HIGH SPEED ACCESS REPORT

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

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Third Quarter 2007 HIGH SPEED Access Report

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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.

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HIGH SPEED Access News for the Quarter

VERIZON – A Continuing Concern

Last quarter our lead story was also about Verizon, and it was a mixed bag. They achieved some important milestones, but also appeared to be falling behind in terms of additions. A partial excuse could be found in the fact that the second quarter is a historically slow quarter (probably due to the ending of school.) However, this quarter (which is a historically strong quarter) turned out worst! The problems continue without any remarkable milestones. Verizon only added 285,000 total high-speed access lines (xDSL and FiOS.) This is a quantity that goes back to what they were adding in 2003! To make matters worse, only 56,000 of these net adds were xDSL. The rest were FiOS. If it weren't for FiOS, they would almost be out of the h-s access business – in terms of additions.

They did do well in terms of increasing the total FiOS h-s additions, up 26,000 from the previous quarter, but even that is not really good, considering the seasonal trends mentioned earlier.

FiOS Video

FiOS video is probably the only really bright spot in this story. They added 202,000 FiOS video customers. This is about 88% take rate on the total FiOS additions. In other words they are succeeding in selling the entire FiOS

(voice, video and data) to a very high percentage of their new customers.

So What Is Wrong?

Last quarter we directed this question to our PR contact at Verizon, asking if Verizon was losing track of existing business while going after the new offerings (FiOS.) Although he didn't personally want to add anything, he did provide the transcript of the Verizon conference call on the quarter's results, and some of the material in there sheds light on what happened.

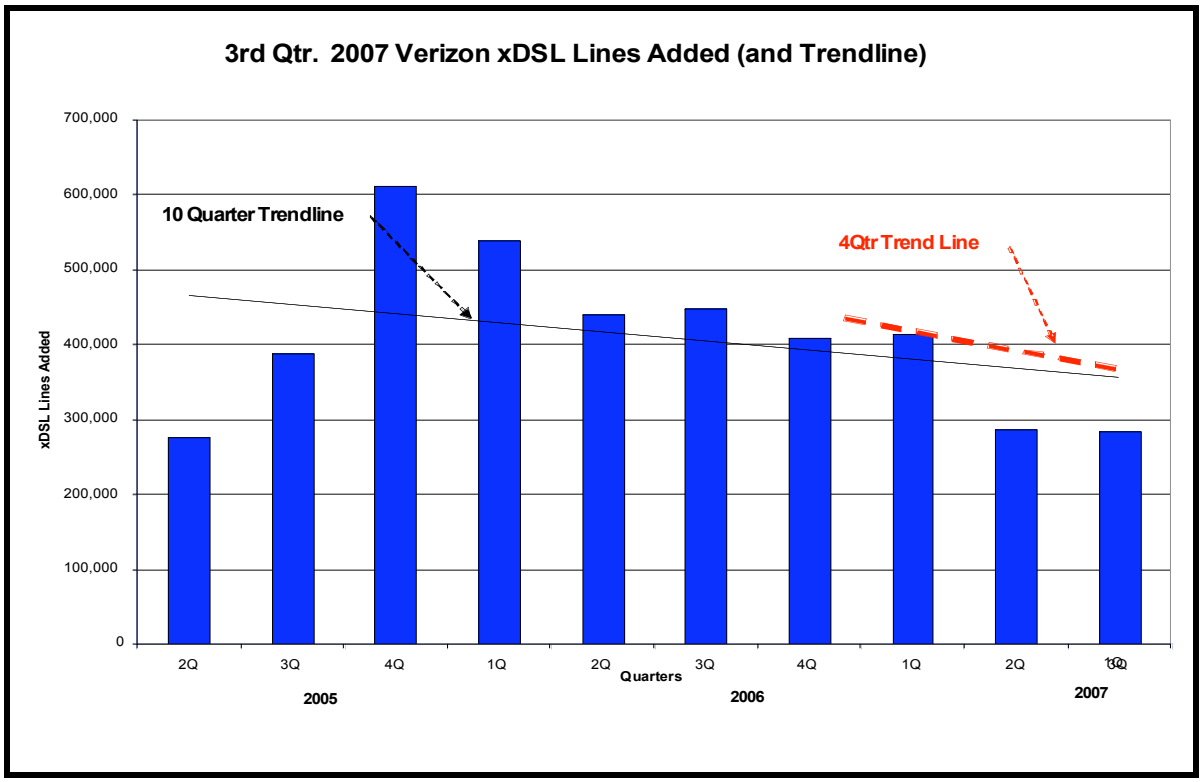
The following quote from Denny Strigl explains this issue, "We quickly moved and trained service reps. Installation forces that normally handled DSL, we moved them to FiOS in some markets like New Jersey, California, Florida, also Indiana toward the end of the quarter. So overall we expect broadband net adds to continue to grow, and we will roll out FiOS just as fast as we can." In other words they are moving resources to help meet the demand of FiOS, even in a relatively slack quarter (2nd Q, 2007), and losing additions to their main h-s access service (at least for now) xDSL.

We asked the same question again this quarter, and got no response. Maybe they are tired of answering, or maybe they don't like the answers that they have to give.

Given the ongoing investment (Verizon is spending some 17 billion in capital this year, not all on FiOS, but a goodly portion,) Verizon must get better results than what they have done for the last couple of quarters.

There is a real risk of losing the initiative to the cable companies. Once a customer is lost in this business, they are very hard to get back! Verizon needs to do better; and not just a little better. To have just a good 4th quarter, they need to almost double what they did this last quarter.

Figure 1, Verizon H-S Additions – Ten Quarters



The above chart shows this Verizon problem in some detail. Note that both trend lines are now sloping down. The four quarter trend line is decidedly downward, and the ten quarter trend line has been brought down by the last couple of quarter's performance.

The reader can also see on this chart the seasonality mentioned earlier. Note how in 2005 and 2006, the third quarter is always better that than second. Please note that this chart includes FiOS as well as xDSL.

AT&T and BellSouth

At the first of this year, we started reporting on the combined AT&T /BellSouth merger h-s access additions totals in a manner to allow accurate continuing comparisons. To help consider the relative performance and meaning of the combined data, we are using a stacked bar chart to present the AT&T data for all this year. The chart shows (for 2006 and the quarters of 2007 as we go through the year) the two companies' h-s access data.

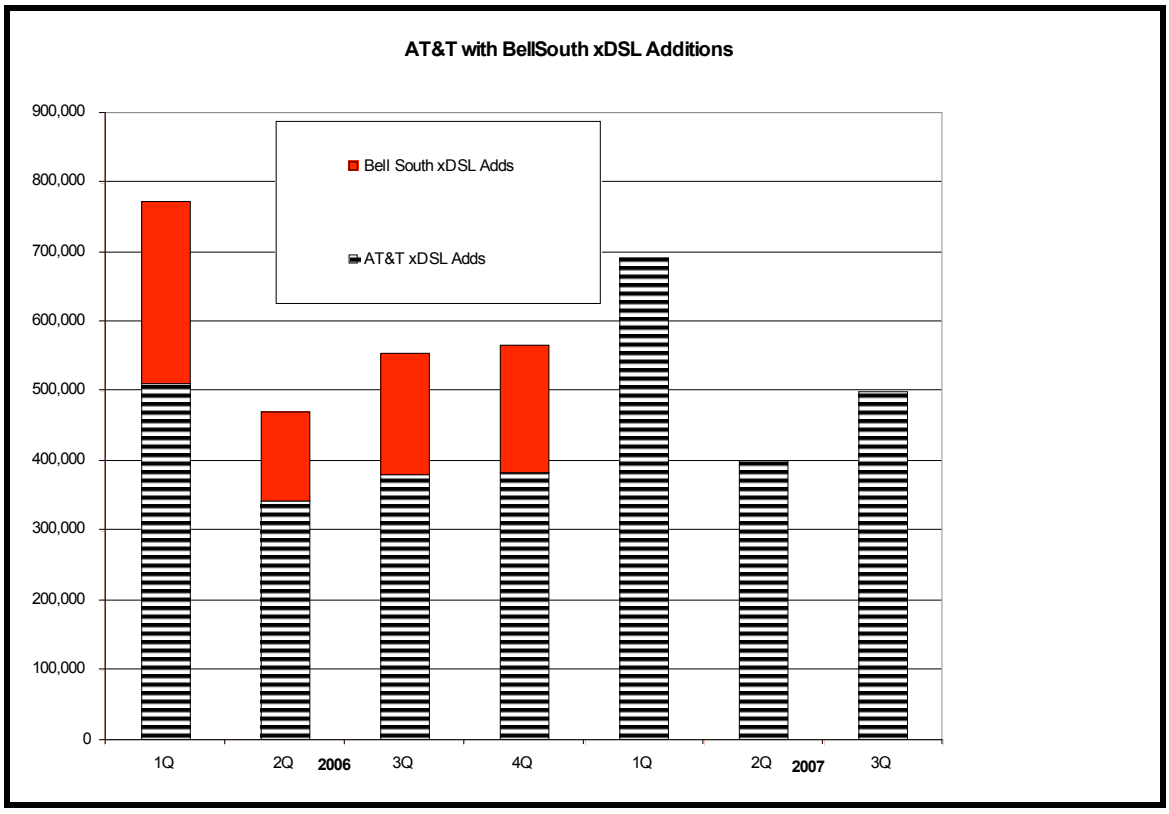
As we noted last quarter, the results for AT&T are not much better in terms of trends than Verizon. The reader will note the same general trend as with Verizon – not very good results.

Perhaps AT&T is also beginning to focus its resources on U-verse.

The chart illustrating this follows. Note that each quarter of 2007 is inferior to each quarter of 2006, considering the combined (AT&T and BellSouth) data.

Like Verizon, AT&T is spending approximately $17 B in capital this year, a good portion of which is to upgrade its access plant. To begin to justify this expenditure, they must improve these results.

Figure 2, AT&T and BellSouth Data Combined



Other News

There has been a lot of news this quarter. Perhaps the biggest story is of Qwest announcing that it was going to move into h-s access. Although many details are yet to be determined, part of Qwest's October 30 earnings report was the announcement that the Board had approved $300 million for upgrading the speed of customer access lines.

Qwest FTTN

No other details were provided by Qwest in the release; however this reporter has obtained direct confirmation from Qwest that this will involve the following:

- **Qwest will be deploying FTTN, similar to AT&T.**
- **Approximately 1.5 million customers will be involved.**
- No schedule or other details were forthcoming.

This number of customers only equates to **$200 per customer.** This is substantially lower than AT&T is achieving on a much larger, more compact base. It seems doubtful that Qwest can really achieve an average cost that low for FTTN. **We will have to see more details for this to all be entirely credible.**

FCC Releases 2006 Data

The FCC released a report on October 31, 2007, providing data on 2006 access lines in the US.

The following are some highlights from the report. For full details go to www.fcc.gov and select the report.

- During the year (2006) h-s access lines increased by 31.3 million, or 61% to a total of 82.5 million.
- Of the total 82.5 million lines, 58.2 were residential lines. The reader will note from our charts in the results section that this number is very much in line of our estimates of actual lines.
- Cable modems accounted for 53.6% while xDSL accounted for 39.1%. The rest were miscellaneous technologies, including 1.3% fiber.
- xDSL lines increased more and at a faster rate than cable modems in 2006. Again, this is a trend previously reported and long forecast in this (HSAR) report.
- Over 79% of the US households receiving local telephone service had access to xDSL service.
- About 96% of the US households passed by cable TV could receive cable modem service.

AT&T Announces a Slowdown in U-Verse

AT&T has announced in early November 2007, a slight slowdown in its deployment of U-Verse, its FTTN h-s access solution. It is now planning to pass 17 million homes instead of 18

million by the end of 2008. The slowdown is to allow time to accommodate the BellSouth properties. There is also an increase in capital expenditures planned for U-Verse by $500 million each year (2007 and 2008) for the same reason. The total now planned for each year is between $4.5 and $5 billion per year for U-Verse.

AT&T receives Favorable Ruling in Connecticut

A Superior Court Judge ruled on 10-31-07 that AT&T could sell its IPTV U-verse service without a cable license. Previously the Public Utility Control Board had ruled that AT&T would require such a license. This is the latest in a long series of rulings favoring the telephone companies in being able to offer video services over enhanced residential access lines with a minimum of regulatory oversight.

Advanced IPTV Features Discussed by AT&T and Verizon

In separate meetings in October, AT&T and Verizon discussed some of the possible IPTV features for home users of their advanced access technologies. The following lists provide a flavor from each.

<u>Recent AT& T Noted Possible IPTV Features:</u>

- Caller ID and voicemail on the TV screen
- Video sharing from a cell phone to the TV screen
- IPTV Webcams
- Flight tracker, by airline and flight name
- Sharing of family videos, downloaded to the Web and then displayed on the TV screen
- Weather on the TV, including static and video forecasts
- Downloading of podcasts
- Shopping from a list of available movies, to order DVDs or related content
- Personalized content portals, with individual favorites of available and recorded content listed for each user in the home

<u>Recent Verizon Discussed IPTV Features:</u>

- IM Everywhere
- Gaming Anywhere.
- Advanced Advertising
- HomeWave Media Share.
- HomeWave Security
- Integrated Services on IMS

Covad Communications Agrees to Be Bought

Covad, a nationwide provider of h-s accesses and other services (in 44 states,) has agreed to final terms to be purchased by Platinum Equity, a Merger and Acquisition specialist. The deal, which involves a substantial premium over Covad's current market price, is subject to approval by the shareholders of both companies and various regulatory bodies.

Covad is one of the companies we include in our xDSL totals in HSAR

New Entrants Make Waves

Our Reports "The Next Generation Network – Will the RBOCs Be Googled Up?" and others have forecast that there will be an entry of non-convention competitors in the local access field. This quarter, we have had at lease two major happenings in that area.

Wal-Mart Enters the Frey!

Wal-Mart announced in early October that it will resell Hugh's Satellite h-s access services. Wal-Mart plans to offer the service from 800 stores nationwide. To date this service has been a very slow grower (about 500,000 in total subscribers.) With the Wal-Mart platform and the added services Wal-Mart could offer, the growth picture for satellite may change.

Google Is Coming!

For some time now, Google has been known to be working on phone software and possibly other telecom ventures. They have now announced the development of cell phone software (which they will give away) that will enable many of their apps on cell phones. The new software is called Android, a mobile software company Google acquired last year. They plan for it to be able to power many different brands of cell phones. They are working with an alliance of mobile phone heavy weights. Members of the alliance include mobile handset makers HTC and Motorola, U.S. operator T-Mobile, and chipmaker Qualcomm.

Cable TV Statistics

The following TV statistics are from the NCTA.

Year	Cable Basic Subs
2007	65.7
2006	65.6
2005	65.4
2004	65.4
2003	66.0
2002	66.1
2001	66.9
2000	66.6

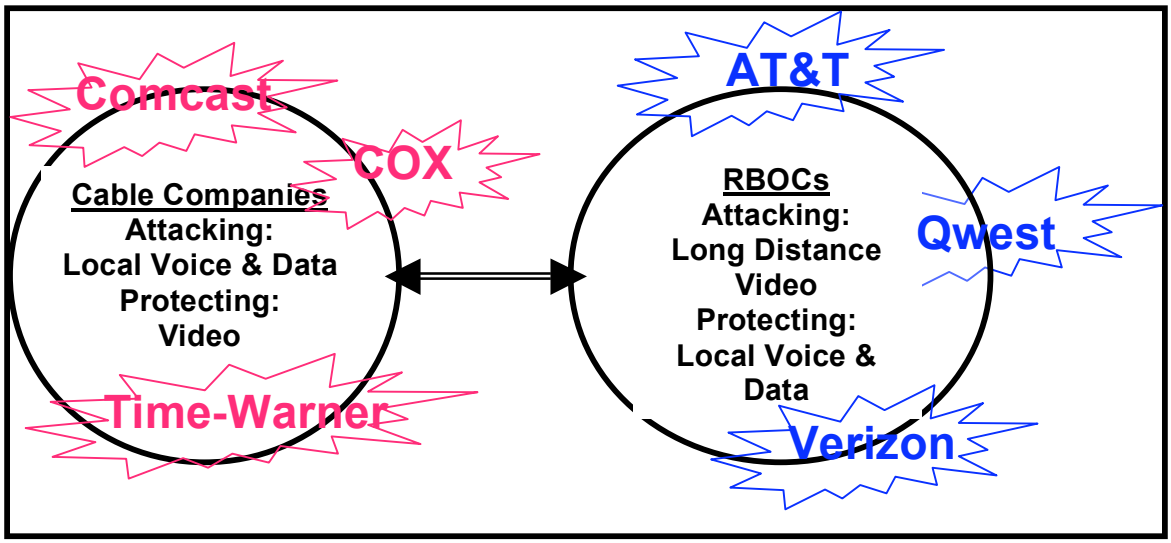
Rank	MSO	Subs
1	Comcast	24,141,000
2	Time Warner	13,391,000
3	Cox	5,424,000
4	Charter	5,376,800
5	Cablevision	3,139,000

Note that these MSOs represent 78% of all cable subscribers in the country. These are the ones we use for HSAR reporting.

It is interesting to note from this data that the telcos are not the only ones losing basic subscribers.

The figure below is from our recent report, "FTTP – The New Standard and How It Is Changing – Already!" this show dramatically the various tugs on the traditional businesses of all sectors of the telecommunications industry.

Figure 1, The Nature of the Telecom Business Now

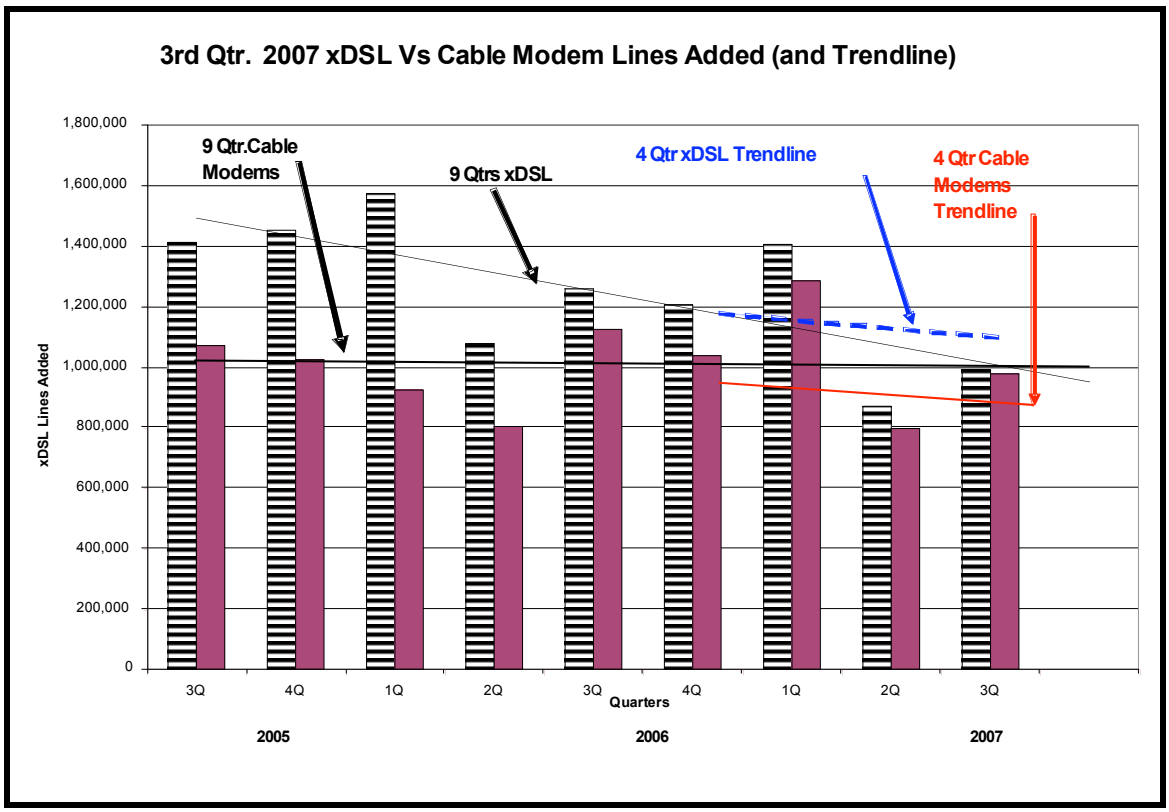


Results for the Quarter

Now we will turn to the results for the quarter. The third quarter is a historically strong quarter (the second best usually) with the back-to-school spending. However, there were few bright spots this quarter. With the focus seemingly lost in the two major telcos, and the cable companies in a bit of a slump, this has not been a good quarter for h-s additions. However, it should be noted that the cable additions remain right on our forecast.

A major part of the slowness is the focus of Verizon on its FiOS services to the neglect of its bread and butter xDSL.

Figure 2: Change in Trend lines - Last Four Quarters



In the above chart, note that the trend lines for the telcos are all negative, this is not a good situation, as they are losing potential customers, that will be very hard to recapture. The telcos need to find a marketing technique that will allow them to retain a focus on their legacy xDSL business will introducing the new, higher speed access options.

The cable companies have a negative trend the last four quarters, but an even trend for the long term. One of the reasons for the short term negative is that they had such a great few quarters in late 2006, making the more normal 2007 quarters look negative. In total the cable companies remain right on our forecast, while the telcos continue to fall further behind.

Perhaps what is happening is very directly hinted at in the quotation from the Verizon official noted in the opening story of this report. **The telcos are so distracted by the new programs (FiOS and U-verse) that they are not providing the needed resources to keep up their xDSL business.** This distraction has probably already caused them to lose ground to the cable companies. A **customer lost in this game is hard to recover** – no one likes to go through the agony of changing ISPs and h-s carriers.

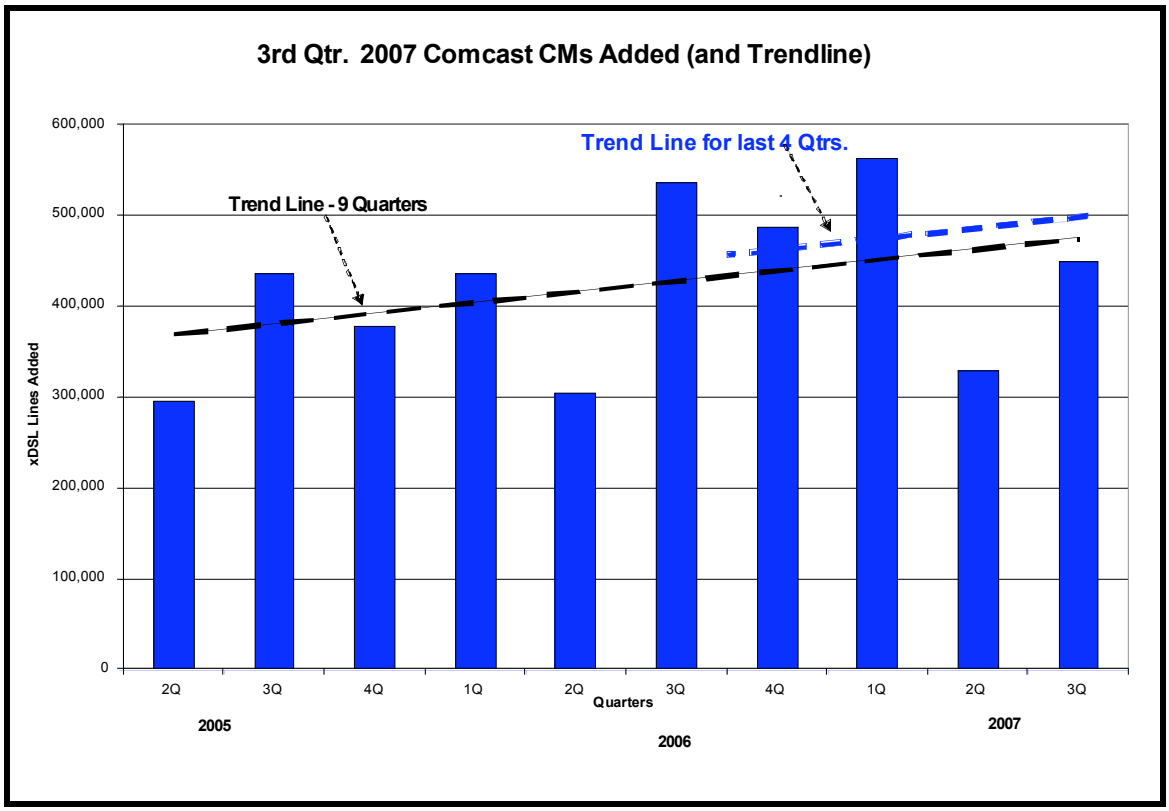
While it is understandable for the telcos to have a focus on the massive undertaking they have going, **they cannot afford to drop existing programs!**

Comcast Continues Strong!

The last three quarters we reported that Comcast had great results for several quarters in a row and it continues, somewhat abated. Even though this quarter was lower than the last year's, it is still an excellent showing. Comcast added 450,000 cable modem lines this quarter, a decrease from 3rd quarter 2006 when Comcast had a real breakout quarter. This quarter's performance, however, is almost 120,000 ahead of last quarter. Comcast, again, offers one of the few bright spots to be seen in the quarter.

This is becoming a sustained drive for the cable companies. It is the first interval in recent time that the cable companies have had something to talk about. The following chart shows Comcast's additions over the last 10 quarters.

Figure 3: Comcast CM Additions

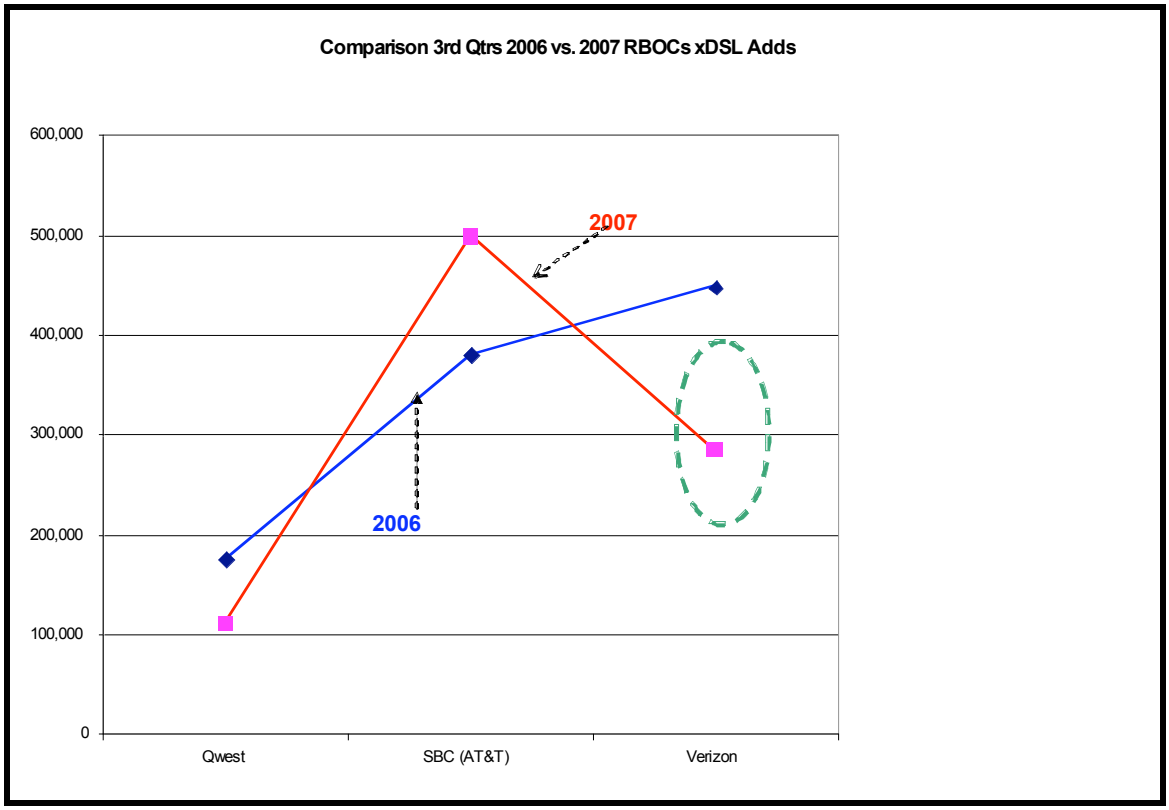


It certainly looks like a new trend emerging. Note that, while the long-term continues positive after turning last quarter for the first time in years. The four-quarter trend line continues to be very positive as it has for several quarters.

Telcos Continue to Fall Behind

As noted elsewhere the telcos did not have a very good quarter as a group. None of the telcos really performed very well this quarter. SBC is above its last year's quarter, but still its performance is weak if the BellSouth properties are included as on a previous graph.

Figure 4: Comparison of RBOCs' 3rd Quarters 2006 vs. 2007

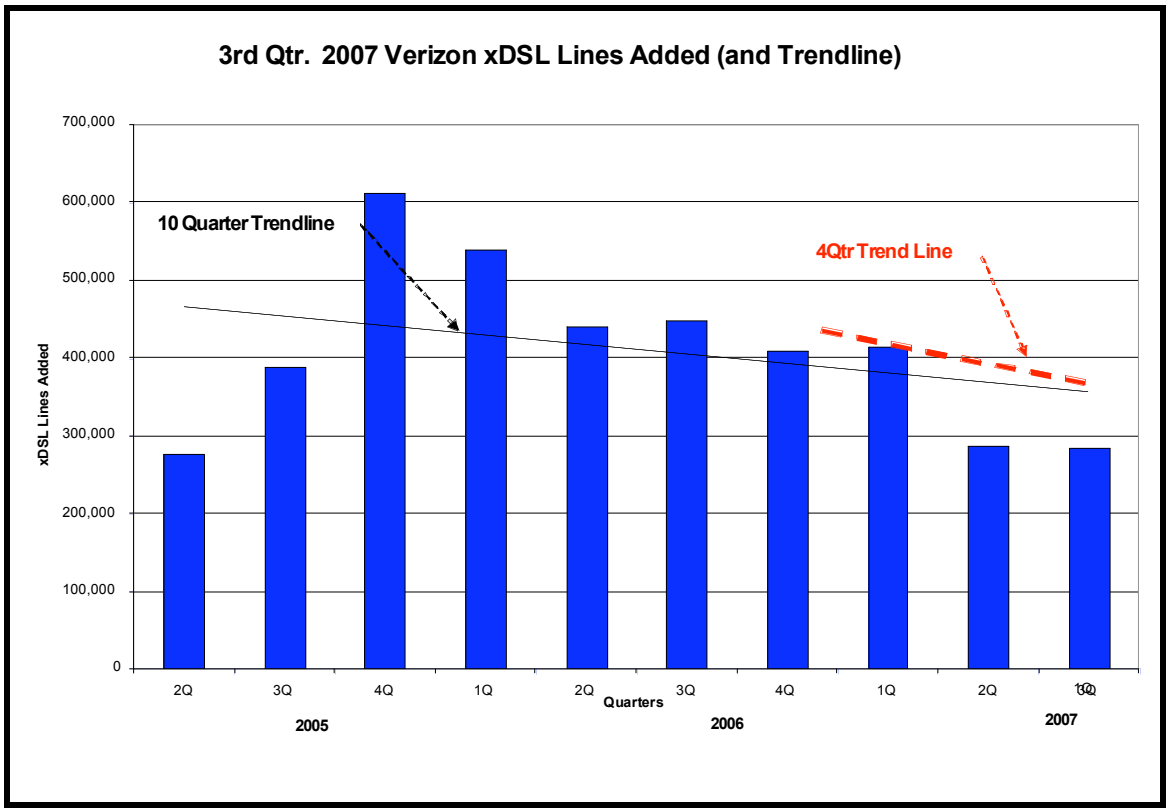


As can be seen all of the RBOCs, except AT&T, had significantly lower results in 2006. If these combined trends continue, our projection of the telcos catching up to the cable companies is in severe jeopardy. Note the circled result for Verizon to get an idea of how bad this quarter really was for them.

Verizon Has a Lackluster Quarter

As noted in our lead story and elsewhere, Verizon had a bad quarter. The following chart illustrates this.

Figure 5: Verizon xDSL Additions – through 3Q 2007

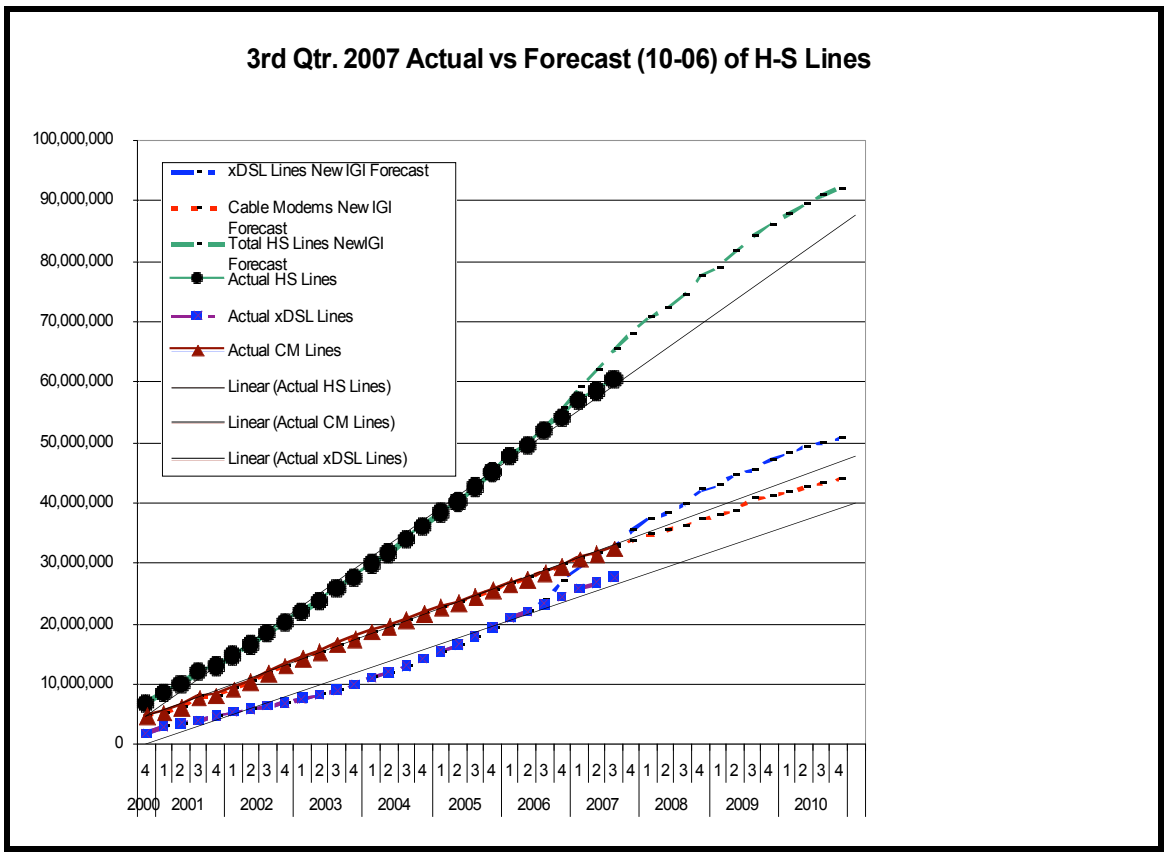


Note that the 10-quarter trend line has now turned negative. Also, note that the four-quarter trend line, which was already negative, is now even more so.

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 6: Comparison of CMs to xDSL Additions



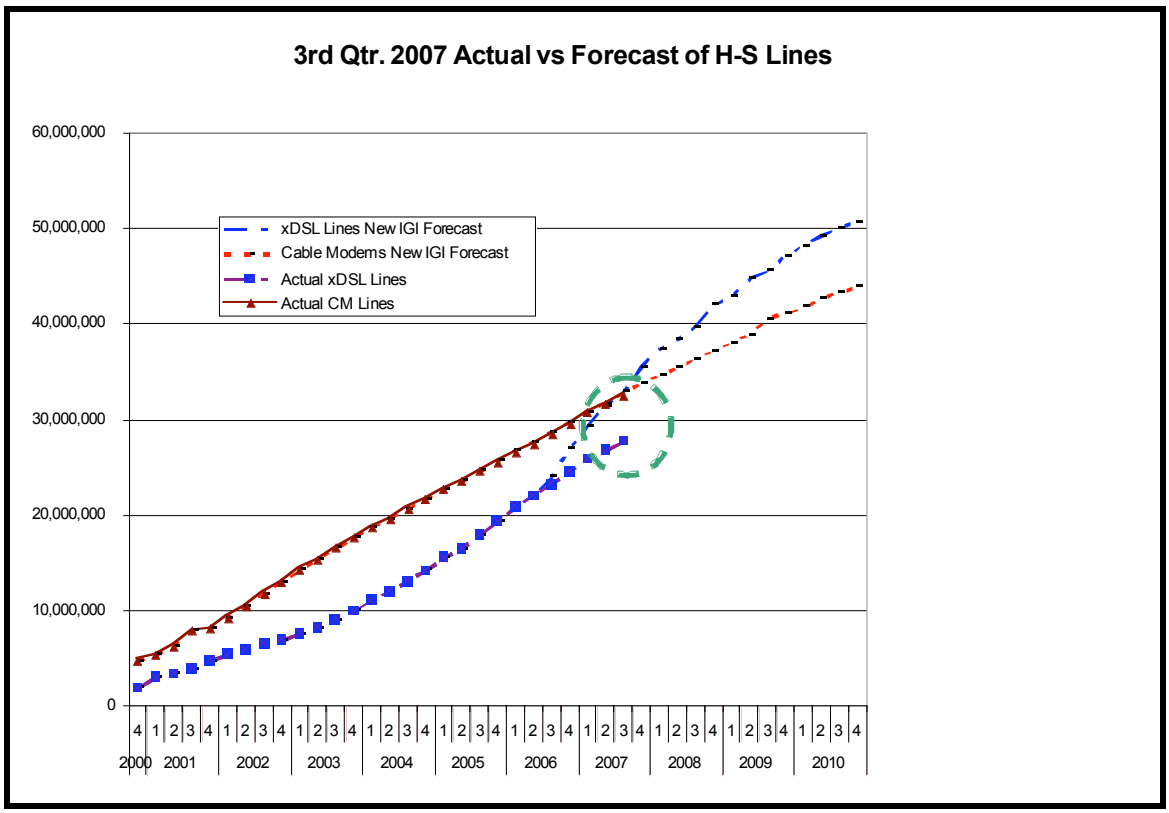
The above chart illustrates the overall situation and provides comparison to our forecasts. To help reading the chart, the straight black lines are linear trend line projections of (from the bottom) xDSL lines, cable modem lines and total high speed access lines. The dashed lines for these three quantities 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.

Cable continues to follow the trend line and our forecast (which has built in corrections for historically bad quarters). The telcos had been following what appears to be a somewhat parabolic curve, and were rapidly catching up to the cable linear trend. The reader can see that for the last three quarters, the telcos have fallen below the forecast, while still well above the linear trend

line. This period corresponds nicely to the time that they, particularly Verizon and AT&T, have been emphasizing the new technologies.

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

Figure 7: xDSL vs. CMs – 3rd Qtr 2007

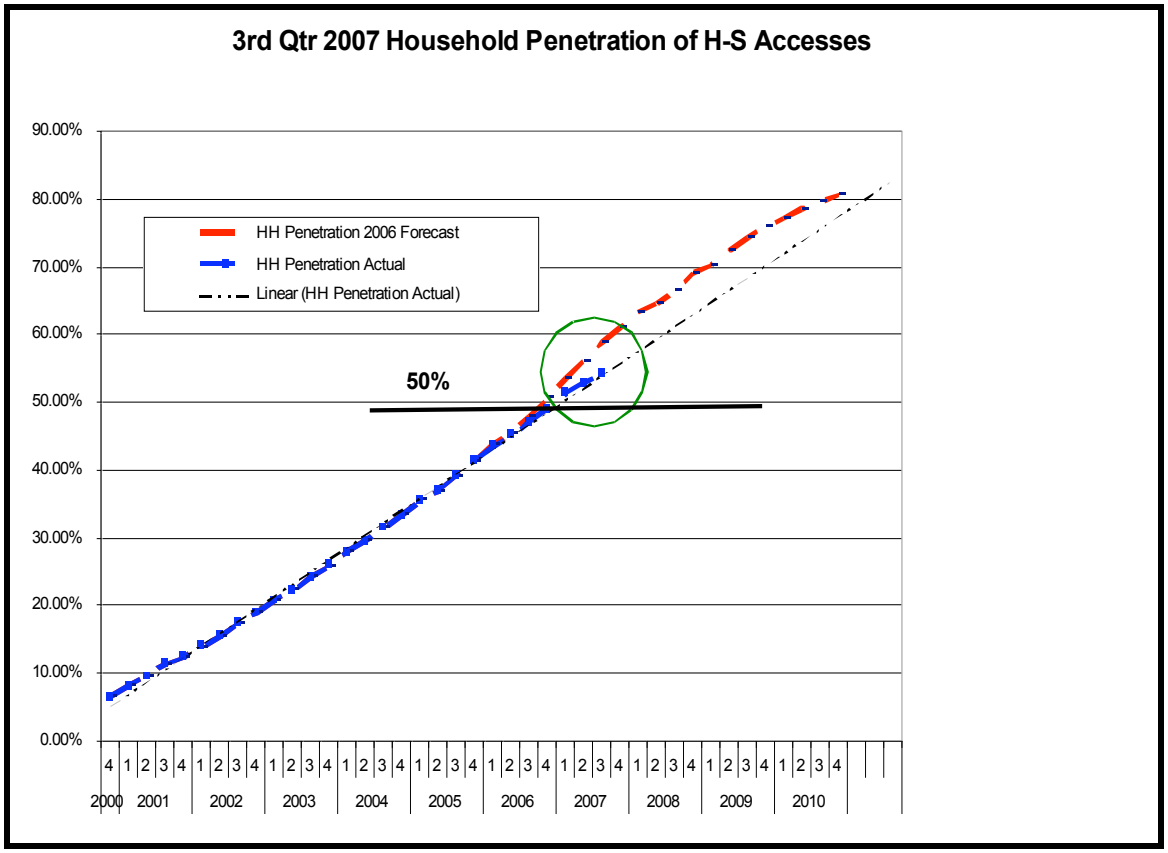


Household Penetration

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 8: Household Penetration of H-S Access



While the penetration rate is now well over 50% (over half the US households have h-s access installed), it is also well behind our forecast.

We are going to take a close look at our forecast in the next couple of quarters. It still may be that the aberration is only due to the telcos focusing on the new high-speed services, and that it will correct. Alternatively, we may be nearing a saturation point in h-s services in the US. This analyst does not believe that, but it certainly is possible, that we are nearing the top part of the 'S' curve on h-s accesses.

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! Now it is significantly over that rate.

Summary of HIGH SPEED Activities for the Major Carriers

The following chart illustrates the quarterly additions for xDSL and Cable Modems for the moist recent quarters for the largest carriers.

Figure 9: Summary of Major Carrier Activity

Major Cable Companies

		2006	2006	2006	2006	2007	2007	2007
		2Q	3Q	4Q	Total to Date	1Q	2Q	3Q
Charter		51,900	88,100	59,000	2,611,000	123,900	60,300	53,000
Comcast		305,000	536,000	488,000	10,269,200	563,000	330,000	450,000
Rogers		21,600	51,800	44,800	1,310,400	42,000	21,100	55,000
Cox		100,000	100,000	100,000	3,300,000	100,000	100,000	100,000
Time Warner		230,000	251,000	246,000	6,644,000	356,000	188,000	224,000
Totals		708,500	1,026,900	937,800	24,134,600	1,184,900	699,400	882,000

Major Telcos

		2006	2006	2006	2006	2007	2007	2007
		2Q	3Q	4Q	Total to Date	1Q	2Q	3Q
BellSouth		128,000	176,000	183,000	3,632,000	0	0	0
Embarq					1,107,000	87,000	52,000	60,000
Bell Can.		47,000	90,000	59,000	2,474,000	43,000	29,000	34,000
Qwest		120,000	175,000	165,000	2,137,000	167,000	100,000	111,000
SBC		342,000	380,000	383,000	8,537,000	691,000	400,000	499,000
Verizon		440,000	448,000	409,000	7,062,000	416,000	288,000	285,000
Totals		1,077,000	1,269,000	1,199,000	24,949,000	1,404,000	869,000	989,000
Total Ca. + Tel		1,785,500	2,295,900	2,136,800	49,083,600	2,588,900	1,568,400	1,871,000

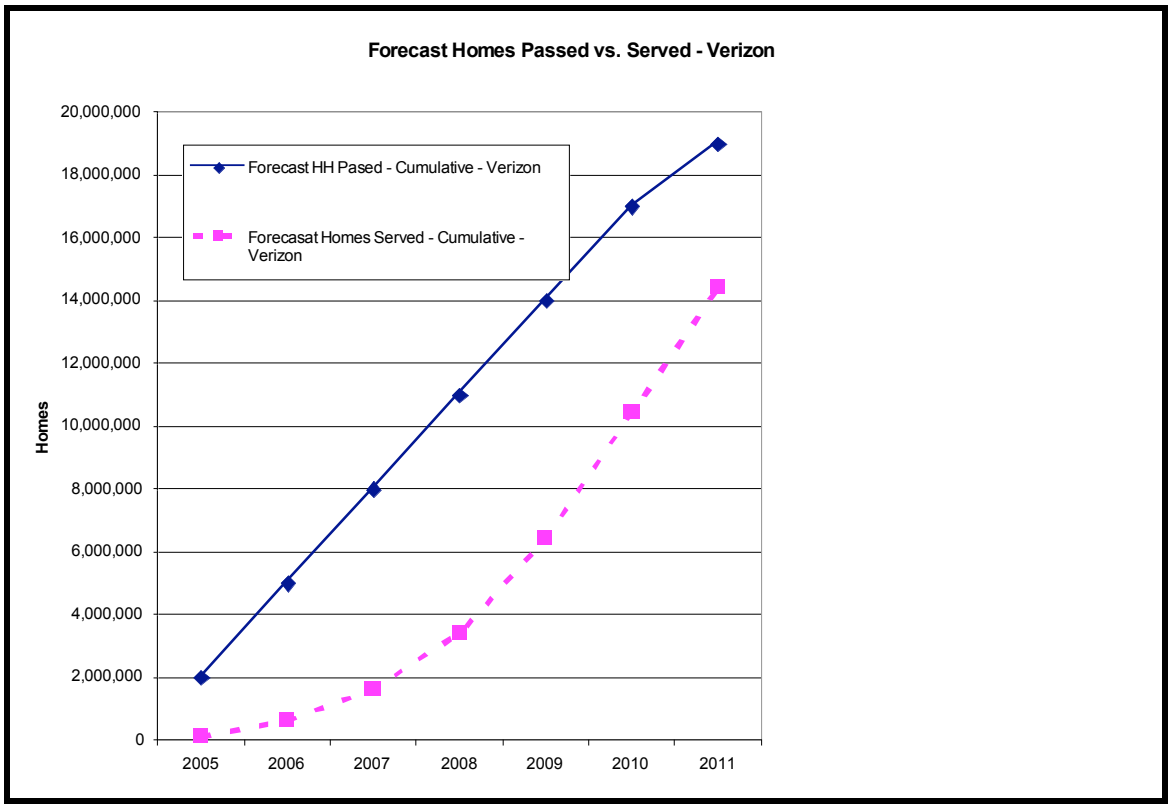
Note: The numbers for BCE (Bell Canada) are not completely consistent due to a spin-off of rural lines in Ontario and Quebec. We will correct this on a going forward basis.

FTTP Watch

Verizon FiOS

Verizon added 229,000 FiOS customers this quarter. Of these 202,000 also subscribed to FiOS TV. This is the biggest quarter yet for FiOS additions and shows a growth trend of about 30,000 per quarter (each quarter is growing about 30,000 more than the last.)

Figure 10: FTTP Forecast from FTTP Report



At the end of 2006, Verizon claimed to have over 6 million homes pasted with the basic service. This is almost exactly the forecast contained in our latest FTTP Report "FTTP – The New Standard and How It Is Changing Already." The above chart from that report illustrates our forecast for Verizon FTTP. It

appears that Verizon is well on target with its program.

AT&T Lightspeed (U-verse)

AT&T U-verse now serves 126,000 video customers. It added 75,000 in the last quarter. By the end of the quarter they were nearing a rate of additions of 10,000 per week. This would be approximately 130,000 per quarter – much better than they are now doing, but still less than half of what Verizon is doing with FiOS.

U-Verse is now available in 33 Metro areas across the country as of the end of the quarter.

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 now known as U-verse (or confusingly sometimes as Project Lightspeed.) 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.

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 still questions about the adequacy of the bandwidth provided by Lightspeed. Our report noted below 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.

The latest 'Rumor' is that AT&T is only getting 20-24 Mbps from its FTTn architecture rather than the 24-28 Mbps anticipated at 2500 feet. This small a difference could make a very tight situation as to available bandwidth vs. required, almost untenable.

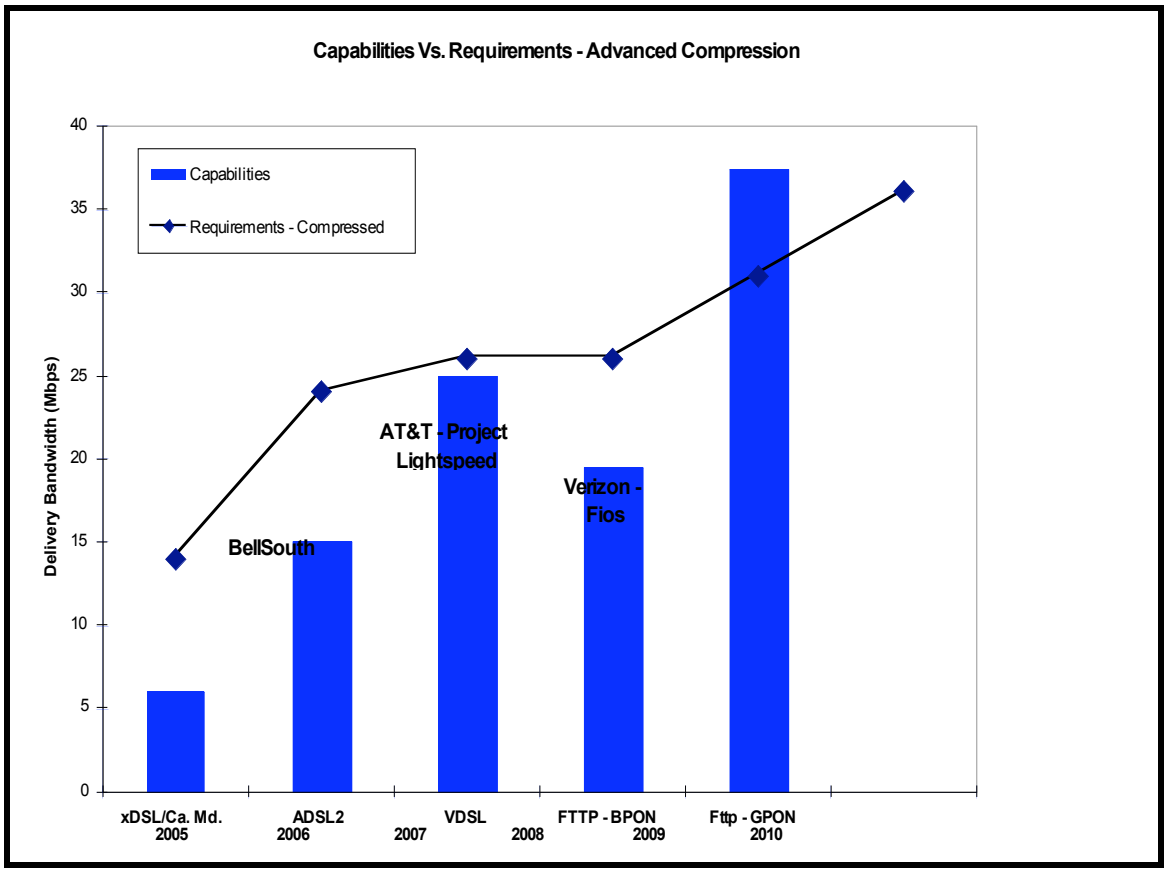
The other big question at AT&T is what to do with the FTTC (fiber to the curb) legacy from the acquired BellSouth properties. This architecture is enough different form AT&T's FTTN to be very significant. FTTC is much closer to FTTP, and much more capable than FTTN. A recently passed law in South Carolina that requires only statewide (as opposed to citywide) television franchises has been the instigator for AT&T to announce that it plans to upgrade the network in this state to bring U-verse to it. (The same situation exists in Georgia.) It appears now that AT&T will choose the FTTN architecture for South Carolina.

We continue to forecast that AT&T will quietly convert to GPON on most of its upgrades for U-verse. This forecast is beginning to look less secure, as we get more announcements of FTTN. <u>However, the physical facts haven't changed, and we continue to</u>

believe that the consumer needs for bandwidth will drive AT&T ultimately to PON architecture.

Our report, "How Much Bandwidth Is Enough in the Access Network," outlines the argument for needing more bandwidth than FTTN can deliver. The following chart from that report illustrates the forecast bandwidth needs and the capabilities of the various architectures.

Figure 11, Bandwidth Needs and Architecture Capabilities



Note that the capabilities of BPONs illustrated in this graph are based on very conservative assumptions.

Qwest

As noted above, Qwest has announced a plan to beginning a program to install FTTN to about 1.5 million of its subscribers. This is in spite of the fact that they have recently almost made fun of such an idea.

This report in our last edition (2Q, 2007) forecast correctly that Qwest would move to an advanced access program. However, we also forecast it would be GPONs with FTTP, rather than FTTN, a la AT&T. we appear to have been half right, anyway.

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 4th Quarter 2007 report, just send an e-mail to 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 12: Client Comments

1. ***Q.** "Can I re-use the figures and material in this report for publication elsewhere." (Repeat – FYI)
   Answer: Yes, you may as long as you give us proper credit.

2. **Q**. "Will FTTP begin to have an effect on H-S Access Lines and when will this start to show up?" (From C.D.T. in Lexington, KY, Repeated again – again because of the Verizon results this quarter.)
   Answer: "It really showed up in the 3rd Q 07. We think the reason for Verizon's poor showing this quarter is the focus they are giving FiOS."

3. **Q.** "I enjoy your report. Could you include more on the Regulatory issues?" Edgar D., Washington, DC – Repeat – we have a better answerer now. Answer, "See the 'Other News' section above. We have included regulatory issues where appropriate."

4. Q. "Why do you brag about your correct forecasts?" Rose Marie, Los Angles. Answer, "If we don't brag about them, no one else will. Seriously, we need to let

our readers know of the accuracy of our forecasts, so they can better judge how to use them. We also advise when we are not so accurate. (See the Qwest article above.)"

5. **Q**. "Your report – HSAR – is most useful in our marketing business. Keep up the good work!" Sam V., Chicago.
   Answer. Great – tell your friends! We hope you will find it even more useful as we expand its scope.