An Overview of Fiber to the Home and Home Developers

White Paper

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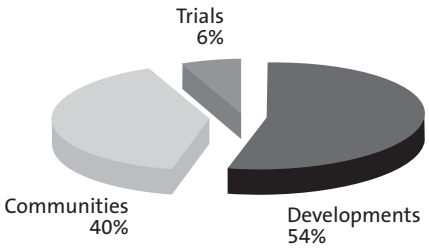
With the ever-increasing demand for bandwidth by increasingly Internet-savvy consumers, today's broadband networks are straining to keep up. Even today's most basic consumer bandwidth uses, such as e-mail and peer-to-peer file sharing, are guzzling more bandwidth than most current-generation broadband networks can comfortably provide. And bandwidth demand is not shrinking, but continuing to grow at about a 60-80 percent compound annual growth rate (CAGR). In response, broadband networks are proliferating throughout the United States and around the world, but it's become obvious that a long-term network solution requires optical fiber, due to its nearly unlimited bandwidth, to ensure the delivery of multiple services.

In the US, fiber to the home (FTTH) and the services it provides reach the final user by several methods. FTTH networks are being installed by local and regional service providers, municipalities and rural local exchange carriers. But a growing segment of the FTTH market is network installations by home developers, who are installing these networks to deliver voice, video and high speed data services for a variety of reasons. This paper will review the trends and drivers of FTTH deployment for home developers.

The home developer segment represents approximately 54 percent of the total FTTH market. More than 50 home developments have FTTH installed in the United States as of 2002 and this number continues to grow[1].



US Optical Fiber Communities[1]

One of the most active regions of the US for FTTH is Loudoun County, Virginia, where four FTTH developments are in progress. Surveys of residents in Landsdowne, on the Potomac in Loudoun County, revealed that 50 percent of the home buyers built in the development specifically because of the amenities afforded by FTTH. Over 80 percent of the residents have wired their houses for full home automation in anticipation of future applications that are enabled by optical fiber. Residents in Southern Walk at Broadlands stated they moved from a neighboring non-FTTH development because they wanted access to fiber amenities while remaining in the same community. Further supporting the growing importance of home amenities for the home developer is a survey by the National Association of Home Builders, which ranked home amenities third, behind price and location, as the key decision factors in future home purchase decisions.

Installing a FTTH network is of interest to the home developer as well because of the increase in property value it brings to the home owner. Residents in Terrabrook, also a Loudon County development, mentioned a key factor in their decision to purchase a home with FTTH services was the future resale value of having such a home. One survey of the FTTH market states, "The average homeowner sees FTTH being worth an additional $4000-$7000 per home"[2].

For the home developer, this value to the homeowner translates into faster selling of the development property. The home developer may also benefit from a faster city planning approval process because there will be more pull from the residents due to interest in increased resale values.

Another key factor driving home developers to install fiber is the increasing expectation of a broadband connection to enable teleworking or telecommuting from home. Approximately 54 percent of companies worldwide allow remote or at-home connection to the office, and this number is expected to grow to 80 percent by 2005. In the US, 13 percent of companies currently fund (or help fund) an internet connection and that is expected to double over the next 2 years. AT&T believes they save over $150 million a year due to the ability of their managers to regularly work from home[3].

Home buyer demand for fiber to the home is not the only influence on the home developer. With a FTTH network, the home developer has many options available to generate additional income beyond the initial property sale. Such options include network revenue sharing with or leasing network access to the various service providers. Baseline service offerings of voice, video and data can average $135 per customer with typical revenues exceeding that upwards of $250. The additional income above the baseline comes from various premium services that are enabled with a FTTH solution, such as video on demand, home security and home automation services.

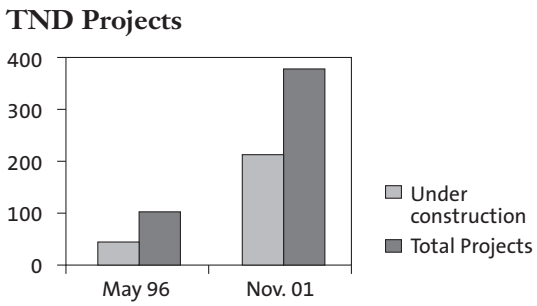
Typical Service Fee Example

	Monthly Fee
Baseline service:	
Telephone, Cable TV, broadband	$ 135.
3 Pay per view movies	$ 12.
Digital Cable plus HBO	$ 30.
Higher Speed Internet plus 5 Mb addl. webspace	$ 40.
Home security monitoring	$ 25.
Total	**$ 242.**

FTTH is a logical choice for new housing developments, as the single biggest barrier to FTTH deployment, construction costs, is essentially eliminated because it's rolled into the construction already being done for other service infrastructure. In a new development, the cost to deploy optical fiber is at parity with a copper network. And with optical fiber's advantages -- the ability to provide all services over one medium, lower operating and maintenance expenses and unlimited upgradeability -- the choice to deploy optical fiber is obvious.

Competing methods of deploying broadband services to the home, such as Digital Subscriber Line (DSL), cable modem, and various wireless methods, are limited in the total bandwidth that can be provided. More and more applications require the ability to send equal (synchronous) amounts of data both to and from the user. More homes are being networked with multiple devices including more than one home computer, smart appliances, home security, etc. Digital Subscriber Loop (DSL) and Cable modem are limited in their total synchronous bandwidth due to the fact that over portions of the system the signal from the user must be shared with many other users. The various wireless technologies such as Satellite, WiFi, and Free space optics also fall short on bandwidth due to weather and latency issues. FTTH is the only solution that can meet both the current and future synchronous data demands of the wired home network.

One area of home development that is steadily growing is Traditional Home Developments (TNDs) also called New Urbanism. There were over 375 TNDs in 2001 and the number continues to grow[4]. TNDs look at building neighborhood scale communities where all the necessities for daily life are within easy walking distance from home. These communities design together in one area mixed use buildings for small businesses, shops, town homes and single family units. Residents in these developments may have a business set up on the ground floor and live on the floor above. The higher density of a TND means that providing broadband services between residences, business and the public sector is more cost effective for the network provider. Additionally, the capabilities of a broadband connection within the development allow these communities to attract more residents as well as businesses.



New Urbanism Comprehensive Report & Best Practices Guide[4]

A recent survey found 36 percent of new homes being built have a high-speed Internet connection[5]. Demand is growing for greater bandwidth capabilities. This rising demand for amenities that are enabled by high-speed network access, coupled with the benefits to the home developer mentioned above, will continue to influence the number of home development FTTH installations now and into the future.

[1] FTTH council, US Optical Fiber Communities, (Sep. 2003):.

[2] Render, Vanderslice & Associates, Fiber to the Home and Optical Broadband 2002, (Nov. 2002): 44.

[3] AT&T Point of View, "Remote Working in the Net-Centric Organisation", (July 2003): 6.

[4] New Urban News, New Urbanism: Comprehensive Report & Best Practices Guide, 2nd Ed. (2001): 2-3.

[5] Consumer Electronics Association, "International Builders Show Keynote", (Jan. 2003):.

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