

HIGH SPEED ACCESS REPORT

Quarterly Report Covering the Current State of High Speed Access Including xDSL, Cable Modems, and FTTx

Fourth Quarter 2006 High Speed Access Report Have We Counted Cable Out Too Soon?

New Format for This Report Announced

Before we get to a discussion of this quarter's results, we are announcing a new format for this report, with expanded information and access to the author. For 2007 this report is to be renamed "**HIGH SPEED ACCESS REPORT – QUARTERLY REPORT COVERING THE CURRENT STATE OF HIGH SPEED ACCESS, XDSL, CABLE MODEMS, AND FTTX.**" We will be adding to the coverage, but retaining all of our information that has been in the previous publications. We will be continuing to publish (www.igigroup.com) summaries of the information on the web site but the main report with all of the data and discussion will become a subscription only product. We have resisted this trend (we are the only publisher providing this kind of in-depth data on a complimentary basis) but our costs of gathering, maintaining, and distributing it demand that we charge a small amount for the quarterly service. We hope that all of our current readers will subscribe to this new approach to **High Speed Access Report!** Every subscription includes:

1. **The Quarterly Report** – e-mailed directly to you as soon as the last major carrier reports for the quarter.
2. **FTTP Watch** – A special section every month on FiOS and Lightspeed activities.
3. **Special reports** as the need demands – e.g., we carried a long series of comprehensive reports on the merger wars of Verizon, Sprint, and MCI.
4. **Direct access to the author** – Clifford Holliday – for questions related to the quarterly publication, or for comments on the subject.
5. **Earliest and personal notification** of any new reports that become available in the area of High Speed Access, often with special offers for subscribers.
6. **Customer's Corner has been added** – an opportunity to state your thoughts on these issues, or ask questions.

The new arrangement will begin with the first quarter 2007 report due in early April 2007. Please arrange to continue receiving this report in its expanded version before then.

**You may get full information on subscribing
to *High Speed Access Report* on an introductory price basis at**

<http://igigroup.com/nl/pages/highspeed.html>

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High Speed Access Report – Fourth Quarter 2006

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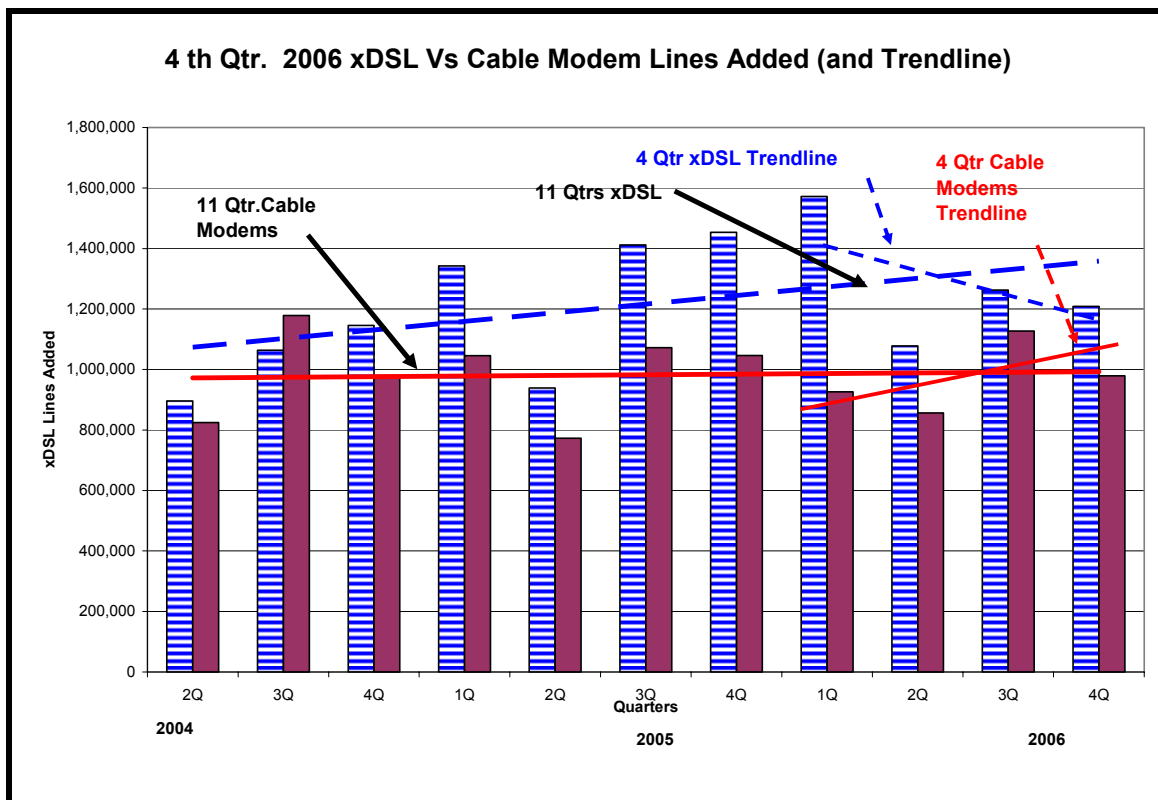
HIGH SPEED Access News for the Quarter

Now we will turn to the news for the quarter. Last quarter we noted that cable seemed to make a comeback. For several quarters, the telcos had been moving strongly to catch-up to the previous very sizable lead enjoyed by the cable companies. Last quarter we saw Comcast and Time-Warner make very strong moves, each having one of their best quarters. At the same time, the telcos, notably the leaders, Verizon and AT&T, slipped somewhat. The question remaining last quarter was if this was an aberration, or

if the cable companies had really awakened from their long slumber.

It now appears that it was not an aberration, but a real move by the cable companies, at least the big ones, Comcast and Time-Warner. They again have both had stellar quarters, and again the telcos are continuing to slip. We are going to introduce one of our charts at this point to make the point we are discussing.

Figure 1: Change in Trend lines - Last Four Quarters



In the above chart, compare the long-term trend lines for cable vs. xDSL to the trend lines for just 2006. The long-term trends are definitely very much in favor of the telcos. However, if we look at the last year the opposite is true, and in spades! Note that the 2006 trend line for the telcos (these are the major telcos – mainly the RBOCs) is

very negative, while the cable companies' trend has turned from fairly flat to positive. This now looks like a real trend, and not an aberration. If this continues for a couple of more quarters, we are going to have to look strongly at corrections in our new forecast. The next quarter should be particularly telling, as it is typically a good quarter for

Verizon and the other big telcos. If they do not bounce back strongly in the coming quarter (with, for example, a gain of around

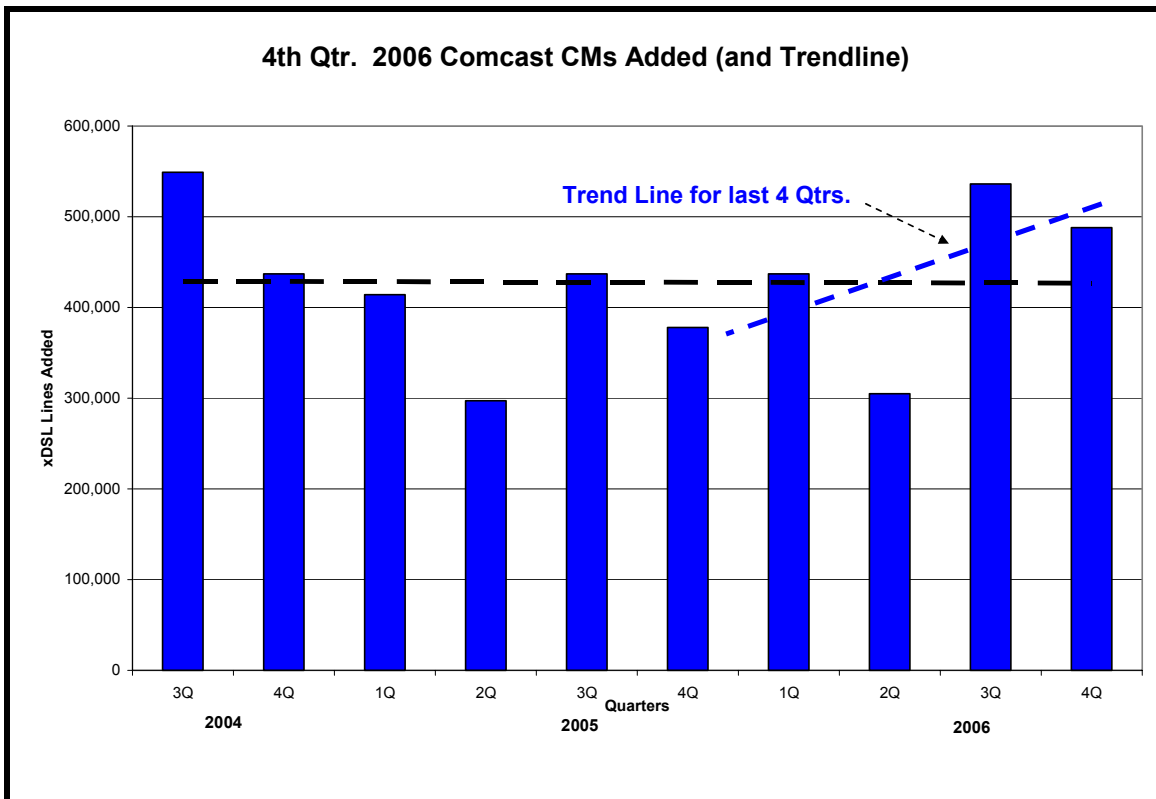
500,000 for Verizon) the worm has indeed turned!

Comcast Continues on a Roll!

This was the second great quarter in a roll for Comcast! This is the first interval in recent time that the cable companies have had something to talk about. Comcast had its second

biggest quarter since mid-2004, and it was also Comcast's third largest quarter ever. The following chart shows Comcast's additions over the last 10 quarters.

Figure 2: Comcast CM Additions



As noted, this is the second best quarter since 2004 for Comcast and it certainly is very positive. This is the second quarter in a row of outstanding results, and it certainly looks like a new trend emerging. Note that, while the long term trend is still negative (as previously observed for all major cable companies taken together) the four quarter trend line is very positive.

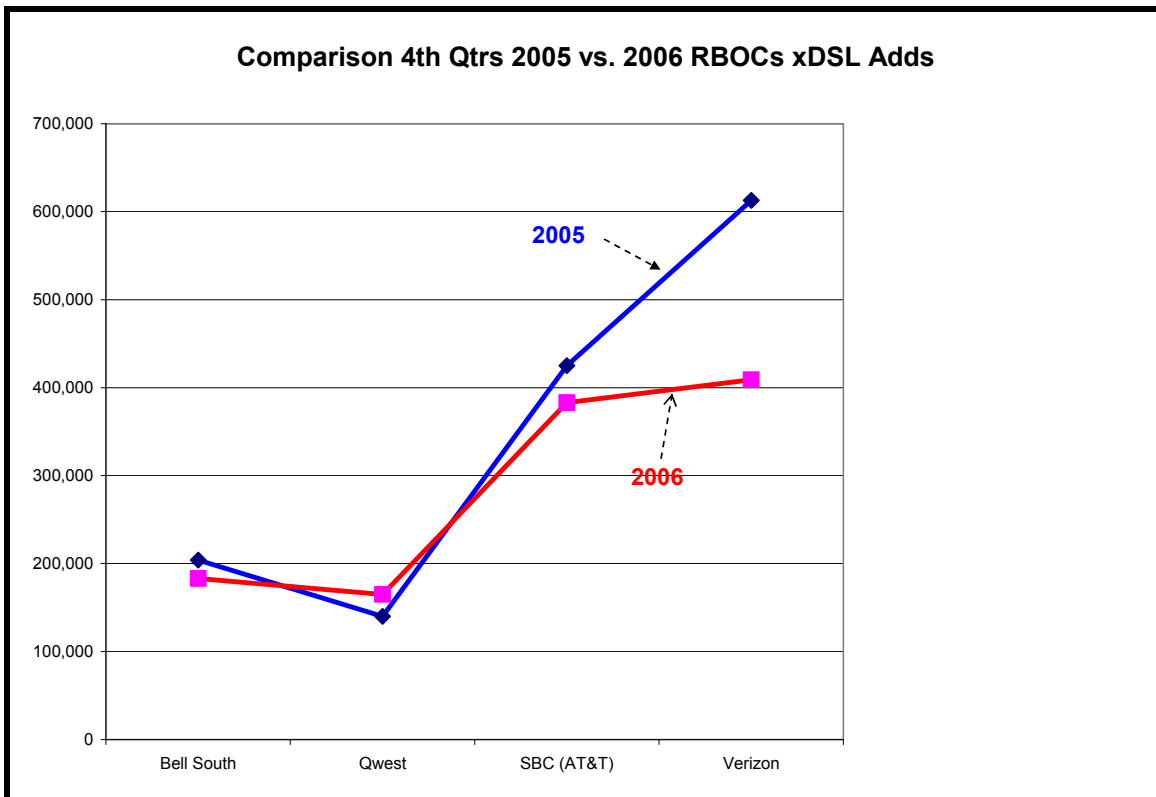
Time Warner also had a very good quarter, reporting one of its biggest quarters ever, but nothing as outstanding as Comcast. T-W added 246,000 high speed lines (including its consolidated companies – Adelphia.)

Telcos Begin to Fall Behind

While the cable companies had another very good quarter, the telcos had a very mediocre quarter. If one looks at a comparison to the 3rd quarter (2006), things look pretty good. However, historically the

fourth quarter is a big time for the RBOCs to sell xDSL services. It didn't happen this year. The following chart illustrates this by comparing this year's fourth quarter to the fourth quarter of 2005.

Figure 3: Comparison of RBOCs' 4th Quarters 2005 vs. 2006



As can be seen all of the RBOCs, except Qwest, had significantly lower results in 2006. If these combined trends continue, our

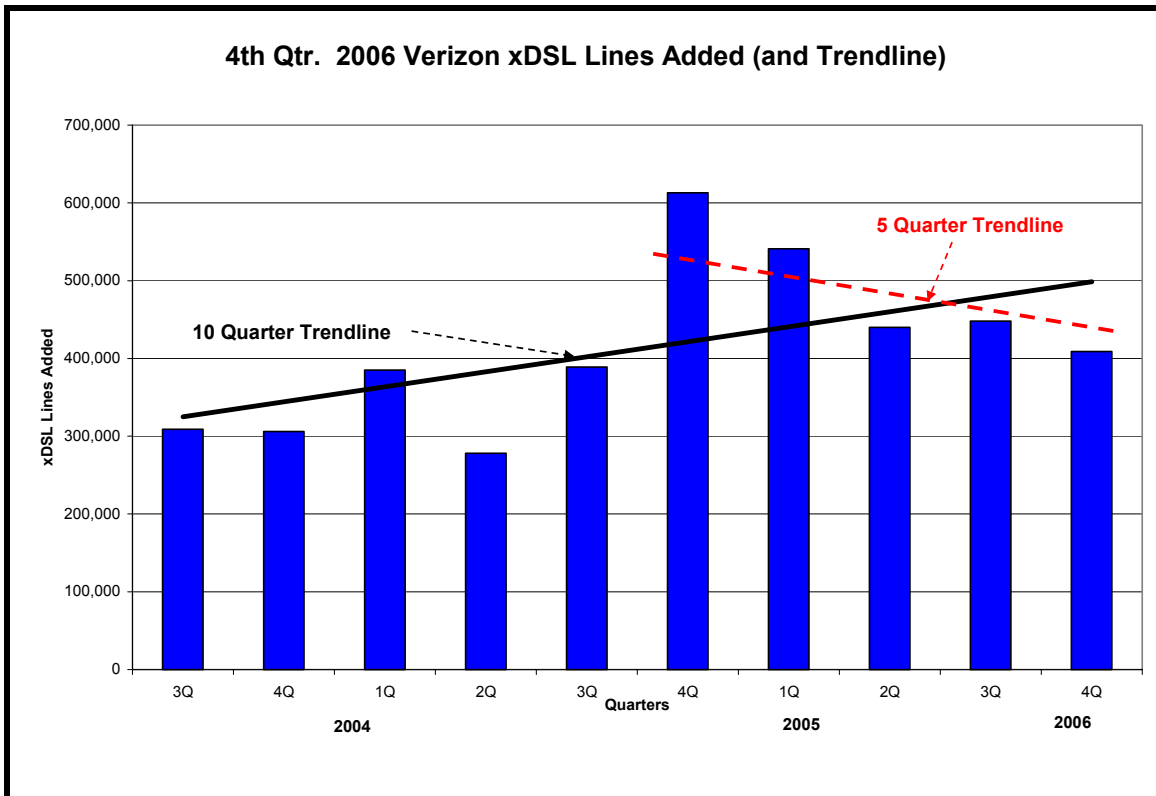
projection of the telcos catching up to the cable companies is in severe jeopardy.

Verizon Has a Lackluster Quarter

While adding over 400,000 units and posting one of its biggest quarters ever may seem like a great performance, it really isn't for Verizon. The problem is the trend. The reader is directed to the following figure to see the issue. What had been a decidedly strong positive trend, has turned into a

strongly negative one in the last few quarters. What's more, Verizon historically has a strong fourth quarter, but really failed to do so in 2006. The chart in the preceding section illustrates how much Verizon was below 2005 fourth quarter.

Figure 4: Verizon xDSL Additions

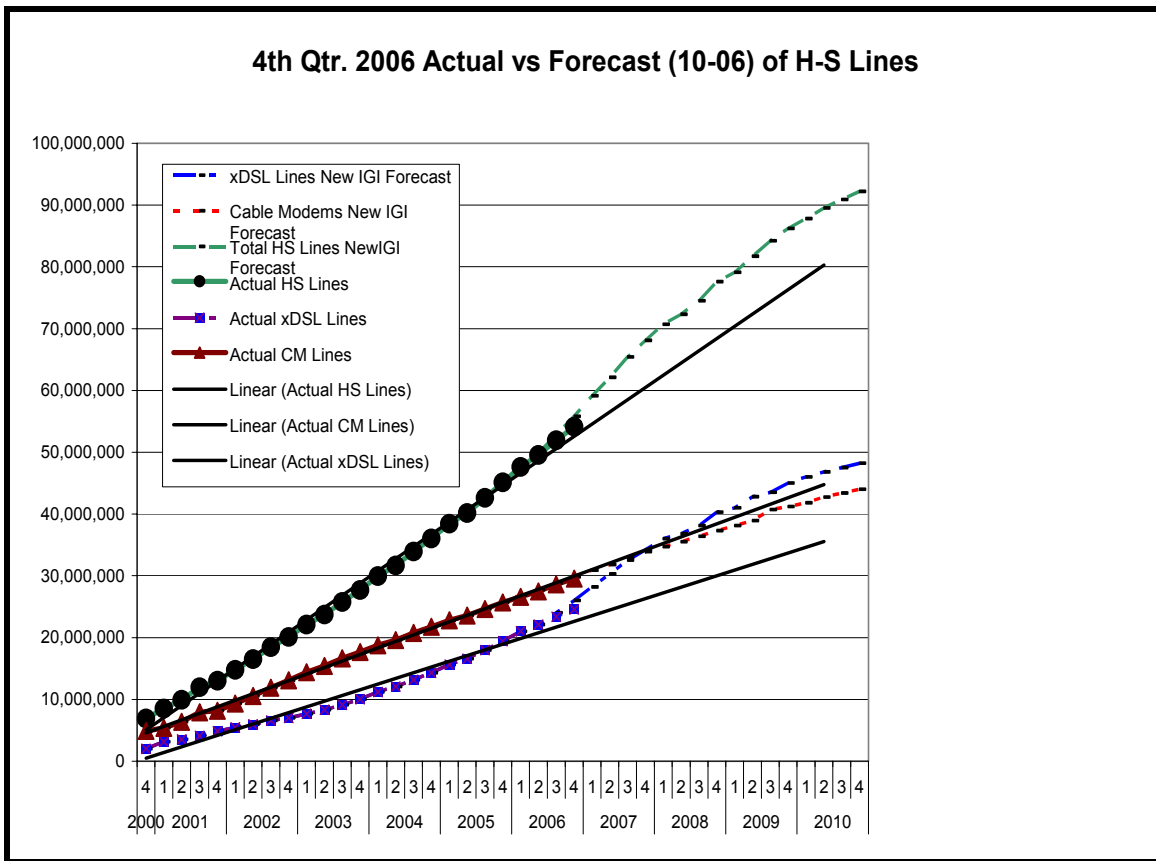


Comparison of Telcos and Cable Companies

The following chart illustrates the historical relationship between the major cable companies and the major US telcos, as well

as this quarter's results. It also provides a linear trend line for both CMs and xDSL.

Figure 5: Comparison of CMs to xDSL Additions



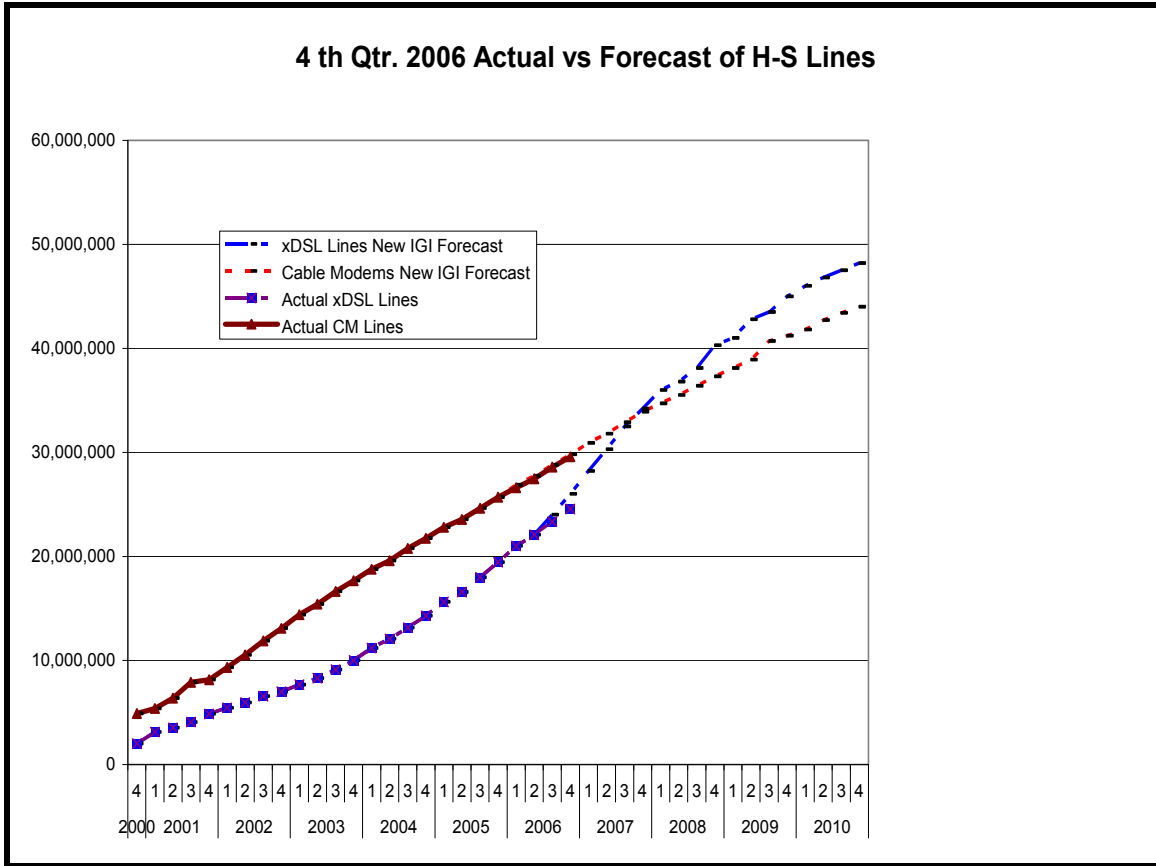
The above chart illustrates the overall situation and provides comparison to our forecasts. To help reading the chart, the straight black lines are linear trend line projections of (from the bottom) xDSL lines, cable modem lines and total high speed access lines. The dashed lines for these three quantities are our forecast for each of these (made in late 2006.) The heavier symbol lines (squares for xDSL, pyramids for CMs, and circles for total) are the actuals (actual in-service quantities as of the selected date) for each of the statistics.

following what appears to be a somewhat parabolic curve, and were rapidly catching up to the cable linear trend. The reader can see this quarter, it appears that the telcos have fallen below the forecast, while still well above the linear trend line. We will have to watch this closely, because our forecast of the telcos catching the cable companies by late 2007 could be in jeopardy.

The drop for this quarter by the telcos will be much clearer on the following graph.

Cable has been following the linear trend line very closely and even with its good quarter, continues to follow the trend line and our forecast. The telcos had been

Figure 6: xDSL vs. CMs - 4th Qtr 2006

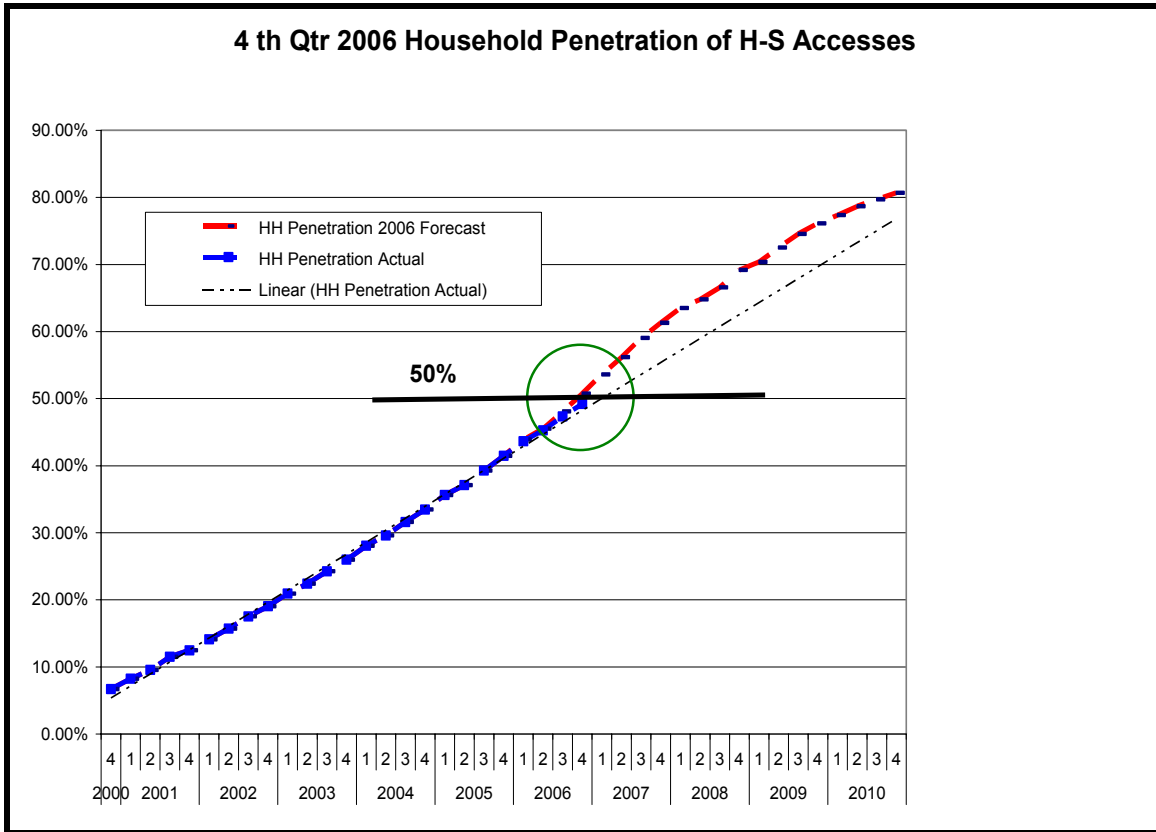


Household Penetration

This heading refers to the percentage of households in the US with installed and working high speed access service. This is a very important statistic, because it really measures how many Americans have residential access to high speed service. It is an indication of how good a job the carriers have done in making the service available, and how well it is being accepted by the

public. Beware of other measures that suggest a much higher percentage than is included in the following graph. While we are a 'fan' of high speed access, we feel it is irresponsible to report achievements for it based on surveys or polls, as some have done. The only way to measure household penetration is to count it, and that's what we do.

Figure 7: Household Penetration of HIGH SPEED Access



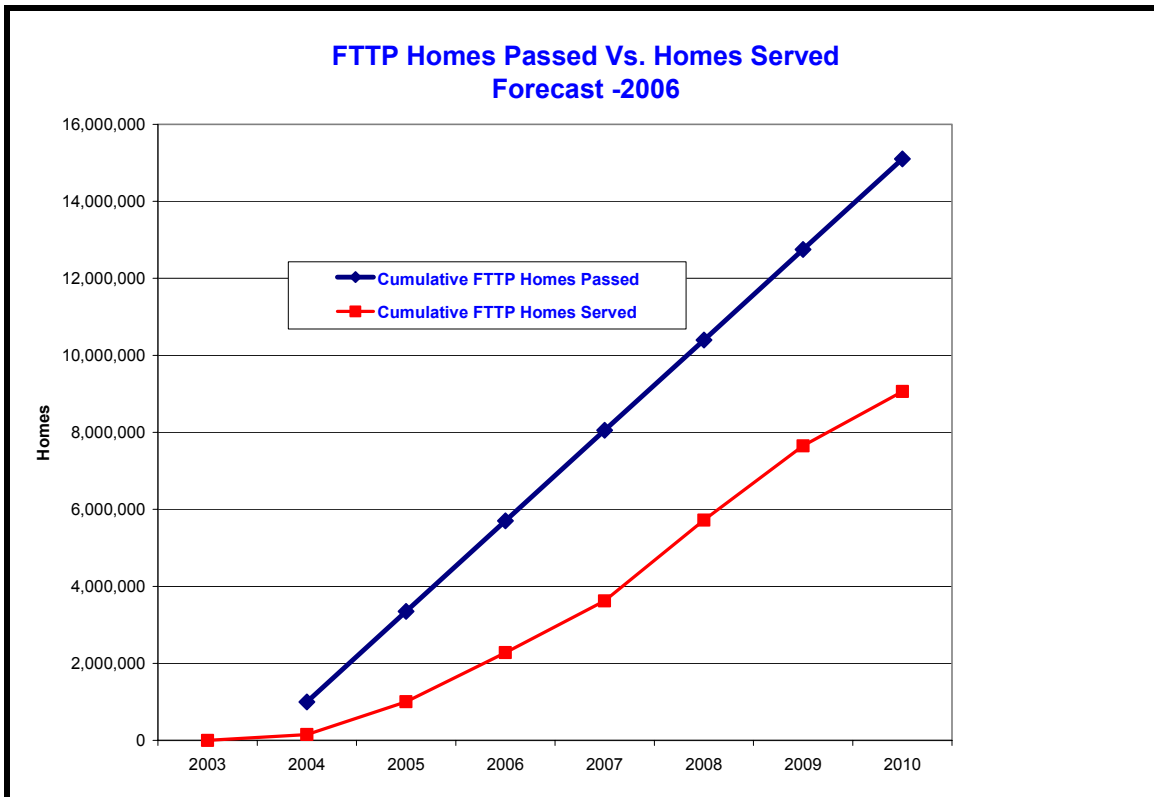
Note that this forecast suggests that by 2009, high speed accesses will be available and installed in 80% of our households. This result requires a concomitant growth of household PCs to around 85%. (See [“Will the RBOCs Get Googled Up?”](#) for details of the forecast.)

We forecast in our last report (actually we have been forecasting this for some time) that the penetration rate would reach 50% by the end of 2006 and it did!

Significant Events for the Quarter

Highlights of the end of 2006 include:

- **DSL is over 45% of total HIGH SPEED Accesses, up from 34% at end of 2002!**
- **Penetration of high speed accesses reaches 50%, up from 19% at end of 2002 (Households.) This meets the IGI forecast of 50% by the end of 2006!**
- **HIGH SPEED Accesses are at 54,000,000 up from 20,000,000 at end of 2002!**
- **IGI Forecasts Telco DSL to surpass Cable in 2007!**
- **FCC notices (finally!) that Telcos are out gaining Cable Companies**



At the end of 2006 it claimed to have over 6 million homes past with the basic service. This is almost exactly the forecast contained in our latest FTTP Report "[FTTP – Still the Big News in 2006!](#)" The above chart from that report illustrates our forecast for FTTP (which was almost all FiOS in the first three years.)

Increasing the availability of FiOS TV was a major activity in the fourth quarter 2006. FiOS TV was available for sale to 2.4 million premises as of year-end -- nearly double the number of premises as at the end of the third quarter 2006. Of this 2.4 million availability, Verizon had 207,000 FiOS TV customers at the end of, 2006, its first full year of offering the service, adding 89,000 in the fourth quarter.

The take rate for the television service implied from the numbers in the preceding paragraph may not seem great, but it is illustrative of Verizon's problem. They are trying to install the infrastructure and expand a service offering, one that is dramatically different from their entire combined experience, at the same time. The last quarter is perhaps most indicative of the kind of activity they can expect in the future. In the last quarter, they added nearly half of their total FiOS TV customers.

In 2006, Verizon added 517,000 FiOS Internet (non video) customers and 165,000 FiOS Internet customers in the 4th Quarter

AT&T Lightspeed

AT&T (then SBC) started its FTTP (it's not really to the premise – just to a node up to 4000 feet away from a home, and then on

copper to the home) in late 2005 with a trial rollout in San Antonio – the corporate home of SBC. It is known as Project Lightspeed

(or confusingly sometimes as U-verse.) It converted the San Antonio trial to a commercial deployment in 2006. It also added Houston in 2006.

AT&T had planned to deliver TV in 15 to 20 markets by year-end 2006. By November it was still in just the two cities mentioned above. In late December, AT&T announced it was up and running in nine more markets, for a total of 11. It is estimated AT&T has only 15,000 total TV customers in these 11 markets. By the end of 2008, AT&T says 18 million homes will receive fiber to the node,

but from the existing results, that must be questioned.

There are also questions about the adequacy of the bandwidth provided by Lightspeed. Our report, "[How Much Bandwidth Is Enough in the Access Network?](#)" covers this issue, and forecasts a big change in the AT&T plans. It is certainly open to question as to the viability of using their FTTn based architecture to provide services that will be competitive in the near future.

Qwest

This is an unusual name to bring up in a FTTP discussion. However, Qwest actually does have FTTP in a small town in Colorado, and FTTn in a few other places. (See our previously mentioned report "[FTTP – Still the Big News in 2006!](#)") The real point, however, is that Qwest is now profitable, having just reported substantial profits for the quarter and

entire year. They have reduced their debt load somewhat, and need to become competitive with the cable companies in their areas, before they are playing a completely defensive game. We therefore expect to hear of Qwest's actively entering the FTTP race later this year – probably with a GPON-based offering.

Customer's Corner

Every quarter we will offer our clients the opportunity to sound off, ask questions, and make comments on the forecasts – whatever you like. We will publish the best to the comments with or without names as directed by you. If you send me something and don't want your name included, please say so. To submit something for our 1st Quarter 2007 report, just send an e-mail to [Clif Holliday](mailto:Clif.Holliday). The address is c.holliday@ieee.org. **We look forward to hearing from you!!**

We have a few questions and comments from our last report and we will include them below without names, since we had not warned that we may use the comments.

Figure 10: Client Comment

1. Q. "Can I re-use the figures and material in this report for publication elsewhere."
Answer: Yes, you may as long as you give us proper credit.
2. Q. "Your table heading is confusing on the summary tables you always have in the report at the end."
Answer: Thank you, you are exactly right, and we have changed them, starting in this report.
3. Q. "The links I click on to get the report are messed up. I don't get the report when I click on the link."
Answer: Thank you – you are (were) exactly right. We have fixed it.
4. Q. "You have Rogers spelled wrong and the wrong total CMs for them."
Answer: Thank you – you are right, and we have corrected it.
5. Q. "Thank you for putting out this report! I use it all the time!"
Answer. You are certainly welcome! We hope you will find it even more useful as we expand its scope

Revised Forecast

Last quarter we introduced a new high- speed access forecast. We are repeating the information on the new forecast in this report for those that may have missed it before. Our "old forecast" was made in 2003. As we try not to change our forecast too often, it has not been updated since then. A number of changes have happened since 2003, and while that forecast has served many very good purposes, it is becoming out-of-date.

Rationale for Updating the High Speed Access Lines Forecast

As noted above, the old forecast is now out of date, and needs updating. The following lists the reasons for updating, and defines the changes made in this new forecast.

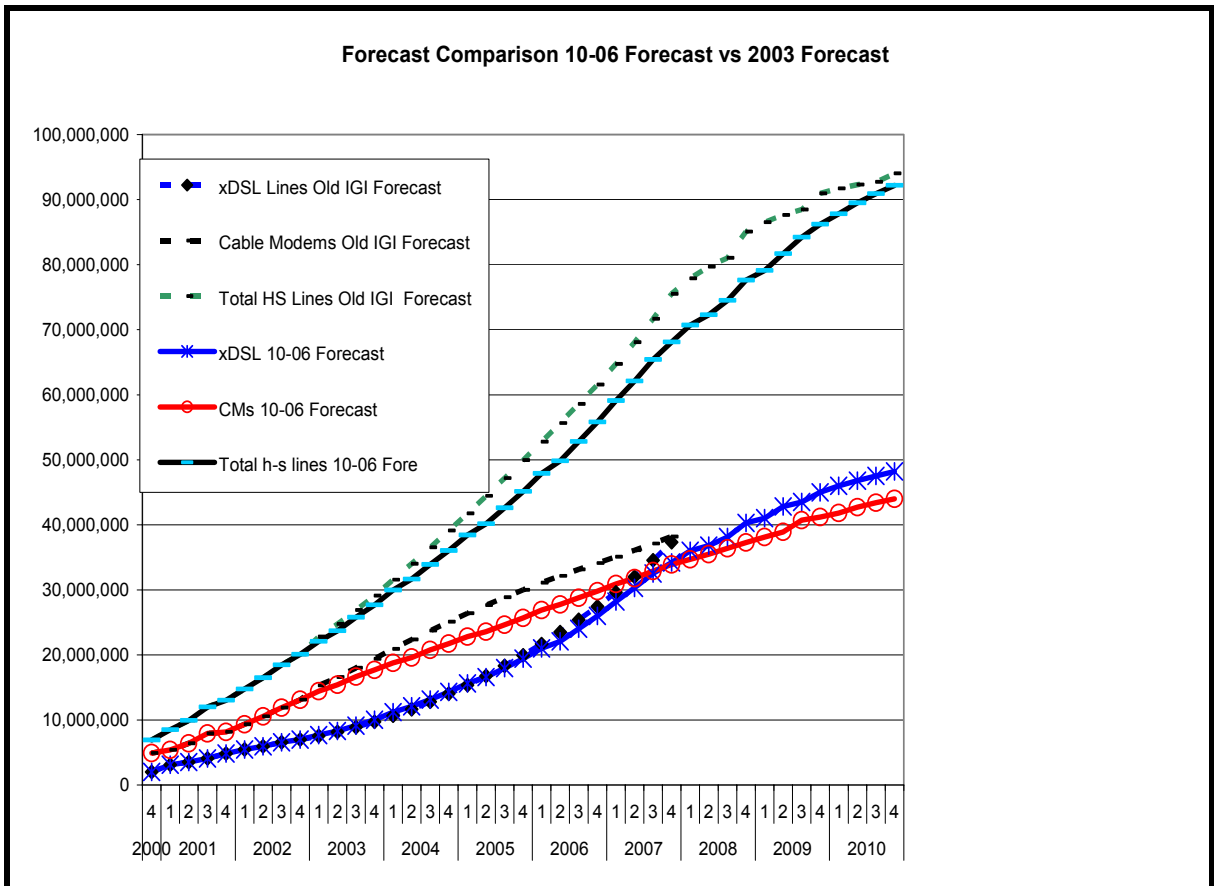
The main items included in the update of the quantities are as follows:

- Bringing the forecast in to line with the actual experience of the last three to four years. While the xDSL forecast has been tracking very well, perhaps even being a bit conservative (the actuals are a little ahead of the forecast), the cable modem forecast has been much too optimistic. CMs continue to fall further behind the forecast and have led us to forecast (for the last year or so) that xDSL will overtake CMs in the near future.
- To recognize the great success that xDSL is having and to establish a realistic date for xDSL to over take CMs.
- To recognize the impact that FTTP is having on the high speed forecasts and will have in the future. The existing forecast was made prior to any thought of FTTP (as now being implemented).
- To recognize the seasonality in the data. Third and fourth quarters tend to be big periods for high speed additions. First and second quarters tend to be slower.
- The old forecast only existed in detail through the end of 2007. The new forecast goes to the end of this decade.

We introduced this forecast in our, just released, report, ["Internet Growth – 2006, Traffic on the Internet."](#) This forecast is the basis for much of the traffic work in that report.

The following chart compares our new forecast to the old one.

Figure 11: New Forecast



This graph may be somewhat confusing, but to help, the old forecast lines are all dashes, while the new forecast lines are all solid. Note that the old forecast only existed in detail through the end of 2007, so that is the end of the old forecast xDSL lines and CM lines.

Previous Figure 4 illustrates the crossover point when xDSL catches up to CMs. We had previously predicted it would happen in 2006, but that appears to be a bit optimistic for the xDSL camp. We now believe that will happen in mid to late-2007. Still, that is a very strong showing for the telcos to come back from a 2-to-1 deficit in the early 2000s to pull even, and ahead, in 2007.

We will be using this forecast in all of our high speed and Internet traffic work until such time as it becomes too outdated – hopefully a long time from now.