

FIBER-TO-THE-HOME: NORTH AMERICAN MARKET UPDATE

FOR THE FTTH COUNCIL

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TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION AND METHODOLOGY	
A. <i>A Word About the Language and Style of the Report</i>	4
B. <i>Emphasis and Scope of the Report</i>	4
C. <i>Survey Methodology</i>	5
1. <i>Background Information/Secondary Research</i>	5
2. <i>Interviews with FTTH Experts</i>	5
3. <i>Study of FTTH Deployments</i>	5
II. OVERVIEW OF NORTH AMERICAN FTTH ACTIVITY	
A. <i>FTTH Market Size Definition and Methodologies</i>	6
B. <i>FTTH Market Size—Homes-Passed, Marketed, and Connected</i>	6
C. <i>FTTH Growth versus Historic Copper and Coax Rates</i>	9
D. <i>FTTH Deployments by Type of Provider</i>	9
E. <i>Overall Penetration of FTTH</i>	10
III. FTTH TAKE-RATES	11
IV. CURRENT FTTH GROWTH	14



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I. INTRODUCTION AND METHODOLOGY

A. A WORD ABOUT THE LANGUAGE AND STYLE OF THE REPORT

The goal of this research is to provide a review of the fiber-to-the-home (FTTH)/fiber-to-the-premise (FTTP) market and industry. The report is written to a wide audience as it is evident that a very diverse group of people are interested in understanding fiber-to-the-home and its market.

Therefore, while the special acronyms and technical terms common to telecommunications professionals are efficient for those in the industry, we have limited the use of such terms in this report. Of the few acronyms referenced, FTTH for fiber-to-the-home/premise will be used most frequently.

The report is written simply and concisely. Graphics have been incorporated where appropriate.

B. EMPHASIS AND SCOPE OF THE REPORT

This report is focused on fiber running all the way to the residence.

It should be noted that many systems designed for fiber-to-the-home also supply service to small and medium sized businesses, as well as government agencies. The report also addresses such activity.

All figures referenced relate to cases where fiber is run all the way to the *individual living unit*. Thus, fiber-to-the-curb (FTTC) or fiber-to-the-node (FTTN) installations are not the report's focus. (The terms FTTC and FTTN define cases where the last few hundred feet to the home or business are actually still served with DSL over copper.) For multi-tenant buildings, the report focuses on fiber all the way to the individual living unit. (Fiber to other than the living unit might more accurately be defined as "fiber-to-the-building" or "fiber-to-the-floor", or "fiber-to-the-building plus

LAN”, and data for living units connected in this way is generally not included in this report.)

C. SURVEY METHODOLOGY

The methodology for this study is multi-faceted. It includes a thorough review of the market using extensive primary research. (Many other research studies merely gather data using secondary research or by interviewing people toward the top of the market pyramid, i.e. known experts who may have a sense of industry.) This study is different from most in that its detailed methodology works from the bottom of the deployment side up and includes interviews with representatives of many FTTH projects. (Data from interviews more than one month old were prorated slightly based on anticipated build schedules.)

The following methods were used to gather data for this study:

1. Background Information/Secondary Research

Extensive Internet searches retrieved dozens of articles and white papers related to broadband, FTTH, and specific FTTH projects.

2. Interviews With FTTH Experts

A total of over 100 interviews were completed with vendors and other experts knowledgeable about FTTH and projects being completed throughout North America.

3. Study of FTTH Deployments

Over 250 personal phone interviews were completed with representatives of FTTH projects throughout the United States and Canada.

Using this methodology, we believe a very accurate count of FTTH projects and homes currently passed, marketed, and connected has been developed.

II. OVERVIEW OF NORTH AMERICAN FTTH ACTIVITY

A. FTTH MARKET SIZE DEFINITION AND METHODOLOGIES

The goal of RVA is to report the most accurate, current FTTH market numbers possible. We also strive to provide clear definitions of the terms associated with the data in order to minimize misunderstandings.

The term “homes passed” in this report means the *actual number of homes where a fiber connection is available – i.e. a homeowner already has a connection, or could call and order a connection and receive service within a short time.*

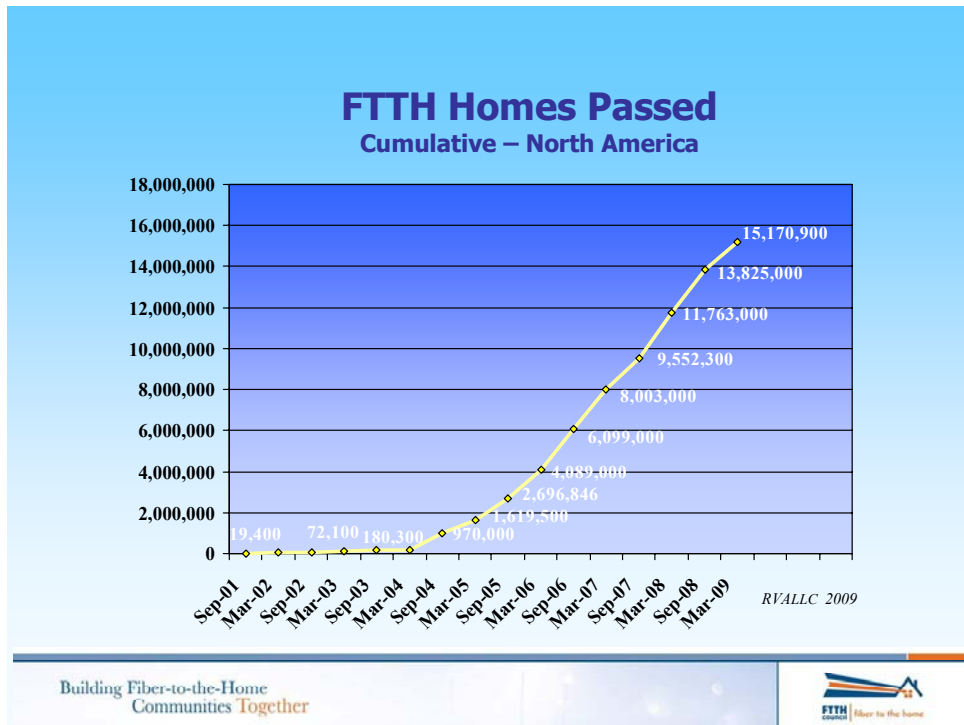
“Homes-marketed” means the actual number of homes being marketed to consumers. There is sometimes a delay between technically being able to serve consumers and tangibly marketing to them. This is especially true for large builds. In certain instances, providers may choose to avoid marketing to a specific area until the entire area is ready for service.

“Homes-connected” means the actual number of homes connected via fiber and getting some kind of service over fiber.

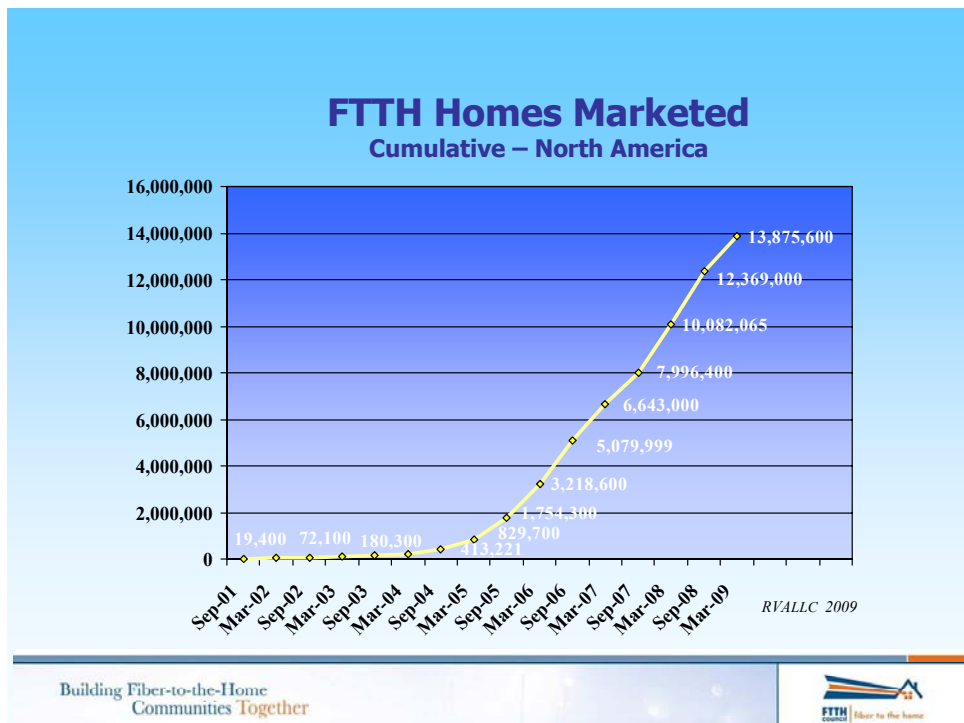
B. FTTH MARKET SIZE—HOMES-PASSED, MARKETED, AND CONNECTED

It is clear that the market for FTTH is truly a market of the new century. FTTH may have been conceived in the previous century (it first became commercially viable around 1998), but for the past several years, America has watched the birth of a new market.

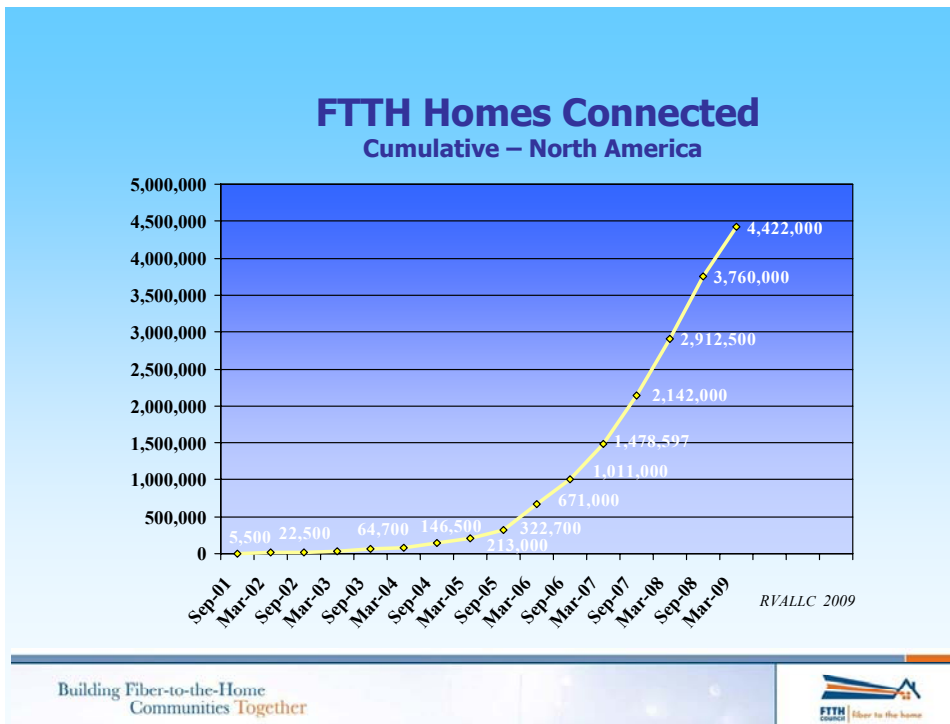
The FTTH market continues to grow. As of March 30, 2009, there are approximately 15.2 million homes-passed in North America. Over 98% of this activity has been in the United States to date.



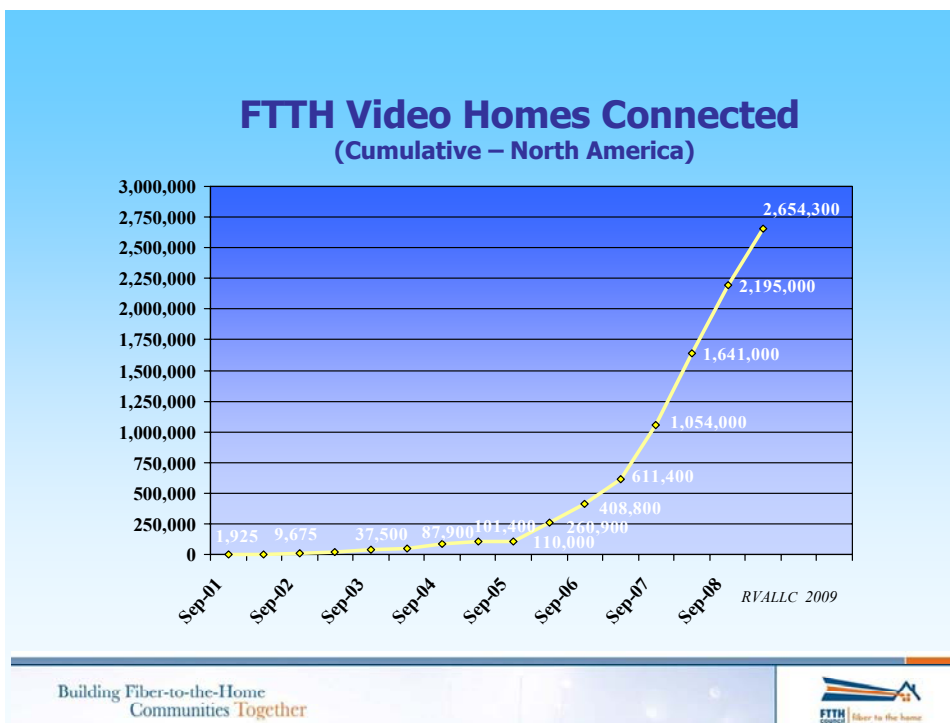
The estimated number of actual FTTH homes-marketed to consumers is approximately 13.9 million as of March 30, 2009.



The number of homes actually connected has now exceeded 4.4 million.



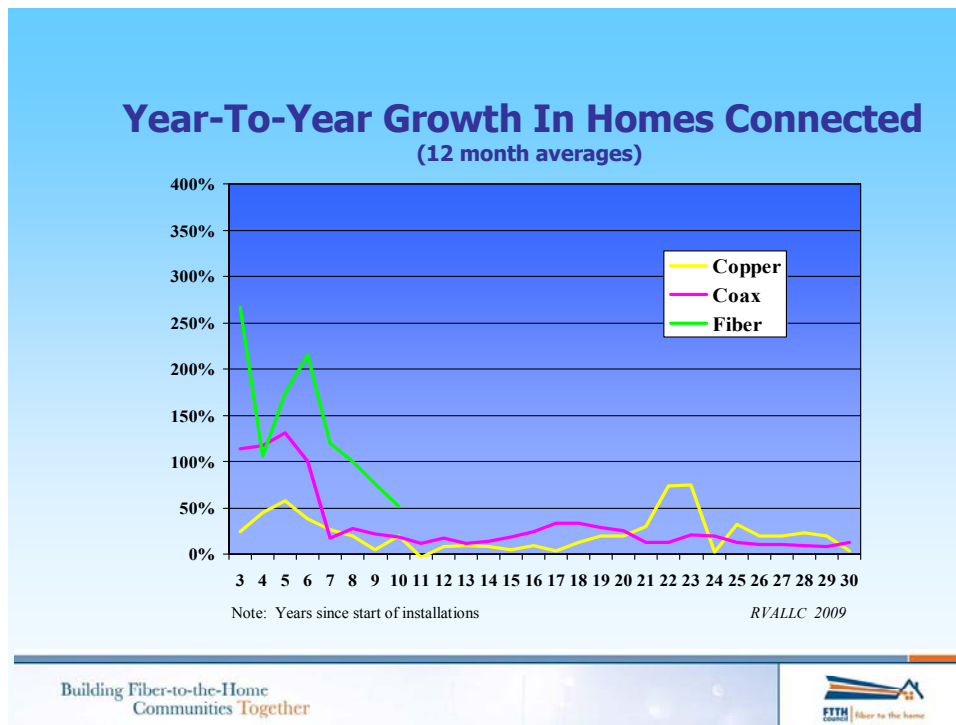
The number of homes served video-over-fiber is approximately 2.7 million.



C. FTTH GROWTH VERSUS HISTORIC COPPER AND COAX RATES

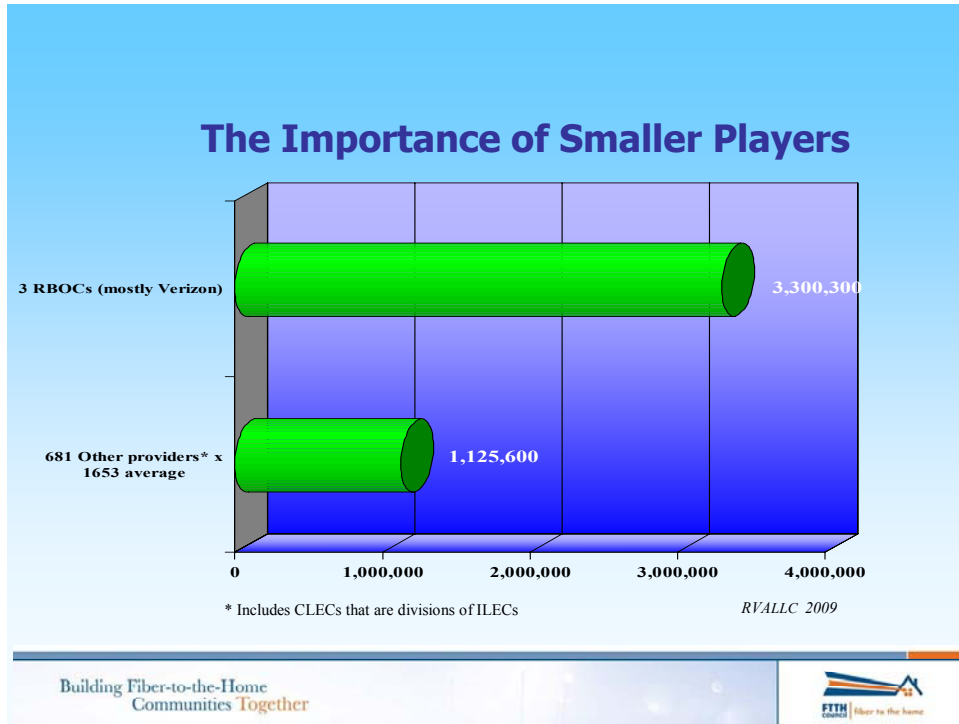
Comparison to the first two hard-wired networks in the United States (copper telephone lines started in 1876 and coax cable TV lines started in 1948) is made to help put deployment timelines in context. I.e., it is important to consider the speed of installation of a completely new physical network such as FTTH into every home in America compared with similar deployments of earlier generation networks.

While deploying FTTH will take time, reaching ninety percent of Americans with FTTH will not likely take ninety years like copper, or fifty years like coax.



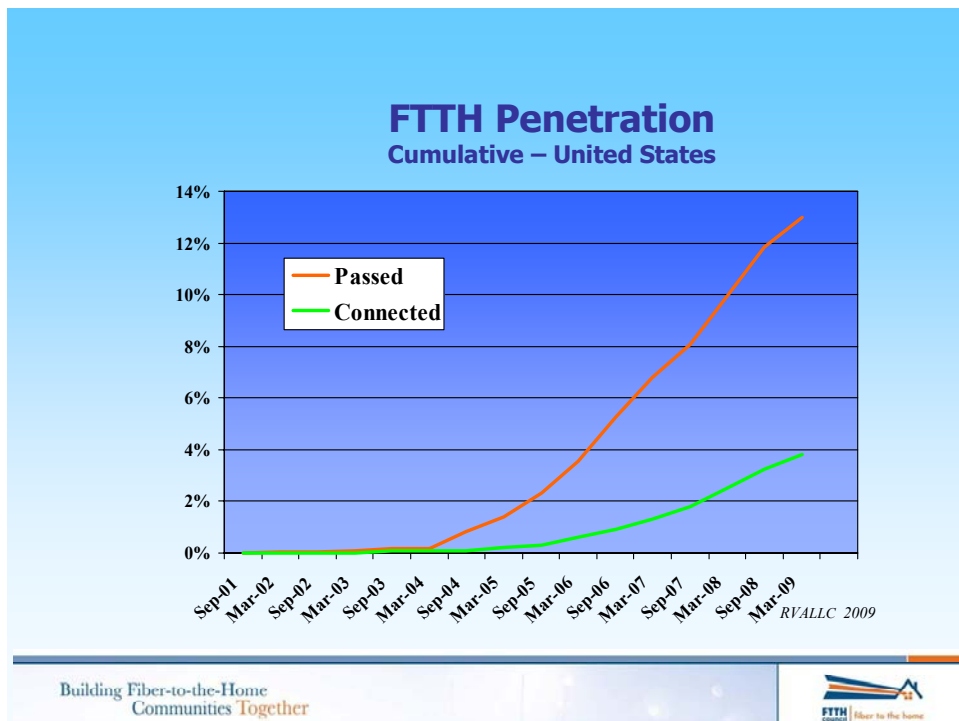
D. FTTH DEPLOYMENTS BY TYPE OF PROVIDER

RBOCs (mostly Verizon) had over 3.3 million homes connected as of March 30, 2009. While Verizon is the largest provider by a very large margin, there is actually a very long tail of other providers. As of March 30, 2009, RVA had identified a total of 681 other providers of FTTH in America which represents over 1.1 million total connections.



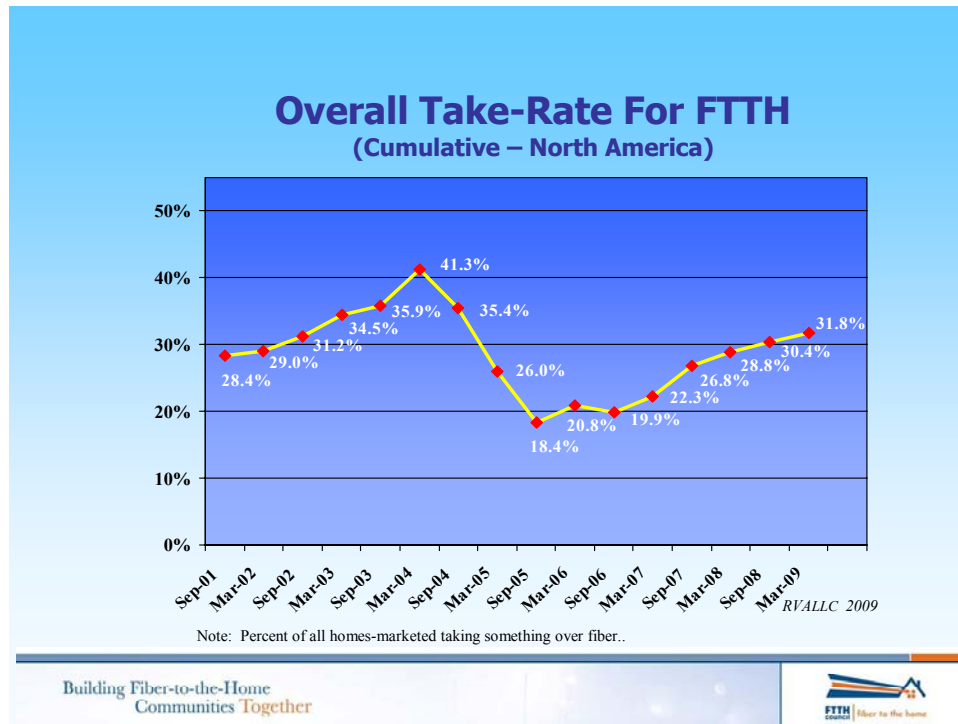
E. OVERALL PENETRATION

FTTH has now reached nearly 13% penetration of U.S. households in terms of homes passed and 4% in terms of homes connected.



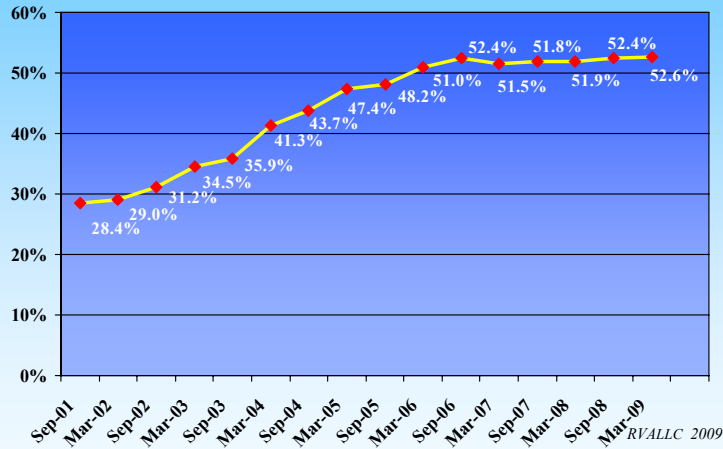
III. FTTH TAKE-RATES

The overall take-rate for FTTH services continues to increase. (Rates declined in a period from March 2004 to September 2005 due to the heavy infrastructure build by Verizon with few initial connections. After Verizon began connecting customers at a good pace, overall take-rates turned upwards again.)



For non-Verizon FTTH customers, take-rates have been fairly steady at over 52%. (While these rates include some cases where fiber has been replaced to all customers, even voice only customers, it is important to note that even voluntary take-rates for some individual FTTH projects exceed 80%. This is especially true in rural areas that were previously underserved with both Internet and video product and therefore have little real competition.)

Overall Take-Rate For FTTH Non RBOC Cumulative – North America By Year

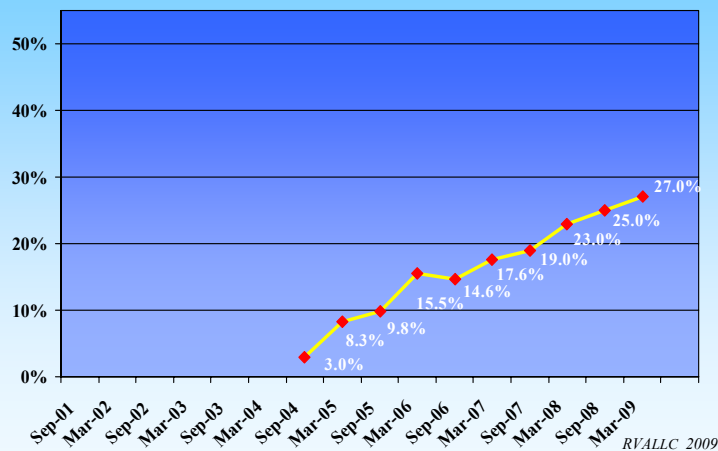


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For RBOCs (especially Verizon FIOS), take-rates continue to increase, despite service territories with competition from large MSOs with reasonably good product, and a significant continuing build which suppresses net take-rates. (Verizon's take-rate in areas where FTTH has been available for two to three years is certainly higher than the net rate shown below.)

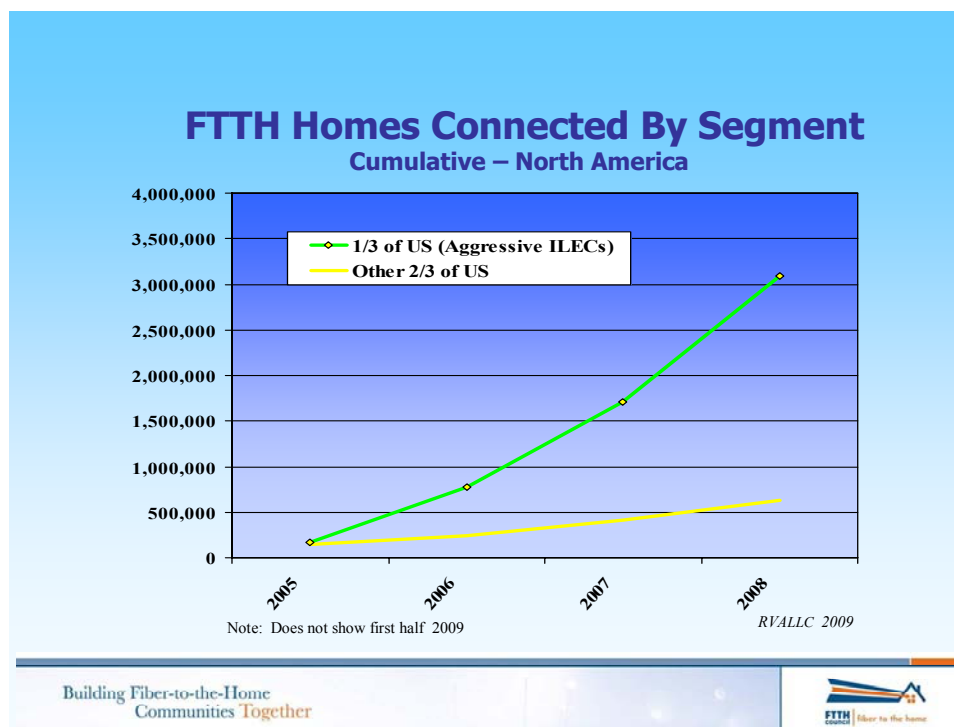
RBOC Take-Rate For FTTH Cumulative – North America



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In terms of penetration, Verizon and Tier 3 ILECs (generally small, single independent local exchange carriers) have actually penetrated a relatively high percent of their customer base. These providers – who we may call aggressive ILECs - cover roughly one third of the US population. (The other two-thirds of the US has had more spotty FTTH deployment – mostly from facilities-based CLECs, real estate developers, and public entities such as municipalities and groups of municipalities. In these other areas, the incumbent telcos such as AT&T, Qwest, and Tier 2 ILECs, have completed some builds of FTTH in new housing developments, but have done little overbuilding of their existing copper network.) Some FTTH builds by cable TV providers in new developments are also now beginning.



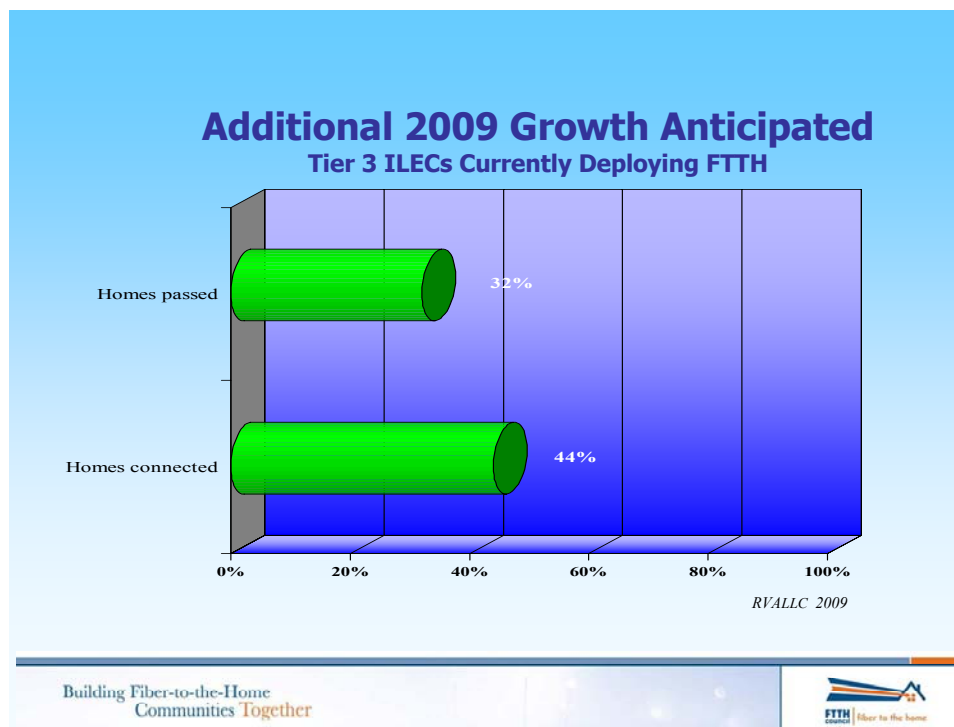
Verizon currently has approximately 10% of their customer base directly connected with fiber (FIOS customers taking some combination of Internet, television and other services). Verizon recognized early a need for a new business model, and their strategy appears to have been driven by a more visionary view of the future than other major U.S. telcos. Regulatory changes, such as the 2004 FCC Triennial Review, and later video franchise rulings have also played a key role in their decision to move forward.

Rural telephone companies (Tier 3 ILECs) now have approximately 8% of their collective customer base connected with fiber. Drivers for the rural independent telcos include aging copper lines in need of replacement, the opportunity to deliver video given a more robust platform, a pioneering tradition, and in some cases, subsidies such as rural broadband loan programs and universal service funds.

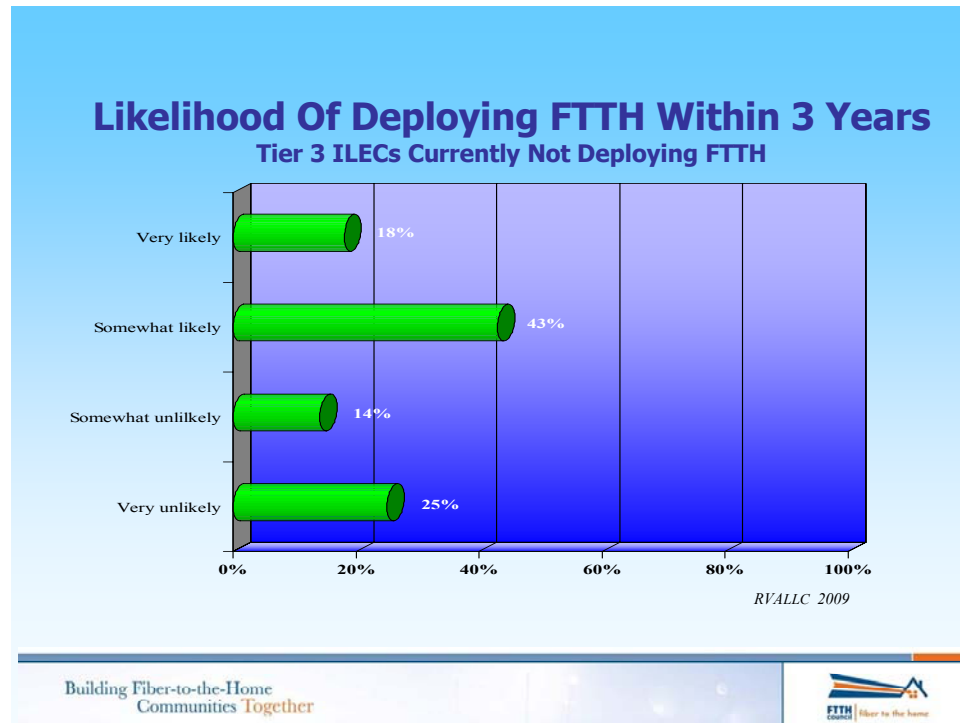
IV. CURRENT FTTH GROWTH

Based on our interviews, most do not expect that FTTH builds will decrease significantly during the current recession. (The exception is FTTH builds in new housing additions, which have slowed considerably.)

Both Verizon and smaller Tier 3 ILECs say they intend to continue to build at a fairly strong pace, even during 2009.



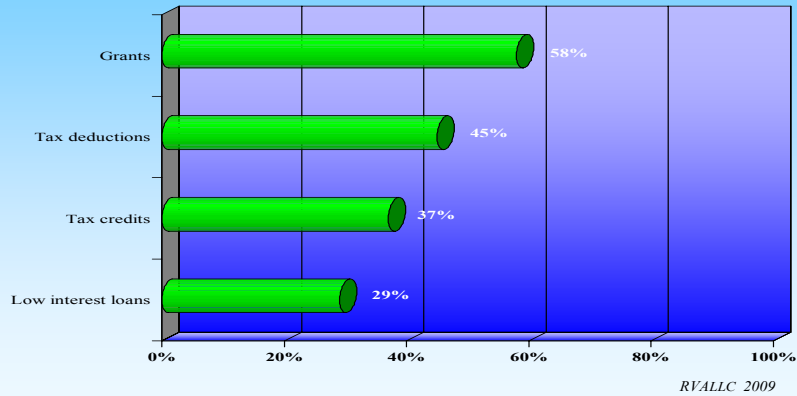
Currently close to half of the Tier 3 ILECs serve at least some of their customers with FTTH. Over half of those not yet offering FTTH say they intend to begin building FTTH in the next three years.



Based on interviews, the U.S. Stimulus Plan should increase growth beginning in late 2009 or early 2010. (On the other hand, several of those interviewed reported that the stimulus plan had the effect of slowing deployment somewhat during the first half of 2009, as providers put some anticipated builds on hold until the rules for stimulus funding were clarified.)

In terms of general incentive methods preferred, most ILECs and municipalities surveyed said grants would likely be a more effective incentive than tax incentives and loans.

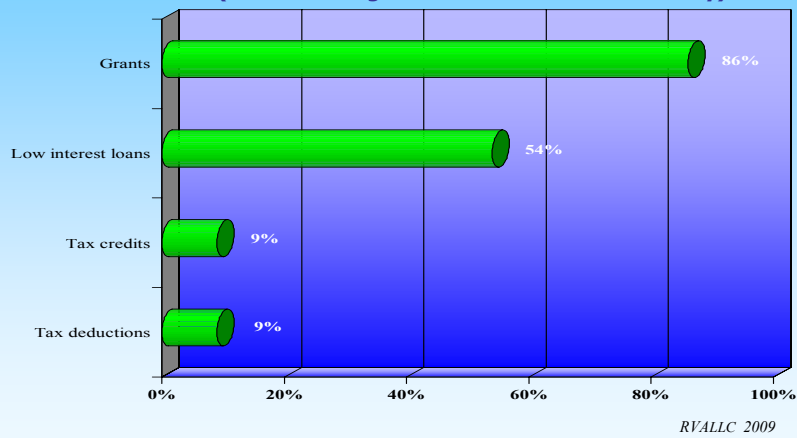
Likelihood Of Deploying More By Incentive Tier 3 ILECS (Percent rating somewhat or much more likely)



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Likelihood Of Deploying More By Incentive Municipalities (Percent rating somewhat or much more likely)



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