

## Latest Render Report:

# FTTH Customer Total Doubles Again in One Year

Verizon dominates, but smaller telcos pass more of their own customers with fiber

A BBP Staff Report

**T**he number of US homes receiving video, Internet or voice services over direct fiber optic connections redoubled over the past 12 months, after doubling the year before. Deployment plans already announced, and easier video franchising rules, should double the number of fiber-to-the-home customers again by spring 2008, continuing the trend.

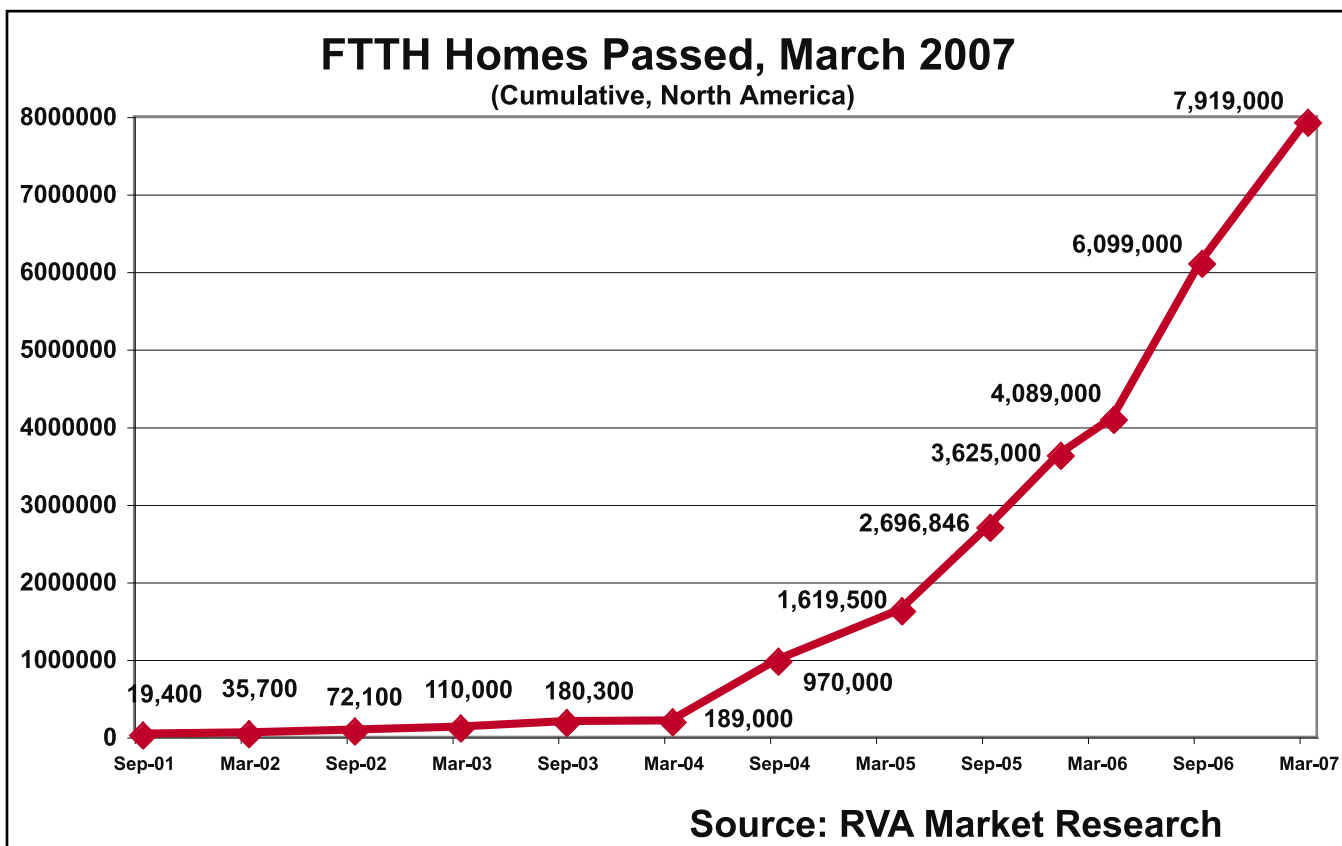
The FTTH subscriber total includes

recipients of conventional “cable TV” video delivered via analog or digital signal over fiber, as well as any service over IP, including voice and video, and not just data.

The numbers come mainly from a 100,000-household survey in February conducted by RVA Market Research, along with a survey of providers that wound up in March. The RVA study, updated every six months, is

sponsored by the Fiber-to-the-Home Council and the Telecommunications Industry Association (TIA).

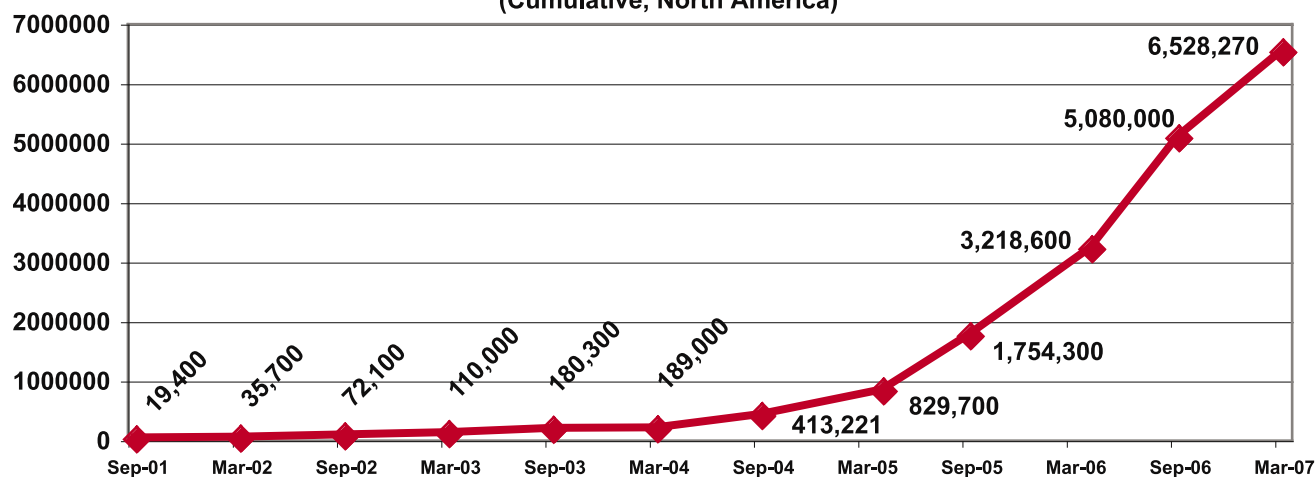
The study showed 1.34 million homes connected to the Internet via FTTH by the end of March (including a small number of multiple-dwelling unit deployments where fiber is brought to the floor and shared by several dwelling units). FTTH now passes 7.9 million homes. This compares to 671,000



The number of homes passed by fiber more than doubled from April 2005 to April 2006, to 4 million from 1.6 million, then doubled again by April of this year, to almost 8 million – an amazing growth rate considering the base. Non-RBOCs accounted for more than half the growth from 2005 to 2006, but could not keep up with Verizon’s 6 million home pace starting mid-2006.

## FTTH Homes Marketed, March 2007

(Cumulative, North America)

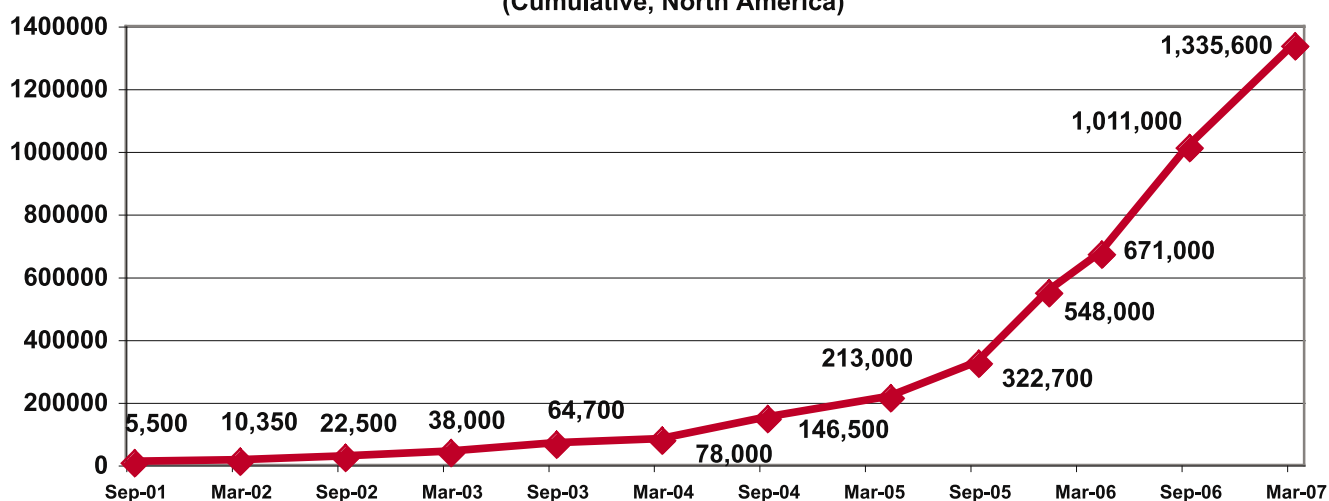


Source: RVA Market Research

Homes marketed increased at slightly higher rate than homes passed, more than doubling. For the past two years, despite the acceleration in homes passed, four out of five are being marketed.

## FTTH Homes Connected, March 2007

(Cumulative, North America)



Source: RVA Market Research

The number of homes connected jumped to 1.34 million, up almost 400,000 in just the past six months.

connections and 4.1 million homes passed as of March 2006. The totals do not include fiber connections to nonresidential businesses by outside providers; business use would add as much as 10 percent to the residential totals.

Further, the study shows that fiber-to-the-home is being installed by a wide range of real estate developers, incumbent and competitive local exchange

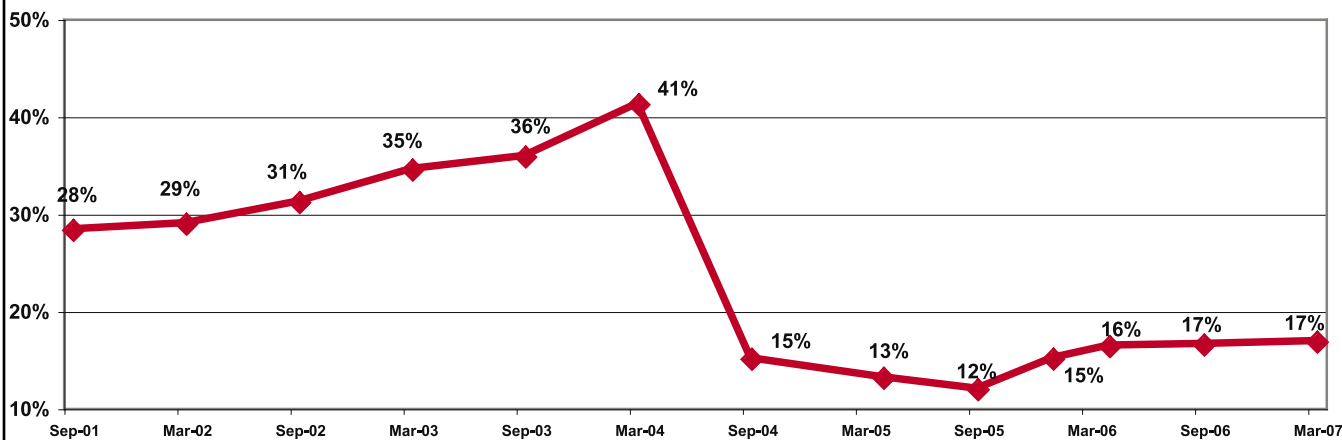
carriers (ILECs and CLECs), and not just large telephone companies. Smaller, often rural, telephone companies, along with municipalities and CLECs, account for a third of all FTTH customers in the US now – about 430,000. About 40 percent of that goes to the non-RBOC ILECs and 40 percent to CLECs (often in partnership with developers).

“While Verizon is by far the larg-

est single provider of fiber-to-the-home services, our figures show that there are more than 340 companies serving customers with these ultra high bandwidth services,” said Mike Render of RVA Market Research, author of the study.

“In fact, small rural telephone companies are actually leading the way in terms of penetration – with almost three percent of their combined customer base

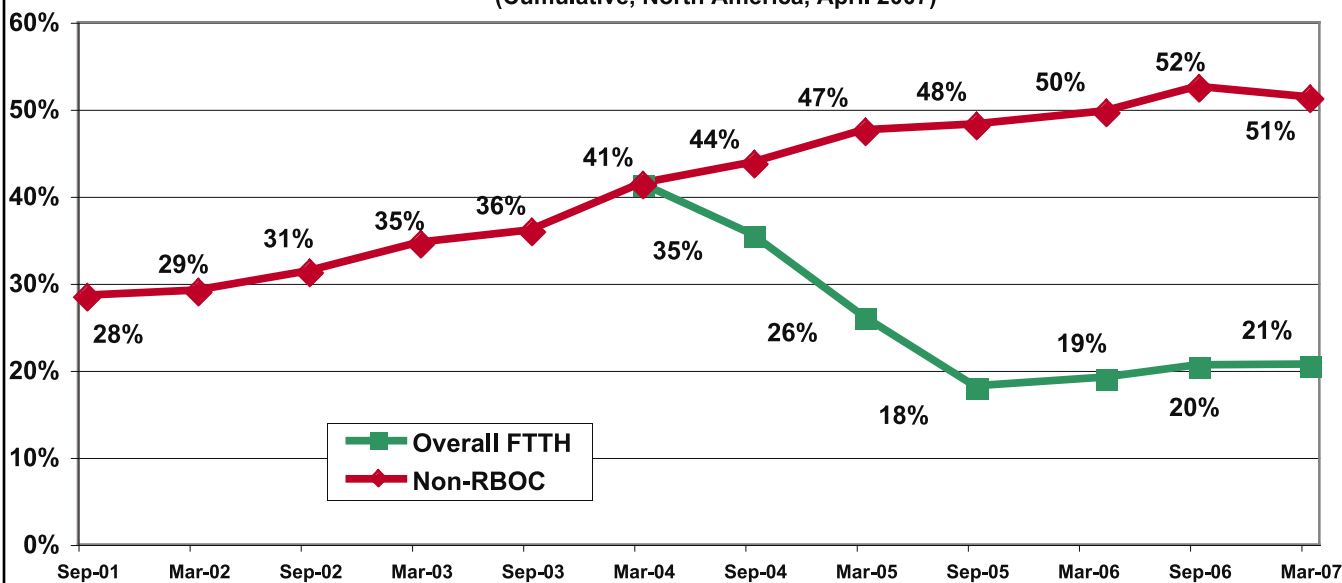
### Percent of Passed (not marketed) Homes Connected, March 2007 (Cumulative, North America)



Source: RVA Market Research

The percentage of homes connected versus passed (not marketed) is now 17 percent, barely up from last year. For most of 2005, the rate was even lower, however, at about 12 percent of homes passed.

### Overall FTTH Take Rate, RBOC vs Non-RBOC (Cumulative, North America, April 2007)



Source: RVA Market Research

Non-RBOC take rates continue to hold steady at about 50 percent. But the RBOCs, mainly Verizon, were just beginning to volume-market video services last fall; thus, their take rate, while improving, has lagged. Also, non-RBOC, non-muni deployments are often greenfield, where take rates, as would be expected, are highest (75 percent as of last fall). Greenfields raise the overall average.

now connected via fiber-to-the-home.”

While Verizon is passing 6 million homes a year with fiber, AT&T is passing fewer than 30,000, says Ren-

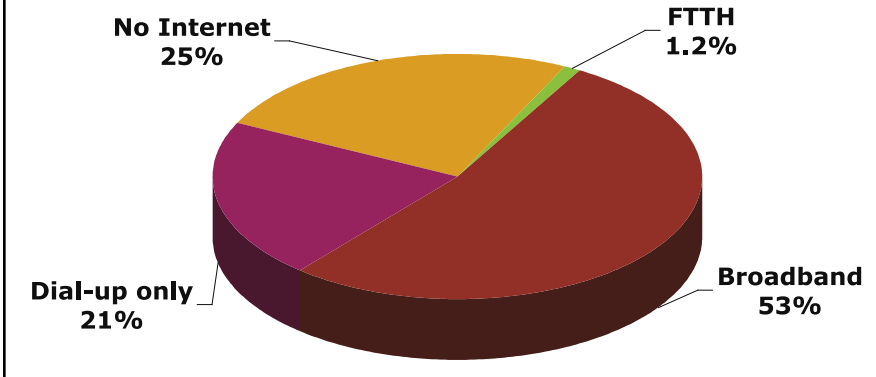
der, all in greenfields.

Tier 3 ILECs, the smallest, are the most aggressive when it comes to FTTH. They operate as ILECs in only

one state and typically have 10,000 customers or less.

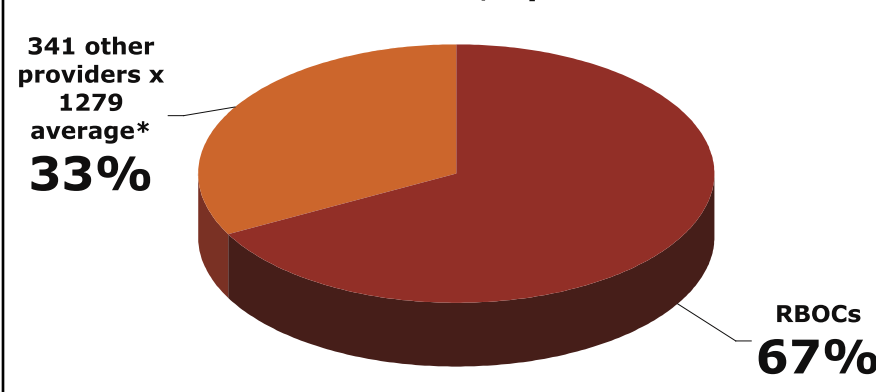
Render said that CLECs are quite active in overbuilds as well as in green-

**Current Status of Fixed Connectivity, April 2007**



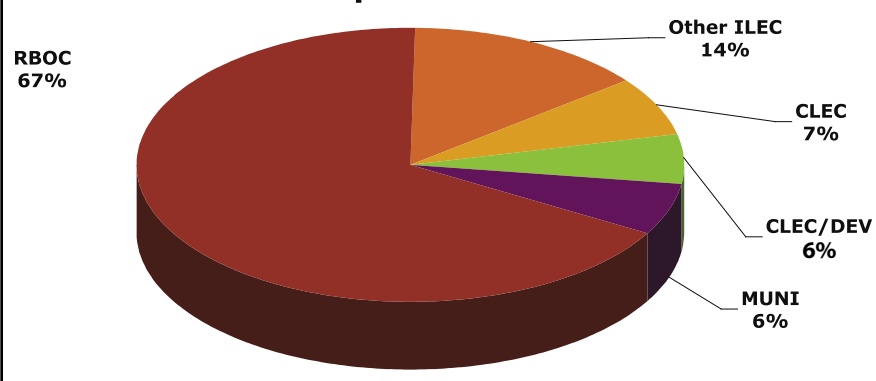
A quarter of all US households do not have Internet connectivity, and almost as many have only dial-up access. Only 1.2 percent have FTTH; that should double this year.

**FTTH Subscribers, April 2007**



RBOCs, mainly Verizon but also AT&T in greenfields and (to a very small extent) Qwest, have two-thirds of FTTH subscribers. But 341 other providers have deployed fiber, according to RVA.

**FTTH Subscribers by Type of Provider April 2007**



Competitive local exchange carriers, either alone or in partnership with real estate developers, serve about one subscriber in seven with FTTH. Non-RBOC incumbents serve a similar number. Municipalities in the US serve only six percent of all the FTTH, according to the latest RVA study.

fields. He noted that although municipal systems have 6 to 7 percent of total FTTH subscribers, but a far smaller percentage of homes passed, because their take rates are far higher. "Municipalities typically step in when no one else will build," says Render. He did warn that take rates for municipal systems are significantly higher than for incumbents. But they are not uniformly high; local conditions and municipal business plans play a large role.

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**Greenfield Pays**

He also said that MSOs – franchise cable companies – have been building FTTH in greenfields as well, although not in large numbers.

Render said "In new larger developments, 1000 homes or more, half are going fiber." But he noted that calculating the percentage of greenfield customers or developments with FTTH is difficult. "One of the complexities is that developments need to build out over time. Developments that started 5 years ago [and may not have included fiber] are still adding inventory."

Render warned that "although high-end developments are doing even better on FTTH deployments it would be a mistake to think it is all high-end."

Render noted that while the US continues to lag behind Japan in the total number of homes connected to FTTH, it had taken a commanding lead in

terms of the growth rate in direct fiber optic connections .

“Clearly, America’s need for speed is driving sustainable, accelerated growth in the deployment of high bandwidth fiber to homes across the country,” said Joe Savage, President of the FTTH Council. “We expect this rate of growth will continue as an increasing number of Americans discover the ease with which video entertainment, gaming, and data applications are delivered through fiber-enabled connections.”

The fiber technology being used is overwhelmingly PON, in large part because Verizon has been deploying BPON and just recently switched to GPON. But if Verizon is excluded, Render says, active point-to-point Ethernet accounts for about a quarter of subscribers. It is particularly popular in greenfield builds.

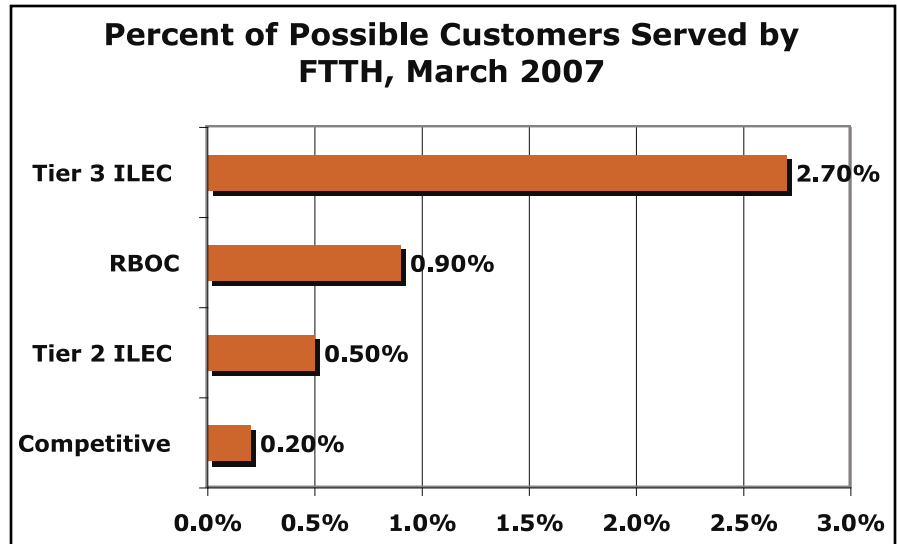
“Non-RBOC providers are trying to go to the highest bandwidth solutions, and active is a part of the mix,” said Render.

### Future Potential

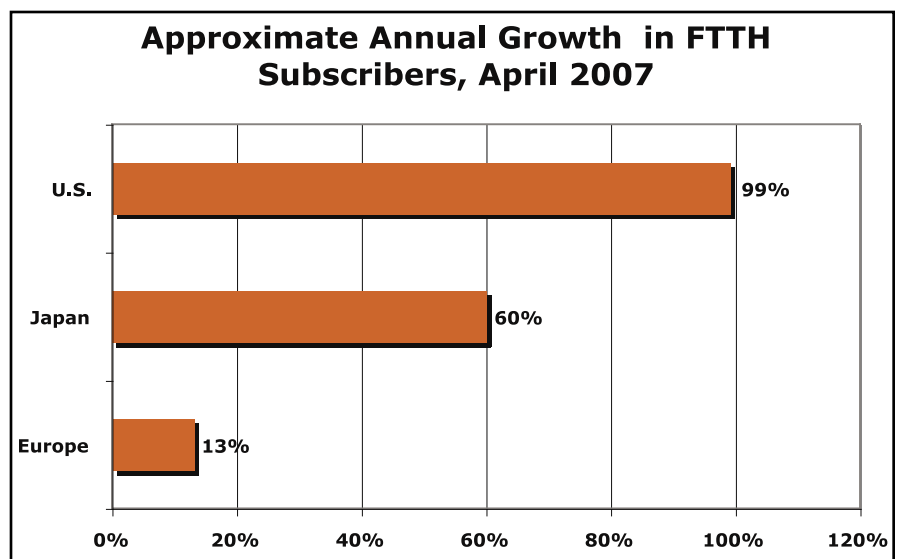
The US has the fastest FTTH growth rate of any nation, about 99 percent for the past 12 months and over 200 percent for the six months before that. But Japan, growing from a larger base, adds 300,000 FTTH customers every month. That is, it matches the current US total every four months or so. But in the coming year, the US will add more than 100,000 FTTH subscribers each month and jump to 200,000 a month starting in the spring of 2008. The actual numbers could be even higher; these totals include only announced deployments and plans divulged to RVA.

Europe lags, but the number of announced FTTH deployments has jumped substantially – and unexpectedly – in the past few months, especially in France.

What about the next decade? Fiber’s growth rate is following the same general pattern as the growth in coax deployments and even the growth in copper – very high initial growth rates, declining in the first 10 years to a more steady-state situation. For coax, that steady state sustained annual growth rates of



**So far, smaller incumbents have been the most aggressive at adding FTTH to their service mix; they have a higher proportion of customers’ homes passed, and a higher take rate. Data are from the latest RVA report.**



**The US has the fastest FTTH growth rate of any nation, but Japan, growing from a larger base, adds 300,000 FTTH customers every month. The laggard is Europe. The US growth rate dropped in the past year from over 200 percent, while the number of FTTH subscribers increased greatly in absolute terms.**

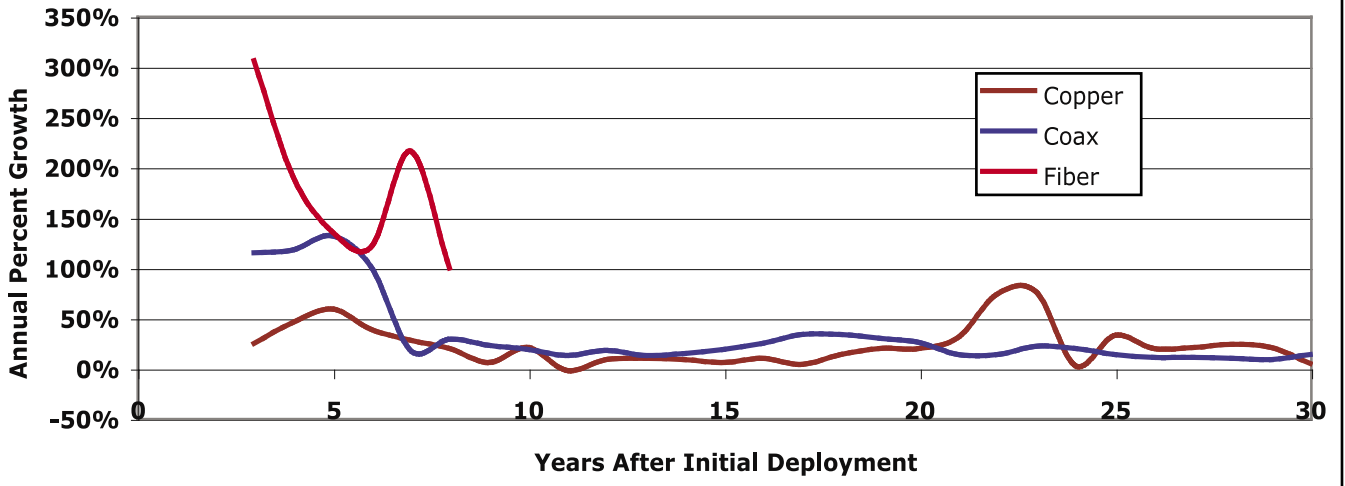
20 to 25 percent for many years. Fiber seems primed to grow faster, as its initial growth rates have been more than double those of coax.

Verizon alone plans to pass 18 million homes by 2010. BBP estimates that others’ deployments will bring the total to around 24 million, or more than 20 percent of all US households. By then, BBP predicts that other RBOCs and the cable MSOs will have to start de-

ploying fiber to compete. That, in turn, should drive up Verizon’s stock price – its build will be nearly done and it will have a big lead providing high bandwidth services while others will take a big hit in profits and cash flow. So Verizon will be able to afford building as a CLEC in others’ service areas.

The digital divide remains an issue in the US, but it is complicated. Educational level is a strong predictor of

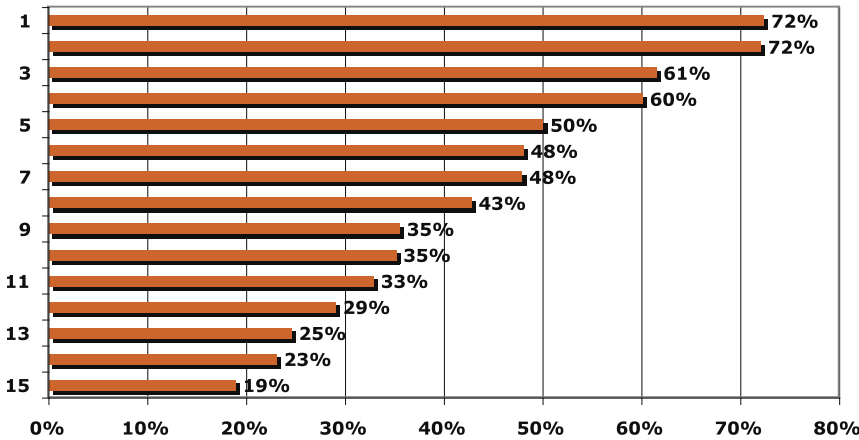
**Year-to-Year Growth in Homes Connected**



Fiber's growth rate has been significantly higher than growth experienced at a similar deployment maturity for copper and coax, but so far is following the same general pattern – very high initial growth rates, declining in the first 10 years to a more steady-state situation. For coax, that steady state sustained annual growth rates of 20 to 25 percent for many years. Fiber seems primed to grow faster. The data are from RVA.

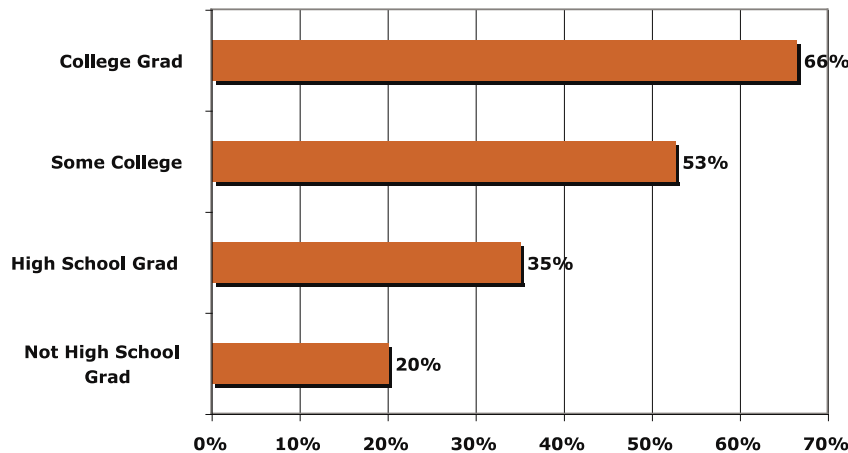
**Sampling of Muni FTTH Take-Rates**

FTTH Munis with marketing plan and 2 year history



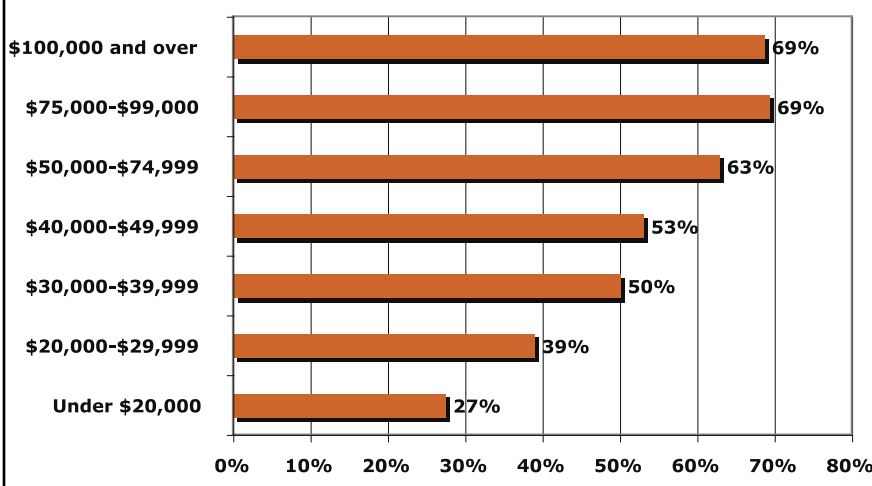
Take rates for municipal systems are significantly higher than for incumbents. But they are not uniformly high; local conditions and municipal business plans play a large role. This chart does not represent the "top 15" muni deployments – it is a sampling that shows diversity.

**U.S. Broadband Use By Education**



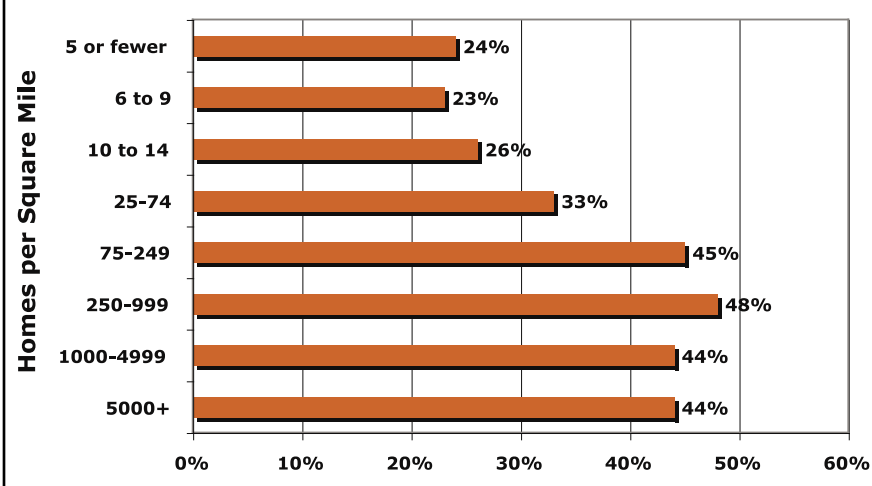
The digital divide: Educational level is a strong predictor of broadband use; other studies suggest the effect is smaller among those under age 25, however.

### U.S. Broadband Use By Income



Once income rises above \$40,000 the relationship between income and broadband use is statistically significant, but smaller than for educational level. The differences between mid- and high-income families are probably due more to job description.

### U.S. Broadband Use Population Density



High-density living makes broadband deployments easier and also is an indication of more professional-level jobs. But only the most rural areas see a large drop-off in broadband use in the US.

broadband use; other studies suggest the effect is smaller among those under age 25, however, because among the young, even those who have not attended college have generally used computers in K-12 classes.

Once income rises above \$40,000 the relationship between income and broadband use is statistically significant, but smaller than for educational

level, according to Render's research. The differences between mid- and high-income families are probably due more to job description.

Only the most rural areas truly lag in broadband use. High-density living makes broadband deployments easier and also is an indication of more professional-level jobs.

"Demand for broadband and high-

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speed services is fueling growth in the US and global telecommunications markets," TIA President Grant Seiffert said in reaction to the study. "In fact, according to TIA's 2007 Telecommunications Market Review and Forecast, the US telecommunications market grew 9.3 percent in 2006 – its fastest rate since 2000 – and the worldwide telecommunications market grew 11.2 percent.

This study reinforces a major trend in our industry, namely investment in new fiber, new IP technology and new wireless infrastructure to provide state-of-the-art voice, video and data services."

Both organizations have urged policymakers to reduce barriers to next-generation broadband deployment, with the FTTH Council recently calling on the US government to adopt a strategy for universal access to broadband connections at transmission speeds of 100 megabits per second. **BBP**

#### For More Information

To purchase the complete RVA Market Research report, visit them on the web at [www.RVALLC.com](http://www.RVALLC.com).