policy changes have caused the number of believers in FTTH to grow considerably.

by Michael Render

Author Profile

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The number of homes passed and connected with fiber-to-the-home continues to climb and, although it is still a very small number relative to total US households, the rate of FTTH growth has been fairly rapid. Early year-over-year growth has greatly surpassed the speed of implementation of America's first two residential networks: copper, which started in 1876, and coax, which started in 1948. At the same time, in purely subjective terms, where FTTH has been planted, it has grown roots.

Besides line counts, the number of FTTH advocates also seems to be increasing, despite ongoing arguments against the technology.

Just three years ago, true believers in FTTH were a fairly lonely group. At that time, a few core companies were staking their future on FTTH, along with a few hundred individuals within large, diverse telecom vendors and, most important, a few dozen pioneers out in the field. This last, determined group of men and women often faced an uphill battle and put their own careers and reputations on the line to convince their own municipality, real estate development company, or rural independent telephone company (ILEC), to take a chance and roll out an early FTTH project.

Fast forward to today. Successful projects, PR efforts, and public policy changes have caused the number of believers in FTTH to grow considerably, and awareness of the technology has grown to such a degree that it now is hard to find telecom vendors not involved with FTTH – either directly or indirectly. It is equally difficult to find ILECs, regional Bell telephone companies (RBOCs), so-called over-builders, real-estate developments and

municipalities with utilities that have not at least considered the use of fiber.

Among those passionately in the FTTH camp, the passion runs deep – and to some extent, broad. There is a unique vision of what broadband means.

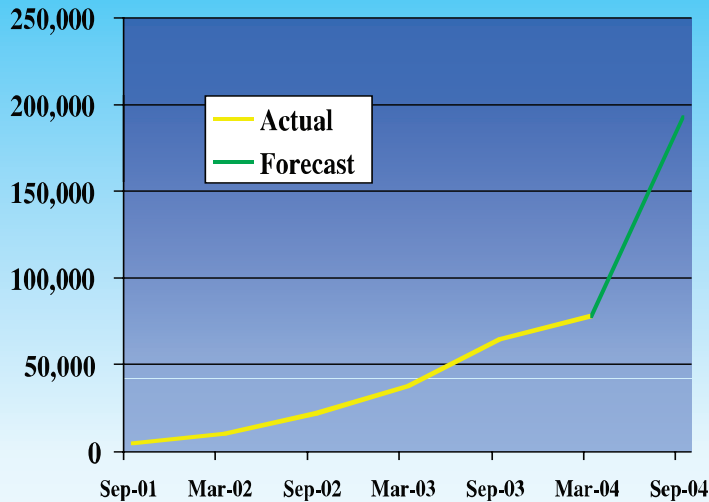
Most Americans, including workers in the telecom industry, think of broadband as a faster and more convenient Internet connection – offering speeds of between 1 and 3 megabits per second with slight speed increases over time. They have a relatively narrow view of it. And they usually consider only two possibilities for broadband in the future: make it more ubiquitous and make it more mobile. Broadband, in their view, should be in every home in America and accessible from anywhere.

By comparison, FTTH proponents' vision for broadband usually begins with the premise that it is extremely evolutionary. In other words, today's "broadband" will be tomorrow's ultra narrow band. Their goal is to bring to every home a tremendous amount of bandwidth – 20 to 1000 megabits per second – and to expand the bandwidth even further as the need arises. The best way to achieve this goal, they figure, is with fiber. The reason: fiber is fundamentally different from all other technologies.

Technologies such as radio waves over the air and electrical waves over copper face a severe distance-to-bandwidth tradeoff because of the basic laws of physics, but optical signals sent over fiber can pass very large bandwidths for many miles.

What about wireless? The vision of FTTH proponents is clearly of a fibered America, but they often see wireless and other technologies as

FTTH Homes Connected (Cumulative – North America)



Source: Render, Vanderslice & Associates

FTTH deployments have increased sharply during the past three years.

complementary. Many envision wireless mobility within the home (since very high bandwidths can be accommodated wirelessly for very short distances) and some level of wireless mobility anywhere – though not at fiber speeds.

The case for fiber is far from closed, however. There still are widely divergent opinions on the subject.

Detractors to FTTH have tended to advance three main arguments. The first is that fiber is overkill. "Running fiber to a home is like running a 12 inch water main to every home," a detractor may argue. "How much bandwidth do you really need?" Fiber proponents counter that many uses that will require higher bandwidths are already on the horizon. These include high-definition TV (HDTV) and also applications ranging from more advanced online education to digital medicine. Even current uses for broadband will evolve to necessitate FTTH, the proponents posit. For example, one could argue, Web sites will become much more advanced, to the point where they will be able to display full motion, full page video on every page. Many proponents also

note that all the uses of bandwidth cannot possibly be clear to us in the present, and more than one has recalled that even Bill Gates did not originally foresee the use of home computers moving much beyond simple word processing.

Another argument of detractors has been that FTTH is too expensive or impractical. One way of advancing this view has been to say, "Running fiber to every home would cost billions or trillions of dollars." Proponents counter that this argument is meaningless – fiber will be strung one project at a time based on the economic viability of each project.

Likewise, some detractors state, "Fiber to every home requires tearing up streets and landscaping and will never happen on a widespread basis – it will only be practical for "green-fields." Or, they contend, "There is no Moore's law for digging ditches – running fiber to every home would just be too expensive." Proponents say such arguments are simply not true, and "Moore-like" change has recently visited underground construction. They report, based on actual experience, that fiber can be installed under-

ground very inexpensively. New technologies, such as compact horizontal directional drills can pull conduit under roads and landscaping and require no surface opening except at each end. (Render Vanderslice data refutes the claim that fiber is practical only in new developments. Almost 80% of all fiber homes passed to date are in overbuilds of existing homes – not new developments.)

Finally, regarding incumbent telephone companies, detractors say investing in fiber is an unnecessary risk taken to pursue additional revenue. To the contrary, many proponents say, competition from wireless, cable voice-video-data, Internet phone service and other sources has made the risk to landline voice-centered businesses very clear. After enjoying one of the longest growth phases of a product life cycle in the history of American marketing, FTTH proponents say, the old-fashioned copper wire phone network may see one of the quickest declines in technology history. Likewise, they say, an interim strategy designed to reduce immediate capital expenditures, such as moving fiber closer to the home but staying with copper/DSL for the last 500 to 5000 feet, could prove riskier than going directly to FTTH, if the evolution to even higher levels of broadband happens as quickly as they believe it will.

The next three years will be telling, both in terms of FTTH deployment growth and in experiments with some of the technology's basic premises. RBOCs such as Verizon will provide the benefit of experiments in large-scale deployments. Rural ILECs and utility cooperatives will provide, among other things, experience in models for providing service to truly outlying areas. Municipal deployments will continue to play an important incubation role and are pushing the envelope both in terms of bandwidth provided and in testing new applications. New housing developments with FTTH will help prove its economic value to real estate.

For those with an FTTH vision, these truly are ground-breaking times. ❖