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May 29, 2008 – **VIA OVERNIGHT MAIL**

Ann Cole, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: Docket No. 070691-TP
Complaint and request for emergency relief against Verizon Florida LLC for anticompetitive behavior in violation of Sections 364.01(4), 364.3381, and 364.10, F.S., and for failure to facilitate transfer of customers' numbers to Bright House Networks Information Services (Florida), LLC and its affiliate, Bright House Networks, LLC

Docket No. 080036-TP
Complaint and request for emergency relief against Verizon Florida LLC for anticompetitive behavior in violation of Sections 364.01(4), 364.3381, and 364.10, F.S., and for failure to facilitate transfer of customers' numbers to Comcast Phone of Florida, LLC d/b/a Comcast Digital Phone

Dear Ms. Cole:

Enclosed for filing in the above-referenced matters are the originals and 15 copies of the Direct Testimonies of Alan F. Ciamporcero, Bette J. Smith and Patrick J. Stevens on behalf of Verizon Florida LLC. Service has been made as indicated on the Certificate of Service. If there are any questions regarding this filing, please contact me at (678) 259-1449.

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SGA
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Sincerely,

Dulaney L. O'Roark III

tas

Enclosures

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that copies of the foregoing were sent via overnight mail(*) on May 29, 2008 and U. S. mail(**) on May 30, 2008 to:

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Dulaney L. O'Roark III

REDACTED

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Complaint and request for emergency relief against Verizon Florida LLC for anticompetitive behavior in violation of Sections 364.01(4), 364.3381, and 364.10, F.S., and for failure to facilitate transfer of customers' numbers to Bright House Networks Information Services (Florida), LLC and its affiliate, Bright House Networks, LLC	)	Docket No. 070691-TP
In re: Complaint and request for emergency relief against Verizon Florida LLC for anticompetitive behavior in violation of Sections 364.01(4), 364.3381, and 364.10, F.S., and for failure to facilitate transfer of customers' numbers to Comcast Phone of Florida, LLC d/b/a Comcast Digital Phone	)	Docket No. 080036-TP

DIRECT TESTIMONY OF ALAN F. CIAMPORCERO ON BEHALF OF VERIZON FLORIDA LLC

REDACTED

MAY 30, 2008

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Alan F. Ciamporcero.

Q. BY WHOM ARE YOU EMPLOYED AND WHAT IS YOUR POSITION?

A. I am employed by Verizon, 201 N. Franklin Street, Tampa, Florida. My position is President, Southeast Region.

Q. WHAT IS YOUR PROFESSIONAL EXPERIENCE AND EDUCATIONAL BACKGROUND?

A. I have worked in the telecommunications field since 1987, first for Pacific Telesis, then SBC, and finally GTE, which merged with Bell Atlantic to become Verizon in 2001. I have held the positions of regulatory and antitrust attorney, liaison to the Federal Communications Commission, Vice President of Regulatory Affairs, and state President. Before working in the telecommunications industry, I worked for the U.S. House of Representatives, including several years as legislative assistant for the Chairman of the Telecommunications Subcommittee. My education includes a B.A. from the University of Pittsburgh, a Ph.D. in Political Science from the State University of New York at Albany, and a J.D. from the University of California, Davis.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to address Issues 1-4 in this case. I explain why Verizon's retention marketing program does not give it an undue or unreasonable advantage (Issue 1); why Verizon's program

complies with the Commission's rule on number porting (Issue 2); why Verizon's program is not anticompetitive (Issue 3); and why the Commission should take no action concerning the program (Issue 4). (In this answer and my testimony below, I use "Verizon" as shorthand for Verizon Florida LLC.)

Q. WHAT OTHER WITNESSES ARE PRESENTING DIRECT TESTIMONY ON VERIZON'S BEHALF?

A. Two other witnesses are presenting direct testimony for Verizon. Patrick Stevens describes Verizon's Operations Support Systems that process Local Service Requests ("LSRs") for Local Number Portability ("LNP") and service cancellation and that process customer requests to accept a Verizon retention offer. Bette Smith describes Verizon's retention marketing program and explains how it benefits consumers.

ISSUE 1: IS VERIZON OBTAINING AN UNDUE OR UNREASONABLE ADVANTAGE BY MARKETING A CUSTOMER WHEN RECEIVING A LOCAL SERVICE REQUEST TO PORT A SUBSCRIBER'S TELEPHONE NUMBER FOR BRIGHT HOUSE OR COMCAST, IN VIOLATION OF SECTION 364.10(1)? IF SO, HOW IS VERZON DOING SO?

Q. WHAT DOES SECTION 364.10(1) PROVIDE?

A. That section provides as follows: "A telecommunications company may not make or give any undue or unreasonable preference or advantage to any person or locality or subject any particular person or locality to

any undue or unreasonable prejudice or disadvantage in any respect whatsoever."

Q. HOW DO BRIGHT HOUSE AND COMCAST ALLEGE THAT VERIZON IS OBTAINING AN ADVANTAGE OVER THEM?

A. Bright House alleges that Verizon is obtaining an advantage by using the information it receives about retail customers that have requested to disconnect Verizon's retail service. (I will generally use the terms Bright House and Comcast to include their Florida competitive local exchange telecommunications companies and cable companies.) Bright House further asserts that it is not in a similar position to try to retain the customer. (*See* Bright House Complaint ¶ 22.) Comcast's CLEC makes similar allegations. (*See* Comcast Complaint ¶ 25.)

Q. IS VERIZON OBTAINING AN UNDUE ADVANTAGE BY USING RETAIL DISCONNECT ORDERS FOR ITS RETENTION MARKETING PROGRAM?

A. No. As described in the Direct Testimony of Patrick Stevens, in accordance with industry standards, when Verizon receives an LSR for LNP, Verizon issues a retail disconnect order to ensure that the customer's retail service is discontinued at the appropriate time, that the customer experiences no loss of dial tone or missed calls, and that the billing by the old and new local service providers does not overlap. As explained in the Direct Testimony of Bette Smith, it is solely in response to this *retail* disconnect order that Verizon provides additional

information to the customer so that the customer can choose whether to remain with Verizon.

Q. IS THE FCC ADDRESSING THE ISSUE OF WHETHER VERIZON MAY USE INFORMATION FROM RETAIL DISCONNECT ORDERS IN THIS MANNER?

A. Yes. The FCC's Enforcement Bureau recently recommended that the FCC determine that Verizon's use of this information does not violate federal law. *See In re: Bright House Networks, LLC v. Verizon California, Inc.*, Recommended Decision, File No. EB-08-MD-002 (April 11, 2008). The FCC is scheduled to issue its decision in the case by June 23, 2008.

Q. ARE BRIGHT HOUSE AND COMCAST IN A SIMILAR POSITION TO TRY TO RETAIN CUSTOMERS THAT VERIZON WINS FROM THEM?

A. Yes. When a customer chooses to switch his or her voice service from Bright House or Comcast to Verizon, Verizon submits an LNP LSR to that company. Thus, the same information that is available to Verizon in the case of a customer shift from Verizon to Bright House or Comcast is available to Bright House or Comcast in the case of a customer shift from one of them to Verizon. If Bright House or Comcast wish, they can engage in a retention program structured like Verizon's.

Q. MAY BRIGHT HOUSE AND COMCAST COMPETE FOR CUSTOMERS AFTER THEY ACCEPT A RETENTION OFFER FROM VERIZON?

A. Yes. As explained in the Direct Testimony of Patrick Stevens and Bette Smith, when Verizon retains a customer, it issues a jeopardy notice to the other carrier (or submits an LNP request if the number already has been ported), informing the other carrier that the customer has chosen to stay with Verizon. After receiving that notice, Bright House and Comcast are free to continue competing for the customer's business by making a better offer.

ISSUE 2: DOES VERIZON TIMELY COMPLETE PORTING OF A SUBSCRIBER'S TELEPHONE NUMBER UPON REQUEST OF BRIGHT HOUSE OR COMCAST, PURSUANT TO RULE 25-4.082, F.A.C.?

Q. AS IT RELATES TO THE CLAIMS IN THIS CASE, WHAT DOES RULE 25-4.082 REQUIRE VERIZON TO DO?

A. The rule requires Verizon to "facilitate porting of the subscriber's telephone number upon request from the acquiring company."

Q. DOES VERIZON COMPLY WITH RULE 25-4.082 WITH RESPECT TO BRIGHT HOUSE AND COMCAST?

A. Yes. As described in the testimony of Patrick Stevens, for a high percentage of Bright House's and Comcast's LNP requests, Verizon completes the steps required for its role in the number porting process

on the requested due date.

Q. DOES VERIZON VIOLATE RULE 25-4.082 WHEN A CUSTOMER REQUESTS TO STAY WITH VERIZON IN RESPONSE TO A RETENTION MARKETING OFFER?

A. No. Once a customer changes his or her mind and decides to keep Verizon's service, Bright House or Comcast are no longer the "acquiring company." At that point, Verizon should, in compliance with the customer's request and Rule 25-4.082, stop the number port if there is time to do so.

ISSUE 3: IS VERIZON'S RETENTION MARKETING PROGRAM FOR VOICE CUSTOMERS ANTICOMPETITIVE, IN VIOLATION OF SECTION 364.01(4)(g)? WHY OR WHY NOT?

Q. WHAT DOES SECTION 364.01(4)(g) PROVIDE?

A. That section provides that "[t]he commission shall exercise its exclusive jurisdiction in order to . . . [e]nsure that all providers of telecommunications services are treated fairly, by preventing anticompetitive behavior and eliminating unnecessary regulatory restraint."

Q. WHEN CONSIDERING ALLEGATIONS THAT A TELECOMMUNICATIONS SERVICE PROVIDER HAS ENGAGED IN ANTICOMPETITIVE BEHAVIOR, SHOULD THE COMMISSION CONSIDER THE CONTEXT IN WHICH THE BEHAVIOR TAKES

PLACE?

A. Yes. The Commission should not evaluate such allegations in a vacuum, but should consider the competitive context. In this case, it is important for the Commission to evaluate Verizon's retention marketing program in the context of the facilities-based competition that is taking place today in Florida. As I discuss below, the Florida telecommunications market is highly competitive, with a number of providers using different technologies to offer communications services. Competition between Verizon and the cable companies is particularly vigorous, with Verizon, Bright House and Comcast all offering voice, data and video service bundles and making retention offers to customers to try to keep their business. In this environment, Verizon's retention marketing program is not anticompetitive, but rather pro-competitive and beneficial to consumers.

Q. HOW HAS THE COMMUNICATIONS MARKETPLACE CHANGED IN RECENT YEARS?

A. In the past several years, the communications marketplace has undergone fundamental transformations. Mass-market consumers now can choose from a wide variety of technologies and providers for voice services, including cable, wireless, over-the-top Voice-over-Internet-Protocol ("VoIP") and traditional wireline competitors, as well as other alternatives to traditional voice services such as e-mail, instant messaging, WiFi and WiMAX. Cable operators have emerged as the strongest competitors for voice services and also are the leading

providers for high-speed Internet access services to mass-market customers. Cable also remains the dominant provider of video services.

Q. HAVE THESE SAME CHANGES TAKEN PLACE IN FLORIDA?

A. Yes. These changes are described in detail in the March 2008 NERA report entitled "Intermodal Competition in Florida Telecommunications" ("NERA Report"), which is attached as Exhibit AFC-1.

Q. HOW HAS VERIZON RESPONDED TO INCREASED COMPETITION?

A. Verizon has been investing heavily to provide consumers with the full range of services they demand. Verizon is investing approximately $23 billion to deploy a fiber-to-the-premises network – known as "FiOS" – in thousands of communities in 17 states around the country, to reach 18 million customers' premises by the end of 2010. As of year-end 2007, FiOS Internet was deployed to more than 9.3 million homes and businesses in more than 2,000 communities across parts of 17 states, and was being actively marketed to 7.5 million of those premises. As of January 2008, more than 1 million customers were buying FiOS TV from Verizon.

Q. DOES VERIZON OFFER FIOS IN FLORIDA?

A. Yes. Florida was one of the first states where Verizon began deploying FiOS. Hundreds of millions of dollars have been invested so far in the six-county area we service, bringing the fiber network past more than 900,000 households. By the end of this year, that number will easily

exceed 1 million households.

Q. DOES FIOS DELIVER BENEFITS TO CONSUMERS?

A. Yes. FiOS consumers can enjoy exceptionally clear digital TV pictures, including the purest high-definition television experience available in the market; Internet speeds ranging from 10 megabits per second to 50 megabits per second downstream and, just as importantly, upstream speeds ranging from 2 megabits per second to 20 megabits per second, including a symmetrical offering of 20 mbps in both directions; and crystal-clear voice services tied into residents' inside copper wiring.

Q. HAVE INDEPENDENT SOURCES CONFIRMED THE BENEFITS OF FIOS?

A. Yes. Independent analysts have stated that Verizon's service has consistently "drawn raves" from consumers. C. Moffett, *et al.*, Bernstein Research, *Verizon (VZ): Project FiOS . . . Great for Consumers, but What About Investors?* at 3 (Jan. 14, 2008) ("Moffett, *Project FiOS*") (attached as Exhibit AFC-2). In its February 2008 issue, *Consumer Reports* rated Verizon FiOS video, high-speed Internet, and long-distance telephone service the top service available in the country. *See Internet, TV, Phone; Bundling Can Cut Bills*, Consumer Reports, Feb. 2008, at 33 (attached as Exhibit AFC-3). Both FiOS video and Internet gained the top possible ranking in each of four categories – value, reliability, performance, and customer support. (*See* Exhibit AFC-3 at 35.) These were the "first ever 'perfect' score[s] for a video or

broadband provider." Moffett, *Project FiOS* at 3 ("we fully concur with the assessment that [FiOS] is a terrific product"). In its March 2008 issue, *Consumer Reports* rated Verizon FiOS number one in the country for high-definition TV service. See *High-Def TV Service*, Consumer Reports, Mar. 2008, at 30 (attached as Exhibit AFC-4).

Q. HAS THE ABILITY OF COMPETING PROVIDERS TO OFFER BUNDLED SERVICES AFFECTED THE COMMUNICATIONS MARKET?

A. Yes. The ability to offer consumers multiple services has become important in the marketplace, because consumers increasingly insist on consolidating and reducing the number of their vendors. In addition, "bundling" involves significant efficiencies that allow multiple services to be provided at a lower overall cost than the provision of services on a stand-alone basis. Thus, providers that are able to offer multiple services can do so as lower-priced bundles that consumers value highly. Independent studies show that consumers value bundles both for the opportunity to receive discounts and also for the convenience of receiving a single bill for multiple services. A study conducted for Verizon in 2007 found that, of the consumers who have switched from Verizon to another provider, XX% did so in order to obtain a bundle of three services.

Q. HAVE BRIGHT HOUSE AND COMCAST EXPERIENCED SUBSTANTIAL GAINS IN VOICE CUSTOMERS?

A. Yes. Cable operators are Verizon's most significant competitors in the mass market today. Bright House stated in January 2008 that it had won nearly 500,000 local voice customers in its Tampa and Orlando markets. NERA Report at 27. Bright House has achieved that customer base in just three and a half years, reaching a penetration rate of nearly 25%. *Id.* Comcast also has reported success in the voice market. In its fourth quarter 2007 earnings call, Comcast reported that it had become the fourth largest residential telephone company in the country with 4.4 million customers; that it had added approximately 600,000 customers each of the last four quarters; and that almost 28% of its video customers took phone service from Comcast. *Id.*

Q. HAVE THE CABLE COMPANIES ENJOYED SUCCESS IN PROVIDING HIGH-SPEED INTERNET ACCESS SERVICES IN FLORIDA?

A. Yes. As of December 2006, cable accounted for about 41% of the more than 5 million high-speed lines in Florida. NERA Report at 20. Their networks pass 94% of Florida households and can provide high-speed internet service to virtually all the homes passed (99.8%). *Id.* at 3. In Verizon's service territory, cable modem service is available to 100% of cable homes passed. *Id.* at 12.

Q. WHAT POSITION DO CABLE COMPANIES HOLD IN THE VIDEO SERVICES MARKET?

A. Cable operators are the dominant providers of video services by a wide

margin. As of the end of 2007, cable operators accounted for approximately 68 percent of all subscribers to multi-channel video programming distribution services nationwide. *See* R. Dezego, Bank of America, *Battle for the Bundle: 3Q07 Wrap Up* at Fig. 13 (Nov. 20, 2007)(attached as Exhibit AFC-5).

Q. WHAT OTHER COMPETITION DOES VERIZON FACE?

A. In addition to cable, Verizon faces competition from a variety of other sources, all of which increases the pressure to retain customers. For instance, Florida wireless subscribership has increased from 6.4 million in 2000 to 14.8 million in 2006, with wireless subscribers exceeding traditional land lines by about 4.7 million. NERA Report at 42. Today, there are at least three wireless carriers available to virtually all of the households in Verizon's Florida service territory. *Id.* at 14. The growth in wireless subscribership has had a significant impact on traditional telephone providers. A large and growing fraction of consumers are giving up their wireline phones entirely – by the second half of 2007, one out of six (15.8%) American households only had wireless telephones. *See* S. Blumberg & J. Luke, Div. of Health Interview Statistics, Nat'l Ctr. for Health Statistics, *Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, July-December 2007* (rel. May 13, 2008) (attached as Exhibit ACF-6).

Q. HOW DOES BROADBAND FIT INTO THE COMPETITIVE PICTURE?

A. Many customers also use their broadband connections to access

competitive over-the-top VoIP services. Today, approximately 53 percent of all Florida households subscribe to broadband. *See* NERA Report at 19. Moreover, a number of broadband alternatives are emerging that will make it even easier for consumers to obtain broadband and over-the-top VoIP services in the future. *Id.* at 59-71.

Q. HAS VERIZON LOST ACCESS LINES AS A RESULT OF COMPETITION?

A. Yes. As a result of the rapidly rising competition I have described, Verizon has been losing a significant number of access lines. From 2001 to 2007, Verizon residential access lines in Florida declined by more than 616,000 lines (36.5%), from 1.69 million to 1.07 million and our network usage has experienced a similar decline. See NERA Report at 12. During 2007 alone, Verizon's residential access lines decreased 13%, from 1.23 million to 1.07 million. These decreases understate the impact of competition, because they do not take into account the increase in population that took place during that time. *Id.* at 9-11. These competitive losses are especially significant in today's marketplace because they not only cost Verizon a voice customer, but also make it more difficult to win and retain subscribers to other services that Verizon seeks to offer, such as high-speed Internet and video.

Q. DOES VERIZON'S RETENTION MARKETING PROGRAM PROMOTE COMPETITION FOR FLORIDA CUSTOMERS?

A. Yes. Verizon's program provides consumers with timely, accurate

information about competitive offers of which they might otherwise be unaware, so that customers are able to make the best choice based on complete information. Bright House and Comcast have every incentive to try to meet and beat Verizon's best offer and customers benefit as competitors vie for their business.

Q. DOES THE TIMING OF VERIZON'S RETENTION OFFERS BENEFIT CONSUMERS?

A. Yes. From the consumer's perspective, the best time to receive information about service and price options is before the new services are installed. That is particularly true when the customer is buying bundled services from a facilities-based provider, which may require the customer to stay home from work so a technician can install service. The customer obviously is better off receiving a competitive offer before the new service is turned up rather than afterward.

Q. DO BRIGHT HOUSE AND COMCAST ENGAGE IN RETENTION MARKETING TODAY?

A. Yes. Just as Verizon seeks to retain customers, so do Bright House and Comcast when Verizon has attracted one of their customers. Unlike Verizon, which must allow a competitive service provider to cancel Verizon voice service on a customer's behalf, cable operators typically require customers to call them directly to cancel video or broadband service. Thus, instead of giving customers the choice of whether to listen to retention information, Bright House and Comcast give

customers a sales pitch when they just want to cancel service. This more aggressive retention marketing program gives the cable operator a guaranteed final opportunity to persuade the customer not to switch his or her services (including voice service), and to offer incentives for the customer to remain with the cable operator. The Bright House and Comcast cable companies acknowledged in the FCC retention marketing case that they "typically require customers to contact them directly to cancel video or broadband Internet access service." They further admitted that "[w]hen customers call [them] directly to cancel video or broadband Internet access service, [they] offer such customers incentives to remain customers in some instances." *See In re: Bright House Networks, LLC v. Verizon California, Inc.*, Letter from Matthew A. Brill, File No. EB-08-MD-002 (March 6, 2008)(attached as Exhibit AFC-7).

Q. HAS COMCAST MADE ANY MORE RECENT STATEMENTS CONCERNING ITS RETENTION MARKETING PROGRAM?

A. Yes. A recent article has reported on Comcast's new "win-at-any-cost retention program." *See* Brian Santo, *Cable Show: Comcast To Try Win-at-Any-Cost Retention Program*, CedMagazine.com (May 20, 2008), *available at* http://www.cedmagazine.com/Cable-Show-Comcast-win-at-any-cost.aspx (attached as Exhibit AFC-8). According to the article, "Comcast is preparing to institute what seems to be the single-most-aggressive customer retention program in the industry." The article reports that Mike Doyle, president of Comcast's eastern region,

stated that "in a high percentage of instances, Comcast agents will not only be able to save a customer, they will be able to upgrade them by offering a bundle. . . . Many customers that ask to unsubscribe are calling to cancel a single service (frequently video) and are unaware of the cost savings inherent in bundles. That makes it easy to upgrade those customers." Doyle was quoted as saying "'[t]hey just don't know the deals they can get.'" Doyle also stated that Comcast's retention marketing "will be a retain-at-any-cost situation. Further, agent compensation will be based on retention rates and the extent of the incentives the agent offers a customer to remain with Comcast."

Q. DID COMCAST SPEAK ABOUT ITS REGULATORY COMPLAINTS CONCERNING VERIZON'S RETENTION MARKETING PROGRAM?

A. Yes. Doyle stated that Comcast "doesn't anticipate problems" with regulatory complaints of the kind that Comcast has pursued against Verizon. "When Verizon phone customers disconnect, they tell the new service provider, and the new service provide negotiates the disconnect with Verizon." He further stated that "since Comcast callers call Comcast directly to disconnect, the MSO will not have the same problem that Verizon had."

Q. WHAT IS THE SIGNIFICANCE OF COMCAST'S RETENTION MARKETING PROGRAM AND ITS EXPLANATION OF THE PROGRAM?

A. Comcast's statements make a number of things clear, despite its claims

in this case. First, customers benefit from retention marketing, which informs them about available services and pricing plans at a time when that information is of particular benefit. Second, the complaints of Bright House and Comcast are designed to impose an artificial regulatory constraint on Verizon that will bar Verizon from engaging in precisely the same type of retention marketing that the cable incumbents freely employ. Third, competition to retain customers has everything to do with intense competition among communication service bundles, in which the cable incumbents enjoy significant market advantages.

Q. IS VERIZON'S RETENTION MARKETING ANTICOMPETITIVE?

A. No. To the contrary, Verizon's retention marketing program is pro-competitive, as I have explained. Moreover, Verizon's program is being implemented in a highly competitive environment in which many facilities-based providers are trying to win customers' business. The competition between Verizon on the one hand and Bright House and Comcast on the other is especially vigorous, with each competitor offering bundles of voice, data and video service and informing its customers of those service offerings through retention marketing programs. Bright House and Comcast are well-established and enjoying success in the Florida telephone market, while Verizon has experienced substantial line losses. Although Bright House and Comcast might prefer less competition from Verizon, there can be no serious argument that Verizon's retention marketing has any impact on its competitors' ability to compete for, win and retain customers.

ISSUE 4: WHAT ACTION, IF ANY, SHOULD THE COMMISSION TAKE WITH RESPECT TO VERIZON'S RETENTION MARKETING PROGRAM?

Q. WHAT ACTION SHOULD THE COMMISSION TAKE CONCERNING VERIZON'S RETENTION MARKETING PROGRAM?

A. Because Verizon's retention marketing program complies with Florida law, and is pro-competitive and pro-consumer, the Commission should take no action concerning the program.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

March 2008

Intermodal Competition in Florida Telecommunications

Prepared for: AT&T Florida., Embarq Florida, Inc., TDS Telecom, Verizon Florida LLC, Windstream Florida, Inc.

By

William E. Taylor
Senior Vice President

Harold Ware
Vice President

NERA
Economic Consulting

Contents

I. Summary

In 2006, we reported on the fundamental transformation taking place in the communications industry that was bringing competitive choices for voice and broadband consumers throughout Florida.[1] In this report, we analyze more recent data and demonstrate that the trends we identified in 2006 have continued and that competition for communications services in Florida has intensified.[2] These continuing trends make even more clear that asymmetrical regulation of communications providers in Florida harms both competition and consumers, and that the need for updating and streamlining Florida's regulation of wireline telephone services is now urgent.

Until recently, different networks were constructed to provide different services: telephone networks carried switched voice traffic and private line services; coaxial cable transmitted television signals; and cell towers relayed wireless voice calls. All of this has changed since the long-awaited "network convergence" has provided the technological catalyst for facilities-based "intermodal competition" throughout the country including, of course, Florida. Convergence has brought at least three formerly disparate industry sectors into direct competition with each other by allowing each of their different network platforms to provide similar bundles of communications services. For example, cable companies now provide video, broadband Internet and other data services, ***and*** voice; mobile wireless networks provide voice, data, short text messaging, ***and*** video services; and wireline services platforms provide voice, DSL, Internet, instant messaging, VoIP, ***and*** now video.

Several platform providers have been competing with the traditional wireline carriers to serve Florida consumers. Cable companies such as Comcast, Bright House Networks and Cox have deployed broadband and telephony services to large portions of the State, and have experienced great success in attracting customers to their bundled products. Wireless service is ubiquitous in Florida and many residents are replacing wireline service with wireless, both through line substitution and usage substitution. Since we completed our 2006 report, these platforms have become even more widespread and have captured ever larger numbers of customers. The spread of broadband throughout Florida enables residents to receive service from numerous independent VoIP providers such as Vonage and Skype. Moreover, emerging services such as Wi-Fi, WiMAX and broadband over power lines (BPL) promise to intensify the competition.

The Florida Public Service Commission in 2006 recognized the need to consider these intermodal alternatives to wireline service when assessing the state of competition, noting that "[w]ireless, VoIP, and broadband services are fulfilling the expectations of competition and represent a significant portion of today's communications market in Florida."[3] The Commission went on to state:

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[1] NERA, *Intermodal Competition in Florida Telecommunications*, July 2006 ["*NERA 2006 Report*"].

[2] Some of these results were reported in *Intermodal Competition and Telecommunications Deregulation in Florida* at the 34th Annual PURC Conference, University of Florida, February 16, 2007.

[3] *Florida PSC 2006 Competition Report*, p. 2.

> Wireless and, to a lesser extent, VoIP services have become a significant portion of the voice communications market ... [E]vidence suggests that these intermodal competitors are successfully providing competitive alternatives to both residential and business subscribers ... [Both residential and business] customers may obtain functionally equivalent services via wireline telephony, wireless telephony, VoIP, or cable telephony.[4]

Accordingly, our analysis does not rely upon market share measures because these measures are severely limited given their static, backward-looking nature, and because it is nearly impossible to gather complete and accurate share data. Rather, the paper examines the dynamics of the highly competitive communications market and how the market now extends beyond the traditional wireline companies to encompass a host of intermodal competitors.

As discussed in detail below, FCC data for Florida[5] show that intermodal competitors have made substantial progress since our last report:

- At year-end 2000, there were about 3.4 million more mass market (residence and small business) wireline access lines than total wireless subscribers and mass market high-speed broadband lines.

- Only four years later, at year end 2004, there were 6.9 million *fewer* mass market wireline lines than total wireless subscribers and mass market broadband lines.

- By year end 2006, there were about 8.5 million fewer combined ILEC and CLEC residential lines than combined residential wireless and residential broadband lines.[6]

- After a period of rapid growth, interstate switched access minutes of use for the major Florida carriers declined 29 percent from 2000 to 2006; over the same period, local usage fell about 34 percent, from 3,200 calls per line per year to only 2,100.

The impact of intermodal competition is even more pronounced than these data alone suggest: wireline access lines would have been growing under historical competitive conditions because the Florida population has continued to grow at least as fast as it did historically. Thus, factoring in this growth, we estimate that Florida local exchange companies served about 3.56

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[4] *Id.* at 66.

[5] Federal Communications Commission, Industry Analysis and Technology Division, Wireline Competition Bureau, *Local Telephone Competition: Status as of December 31, 2000-2006* ("FCC December 2000-December 2006 Local Competition Reports") and Federal Communications Commission, Industry Analysis and Technology Division, Wireline Competition Bureau, *High Speed Services for Internet Access: Status as of December 31, 2000-2006* ("FCC December 2000-December 2006 High-Speed Internet Reports"). More detailed data are provided below.

[6] Beginning in 2005 the FCC changed how it reports switched voice lines and broadband lines. It started reporting residential lines alone instead of mass market (residential and small business lines). From June 2005 forward the FCC grouped small business lines with those of larger business customers. Thus, to assess mass market trends we separate our analysis of certain FCC data into two segments—data through December 2004 and data for June, 2005 through December 2006. Other reporting changes occurred during 2005 and 2006. See Section III.A below.

million fewer residential wireline access lines than expected at year end 2006 based on population growth. This implies a shortfall of more than three times the observed decline of about 1 million lines. We find a similar but even more dramatic discrepancy between expected and observed local usage trends. These shortfalls are also much larger than those shown in our prior report based on data through year end 2005.

Intermodal competition is strong and growing in all parts of the State, including rural areas. For example, our analysis shows that:

- Every Zip Code area in the state has at least three broadband providers with lines in service and, 99 percent of Zip Codes have four or more such providers.

- Cable companies' networks pass 94% of households in the state and can provide broadband service to virtually all (99.8%) of the homes passed.

- Cable telephony is available to about 86 percent of cable homes passed and about 81 percent of total households in the state. These figures are substantially higher than the corresponding figures we reported in our 2006 report.

- At least two wireless carriers are available to 99 percent of households in the state, and 99.9 percent of households have at least one wireless carrier available.

- Intermodal competition is having a major impact on the communications market. While Florida cable providers are experiencing great success in attracting voice and broadband customers nationally and in Florida, a significant and increasing number of people are substituting wireless for wireline services in Florida.

- Multiple competitive alternatives are available in areas of Florida served by each of the major incumbent wireline carriers in the state, with each incumbent experiencing heavy line losses and lost usage as a result.

The significance of these developments is underscored by an MIT Communications Futures Program working paper that found, if intermodal competition is strong—as we have shown in Florida—then "[i]n adopting a 'go slow' approach to telecom deregulation, policymakers risk repeating the mistakes of the past."[7] As the report states:

> The costs of late, slow, or piecemeal deregulation can be quite high. Obsolete regulations ....can decrease consumer welfare substantially. These losses ... are paid not only by consumers in lower quantity and quality..., foregone innovations, [less] choice, [and] often by taxpayers ... as the government may end up bailing out failing incumbents ... and their ... workforces. Ultimately,

[7] Professors Charles H. Fine and John M. de Figueiredo, *Can We Avoid Repeating the Mistakes of the Past in Telecommunications Regulatory Reform?*, Working Paper 2005-001, MIT Communications Futures Program, Massachusetts Institute of Technology, March 21, 2005, p 5.

> deregulation that is too late can drive the incumbent(s) into bankruptcy, and bestow monopoly power on the newly dominant former entrant(s).[8]

More specifically, the MIT paper shows that the costs of delaying regulatory reform in industries experiencing intermodal competition have been extremely high. For example, although the railroads were facing substantial intermodal competition from trucking by the mid-1950s, they were saddled with outdated subsidy requirements and pricing restrictions. Thus, "the railroads were unable to sustain investment and attract investors. Over time, the railroads' collapse reduced social welfare and cost taxpayers billions in repeated bailouts."[9] By the 1970s, every major Northeast railroad had gone bankrupt and the number of operating track miles dropped dramatically. Delayed banking deregulation in the face of entry and intermodal competition by money market funds generated similarly deleterious effects in that industry.[10]

In discussing the application of their findings to telecommunications, the authors of the MIT paper conclude:

> [T]he history of trucking and railroads has the potential to become an apt analogy for the communications sector today. The results of severely delayed regulatory relief were felt by hundreds of thousands of rail workers, communities ... denied competitive alternatives, and shippers.... The failure of Government to respond to change and foster rail deregulation proved a "lose-lose" situation for railroads, their industrial customers, and consumer welfare generally.[11]
>
> ... [W]hen unconstrained entrants have been able to leverage their advantaged regulatory position to drive incumbent(s) into decline, then deregulation can arrive "too late" for welfare maximization, but is appropriate "as soon as possible" to minimize additional welfare losses.[12]
>
> ***This pattern is consistent with what seems to be unfolding in today's telecommunications marketplace. Consumers are confronted with an increasingly wide array of communications options from wireless providers,***

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[8] *Id.*, p. 10.

[9] *Id.*, p. 14.

[10] *See Id.*, p. 19 in which the authors explain that

> Similar to what we saw in the railroad industry, in banking an economic shock (rampant inflation) also created a new competitor: money market mutual funds (MMMF's). MMMF's had many of the same properties as simple savings and checking accounts offered by banks and S&L's, but offered higher interest rates to depositors compared with what the S&L's were allowed to pay. The primary response of policy makers to the resulting distress to the banks was NOT to allow banks to respond directly to the competitive threat from the MMMF's and pay higher interest rates to depositors.
>
> Rather, policy makers tinkered around the edges of regulation and allowed more risky loan practices that contributed to the massive and costly savings and loan failures and bailouts that "cost taxpayers hundreds of billions of dollars." Again the message is that markets work more effectively than regulation.

[11] *Id.*, pp. 27-28.

[12] *Id.*, p. 10.

from cable TV operators, and from new entrants offering low-cost (or free!) VoIP service. [13]

Finally, they make it clear that policy makers must act promptly:

> Further, since ... the telecommunications industry today operate[s] at much faster clockspeeds than ... the rail industry fifty years ago, the window of opportunity for timely ("in the zone") deregulation in telecommunications is likely to be short compared to that for railroads. Although 1996 may have been "too early" for such deregulation, when the conditions are right, deregulation should be comprehensive and quick. Delaying regulation beyond this zone could well prove to be "too late," resulting in severe and unnecessary losses in social welfare, causing the incumbent telephone carriers to go the way of the railroads.[14]

> When entrants have established themselves to be economically viable and have ***begun*** to take market power and share from incumbents, the industry is 'in the zone' for timely deregulation.[15]

Policy makers should reduce the asymmetric regulation faced by the ILECs in light of the changes wrought by convergence and intermodal competition. These changes have eliminated historical market boundaries, brought formerly distinct industry sectors into direct competition with each other, and thus undermined the historical rationales for regulation.

The discussion that follows supports the need for updated and streamlined regulation by examining the forces behind intermodal competition in Florida and demonstrating that its sustained growth will continue for the foreseeable future.

II. Technological Forces Are Driving Network Convergence and Intermodal Competition

Historically, different networks were designed and deployed to carry different types of traffic. The wireline public switched telephone network and mobile telephone networks were optimized to transport basic voice communications, while cable networks were optimized to transport video, and the Internet was designed to transport packet-based data traffic. Today, these technologies are "converging" so that providers can offer multiple types of services over a single network. Thus, with convergence, the same services are provided over various types of networks such as traditional cable systems, traditional "telephone" networks and mobile wireless networks. In short, convergence refers to the provisioning of similar bundles of voice,

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[13] *Id.* p. 10. The authors add that "Unlike many of these competitors, incumbent telephone companies must often seek state regulatory approval and sometimes engage in protracted tariff proceedings if they wish to respond to the price changes of unregulated rivals. That is, the incumbent's natural competitive pricing and product portfolio response to entrants can be delayed because of these regulatory proceedings;" emphasis added.

[14] *Id.*, p. 28.

[15] *Id.* pp. 9-10; emphasis added.

data, Internet access, TV, and other communications and entertainment services by different types of network providers.

Three fundamental factors have driven convergence: (1) technological change (such as the advent of two-way, digital, broadband networks and IP technology) that has allowed all kinds of wired and wireless networks to be used for any kind of service; (2) consumer demand for bundled services; and (3) competition among providers seeking gains from improved efficiency, through economies of scale and scope, and the promise of increased revenues and lower churn rates.

Because convergence enables different types of platforms to provide increasingly similar bundles of services, traditional wireline carriers must now compete with: (1) Internet and broadband service providers; (2) cable companies that have made substantial investments in their networks to provide video, data and voice services; (3) wireless services providers; (4) VoIP providers; and (5) other providers using emerging technologies. These industry developments have resulted in dramatic line losses to wireline local exchange carriers in Florida.

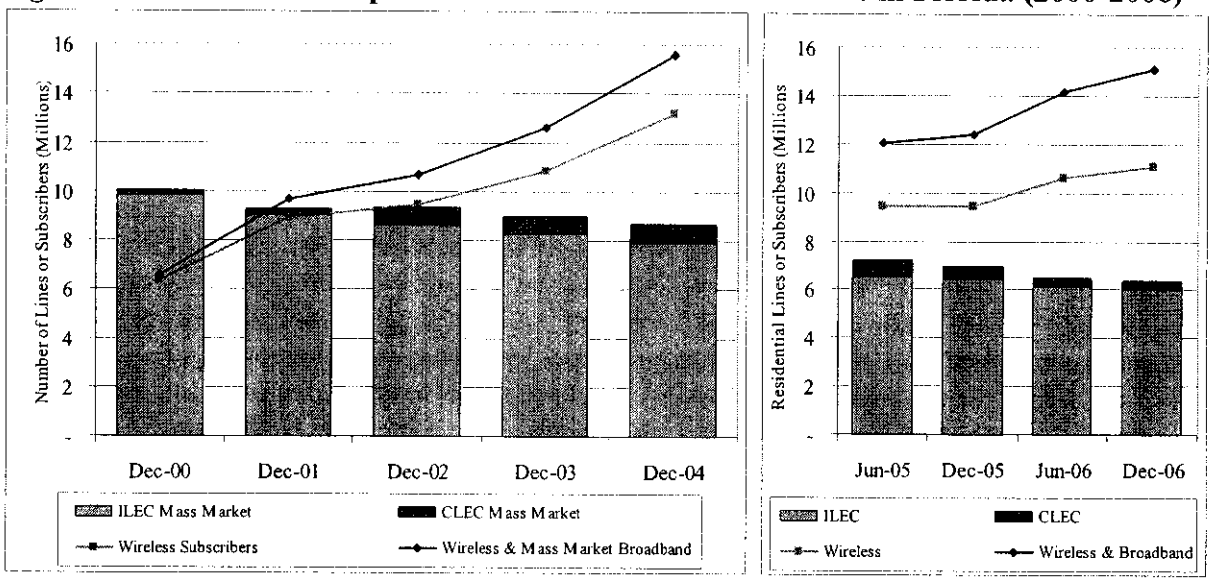
III. Intermodal Competition Has Dramatically Affected Florida's Wireline Carriers

Evidence that intermodal services are substitutes for and compete with LEC services includes data showing that: (1) the growth of wireless, broadband and cable telephony services has been associated with reductions in the number of wireline access lines; and (2) the growth rate of CLEC wireline services has been smaller than it was prior to 2000, before intermodal competition began its acceleration. In this section we explore these general trends. In Section IV we look more deeply at the factors underlying the growth of intermodal alternatives to LEC services.

A. Gains by Wireless and Broadband Have Been Associated with Wireline Losses

Intermodal competition from cable companies, wireless providers, broadband services providers and VoIP providers has caused local exchange carriers to experience losses in access lines and usage. At the same time, wireless subscribers and broadband lines have grown so dramatically that they now far exceed the number of traditional switched access lines. Figure 1 below depicts just how dramatic these trends have been in Florida.

Figure 1. Intermodal Competition for Mass Market Customers in Florida (2000-2006)



Note: Starting in June 2005, Residential Broadband data exclude Small Business lines. Starting in 2005, Wireless Subscribers data is for Residential customers only (75% of total subscribers).

Source: FCC December 2000 - December 2006 Local Competition and High-Speed Internet Reports.

As illustrated in Figure 1, FCC data show that Florida is experiencing widespread and growing intermodal competition, from year end 2000 through year end 2004, when the FCC reported data for mass market (residential and small business) LEC lines:

- Residence and small business conventional wireline (*i.e.*, ILEC + CLEC) access lines in the state declined by almost 1.3 million lines, or about 13 percent, from December 31, 2000 to December 31, 2004, when they would have been expected to grow because of the growth in state population.[16]

- In contrast, over the same interval:

  - The number of wireless subscribers increased by over 100 percent or 6.8 million new subscribers;

  - The number of residential and small business broadband lines increased by about 2.2 million lines or almost ten-fold; and

  - By December 31, 2004, the total of wireless subscribers and mass market broadband lines reached 15.6 million (or about 80 percent higher than the total number of mass market ILEC and CLEC lines)

[16] As discussed below, not only population, but other possible determinants of line growth, such as employment and Gross State Product, increased over this period as well.

- The FCC changed its approach to reporting LEC lines and broadband lines in 2005, when it started reporting residential lines alone instead of mass market residential and small business lines.[17] Nevertheless, it is clear from the chart on the right side of Figure 1 that the growth in intermodal options—here measured by estimated residential wireless subscribers and reported broadband high speed lines—and the corresponding decline in residential LEC lines shows that intermodal alternatives continue to grow and replace conventional wired lines. More specifically, according to FCC data for Florida ***in only 18 months*** from June 2005 through December 2006: Total LEC residential lines fell by almost 940,000 or 13 percent[18];

- Residential broadband lines increased by over 1.4 million or 55 percent;

- Residential wireless subscribers increased by over 1.6 million or 17 percent[19];

- Thus, by year end 2006 we estimate that total residential wireless subscribers and broadband lines reached about 15.1 million compared to only 6.3 million total LEC residential lines.

Note that Figure 1 actually ***understates*** the impacts of intermodal competition because the FCC data on which it is based group cable company coaxial telephone lines with other CLEC provided lines. For example, although state-specific data are not available, FCC data show that "CLEC" coaxial cable telephone lines grew nationally from 308,000 at year-end 1999 to 3.7 million lines at year-end 2004, to almost 6.8 million lines in December 2006, only 2 years later, when other CLEC lines declined from 29.2 million to 21.9 million lines.[20] Thus, had we included the coaxial cable lines with other forms of intermodal competition, we would have seen a larger reduction in traditional wireline access lines. Moreover, as shown by the National Cable & Telecommunications Association ("NCTA") data discussed below the FCC data underreport the number of cable telephone lines.

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[17] Additionally, wireless subscribers data starting in 2005 are not directly comparable with earlier data because the newer data allocate subscribers to states based on NPA (area) codes, whereas the older data were assigned to states based on billing address.

[18] We examine changes in total LEC lines because FCC reporting changes that moved MCI and AT&T lines from the CLEC to ILEC category to account for the AT&T/SBC and AT&T/BellSouth mergers and the Verizon/MCI merger imply that changes in the relative numbers of CLEC and ILEC lines over the period covered here are misleading. See footnote 5 of the December 2006 FCC Local Competition Report; thus, we do not report the change in ILEC lines.

[19] The FCC reports total wireless subscribers in the Local competition reports. We estimate the number of residential subscribers based on the following finding reported by the FCC: "25 percent of wireless users were business customers, with the remaining 75 percent being ordinary consumers." Federal Communications Commission, *Annual Report and analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, Twelfth Report* ("Twelfth CMRS Report"), FCC 08-28, released February 4, 2008 report at footnote 633, citing: *10-Year Wireless Projections*, KAGAN WIRELESS TELECOM INVESTOR, June 6, 2005, at 2.

20 *See* FCC December 2006 Local Competition Report, Table 5, "Competitive Local Exchange Carrier Lines by Type of Technology."

B. Florida Switched Access Lines and Network Usage Are Well Below Expected Levels Based on Historical Trends

The *Florida PSC 2004 and 2006 Competition Reports* show that total residential switched access lines have been declining in the state since 2001.[21] According to these data, from 2001 to 2006, ILEC residential lines fell by almost 1.7 million lines while CLEC residential lines increased by about 86,000 lines. Thus, total residential switched access lines fell by 1.6 million lines, from about 8.3 million to about 6.7 million. During this same time, Florida's population increased by 12.4 percent.[22] Thus, this decline has resulted in a level of lines well below what one would expect based on the continued population growth in Florida.

By statistically estimating the historical (1991 to 2001) relationship between residential lines and population, we can forecast what the number of lines would have been in subsequent years in the absence of intermodal competition. As can be seen in Figure 2, growth in the number of lines was closely correlated with population growth from 1991 to 2001, but although population growth continued to be at least as strong from 2001 to 2006, the number of lines fell well below what we would have expected based on this population increase. By 2006, the shortfall amounted to 35 percent below the expected level, or 3.56 million residential access lines.[23]

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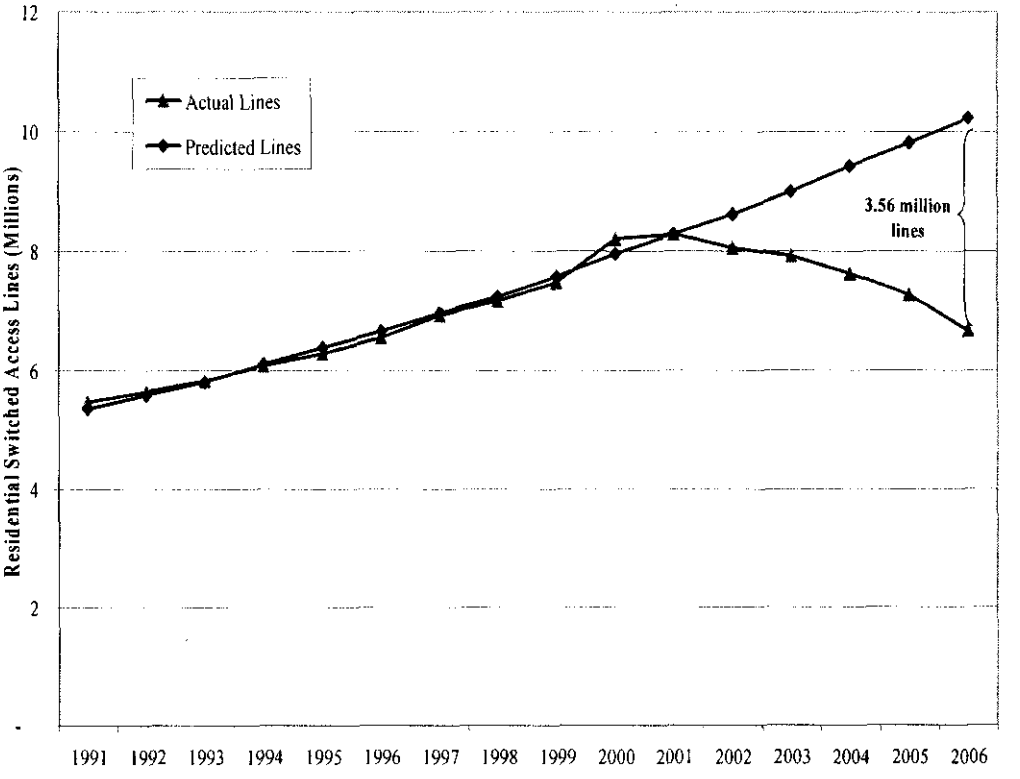
[21] *See* Table 1 in the 2004 report and Table 2 in the 2006 report

[22] Other possible determinants of line growth increased over this period as well. Employment in the State increased from about 7.6 million to about 8.7 million and Florida Gross State Product grew from $497.4 billion to $714 billion (in current dollars). Population data from Office of Economic & Demographic Research, The Florida Legislature, Demographic Estimating Conference Database, updated July 2005, available at http://edr.state.fl.us/population/web10.xls; Employment data from the Florida Agency for Workforce Innovation, Labor Market Statistic, available at http://www.labormarketinfo.com/library/laus/historical/histsa.xls; and Gross State Product data from Bureau of Economic Analysis, U.S. Department of Commerce, available at http://www.bea.gov/bea/regional/gsp/.

[23] Total residential switched access lines for 1997-2006 are from the *Florida PSC Competition Reports 1997-2006*. We obtained data on ILEC residential lines (including AT&T Florida, Verizon and Embarq) from ARMIS, FCC Report 43-08, *The ARMIS Operating Data Report*, Table III, "Access Lines in Service by Customer," and trended the Florida PSC data back to 1991 using the ARMIS data. Since Embarq only began reporting to ARMIS in 1997, we obtained a series of residential lines for 1991-1996 from Embarq, which we added to the ARMIS data. A linear specification is used to estimate lines. The resulting equation is $y = 0.9577x - 7343653.5$, with an R^2 of .9879, where x = population and y = estimated access lines.

Figure 2. Actual and Predicted Florida Residential Switched Access Lines. (1991-2006)

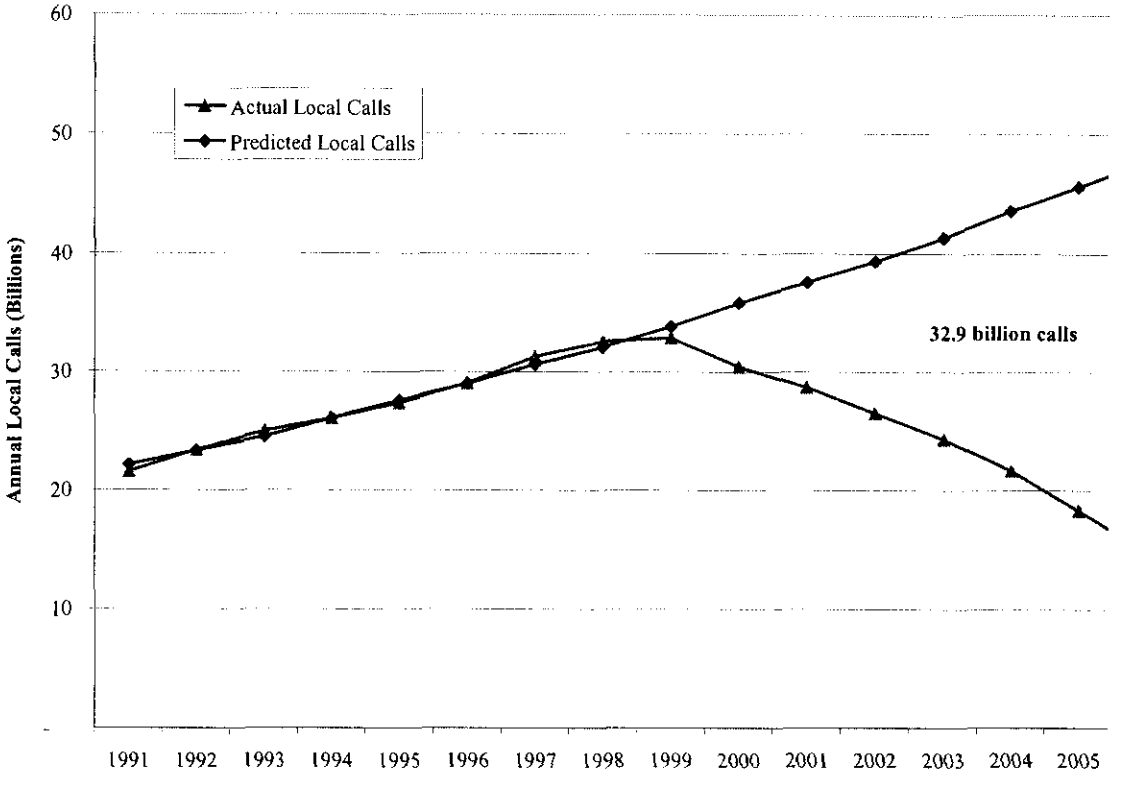


Similarly, intermodal competition has had a substantial impact on local network usage. According to FCC ARMIS data concerning AT&T Florida and Verizon, the number of local calls per year has been declining in Florida since 1999. Through 2006, annual local calls had fallen from 32.9 billion to 14.9 billion, or 55 percent. As with access lines, this dramatic decline places the level of local calling well below what one would expect based on population growth. Estimating usage trends based on population trends, we find that local calling volumes closely tracked population growth from 1991 to 1999.[24] Beginning in 2000, however, actual and predicted annual local calls diverge, with the predicted level increasing with the population, while the observed level instead declines substantially. By 2006, the difference amounts to 69 percent, representing 32.9 billion calls per year.[25] These trends are depicted in Figure 3 below.

[24] Not surprisingly, the data suggest that call substitution preceded line substitution.

[25] Local calls are from ARMIS, FCC Report 43-08, *The ARMIS Operating Data Report*, Table IV, "Telephone Calls" and include AT&T Florida and Verizon. A linear specification is used to estimate calls. The resulting equation is $y = 5.03499695x - 44593536$, with an R^2 of .9829.

Figure 3. Actual and Predicted Florida RBOC Annual Local Calls. (1991-2006)



C. Intermodal Competition Is Occurring Throughout the State

The trends in intermodal competition demonstrated statewide in Figures 1-3 are not geographically isolated. As shown in Tables 1 and 2 as well as Figures 4 and 5 below, intermodal competitors are present in the service areas of each of the five major incumbent carriers and have had a significant impact on those carriers' lines and network usage:

- In areas served by AT&T Florida: cable telephony is available to about 84 percent of cable homes passed,[26] cable modem service (and therefore, VoIP service provided by independent providers such as Vonage or Skype) is available to almost 100 percent of cable homes passed and wireless service is available (from three or more carriers) to virtually all households. Since 2001 as these options expanded, AT&T Florida residential access lines have declined by over 1.3 million lines (or 30 percent), from 4.4

[26] This number is likely to be understated because, according to a Comcast customer service representative contacted by an AT&T researcher on March 12, Comcast had deployed service to several areas not yet indicated on its web site. Since our data are based on 2007 data from the Warren Cable Fact Book, and information from company web sites, we did not pick up this recent development. The rapid pace of cable telephone deployment means more generally that our data are likely to understate the true availability of that service.

million to 3.1 million, and AT&T Florida's network usage has experienced a similar decline.

- In areas served by Verizon: cable telephony is available to over 93 percent of cable homes passed, cable modem service is available to 100 percent of cable homes passed and wireless service (from three or more carriers) is available to virtually all households. As these options have expanded since 2001, Verizon residential access lines have declined by about 616,000 lines (or 36.5 percent), from 1.69 million to 1.07 million, and Verizon's network usage has similarly experienced a decline.

- In areas served by Embarq: cable telephony is available to about 86 percent of cable homes passed, cable modem service is available to 99 percent of cable homes passed and wireless is available from three or more carriers to virtually all households. Since 2001, Embarq residential access lines have declined by about 400,000 lines (or 26 percent), from 1.53 million to 1.13 million, and Embarq's network usage has experienced a similar decline.

- In areas served by Windstream: cable telephony is available to a growing percentage of cable homes passed, and, more importantly, cable modem service is available to 89 percent of cable homes passed (a figure that has also been growing since our 2006 report) and wireless is available to virtually all households. In contrast, since 2001, Windstream residential access lines have declined by about 6,800 lines (or 9 percent), from about 74,600 to about 67,900, and its network usage, while not in actual decline, has experienced a substantial reduction in its growth rate since 2000, compared to that seen in the 1995-to-2000 period.

- In areas served by TDS Telecom (TDS), cable modem service is available to about 100 percent of households passed and wireless service is available from three or more carriers to nearly 100 percent of households. TDS's residential access lines have declined by about 1,500 (or 14 percent) since 2001. Although TDS did not see a decline in usage over the period from 2000 to 2006, its growth rate has dropped dramatically compared to what it experienced from 1995 to 2000.

Tables 1 and 2 summarize the availability of cable and wireless services, respectively, in the incumbent carriers' territories. As discussed in Section IV below, cable advanced services are now being deployed in areas of the state that have heretofore had low availability. The data in Table 1 contain a snapshot of deployments as of 2007, but that snapshot does not capture ongoing deployments of services. For example, the largest cable provider in Windstream's service area is Comcast, which has announced its intentions to make telephony service available to the vast majority of its systems nationwide.

Table 1
Advanced Cable Services Are Widely Available in Each Incumbent's Service Territory in Florida

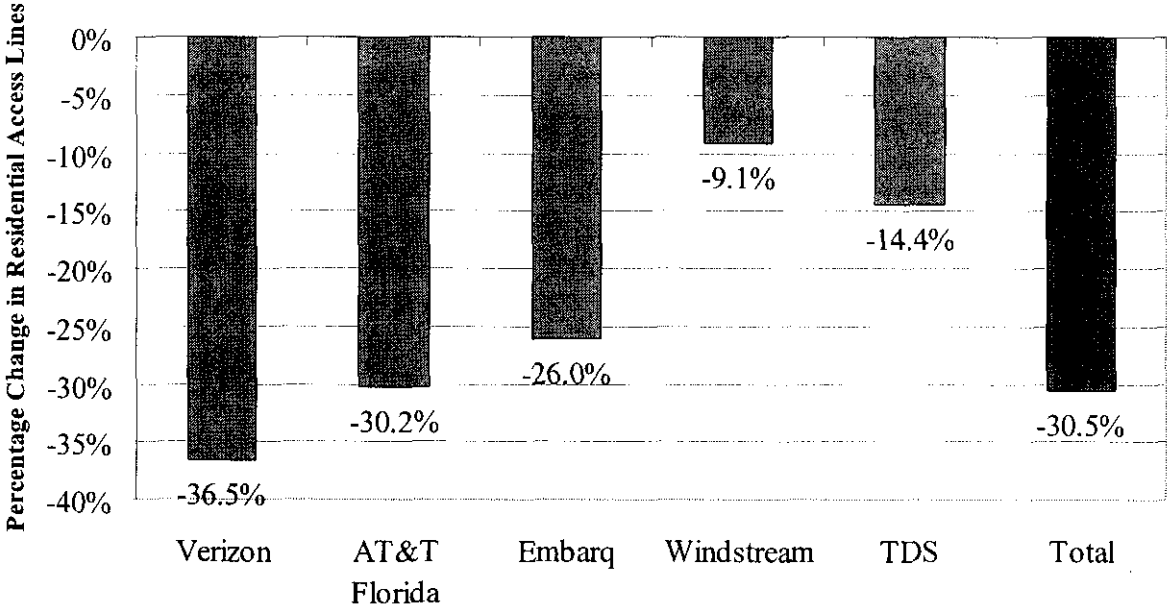
Incumbent	Homes Passed			Percent of Homes Passed	
	Total	Broadband Ready	Telephony Ready	Broadband Ready	Telephony Ready
AT&T Florida	3,816,765	3,815,960	3,191,304	100.0%	83.6%
Verizon	1,493,241	1,493,241	1,395,986	100.0%	93.5%
Embarq	1,289,880	1,280,518	1,112,371	99.3%	86.2%
Windstream	32,458	28,975	4,961	89.3%	15.3%
TDS	8,826	8,822	2,567	100.0%	29.1%
Other	32,667	31,157	28,139	95.4%	86.1%
Total	6,673,837	6,658,673	5,735,328	99.8%	85.9%

Source: Warren Communications News, *Cable Fact Book,* GIS Format, and company web sites.

Table 2 Wireless Service is Widely Available in Each Incumbent's Service Territory in Florida					
Incumbent	Total Households	Households With 2 or more Carriers Available	Households With 3 or more Carriers Available	Percent of Households with 2 or More Carriers Available	Percent of Households with 3 or More Carriers Available
AT&T Florida	4,035,889	4,026,984	4,003,775	99.8%	99.2%
Verizon	1,538,180	1,537,804	1,536,859	100.0%	99.9%
Embarq	1,390,884	1,389,644	1,373,901	99.9%	98.8%
Windstream	71,852	70,924	59,075	98.7%	82.2%
TDS	9,969	9,969	9,892	100.0%	99.2%
Other	43,482	42,130	33,667	96.9%	77.4%
Total	7,090,256	7,077,455	7,017,169	99.8%	99.0%
Source: Provider websites (service coverage maps) and Census block group information.					

As discussed above, each of the major incumbent carriers in the state has experienced line and usage losses (or at least a significant decrease in the growth of usage) in conjunction with the spread of intermodal competition. Figure 4 depicts the percentage change in residential access lines for each of the four large incumbents since 2001. As displayed in the Figure, the decline in residential lines ranges from about 9 percent for Windstream to over 36.5 percent for Verizon.

Figure 4. Percentage Change in Residential Access Lines. (2001 to 2007)

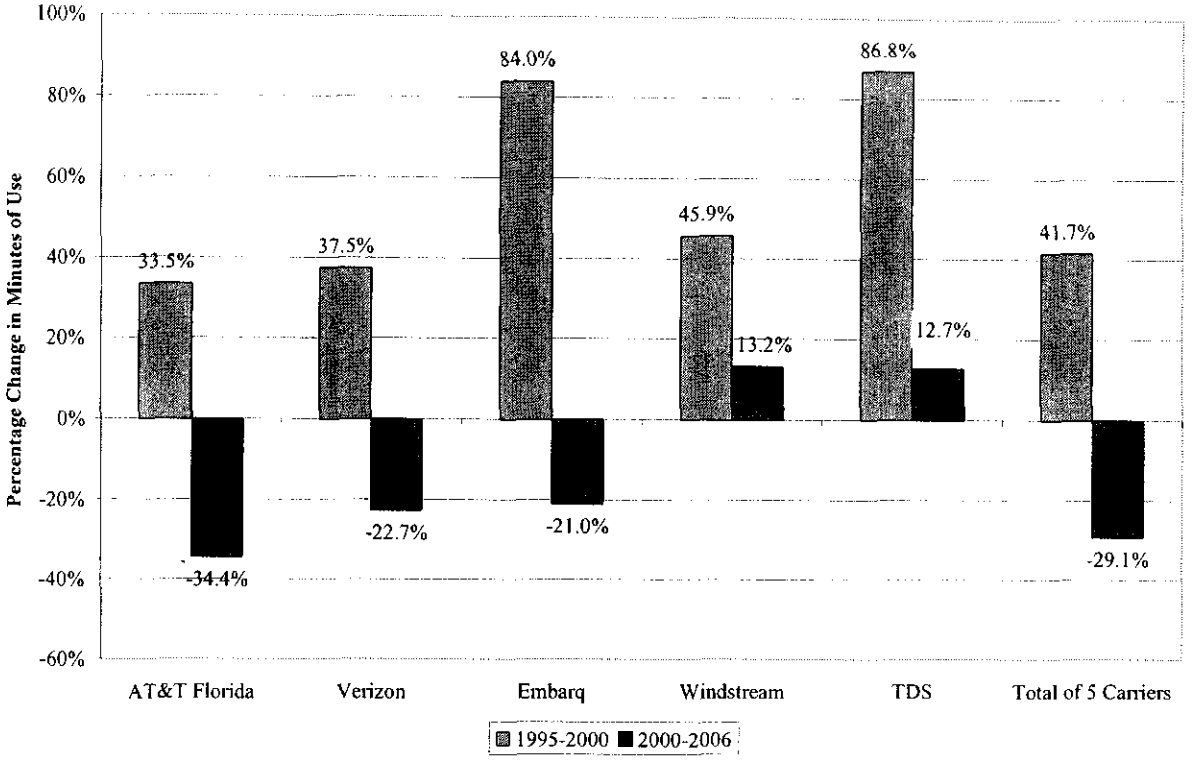


Note: Percent change from May 2001 to year-end 2007.
Source: Data provided by individual companies.

Figure 5 below depicts the trends in interstate switched access minutes of use for the five major Florida incumbents as reported by the National Exchange Carrier Association. Following large percentage increases for each carrier from 1995 to 2000 (ranging from 34 percent to 87 percent), AT&T Florida, Verizon and Embarq minutes of use declined between 21 percent and 34 percent through 2006 and the growth in Windstream and TDS minutes of use declined, from 46 and 87 percent in the early period to about 13 percent each, respectively, in the later period.[27]

[27] In the 2000-2005 period, AT&T Florida saw declines in each year, while Verizon and Embarq each saw a slight increase in 2004 before continuing declines in 2005. The one year increase for these two companies may be due to retroactive true-ups from the prior year or to changes in accounting for CLEC minutes, and thus does not appear to show a reversal of the ongoing trend in reduced wireline usage.

Figure 5. Cumulative Percentage Changes in Switched Access Minutes of Use. (1995 to 2000 and 2000 to 2006)



Source: FCC, National Exchange Carrier Association, Network Usage Data.

D. Intermodal Competition Affects Wireline Prices

As described above, intermodal competitors have already taken a significant fraction of output from Florida wireline carriers. The relevant question in assessing competition is: how much substitution to intermodal providers is enough for the market to control the price of wireline telecommunications services?

Wireline telecommunications technology has a large proportion of fixed and sunk network costs that do not vary with the number of customers. Firms with high fixed or sunk costs must charge prices that are in excess of their marginal costs to earn normal profits. Therefore, when such a firm loses customers to competition, its revenues erode much faster than the costs that it can avoid. If the firm attempted to increase prices, the lost profits (revenue minus avoided cost) from even a small decrease in customers can easily exceed the extra revenue obtained from the price increases paid by the customers that remain.

Starting with a hypothetical small but significant and nontransitory price increase (*e.g.*, five percent) that economists routinely assume in assessing market power, Professor J. Hausman[28] poses the following question: What fraction of volume must a firm lose to make such

[28] Hausman, Jerry A., "Regulated Costs and Prices in Telecommunications," in Gary Madden (ed.), *International Handbook of Telecommunications Economics*, Volume 2: Emerging Telecommunications Networks, 2003, p.

a price increase unprofitable? For a five percent price increase, the answer is given by the formula:

$$\text{Critical fraction} = \frac{0.05}{\left(1.05 - \frac{mc}{p}\right)}$$

where p is the current price and mc denotes marginal cost. Professor Hausman suggests that for wireline companies, marginal cost is about 20 percent of price (with the remainder accounting for the mark-up required to recover fixed or sunk costs). In this example, the critical fraction produced by the equation would be about 6 percent. In other words, under the conditions considered by Professor Hausman, if a wireline provider were to raise price and lose six percent or more of its volume to facilities-based alternatives such as wireless and VoIP providers, even a modest five percent price increase would be unprofitable.

The implications of recognizing that wireline telecommunications departs widely from the textbook model of perfect competition are profound. When fixed and sunk costs are low, a competing product or service has to be a very close substitute to discipline the incumbent's prices, which means that a small price increase has to produce a disproportionately large loss in volume to be unprofitable, because when such a firm loses volume, the revenue loss is almost completely offset by a reduction in costs. In contrast, firms such as facilities-based wireline carriers cannot sustain large volume losses, because the lost revenue greatly exceeds the costs savings — because such a large portion of costs are fixed or sunk. That is, competing telecommunications products do not necessarily need to be very close substitutes for wireline services in order for attempts at supra-competitive pricing to be thwarted.

IV. Intermodal Competitors Are Present and Growing Throughout Florida

A. Broadband

1. Broadband Competition and the Development of a Single Converged Communications Market

The spread of broadband services provides a key indicator of effective intermodal competition from cable providers and VoIP providers. As shown below, cable companies have typically deployed advanced digital two-way hybrid fiber coaxial technology, used that to offer broadband Internet access and then progressed to offer "cable telephony" services. This strategy has enabled them to capture a significant share of demand for high-speed Internet access and, more recently, has enabled the provision of low-cost cable company Internet-protocol (IP)

226 and Hausman, Jerry, "From 2-G to 3-G: Wireless Competition for Internet-Related Services," in Robert W. Crandall and James H. Alleman, eds., *Broadband: Should We Regulate High-Speed Internet Access*, Washington D.C.: AEI-Brookings Joint Center for Regulatory Studies, 2002, pp. 126-127.

telephone services, and independent VoIP provider telephony services. The strategy has also enabled the cable companies' popular "triple play" bundle of video, broadband and voice services. This has, in turn, led the phone companies to accelerate their own network upgrades—first to DSL, and more recently, to video services. Competition for broadband has lowered prices and increased the speed and quality of Internet access. The competition will become even more intense because the two formerly distinct communications sectors are now part of a single, more dynamic market.

2. Broadband Competition Is Flourishing in Florida

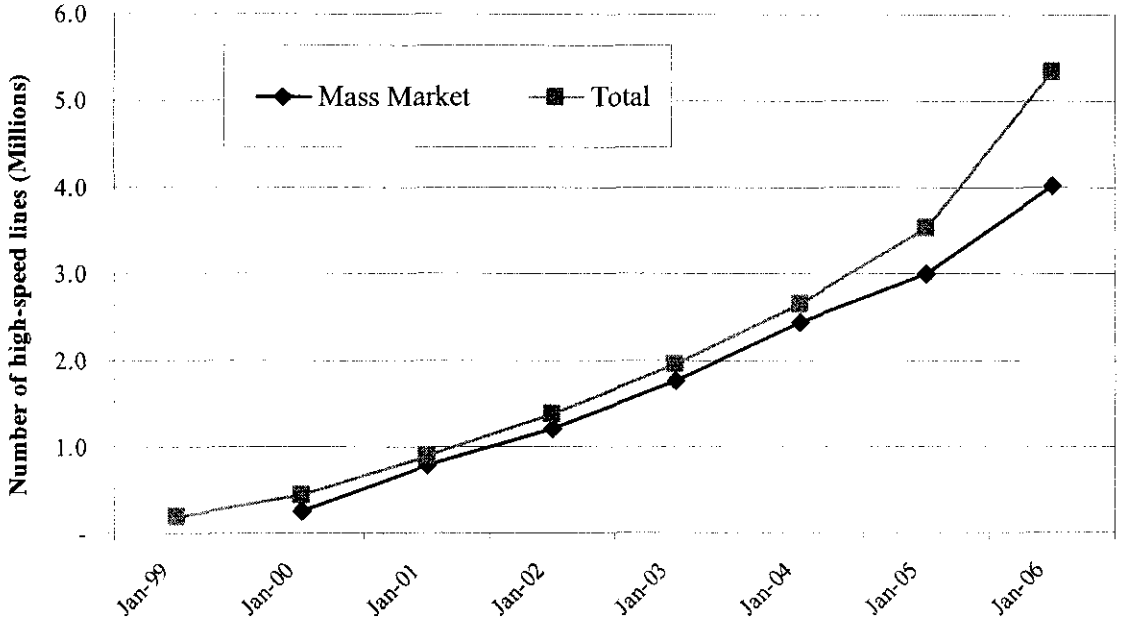
High-speed Internet service is now available throughout Florida. By the end of 2005, 24 percent of Zip Codes in Florida had 2 to 6 high-speed Internet service providers, 18 percent had 7 to 9 providers and the remainder had 10 or more. More recent FCC data for year end 2006 show even more wide-spread availability of broadband services in Florida. FCC data reveal that every Zip Code in the state has three or more high speed providers with lines in service and that 99 percent of all Zip Codes have four or more such providers.[29] DSL and cable broadband are both widespread. The FCC recently reported that high-speed DSL connections were available to 89 percent of the Florida households where ILECs can provide local telephone service, while high-speed cable modem service was available to 97 percent of the households where cable system operators can provide cable TV service.[30] The most recent available data for October 2007 show that almost 100 percent of homes passed by cable have high-speed cable modem service available. (See Table 1 above.)

[29] *See FCC December 2006 High-Speed Internet Report*, Table 17.

[30] *FCC December 2006 High-Speed Internet Report*, Table 14. As discussed below, another source shows that 98 percent of homes passed by cable have access to cable broadband.

Florida High-Speed Providers by Zip Code (As of year end 2005). As displayed in Figure 6 below, Florida has seen tremendous growth of both mass market and total high-speed Internet lines, with high-speed lines increasing almost thirty-fold from December 1999 through December 2006. A recent Florida PSC survey found that by the end of 2006, broadband penetration as a percent of the population had reached 53 percent in Florida, [31] above the national average of 47 percent.[32]

Figure 6. Florida Broadband Line Growth (1999-2006)



Note: Mass Market defined as residential & small business from 12/31/00 through 12/31/2004 (not available before then), and residential-only after 12/31/04.

The number of separate entities offering high-speed Internet services in the state has grown dramatically as well—from 16 providers in mid-2000 to 60 at the end of 2006.[33] As of the end of 2006, there were 22 ADSL providers (mostly wireline carriers), 10 coaxial cable providers, 10 optical fiber Internet service providers, 10 fixed wireless Internet service providers and 8 providers using other technologies.[34]

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[31] Florida Public Service Commission, *Consumer Survey Results, January-December 2006* ("*Florida PSC 2006 Survey*"), p. 6.

[32] Horrigan, John & Smith, Aaron (June 2007). Data Memo: Home Broadband Adoption 2007 (Pew Internet & American Life Project), page 1. Retrieved February 22, 2008, from http://www.pewinternet.org/pdfs/PIP_Broadband%202007.pdf

[33] *See FCC June 2000 and December 2006 High-Speed Internet Reports*, Tables 4 and 8, respectively.

[34] *See FCC December 2006 High-Speed Internet Report*, Table 8.

The growth in broadband availability and subscribership is not limited to urban areas. Although the Florida Public Service Commission found broadband penetration to be lower in rural areas than urban (71 percent vs. 48 percent in the second half of 2006), rural areas displayed growth of 21 percentage points in penetration since the second half of 2004.[35] As the Commission noted, "the increase of broadband users is present across all age levels and income groups and for both urban and rural respondents."[36] Moreover, the evidence shows that broadband services are readily available to rural consumers. As shown above, the FCC found that no Zip Code in Florida had fewer than 3 broadband providers with lines in service. Of Florida consumers using dial-up connections at the time of the *Florida PSC 2005 Survey*, only 5 percent cited inability to obtain the desired type of broadband as the reason for not upgrading their connection.[37]

Cable modem service continues to be the major source of broadband in Florida. As of December 2006, cable accounted for about 41 percent and ADSL accounted for about 35 percent of the over five million high-speed lines serving Florida.[38]

The data indicate that Florida consumers are substituting broadband connections for switched access lines. About 25 percent of survey respondents who disconnected a second telephone line cited broadband replacement as the reason. For the additional 20 percent who cited "no longer wanted or needed" as the reason for disconnecting a second line, it seems likely that new technologies such as broadband and wireless played a role in making their second telephone line obsolete.[39]

As shown by households that have shifted to cable's triple play or cable telephony, or who have "cut the cord" in Florida, primary lines also have been dramatically affected by intermodal competition.

3. Messaging Services Enabled by Broadband (and Dial-Up) Lines and Wireless Devices Have Caused Significant Displacement of Wireline Usage

As people increasingly communicate via the Internet – such as through e-mail and instant messaging ("IM") – their use of wireline services is declining. Internet communication has proliferated in the last several years, particularly since broadband services have become more widely available. One survey found that the average American Internet user spends three hours a day online, with much of that time devoted to work and more than half of it to communications.[40] A recent Pew survey found that: "internet users have high regard for the

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[35] *Florida PSC 2006 Survey,* Figure 19.

[36] *Id.* at 31.

[37] Note that total Internet penetration rate (including dial-up) has reached 63 percent in rural areas. *Id.,* Figure 9.

[38] The remaining 24 percent is served by other types of technology. *See FCC December 2006 High-Speed Internet Report,* Table 9.

[39] *Florida PSC 2005 Survey*, Figure 39.

[40] San Jose Mercury News, *Survey Details U.S. Internet Use*, December 30, 2004.

internet as a tool of communication; 85% of both men and women say they consider the internet to be a good way to interact or communicate with others in their everyday lives."[41] Pew also reports that about 90 percent of Internet users communicate via email and over 80 percent use the Internet to communicate with friends and family. Over 40 percent of Internet users send IMs, greetings and invites; over 30 percent use text messaging; and over 20 percent participate in chats or discussions.[42]

The use of Internet communications is sizable and still growing. For example, one source estimates that there are about nine billion e-mails per day in the United States alone.[43] Other sources report that 80 million people use IM in the United States; about seven billion IMs are sent each day worldwide;[44] and worldwide IMs will grow over four-fold from 2004 to 2008, while IM users will increase from 320 million to 592 million over the same period.[45]

Although it is difficult to determine exactly how much voice traffic has been displaced by these Internet communications, it is clear that they substitute for a substantial number of wireline phone calls. Consumers who would once pick up the phone to communicate now often find it more convenient and less expensive to communicate via the Internet. J.D. Power found that "among high-speed Internet users, instant messaging displaced 20 percent of local calls and email displaced 24 percent of such calls. Among dial-up Internet users, instant messaging displaced 18% of local calls, and email displaced 23% of local calls."[46] According to a recent Frost & Sullivan report:

> [I]it is worth noting that some indirect substitution of switched voice traffic is also occurring from data services delivered over both wireless and IP platforms. Email has been the dominant IP application, which has had an adverse impact on...voice calling. Instant Messaging (IM) is another application that has gained in popularity as a result of free versions available from mass providers such as Yahoo, Microsoft and AOL. Text messaging or SMS has been the application on the wireless side, which has impacted both wireline as well as wireless voice calling, and hence had some substitution impact on switched wireline (and wireless) traffic.[47]

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[41] Pew Internet & American Life Project, *How Women and Men Use the Internet*, December 28, 2005, p. 17.

[42] *Id.*

[43] Legal Tech Newsletter, *E-Mail and Records Management in the Legal Environment*, November 14, 2003, cited in UNE Fact Report 2004, Oct. 2004, p. I-6.

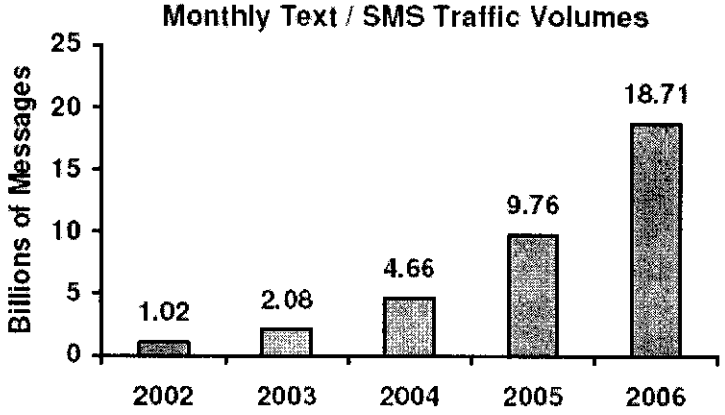
[44] WEBPRONEWS, *AOL Announces That Instant Messaging Is More Popular Than Ever*, August 2004, available at http://www.webpronews.com/news/ebusinessnews/wpn-45-20040824AOLAnnouncesthatInstantMessagingisMorePopularthanEver.html.

[45] *See* F. Esker, *Employers finding business applications for instant messaging*, New Orleans CityBusiness, May 29, 2006.

[46] *See Florida 2004 Competition Report*, p. 10. (citing J.D. Power & Associates, *2003 Residential Internet Service Provider Study*, August 2003).

[47] Frost & Sullivan, *Trends in Wireline Substitution – North American Markets*, 2005, p. 1-6.

E-mails and IMs are not limited to wireline broadband networks. Apart from the fact that these types of communications can be (and are) made using dial-up connections over a common wireline, an increasing number of wireless devices enable these forms of communication. BlackBerries, "smartphones," text messaging on mobile phones, and the newly arriving "3G" (and "4G") wireless services are blurring the boundaries between mobile voice and data services. Recent data show that about 39 percent of U.S. mobile subscribers have used text messaging and about 6.3 percent, have used mobile IM.[48] According to the FCC, and as shown in the following chart reproduced from their most recent report on mobile communications: "...monthly text messaging traffic grew to 18.7 billion messages during December 2006, up from 9.8 billion messages during December 2005 and the 4.7 billion messages during December 2004."[49]



B. Cable Telephony

1. Recent Developments Have Stimulated Entry and Expansion by Cable Companies and Have Brought Advanced Two-Way Cable Services to the Vast Majority of Households

Cable providers have made substantial investments to upgrade their infrastructure to provide two-way digital services. Recent National Cable & Telecommunications Association ("NCTA") reports reveal the substantial size and the dramatic competitive effects of these investments in network upgrades:

> Cable operators invested another $12.4 billion in 2006 capital expenditures to upgrade their infrastructure, bringing the industry-wide total to more than $110 billion spent since Congress passed the 1996 Telecommunications Act. Cable's high-speed, interactive, hybrid fiber-coaxial network provides the backbone for an expanding array of services that include broadband Internet access, burgeoning

[48] Twelfth CMRS report, at pp. 94 and 95.

[49] Twelfth CMRS report, at p. 7.

programming lineups — including more children's and family tiers — interactive video on demand (VOD), and powerful facilities-based and wireless telephone services. These offerings are being packaged into consumer-friendly bundles, saving U.S. households billions of dollars.[50]

Homes passed by cable's high-speed internet service reached 119 million in 2006, according to estimates by Kagan Research, representing 94 percent of all U.S. homes.[51]

A quarter century after the initial breakup of the original AT&T telephone monopoly, true competition has come to the market for phone service, thanks to cable's facilities-based offering. Gaining both powerful features and cost efficiency by utilizing digital Voice over Internet Protocol (VoIP) technology on the same hybrid fiber-coaxial network that carries video and Internet data signals, cable telephone service is high in both quality and affordability.[52]

As the NCTA accurately observed, cable network upgrades are significant because they allow cable companies to "deliver an extensive array of advanced services through a single connection to the home... over a two-way network.... [including] high-speed Internet access, High-Definition Television (HDTV), digital cable, Video-on-Demand (VOD) and digital voice service."[53] Increased expenditure in network upgrades has translated into substantial growth in cable voice subscribers. As **Figure 7** shows, the number of residential cable voice customers has grown rapidly in recent years, increasing from 1.3 million in the second quarter of 2001 almost ten-fold to 12.1 million by the middle of 2007. Moreover, the NCTA reported that three months later, in September 2007, cable companies were serving 13.7 million residential voice customers.[54]

[50] National Cable & Telecommunications Association, *2007 Industry Overview,* April 24, 2007, p. 7.

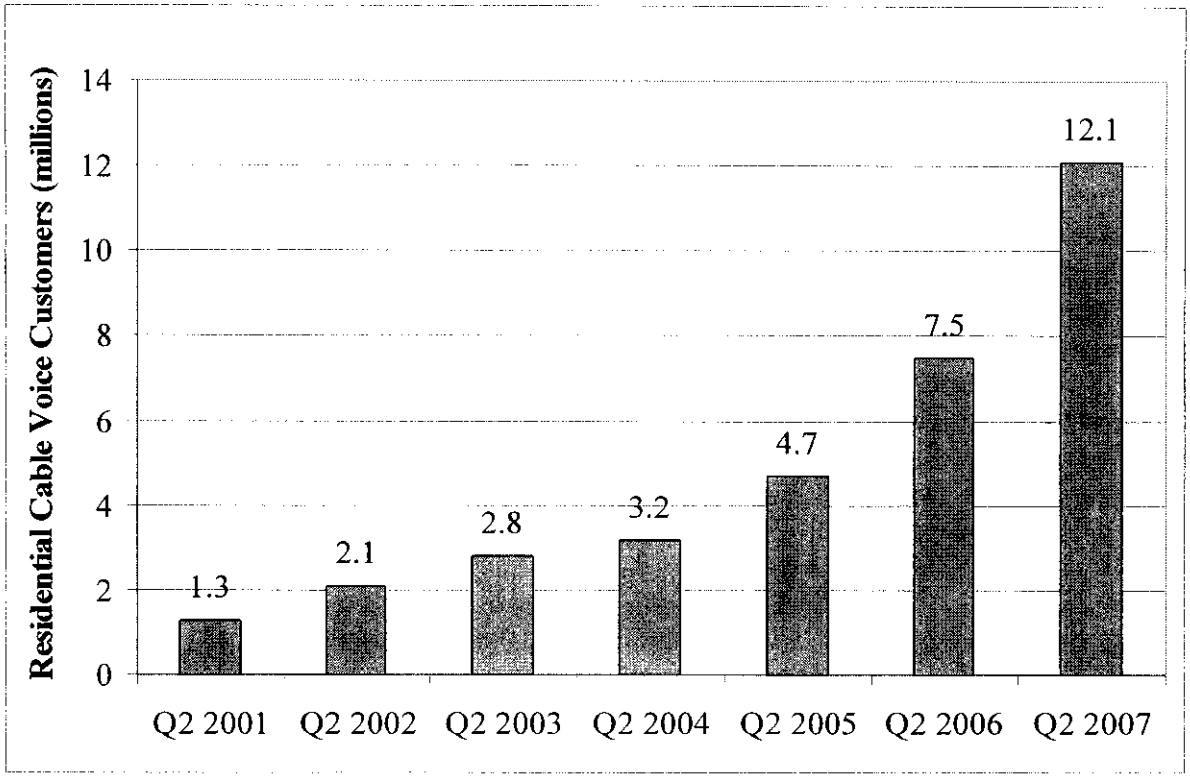
[51] *Id*, p. 11.

[52] *Id*, p. 13.

[53] National Cable & Telecommunications Association, *2005 Mid-Year Industry Overview*, p. 8.

[54] http://www.ncta.com/Statistic/Statistic/Statistics.aspx, accessed February 28, 2008.

Figure 7. Residential Cable Voice Customers



Source: National Cable and Telecommunications Association Web Site

Besides spending billions to upgrade to two-way digital networks, cable companies have embraced a number of technological developments to enter and expand into two-way communications, including the deployment of softswitch technology, which allows them to offer packet-switched telephony or VoIP.[55] Because of these technological developments, cable telephony costs have fallen dramatically—first with reductions in the costs to cable companies of circuit-switched telephony and, more recently, with the introduction of less costly IP-based technologies. These cost reductions have greatly facilitated cable entry and expansion in voice telephony. As a December 2005 In-Stat report noted:

> [T]he provisioning of both VoIP and circuit-switched cable telephony gets cheaper every year.... [A] current circuit-switched cable telephony customer costs a cable MSO, like Comcast or Cox, approximately $375 to activate. This cost has dropped considerably over the past few years, from $600 in 2000....
>
> [T]he estimated cost for a premise powered VoIP-based cable telephony solution is approximately $280 per subscriber.[56]

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[55] *See, e.g.,* A. Breznick, *Cox Accelerates Switch to IP Telephony Service,* Cable Digital News, April 1, 2005, available at http://www.cabledatacomnews.com/apr05/apr05-3.html.

[56] M. Paxton, *Cable Telephony Service: VoIP Drives Subscriber Growth*, In-Stat, December 2005, p. 28.

Bernstein Research observed that

> [T]he so-called "Halo Effect" [of VoIP] owes to the marginal economics of bundling. Cable operators can offer voice and data services over a pre-existing video infrastructure. As a result, the incremental cost of each service is extremely low. Cable operators can therefore offer consumers a very attractive bundled "triple play" price, while still earning compelling, and indeed accretive, margins and returns on investment.[57]

In light of these economic factors, cable companies have expanded IP-based technology to compete for substantial and increasing numbers of voice subscribers. As noted by the Florida Public Service Commission:

> A major trend in the VoIP world is the accelerating growth of voice services, particularly VoIP services, provided by traditional cable television companies. Cable providers have taken advantage of their broadband platforms to launch VoIP services to compete with traditional ILEC providers. VoIP services began to appear as an adjunct to cable broadband offerings in the second half of 2005, and the push intensified in 2006 as more cable franchise areas began to offer voice communications. Comcast, Time Warner Cable, and Cablevision lead the way nationally. Comcast, Bright House Networks, Cox Communications, Knology, and Time Warner Cable are cable providers deploying VoIP in Florida. The cable industry has pushed to bundle voice, data, and video services together in a single offering for consumers in anticipation of traditional telecommunications providers entering video markets. At this stage, cable providers have made greater gains in the communications market nationwide than the traditional telecommunications companies have made in entering the video service markets. [58]

Bernstein Research expects continued cable VoIP growth. For example in April 2007, it forecasts that about "25% of the country will be VoIP enabled for the *first time* in 2007," which means that cable VoIP availability would grow from 70 million homes passed nationwide in 2006 to 92.3 million in 2007.[59] It also pointed out in early 2007 that:

> The center of gravity in the VoIP market has shifted away from the start-up providers (most notably Vonage) towards the cable operators (most notably Comcast).... We're no longer in the realm of "innovators" and "early adopters;" VoIP has gone mainstream.
>
> Given the inevitable time lags between availability and full-scale marketing, the total impact is likely to be significantly greater, as a large percentage of homes

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[57] C. Moffet, *et al., Cable and Satellite: ~40% of Cable VoIP Customers "New" to Broadband,* Bernstein Research, July 6, 2006, p. 2.

[58] *Florida PSC 2006 Competition Report*, p. 14 (footnotes omitted). As noted in the *Report*, Comcast has acquired Time Warner Cable's Florida operations.

[59] *See* Bernstein Research, *VoIP: The End of the Beginning*, April 3, 2007, p. 1, and Exhibit 3, p. 4; emphasis added.

ostensibly passed in 2006 will experience their first real marketing pressure in 2007.

> What is perhaps most surprising, however, is that cable is, as an industry, only a little more than half finished with its roll-out, suggesting that – for cable, at least – the best is yet to come. Although reported coverage for operators like Comcast points to coverage in the 60-70% range, the marketing time-lag before the triple play is actively marketed suggests an effective coverage rate of just 50% or so for the industry as a whole. Among the majors, only Cablevision and Cox have completed deployment; others – like Comcast … and Bright House [the second largest cable provider in Florida] – have a long way to go before they call their deployments complete. As an industry, cable is still in its early roll-out phase.[60]

Given the pace with which the cable companies have been expanding their advanced offerings in Florida, described in the next section below, it is clear that cable broadband and VoIP will have a major impact on the competitive landscape of the state.

2. Cable Telephony and Broadband Are Available Throughout Florida

Cable companies present a potent competitive challenge to wireline companies in Florida today because: (1) they cover almost the entire population of the state (94 percent of households are passed by cable systems);[61] (2) with a penetration rate of 81 percent of homes passed (above the national average of 71 percent), they have already garnered a large customer base to which they can sell their voice and Internet services as well;[62] and (3) they have already deployed broadband services to 99.8 percent of the homes they pass and deployed telephony services to 86 percent of their homes passed (see Table 1, above), which implies that 94 percent and 81 percent of total homes in the state have access to these two services, respectively.

Almost 100 percent of homes passed by cable in Florida have been upgraded to provide cable broadband service; and almost 97 percent of the homes passed by cable outside of MSAs were upgraded to provide cable broadband service. The widespread availability of cable broadband is extremely significant because it means that: (1) even the minority of Florida households not yet passed by cable telephone service could be upgraded to have that service available at relatively low incremental costs; and (2) as previously discussed, once cable companies have upgraded their systems to provide broadband, VoIP providers such as Vonage can serve these homes.

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[60] *Id*, pp. 1-2.

[61] Warren Communications News, *Cable Fact Book*, GIS Format and Census block group information. *See* Tables 1 and 2.

[62] *See* Warren Communications News, *Television & Cable Factbook 2008*, p. F-3, "U.S. Cable Penetration State by State."

3. Florida Cable Providers are Experiencing Great Success with Their Telephony Services

Florida cable providers have experienced great success in attracting voice customers. For example, Bright House, which deployed cable telephony in June and October 2004 in its Tampa Bay and Central Florida systems, had nearly 500,000 Digital Phone subscribers in about three and a half years in its "Florida footprint," [63] a penetration rate of close to 25 percent of homes passed in October 2006.[64] In response to the success of Digital Phone, Bright House introduced a new calling plan, Florida Unlimited that provides customers with anytime calling throughout Florida for as low as $28.95 per month. [65]

Published national data show that Florida's cable companies have been making dramatic inroads into the telephony business in those areas where they have made the service available. For example:

- During its recent 4th Quarter 2007 earnings call Comcast reported that:

  > [O]ver the past three years we've been able to grow our CDV [Comcast Digital Voice] business very significantly. Today, we are the fourth largest residential phone company in the country with 4.4 million customers or about 10% of the available homes.
  >
  > Almost 28% of our video customers currently take a phone from Comcast. We added 2.5 million Comcast digital voice customers in 2007, which is 61% more than we added in 2006.
  >
  > [A]nd we've been adding approximately 600,000 new customers for each of the last four quarters. We expect to be able to add as many CDV customers in 2008, as we did in 2007.
  >
  > We grew total phone revenue to $1.8 billion, an $815 million increase in 2007, as we expanded the ability of our service by nine million homes to 42 million homes or 86% of our footprint. We're seeing the benefits of our scale in the cost side of this business as well....we are seeing real operating efficiencies and it will only get better.
  >
  > Our direct cost-per-subscriber declined 40% in 2007, due to lower per unit rates for long distance in internet connection cost and improved network reliability, which resulted in lower customer contact rates. . . .

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[63] *See* St. Petersburg Times, "Bay area assists Verizon FiOS boom," January 29, 2008. By mid 2006 Bright House passed about 2,048,000 homes in its Florida footprint.

[64] We estimate a penetration rate of 14.8 percent based on data on homes passed from Table 3 of our 2006 report.

[65] Bright House Networks Press Release, *More than 225,000 Florida Families Switch to Bright House Networks Digital Phone: Now Announcing a Florida Unlimited Calling Plan*, May 2, 2006. The price was still available on March 5, 2008 according to their web site.

We continue to see strong growth in our CDV service, and see no reason why we can't double our business and achieve 20% to 25% penetration over the next couple of years. CDV is the cornerstone of our bundling efforts, and we believe we are still in the very early innings. At the end of the fourth quarter, about 16% of our total video customers had three services, and that's up from just 6% a year ago, in all 54% of our customers taking two or more services compared to 45% in 2006.

In addition to seeing continued success with our unlimited local and long distance service, we began introducing more service choices like an unlimited local offer, which includes per minute long distance ... in order to address a wider potential customer base. We are also very excited about rolling out CDV product enhancements in the second half of 2008 that will be first in the marketplace, which will take advantage of our totally IP infrastructure.[66]

- Comcast Chairman and CEO, Brian Roberts points to Cox, another large Florida provider, as a barometer of Comcast's future penetration rates: "As I look to Cox ...which has been in the Internet telephony business for a lot longer than Comcast...they have some markets that have reached 50%."[67] In July 2006, Cox reported telephone penetration of 33 percent of total cable customers and 24 percent of homes passed.[68] More recently, Cox, which describes itself as the "pioneer of the three-product bundle of digital telephone, video and Internet services," stated that it ended the fourth quarter of 2007 with 62 percent of its residential subscribers taking two or more services; reached 2.38 million telephone subscribers; and "focused on phone in 2007; employees answered the call by delivering 357,000 additional residential phone customers."[69]

- Mediacom ended the first quarter of 2006 with 46,000 voice subscribers, virtually all attained in the preceding two quarters. This represents penetration of VoIP-capable homes of 2.9 percent in only six months.[70] By the end of 2007, the company reported that:

> Telephone revenues rose 71.4%, primarily due to a 76.2% year-over-year increase in phone customers. Phone customers grew by 20,000, as compared to a gain of 22,000 in the prior year period, ending the year with 185,000 customers, or 7.3% penetration of estimated marketable phone

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[66] See Comcast Corporation Q4 4007 Earnings Call Transcript, available at http://seekingalpha.com/article/64684-comcast-corporation-q4-2007-earnings-call-transcript?source=homepage_transcripts_sidebar&page=4, accessed March 2, 2008.

[67] *See* E. Savitz, *At Last, a Bright Cable Picture*, Barron's, May 15, 2006.

[68] *See* Cox Communications Press Release, *Cox Digital Telephone to be Available in all Cox Markets by End of Year,* July 13, 2006.

[69] *See* Cox Communications Press Release, *Greater Than 62% of Cox Customers Now Bundling Services,* February 13, 2008.

[70] *See* Pike & Fischer, Broadband Advisory Services, *VoIP Deployment & Strategies Update: Cable Operators*, July 2006, p. 9.

homes. As of December 31, 2007, Mediacom Phone was marketed to nearly 90% of the Company's 2.84 million estimated homes passed.[71]

- Smaller, more regional providers with a Florida presence are achieving similar results. For instance, Knology prior to its PrairieWave acquisition, ended the third quarter of 2006 with over 160,000 voice subscribers, representing penetration of 21 percent of homes passed.[72]

4. Competition from Advanced (Telephone and Broadband) Cable Services Will Continue to Increase

The availability of cable telephony in Florida will undoubtedly increase over the next several years. As shown in Table 1 above, Florida cable providers have completed upgrading virtually 100 percent of their systems to provide high speed Internet access, which means that they have made this service available to almost 100 percent of the households passed by their networks. Once this step is completed it is relatively easy to add telephone service. When Comcast makes Digital Voice available throughout its Florida systems, 98 percent of homes passed by cable in the state will have cable company-provided voice service available.

Although we were not able to find state-specific forecasts of cable telephony penetration, the available data imply that penetration will increase in Florida. First, the NCTA and FCC data we presented above show strong growth of cable telephone services. For example, the NCTA data show that the number of residential subscribers grew from 1.3 million in the second quarter of 2001 to 13.7 million residential telephone subscribers by September 2007, with most of that growth coming in the last two years.

Second, since we completed our report in 2006, cable telephone service availability in Florida has grown by over 23 percent. Moreover, the cable companies have achieved substantial penetration gains over time in those areas where they have made telephone services available. See discussion of major Florida cable companies above. See also Figure 7 of our 2006 report that shows cable providers that have offered voice services for a longer duration have achieved significant penetration rates, although even some relatively new entrants have already achieved substantial penetration rates.

Third, market research reports and company releases forecast continued rapid growth in cable telephony subscribers. Pike & Fisher estimated in the first quarter 2006 that "with practically every major MSO now deploying IP telephony service, cable operators are now adding about 250,000 customers each month."[73] Leichtman Research estimated third quarter 2007 growth of 380,000 net additions per month. At an investor conference in September 2007, Comcast announced its goal of raising its telephone service penetration from 8 percent in the

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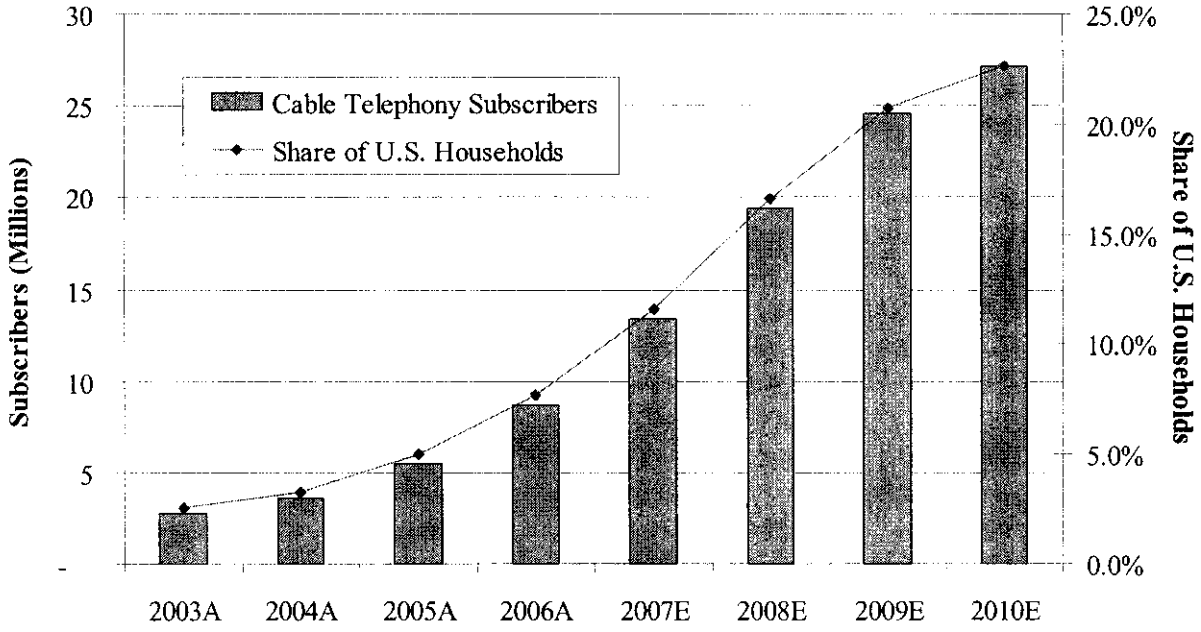
[71] "Mediacom Communications Reports Results for Fourth Quarter and Full Year 2007," http://phx.corporate-ir.net/phoenix.zhtml?c=98270&p=irol-newsArticle&ID=1112378&highlight=, accessed March 2, 2008.

[72] *See* Knology Inc. SEC, Form 8-K, January 8, 2007, p. 8.

[73] *VoIP Deployment & Strategies Update: Cable Operators*, Broadband Advisory Services, Pike & Fischer, April 2006, p. 3.

second quarter 2007 to 20-25 percent by year-end 2009."[74] Bernstein Research estimates that cable telephony subscribers will grow to over 27 million cable telephony subscribers (or 22.7 percent of U.S. households) by year-end 2010. These predicted growth trends are illustrated in Figure 8 below.

Figure 8
Cable Telephony Subscribers
2003 - 2010



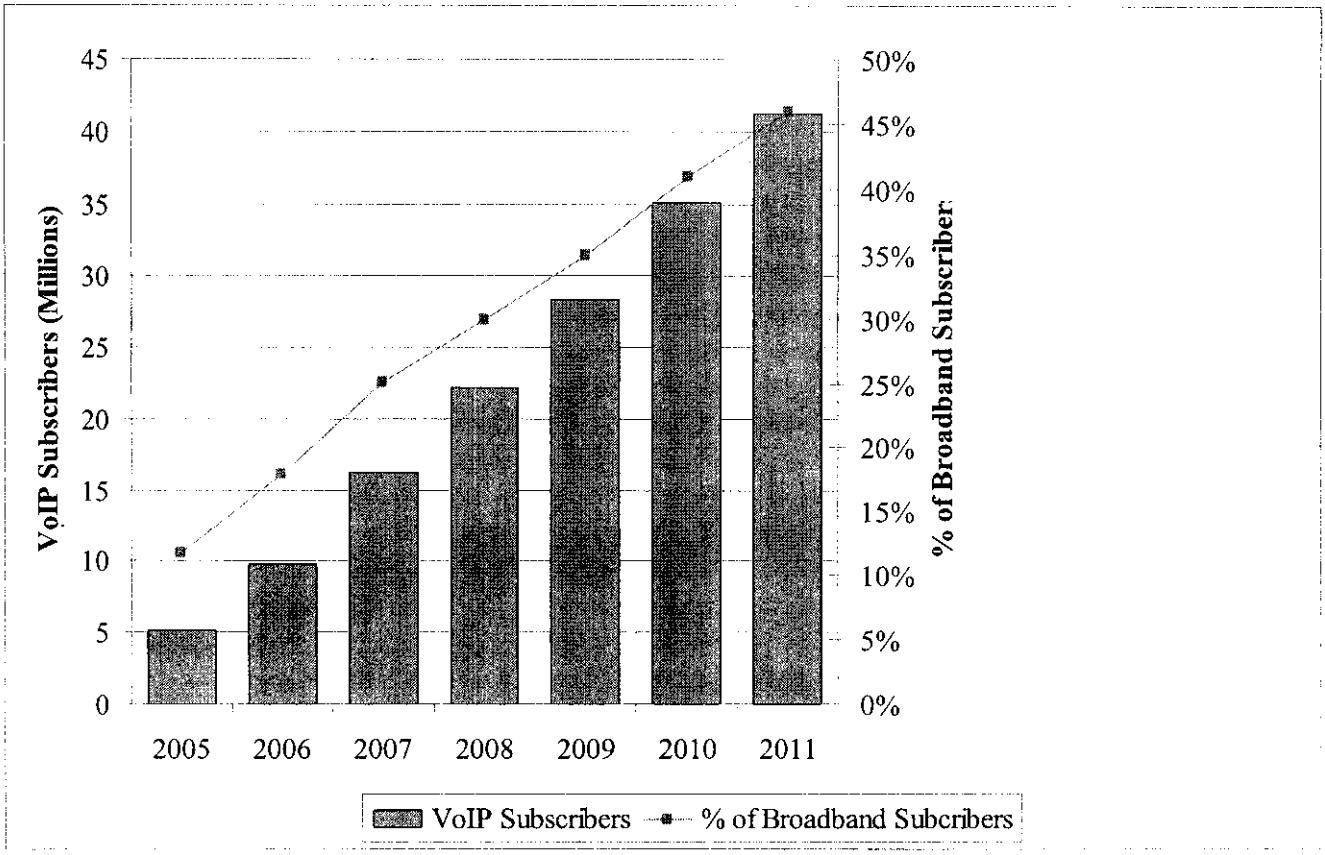
Source: C. Moffett, *et al.* ,Bernstein Research, *VoIP: The End of the Beginning,* April 3, 2007, Exhibit 8.

Similarly the spread of broadband has stimulated and is expected to continue to stimulate the growth of VoIP—especially as provided by cable MSOs. Figure 9 below provides a forecast of VoIP over broadband. According to the forecast, cable MSOs make up and will continue to account for the majority of total (cable plus "over the top") VoIP subscribers.[75]

[74] Comcast expected to be the fourth largest residential phone company by the end of 2007. *See* Comcast, *Merrill Lynch Media and Entertainment Conference,* September 17, 2007, p. 15.

[75] Source: eMarketer, April 2007. http://www.emarketer.com/Article.aspx?id=1004829

Figure 9: US Residential VoIP Subscribers



5. Competition From Cable Providers Is Affecting Wireline Carriers.

Analysts' reports show that the gains by cable companies have come at the expense of traditional wireline companies. Bernstein characterizes each of the lines gained by cable providers as a line lost by a traditional carrier, stating "not surprisingly, VoIP's gain has come at the telcos' expense."[76]

Losing a voice customer to cable is especially damaging in today's marketplace, in which competition takes place for the consumer, or the bundle, rather than for one type of service, because the loss of a voice customer likely entails the loss of a DSL (or dial-up customer) and a potential (or even existing) video customer.[77] For example, Bernstein Research recently found that approximately 40 percent of cable VoIP subscribers are new cable modem subscribers.[78]

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[76] *Id.*, p. 7 and Exhibits 11 and 13.

[77] Additional reasons why losses to cable telephony are particularly painful to wireline carriers include (1) the wireline carrier receives no offsetting wholesale revenue as it would if it lost the customer to a UNE or resale-based CLEC, and (2) a large proportion of wireline costs are fixed with respect to the number of customers, so when a wireline customer switches to cable, the reduction in revenue is not offset by a reduction in costs.

[78] C. Moffet, *et al., Cable and Satellite: ~40% of Cable VoIP Customers "New" to Broadband,* Bernstein Research, July 6, 2006.

Additionally, as discussed below, research shows that customers who cut the cord are more likely to obtain broadband service from the cable company than from the telephone company.

Florida cable companies are offering competitive bundles to consumers today. A sampling of the cable companies' "triple play" bundles is depicted in Table 3.

Table 3
Voice, Internet and Video "Triple Play" Bundled Service Offerings for Residential Customers in Florida

Provider	Comcast	Cox	Cox	Bright House
Plan	Cable, High Speed Internet and Digital Voice	Cox Bundle	Standard Cable, High Speed Internet Preferred Tier & Digital Telephone Unlimited	Digital Combo Plus
Price per month	$99.00	$89.85	$125.64	$99.95
Voice service features:				
Local Minutes	Unlimited	Unlimited	Unlimited	Unlimited
Long Distance Minutes				
Number of features	12	14	14	17+
Internet service features:				
Number of features	3	4+	4+	4+

Note: Comcast's Triple Play is at a promotional rate of $99.00/month for 12 months.
Bright House's Digital Combo Plus is at a promotional rate of $99.95 for 12 months.
Cox Bundle is at a promotional rate of $89.85 for six months.
Source: Provider websites.

LEC customer losses have led to price competition in the provision of both Internet and telephony services, competition that is expected to continue (and expand into video services). For example, Bernstein Research observed that "the Bells appear to be responding to the VoIP threat with price cuts" on their calling plans as cable companies have begun to achieve significant market share in part due to their "aggressive pricing."[79] Competition between the telephone companies and the cable companies extends to their broadband offerings: "The battle for broadband subscribers heated up in 2005, as phone companies began offering lower-priced services to attract consumers who may be less tech-savvy."[80]

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[79] J. Halpern, *et. al., Quarterly VoIP Monitor: The "Real" Price Gap for VoIP Driving Rapid Subscriber Growth,* Bernstein Research, July 22, 2005, pp. 3 and 5.

[80] M. Reardon, *BellSouth cuts DSL pricing,* Cnet News.com, January 9, 2006, available at http://news.com.com/BellSouth+cuts+DSL+pricing/2100-1034_3-6024736.html.

As the telephone companies expand their video offerings in the state, cable companies will likely compete even more aggressively. According to a March 2008 story on *PalmBeachPost.com*:

> The war for TV, Internet and telephone customers is escalating this year as phone companies push deeper into cable's territory and cable firms prepare a high-tech counterattack, promising new video features and greater online speeds.
>
> The ultimate winner will be consumers benefiting from more competition, analysts say. People should expect a marketing frenzy this year, with promotions for speedier Internet connections and broader offerings of high-definition TV programming.
>
> "It's turning into a customer-oriented marketplace, and both sides see it as an all-or-nothing game now," said Jeff Kagan, an industry analyst based in Atlanta. . . .
>
> Cox spokesman David Grabert....said Verizon has "pulled out all the stops" and is spending heavily to get each new customer."
>
> "We're definitely holding our own," Grabert said. "It's expensive for them to overcome that inertia the cable companies already have. It's really them that has [sic] the challenge of keeping up with us."[81]

In the face of price competition and LEC entry into video, cable companies are expanding their offerings into the wireless services area, through strategic alliances and exploration of new technologies and by offering higher speed broadband and enhanced video services. In late 2005, for example, cable providers Time Warner Cable, Comcast, Cox and Advance/Newhouse (parent of Bright House Networks), in conjunction with Sprint Nextel, announced a joint venture enabling them to offer the "quadruple play" of video, voice, Internet and wireless services. The venture has rolled out the service in 33 markets, including Bright House's Central Florida division. Although expansion to other markets seems to be frozen for now because of the complexities of the current joint provisioning process, the cable companies remain interested in offering wireless services.[82]

Cable providers are also investigating new technologies to deliver traditional services. For example, Cable Digital News reports that "CableLabs is exploring an industry-wide initiative tentatively titled 'CableRoam' to deliver data and voice services to customers over Wi-Fi, WiMAX, home Wi-Fi and other wireless broadband technologies."[83]

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[81] David Ho, "TV, Internet, phone service fight grows," Palm Beach Post-Cox News Service, March 02, 2008,

[82] Sprint announced in November 2007 that it was halting the introduction of the service into additional markets. *See*, Mutlichannel News, *Taking the Time to Pivot,* June 23, 2007 and *Sprint Freezes Pivot* , November 5, 2007.

[83] *See* A. Breznick, *Cable Weighs Wireless Broadband Push to Fight Telcos*, Cable Digital News, April 1, 2006, available at http:/www.cabledatacomnews.com/apr06/apr06-2.html.

These developments are significant for at least two reasons. First, they are compelling evidence that cable companies compete with the LECs today. Second, they exemplify how technological developments are stimulating further competition: as the LECs deploy more advanced services and networks of their own, they will continue to spur the cable companies to compete even more vigorously. For example, in describing AT&T's efforts to market its DSL IP video offering, The Wall Street Journal pointed out that "cable companies aren't waiting for the parade.... [C]ompanies like Comcast and Time Warner are pushing to add a wide range of new features and content to their cable services...."[84] As the PalmBeachPost.com story points out:

> Comcast also is spearheading the counterattack in the Internet speed contest with a new technology to squeeze more bandwidth from existing cable networks. Dubbing it "wideband" technology, Comcast says it will deliver download speeds of up 100 megabits per second to customers over the next two years with the potential to get even faster.
>
> Comcast says some customers should start seeing that technology this year, though the company has not announced details for residential plans.
>
> No. 2 Time Warner Cable Inc. and No. 3 Cox Communications are testing the technology, which is called Docsis 3.0.[85]

C. Mobile Wireless

1. Overview

Major technological advances and cost reductions have enabled wireless carriers to improve service quality, diversify their service offerings, and make them competitive with wireline services. All wireless providers now typically offer free long distance, large bundles (or "buckets") of usage (particularly free night and weekend minutes), and large local calling areas, along with low per minute rates for additional usage, and a number of free vertical features such as call waiting and voice mail. New "family" plans are proving to be very popular.[86] Wireless carriers have also introduced "basic" or "regional" plans, which provide fewer anytime minutes, for as low as $30 per month. And some providers now offer free "in-network" calling.[87] Taken together, inherent mobility, low per minute prices, "free minute" allowances, flat rated pricing, no long distance or roaming charges, and nationwide coverage have positioned wireless carriers

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[84] D. Searcey and P. Grant, *Selling TV Like Tupperware*, The Wall Street Journal, June 29, 2006, B1.

[85] David Ho, "TV, Internet, phone service fight grows," Palm Beach Post-Cox News Service, March 02, 2008,

[86] *See, e.g.,* PR Newswire, *Family Wireless Plans Prove Popular with Two in Five U.S. Adult Cell Phone Users Participating, According to New Harris Interactive Survey; Only three percent of those in a family plan have a family member who opted out of their plan*, March 30, 2006.

[87] One carrier recently introduced a feature allowing its customers spending $60 per month or more to make free calls to 10 phone numbers of their choice, anywhere in the U.S., wireline or wireless, 24 hours a day. *See, e.g.,* K. Fitchard, *Alltel unveils mother of all free calling plans*, Online Exclusive – Telephony, April 21, 2006.

to capture a significant portion of demand that was traditionally met by wireline service providers.[88]

The FCC reports that the national wireless penetration rate has reached 80 percent of the overall population and "***virtually everyone between the ages of 15 and 69 has a wireless phone.***[89] According to one analyst (cited by the Florida PSC), by 2004, 40 percent of total market minutes were wireless, a figure expected to pass 50 percent in 2005.[90] From 2000 to 2006, the monthly minutes of use ("MOUs") per mobile subscriber increased from 255 to 714.[91] The FCC notes that "increasing MOUs are a result of the demand-stimulating effect of falling prices and the wider acceptance of and reliance upon wireless service," and cites one analyst as attributing the growth in MOUs to "increasing adoption of the wireless handset as the primary means of voice communications."[92]

According to the Pew Internet Project's December 2007 survey:

> Accompanying [the] changing nature of access – no longer slow and stationary, but now fast and mobile – has been a transformation in how people value their media access tools. When asked how hard it would be to give up a specific technology, ***respondents are now most likely to say the cell phone would be most difficult to do without, followed by the internet, TV, and landline telephone. This represents a sharp reversal in how people viewed these technologies in 2002.***[93]

The data reported by the Pew study show how traditional communications technologies—especially landline phones have been eclipsed by wireless services.

- At year end 2007 only 40 percent of respondents with a landline phone said it would be very hard to give it up, down dramatically from 63 percent in 2002.
- The reverse is true for wireless—in 2007 51 percent said they would find it very hard to give up their cell phone compared to 38 percent who said it would be very hard to give up in 2002

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[88] Tables 7, 8 and 9 below contain examples of the various types of plans that are available to Florida customers.

[89] Federal Communications Commission, *Annual Report and analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, Twelfth Report* ("Twelfth CMRS Report"), FCC 08-28, released February 4, 2008, ¶ 244.

[90] *See Florida PSC 2005 Competition Report,* p. 38 (citing Horan et al., "Transfer of Coverage: We Favor Wireless and Cable Over Wireline," CIBC World Markets, May 3, 2005, p. 21).

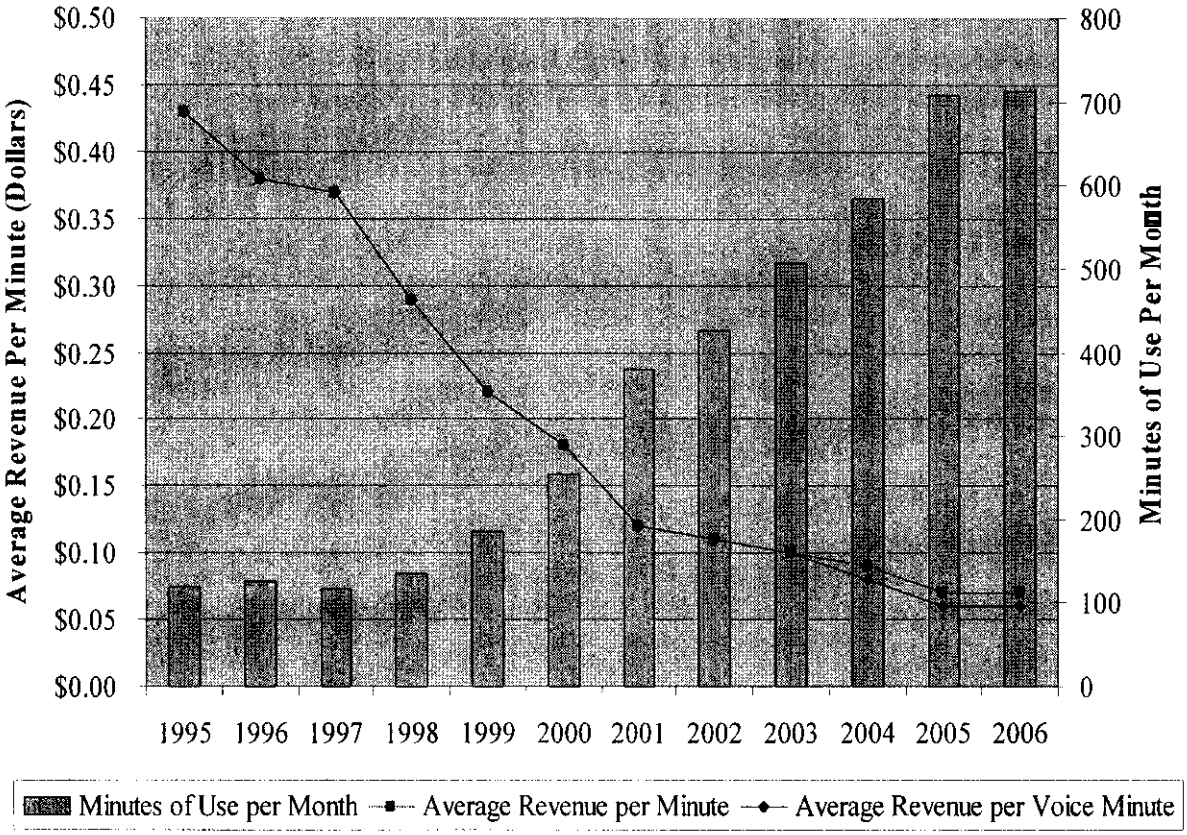
[91] *Twelfth CMRS Report*, Table 14.

[92] *Id.*, ¶ 169.

[93] Data Memo by Pew Internet and American Live Project, Associate Director John Horrigan, RE: MOBILE ACCESS TO DATA AND INFORMATION, March 2008; emphasis added. www.pewinternet.org/pdfs/PIP_Mobile.Data.Access.pdf.

Figure 10 below illustrates the growth in MOUs per wireless subscriber that has resulted from and contributed to the declining average charges for wireless usage.[94]

Figure 10. Wireless Minutes of Use per Month and Average Revenue per Minute



Source: FCC, 12th Annual CMRS Competition Report, Table 14.

Wireless services also have become more attractive as providers have modified their networks and manufacturers have improved customer equipment to incorporate features such as enhanced data capability, text messaging, color screens, PDAs, greater availability of push-to-talk capability, voice activated speed dialing, speaker phones and cameras. The competitive advantages that these features and other attributes confer on wireless services are demonstrated by the differences in growth between wireless and wireline services. For example, from

[94] Note that the Bureau of Labor Statistics wireless services price index decreased significantly from the late 1990s through 2001 and continued to fall, although at a slower rate, through the end of 2005; the price index for wireline services, however, stayed relatively constant over this period as declines in toll service prices offset local price increases. Thus, wireless prices have declined by an even greater amount relative to prices for wireline services. Price indexes are from http://www.bls.gov/, Series ID CUUR0000SEED03 and CUUR0000SEED.

December 31, 2000 to December 31, 2006 mobile subscribership in Florida grew by an average of about 15 percent per year, while the number of access lines in the state fell by an average of about 2.6 percent per year.[95]

In 2005, the Florida Public Service Commission noted:

> Whether an intermodal competitor's service is seen as a substitute or a complement to traditional wireline service depends on how consumers view ... factors such as quality..., availability, price, and convenience. What is undeniable is that the number of wireline access lines in service continues to decline, while the number of wireless and VoIP subscribers is steadily increasing.[96]

In 2006, the Commission recognized correctly that:

> [A] factor most likely to contribute to weakened [LEC] residential market performance is the increasing acceptance of intermodal competitors, especially wireless and Voice over Internet Protocol (VoIP) service providers, as adequate substitutes for wireline telecommunications service by the consuming public.[97]

As shown below, this pattern does, in fact, reflect the displacement of wireline services by wireless services.

2. Wireless Service is Available Throughout Florida

Wireless services are available throughout Florida. About 99 percent of households in the state have access to at least three wireless service providers, 97 percent have access to four or more such providers (as shown in Table 4 below).

The areas served by wireless carriers are not restricted to high density urban areas. For example, Table 4 shows that at least 99.5 percent of households in every MSA in the state have at least two wireless alternatives available to them and that 99 percent of households in the rural (non-MSA) areas in Florida have access to 2 or more wireless providers. The ubiquity of wireless service in Florida is confirmed by the *Florida PSC 2005 Survey*, which found that 31 percent of urban respondents were considering switching to wireless-only service, compared to 28 percent of rural respondents.[98] Clearly, wireless is a viable alternative for rural customers in Florida.

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[95] *See FCC December 2006 Local Competition Report*, Tables 9, 10, and 14.

[96] *Florida PSC 2005 Competition Report*, p. 62.

[97] *Florida PSC 2006 Competition Report*, p. 2.

[98] *Florida PSC 2005 Survey*, Figure 26.

Table 4
Wireless Services Are Widely Available in Florida

MSA	Percent of Households Served by:		
	2 or More Carriers	3 or More Carriers	4 or More Carriers
Cape Coral-Fort Myers	100.0%	100.0%	99.9%
Deltona-Daytona Beach-Ormond Beach	99.7%	98.7%	97.5%
Fort Walton Beach-Crestview-Destin	100.0%	100.0%	99.7%
Gainesville	100.0%	99.2%	94.2%
Jacksonville	99.5%	97.8%	95.2%
Lakeland-Winter Haven	100.0%	99.7%	98.7%
Miami-Fort Lauderdale-Miami Beach	99.8%	99.6%	99.4%
Naples-Marco Island	100.0%	99.8%	97.4%
Ocala	100.0%	95.0%	87.9%
Orlando	99.9%	99.2%	97.9%
Palm Bay-Melbourne-Titusville	99.9%	99.7%	98.5%
Panama City-Lynn Haven	100.0%	100.0%	98.7%
Pensacola-Ferry Pass-Brent	100.0%	100.0%	99.5%
Port St. Lucie-Fort Pierce	99.5%	99.4%	99.2%
Punta Gorda	100.0%	99.8%	99.2%
Sarasota-Bradenton-Venice	100.0%	99.9%	99.5%
Tallahassee	100.0%	98.9%	94.4%
Tampa-St. Petersburg-Clearwater	100.0%	99.9%	99.9%
Vero Beach	99.9%	99.4%	98.9%
Non-MSA Area	99.0%	92.1%	75.0%
Total	99.8%	99.0%	97.1%

Source: Provider websites (service coverage maps) and Census block group information.

National data confirm that wireless carriers' footprints now cover extensive stretches of rural areas as well. The FCC recently found that rural areas were served by an average of 3.6 mobile carriers.[99] According to a 2002 survey of Rural Cellular Association ("RCA") members, there are: (1) an "average of 5.1 wireless competitors in survey participants' markets, having increased steadily from 3.0 competitors in the 1998 *RCA Survey*;" (2) "robust and effective

[99] For this purpose, the FCC defined "rural" as counties with 100 persons or fewer per square mile. *See Twelfth CMRS Report*, ¶ 105.

competition, increasing year-to-year, in the markets served by RCA members;" and (3) "evidence of increasing customer usage and declining per-minute pricing in rural areas, similar to trends that [have been] seen nationally."[100] Based on this and other evidence, the FCC concludes "that CMRS providers are competing effectively in rural areas."[101]

Wireless providers in Florida are offering a wide variety of packages and services to consumers, including individual, "local," and "family" plans. Florida consumers consider wireless service to be competitively priced and convenient to use. In the *Florida PSC 2005 Survey*, about 70 percent of respondents considering the switch to wireless-only service cited price and almost 50 percent cited convenience as reasons they were considering dropping their wireline phone.[102] A sampling of the wireless offerings available to Florida residents is provided in Tables 5, 6 and 7.

The plans in Table 5 show that consumers can purchase plans with up to 400 minutes included per month for $30 or less. These include several low-cost prepaid plans. The popularity of these plans has been growing rapidly and the plans promise to stimulate continued growth of mobile wireless. Although Florida specific data are not available, by the end of 2006, prepaid accounted for roughly 15 percent of major U.S operators' subscribers,[103] a figure that is expected to increase to over 50 million in 2010 (or 18 percent of total U.S. wireless lines). A recent article observes that prepaid subscribers generate lower monthly average revenue per user ("ARPU") – only about $14 to $37 depending on plan and provider, and the Yankee Group estimates average monthly ARPU of about $21, showing that prepaid plans provide a low cost means of obtaining telephone service.[104]

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[100] *Ninth CMRS Report*, ¶ 110.

[101] *Twelfth CMRS Report*, ¶ 110.

[102] *Florida PSC 2005 Survey*, Figure 23.

[103] *Twelfth CMRS Report*, ¶ 117.

[104] The article noted: "As the U.S. wireless market becomes increasingly saturated, many analysts expect that carriers will continue incremental growth by turning to prepaid customers that they might have scorned in the past. Alltel Corp. is getting back in the prepaid game; Cingular Wireless L.L.C. showed a huge increase in Tracfone prepaid subscribers in the fourth quarter of 2005, contributing heavily to the 1.8 million net additional customers that the carrier gained. T-Mobile USA Inc. scored 1.4 million net adds in the fourth quarter, about one-third of which were prepaid." *See* Yankee Group, *North America Mobile Market Forecast, 2Q06*, June 2006 and K. Hill, *Prepaid vs. family plan debate hinges on ARPU,* RCR Wireless News, April 3, 2006.

Table 5: Wireless Plans for Residential Customers in Florida for $30.00 or Less					
Provider	Consumer Cellular	Consumer Cellular	Consumer Cellular	T-Mobile	Nextel
Plan	Anywhere Casual	Anywhere 100	Anywhere 400	Individual Basic	Sprint Basic Plan
Price per month	$10.00	$20.00	$30.00	$29.99	$29.99
Anytime minutes	0	100	400	300	200
Price per additional minute	$0.25	$0.25	$0.25	$0.40	$0.45
No Extra Charge for Long Distance	x	X	X	X	x
Night/Weekend minutes	0	0	0	Unlimited weekends	Unlimited
Call forwarding	x	X	X	x	x
Call waiting	x	X	X	x	X
Caller ID	x	X	X	x	X
Conference Calling	x	X	X	x	X
Voicemail	x	X	X	x	X
Other					Unlimited mobile to mobile for $5
Note: Not all information available for all plans. Used zip code 33609 for feature information. Source: Provider websites, accessed 3/5/2008.					

Table 6 shows a number of other plans that provide from 450 to 1000 any time minutes and greater off peak usage somewhat for about $40 per month. Wireless pricing plans are competitive with current wireline service charges in Florida. As a basis of comparison, bundled plans (which are preferred by the majority of Floridians) offered by AT&T Florida and Verizon range from about $35 to over $50 for the voice packages. For a la carte customers, the FCC reports that in 2006, the monthly residential telephone rate for local service in three Florida cities, Miami, Tampa and West Palm Beach, ranged from about $22 to $25.55. Assuming even $10 in toll spending (and no vertical features) implies that a la carte Floridians spend over $30 for wireline phone service.[105]

[105] Federal Communications Commission, Industry Analysis & Technology Division, Wireline Competition Bureau, *Reference Book of Rates, Price Indices, and Household Expenditures for Telephone Service, 2007,* Table 1.3. The *Florida PSC 2005 Survey* reports that most respondents prefer bundled packages and that only 28 percent of respondents do not subscriber to additional services other than basic telecommunications services (p. 2). Other estimates of average monthly household telephone spending are higher than those discussed. For example, the FCC reports that Bureau of Labor Statistics surveys found monthly household telephone expenditures to be about $97 in 2005. (See FCC *Reference Book of Rates, Price Indices, and Household Expenditures for Telephone Service, 2006,*at iv.) TNS Telecoms survey data for the first quarter of 2006 show that the average household spent about $37 on local service and $13 on long distance, for a total monthly spend of $50. See. TNS Telecoms Press Release, *Wired Line Phone Considered Most Important Household Communication Product*, June 22, 2006, available at http://www.tnstelecoms.com/press-6-22-06.html. AT&T Florida and Verizon bundled prices from respective websites.

Table 6: Wireless "Individual" Plans for Residential Customers in Florida					
Provider	T-Mobile	Alltel	Nextel	Verizon	AT&T
Plan	Individual Plus	Greater Freedom	Sprint Power Pack 450	Nationwide Basic 450	Talk 450 with Rollover
Price per month	$39.99	$39.99	$39.99	$39.99	$39.99
Anytime minutes	1000	700	450	450	450
Price per additional minute	$0.40	$0.40	$0.45	$0.45	$0.45
No Extra Charge for Long Distance	X	X	X	x	X
Night/Weekend minutes	Unlimited	Unlimited	Unlimited	Unlimited	5000
Access to 411	X		X	x	
Call forwarding	X	X	X		X
Call waiting	X	X	X		X
Caller ID	X	X	X	x	X
Conference Calling	X	X	X	x	X
Voicemail	X	X	X	x	X
Other		Unlimited mobile to mobile	Unlimited mobile to mobile for $5	Unlimited in-network calling	Unlimited mobile to mobile

Note: Not all information available for all plans. Used zip code 33609 for feature information.
T-Mobile's Individual Plus $39.99 offer is promotional.
Source: Provider websites, accessed 3/5/2008.

Table 7 provides a sample of family share plans that include from 550 to 900 anytime minutes for about $60 to $70 per month for two wireless users.

Table 7: Wireless "Family" Plans for Residential Customers in Florida

Provider	Alltel	T-Mobile	AT&T	Nextel	Verizon
Plan	National Freedom Family	FamilyTime Basic	FamilyTalk 550 w/Rollover	Sprint Power Pack Family Plan	Nationwide Basic Family SharePlan
Price per month	$59.99	$59.99	$59.99	$59.99	$69.99
Anytime minutes	900	700	550	550	700
Price per additional minute	$0.40	$0.40	$0.45	$0.45	$0.45
Night/Weekend minutes	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited
Access to 411	X	X		x	x
Call forwarding	X	X	X	x	
Call waiting	X	X	X	x	
Caller ID	X	X	X	x	x
Conference Calling	X	X	X	x	x
Voicemail	X	X	X	x	x
Other	Add up to 3 more lines. Unlimited mobile to mobile calling	Up to 3 additional lines	Maximum 3 lines. Unlimited mobile to mobile calling	Add up to 3 more lines	Add up to 3 more lines. Unlimited in-network calling

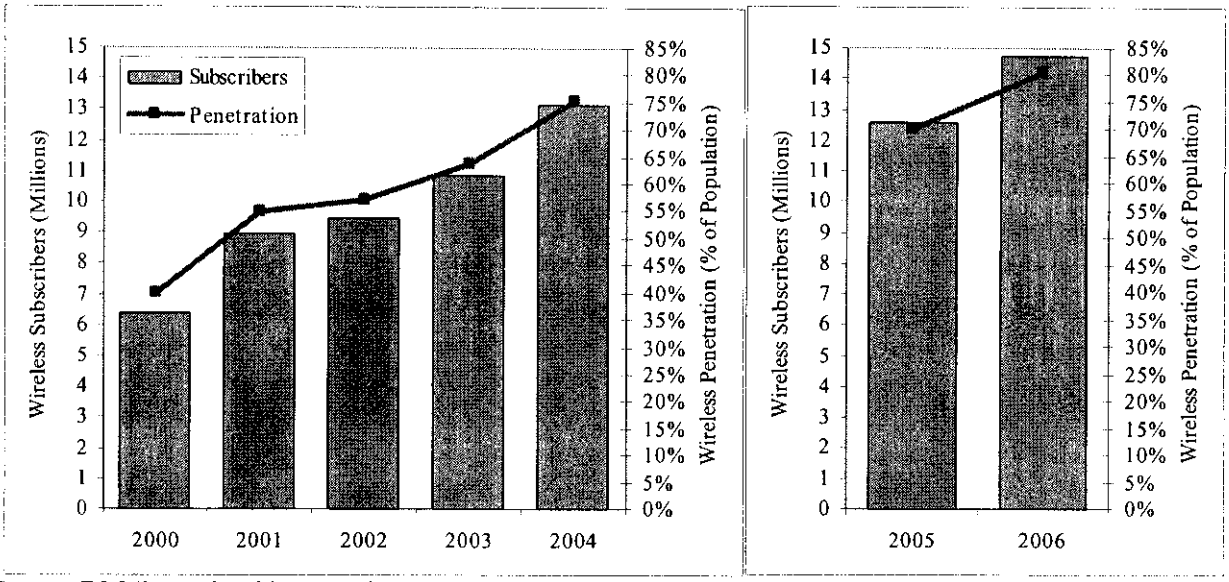
Note: Plans include two lines. Additional lines are $9.99 per month each.
Not all information available for all plans
Source: Provider websites, accessed 3/5/2008.

3. Wireless Subscribership is Burgeoning in Florida

The number of wireless subscribers in Florida has grown dramatically, from 6.4 million in 2000 to 14.8 million in 2006. By 2006, wireless penetration in Florida had reached 80 percent and wireless subscribers exceeded traditional lines by about 4.7 million.[106] These trends are illustrated in Figure 11 below.

[106] *See FCC December 2006 Local Competition Report*, Tables 9, 10 and 14.

Figure 11. Wireless Subscribers and Penetration in Florida. [107]



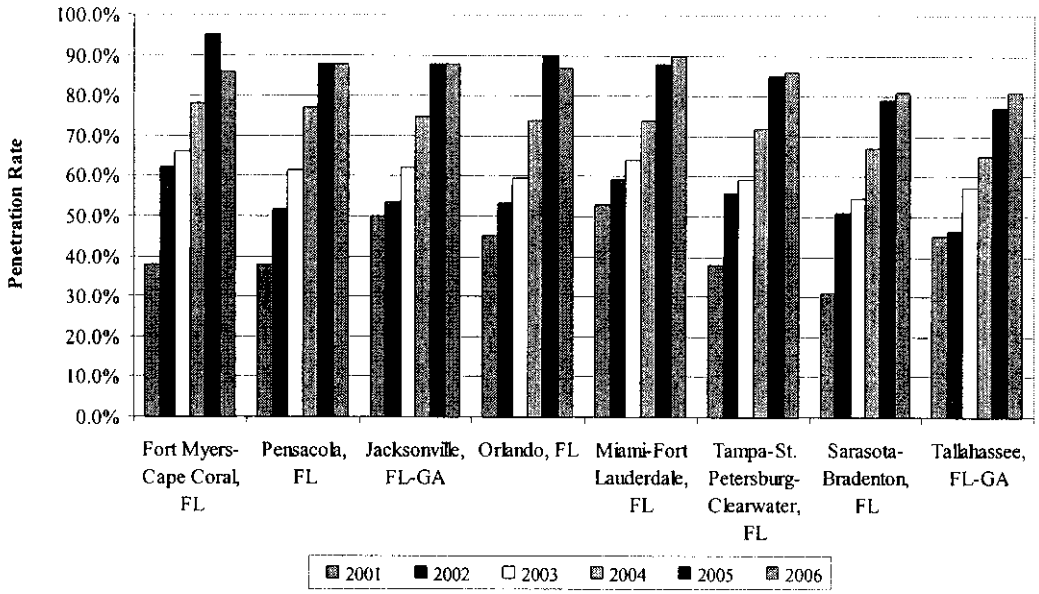
Source: FCC December 2006 Local Competition Report, Table 14 and Demographic Estimating Conference Database, updated July 2005.

The growth in wireless subscribers is occurring throughout Florida. Figure 12 depicts growth in wireless penetration in the Economic Areas in the state.[108] As shown in the Figure, by 2006, no area had penetration of less than 80 percent.

[107] The two periods are shown separately because of the change in FCC reporting practices starting in 2005. However, the upward trend starting in 2005 is consistent with that of the 2000-2004 period.

[108] Economic areas are defined by the Bureau of Economic Analysis. "Each economic area consists of one or more economic nodes–metropolitan areas or similar areas that serve as centers of economic activity–and the surrounding counties that are economically related to the nodes. The main factor used in determining the economic relationships among counties is commuting patterns, so each economic area includes, as far as possible, the place of work and the place of residence of its labor force." *See, e.g., Redefinition of the BEA Economic Areas,* available at http://www.bea.gov/bea/regional/articles/0295rea/.

Figure 12. Wireless Penetration in Florida Economic Areas.



Source: *Seventh-Twelwth CMRS Reports*.

Note that the FCC based its 2006 penetration rates on 2006 Census population data, whereas it based the earlier 2001 to 2005 penetration rates on 2000 Census data. Thus, the 2006 penetration data are not comparable with the prior years' penetration data.[109] The reporting change explains why Fort Myers – Cape Coral shows a (misleading) decline in penetration in 2006. That area was affected dramatically because it experienced a population growth rate of 29 percent from 2000 to 2006, which placed it among the 10 fastest growing metro areas in the US.[110]

4. Wireless Services Are Being Used As Alternatives to Wireline

Gains in mobile subscribers and usage have come at the expense of wireline carriers. There are three principal ways in which customers can use wireless services in lieu of fixed wireline services: (1) "cutting the cord" (by discontinuing fixed line service and using only mobile phone service); (2) shifting voice traffic (or usage) from fixed to mobile networks; or (3) shifting from using wireline to wireless as one's "primary" line. All three types of wireline displacement are occurring at a substantial rate.

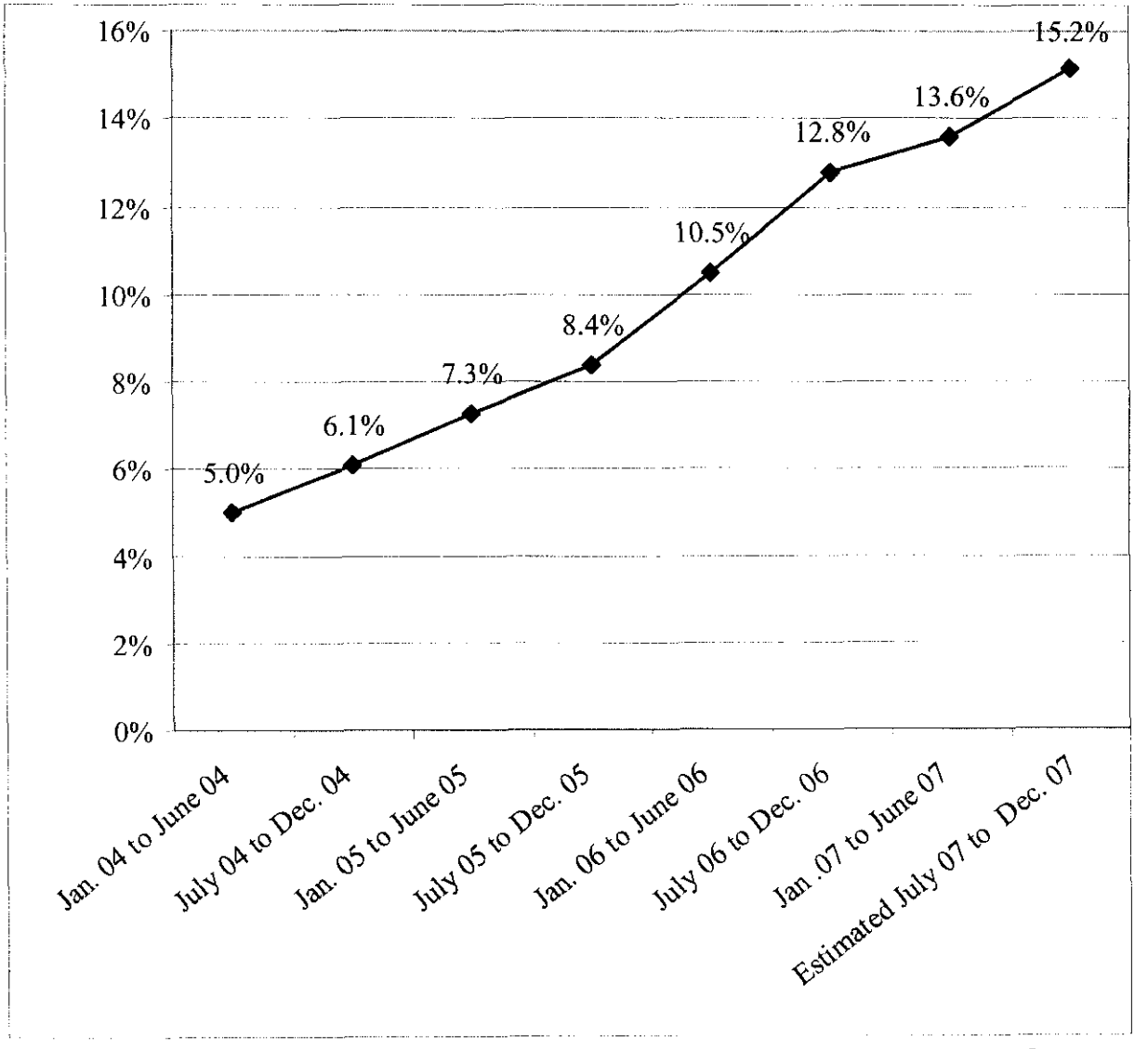
A substantial and growing number of wireline customers have already abandoned their wireline phones altogether. Data from the National Health Interview Survey show that by the

[109] See FCC Twelfth CMRS report at p. 131, which states: "EA penetration rates are not directly comparable with previous year reports since, in previous years, EA populations were based on Census 2000."

[110] See US Census Bureau News Release: "50 Fastest-Growing Metro Areas Concentrated in West and South," April 5, 2007. http://www.census.gov/Press-Release/www/releases/archives/population/009865.html

first half of 2007, about 13.6 percent of households had only wireless phones. As Figure 13 shows, the percentage of households with only wireless services has been growing over time; and if the trend shown since 2004 continues, more than 15 percent of households may now have only wireless phones.

Figure 13. Percentage of Household with Only Wireless Telephone Service



Source: Wireless Substitution: Early Release of Estimates From the National Health Interview Survey, January – June 2007 by Stephen J. Blumberg, Ph.D., and Julian V. Luke, Division of Health Interview Statistics, National Center for Health Statistics.
Note: We used trend extrapolation to estimate the July 07 to Dec. 07 percentage.

Note also that a 2005 survey found that about 42 percent of respondents reported having a wireline phone, but characterized their mobile phone as their primary phone and only 43

percent reported that their wireline phone is still their primary phone.[111] In view of the Pew Center finding that the percent of landline phone subscribers who said it would be "very hard" to give up their wireline phone ***declined*** to 40 percent at year end 2007; whereas the percent of wireless subscribers who said it would be very hard to give up their wireless phone ***increased*** to 51 percent, it is likely that even more people now view their wireless phone as their primary phone. This implies that an even larger number of consumers than reported above could shift all of their calling to wireless if LECs attempted to raise prices above competitive levels.

As with LEC customer losses to cable providers, wireless substitution is especially damaging to wireline carriers in today's market, in which providers are competing to serve the customer, or supply the communications bundle, rather than simply provide an access line. A recent Forrester study found that households that disconnect their wireline phone are four times more likely to buy broadband service from cable operators than from phone companies. As stated by Charles Golvin, a Forrester analyst: "The possibility that phone companies can win these customers back is pretty low. Cord cutting and cable modems are a killer for them."[112]

Although Florida-specific data on wireless usage growth are not available, usage in Florida likely mirrors national usage trends. These data are highly informative, particularly when seen in light of the declines in usage in wireline networks. According to the Yankee Group, by 2005, 42 percent of local calls in households with cellular phones were made on wireless phones.[113] This trend in wireless calling is displayed in Figure 14 below. An earlier version of the same study shows that by 2004, 60 percent of long distance calls in such households were made on wireless phones.[114]

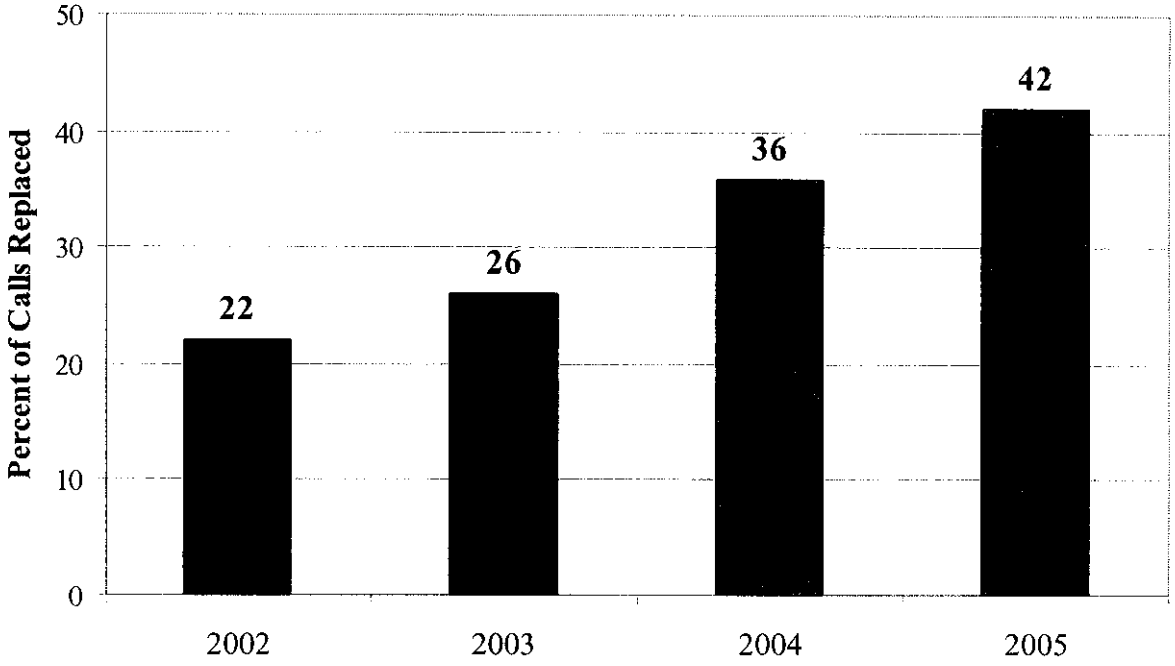
[111] *See* L. Yuan, *More U.S. Households Are Ditching Landline Phones for Wireless*, The Wall Street Journal, March 31, 2006.

[112] *See* L. Yuan, *More U.S. Households Are Ditching Landline Phones for Wireless*, The Wall Street Journal, March 31, 2006.

[113] P. Marshall, *Rationalizing Fixed-Mobile Convergence*, Yankee Group, May 2006, Exhibit 2.

[114] *See* K. Griffin, *et al., The Success of Wireline/Wireless Strategies Hinges on Delivering Consumer Value,* October 2004, Exhibit 4.

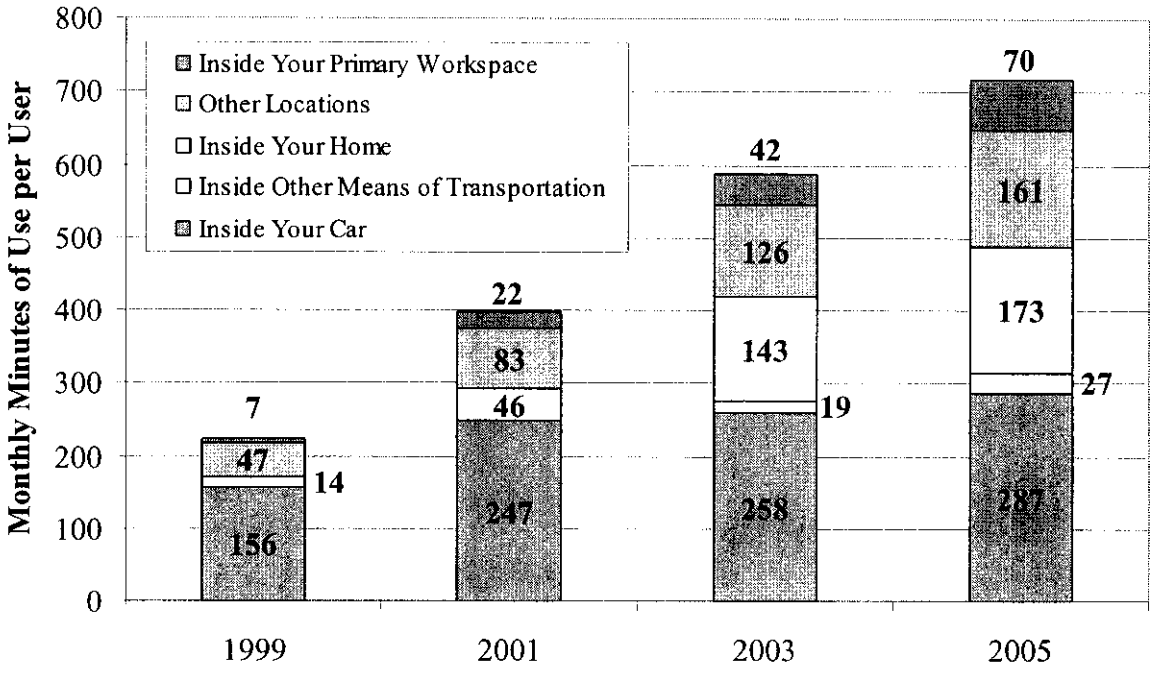
Figure 14
What Portion of Your Local Calls Has Your Wireless Phone Replaced?



Source: P. Marshall, *Rationalizing Fixed-Mobile Convergence* , Yankee Group, May 2006, Exhibit 2.

In addition, the Yankee Group reports that the volume of wireless calls made at home has increased dramatically in the last several years (as displayed in Figure 15 below). Moreover, the growth in calls from other locations, as displayed in this figure, may partly result from consumers shifting calls, *i.e.*, making calls from other locations that they would have made at home absent wireless availability. Thus, some portion of these calls would be displacing wireline calls.

Figure 15
Where Do You Use Your Wireless Phone?

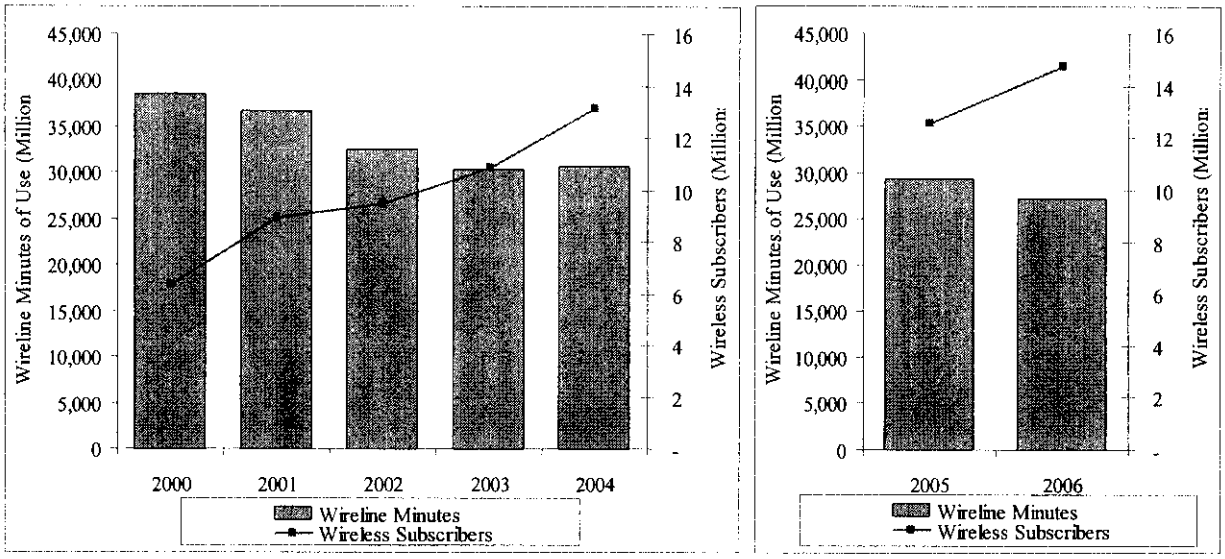


Note: Prior to 2003, Inside Your Car included all means of transportation.
Source: P. Marshall, *Rationalizing Fixed-Mobile Convergence*, Yankee Group, May 2006, Exhibit 2.

Figures 16 and 17 below depict the dramatic impact that this displacement has had on wireline usage in Florida. As Figure 16 illustrates, between 2000 and 2006, wireless subscribers increased by over 130 percent, while wireline minutes of use declined by about 29 percent.[115] As noted above, wireless usage is not available for individual states; however, Figure 17 shows how wireline usage has declined as wireless subscribers have grown in Florida.

[115] As mentioned above, due to changes in the method by which carriers allocate subscribers to states, a consistent count of wireless subscribers is not available for June 2005. During 2005, the trend in wireline minutes of use continued, declining by about 5 percent.

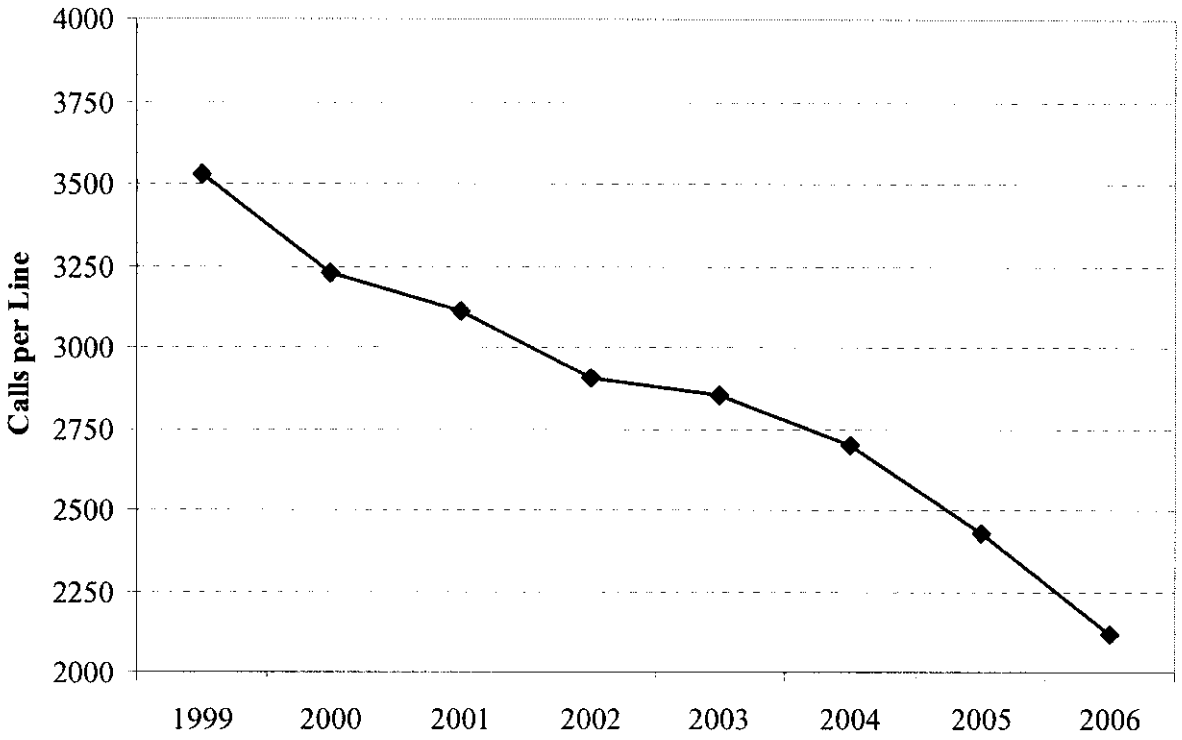
Figure 16. Florida Wireless Subscribers and Wireline Minutes of Use



Note: Minutes of use are interstate switched access minutes for Windstream, AT&T Florida, Embarq and Verizon.
Source: FCC, National Exchange Carrier Association, Quarterly Minutes of Use Data; FCC December 2006 Local Competition Report, Table 13.

As wireless usage has increased, Florida LEC wireline usage as measured by number of calls has declined steeply over the past four years. In particular, between 1999 and 2006, local calls per ILEC line fell from about 3,500 to about 2,100 per year, as shown in Figure 17 below:

Figure 17. Local Calls per ILEC Wireline per Year in Florida



Note: Total lines are total switched access lines from ARMIS. Data include AT&T Florida, Verizon and Embarq.
Source: ARMIS, Report 43-08, Tables III & IV

The FCC has concluded in several reports on wireless competition that much of the decline in the wireline sector is due to increased competition from wireless providers. For example it stated in its Ninth and Tenth CMRS Reports:

> [The] effects of mobile telephone service on the operational and financial results of companies that offer wireline services....a decrease in the number of residential access lines, a drop in long distance revenues, and a decline in payphone profits.... continued [in 2003], with the four largest LECs losing 4 percent of their access lines, and wireline long distance voice revenues declining further. One analyst stated, "wireless cannibalization remains a key driver of access line erosion."[116]

[116] *Ninth CMRS Report*, ¶ 213.

> ...the pressures that wireless growth is placing on companies which offer wireline services continued in 2004.... These trends appear to be due to the relatively low cost, widespread availability, and increased use of wireless service.[117]

And in its most recent CMRS report, the FCC again explains that the trends in wireless replacement of wireline phones:

> ... appear to be due to the relatively low cost, widespread availability, and increased use of wireless service. As we discussed in past reports, a number of analysts have argued that wireless service is competitive or cheaper than wireline, particularly if one is making a long-distance call or when traveling. As one analyst wrote, "At currently effective yields, we continue to believe wireless pricing is competitive with traditional wireline pricing. Lower yields, combined with the convenience of mobility, should continue to drive wireline displacement."[118]

Wireless replacement of wireline service thus places substantial competitive pressure on traditional landline providers.

5. Wireless Service Will Become an Even More Potent Competitor in the Future

Wireless displacement of wireline service is expected to continue to increase for at least three compelling reasons: (1) the proliferation of wireless services has expanded substantially in every one of the last 20 years and shows no sign of abating; (2) a growing number of young people, especially those on college campuses, are using wireless phones in preference to wireline phones, and are likely to continue using them after graduation;[119] and (3) as more consumers become accustomed to the characteristics of wireless services such as slightly lower voice quality offset by greater convenience, portability and more features — they will become even more willing to give up wireline.[120]

Analysts are predicting continued growth in wireless displacement of wireline and resulting declines in wireline access lines. For example, JPMorgan estimates that wireless substitution will: (1) reach 20.3 million primary lines, or 18 percent of telephony households, by 2010, and (2) claim 8.5 million non-primary access lines, which in conjunction with broadband substitution, will precipitate non-primary access line losses of 11.7 percent per year. Thus, by 2010 wireless lines will have replaced about 29 million landlines, representing line substitution

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[117] *Tenth CMRS Report*, ¶ 197-198.

[118] FCC Twelfth CMRS report, ¶ 250.

[119] *See, e.g.*, Frost & Sullivan, *Trends in Wireline Substitution – North American Markets*, 2005, p. 1-9.

[120] *See, e.g., Id.*, pp. 1-11 and 1-12.

of 23 percent. [121] In-Stat/MDR forecasts that by 2009, between 23 and 37 percent of wireless subscribers will use their mobile phone as their primary phone, with 30 percent being their "most likely" estimate.[122]

These expectations are supported by recent surveys, which report that many current wireline users are considering cutting the cord. For example, a recent In-Stat survey found that close to 20 percent of respondents that have wireless service plan to drop wireline service.[123] A Harris Interactive survey conducted for the National Consumers League released in mid-2005 found that 39 percent of current wireline customers are likely to go completely wireless in the next two years.[124] The *Florida PSC 2005 Survey* (Figure 26) reported that close to 31 percent of Floridians are considering switching to wireless only. Although the Florida 2006 Survey did not report data on this issue, it found that "Floridians continue to value the convenience and portability of wireless services." It also reported that the percentage of residential wireline customers with wireless phones grew from about 62 percent in 2003 to about 75 percent in 2006.[125] Thus, the potential for wireline customers to switch by simply dropping their wireline phone, or by expanding their usage plan or upgrading to a family share plan has been growing in the state.

Moreover, new pricing plans and service options imply that more consumers will cut the cord. **First**, in late February 2008, the four major cellular carriers Verizon Wireless, AT&T, T-Mobile and Sprint Nextel introduced "all-you-can-eat" pricing. Verizon announced first with a flat rate wireless plan that includes unlimited local and domestic toll usage for $99.99 per month, and:

> Verizon's major competitors reacted in a flash: Within hours, AT&T essentially matched the Verizon deal ....T-Mobile, generally the cheapest of the major firms, went even further -- its $99.99 monthly plan includes unlimited calling and unlimited text messaging....[126]

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[121] J. Chaplin, *et al.*, *Telecom Services / Wireline, State of the Industry: Consumer*, JPMorgan, January 13, 2006, p. 4 and Tables 57 and 75.

[122] R. Luhr and D. Chamberlain, *Cutting the Cord: Consumer Profiles and Carrier Strategies for Wireless Substitution*, In-Stat/MDR, October 2005, p. 3.

[123] *See* Business Wire, *In-Stat Survey Shows That Wireline Erosion Will Accelerate; 20% of Households Plan to Cancel or Not Use Wireline Services*, February 6, 2006.

[124] *See* National Consumers League Press Release, *National Consumers League Releases Comprehensive Survey about Consumers and Communications Services*, July 21, 2005, available at http://www.nclnet.org/news/2005/comm_survey_07212005.htm.

[125] Florida Public Service Commission, Division of Competitive Markets & Enforcement Consumer Survey Results: January - December 2006, May 2007, p. 11.

[126] See: "Phoning Home All-you-can-eat mobile service is the best thing to happen to business travelers in years. *By Joe Brancatell* Portfolio.com: Business Travel, Tuesday, March 4, 2008; 12:17 PM; WashingtonPost.Com. http://www.washingtonpost.com/wp-dyn/content/article/2008/03/04/AR2008030401225.html . The story also points out that: with T-Mobile's "You must extend your existing contract to qualify. Verizon and AT&T allow existing customers to switch to all-you-can-eat pricing without adding time to their current contracts."

> Sprint [offered a] new option the Simply Everything plan [that] gives subscribers unlimited voice calls, and also includes unlimited data, e-mail and Web surfing for $99.99 per month. Sprint will also offer a plan for $89.99 a month that includes unlimited voice and text messaging, undercutting prices on the basic unlimited plans offered by its rivals.[127]

Industry analysts pointed out that these developments could ignite a price war and that such flat-rate pricing plans will appeal to customers considering dropping their wireline phone service, but who may have been worried about possible extra charges for going over their monthly calling allowances.[128]

Second, new options such as T-Mobile's plans, which allow customers to use dual-mode phones to connect to WiFi networks at home or in other locations with no per-minute charges for an extra wireless charge of $10 per phone per month. Thus, they provide unlimited calling at home for an extra charge of only $10 per month via a DSL or cable broadband connection. This not only lowers the price of replacing a wireline phone, but it promises to solve mobile wireless service quality problems.

D. VoIP

Although cable VoIP now accounts for most VoIP subscribers in the US, stand-alone VoIP service over existing broadband connections is available to residential and small business customers throughout Florida. Companies such as Vonage, Packet8 and Skype (now owned by eBay) provide VoIP via the cable broadband or DSL connections currently available to households and businesses throughout the state. VoIP is significant for two reasons: First, it greatly facilitates entry by a range of competitors, including:

- Firms specializing in VoIP over broadband that can locate their switches almost anywhere and still compete in Florida;
- Major Internet firms, such as Google, Microsoft and Yahoo, provide free or almost free VoIP messaging services over broadband via software applications, again without having to have their own facilities in the state; and
- Cable companies who can add VoIP to their broadband networks at low incremental costs, as we have described above.

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[127] Pacific Business News, "Losing $29B, Sprint unveils new 'unlimited' plan." February 28, 2008. http://www.bizjournals.com/pacific/stories/2008/02/25/daily40.html .

[128] See for example: Olga Kharif, BusinessWeek "Say Hello to Unlimited Minutes: Verizon Wireless offers unlimited calls for $100 a month, others follow suit, and Wall Street shudders at the prospect of a price war, http://www.businessweek.com/technology/content/feb2008/tc20080220_751279.htm?chan=technology_technology+index+page_telecom; and, "Cutting the cord for all-you-can-eat wireless plans" Posted by Marguerite Reardon, March 4, 2008 4:00 AM PST http://www.news.com/8301-10784_3-9884689-7.html . Why is this footnote in bold???

Moreover, as discussed below, new firms provide small businesses with VoIP based telephone services that can be used in place of more expensive multi-line phone systems. The services use software applications at remote servers connected to low cost phones at customers' locations.[129]

Second, these developments will keep downward pressure on prices for conventional voice services. As described in a 2006 *New York Times* article entitled "Online Calling Heralds an Era of Lower Costs":

> Competition in the phone business, intensifying this year as Internet-based calling has taken root, has reached the point where many industry experts are anticipating an era of remarkably cheap and even free calls...
>
> Online services like Skype that offer free calls from computer to computer for users with headsets have attracted the tech-savvy and are trying to push into the mainstream. In the process, they are dragging down everyone else's prices and pointing the way toward a time when it will be harder and harder for companies to charge anything for a basic home phone line on its own.[130]

Similarly, an article in *The Economist*, entitled "How the Internet Killed the Phone Business," highlighted the significance of VoIP, and the enormous threat it poses to incumbent telecom operators.

> Skype is merely the most visible manifestation of a dramatic shift in the telecom industry, as voice calling becomes just another data service delivered via high-speed internet connections. Skype, which has over 54m users, has received the most attention, but other firms routing calls partially or entirely over the internet have also signed up millions of customers.
>
> The ability to make free or almost-free calls over a fast internet connection fatally undermines the existing pricing model for telephony....as the marginal price of making phone calls heads inexorably downwards.[131]

Since all Florida Zip Codes have at least three broadband providers already present, VoIP can be provided to the vast majority of Florida customers right now. Table 8 lists some VoIP providers and their package offerings for residential and small business customers in Florida. All provide some sort of unlimited local and long distance calling plan with monthly prices ranging from $19.95 to $29.99, excluding the cost of broadband connection.

---

[129] See: Rebecca Buckman, "Internet Phone Service Gets Plush: Small Businesses Sign Up for Professional Features on the Cheap," Wall Street Journal, March 4, 2008, p. B3. http://online.wsj.com/article/SB120459705656609395.html?mod=googlenews_wsj

[130] M. Richtel and K. Belson, *Online Calling Heralds an Era of Lower Costs,* New York Times, July 3, 2006, available at http://www.nytimes.com/2006/07/03/technology/03phone.html?th&emc=th.

[131] The Economist, *How the Internet Killed the Phone Business*, September 17, 2005.

Of course, the millions of Florida customers that already subscribe to broadband for Internet access would incur these charges only incrementally. Even when we include the cost of the broadband connection, these plans are competitive with household expenditures for wireline local and toll services in Florida—which can range to above $50 per month, depending on type of calling plan and calling volumes.

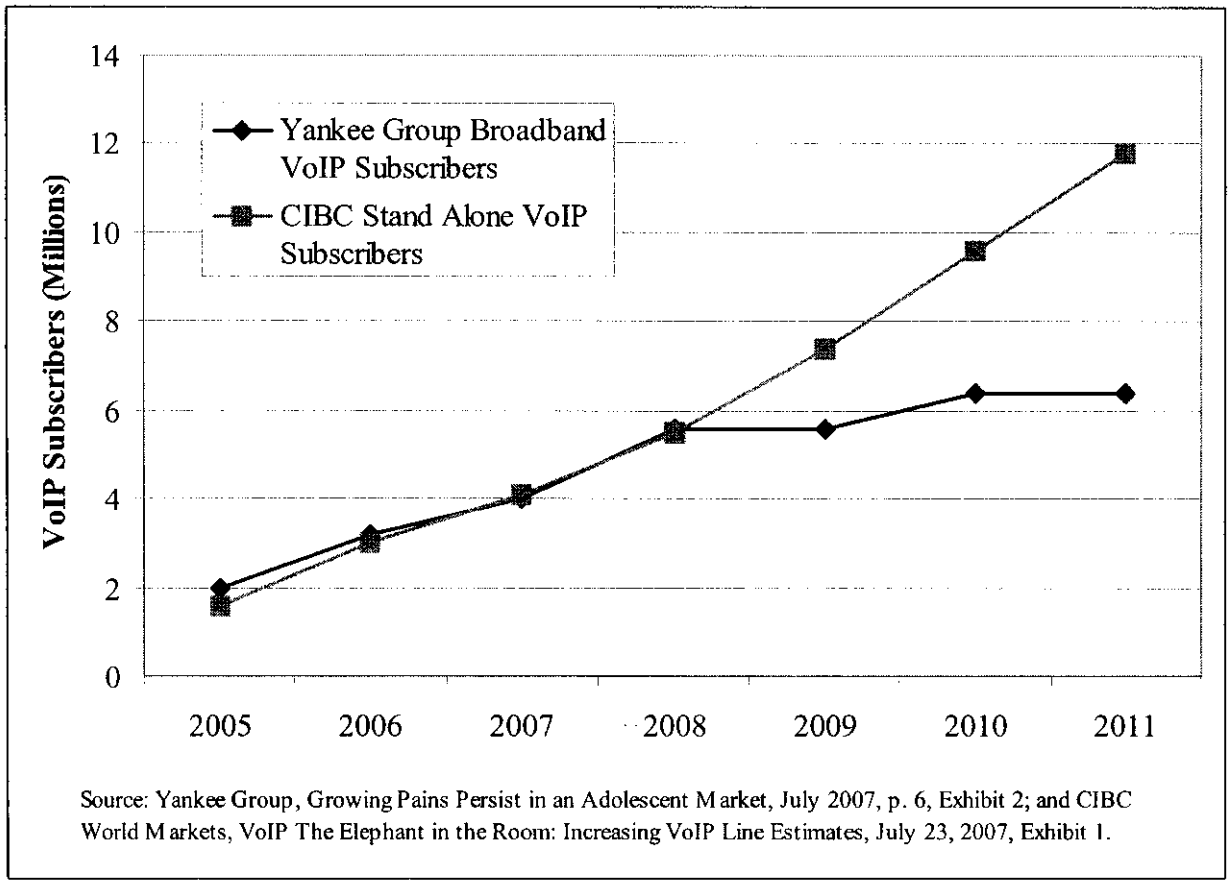
Table 8
Florida VoIP Plans

Provider	Plan	Area Codes or Counties Offered	Monthly Price	Anytime Minutes	Additional Minutes	Long Distance
(a)	(b)	(c)	(d)	(e)	(f)	(g)
Vonage	Residential Premium Unlimited	239, 321, 352, 386, 561, 727, 772, 786, 813, 850, 863, 904, 941, 954	$24.99	Unlimited	N/A	Included
	Residential Basic 500		$14.99	500	$0.04	Included
	Small Business Premium Unlimited		$49.99	Unlimited	N/A	Included
	Small Business Basic 1500		$39.99	1500	$0.04	Included
AT&T	CallVantage Service	Anyone meeting the technical requirements for AT&T Callvantage Service, regardless of their geographic location, can sign up for the service.	$24.99	Unlimited	N/A	Included
	CallVantage 2-Line		$49.99	Unlimited (1 line)[1]	N/A	Included
	CallVantage Local		$19.99	Unlimited Local	N/A	$0.04
Lingo	Link	Broward, Dade, Indian River, Leon, Manatee, Martin, Monroe, Palm Beach, Pinellas, Polk, Sarasota, St Johns	$7.95	Unlimited in-Network		
	Small Talk		$14.95	500	$0.03	Included
	Chatter Box		$21.95	Unlimited	N/A	Included
	Global Gabber		$34.95	Unlimited	N/A	Included (+300 Int'l minutes)
Net2Phone	U.S./Canada Unlimited	239, 305, 321, 352, 386, 407, 561, 727, 772, 786, 813, 850, 863, 904, 941, 954	$29.99	Unlimited	N/A	Included
	U.S./Canada 500		$14.99	500	$0.04	Included
	VoiceLine Basic[2]		$8.99	Unlimited Inbound	N/A	$0.05
Packet 8	Freedom Choice 500	Anywhere in FL w/ high-speed connection	$14.99	500	$0.04	Included
	Freedom Unlimited		$24.99	Unlimited	N/A	Included
	Freedom Unlimited Global[3]		$29.99	Unlimited	N/A	Included
myphone company.com	Unlimited Local Home Calling	239, 305, 321, 352, 386, 407, 561, 727, 772, 786, 813, 850, 863, 904, 941, 954	$19.99	Unlimited	N/A	$0.03
	Unlimited Home US & Canada		$24.99	Unlimited	N/A	Unlimited
	Unlimited US & Canada + International		$34.99	Unlimited	N/A	Unlimited

Source: Provider websites.
Notes:
[1] CallVantage 2-line second line includes 500 long distance minutes.
[2] Net2Phone VoiceLine Basic: Unlimited inbound calls & pay-as-you-go outbound calls.
[3] Unlimited global plan includes unlimited calling to select countries in addition to local and long distance.

VoIP growth has been vigorous. For example by early 2008, Vonage was providing service to 2.5 million lines.[132] Smaller, relatively less well-known VoIP companies are also having success in attracting customers. Thus, recent market research studies estimated that the number of stand-alone (or VoIP over broadband) subscribers would grow from about 4 million in 2007 to 5.5 million in the US in 2008. Their forecasts diverge at that point, as the Yankee Group expects that cable VoIP will capture almost all of the growth in VoIP, while CIBC forecasts stand alone VoIP will reach almost 12 million subscribers by 2011. The forecasts are depicted below in Figure 18.

Figure 18 Stand Alone VoIP/Broadband VoIP Subscribers



Source: Yankee Group, Growing Pains Persist in an Adolescent Market, July 2007, p. 6, Exhibit 2; and CIBC World Markets, VoIP The Elephant in the Room: Increasing VoIP Line Estimates, July 23, 2007, Exhibit 1.

S

The low incremental cost of VoIP usage promotes competition among VoIP providers as shown by competition between Skype and Yahoo's Phone Out. Skype allowed customers to make ***free*** computer-to-computer "telephone" calls and recently announced free calls to all landlines and cellular phones in the U.S and Canada for all U.S. and Canadian customers for the duration of 2006, in order to increase its U.S. presence. "The move [by Skype] undercuts Yahoo's rival Phone Out service linked to its instant messenger program. Yahoo itself [had

[132] *See* http://www.vonage.com/corporate/index.php?lid=footer_corporate.

previously] undercut Skype when it announced Phone Out for the US in March, which allowed users to call within the US and to more than 30 countries for 2 cents a minute or less."[133]

As industry experts correctly predicted, the other Internet companies are entering and attempting to become major influences in the telecommunications market. Such entrants include Google, which offers Google Talk, an application that allows users of Google's email service to talk and IM for free.[134] Microsoft has entered the VoIP space in several ways: for example, by teaming with telecommunications vendors to develop IP phones for use with Microsoft's unified communications offerings, and by purchasing Teleo, an acquisition that has allowed Microsoft to provide voice capability to MSN IM users.[135]

Many customers view VoIP service as a replacement for their telephone line. Approximately 50 percent of Vonage customers maintain their old phone number when they switch to Vonage.[136] This substitution is driven in large measure by price. Analysts report that third-party VoIP providers offer service "at rates significantly below comparable RBOC prices" and "significant pricing degradation is becoming evident."[137] The LECs and, in particular, the RBOCs, have been forced to respond to the competitive threat presented by VoIP providers. As reported in the *New York Times*:

> To stem the tide [of defections to VoIP providers], the traditional Bell operating companies have been moving into new businesses like television and strategically dropping the price of traditional phone service. In New York, Verizon recently sent letters to customers offering a calling plan that includes unlimited phone service for $35 a month, instead of $60, a 42 percent cut. For people signing up for service through its Web site, AT&T now offers unlimited local and long distance service for $40, down from $50 a year ago.
>
> The average user of Internet voice calling, known as ... VoIP, pays $25 a month for unlimited calling....International calls are most often not included in the flat rate, but those prices are also coming down.[138]

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[133] C. Nuttall, *Skype in US free calls scheme*, Financial Times, May 15, 2006.

[134] *See* Google Press Release, *Google Launches Open, Instant Communications Service*, August 24, 2005, available at http://www.google.com/press/pressrel/talk.html.

[135] *See* Microsoft Press Release, *Global Telecommunications Providers to Build Innovative Business IP Phones on Microsoft's Unified Communications Platform*, June 25, 2006 and M. Nakamoto, *et al., The internet's next big talking point: why VoIP telephony is quickly coming of age,* Financial Times, September 9, 2005.

[136] *See* J. Hodulik, *et al., The Vonage Story: The Who, What, Where, and How*, November 24, 2003, UBS Investment Research p. 5 and A. Quinton, *et al., US VoIP Update: Competitive, Regulatory, and Other Issues*, Merrill Lynch, November 25, 2003 p. 9.

[137] J. Halpern, *et. al., Quarterly VoIP Monitor: The "Real" Price Gap for VoIP Driving Rapid Subscriber Growth*, Bernstein Research, July 15, 2005, pp. 5-6 & Exh. 5 and V. Shvets & A. Kieley, *VoIP: State of Play*, Deutsche Bank, June 22, 2005, p. 7.

[138] M. Richtel and K. Belson, *Online Calling Heralds an Era of Lower Costs,* New York Times, July 3, 2006, available at http://www.nytimes.com/2006/07/03/technology/03phone.html?th&emc=th.

VoIP telephone services also provide substantial advantages to small business. For example:

> ...RingCentral Inc....backed by investment firms including Sequoia Capital and Khosla Ventures, has amassed more than 50,000 customers...usually those with fewer than 10 employees -- who want a full-featured phone system but typically can't afford one.
>
> [It] offers features like multiple extensions and dial-by-name directories because it delivers those services over the Internet, instead of through pricey phone hardware that must be installed and maintained by information-technology professionals.
>
> RingCentral is one of several Internet-phone companies offering such services and undercutting the prices of more traditional business-phone providers. Among the other upstarts is **8x8** Inc. ...that offers a similar low-cost service for small businesses called Packet 8; and, M5 Networks Inc. of New York [which] targets small to midsize companies, though it requires customers to sign up for a dedicated Internet line, which usually costs $400 to $1,000 a month.
>
> ...The companies are racking up new users because most traditional office phone systems are just "too expensive for a really small customer," says David Lemelin, a senior analyst at research firm In-Stat.
>
> Installing a traditional system can cost thousands of dollars, or even tens of thousands of dollars, depending on company size and other factors. RingCentral offers a monthly plan for as little as $9.99 a month, with no upfront costs and almost-instant activation. Its most popular service plan costs $29.99 a month, though unlimited outbound calls cost an extra $24.99 a month.
>
> According to In-Stat, revenue from "hosted" Internet-phone services for businesses -- or those that don't require any on-premise equipment besides actual phones -- are expected to top $2.1 billion by 2010, up from $476 million last year.[139]

[139] See: Rebecca Buckman, "Internet Phone Service Gets Plush: Small Businesses Sign Up for Professional Features on the Cheap," Wall Street Journal, March 4, 2008, p. B3. http://online.wsj.com/article/SB120459705656609395.html?mod=googlenews_wsj

E. Emerging Technologies Will Intensify Intermodal Competition

1. Wi-Fi

a. Overview

Wi-Fi, short for wireless fidelity, is a wireless broadband network technology that allows users within range of the network to connect to the Internet via a wireless device such as a laptop. A single Wi-Fi network, or hot spot, has a range of up to 1,000 feet in an optimal open environment and speeds of up to 11 Mbps. Wi-Fi hot spots give travellers in numerous public places such as coffee shops and McDonald's restaurants, hotels and airport lounges access to broadband services, including VoIP.[140]

Wi-Fi is also used in homes to connect multiple family computers to each other and to broadband Internet modems, and in businesses to connect employees in different departments and buildings across campuses. Such private network usage is significant because it tends to make the technology more widely available, and greater diffusion drives down costs. Furthermore, as computer makers add Wi-Fi capabilities to laptops, it will likely stimulate further proliferation of Wi-Fi hot spots.

As a result, Wi-Fi is emerging as another potent form of intermodal competition that extends beyond connecting laptops to the Internet at hot spots. For example, both cellular providers and VoIP providers are taking advantage of Wi-Fi to expand their reach and compete more effectively. They do so by employing mobile wireless or portable phones that use Wi-Fi technology and VoIP to route telephone calls for mobile users over the Internet.[141] A recent In-Stat/MDR report noted, "In 2007 and 2008, the phone segment will noticeably emerge, driven by embedded Wi-Fi in cellular phones."[142] The service also provides business travellers with the ability to make and receive phone calls from a laptop computer or PDA device, or specialized cordless VoIP phones. We describe the trends in Wi-Fi competition in more detail below.

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[140] *See* the Wi-Fi Alliance at http://www.Wi-Fi.org.

[141] *See* D. Biercks, *Demand for Wireless VoIP Applications and Services in the Business Environment*, In-Stat, January 2005 ("In-Stat Wireless Voip"), p. 6.

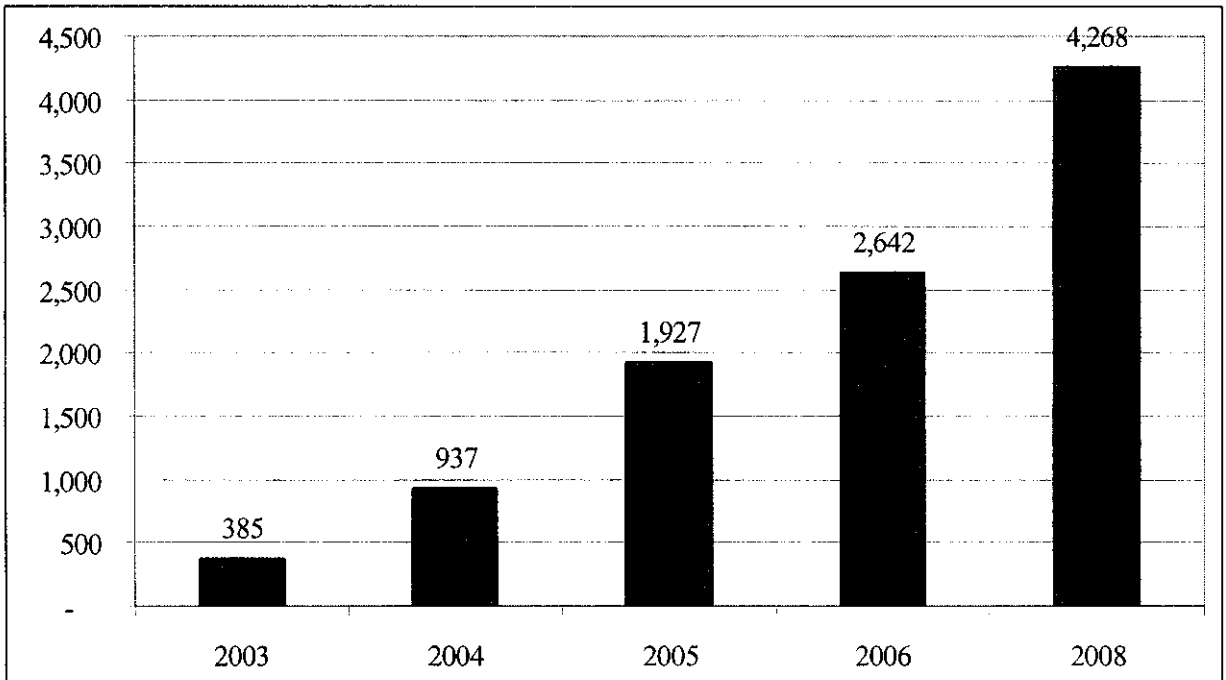
[142] In-Stat Press Release, *Wi-Fi Chipset Market Continues Impressive Growth*, February 28, 2006, available at http://www.instat.com/press.asp?ID=1598&sku=IN0501813NT.

b. Wi-Fi Is Widely Available in Florida

As illustrated in Figure 19 below, there were over 2,600 Wi-Fi hotspots in Florida by mid 2006 and the number increased to 4,268 by March 2008. .

Figure 19

Florida Wi-Fi Hotspots



Note: 2006 figure as of June; 2008 figure as of March.

Source: JiWire Hotspot Directory, available at www.jiwire.com and *Florida PSC 2005 Competition Report, Fig. 24.*

Several municipalities have deployed, or are in the process of setting up, wireless networks. For example, St. Cloud, a suburb of Orlando, was the first municipality in the U.S. to set up a free, citywide, high-speed wireless network.[143] St. Cloud's "Cyber Spot" has been available in the ? rest of this sentence missing?

As a recent article notes, "In the not-too-distant future, South Florida could be covered in a wireless Internet blanket under which laptop users could check e-mail and surf the Web from sidewalk cafés, parks, libraries and even from their homes." The article discusses several Wi-Fi networks in South Florida. For example, Broward County recently deployed a free network across downtown Fort Lauderdale. Built mostly for use by hundreds of county employees, it is now available for use in many parks and public places for anyone with a wireless-equipped laptop. If the Fort Lauderdale system is successful, Broward County may consider deploying the

[143] *See* City of St. Cloud, Florida, at http://www.stcloud.org/index.asp?NID=402.

network countywide. Miami-Dade County is planning a wireless network to serve all residents in the County. Miami Beach recently announced that it is also testing a free citywide network.[144]

In an undertaking similar in scale to that of a municipal deployment, Florida State University in Tallahassee is deploying Wi-Fi throughout its campus. By May 2005, it had made Wi-Fi available in 75 percent of the outdoor areas on campus and in 90 percent of the library. In May 2005, the network had 132 access points and supported 3,000 total users, 1,500 on a daily basis. The number of users was climbing and could reach as high as 40,000 daily users.[145]

In addition to these free and low-cost hot spots and networks, private enterprises, too, are offering Wi-Fi service for a fee. Many hotel chains offer access in their lobbies, and many coffee shops offer Internet access with your coffee. For example, among large chains, Panera Bread is enabling their stores for Wi-Fi access. In 2006, they had over 150 such locations in Florida.[146] McDonalds offers Wi-Fi at numerous locations throughout the state. For example, their web site shows 155 McDonalds hot spots within 55 miles of Tampa, FL.[147]

Map 1 below depicts just some of the hotspots throughout Florida, as of 2004.[148] The number is undoubtedly higher since then.

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[144] *See* E. Bolstad, *South Florida could go wireless*, The Miami Herald, February 20, 2006.

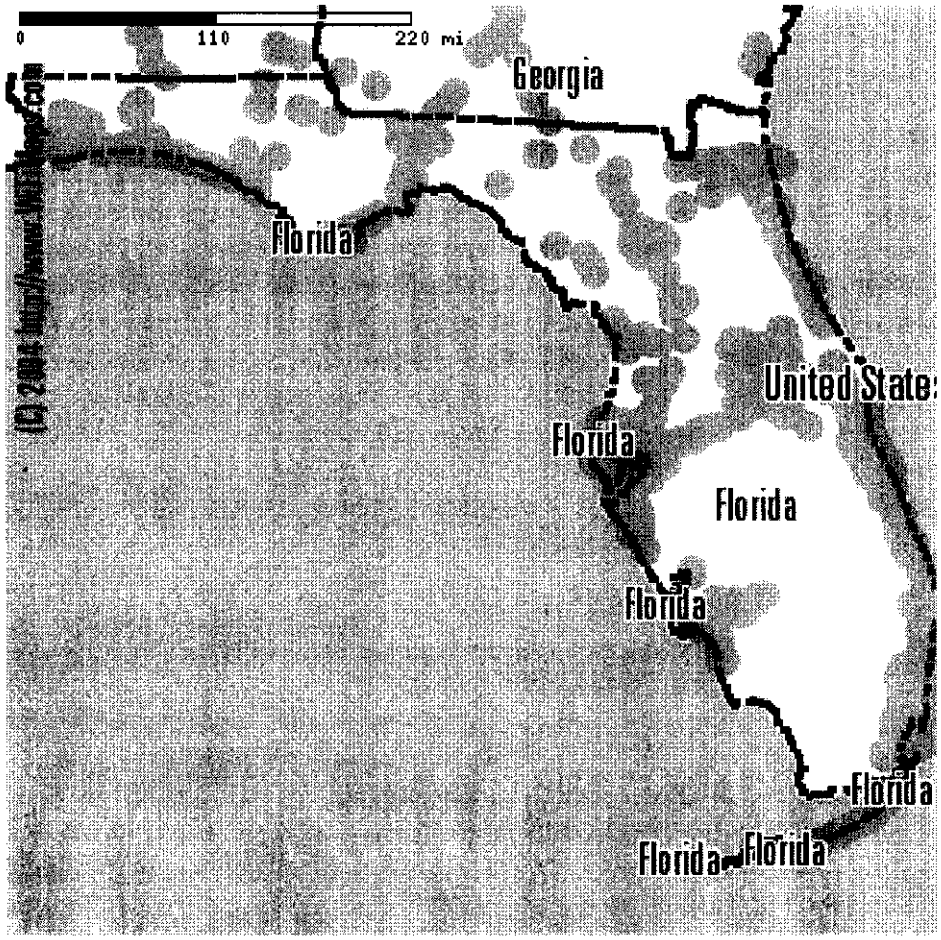
[145] *See* America's Network, *Florida State commits to Wi-Fi deployment: four-year effort expands to campus classrooms,* May 2005.

[146] *See e.g.*, http://www.palmbeachpost.com/photo/content/news/photos/wifi/hotspots.html and Wi-Fi @ Panera Bread at http://www.panerabread.com/wifi.aspx; http://www.wififreespot.com/fl.html.

[147] *See* http://www.mcdonalds.com/wireless.html, visited March 10, 2008.

[148] *See* http://www.wifimaps.com/.

Map 1
Florida Wi-Fi Hotspots



c. Trends in Wi-Fi Will Enhance Competition for Voice Services

In this section, we explain some of the trends in Wi-Fi that are likely to enhance intermodal competition for voice services. First, dual mode devices allow mobile wireless users to access both their wireless networks and Wi-Fi networks.[149] Users of these dual mode devices can conserve their mobile minutes by using a Wi-Fi connection to place VoIP calls. Dual mode phones also enhance coverage by allowing the user to stay connected in more locations—*e.g.*, in certain buildings in which mobile wireless coverage may be limited. The *Wall Street Journal* describes how Wi-Fi is increasing competition:

[149] Examples of dual phones include the HP iPAQ h6315 with T-Mobile service, T-Mobile's MDA III and MDA IV, O2 XDA IIs, Vodafone VPA III, and Orange SVP M2000.

> All players are moving ahead [with plans to offer a service with the ability to make Internet calls using a cell phone] despite the risks [to their existing businesses]: T-Mobile and Sprint, both pure cellular carriers, see the new technology as an opportunity to steal customers from landline companies and their bigger wireless competitors, people in the industry say. Switching calls over to the Internet will also allow carriers to expand their coverage inside homes and office buildings, where signals are weak, and to free up capacity on their cellular networks. [150]

According to the FCC's most recent CMRS report mobile wireless providers are operating thousands of WiFi hot spots and are offering dual mode mobile phones to provide high-speed Internet access and VoIP over broadband capability:

> Several mobile telephone providers have entered the hot spot operation business through acquisitions, partnerships, or independent deployments....T-Mobile offers Wi-Fi access at nearly 8,500 HotSpot-branded locations in the United States, while Sprint Nextel's Wi-Fi network includes more than 8,000 hot spot locations across North America. AT&T offers Wi-Fi connectivity at almost 15,000 hot spot locations in the United States....
>
> To augment their wide-area data service offerings, mobile telephone providers have typically offered WLAN services for high-speed, in-building data access. Certain providers – including T-Mobile, Sprint Nextel, and AT&T – offer at least one dual-mode handset that operates on both cellular and Wi-Fi networks. For example, T-Mobile's Dash™ and Wing™ devices can connect to the company's GPRS/EDGE network and are also Wi-Fi-enabled for high-speed data access. Sprint Nextel's Mogul™ device, introduced in June 2007, offers access to both Sprint Nextel's EV-DO network and Wi-Fi access points.
>
> The iPhone launched by Apple and AT&T in June 2007 runs on AT&T's EDGE network and can connect to any Wi-Fi hot spot for Internet access service. The iPhone can seamlessly switch from an EDGE to a Wi-Fi connection, and will automatically display a list of new Wi-Fi networks in range as the user moves to a new location.
>
> In addition to using Wi-Fi as a means of data access, over the past year certain mobile operators have begun to use WLANs to augment their CMRS-based voice services with voice connections at Wi-Fi hot spots. For example, in June 2007, T-Mobile and Cincinnati Bell introduced new services – "HotSpot@Home" and

[150] A. Sharma and L. Yuan, *AT&T Deal Could Speed Move to Wireless Internet Calling, The Wall Street Journal*, March 6, 2006.

> "Home Run," respectively – featuring dual-mode handsets that offer seamless voice connections on both Wi-Fi and the operators' GSM cellular networks.[151]

As we explained above, these latter options are designed to compete directly with wireline phone service by offering unlimited calling from users' homes for low incremental charges.

Other hybrid "smart phones" with dual mode capabilities will become more widely available as Wi-Fi becomes more widely deployed.[152] Both Vonage and Net2Phone have developed wireless VoIP phones that allow users to make calls at home or anywhere a wireless Wi-Fi broadband connection is available. Net2Phone's VoiceLine XJ100 Wi-Fi Handset automatically and intelligently scans and connects to available access points, so users can make a call over any open Wi-Fi hot spot.[153] Vonage, in conjunction with UTStarcom, launched its F1000 portable Wi-Fi phone in December 2005. The handset is configured with Vonage's standard call features, including three-way calling, call waiting, repeat dial on busy, voicemail and caller ID. Bill Huang, chief technology officer and senior vice president of engineering at UTStarcom commented:

> We believe the affordable price point and extensive features of the UTStarcom F1000 offered through Vonage will be a disruptive force in the telecommunications service marketplace. Consumers with Wi-Fi access in their home can replace their traditional home phone with the F1000 and start reaping the benefits of wireless VoIP phone service right away.[154]

According to a recent survey by In-Stat, 23 percent of decision-makers in medium-sized companies and large enterprises said that they had already deployed wireless VoIP in some manner and another 30 percent said they were planning or evaluating the implementation of the technology within the next six to twelve months.[155] In-Stat forecasts that by 2008, there will be close to 40,000,000 cellular voice devices w/WLAN subscribers, with non-business consumers beginning to dominate the subscriber market.[156]

As can be seen from the data for Florida, Wi-Fi is growing rapidly. Market research companies have forecast that the growth will continue. For example, In-Stat forecast rapid growth of WiFi chipsets for PCs and mobile phones,[157] and estimated that the number of public hot spot locations would double from 2005 to 2009.[158]

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[151] FCC Twelfth CMRS Report, at paragraphs 254 -257.

[152] *See* Parks Associates, *Residential Voice-over-IP: Analysis and Forecasts (Second Edition)*, 1Q 2005, at 12.

[153] *See* Net2Phone Press Release, *Net2Phone Launches Enhanced Wi-Fi Offer*, March 8, 2005.

[154] *See* Vonage Press Release, *Vonage® And UTStarcom Liberate Consumers From Their Traditional Phone Lines With Launch Of Portable Wi-Fi Phone*, December 13, 2005.

[155] *In-Stat Wireless VoIP*, p 1.

[156] *In-Stat Wireless VoIP*, p. 25, Table 5 and p. 1.

[157] In-Stat Press Release, *Wi-Fi Chipset Market Continues Impressive Growth*, February 28, 2006, available at http://www.instat.com/press.asp?ID=1598&sku=IN0501813NT and Wi-Fi Planet, *Wi-Fi Still Booming*, November 29, 2005, available at http://www.Wi-Fiplanet.com/news/print.php/3566911.

2. WiMAX

a. Overview of WiMAX Technology

WiMAX, like Wi-Fi, provides wireless broadband connections, but has a much wider range, up to 30 miles from the central base station, and has much higher speeds, of up to 75 Mbps.[159] Thus, a single WiMAX network or hot-zone, can provide broadband access to an entire city. WiMAX can extend service to rural and remote areas.

WiMAX can complement Wi-Fi. The combination of Wi-Fi and WiMAX technologies may allow broadband connections almost anywhere. According to a WiMAX analyst,

> Early Wi-Max deployments will start by connecting fixed or stationary subscriber stations, but then will evolve to support nomadic/portable applications and eventually completely mobile services and devices. Wi-Max will also enable the "access anywhere" triple play revolution: high-speed wireless delivery of data, voice and video applications at home, in the office and on the go.[160]

As the use of WiMAX spreads, it could grow to challenge established wireline DSL and cable modem services. In-Stat discusses some of the benefits of WiMAX to consumers:

> WiMAX will offer consumer and business subscribers a range of technology and service level choices from broadband operators. Fixed and mobile broadband prices will decline, and there will be DSL-like services that offer portability. DSL "blackspots" and "installation" fees will be eliminated. Service providers will have a cost-effective way to offer new, high-value, real-time, multi-media services like wireless picture mail, video mail, and video streaming.
>
> Subscribers will enjoy "anytime, anywhere connectivity." No more driving around looking for a WiFi hotspot. Dial-up will be a distant memory. As

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According to In-Stat and the Wi-Fi Alliance, over 140 million Wi-Fi chipsets shipped in 2005, representing an average annual growth rate of 64 percent since 2000. In-Stat is forecasting that the rapid growth will continue, with sales reaching 430 million units in 2009. It is estimated that over 90 percent of all notebook computers shipped today are Wi-Fi enabled. Wi-Fi is also moving beyond core PC applications and into consumer electronics and mobile phones, further increasing the potential for growth in sales in the future.

[158] In-Stat Press Release, *Wireless Data Hotspot Services to Reach $3.46 Billion in 2009*, September 20, 2005, available at http://www.in-stat.com/press.asp?ID=1447&sku=IN0502196MU. It estimated that the number of public hot spots will grow from 100,000 locations in 2005 to almost 200,000 locations in 2009, largely driven by branded deployments in the café market (including coffee shops, fast food and full service restaurants). Over the same period, associated revenue will increase from $969 million to $3.46 billion.

[159] *See, e.g.*, Shim, Richard. *WiMAX in the Wings*, CNET News.com, June 25, 2004, available at http://news.com.com/Wi-Max+in+the+wings/2100-1039_3-5247984.html.

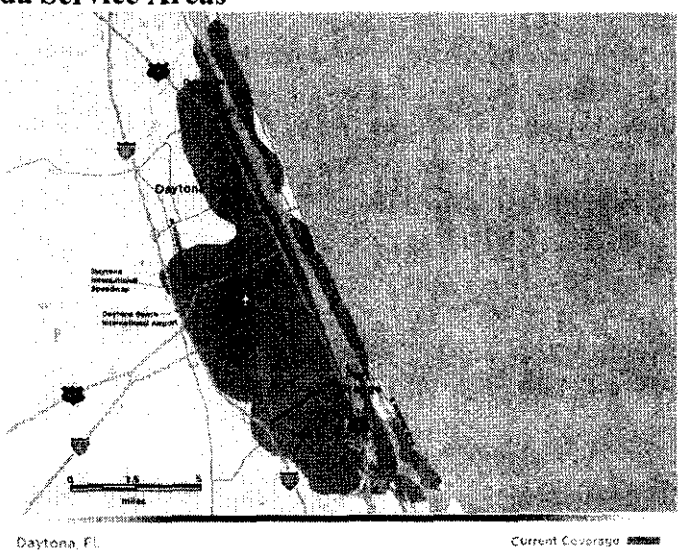
[160] *See* Antonello, Gordon. *Just the Wi-Max Facts, Ma'am*, Electronic News, March 16, 2005.

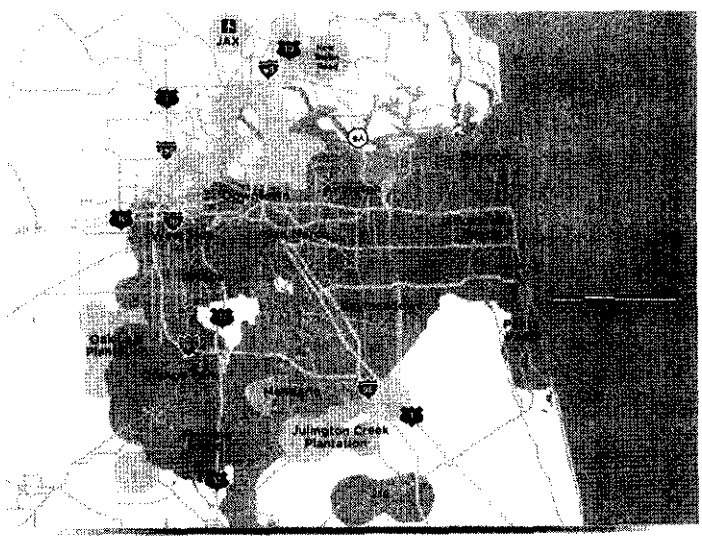
broadband connectivity becomes more ubiquitous, subscribers will use their devices more and leave them on, integrating them more into their lifestyles.[161]

b. WiMAX Deployment in Florida

In our 2006 report, we described WiMAX deployments by Clearwire in Jacksonville and Daytona Beach.[162] The following maps of Clearwire's two Florida service areas illustrate how WiMAX can be used to cover large geographic areas.[163]

Map 2 Clearwire's Florida Service Areas





[161] K. Lundgren and N. Bogen, *WiMAX: Challenging the Status Quo,* In-Stat, December 2005, p. 9.

[162] *See* NERA, *Intermodal Competition in Florida Telecommunications*, July 2006, p. 67; and Clearwire *Wireless Broadband*, available at http://www.clearwire.com.

[163] *See* http://www.clearwire.com/store/service_areas.php.

We also reported that Clearwire was deploying voice service throughout its service areas.[164] Although, Clearwire has not yet deployed additional systems in Florida, it has continued to expand its operations and to add customers. According to a March 2008 article in *RCRWireless News*: Clearwire doubled its customer base "from 206,000 subscribers at the end of 2006 to 394,000 at the end of last year"; its average revenue per customer (i.e., the average charge per customer) was only about $36.09 in 2007; its quarterly revenues reached $45 million in Q4 of 2007, although its losses increased substantially during 2007 the "company attributed the increase to expenses related to launching 14 new markets during the year": and Clearwire "echoed earlier comments from Sprint Nextel executives that the two companies were in discussions regarding a partnership to deploy a nationwide mobile WiMAX network."[165]

Two other WiMAX providers recently announced that they have deployed or would deploy the technology in Florida. Towerstream provides the service in Miami.[166] And, NextPhase President Robert Ford stated that they have the spectrum to serve Miami: "Combined with the recently announced Local Multipoint Distribution Service spectrum that we've acquired in certain key markets (Atlanta; Los Angeles; Miami; Philadelphia; Wilmington, Del.; and Trenton, N.J.) we now have all of the elements in place to deliver a comprehensive portfolio of business-grade broadband speeds."[167]

c. WiMAX Development Will Enhance Competition

As we explained in our 2006 report, the availability of WiMAX is likely to increase because of major funding from companies like Motorola and Intel. According to a September 2007 press account, additional companies such as Samsung are investing in the technology:

> Sprint Nextel and Clearwire, along with their infrastructure vendors, are investing untold amounts of money to realize the promise of WiMAX. That makes investments in devices, particularly for first-to-market vendors, a reasonable bet, according to Samsung's Skarzynski.
>
> WiMAX is coming on as the U.S. market, for instance, is reaching maturation and saturation, Skarzynski said. With penetration reaching 80%, U.S. consumers will continue to upgrade their handsets and that often means spending a little more for

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[164] *See* Clearwire Press Release, *Clearwire Becomes First International Wireless Broadband Company to Offer Simple, Reliable Internet Phone Service*, April 10, 2006 and *Clearwire News Releases*, available at http://www.clearwire.com/company/news/releases.php .

[165] Dan Meyer, "Clearwire stock gyrates on results, speculation," RCRWirelessNews, March 4, 2008

[166] According to Peter Svensson, "Speedy WiMax May Be The Future Of Wireless Internet Links," The Associated Press, "Towerstream now sells service Miami, Los Angeles, Chicago, Seattle, San Francisco, Providence, R.I., and Boston," and in New York. November 18, 2007.

[167] See: Matt Kapko, "WiMAX rolls ahead without Sprint Nextel; TDS, NextPhase boast of deployment plans, RCR Wireless News, January 22, 2008;
http://www.rcrnews.com/apps/pbcs.dll/article?AID=/20080122/FREE/348119820/0/http:&template=printart.

> the next device. Smartphones today account for perhaps 10% of the U.S.'s annual purchase of about 160 million units, a slice that will grow to 15% to 20% of sales as Americans buy better handsets in an upgrade cycle.[168]

WiMAX will complement VoIP by providing wireless broadband internet access anywhere in a metropolitan area. In-Stat discusses some of the potential applications of WiMAX:

> 802.16-2004, the fixed variant of WiMAX, is designed to accommodate any application currently served by cable or DSL, including the triple play of data, voice and video. A single WiMAX base station...can backhaul traffic from cell sites and WiFi hotspots and provide last mile broadband access to homes and enterprises.
>
> ...a key differentiator of 802.16-2004 will be its Nomadic mode, which supports wireless broadband communication within a given area while the end user or device is either stationary or moving slowly at "pedestrian" speeds through the area. This means that a user can connect to a WiMAX network at home, take his WiMAX-enabled device (PDA, laptop, modem, and handset) to work or play, and connect to a WiMAX network at those locations as well. In addition, the user can maintain his broadband connection as he moves around within the WiMAX network coverage area...[169]

Recent articles continue to show that WiMAX is likely to have a major effect on the communications market it both urban and rural areas. First, as noted above, at least two WiMAX companies are serving cities in Florida; a third has announced it has spectrum to serve Miami; and Sprint Nextel has resumed talks with Clearwire to jointly deploy a nationwide mobile WiMAX network. Second, forecasts of WiMAX growth are still robust. For example a January 2008 article reported:

> The market for WiMAX chipsets will reach almost $500 million by 2012, driven mainly by embedded mobile WiMAX in mobile personal computers, according to new research from high-tech research firm In-Stat.
>
> The market will also benefit from demand for WiMAX customer premises equipment, external clients and dual-mode cellular/WiMAX handsets, said In-Stat.
>
> "The total WiMAX user terminal chipset market will reach almost $500 million in 2012, growing from $27 million in 2007," said Gemma Tedesco, In-Stat analyst.

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[168] Phil Carson, "WiMAX devices due to hit U.S. market in '08: Evangelism now, a slew of mobile devices soon," *RCRWireless News*, September 26, 2007.

[169] K. Lundgren and N. Bogen, *WiMAX: Challenging the Status Quo,* In-Stat, December 2005, p. 10.

"Furthermore, WiMAX base station semiconductor revenues are expected to be approximately $1.4 billion in 2012, compared to $130 million in 2007."[170]

In September of last year RCRWireless News reported that Samsung which is developing new WiMAX handsets sees WiMAX:

"...as having a large growth potential," Skarzynski said. "Samsung has a great capability to deliver parts of the home network to deliver content directly from the providers. The technology is there to enable different content providers to reach consumers. Samsung is looking to stake its claim to this market."[171]

3. BPL

Broadband Over Powerline, or BPL, has been developed to allow transmission of broadband signals over existing power line facilities. Because it uses the existing utility infrastructure, BPL provides electric utilities a low cost means of entry into the communications markets and allows them to take advantage of economies of scope. Retired FCC Commissioner Abernathy explained the significance of BPL this way:

> Access BPL may play an important role as a new competitor in offering broadband access to homes and businesses because power lines are available in almost every community. This means that the traditional providers of broadband communications, DSL and cable modem services, will face a new competitor. In addition, Access BPL may serve as a broadband solution in geographic areas where DSL and cable modem services are not yet offered.[172]

The deployment of BPL facilitates competition for voice services, in addition to broadband. This occurs in two ways. First, the broadband line allows the customer to purchase service from any of the numerous independent VoIP providers or a VoIP offering from the BPL service provider. Second, the BPL service provider may offer VoIP even if the customer does not purchase broadband service.[173]

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[170] WiMAX chips to generate $500M by 2012 RCRWireless News, January 21, 2008, http://www.rcrnews.com/apps/pbcs.dll/article?AID=/20080121/SUB/5378299/1008/FREE&template=printart

[171] Phil Carson, "WiMAX devices due to hit U.S. market in '08: Evangelism now, a slew of mobile devices soon," *RCRWireless News*, September 26, 2007.

[172] FCC Commissioner Kathleen Q. Abernathy, *Broadband Over Power Line*, Focus on Consumer Concerns, Vol. 4, Number 1, May-June 2004.

[173] For example, Current Communications is offering a residential broadband and VoIP package to its BPL service area for $49.90 per month. Residential customers may also purchase phone service only for $34.95. Current is currently deploying BPL to over 2 million homes and business in the Dallas-Ft. Worth area, in conjunction with TXU Electric Delivery. *See* http://www.current.net/ServiceAndPricing/Residential/Voice/PricingAndBenefits/, http://www.current.net/ServiceAndPricing/Promotions/ and Current Communications Press Release, *TXU and*

Although certain obstacles have caused a slow commercial deployment of BPL, a 2006 Report of the Broadband Over Power Lines Task Force, the National Association of Regulatory Utility Commissioners noted:

> The year 2005 marked an interesting, albeit mixed, year for BPL. The year's highlights saw encouraging signs that BPL may enhance broadband competition and electric utility functionality on a more widespread basis. BPL supporters could point to such developments as commitments to BPL by major media and technology companies, new trial start-ups, new full-scale commercial deployments, and realization of benefits from application of Smart Grid principles.[174]

It is also worth noting that in May 2006, Current Communications attracted $130 million in equity investments from new and existing investors to accelerate the deployment of BPL. New equity investors are General Electric; EarthLink, which will serve as a retail provider of Current's broadband services; TXU Corp.; and Sensus Metering Systems, which provides meter-reading products. Existing equity investors include Duke Energy; EnerTech Capital Partners; Goldman, Sachs & Co.; Google; Hearst; and Liberty Associated Partners LP, an investment partnership between Liberty Media and the Berkman family.[175] Clearly, the market has recognized the potential of BPL.

As noted in the *Florida PSC 2006 Competition Report*, several utilities with a presence in Florida have been exploring BPL. These include Progress Energy (test in North Carolina), Florida Power & Light (announced that it was testing the technology), and Southern Company (BPL demonstration in Georgia). The Commission also noted Jacksonville Electric Authority's (JEA) partnership with Nemours Children's Clinic to deliver pediatric remote home monitoring services via BPL for asthmatic children in the Springfield community of Jacksonville, Florida. In July 2005, The National Rural Telecommunications Cooperative reported that:

> ElectroLinks, one of two broadband over power line (BPL) equipment companies participating in a performance pilot of BPL technology in low-population rural settings, has completed the first stage of its equipment installation at NRTC member West Florida Electric Cooperative (WFEC) in Graceville, FL.

CURRENT Communications to Create Nation's First Multipurpose Smart Grid, December 19, 2005, available at http://www.current.net/OurCompany/PressReleases/PressReleasesDetails/?pressid=15.

[174] The National Association of Regulatory Utility Commissioners, *Report of the Broadband Over Power Lines Task Force,* February 2006, p. 2. The Report also mentioned that 2005 saw:

> news that several BPL trials ended unsuccessfully. BPL detractors continued to question the long-term sustainability of the technology, especially when confronted with the faster deployment and superior funding of its two largest broadband competitors, cable television's cable modem service and telecommunications providers' DSL service. Those who contend that BPL interferes with ham radio and other radio applications also maintained their opposition to deployments of certain BPL technologies.

[175] *See* B. Santo, *BPL Specialist Current Raises $130 M*, CED Magazine, May 4, 2006, available at http://www.cedmagazine.com/article/ca6331733.html?text=bpl+specialist+current+raises.

> "The demonstration was especially significant since [Electrolinks and WFEC] used WildBlue [Satellite broadband], BPL, Wi-Fi and [voice over Internet protocol], and it was all plug and play," said Steve Collier, NRTC's vice president, Emerging Technologies. [176]

Going forward, BPL deployment may increase as industry-wide standards are developed by the IEEE,[177] and as the imperatives of energy efficiency and environmental concerns stimulate utilities to continue to develop and deploy the smart technology to improve their operational efficiency. In March 2008, Xcel Energy announced its plan to spend up to $100 million on its "Smart Grid" for Boulder Colorado. In doing so, it stated: "The advanced, smart grid system – when fully implemented over the next few years – will provide customers with a portfolio of smart grid technologies designed to provide environmental, financial and operational benefits."[178] The company earlier revealed that:

> A number of technologies will be offered within Smart Grid City, including:
>
> Transformation of existing metering infrastructure to a robust, dynamic communications network, providing real time, ***high-speed, two-way communication throughout the distribution grid***.
>
> Conversion of substations to "smart" substations capable of remote monitoring, near real-time data and optimized performance.
>
> Installation of thousands of in-home control devices and the necessary systems to fully automate home energy use.[179]

BPL equipment provider Current Group, which provides sensing, monitoring and other communications technologies over power lines, is a participant in the plan. As noted above, Liberty Media is one of the investors in that BPL vendor.

Thus, although BPL is in its infancy in Florida, utility providers represent potential competitors to telephone and cable companies in the provision of broadband, and therefore the provision of voice services, even in rural areas.

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[176] *See NRTC Update*, Volume 3, Number 14, July 6, 2005, available at http://www.nrtc.coop/us/main/nrtc_update/Update2005/NRTCU_070605.pdf.

[177] See: Sean Michael, Kerner, "Broadband Over Power Adversaries Unite on Standard," *internetnews.com*, October 1, 2007, http://www.internetnews.com/bus-news/article.php/3702646

[178] See: "Xcel Energy announces first Smart Grid City in the nation: Boulder, Colo., to be fully integrated smart electricity city," March 12, 2008.

[179] See Xcel News Release "Xcel Energy announces Smart Grid Consortium partners, intent to bring Smart Grid City to life," 01/16/2008; emphasis added, http://www.xcelenergy.com/XLWEB/CDA/0,3080,1-1-1_15531_46991-44146-0_0_0-0,00.html.

V. CONCLUSION

Intermodal competition is a major force in Florida today. It has already had a tremendous effect on the state's telecommunications market, and it will only intensify in the years to come. Legislators and regulators should reevaluate old assumptions that may have applied decades ago during the monopoly era, but that no longer holds true. To ensure that Florida takes a leadership role in technology and communications, continuing to attract investment to the state, telecommunications regulation must take into account the dynamic competition that has emerged and that is here to stay.

More specifically, the intermodal competition that has developed in the last six years clearly implies that policymakers must allow market forces to play an even larger role than they already do in order to yield economically efficient outcomes. As described above, technological change, notably convergence, and intermodal competition, has essentially eliminated the natural monopoly justification for regulating ILECs. LEC (ILEC and CLEC) networks face formidable and increasing competition from advanced technologies such as digital cable and wireless for the "last mile" connection. The emergence of intermodal competition has so broadened telecommunications markets beyond the traditional wireline sector that all communications firms have to adapt much more rapidly than at any time in the past. In this new environment, existing modes of economic regulation are only likely to retard the evolution of the telecommunications market and pose barriers, rather than solutions.

Perhaps the most urgent task facing Florida policy makers is a reassessment of the current asymmetrical regulatory scheme. Most telecommunications regulations now on the books were put in place long before the advent of intermodal competition and thus were not designed with today's competitive environment in mind. Because of the costs and unintended consequences that such outdated regulations impose, updating and streamlining those regulations should be a top priority. Failure to address this problem now would harm the communications market, the state's economy and ultimately all Floridians.

About the Authors

The authors are: Drs. William E. Taylor, Senior Vice President, and Harold Ware, Vice President, at NERA Economic Consulting (NERA).

Dr. Taylor heads the Communications Practice and the Boston office. He has worked primarily in the field of telecommunications economics on problems of state and federal regulatory reform, competition policy, quantitative analysis of state and federal price regulation proposals, competitive effects of mergers among major telecommunications firms, analyses of vertical integration and interconnection among telecommunications networks, and antitrust litigation in telecommunications markets. He has testified on telecommunications economics before numerous state regulatory authorities, the Federal Communications Commission, the Canadian Radio-Television and Telecommunications Commission, the New Zealand Commerce Commission, the Comisión Federal de Telecomunicaciones de México, federal and state congressional committees and courts. He has appeared as a telecommunications commentator on PBS Radio and on The News Hour with Jim Lehrer.

He has published extensively in the areas of telecommunications policy and in theoretical and applied econometrics. His articles have appeared in telecommunications industry publications as well as the *American Economic Review*, *Econometrica*, the *Antitrust Law Journal*, the *Yale Journal on Regulation*, the *Review of Industrial Organization*, the *International Economic Review*, the *Journal of Econometrics*, *Econometric Reviews*, and *The Encyclopedia of Statistical Sciences*. He has been an Associate Editor of the *Journal of Econometrics*.

Dr. Taylor received a B.A. *magna cum laude* in Economics from Harvard College, an M.A. in Statistics and a Ph.D. in Economics from the University of California at Berkeley. He has taught economics, statistics, and econometrics at Cornell and the Massachusetts Institute of Technology and was a post doctoral Research Fellow at the Center for Operations Research and Econometrics at the University of Louvain, Belgium. He has performed and published research on economics, econometrics and telecommunications policy at Bell Communications Research, Inc. and the Economics Research Center at Bell Laboratories.

Dr. Ware has studied telecommunications regulation and competition issues for over 30 years. At NERA, he has directed and written international comparisons of telecommunications regulation and competition policies for submission to the US Federal Communications Commission (FCC) and to New Zealand's Ministerial Inquiry into Telecommunications.

Dr. Ware's recent work has focused on convergence and intermodal competition among wireless, cable, Internet, and wireline companies, including analyses of:

- Intermodal competition for directory assistance, local, long distance, Centrex/PBX, and other services;
- Convergence of wireline, wireless, cable, and Internet communications technologies;
- Network interconnection costs;

- Costs, pricing and entry policy, and universal service issues associated with the transition to competition;
- Analyses of the competitive effects of mergers involving wireline and/or wireless communications companies; and
- Carrier access pricing, cross-subsidization, and other pricing and costing issues.

Dr. Ware also has substantial experience with analyses of demand and the economics of network deployment. In particular, he has:

- Directed studies of demand for residential and small business regional telephone services, as well as for high capacity business private line services, telephone switching services, and local telephone services; and
- Testified on the planning and deployment of new technology in telecommunications networks.

He has testified or filed affidavit testimony before the US Postal Rate Commission, state regulatory commissions, the FCC, and the US Department of Justice. Dr. Ware is co-author of three chapters of *Communications for a Mobile Society: An Assessment of New Technology* and has published articles in *Public Utilities Fortnightly, The Journal of Regulatory Economics, IEEE Communications*, and proceedings of the *Fifth and Seventeenth Annual Telecommunication Policy Research Conferences*. His paper, "Competition and Rate Restructuring for Postal Services" appears in *Managing Change in the Postal and Delivery Industries* (Kluwer Academic Publishers, 1997).

Dr. Ware received his doctorate degree in economics from Cornell University, where he taught courses in economics and industrial organization and did research on cellular mobile communications in the Technology Assessment Project of the Program on Science, Technology and Society.

NERA Economic Consulting is an international firm of economists who understand how markets work. Our clients include corporations, governments, law firms, regulatory agencies, trade associations and international agencies. Our global team of 500 professionals operates in 16 offices across North and South America, Europe, Asia and Australia. Founded in 1961 as National Economic Research Associates, our more than 40 years of practical experience creating strategies, studies, reports, expert testimony and policy recommendations reflects our specialization in industrial and financial economics.

NERA is a key participant in the important regulatory, legislative and competition issues facing firms and policy makers around the world. We advise companies on regulatory and competitive issues, and assist firms seeking more freedom to enter and compete in markets. NERA often develops models of demand and costs and prepares demand forecasts for its consulting assignments. We describe our results in testimony, reports and oral presentations, to regulators, courts, competition authorities and legislative bodies.

As new technologies and new forms of competition transform markets, firms face expanding challenges and opportunities. Issues of entry into new markets and shifting market boundaries have joined decades-old matters of costs, demand and rates. The tools and insights of microeconomics and statistics are critical in addressing these issues. NERA experts apply detailed industry knowledge, microeconomic principles and quantitative analysis to assess competition.

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Verizon (VZ): Project FiOS... Great for Consumers, but What About Investors?

Estimate Change in Bold

Ticker	Rating	CUR	1/11/2008 Closing Price	Target Price	YTD Rel. Perf.	EPS 2006A	EPS 2007E	EPS 2008E	P/E 2006A	P/E 2007E	P/E 2008E	Yield
VZ	M	USD	42.50	44.00	1.9%	2.12	**2.37**	**2.66**	20.0	17.9	16.0	3.8%
OLD								2.61				
SPX			1401.02			86.75	91.00	97.00	16.2	15.4	14.4	2.0%

O – Outperform, M – Market-Perform, U – Underperform

Highlights

- There is little doubt but that Verizon's FiOS is a terrific product... for consumers. But for shareholders, the benefits are less clear. Against a weakening macro-economic backdrop, and deteriorating fundamentals for the Consumer Wireline segment at the major TelCos, FiOS will provide welcome growth... but it may actually dilute Wireline margins. And FiOS's growth will come at *very* high cost.
- In this report, we examine in detail the returns investors can expect from Verizon's past and future investments in the FiOS platform.
- Unfortunately, there is no simple answer to the all-important returns question. Considered from the *beginning* of the project (in 2005), we believe Verizon's enormous $23B investment in FiOS project will almost certainly fail to return Verizon's cost of capital – and by a wide margin.
- But that ship has already sailed... we are no longer at the beginning of the project. More relevant to investors today is the marginal return from *here*. The economics of incremental spending to connect customers – *after* the "home passings" phase of the project – are very different, and clearly attractive.
- When completed, we estimate the *full* cost of FiOS will be approximately $4,000 per *connected* home. In contrast, the present value of all components of incremental contribution, including cost savings, incremental revenues, and avoided capital spending, amount in aggregate to approximately $3,200 per customer, yielding a *negative* NPV of nearly $800 per subscriber. These unattractive economics still obtain in all markets where the FiOS infrastructure is not yet deployed.
- But nearly 3/4 of the aggregate investment on a per subscriber basis comes in the *passings* phase of the project. Since the "home passings" portion of the network is now approximately half completed, the question of how FiOS looks *after* the passings phase is increasingly relevant; indeed, some 9M homes already fall into this "after" category. In markets where the "passings" phase of the project is *already* complete, the marginal return on connections is compelling (assuming Subscriber Acquisition Costs are restrained). Return on the connection-only phase of the project is as high as $1,300 per subscriber.
- Indeed, an even more aggressive view – and the one that likely best captures the Market's current perspective – is that the entire "passings" infrastructure build-out can *already* be thought of as a sunk cost, irrespective of whether it has *actually* been built yet or not. In this view, Market participants have, perhaps, already priced-in the value erosion inherent in the FiOS "passings" phase (probably as long ago as 2005). From here, the marginal returns of FiOS will only get better.

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Investment Conclusion

We view the *aggregate* FiOS investment as uneconomic, but believe that FiOS-related capital spending – both its costs and its resulting benefits – are now largely priced into the stock. Adoption rates in excess of Market expectations would therefore be a clear net positive.

We believe Verizon is fully valued at current levels. Growth characteristics are attractive, but ROIC is not, and valuation is not compelling. We rate Verizon Market perform, with a twelve month target price of $44.

Details

In our coverage initiation of the Telecom sector – and of Verizon specifically – last October, we painted a bleak picture of the TelCos' Consumer Wireline future. Contrary to expectations (at the time) of a turn, we observed at the time that Wireline losses are secular, not cyclical, and can be expected to continue to worsen. Amidst growing concern about the prospects of recession, anxieties about the decline of the Consumer Wireline sector have only deepened.

Each of the TelCos has adopted a different approach to deal with this secular decline. AT&T [T, market perform, target $47] is pursing a modest-cost approach, deploying fiber deep into neighborhoods (FTTN), but using their existing copper infrastructure and IPTV-over-DSL to offer a video solution without overwhelming capital expense. Qwest [Q, not covered] has expressed skepticism that even this approach can earn an acceptable return, and has voted for "video abstinence." Qwest is relying on a satellite bundle with DirecTV [DTV, market perform, target price $26], and – in its physical plant – is assuming that broadband alone, and a more radical vision of over-the-top video delivered over that network, will be the long-term video solution for its customers. Verizon is unique in pursuing a more traditional cable-like solution, with fiber being deployed all the way to the customer premise (FTTP). Theirs is by far the highest cost approach. Their view is that nothing short of an all-new "network of the future" is required to stave off the long-term decline of their terrestrial franchise.

This backdrop of continued erosion of the Wireline franchise is critically important to any clear-eyed assessment of the economics of Verizon's FiOS investment. The economics of Verizon's capital spending program to build a fiber-to-the-premise (FTTP) network rest entirely on *incremental* returns. Since the investment itself is incremental to the legacy network, the returns must be calculated on an incremental basis; the difference between what *would have happened* if FiOS had never been built, and what *will happen* after it actually is.

Those incremental economics pose a dilemma. To earn a return on the huge incremental investment, it is necessary to assume that the *loss* expectations in the "what-if-we-*didn't*-build-it?" case would be very high indeed. But even in its most optimistic projections, and after its pending sale of access lines in New England – which, after some nail-biting moments, at last looks likely to proceed – FiOS will reach only a little more than half of Verizon's footprint. What, then, should we conclude about the wireline businesses' prospects in the "other half" of Verizon's footprint, where FiOS will *never* reach?

Further complicating the matter is the problem of starting point. Now that Verizon is approximately halfway through the "passings" phase of the FiOS project, the incremental analysis starts to play in the carrier's favor. Construction costs are increasingly sunk; penetration rates are increasing; the installed base is growing; and investors may even already be looking ahead to 2011 – when construction is over.

But this incremental approach has limits: on an incremental basis, homes that are already passed today will show positive economics (the passings costs are sunk; the revenues are still to come). However, that observation does not create a financial justification for more construction. At an incremental level, the costs

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incurred to pass even the 18 millionth FiOS home will, in our view, never be fully recovered. With only half of the anticipated passings completed by the end of this year, we remain years away from justifiably viewing the FiOS infrastructure build as fully behind us.

In the detailed analysis of FiOS's marginal economics in this report, we conclude that – even after making generous assumptions that are, in many cases, even more optimistic than Verizon's own guidance – FiOS delivers returns that are far (far) below the cost of capital.

We estimate the full cost of FiOS to be approximately $4,000 per *connected* subscriber (and that *before* the not inconsiderable Subscriber Acquisition Costs currently being incurred). In contrast, the present value of all components of incremental contribution, including cost savings, incremental revenues, and avoided capital spending, amount, in aggregate to approximately $3,200 per customer, yielding a negative return of almost $800 per subscriber.

That the returns of building a new network of this magnitude are unappealing should not be a surprise. As we have written extensively over the past five years, terrestrial network operators *rarely* earn adequate returns. Indeed, Verizon's principal competitors – the cable operators – enjoy far lower variable costs and have an incumbency advantage, and yet even when they are still virtually the *only* game in town their total returns on invested capital are anemic (and clearly below the cost of capital). Why then, would one assume that a new entrant, with higher costs, would be able to enjoy attractive returns by dividing up a market that isn't big enough for even *one* terrestrial network to earn a compelling return? Tellingly, competitor Comcast currently trades at an Enterprise Value of just $3,000 per subscriber, and at just $1,500 per connected home. With FiOS capital spending costs alone in the range of $4,000 per connected home, or 2.5x the entire Enterprise Value of its closest competitor, Verizon's FiOS surely faces a dizzying challenge in earning a desirable return for shareholders.

Perhaps the best that can be said is that the market already *knows* this, and that the damage is, at least, contained. Market participants have, perhaps, already priced-in the worst of FiOS, likely as far back as 2005 (when Verizon's stock sharply underperformed Telecom peers adopting less costly alternatives).

Over time, the marginal returns of FiOS will get better and better – since more and more of the value dilutive investment phase will be behind them. Having overspent – just like cable – to build the network, the incremental costs to *operate* it simply aren't that large.

Poor Returns on FiOS, Even with Aggressive Assumptions

Verizon's FiOS service has met with considerable consumer success (**Exhibit 1** and **Exhibit 2**). By the end of the Third Quarter, Verizon has eclipsed 1.2M broadband subscribers on the network, and by the end of the Fourth Quarter had more than a million video subscribers. Quarterly gains for both services continue to accelerate. The service has drawn raves, most recently from Consumer Reports, which granted FiOS its first ever "perfect" score for a video or broadband provider. We fully concur with the assessment that it is a terrific product… for consumers.

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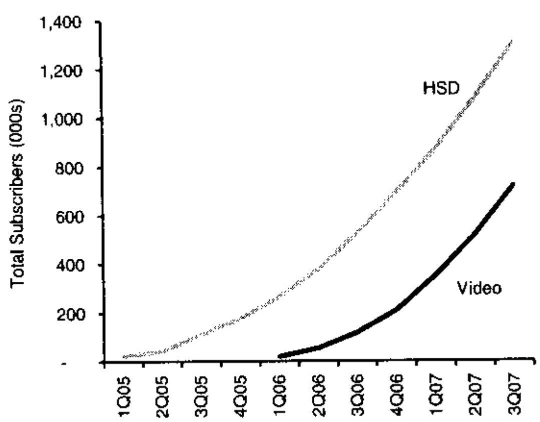
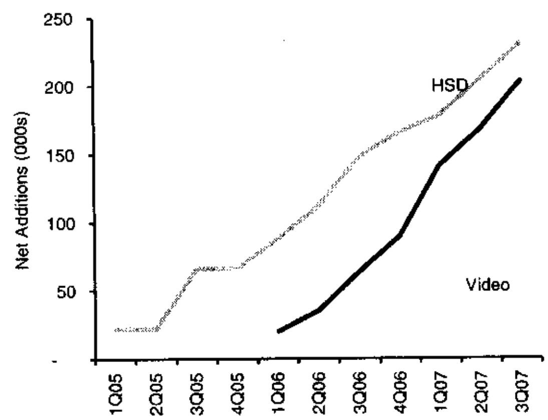
Exhibit 1
Verizon FIOS: Total Subscribers



Source: Company reports

Exhibit 2
Verizon FIOS: Net Additions



Source: Company reports

But for shareholders, the benefits are less clear. Even with aggressive assumptions about incremental adoption and retention, we believe the FiOS project, in aggregate, falls well short of earning its cost of capital.

In effect, Verizon is trading an unattractive picture of slow and steady declines in the wireline business for an even *more* unattractive picture of massive capital reinvestment at below-cost-of-capital returns. Revenues will decline more slowly than would otherwise be the case, and indeed will actually grow, and earnings will be bolstered in part by what amounts to a massive expense capitalization program (as routine adds, drops, and service calls are capitalized under the FiOS banner). But what *really* matters – return on invested capital – is turning sharply downward from already low levels, and by all accounts will remain depressed for years as a consequence of FiOS.

How Did We Get Here?

We believe FiOS is perhaps best understood as the product of internal incentives to maintain a growing wireline division, rather than an investment with readily identifiable financial benefits. Line losses have continued to erode Verizon's legacy copper business (**Exhibit 3**), and – with cable VoIP impacts expected to significantly *accelerate* in each of the next few years – these line losses are expected to worsen significantly before the get better (**Exhibit 4**).

Recent commentary from AT&T suggests macro-economic weakness may result in accelerated line losses from even our pessimistic forecasts. AT&T's comments suggest that a Wireline connection is increasingly viewed as discretionary, and consumers – stretched by high energy costs and the worsening housing and credit backdrop – have strong motivation to carefully scrutinize "discretionary" spending.

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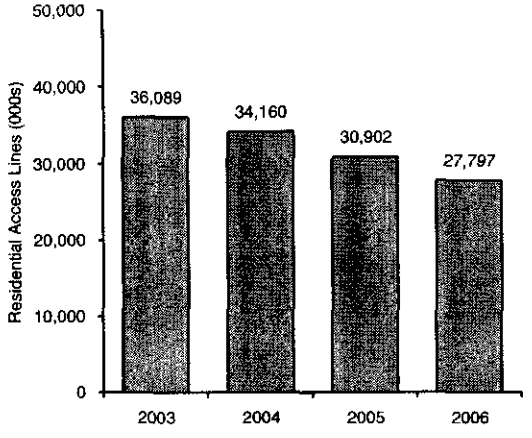
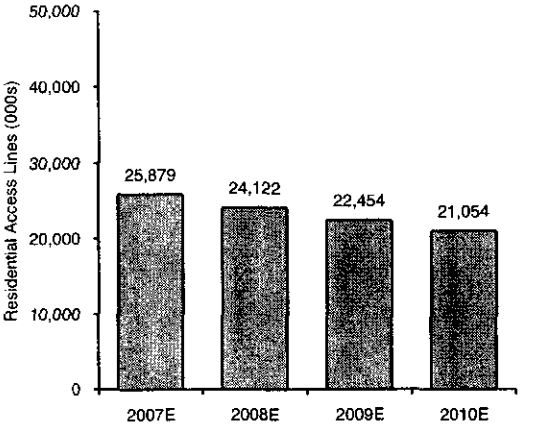
Exhibit 3
Residential Access Lines (2002-2006)



Source: Bernstein estimates and analysis

Exhibit 4
Projected Residential Access Lines (2007E-2010E)



Source: Bernstein estimates and analysis

In a high fixed cost/low variable cost business like telecommunications, we believe costs simply cannot be shed fast enough to stay ahead of these line losses. As a result, there is a strong incentive to capitalize costs, minimizing the impact of line losses on Verizon's income statement.

In this context, FiOS is replacing an inferior and strategically disadvantaged copper plant with a fiber network capable of supporting a virtually limitless array of new digital services. There is no question that, where available, Verizon's FiOS offers a residential communications services equal to any; as a consumer, if you can get FiOS at home – and you can afford it – you will likely be pleased. The colossal construction costs, however, mean that investors should take a more jaundiced view.

(For more on the decline of the Wireline business, see our coverage initiation *"Initiating Coverage of U.S. Telecom: Show Me the Money; Capital Discipline Will Determine Winners and Losers,"* October 17, 2007, as well as our coverage initiation of Verizon, *"Verizon (VZ): Doubling Down... On Residential Wireline? Initiating Coverage at Market Perform, Target Price $44,"* November 6, 2007).

FIOS Dilution

Too often, the FiOS project is viewed through the lens of earnings dilution, or, alternatively, EBITDA dilution or contribution. For example, Verizon has provided quarterly FiOS EPS dilution estimates in 2007. Based on Verizon's calculation, FiOS will create EPS dilution of approximately $0.32 per share in 2007. This dilution will moderate in 2008 and EBITDA for the unit will, per Verizon's estimates, be positive.

We caution against applying too much enthusiasm to projected positive FiOS EBITDA results. Positive EBITDA (or earnings) for a capital project like FiOS demonstrates very little about the economics of the undertaking. Almost all of the major costs of the project are *capital* in nature, and therefore not reflected in EBITDA, and only after capital spending has stopped growing and has lapped the final year of depreciation are they fully reflected in earnings. In the case of FiOS, the initial capital spending cycle is only halfway complete. Accordingly, positive EBITDA simply demonstrates that Verizon is able to sell service – not whether Verizon can sell the service profitably.

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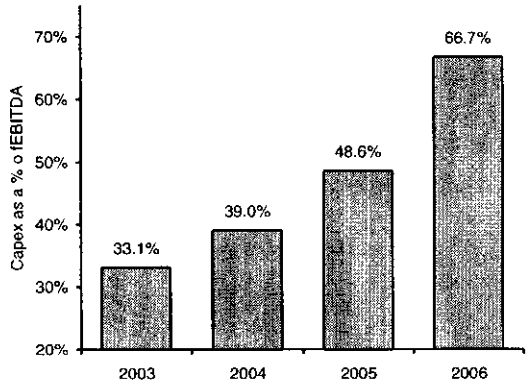
Moreover, the very notion of "earnings dilution" from FiOS includes a large if uncertain measure of moving money from one pocket (the legacy network) to the other (FiOS). The calculation of FiOS EPS includes, based on the company's commentary, all video revenue, incremental revenue for DSL customers who upgrade to FiOS broadband, all revenue for *new* Verizon broadband customers, FiOS voice revenues adjusted for an estimate of assumed circuit-switched customers losses, all subscriber acquisition costs, all network operating costs, none of the network savings benefits and an interest charge calculated based on the assumption that all FiOS capital expenditure is debt-funded.

These assumptions, while directionally useful, are clearly imprecise. For example, the inclusion of revenues from all incremental FiOS broadband customers assumes that Verizon was never going to sign up another DSL customer had FiOS not been built. Further, the lack of clarity around pro-ration of voice revenues means it is not possible to evaluate this adjustment – although the theory behind it is certainly correct.

Finally, we note that Verizon's entry into the video market will potentially have a *dilutive* impact on margins in Verizon's wireline business. Because of programming expenses, video service has operating margins that are *far* lower than broadband and voice (as will be discussed in detail later in this report). Accordingly, and perhaps counter-intuitively – substituting incremental video subscribers for lost phone subscribers will perhaps yield higher ARPUs, but will yield significantly lower contribution, and will commensurately pressure Wireline margins.

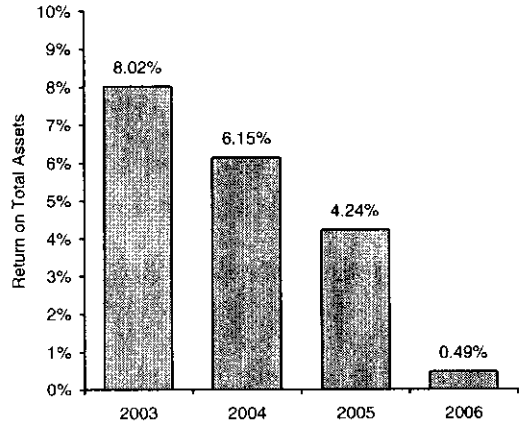
But none of these income statement metrics – EPS, EBITDA, or margins – fully capture the true economics of project. As a consequence of FiOS, Verizon's Wireline capital intensity has increased (**Exhibit 5**) and returns on invested capital have fallen (**Exhibit 6**). With three years (or more) of additional spending on the "passings" phase of the FiOS initiative yet to come, and many years more of highly capital-intensive success-based connections, it is far too soon to look through the FiOS capital cycle.

Exhibit 5
Verizon Wireline Capital Intensity (as % of EBITDA)



Source: Bernstein estimates and analysis

Exhibit 6
Verizon Wireline Return on Invested Capital



Source: Bernstein estimates and analysis

More than any other single factor, the FiOS project will determine the longer term ROIC trajectory for Verizon.

In the balance of this report, we therefore take a deep dive into the economics of FiOS.

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A Deep Dive Into FiOS Economics

We first review the up-front cost components of FiOS;

- Cost to pass a home with fiber
- Cost to connect a home to the network
- Subscriber Acquisition Costs

We then review the return components of the FiOS project;

- Operating Expense savings
- Capital avoidance
- Depreciation tax shields
- FiOS Penetration Rates
- Marginal returns of each service, after cannibalization

From a financial modeling perspective, these variables represent the size of the initial investment, the timing and quantum of benefits, and the value of the alternative option to *"Do Nothing."*

Making the economics of FiOS positive depends on a number of what are, in our view, overly optimistic assumptions in relation to each of the first three variables or, ironically, an overly *pessimistic* view in regard to the last.

Verizon's Guidance

Verizon has indicated that it plans to pass 18M homes with fiber by the end of 2010. It has further stated that the target cost to pass a home was $850 in 2006, while the target cost to connect a home was $880 in 2006. Targets for 2010 are $700 to pass and $650 to connect. Verizon has stated that the *average* cost to pass and cost to connect assumed for the project are $817 and $718 respectively.

Additional video, network and support costs total $172 per home passed (by the end of the project). As not all homes passed are connected, the denominator for average costs set out above differs between cost to connect and cost to pass (Verizon's calculations, and ours, imply just under a 40% connection rate).

Evaluating all costs on the same *per home connected* basis (before anticipated capital expenditure *savings*), Verizon estimates the cost to pass and connect per home connected of $3,224 per home connected. That total falls to $2,535 *after* capital expenditure savings (that is, capital expenditures that would otherwise have been spent).

Verizon's FiOS assumptions are summarized in **Exhibit 7**. Lowering the costs to pass and to connect over time is a key variable in assessing economic returns. Verizon assumes approximately 7M connected homes.

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Exhibit 7
Verizon Reported FIOS Costs to Pass and Connect

	Gross CapEx Total ($B)	Gross CapEx Per Home Passed	Net CapEx Total ($B)	Net CapEx Per Home Connected	Net CapEx Per Home Connected	Gross CapEx Per Home Connected
Cost to Pass	14.7	$ 817	10.3	$ 572	$ 1,451	$ 2,070
Video/Network & Support	3.1	$ 172	2.6	$ 144	$ 366	$ 436
Cost to Connect	5.1	$ 718	5.1	$ 718	$ 718	$ 718
	22.9	**$ 1,707**	**18.0**	**$ 1,434**	**$ 2,535**	**$ 3,224**

Source: Company reports, Bernstein analysis

Given the nascence of Verizon's FiOS business, the limited history of well-capitalized over-builders (an understatement… there's never been one before), and the vagaries of the competitive landscape (Verizon is the fourth, or sometimes even fifth, video entrant in each market, following an incumbent cable operator, DirecTV, EchoStar, and, occasionally, an over-builder like RCN), it is remarkably difficult to project adoption rates. We have therefore taken Verizon's own estimates as our point of departure, even as we note later in this report the challenges to Verizon's forecasts, notwithstanding FiOS's evident product quality.

COST TO PASS

Passing a home with fiber is an intensely physical undertaking, often involving digging trenches, laying fiber, testing signal, burying the fiber and, in most instances, repaving (or even replanting). The cost to pass a home is primarily a function of four variables:

- (i) distance between homes, which equates to the length of fiber that must be laid;
- (ii) labor costs in the area;
- (iii) costs of obtaining rights of way and permissions to perform the necessary road-works; and
- (iv) remediation costs for the land after the fiber is laid (where construction is underground)

A majority of these costs are labor-related rather than material-related; that is, they cannot be expected to decline significantly with technology progression (though learning and process improvement, and developments such as infinitely bendable fiber, surely help). The cost of the fiber itself is insignificant relative to these other cost components.

From this perspective, Verizon's choice of locations for some of its early FiOS roll-out – Long Island, Westchester County, and Rockland County – make sense. These are well populated, affluent suburbs around New York City. The areas are relatively densely populated. However, by virtue of being outside of New York City itself, labor costs, costs to obtain rights of way, and remediation costs are lower. Importantly, the plant in suburban New York is also overwhelmingly aerial rather than buried. *(Full disclosure; I grew up in Nyack, New York, Verizon's very first FiOS market in the Northeast).*

Indeed, the ideal environment for FiOS is suburban rather than urban. Rural construction is prohibitively expensive because of distance. While a densely populated urban environment allows Verizon to minimize length of fiber construction per residence passed, the significantly more complicated municipal approval process, construction limitations and – in some locations – labor requirements make costs almost as prohibitive as a rural environment.

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Even then, in many suburban areas, Verizon will be required to dig trenches and bury the fiber rather than simply string it from telephone poles. In short, there is no environment that provides a dense population with few municipal approval constraints.

Apartment buildings pose additional challenges to building in an urban environment, both in terms of access and technology (issues that will be discussed separately under "Costs to Connect" below). Most challenging of all are the business relationships with co-op boards, landlords, management companies, and developers that often sharply limit access to apartment buildings. Despite a recent FCC ruling abrogating existing exclusive agreements between cable operators and buildings, and banning future exclusives, gaining access to apartment buildings is often challenging. (Indeed, MDU exclusives were *already* banned in New York, New Jersey, Pennsylvania, and Massachusetts, representing the vast majority of homes in Verizon's footprint, so the FCC ruling will have little impact on Verizon's access to MDUs). Even outside New York City proper, however, apartment buildings are common. It is important to note that MDUs (multiple dwelling units) are therefore a significant portion of the "homes passed" as reported by Verizon.

The scope of Verizon's ability to lower cost to pass is unclear. Building in predominantly suburban environments, it is unclear how costs fall almost 20% from $850 in 2006 to $700 in 2010 given that – once field technicians are trained – the primary input is the relatively stable cost of digging a trench and burying a fiber-optic cable or stringing a fiber optic cable between telephone lines. In our view, the rate of projected cost decline from $850 to $700 is achievable but optimistic. We see limited opportunities for Verizon to lower cost per pass below its guidance.

Based on costs provided to date and Verizon's own estimates of costs through 2010, the weighted average cost to pass for the 18M homes Verizon plans to pass by the end of 2010 will be $817, totaling $14.7B ($10.3B net, after avoided capital). Verizon has further announced additional capitalized costs of $3.1B, associated with shared video infrastructure, which is included here as additional "shared" cost, amounting to an additional $172 per home passed, yielding a total "shared infrastructure" cost of $989 per passing. (*Note that, for the purposes of our analysis, we are using Verizon's gross, rather than net, capital spending cost to pass. Capital avoidance can be considered either as a reduction to the cost to deploy, or, alternatively, as an increment to the return on deployment. We have chosen the latter approach for greater clarity. We will therefore address capital avoided in the subsequent section).*

For the purposes of the financial evaluations set out below, we employed Verizon's own guidance in terms of cost. Arguably, this cost guidance is aggressive, however. As noted above, Verizon's reported "homes passed" includes vacant homes, MDUs that are technologically or practically "off limits," and other dwellings that are not marketable. Overbuilders have typically found that as many as 20% of homes are inaccessible, making the cost per home *marketable* approximately 20% higher (*i.e.* approximately $1,200 passing cost per home).

It is a matter of semantics, however, as to whether this issue is treated as an increase in cost per home passed, or alternatively, as a decrease in eventual penetration (that is, if the "ceiling" is 80% of homes passed rather than 100%, then achieving 40% penetration of homes *passed* is the equivalent of achieving 50% penetration of homes *marketable*). For the purposes of our analysis here, we calculate costs based on the company's guidance, *without* making any adjustment for "unmarketable" homes. As a consequence, we believe our economic analysis herein may be viewed as optimistic).

In either case, the economic benefit of passing a home is not realized until that home is *connected.* Therefore, for the purposes of calculating a return, the unit cost of passing is not the cost per home passed, but the "passing cost per home *connected.*" This cost is largely a function of two things; penetration rate of connections, and the time lag until that penetration rate is achieved. *This time value of money in waiting for the passing to begin generating revenue is rarely, if ever, accounted for properly in other analyses we have seen.* In this case, we consider the cost of capital as a charge to costs rather than as a deflator to subsequent

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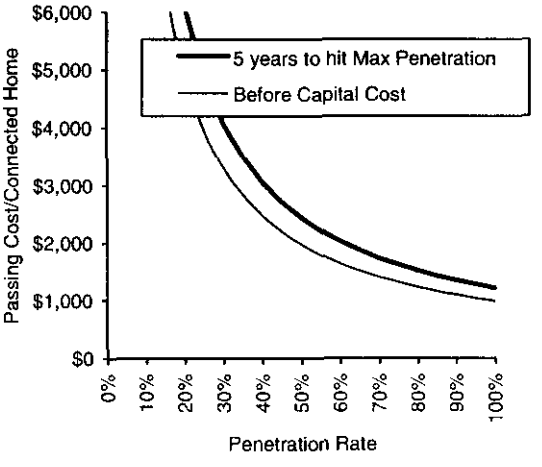
revenues, in order to distinguish this cost from the time value of customer payments, which are *also* realized over time). At $817 average cost per home passed, plus the addition of the previously-noted $3.1B of shared video infrastructure, and a 40% penetration rate (their own forecast, including both video *and* data-only connections... an issue to which we will return later), the cost per connected home passed – *before* the cost of capital – is $2,473.

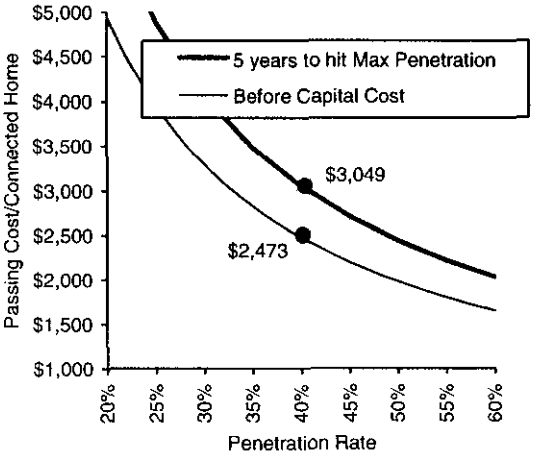
Assuming it takes five years to achieve this level of penetration, however, the *full* cost is $3,049, or $576 higher (assuming an 8.75% cost of capital and a straight-line to 40% maximum penetration, and therefore an *average* lag per line of 2.5 years; **Exhibit 8** and **Exhibit 9**). *(Arguably, the risks inherent in the project would dictate a sharply higher cost of capital, which would yield significantly higher passing cost per home connected, and commensurately lower returns. Once again, however, we have erred on the side of optimism).*

Exhibit 8
Passing Cost per Connected Home Passed



Source: Bernstein estimates and analysis

Exhibit 9
Passing Cost per Connected Home Passed (Detail)



Source: Bernstein estimates and analysis

COST TO CONNECT

It is both difficult and dangerous to draw too great an inference from the many anecdotes that have circulated over the last year about Verizon FiOS installations gone wrong. Multi-day, multi-technician installations are apparently not uncommon. We also had a first-hand account of a buried fiber drop extending more than 1,000 feet at an estimated cost of $40-$45 per foot, likely yielding an all-in construction cost of a staggering $50K.

This is an inevitable part of any new large-scale deployment and the company has consistently communicated a message of being aware of the problem and focused on reducing installation times and costs.

The single greatest physical step to reduce installation times is to reduce the amount of time spent on internal re-wiring. Use of MoCA technology (Multi-media over Coaxial) reduces the need for internal re-wiring as existing coaxial cable wiring in the house can be utilized to carry the Verizon FiOS signal. This reduces the amount of time Verizon technicians spend re-wiring houses and drilling into walls.

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In addition, Verizon is now using software to tune TVs and re-configure computers for FiOS broadband service. If performed manually, both of these activities can be time consuming for installation technicians. With these steps automated, time spent within the home may be reduced significantly from current levels. However, time spent to get the fiber from the curb to the premise seems less amenable to significant time reduction. Verizon has not provided a time per installation estimate.

For reference, AT&T, in its recent Analyst Day, has stated that U-Verse installation times are approximately 6.4 hours per location for new technicians falling to less than 5 hours for experienced installers. Given that AT&T's U-Verse architecture does not involve fiber to the premise or any internal re-wiring, we are unsure how Verizon could achieve installation times significantly better than AT&T's (once the individual technician's experience curve is factored in.)

The Multi-Dwelling Unit Problem

More than any other single issue, the question of Verizon's ability to offer service within multi-dwelling units is likely to drive cost to connect. For Verizon, the ability to sell service in, for example, a 50-story apartment building in mid-town Manhattan must be tantalizing. The cost to pass an apartment building – once amortized over a number of converted apartments – is insignificant. However, there are problems with the MDU strategy as a panacea to reducing average costs to pass and connect on two levels.

First, landlords recognize the value that multi-story apartment buildings represent to the cable companies and TelCos and, accordingly, charge "door fees" for the privilege of entering the apartment. As noted previously, in New York City and much of the rest of the Northeast, landlords are not permitted to sign exclusive service agreements with a single multi-channel video provider. However, door fees are permissible, and there are no obligations for a building to allow more than one provider into a building (the rules require only that the word "exclusive" is not a *condition* of the first provider's contract). These charges significantly impair the economics of large apartment building deployments.

Second, wiring a large building for FiOS service is a significant undertaking and it creates a variety of new costs. The option of installing fiber throughout a large building is a time-consuming and labor intensive process. Risers (the conduits for twisted pair copper, cable coax, electrical lines, etc.) running between the basement and individual apartments are often choked and inaccessible.

The alternative – to use existing infrastructure, in particular, running a high-bandwidth VDSL service over the existing copper line in the building – creates problems in terms of technology and installation times. The key to lowering installation times is to standardize every aspect of the process and limit unique solutions. Employing VDSL creates its own complexity and contingencies in terms of training, equipment, provisioning, etc. In addition, the basis of the FiOS architecture is unlimited bandwidth. Having some customers operating on a limited (if high) bandwidth technology such as VDSL is problematic in terms of maintaining a consistent quality of service.

None of the MDU issues are fatal to Verizon's ability to offer service in New York City, Philadelphia and Boston over time, and indeed Verizon has indicated that it expects to be to target these rich markets this year. However, the idea that the company can enter these markets and "run the table" – a notion we hear often from investors – as a result of ease of access to densely clustered subscribers is deeply flawed.

Overall, we do not see a significant opportunity for Verizon to significantly lower its costs to pass and cost to connect beyond the current MoCA and configuration solutions. These are technology problems and we have no doubt that FiOS engineers can address these questions. However, everything else – door fees; rights of way; labor costs – are financial issues with limited "experience curve" benefits available.

Based on costs provided to date and Verizon's estimates of costs through 2010, the weighted average cost to connect 7M homes that Verizon plans to connect by the end of 2010 will be $718, totaling $5.1B. *For the*

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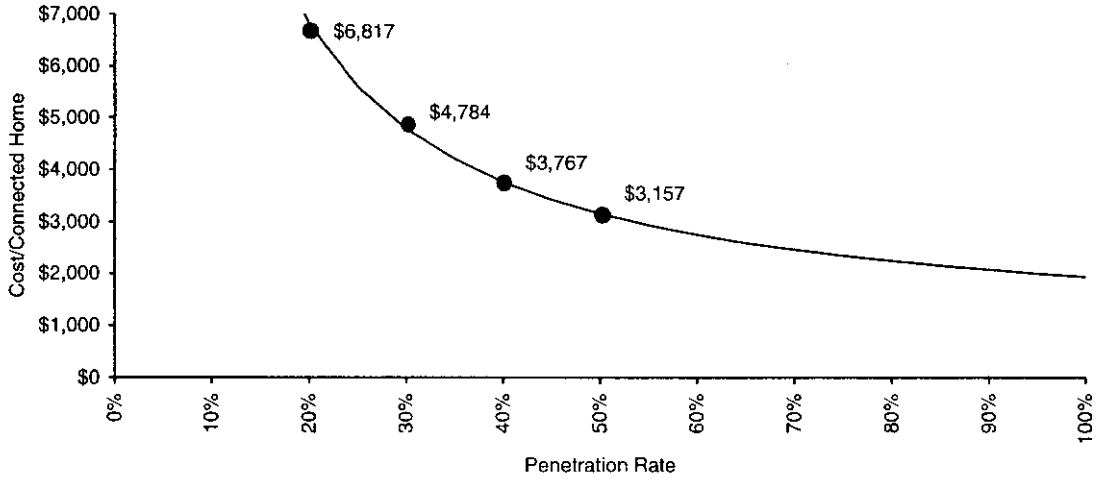
purposes of the financial evaluations set out below, we have hewed to Verizon's guidance in terms of cost. We see limited opportunities for Verizon to lower cost per connection *below* its guidance.

With the passing cost per connected home discussed previously (again assuming a five year time to maximum penetration), the connected cost per subscriber can be expected to run between $6,800 and $3,100, based on penetration rates of between 20% and 50%, respectively (**Exhibit 10**). For reference, 50% penetration of homes passed would be *equal* to that of cable today, and so would amount to something on the order of *taking 100% of cable's subscribers.*

Even assuming a base case in line with Verizon's 40% penetration forecast; the total cost per connected home is approximately $3,767... *before* the cost of marketing and customer acquisition.

For reference, the enterprise value of Comcast, the largest cable operator, is approximately $1,500 per home connected currently. Comcast's penetration of homes passed is approximately 50% (with the "other 50%" already passed and connected). As noted in the previous section, 20-50% penetration of total homes passed is likely the equivalent of 25-65% penetration of "marketable" homes passed.

Exhibit 10
Total Cost per Home Connected



Source: Bernstein estimates and analysis

Advertising and Customer Acquisition Costs Raise Costs Still Further

Up to now, we have considered only the physical (construction) costs. There is early evidence that incremental Subscriber Acquisition Costs (SAC) will be quite material.

There are three broad categories of Subscriber Acquisition Cost; 1) advertising, 2) promotions and premiums (e.g. the 19" Sharp Aquos currently being offered to new subscribers), and 3) sales costs.

Based on our analysis of TNS Advertising data, a third party advertising database, Verizon FiOS spent $17M on advertising alone in Q4 2006, or $67 per customer acquired. That total rose to $40M in Q1 07, or $128 per customer acquired and $132 in the second quarter ($49M) (**Exhibit 12**). Third quarter data is not

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yet available. (*TNS data is self reported by media outlets, including TV stations, broadcast networks, cable networks, newspapers, radio stations, etc. We have included here* only *advertising specially designated as "FiOS" advertising. As such, our total likely understates the total FiOS advertising expenditure, some of which is likely reported simply as "Verizon"*). Other advertising expenses – including agency costs and costs associated with direct mail, for example – are not readily available.

And that's *just* the advertising. Other promotional costs (the Sharp TVs, those Keller "Hummers," as well as door-to-door and telemarketers, fees paid to MDUs for marketing rights, legal fees for franchise approvals, plus direct mail pieces, bill inserts, etc) are not included in costs per home connected. Because these costs are contingent on the type of services purchased (a voice-and-data only-customer only does not receive a TV, and therefore does not incur these additional costs, for example), they are necessarily addressed later in this report, on a service-by-service basis. Advertising costs may be attributed to homes connected; promotional costs should be attributed to services sold.

We estimate advertising expense at $200 ($130 after tax) per customer. Verizon's promotional and other costs can reasonably be expected to be *significantly* in excess of the amount spent on advertising – and are unlikely to moderate over time. We address these promotional costs later.

Including only a $200 advertising cost per home connected, the total cost per connected home rises to approximately $4,000 (again, assuming a 40% connection rate, **Exhibit 13**). If penetration were to be just 30% of homes passed, cost would approximate $5,000 per connected home. Even at penetration of 50% of homes passed (that is, penetration roughly equal to that of most cable operators *today*), cost per home would be $3,400 per connected home.

We note that actual subscriber acquisition cost could be *far* higher, especially given Verizon's recent promotional activities (**Exhibit 11**). Recent discussion with Cox Communications in relation to their Rhode Island system suggests that the subscriber acquisition cost in Providence may be as high as $2,000. (**U.S. Telecom and U.S. Cable: Verizon's War for Rhode Island... A Dispatch from the Trenches**, November 16, 2007).

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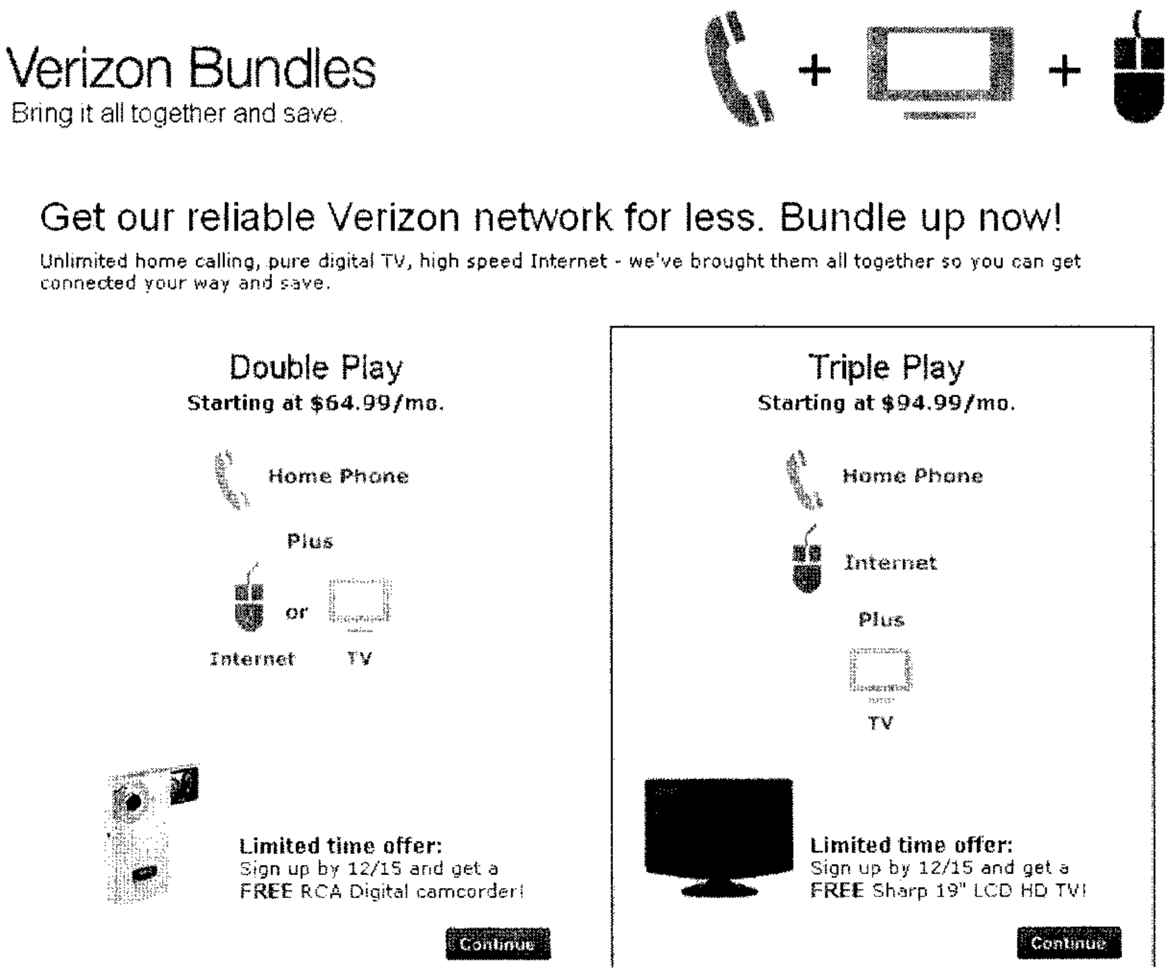
Exhibit 11
Verizon Current Incentives to New Consumers



Source: Verizon.com

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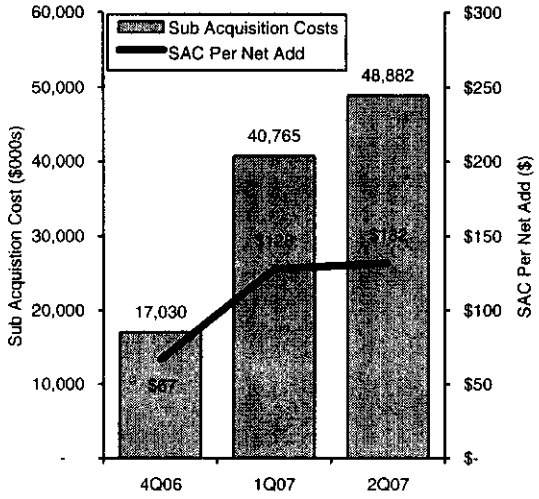
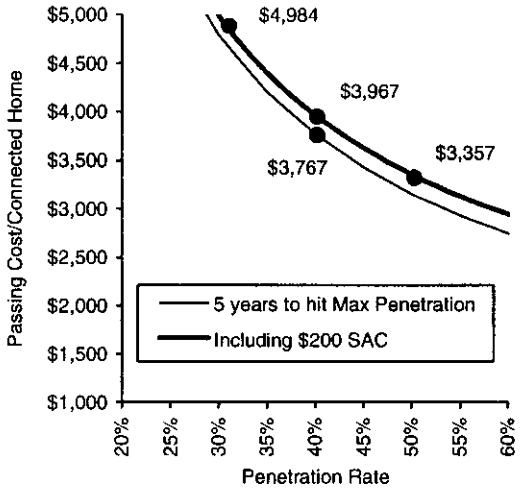
Exhibit 12
Quarterly Ad Spending and Ad Cost per New Subscriber



Source: TNS, Bernstein estimates and analysis

Exhibit 13
Total Cost per Connected Home, including SAC



Source: Bernstein estimates and analysis

Cost Summary

The inputs and calculation of total cost per connected home, including subscriber acquisition cost is set out in **Exhibit 14**.

Exhibit 14
Calculation of Total Cost per Connected Home, including SAC

Penetration Rate		30%	40%	50%
Shared Video Cost	a	$ 172	$ 172	$ 172
Cost per Passing	b	$ 817	$ 817	$ 817
Total Per Passing	c = a + b	$ 989	$ 989	$ 989
Penetration Rate	d	30%	40%	50%
Passing Cost Per Connection	e = c / d	$ 3,297	$ 2,473	$ 1,978
Cost of Capital	f	8.75%	8.75%	8.75%
Time to Terminal Penetration	g	5.0	5.0	5.0
Average Time To Connect	h = g / 2	2.5	2.5	2.5
Time Value of Passing Cost	i = e x (1+f)^h	4,066	3,049	2,439
Connection Cost	j	718	718	718
Subscriber Acquisition Cost	k	200	200	200
Total Cost to Pass and Connect	**i + j + k**	**4,984**	**3,967**	**3,357**

Source: Company reports, Bernstein estimates and analysis

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Earning a Return on Verizon's Investment

Against these costs, Verizon has a significant hurdle before it can earn a return on its overbuild.

Notably, no overbuilder has *ever* succeeded in the U.S. (in fact, no overbuilder has yet avoided bankruptcy). To be sure, Verizon is not just any overbuilder; they have a huge advantage in name recognition, deep pockets to sustain early losses, and near ubiquity of existing relationships.

But relative to other overbuilders, Verizon also has one huge *disadvantage*. Verizon is overbuilding.... Verizon. Other overbuilders have taken share from competitors. But in data and, especially, voice, the vast majority of share is coming from Verizon itself.

This presents a number of unique challenges from an analytical perspective: a base case of "Doing Nothing" has *some* value. Any deviation from that base case has to consider the value to Verizon of sitting on its hands. The fact that Verizon is overbuilding itself gives rise to cost savings versus a base case, capital avoidance versus a base case, and – most importantly – cannibalization versus a base case.

With this in mind, calculating the return on Verizon's investment hinges on five key factors:

- Operating expense savings
- Capital avoidance
- Depreciation Tax Shields
- Adoption rates for advanced services
- Marginal contribution for each service, after cannibalization (that is, after accounting for the extent to which penetration and contribution are *incremental* to what otherwise would have been achieved.)

Each of these aspects of project returns is considered separately, below.

(1) Operating Expense Savings

In its September 2006 FiOS briefing, Verizon identified an operating expense savings per *connected* home of $110 annually, and a total savings of $1.0B by 2010, implying that the company will connect 9 million homes by that time.

Many investors continue to express doubt about how savings can accrue to Verizon from the conversion of homes to fiber when the existing copper network in a fiber-deployed community is not retired. The key to understanding that cost savings are available even in a "dual network" scenario is to understand that, to a significant degree, the cash costs of running a copper network arise not from fixed costs associated with passive operation and maintenance, but instead are driven largely by the variable costs of responding to customer requests for service additions or changes.

For the legacy copper networks, outages happen relatively infrequently. However, customer requests for service changes occur often. In a residential landline context, if the average residential tenure is seven years, annual moving-related churn is therefore approximately 14%. Responding to these customer requests on a copper network is a labor intensive and, accordingly, costly process. Adding or disconnecting a customer generally requires a truck roll.

Conversely, in an all-fiber network, the amount of labor required to resolve customer add, drop and service change requests is limited. The difference is the reduced amount of "active" electronics in a fiber network, meaning the fiber network does not need to be physically manipulated to add or disconnect customers. Further, instances of service outages requiring a physical truck roll on a fiber network are also reduced. On

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a passive optical network (*i.e.*, FiOS), customer requests to add, change or cancel service can generally be handled without a technician being dispatched.

On a copper network – which employs active electronics between the central office and the customer's premise - changes in service require the physical manipulation of these active electronics. Accordingly, a technician must be dispatched. This reduction in activity required to serve customers in fiber-connected homes – not any de-commissioning of the copper infrastructure – is what drives the majority of operating expense savings in a fiber environment.

The key point to note is that because the FTTP architecture reduces the key driver of cash expenses (truck rolls to resolve customer requests), the conversion of an entire community to fiber is *not* required in order to enjoy the savings of the fiber network. Savings begin to accrue once the transition of a single customer off the copper network onto the fiber network is complete. From that time on, the costs to serve that customer fall regardless of whether the entire copper plant in the customer's community is retired or not.

Nevertheless, there are obvious limitations to these cost savings in the dual network scenario. To be sure, if the more robust fiber plant leads to a drop in call volume directed to an *outsourced* customer service center (where costs are charged to Verizon based on total in-bound calls), or to overtime costs of existing personnel, then there is a measurable and immediate benefit from the FiOS installation in the form of fewer calls. However, a reduction in the number of service calls that an individual truck makes per month – due to the ability to provision a FiOS customer remotely - will not alter the replacement schedule for that vehicle. A critical mass of FiOS connected homes in the area is needed before the incremental fall in activity translates into a fall in cash costs by, in the current example, the decision not to replace a retired truck and to re-deploy its driver. In short, there will be some ramp-up period before these savings can be realized, and some limit to their realization while two networks are operated (which will be the case for the foreseeable future). Activity volume reductions, in aggregate, must be sufficient in a given dispatch area so as to allow for headcount reduction. This is difficult initially, due to low early penetration rates and the distinctions between legacy and FiOS union job classifications. In the end, Verizon must maintain fully-staffed crews during all shifts for two sets of craft personnel.

Importantly, there are other costs which are *added* by FiOS. While outside plant maintenance will be reduced, *inside* the home costs will rise. Indeed, already there are reports of sharply higher costs associated with TV and PC-related problems. Customers spending extra for super-high bandwidth fiber complain about slow speeds that may in fact be attributable to firewalls, over-used web sites, slow processors, and spy ware. Sensitive electronics in the home bring with them their own costs. TV customers, especially early on, have complained about buggy DVRs, remote controls, and set top boxes. While all of these costs can be expected to fall over time as the system "works out the kinks," some will nevertheless persist.

There is one other highly counter-intuitive, but important, consideration. *For the purposes of evaluating project economics, it is necessary to adjust Verizon's estimated savings per connected home of $110 for the probability that the customer would otherwise have terminated their legacy service.* Said differently, there is one event that is even more effective than FiOS deployment in reducing incremental operating expense from a home on a telecommunications network... disconnecting that home from Verizon altogether. *Ironically, the higher the line loss would otherwise have been, the less cost savings can be attributed to FiOS.* As was the case with the time value of money in waiting for a connection, this adjustment to the base case is almost never properly accounted for in other FiOS analyses we have seen.

Our base case (ex-FiOS) assumes that 30% of lines would *otherwise* be lost to cable telephony, hence the incremental cost savings attributable to FiOS must be reduced by 30%. (Note that other sources of access line loss, including Wireless substation, can be assumed to be unrelated to the infrastructure supporting terrestrial delivery).

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We have credited our analysis with the full guidance amount of $110, reduced by our base-case forecast of 30% line losses, yielding a pre-tax net *incremental* cost savings of $77 per line per year. Assuming a 35% tax rate, the incremental after-tax cost savings amount to $50 per connected home.

For reference, assuming 40% penetration (again, per Verizon's guidance), after-tax cost savings alone amount to a 1.3% return on invested capital (on our average cost per connected subscriber of $3,767, again assuming 40% penetration). Alternatively, the perpetuity value of after-tax cost savings at an 8.75% cost of capital is approximately $571 per subscriber (*i.e.* $50/8.75%).

2) Capital Avoidance

A second source of cost savings is the avoidance of capital spending that would *otherwise* have been required in FiOS-connected neighborhoods and homes had they stayed with the legacy network. *(As noted previously, these capital savings can be taken either as a reduction to cost to deploy, or as an increment to return on deployment. We have chosen the latter approach for clarity).*

Verizon has indicated that they expect to save $4.9B in capital spending that would *otherwise* have been required had they *not* built FiOS. Assuming this capital spending would have been spread over the five years from 2006 to 2011, and would otherwise have been depreciated over seven years (with commensurate tax shields), the present value of the avoided capital spending amounts to $390 per home connected.

Exhibit 15
Capital Spending Avoidance

Total Capital Avoided ($M)	$ 4,900
Homes Connected (000)	7,200
Connection Rate	40%
Tax Rate	35%
Outlay period	5 years
Depreciation Life	7 years
Cost of Capital	8.75%

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Discount Factor		1.00	0.91	0.83	0.76	0.69	0.63	0.58	0.53	0.48	0.44	0.40	0.37	0.33	0.30
Capital Avoided per Connected Home	$ 681														
Annual Capital Outlay		$ 136.11	$ 136.11	$ 136.11	$ 136.11	$ 136.11	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Depreciation Schedule (Year 1)			$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ -	$ -	$ -			
Depreciation Schedule (Year 2)				$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ -	$ -	$ -		
Depreciation Schedule (Year 3)					$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ -	$ -	$ -	
Depreciation Schedule (Year 4)						$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ -	$ -	$ -
Depreciation Schedule (Year 5)							$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ -	$ -
Depreciation Schedule (Year 6)								$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ -
Depreciation Schedule (Year 7)									$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44	$ 19.44
Total Depreciation		$ -	$ 19.44	$ 38.89	$ 58.33	$ 77.78	$ 97.22	$ 116.67	$ 136.11	$ 116.67	$ 97.22	$ 77.78	$ 58.33	$ 38.89	$ 19.44
Tax Shield		$ -	$ (6.81)	$ (13.61)	$ (20.42)	$ (27.22)	$ (34.03)	$ (40.83)	$ (47.64)	$ (40.83)	$ (34.03)	$ (27.22)	$ (20.42)	$ (13.61)	$ (6.81)
Net Cash Flow (Capital outlay less tax shield)		$ 136.11	$ 129.31	$ 122.50	$ 115.69	$ 108.89	$ (34.03)	$ (40.83)	$ (47.64)	$ (40.83)	$ (34.03)	$ (27.22)	$ (20.42)	$ (13.61)	$ (6.81)
Present Value		$ 136.11	$ 117.99	$ 102.00	$ 87.90	$ 75.49	$ (21.53)	$ (23.57)	$ (25.10)	$ (19.63)	$ (14.93)	$ (10.90)	$ (7.46)	$ (4.54)	$ (2.07)
Present Value		$ 389.79													

Source: Bernstein estimates and analysis

2) Depreciation Tax Shields

Valuation of the depreciation tax shields arising from the capital investment in FiOS is straightforward. For the passing cost, assuming a 40% connect rate, depreciation over ten years, and a 35% tax rate, the tax savings are $71 per year for ten years per connected home, or a present value of $490 at Verizon's 8.75% cost of capital).

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For the connection, assuming a depreciation life of five years, and the same 35% tax rate, the tax savings are $50 per year for five years, or a present value of $211 at Verizon's 8.75% cost of capital. Video and network support are assigned a depreciation life of five years, resulting in tax savings of $30 per year and $126 over the course of life of the asset.

Aggregate savings from tax avoidance are $827 (**Exhibit 16**).

Exhibit 16
Value of Depreciation tax Shields

Discount Rate		8.75%
Tax Rate		35%
Cost to Pass	$	817.00
Video/Network & Support	$	172.00
Cost to Connect	$	718.00
Depreciation Life of Passing		10.00
Depreciation Life of Connection		5.00
Adoption Rate		40%

	1	2	3	4	5	6	7	8	9	10
Discount Factor	1.00	0.91	0.83	0.76	0.69	0.63	0.58	0.53	0.48	0.44
Depreciation Tax Shields - Passing	$ 71.49	$ 71.49	$ 71.49	$ 71.49	$ 71.49	$ 71.49	$ 71.49	$ 71.49	$ 71.49	$ 71.49
Depreciation Tax Shields - Video/Network & Support	$ 30.10	$ 30.10	$ 30.10	$ 30.10	$ 30.10	$ -	$ -	$ -	$ -	$ -
Depreciation Tax Shields - Connection	$ 50.26	$ 50.26	$ 50.26	$ 50.26	$ 50.26	$ -	$ -	$ -	$ -	$ -
Total	$ 151.85	$ 151.85	$ 151.85	$ 151.85	$ 151.85	$ 71.49	$ 71.49	$ 71.49	$ 71.49	$ 71.49
Present Value	$ 151.85	$ 138.56	$ 126.44	$ 115.37	$ 105.28	$ 45.23	$ 41.27	$ 37.66	$ 34.36	$ 31.36

Present Value	$	827.37

Source: Bernstein estimates and analysis

3) Penetration Rates for Video and Data

Verizon has estimated that it expects by 2010 to capture 6M-7M FiOS data subscribers, or 30-40% of the addressable market, and 3M-4M FiOS Video subscribers, representing a 20-25% share of the market. Given that Verizon is building a high quality product in areas of the country with high penetration of both multi-channel video and high speed data service, these subscription estimates appear to us to be achievable.

Our own estimates for Verizon penetration assume Verizon will achieve 25% video penetration of multi-channel video households by 2010, totaling 3.2M subscribers – within the guidance Verizon has provided. We estimate Verizon FiOS will capture 30% residential broadband penetration of homes passed in territory by 2010. We estimate aggregate penetration of FiOS – that is, the overall connection rate – will be approximately 40% by 2010, reflecting the expectation that some portion of FiOS customers will take data only, some will take video only, and some will take both.

All are in line with Verizon's guidance. In our view, achieving the kind of penetration that Verizon is projecting is, however, somewhat aggressive, even given the quality of the FiOS product.

Two factors will impact Verizon's ability to achieve these high penetration rates. First, as discussed previously, Verizon's "homes passed" calculation is a gross passings number (for example, it includes uninhabited homes, MDUs, etc.). Therefore, achieving 40% aggregate penetration of homes passed (with video, data, or both) is tantamount to 50% penetration of homes marketable. Second, Verizon is building FiOS in primarily slow growth markets. Verizon is building its FiOS network, for the most part, in areas of the country – Massachusetts, New York, New Jersey, Pennsylvania, Northern Virginia, Southern

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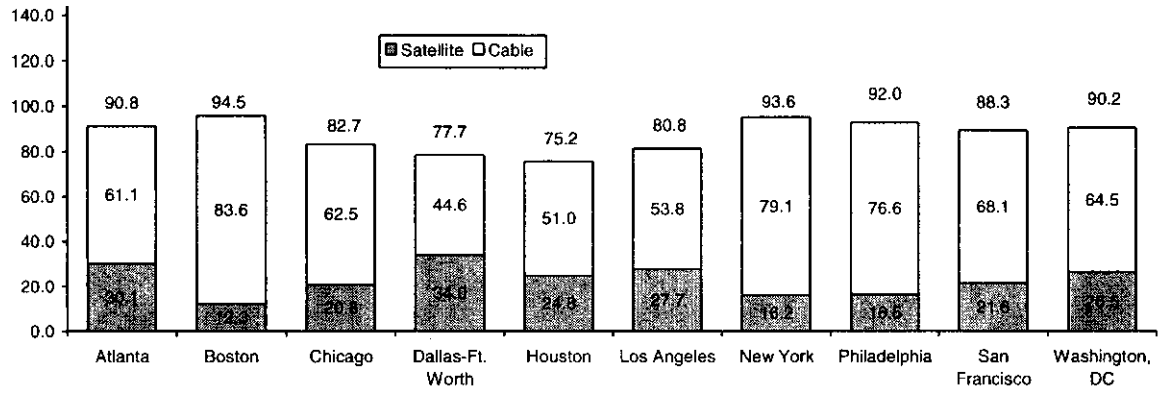
California – that are very affluent by national standards, but already have very high penetration rates for video service – between 90% and 94% (**Exhibit 17**) Of course, no region has 100% pay television penetration. Accordingly, industry growth from "new to the service" subscribers is going to be extremely low. Gaining subscribers will, for the most part, mean taking them from someone else.

Exhibit 17
Video Penetration Rates (%) for Top 10 Designated Market Areas



Source: Nielsen Media Research

Further, the FiOS roll-out areas are, for the most part, not areas of particularly high population growth. Population growth in the U.S. is focused on the South and the West. Verizon is based predominantly in the Northeast, and the FiOS roll-out will focus there. Unlike, for example, a provider in Phoenix, Atlanta, Las Vegas, Dallas, or Houston (or its early test market Keller, Texas, one of the fastest-growing municipalities in the country), Verizon does not have the advantage of a rapidly growing population base within its coverage area to support the introduction of a new product.

Achieving 25% video penetration of homes passed will therefore mean *enormous* success versus incumbents. For reference, DirecTV – which enjoyed the status of being just the *second* entrant into the video market (where Verizon is the *fourth*) – has achieved approximately 15% penetration after 13 *years* in the market, and much of *that* was gained in rural markets where they were initially the *first and only* multi-channel video option. Recall also that incumbent cable operators today command just 50% penetration of homes passed, on average. So assuming, for simplicity, that Verizon gains half of its 25% penetration from cable – meaning that cable's penetration would fall from 50 to 38% – Verizon would therefore have achieved scale equal to two thirds the size of the incumbent cable operator in less than five years.

Verizon's impressive early success with FiOS suggests such penetration rates may ultimately be achievable. But we would caution investors against assuming that early success in markets such as Keller, Texas is immediately replicable elsewhere. Keller is, after all, an *exceptionally* rapidly growing municipality, meaning Verizon can achieve a very significant portion of its penetration from greenfield construction, without having to take customers from competitors. And it is very small, spanning less than 20,000 homes, making it possible to employ marketing tactics that are clearly not scalable – economically or practically – on a company-wide basis (including blitzes of door-to-door marketing, massive outbound calling campaigns, and round-the-clock marketing by Verizon's red FiOS "Hummers"... and huge amounts of "free" PR owing to its status as the "first" TelCo TV market).

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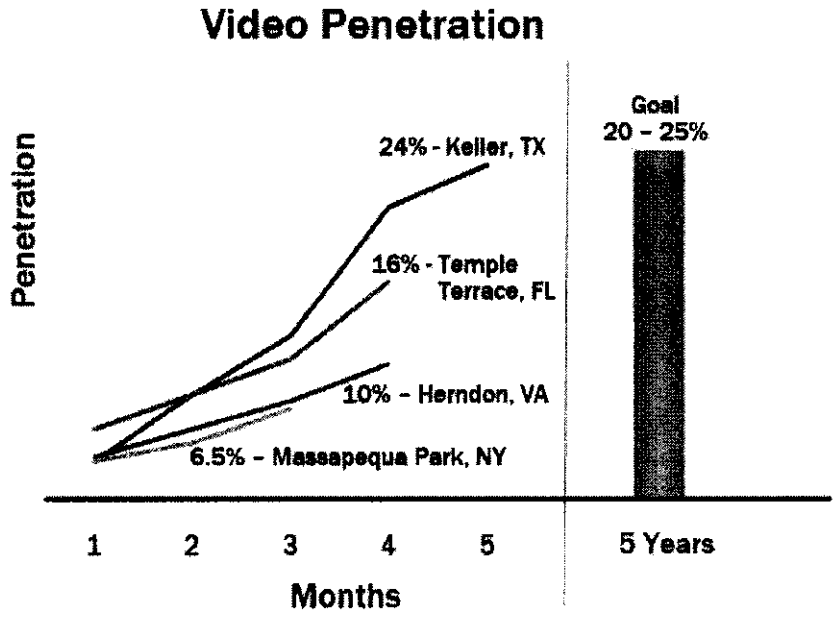
Exhibit 18
Video Penetration in Early Markets



Source: Verizon

Three broad trends will help Verizon achieve high video penetration.

First, there is latent dissatisfaction with cable. Although many of the most dissatisfied cable subscribers have long since switched to satellite, many have not had that option – due to look angles, trees in the backyard, or renter status. Many of these customers can be expected to quickly jump to FiOS. Second, nearly 14% of American families move every year (although that number can be expected to be lower than normal for the next few years, given the dislocations in the housing and mortgage markets, which have dramatically slowed the velocity of housing sales, and therefore move rates, in the U.S.), providing a relatively regular re-evaluation point for video service. And third, the trend towards HDTV adoption creates natural "trigger points" where customers re-evaluate service providers. As a result, we would expect relatively rapid adoption initially – as FiOS benefits from all three of these effects – and relatively slower steady gains thereafter, once the "I-can't-wait-to-leave-cable" crowd has played through.

The country's "all-digital" broadcast transition in February 2009 – a date now just over a year away – can be expected to provide a further boost (indeed, to *all* multi-channel providers) as the 17% or so of Americans who *don't* already subscribe to a Pay TV service will suddenly need a digital set top converter or new digital TV set in order to continue to receive over-the-air signals. Many of those households are likely to at last choose cable, satellite, or TelCo TV as the easiest way to keep their TVs from "going dark." Overwhelmingly, because of the very limited footprints of the TelCo TV deployments even by early '09, however, this transition will favor incumbent cable and satellite operators (it is also likely, though, that these customers will be relatively low value).

A separate analysis of the contribution from each of these three drivers – while making no assumptions regarding the 2009 digital TV transition due to its high level of uncertainty – serves as a useful sanity check of our and Verizon's forecasts. Reasonable assumptions for each of these elements yield composite adoption in-line with company guidance (**Exhibit 19**).

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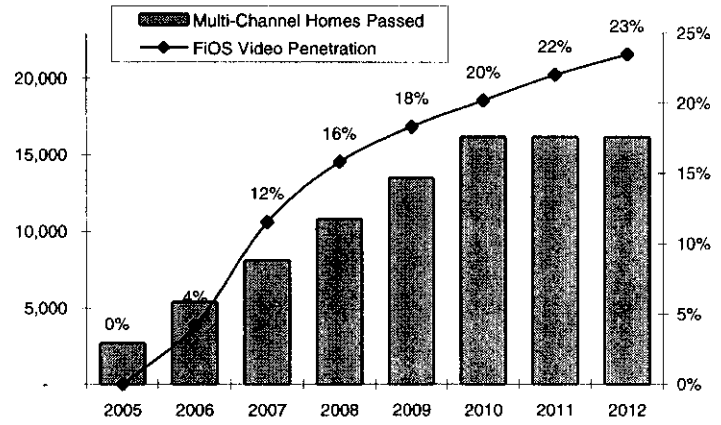
Exhibit 19
FiOS Video Homes Passed and Penetration 2005-12E



Source: Company reports, Bernstein estimates and analysis

Achieving targeted broadband share should be somewhat easier. Unlike video penetration, broadband penetration is still rising in the U.S. – notwithstanding recent deceleration due to macro-economic softness – providing a tailwind for all operators.

Verizon's FiOS is also positioned well to take advantage of what we have referred to as "the need for speed." New broadband services such as Google's YouTube have created a growing demand for higher speed connections. This trend overwhelmingly favors cable operators and TelCo fiber, at the expense of legacy TelCo DSL.

Here again, however, Verizon's broadband targets may be more aggressive than they first appear. Because not all households have computers, and not all computers are online, and not all online subscriptions are broadband (even by 2010), the implication of our 30% of homes passed forecast by 2010 is the equivalent of approximately 44% broadband *market share* (and this is for FiOS *alone*; legacy DSL, which currently has approximately 40% residential share, would be *in addition* to this total). That wouldn't leave much share for cable, which currently commands approximately 60% of the market today.

We estimate that by 2010, Internet access will have reached 74% of U.S. households (**Exhibit 20**), or 87.6M homes (of 118M total homes), up from about 71% today. (These numbers could be lower if we experience a severe recession, which is *not* currently our forecast). Of those, we estimate that 89% (**Exhibit 21**), or 77.6M, will have broadband – yielding overall broadband penetration in the U.S. in 2010 of 66% of *total* households. Achieving 30% FiOS broadband penetration as a percentage of *total* homes passed is therefore the equivalent of achieving 45% broadband market share (*i.e.* 30/68 = 45%).

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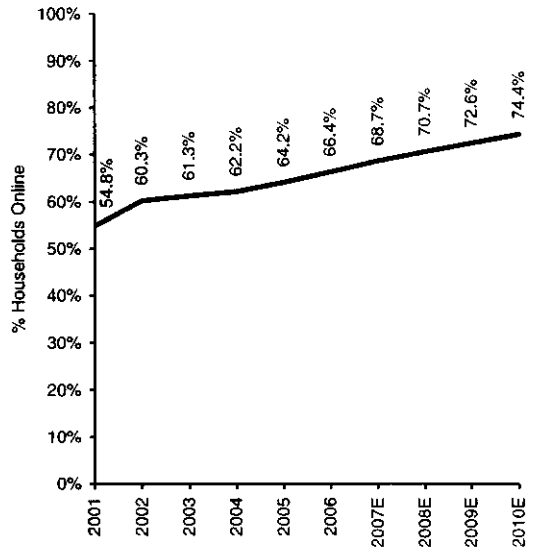
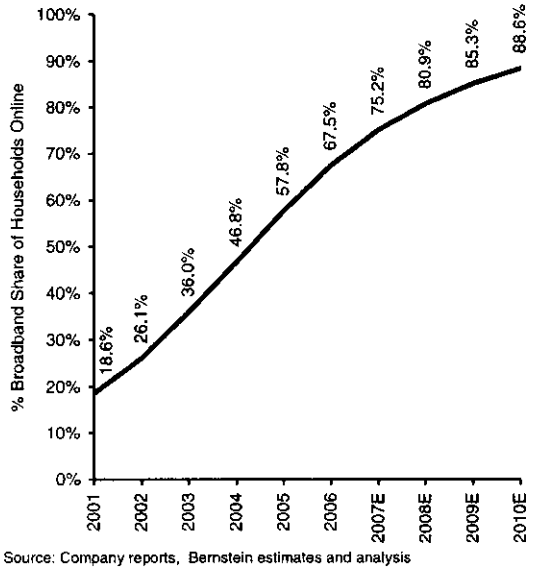
Exhibit 20
U.S. Internet Penetration 2001-2010E



Source: Company reports, Bernstein estimates and analysis

Exhibit 21
U.S. Broadband Penetration of Online HHs 2001-2010E



Source: Company reports, Bernstein estimates and analysis

Aggregate Penetration

For modeling purposes, it is important to note that our 25% video penetration forecast for video, and our 30% penetration for FiOS broadband, are largely – but not entirely – overlapping. For example, Verizon has indicated that *"60% of video subscribers also take FiOS broadband."* At least initially, that is a relatively low overlap rate (since, by their own estimates, FiOS broadband is likely to command higher, not lower, penetration rates than is FiOS video). Over the longer term, we estimate that this overlap penetration will rise to 80%. Assuming higher overlap has the effect of sharply *improving* Verizon's returns, since the cost to deploy is largely the same for each subscriber, irrespective of whether they take one or both services. (We will discuss retention of phone service later in this report).

Recall that our base case assumes *aggregate* 40% connection rate of homes passed, with 30% penetration of FiOS broadband, and 25% penetration of FiOS video. The penetration rates for each of the three resulting customer segments – video only, data only, and video and data – are shown in **Exhibit 22**.

For the purposes of our financial calculations, however, what is relevant is the percentage of subscribers taking each service (since our financial returns model is denominated on a per-subscriber basis). The percentage take rates of each of the three bundles are shown in **Exhibit 23**.

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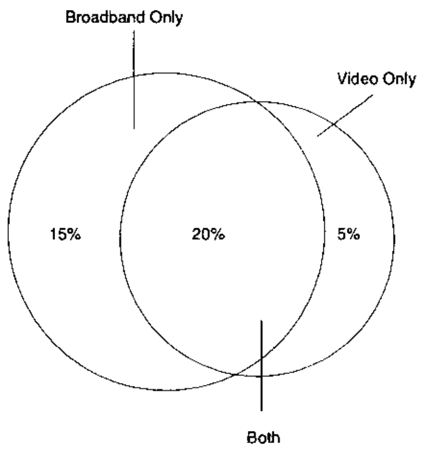
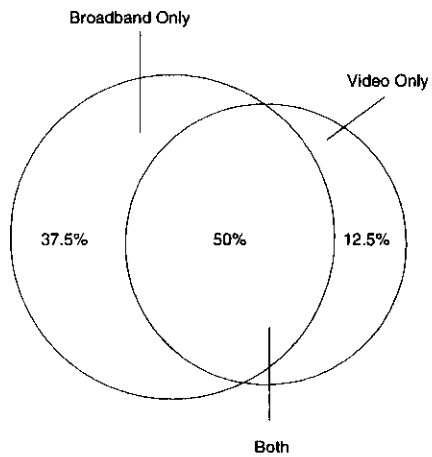
Exhibit 22
Penetration as a % of Homes *Passed*



Source: Bernstein estimates

Exhibit 23
Penetration as a % of Homes *Connected*



Source: Bernstein estimates

(4) Incremental Economics, after Cannibalization

Four factors dominate the analysis of returns on the FiOS project.

- First, what are the incremental margins associated with each service offered via the FiOS network?
- Second, to what degree is each service incremental to Verizon's "do nothing" case?
- Third, what churn rate (or average lifetime) will Verizon experience?
- Fourth, what is the probability of subsequent re-connection (by the same customer, or a new customer at the same premise)?

Video

To a degree, the video business is the simplest part of the analysis. Since Verizon isn't in the video business today, all of it is incremental. The question, however, is whether it will be profitable.

Unfortunately, Verizon has provided little information about the margins they can expect in video. But we can expect them to be low. It is important to note that video is inherently a *much* lower margin product than is voice or data to begin with. After all, *somebody* has to pay Disney and Viacom. And relative to a typical cable operator – which generally enjoys about 40% EBITDA margins in video – Verizon suffers from a litany of economic disadvantages.

First, Verizon will almost certainly have to discount the service, at least to a degree, in order to be competitive with cable. Cable operators are heavily discounting voice services – often by as much as 50% versus incumbent TelCos – and Verizon has little choice but to respond with a comparably attractive *total* bundled price. While it is arbitrary to assign the discount to just one service (and it is irrelevant to the analysis which service bears the discount), attaching the discount to video service provides the clearest picture of the marginal returns of the project versus the alternative (no video network) case.

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Even a modest video discount cuts sharply into eventual returns. Since service *costs* are unaffected by pricing, a 15% discount – far smaller than cable's discount on telephony – would shave margins by nearly 40%, from 40% to 25%.

Verizon's costs are also much higher than a cable operator's. Programming costs – by far the largest cost for any video provider, at nearly 40% of video revenues for some cable operators – are estimated to be 20% higher than cable's, shaving an additional 800 bps from EBITDA margins. (Programming costs are typically denominated on a per subscriber/per month basis. Many programmers, however, have structured their TelCo programming agreements to have very high minimum payments in order to preserve the fiction of relatively lower monthly per subscriber rates).

Retransmission consent agreements – or the fees potentially paid to local broadcast stations for carriage of ABC, NBC, CBS, and Fox – also sharply disadvantage the TelCos relative to their cable competitors. TelCos bring no negotiating leverage to the bargaining table (save for their position as large advertisers in their Wireless divisions). In contrast, cable operators represent a huge portion of a local broadcaster's advertising distribution (going "dark" with the local cable operator would trigger immediate massive losses in a broadcaster's advertising audience, and only slower, more gradual defections of a cable operator's subscriber base as they switch to satellite). A TelCo can't make that claim; with no subscribers up front, they hold no ad revenue hostage, and yet they have no credible shot at signing up customers without the major broadcast networks. At an estimated $0.50 per subscriber, retrans is likely to shave off another $2.00, or 300 bps, from margins.

Advertising is yet another deficit. Cable operators typically sell as much as $6.00 per month per subscriber in high margin local advertising (using advertising inventory garnered from the national cable nets in the course of their carriage agreements. These ad slots are referred to as local avails). The TelCos will take years before their subscriber base is large enough to be worthwhile to advertisers. In a large-market 1M household DMA (Designated Media Area), even *after* Verizon has reached 50% coverage of homes passed and 20% penetration – not before 2010 – its *reach* will be only 10% of homes in the market. If it is inserting on a typical 1 share basic cable network, it will be delivering ads to just 1K homes at a time. At a $20 CPM, the costs of administration and logistics could exceed the $20-$40 per avail value of the inventory. Advertising will take *years* to scale. Advertising contributes as much as 800 bps of cable's 4,000 bp overall video margins.

Labor costs – the second largest cost element behind programming costs, spanning everything from customer service to maintenance – are also vastly higher than those of cable.

Finally, there is marketing expense, which by any estimation is enormous. We estimate that Verizon is spending well in excess of $100 per subscriber today for advertising *alone*. Since it is very difficult to forecast whether this level of spending will continue, and indeed, difficult to accurately estimate the spending, we have excluded this very considerable cost from our analysis. We will revisit this assumption in our summary at the end of the financial analysis section of this report.

In any case, even before marketing expenses, Verizon's net video margins are likely to remain below 10%. Assuming a $60 average monthly video price (ARPU) – in line with the national cable average – the *real* monthly contribution (notwithstanding cost allocations to other products, or up-front payments to programmers to yield lower contract rates) – will likely be $6.00 or less, pre-tax.

To determine the value of video connection, we attribute a somewhat higher return ($9 per month), and assume a very low churn rate of just 1.5% (substantially lower than that of cable or even satellite, which does *not* count most move related churn in its churn statistics). Moreover, we assume a 50% probability that, once disconnected, the line will be reconnected to FiOS, either by a subsequent tenant, or the same customer (**Exhibit 24**).

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Exhibit 24

Present Value Calculation of Video Connection (and subsequent connection)

Monthly Contribution Rate (Year 1)	$ 9.00
Annual Contribution Increase (%)	5%
Tax Rate	35%
Churn Rate	1.5%
Subsequent Reconnect Rate	50%
Discount Rate	8.75%

Probability Table - Customer Tenure in FiOS Connected-Home

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Customer Tenure															
1	1.00	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
2	-	0.82	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
3	-	-	0.67	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
4	-	-	-	0.55	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
5	-	-	-	-	0.45	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
6	-	-	-	-	-	0.37	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
7	-	-	-	-	-	-	0.30	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
8	-	-	-	-	-	-	-	0.25	0.02	0.02	0.02	0.02	0.02	0.02	0.02
9	-	-	-	-	-	-	-	-	0.20	0.02	0.02	0.02	0.02	0.02	0.02
10	-	-	-	-	-	-	-	-	-	0.17	0.02	0.02	0.02	0.02	0.02
11	-	-	-	-	-	-	-	-	-	-	0.14	0.01	0.01	0.01	0.01
12	-	-	-	-	-	-	-	-	-	-	-	0.11	0.01	0.01	0.01
13	-	-	-	-	-	-	-	-	-	-	-	-	0.09	0.01	0.01
14	-	-	-	-	-	-	-	-	-	-	-	-	-	0.08	0.01
15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06
Probability (FiOS Customer)	100%	91%	84%	78%	73%	69%	65%	62%	60%	58%	57%	56%	55%	54%	53%
Probability-Adjusted Contribution	108.00	103.19	99.57	96.98	95.31	94.47	94.36	94.92	96.09	97.81	100.05	102.77	105.94	109.54	113.56
Tax	37.80	36.12	34.85	33.94	33.36	33.06	33.03	33.22	33.63	34.23	35.02	35.97	37.08	38.34	39.75
After-Tax Contribution	70.20	67.08	64.72	63.04	61.95	61.41	61.34	61.70	62.46	63.58	65.03	66.80	68.86	71.20	73.81
Discount Factor	1.00	0.91	0.83	0.76	0.69	0.63	0.58	0.53	0.48	0.44	0.40	0.37	0.33	0.30	0.28
Present Value	70.20	61.21	53.89	47.89	42.95	38.85	35.41	32.50	30.02	27.89	26.03	24.40	22.95	21.65	20.48
Present Value	556.33														

Source: Bernstein Estimates and Analysis

Data

The value of data is slightly more complex. Unlike video, not all data revenues are incremental. We have long argued that DSL is weakening competitively. But we have certainly not argued it is going away *entirely* (indeed, peer AT&T is investing in a DSL-based copper rehab strategy called U-Verse).

Nevertheless, because of its very high incremental margins, data represents a critical part of the return calculation. Relative to legacy DSL, Verizon's FiOS data offering has two economic advantages; first, it is likely to carry a premium price. Second, it is likely to garner (or save) incremental share.

The benefit of higher pricing is straightforward. The value accrues for any FiOS broadband subscriber, regardless of whether that subscriber would otherwise have taken DSL or cable modem service.

But the value of the subscription *itself* is only valuable to the extent it is *incremental*. Today, DSL commands approximately 40% share. What's important is how much higher Verizon's share will be in FiOS markets than in non-FiOS markets.

In our base case, we assume that 25% of FiOS data subscribers are *entirely* incremental. That translates to an incremental 10 points of broadband share in all markets where they deploy FiOS (i.e. an incremental 25% *x* 40% penetration). Note that this *cannot* be directly compared to the statistic that Verizon has periodically reported on its earnings calls; that just 20% of FiOS subscribers come from the ranks of DSL subscribers. The difference is critical; Verizon has cited what percentage of new FiOS subscribers were DSL subscribers at the time they subscribed to FiOS. (Even *after* accounting for the fact that broadband

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penetration in the U.S. is only 50% – suggesting that this percentage is perhaps more like 40% of broadband subscribers – this cannibalization rate is still surprisingly low). But what matters *economically*, however, is not the percentage of customers who *currently* have DSL, but instead the percentage who *otherwise would have had* DSL. The calculation must include not only the percentage of customers who are current DSL subscribers, then, but *also* movers who would have been DSL subscribers, and non-broadband subscribers who eventually would have been DSL subscribers. The cannibalization rate is likely higher than simple sequential probabilities would suggest, as it is reasonable to assume that there is a discernible "telco bias" among FiOS subscribers that would suggest that they would opt for.

As in the case with video, we assume just 1.5% monthly churn, again below industry norms. Moreover, we assume that there is a 50% probability that, after disconnect, a *new* tenant will subscribe to the Verizon FiOS product.

Exhibit 25
Value of Incremental Data Pricing and Incremental Share

Monthly Contribution Rate (Year 1)	$ 10.00
Incremental Margin (DSL)	90%
Percentage Incremental	25%
Base Price (DSL)	$ 30.00
Tax Rate	35%
Churn Rate	1.5%
Subsequent Reconnect Rate	50%
Discount Rate	8.75%

Probability Table - Customer Tenure in FiOS Connected-Home

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Customer Tenure															
1	1.00	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
2	-	0.82	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
3	-	-	0.67	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
4	-	-	-	0.55	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
5	-	-	-	-	0.45	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
6	-	-	-	-	-	0.37	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
7	-	-	-	-	-	-	0.30	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
8	-	-	-	-	-	-	-	0.25	0.02	0.02	0.02	0.02	0.02	0.02	0.02
9	-	-	-	-	-	-	-	-	0.20	0.02	0.02	0.02	0.02	0.02	0.02
10	-	-	-	-	-	-	-	-	-	0.17	0.02	0.02	0.02	0.02	0.02
11	-	-	-	-	-	-	-	-	-	-	0.14	0.01	0.01	0.01	0.01
12	-	-	-	-	-	-	-	-	-	-	-	0.11	0.01	0.01	0.01
13	-	-	-	-	-	-	-	-	-	-	-	-	0.09	0.01	0.01
14	-	-	-	-	-	-	-	-	-	-	-	-	-	0.08	0.01
15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06
Probability (FiOS Customer)	100%	91%	84%	78%	73%	69%	65%	62%	60%	58%	57%	56%	55%	54%	53%
Probability-Adjusted Contribution	201.00	182.91	168.08	155.91	145.94	137.76	131.05	125.55	121.04	117.35	114.31	111.83	109.79	108.12	106.75
Tax	70.35	64.02	58.83	54.57	51.08	48.22	45.87	43.94	42.37	41.07	40.01	39.14	38.43	37.84	37.36
After-Tax Contribution	130.65	118.89	109.25	101.34	94.86	89.54	85.18	81.61	78.68	76.27	74.30	72.69	71.36	70.28	69.38
Discount Factor	1.00	0.91	0.83	0.76	0.69	0.63	0.58	0.53	0.48	0.44	0.40	0.37	0.33	0.30	0.28
Present Value	130.65	108.49	90.97	77.00	65.77	56.65	49.18	42.99	37.82	33.46	29.74	26.55	23.78	21.37	19.25
Present Value	813.66														

Source: Bernstein Estimates and Analysis

Telephony

The strategic rationale for building FiOS is most often ascribed to protection of the phone business. But phone is actually a relatively small contributor to the long-term economics of FiOS.

Once again, the reason is the fact that Verizon's share of the phone market is *already* so high. With a dominant starting share of the telephony business, a relatively modest portion of acquired phone business can be expected to be incremental to Verizon's base case.

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We assume here that, in the *absence* of building FiOS (and in those markets where Verizon does *not* build FiOS), they will lose 30% of their phone subscribers to cable. Among FiOS subscribers, that defection risk is cut to zero. Once again, assuming that more of phone is incremental would make the returns of FiOS look better... but would make the *rest* of Verizon look commensurately worse.

Note that we assume the benefit relates to retention versus *landline* competitors only; we assume no benefit relative to wireless substitution, since we assume a customer who is not interested in a landline phone... well, isn't interested in a landline phone.

Given its high fixed/low variable cost nature, we further assume here that the vast majority of telephony revenue drops to the bottom line (we assume a 75% incremental contribution rate on an average ARPU of $45). We further assume that there is a 70% chance that a left-in FiOS line, once disconnected, will be re-subscribed to FiOS telephony by the next tenant.

Making these assumptions, the incremental after tax contribution of retained telephony has a net present value of $565.

Exhibit 26
Retained Telephony Contribution

Monthly ARPU (Year 1)	$ 45.00
Annual Contribution Rate Increase (%)	0%
Incremental Margin	75%
Percentage Incremental	25%
Incremental Share	30%
Tax Rate	35%
Churn Rate	1.5%
Subsequent Reconnect Rate	70%
Discount Rate	8.75%

Probability Table - Customer Tenure in FiOS Connected-Home

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Customer Tenure															
1	1.00	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
2	-	0.82	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
3	-	-	0.67	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
4	-	-	-	0.55	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
5	-	-	-	-	0.45	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
6	-	-	-	-	-	0.37	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
7	-	-	-	-	-	-	0.30	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
8	-	-	-	-	-	-	-	0.25	0.03	0.03	0.03	0.03	0.03	0.03	0.03
9	-	-	-	-	-	-	-	-	0.20	0.03	0.03	0.03	0.03	0.03	0.03
10	-	-	-	-	-	-	-	-	-	0.17	0.02	0.02	0.02	0.02	0.02
11	-	-	-	-	-	-	-	-	-	-	0.14	0.02	0.02	0.02	0.02
12	-	-	-	-	-	-	-	-	-	-	-	0.11	0.01	0.01	0.01
13	-	-	-	-	-	-	-	-	-	-	-	-	0.09	0.01	0.01
14	-	-	-	-	-	-	-	-	-	-	-	-	-	0.08	0.01
15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06
Probability (FiOS Customer)	100%	95%	90%	87%	84%	81%	79%	77%	76%	75%	74%	73%	73%	72%	72%
Probability-Adjusted Contribution	121.50	114.94	109.56	105.15	101.53	98.56	96.13	94.14	92.50	91.16	90.06	89.16	88.42	87.81	87.32
Tax	42.53	40.23	38.35	36.80	35.54	34.50	33.65	32.95	32.38	31.91	31.52	31.21	30.95	30.73	30.56
After-Tax Contribution	78.98	74.71	71.21	68.35	65.99	64.07	62.49	61.19	60.13	59.25	58.54	57.95	57.47	57.08	56.75
Discount Factor	1.00	0.91	0.83	0.76	0.69	0.63	0.58	0.53	0.48	0.44	0.40	0.37	0.33	0.30	0.28
Present Value	78.98	68.17	59.30	51.93	45.75	40.53	36.07	32.23	28.90	25.99	23.43	21.17	19.15	17.36	15.75
Present Value	564.71														

Source: Bernstein Estimates and Analysis

Subscriber Acquisition Costs

Previously, we addressed advertising related costs (estimated to be approximately $200 per subscriber, pre-tax). We observed that these costs can be allocated *uniformly* on a per-home-connected basis.

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Promotional costs, however, cannot, but instead must be allocated *differently* for each service. As such, we treat them in this portion of the analysis. For example, the Sharp TV currently offered to subscribers carries a retail price of between $400 and $450. Non-TV customers are, at present, offered a lower-value camcorder (if they don't want to watch TV, perhaps they'd like to shoot their own). Given Verizon's late entry into the market – and AT&T CEO Randall Stevenson's recent comments about Pay TV customer conversion becoming incrementally *harder* over time – we anticipate that these costs will persist. We estimate video and data promotional and other costs are approximately $600 per customer ($390 after tax) and $150 ($100 after tax) for voice-and-data only customers. These promotional costs represent approximately $450 for the TV and $150 per subscriber for all other promotional, sales channel, and direct marketing initiatives.

Summary Economics (Full Cost Model)

In all cases, the most critical assumption to determining the marginal returns of FiOS is the assumption about what portion of revenue is *incremental* to a base case. As such, it would be relatively easy to make FiOS look better. There is peril in this line of thinking for Verizon investors, however. For if more of FiOS is incremental, then we must assume that the alternative case – which, after all, will obtain in almost half of Verizon's footprint, even after the Fairpoint divestiture – is very bad indeed.

Making reasonable assumptions about losses in the non-FiOS territories, and even making what we believe to be generous assumptions, including aggressive cost savings, generous margins, no incremental service costs, and very high take rates – the returns on Verizon's investment fall far short of the cost of capital.

Indeed, of the three segments of customers we have addressed here – video and phone only, data and phone only, and "triple play" – none earn a positive return (not surprisingly, the "triple play" customers come the closest). In aggregate, we estimate the NPV per subscriber to be nearly an $800 loss (**Exhibit 27**). On a 7M subscriber forecast, that amounts to fully $6B of shareholder value destruction.

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Exhibit 27
Summary Return Calculation

	Voice and Data Only Customer	Voice and Video Only Customer	Triple Play Customer
Costs			
Passing Cost per Connected Sub	$ 3,049	$ 3,049	$ 3,049
Connection Cost	$ 718	$ 718	$ 718
Subscriber Acq. Cost (Advertising, After Tax)	$ 130	$ 130	$ 130
Total Cost per Subscriber	$ 3,897	$ 3,897	$ 3,897
Sources of Return			
Cost Savings	$ 572.00	$ 572.00	$ 572.00
Capital Avoidance	$ 389.79	$ 389.79	$ 389.79
Depreciation Tax Shields	$ 827.37	$ 827.37	$ 827.37
Less: SAC (Promo & Sales Costs, After tax)	$ (100.00)	$ (390.00)	$ (390.00)
Video		$ 556.33	$ 556.33
Data	$ 813.66		$ 813.66
Voice	$ 564.71	$ 564.71	$ 564.71
Present Value	$ 3,068	$ 2,520	$ 3,334
Net Present Value	$ (830)	$ (1,377)	$ (563)
Customer Mix	38%	13%	50%
Composite NPV per Subscriber		$ (768.52)	

Source: Bernstein estimates and analysis

There are a number of differences between our and other forecasts we have seen that reach opposite conclusions. For example, few analyses we have seen have accounted for the inevitable time it takes before full penetration has been reached. Few account for the fact that only some, and not all, customers take the full bundle of voice, video, and data. Few account for Subscriber Acquisition Costs. And none that we have seen account for the cost savings implicit in the alternative to building FiOS… that is, letting the customers *leave*. On the other hand, some fail to account properly for the benefits of FiOS as well, including costs avoided via tax shields, maintenance savings, and reduced legacy capital spending.

In preparing the above analysis, we have ensured that each assumption we have made is consistent with Verizon guidance or with the publicly available information. Indeed, many of our assumptions are more generous – for example, we assume higher bundling rates and no incremental FiOS-related maintenance costs, and lower SAC. However, even while remaining within Verizon's cost and savings guidance, and within the range of Verizon's current pricing plans and industry average margins, our analysis suggests that the FiOS project is NPV negative.

Of course, there are two ways Verizon might see higher returns. First, it is possible that Verizon's internal analysis may include additional revenues sources that are treated as incremental to the FiOS construction decision ("if we build it, they will come.") Second, they may assume that a higher percentage of subscribers are incremental to their base case. That is to say, they may be assuming the base case for the residential wireline business is even worse than our own bearish view.

With respect to higher revenues, the case likely rests with broadband. As consumer demand for bandwidth rises, broadband providers with truly high capacity networks – like cable operators and Verizon's FiOS –

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should benefit. To the extent that Verizon is able to leverage its optical network and obtain higher ARPU from broadband, reflecting the virtually unlimited bandwidth capabilities of fiber, the economics of the project will benefit.

Verizon is currently offering a residential FiOS broadband service of 30Mbps downstream / 15Mbps upstream for $140 per month, and there is undoubtedly a growing market for increasing bandwidth. Comcast recently announced plans to offer speeds as high as 100 Mbs by the end of this year in some markets, the product of a new cable technology DOCSIS 3.0. However, given that Verizon's FiOS broadband subscriber estimates reflect a 57% share of the broadband market in FiOS territory, we do not believe that modeling a 40% increase in revenue per subscriber at the same time – roughly what it would take to cost justify the project – is prudent.

They may also be anticipating new applications that leverage the high *upstream* bandwidth capability of FiOS. The problem with this scenario is that Verizon will likely have to build those applications themselves. Verizon's FiOS network will cover just 15% of the country once complete (~18M homes). If 68% of these homes passed have broadband by 2010, even if fully half of them have already opted for Verizon by that date, then the total market that the new high bandwidth intensive application can hope to serve is just 5% or so of U.S. households. It is simply not a large enough market to warrant the development of super bandwidth-intensive upstream applications.

Then again, there is an alternative interpretation that would justify the FiOS build-out: that access line and DSL subscriber declines will be so severe and enduring that the "base case" scenarios that we have outlined above are far too optimistic. In other words, a greater percentage of FiOS revenue is truly incremental, and should be included within the financial evaluation of the FiOS product. The problem with that analysis is that we have already assumed that Verizon's voice market share falls 30% - *before* the impact of wireless substitution – and that its DSL market share to below 30% by the beginning of the next decade.

If market share is significantly *lower* than that – while beneficial to the FiOS economics – the implications for the *remaining* 15M homes within Verizon's territory that are not passed by FiOS (more than 90% of whom are passed by MSO providers) would be sufficiently profound as to create a whole new set of problems for Verizon, notwithstanding the implied improvement in the economics of FiOS.

Finally, there is one other consideration impacting the incremental economics of FiOS. We noted earlier that FiOS can be seen, to a degree, as a massive cost capitalization program. That is, if costs cannot be reduced sufficiently to keep pace with revenue erosion in the consumer wireline business, at least they can be capitalized.

An alternative – and less cynical – view is that, if these costs (especially labor) can't be truly shed, then the *incremental* cost of redeploying them to FiOS construction is materially *less* than first meets the eye. That is, if the labor is on the payroll anyway, they might as well be doing *something*. This is a variant of the logic that suggests that more severe base case losses would make FiOS look better. More severe excess labor capacity make FiOS look less costly (again, assuming that eliminating the excess labor is not an option). If this "excess labor capacity" explanation is correct, it may make Verizon's decision more rational; it does not make Verizon as an investment more attractive.

The Day After – FiOS Economics Once "Passings" Construction Is Complete

Perhaps the best that can be said is that the market already knows how bad FiOS, and that the damage is, at least, contained. Market participants may have *already* priced in the worst of FiOS (and indeed Verizon had badly lagged peer AT&T, which has spent more parsimoniously on fiber, until earlier last summer).

Over time, the marginal returns of FiOS will get better and better – since more and more of the value dilutive investment phase will be complete. As an aside, we have long noted in our coverage of the cable

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sector that total returns on invested capital for the cable industry *also* look terrible. In the case of cable, however, *marginal* returns for cable operators are exceptional... because their sunk costs are already sunk. Eventually, Verizon will be in the same boat. Having overspent – just like cable – to build the network, the incremental costs to operate it simply aren't that large. The difference, of course, is that Verizon remains many years from that inflection point. Once completed, however, capital expenditures should fall away significantly for the wireline division. The inflationary impact on depreciation expense from this massive capital project will create a drag on earnings for a decade.

Viewed from the perspective of a sunk cost infrastructure – where the passings phase of the project is complete, or assumed to be so – the marginal returns are quite attractive. Bear in mind that nearly $3,000 of the approximately $4,000 per subscriber in the prior analysis come from the passings phase of the project. If one assumes these costs are already sunk, the analysis instead rests simply on the cost to connect versus the marginal contribution. In that case, the NPV per subscriber is likely in the range of $1,300 (**Exhibit 28**).

Exhibit 28
Summary Return Calculation – Post-Construction

	Voice and Data Only Customer	Voice and Video Only Customer	Triple Play Customer
sts			
Passing Cost per Connected Sub	$ -	$ -	$ -
Connection Cost	$ 718	$ 718	$ 718
Subscriber Acq. Cost (Advertising, After Tax)	$ 130	$ 130	$ 130
Total Cost per Subscriber	$ 848	$ 848	$ 848
urces of Value			
Cost Savings	$ 572.00	$ 572.00	$ 572.00
Capital Avoidance	$ -	$ -	$ -
Depreciation Tax Shields	$ 211.01	$ 211.01	$ 211.01
Less: SAC (Promo & Sales Costs, After tax)	$ (100.00)	$ (390.00)	$ (390.00)
Video		$ 556.33	$ 556.33
Data	$ 813.66		$ 813.66
Voice	$ 564.71	$ 564.71	$ 564.71
Present Value	$ 2,061	$ 1,514	$ 2,328
t Present Value	$ 1,213	$ 666	$ 1,480
Customer Mix	38%	13%	50%
mposite NPV per Subscriber		$ 1,279.79	

urce: Bernstein estimates and analysis

In the post-construction scenario (**Exhibit 28**), the financial analysis remains identical to that shown in **Exhibit 27** but for three adjustments – cost to pass and video infrastructure costs are removed; tax depreciation shields on those expenditures are removed (as the tax shield is available in any event once the capital is spent); and capital savings benefits are removed. The result is a large swing to profitability for the decision to market FiOS once the network is constructed.

This result should be no surprise: we have removed the single largest expense but preserved all of the revenue. Based on this sunk cost analysis, Verizon *should* market FiOS in those areas where the network is

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already constructed. The *before-and-after* analysis does have something important to say about the continuing or expanded network roll-out.

Some precision is required when discussing the FiOS project in terms of sunk costs. With 9M homes passed by the end of 2007, on an incremental basis, Verizon faces positive economics for the part of its FiOS network that it has already built out. However, as FiOS is not one construction project – but rather 18M – the fact that construction is now half complete provides almost no incremental financial justification to build the other half of the project.

The obvious contrast here is a construction project like a bridge. A half-completed bridge is of no value – and the costs of the first "half" are sunk. Therefore, the return on the incremental investment to finish the bridge is far more attractive than the return on the original investment (the same revenue stream for half the capital cost). That logic does not hold for FiOS. For FiOS, Verizon can now sell service to 9M homes – regardless of what happens to the rest of the project. The economics to proceed with the construction on the remaining 9M homes is therefore independent of the economic benefits now being generated from the first half of the project (save relatively minor bulk discounts on programming expense and some experience benefits).

The NPV analysis set out in **Exhibit 27** is set at the level of an individual household, using average costs. Whether that household is the millionth or 18 millionth home passed by FiOS is not relevant to the analysis, as costs do not vary sufficiently over time to make a difference. The net present value of the incremental decision to pass a home remains negative throughout the project, in our view.

There are three clear implications from this result. First, the shareholder value accretive decision at every junction of the FiOS *construction* project has been and remains to discontinue construction. Second, given that selling FiOS services to an *already* passed home is NPV positive, Verizon should continue to market FiOS to the homes it has already passed.

Third and more broadly, there is an important distinction to be made between the idea that investors may have already priced in Verizon's continuing FiOS expenditure (possibly correct) and the idea that continuing FiOS construction is now value accretive (incorrect, in our view).

Verizon's initial capital spending cycle on FiOS is now approximately halfway complete (9M of the eventual 18M FiOS homes have been passed). Terrestrial network businesses have very long capital investment cycles (**Exhibit 29**). Capital spending moves through capital troughs to capital peaks; ROIC moves in converse cycles, peaking when capital intensity troughs, and bottoming when capital intensity peaks. As a capital trough is reached – and just when the business begins to earn attractive returns – a network rebuild and overhaul (which may last ten years) all too often begins, starting the long cycle again.

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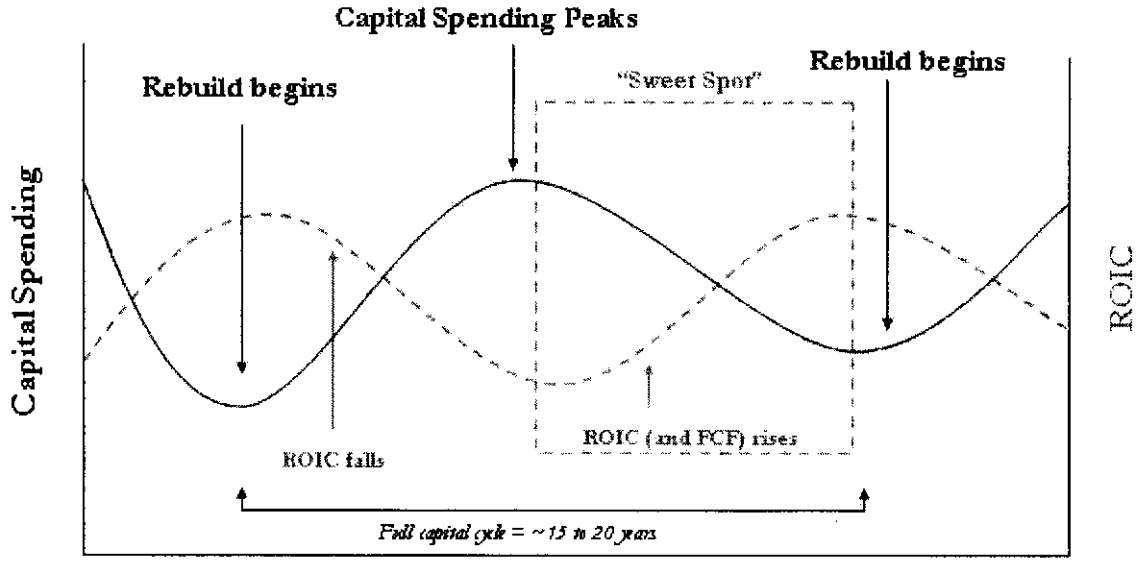
Exhibit 29
Terrestrial Network Capital Spending Cycle



Source: Bernstein estimates

Historically, investors are best served by investing when capital spending is peaking – that is, as companies enter the "sweet spot" where, from that point forward, capital intensity falls and return on invested capital rises. Those sweet spots may similarly last for ten years or more.

By embarking on its ambitious FiOS rebuild, Verizon has willingly placed itself back at the very start of the capital cycle.

Investment Implications

To be sure, there are other benefits to Verizon beyond measurable return. The morale impact of having a growth story for the Consumer Wireline business is one important example; the value of having a motivated workforce, for example, cannot be overstated.

But none of the considerations in the analysis in this report paint a very rosy picture for the wireline business. Continued redeployment of capital at below cost of capital returns is obviously an unappealing scenario. Over the long term, what matters for *any* stock is whether re-investment is yielding returns above the cost of capital. As noted at the start of this report, total returns in the consumer wireline business are already unattractive, and marginal returns look even worse; that is, total returns are now deteriorating further. And if the investment case for FiOS rests on a bleaker picture for the *rest* of Verizon's wireline business, that is cold comfort for investors who must, inevitably, own both the FiOS *and* non-FiOS markets.

Valuation Methodology

We value Verizon based on a combination of a 2009 Price/Earnings multiple of 15.4x, and a 2009 EV/EBITDA multiple of 6.2x

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Risks

The risks to our target price for Verizon include:

- Verizon or one of its RBOC, wireless or cable competitors adopting aggressive pricing strategies in one or more of Verizon's key markets. Alternatively, mere expectations of a more challenging pricing environment, even in the absence of evidence of price competition, may continue to weigh on the stocks for some time.
- Emergence of new technologies – including wireless broadband (Wi-Max), broadband powerline (BPL) – that result in additional competition for broadband, which could pressure margins. New pathways to the home for video or other entertainment could also reduce the value of the TelCos' networks.
- Rapid penetration of the Small and Medium Business market by the MSOs.
- Additional spending on Project FiOS.
- Verizon overpaying for Vodafone's minority interest in Verizon Wireless or for Alltel.

Higher than forecast loss of residential access line customers.

Exhibit 30
Verizon: Financial Summary

($ million)	2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007E	2007E	2008E	2009E	2010E	2011E
Income Statement Items										
Revenue	88,182	22,584	23,273	23,772	24,022	93,651	99,126	103,363	108,475	114,116
Operating Expenses ex D&A	60,264	15,255	15,551	15,957	16,070	62,833	66,136	69,229	72,228	75,178
EBITDA	27,918	7,329	7,722	7,815	7,952	30,818	32,990	34,134	36,247	38,937
% sales	*31.7%*	*32.5%*	*33.2%*	*32.9%*	*33.1%*	*32.9%*	*33.3%*	*33.0%*	*33.4%*	*34.1%*
						10%	7%	3%	6%	7%
Depreciation & Amortization	14,545	3,533	3,573	3,605	3,710	14,421	15,014	15,094	15,904	16,565
Operating Income (Loss)	13,373	3,796	4,149	4,210	4,242	16,397	17,976	19,039	20,344	22,372
% sales	*15.2%*	*16.8%*	*17.8%*	*17.7%*	*17.7%*	*17.5%*	*18.1%*	*18.4%*	*18.8%*	*19.6%*
Net Interest Expense	(2,336)	(485)	(455)	(450)	(413)	(1,803)	(1,802)	(2,099)	(2,200)	(2,350)
Other Non-Operating Items	1,235	208	212	196	259	875	1,053	1,105	1,129	1,129
Earnings Before Taxes and MI	12,272	3,519	3,906	3,956	4,088	15,469	17,228	18,045	19,272	21,151
Minority Interest in Earnings	(4,118)	(1,154)	(1,268)	(1,298)	(1,408)	(5,128)	(6,073)	(6,571)	(7,668)	(8,271)
Tax Benefit (Expense)	(2,674)	(881)	(955)	(1,387)	(911)	(4,134)	(3,793)	(3,901)	(4,135)	(4,584)
Accounting Changes & Discontinued C	717	11	0	0	0	11	0	0	0	0
Net Income	6,197	1,495	1,683	1,271	1,789	6,238	7,413	7,629	8,083	8,954
Fully Diluted Shs Outst'g (M)	2,919	2,911	2,907	2,900	2,886	2,886	2,721	2,676	2,611	2,551
Fully Diluted Non-GAAP EPS	$ 2.54	$ 0.54	$ 0.58	$ 0.63	$ 0.62	$ 2.37	$ 2.66	$ 2.83	$ 3.06	$ 3.47
Balance Sheet Items										
Cash and Equivalents	3,219	1,301	656	715	1,877	1,877	7,116	6,051	6,957	7,966
Total Assets	188,804	184,284	184,760	185,619	189,362	189,362	199,246	202,796	208,365	210,842
Total Debt	36,361	34,677	32,526	31,447	32,061	32,061	39,231	41,186	44,006	46,612
Shareholders' Equity	48,001	48,782	49,831	49,689	50,311	50,311	43,650	35,379	27,434	15,965
Capex	17,082	4,160	4,348	4,268	5,045	17,821	19,111	19,194	19,877	17,379
Cash Flow Items										
Cash from Operations	30,091	169	6,250	6,394	5,270	18,083	24,855	25,174	26,556	28,210
Cash from Investing	28,706	589	5,074	4,876	4,963	15,502	18,784	18,867	19,550	17,051
Cash from Financing	1,058	(1,498)	(1,821)	(1,459)	855	(3,923)	(832)	(7,372)	(6,100)	(10,149)
Free Cash Flow to VZ Equity	4,202	637	1,245	1,360	(59)	3,183	4,320	4,373	4,916	8,722
Free Cash Flow to VZ Equity Per Shar	$ 1.44	$ 0.22	$ 0.43	$ 0.47	$ (0.02)	$ 1.10	$ 1.59	$ 1.63	$ 1.88	$ 3.42
Free Cash Flow to VZ Equity Yield	3.3%	2.0%	3.9%	4.3%	-0.2%	2.5%	3.7%	3.8%	4.3%	7.9%

Note: 2006 Results reflect International and Directory as discontinued operations

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Exhibit 31
Verizon: Revenue and EBITDA Detail

($ million)	2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007E	2007E	2008E	2009E	2010E	2011E
Revenue by Segment										
Wireline	50,794	12,476	12,626	12,674	12,626	50,402	50,911	51,676	52,910	54,700
Wireless	38,043	10,307	10,843	11,289	11,591	44,030	48,992	52,463	56,341	60,192
International	697	-	-	-	-	-	-	-	-	-
Directory	2,443	-	-	-	-	-	-	-	-	-
Other	(3,795)	(199)	(196)	(191)	(195)	(781)	(776)	(776)	(776)	(776)
Total	88,182	22,584	23,273	23,772	24,022	93,651	99,126	103,363	108,475	114,116
($ million)										
EBITDA by Segment										
Wireline	14,156	3,402	3,404	3,481	3,468	13,755	13,664	13,352	13,806	14,820
Wireless	14,513	3,985	4,302	4,353	4,505	17,145	19,377	20,837	22,496	24,173
International	355	-	-	-	-	-	-	-	-	-
Directory	1,211	-	-	-	-	-	-	-	-	-
Other	(2,317)	(58)	16	(19)	(20)	(81)	(51)	(56)	(55)	(55)
Total	27,918	7,329	7,722	7,815	7,952	30,818	32,990	34,134	36,247	38,937

Exhibit 32
Verizon: Business Unit Detail

($ million)	2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007E	2007E	2008E	2009E	2010E	2011E
Wireline										
Revenue	50,794	12,476	12,626	12,674	12,626	50,402	50,911	51,676	52,910	54,700
Growth	-5.8%	-0.1%	-1.2%	-1.0%	-0.8%	-0.8%	1.0%	1.5%	2.4%	3.4%
EBITDA	14,156	3,402	3,404	3,481	3,468	13,755	13,664	13,352	13,806	14,820
Growth	-52.6%	-1.7%	-6.3%	-0.5%	-2.7%	-2.8%	-0.7%	-2.3%	3.4%	7.3%
EBITDA margin	27.9%	27.3%	27.0%	27.5%	27.5%	27.3%	26.8%	25.8%	26.1%	27.1%
Capex	10,259	2,439	2,681	2,753	3,437	11,310	11,313	11,369	11,755	9,302
Growth	*24%*	*0.9%*	*3.4%*	*18.0%*	*17.9%*	*10.2%*	*0.0%*	*0.5%*	*3.4%*	*-20.9%*
Wireless										
Revenue	38,043	10,307	10,843	11,289	11,591	44,030	48,992	52,463	56,341	60,192
Growth	*17.8%*	*17.0%*	*17.1%*	*14.4%*	*14.8%*	*15.7%*	*11.3%*	*7.1%*	*7.4%*	*6.8%*
EBITDA	14,513	3,985	4,302	4,353	4,505	17,145	19,377	20,837	22,496	24,173
Growth	19.5%	17.6%	20.7%	14.3%	20.0%	18.1%	13.0%	7.5%	8.0%	7.5%
EBITDA margin	38.1%	38.7%	39.7%	38.6%	38.9%	38.9%	39.6%	39.7%	39.9%	40.2%
Capex	6,618	1,721	1,667	1,515	1,606	6,511	7,798	7,825	8,122	8,076
Growth	0.0%	8.9%	4.4%	-6.7%	-11.5%	-1.6%	19.8%	0.4%	3.8%	-0.6%

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Exhibit 33
Verizon: Subscriber Detail

Wireless	2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007E	2007E	2008E	2009E	2010E	2011E
Total Subscribers (thousand)	59,052	60,716	62,054	63,699	65,299	65,299	70,700	75,050	82,050	85,050
Growth %	*15.0%*	*14.5%*	*13.2%*	*12.3%*	*10.6%*	*10.6%*	*8.3%*	*6.2%*	*9.3%*	*3.7%*
Gross Adds	15,405	3,640	3,732	4,041	3,226	14,639	13,923	13,459	13,631	12,631
Growth %	*5.3%*	*3.6%*	*2.6%*	*1.8%*	*-24.7%*	*-5.0%*	*-4.9%*	*-3.3%*	*1.3%*	*-7.3%*
Net Adds	7,715	1,664	1,338	1,645	1,600	6,247	5,401	4,350	4,000	3,000
Churn	1.2%	1.1%	1.3%	1.3%	0.8%	1.1%	1.0%	1.0%	1.0%	1.0%
ARPU	$ 49.72	$ 50.05	$ 51.05	$ 51.68	$ 51.75	$ 51.13	$ 52.00	$ 52.40	$ 53.48	$ 54.94
Consumer Wireline										
Subscribers (thousand)	27,797	27,063	26,340	25,559	25,142	25,142	23,113	21,390	20,067	18,936
Growth %	*-10.0%*	*-10.5%*	*-10.3%*	*-10.4%*	*-9.6%*	*-9.6%*	*-8.1%*	*-7.5%*	*-6.2%*	*-5.6%*
ARPU	$ 54.98	$ 55.49	$ 56.60	$ 56.96	$ 55.41	$ 56.12	$ 56.68	$ 57.24	$ 57.82	$ 58.39

Exhibit 34
Verizon: Capital Structure

	2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007E	2007E	2008E	2009E	2010E	2011E
Total Debt/EBITDA	1.2x	1.2x	1.0x	1.0x	1.0x	1.0x	1.2x	1.2x	1.2x	1.2x
Net Debt/EBITDA	1.1x	1.2x	1.0x	1.0x	0.9x	1.0x	1.0x	1.0x	1.0x	1.0x
Total Debt/Total Capital	19.3%	18.8%	17.6%	16.9%	16.9%	16.9%	19.7%	20.3%	21.1%	22.1%
Net Debt/Total Capital	17.6%	18.1%	17.2%	16.6%	15.9%	15.9%	16.1%	17.3%	17.8%	18.3%
EBITDA/Net Interest Expense	12.0x	15.1x	17.0x	17.4x	19.3x	17.1x	18.3x	16.3x	16.5x	16.6x

Disclosure Appendix

SRO REQUIRED DISCLOSURES

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  Outperform: Stock will outpace the market index by more than 15 pp in the year ahead.

  Market-Perform: Stock will perform in line with the market index to within +/-15 pp in the year ahead.

  Underperform: Stock will trail the performance of the market index by more than 15 pp in the year ahead.
- As of 10/10/2007, Bernstein's ratings were distributed as follows: Outperform/Buy - 41.5%; Market-Perform/Hold - 47.1%; Underperform/Sell - 11.5%.
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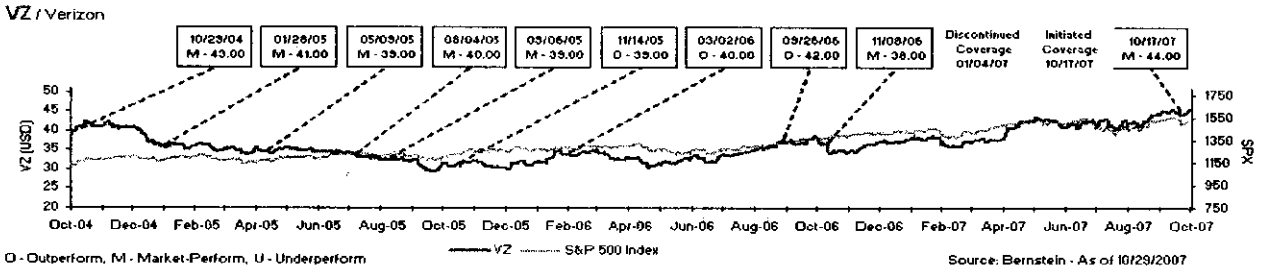
12-Month Rating History as of 01/13/2008

Ticker	Initiated Coverage	Rating
VZ	M - 10/17/07	



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Approved By: NKO

INTERNET, TV, PHONE
Bundling can cut bills

Are you bombarded with pitches to receive your cable TV, Internet, and phone service from one provider? Don't dismiss them too quickly. So-called bundles or triple-play packages might save you enough money to be worth the disruption of switching some services.

And a new survey by the Consumer Reports National Research Center finds you needn't compromise service quality to buy a bundle. Subscribers to many companies were reasonably satisfied with all three of the most commonly bundled telecom services.

Telephone companies, principally Verizon, continue to expand fiber-optic networks, which allow them to compete more easily with cable providers to offer a full array of telecom services, including TV and Internet. (Cable providers also use fiber in parts of their networks, as they are promoting in some ads clearly aimed at the migration of cable customers to fiber service from the phone companies.)

Satellite-TV providers can't alone offer viable bundles, since satellite-based phone and Internet service is expensive and, for Internet access, also slow. But satellite providers are partnering with phone companies to create bundles comprising satellite TV, DSL Internet, and landline phone service.

Here's what we found from our survey and reporting on telecom bundles.

You can get a good deal. A bundling mainstay is the one-year, $99-a-month package, typically made up of a premium level of TV service, standard-speed broadband Internet service, and telephone service with a variety of calling features. Such deals could save you up to hundreds of dollars a year over the amount you'd pay if you received the three services separately.

Many readers who wrote about their bundling experiences on the Electronics Blog at ConsumerReports.org say that they successfully negotiated good deals when their introductory period was over. Having signed you up for the cheap bundle, "the last thing the company wants is to lose you," says Douglas Williams, an analyst at Jupiter Research.

Bundling is less likely to save you money if your telecom needs are simple—say, basic TV, minimum-broadband Internet, and telephone service with little or no long-distance calling.

Bundles aren't yet tidy. For one, they're distinguished by a profusion of plans that can be hard to compare. For example, in one part of New York this fall, Verizon offered six bundles, four of them $99-a-month deals, two of which appeared to be identical. Comcast was the best provider we found in spelling out what the fee would be after the promotional period.

Bundling offers convenient consolidation of your telecom bills. But a number of blog respondents reported that it took weeks or even months of calls and e-mail messages for the combined bill to show the right price.

It's worth learning about fees and other requirements in advance (see "What to Ask Before You Sign Up," page 34). Here's other advice on choosing and receiving the best bundle.

HOW TO CHOOSE

Find out what's available. Chances are you're getting cable now, or your neighborhood is wired for it; a small percentage of homes have two cable companies from which to choose. Satellite is generally available, provided your home has an unobstructed view of the horizon to the southwest. DSL is widely offered in urban and suburban neighborhoods. Fiber-optic service—FiOS from Verizon and U-Verse from AT&T—is spreading fast but is so far available to only about 8.5 million homes in about one-third of the states.

Check availability in your area at *uverse.att.com* and *www22.verizon.com*

/content/consumerfios. But even if your area has fiber-optic capability, specific services might not be available right away. For example, about one and a half million homes that can get Verizon FiOS Internet and phone can't yet receive the company's fiber TV service.

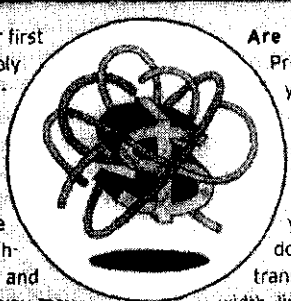
Consider installation and safety. Bundles are so complex that it pays to call carriers with the list of questions in the box below. We found that on the phone, providers may also be open to haggling on installation and other costs.

If you're switching to cable telephone service, which is Internet-based, consider spending about $20 a month to retain basic landline service. A landline is more reliable for 911 calls and will continue to work in power outages if you have a phone that doesn't require AC power. (If your phone does, you can buy a battery backup from the provider for around $45 that offers 4 to 6 hours of power.) Verizon's fiber phone service also requires a battery backup, which is provided at no extra cost, but it handles 911 calls the way landline service does.

Check your bill. Make sure your first few bills match your expectations. Some respondents to our blog told us their bills contained errors, a problem that, at least in some cases, seems to originate with computer billing systems that are unable to handle the complexities of bundling. Often bills can be difficult to read, with promised discounts sometimes tacked onto a certain service, like telephone, making it anything but obvious.

Haggle when the promotion ends. Don't blindly renew your service at the end of the promotional period. Some promotional prices include premium features, such as additional TV channels, that are great at the outset but will leave you paying more once the promotion ends. Some companies may automatically delete features, such as unlimited long-distance, unless you tell them you want to pay extra to keep them. Also, check competitors' prices for bundles and for unbundled services. Then consider haggling with them, too.

What to ask before you sign up



What's the total cost? Your first month's bill will probably include charges for an additional month's service (most companies bill in advance) and activation and installation fees that together might top $80. There will also be taxes, surcharges, and monthly charges for cable boxes and remotes, as well as add-ons you may have selected. You may have to agree to certain conditions, such as automatic bill paying. Ask the company to calculate and itemize a bill for the first and second months. Trim extras you don't really need.

What if I drop or change services? Even with providers that don't require contracts, such as many cable companies, rates can rise if you drop or change one of the bundled services. So ask about penalties or other problems you'd encounter by dropping or modifying any or all of the services prematurely.

Are there service limits? Providers might terminate your "unlimited" telephone calling privileges with VoIP if you make an unusually large numbers of calls. Similarly, some might restrict your Internet upload and download speeds if your file transfers exceed monthly bandwidth limits. Determine in advance any usage limits, especially if you expect to make many long-distance calls or download a lot of movies or other big files.

What's the post-promotion rate? Promotional bundles might allow you to try out some add-ons, such as additional TV channels, at little or no cost. But when the promotion's over, you might be automatically charged for those extras unless you instruct the company to cancel. Near the end of the promotion, review the package and decide whether you want the premium services or bonuses that were included at the outset.

CR Quick Recommendations

To help decide whether to bundle services, see the summary Ratings on the opposite page. They rank major providers on their combined scores for TV, Internet, and long-distance phone service.

The **Ratings** of individual services list providers by reader score within the service. **Quick Picks** considers performance across services.

QUICK PICKS

Best choice overall:

1, 23, 37 Verizon FiOS

This fiber-optic service's superior scores make it worth serious consideration if you're among the minority of households that can get it. Yet, like most DSL and satellite-TV packages but generally unlike cable ones, fiber requires a contractual commitment of at least a year. It also requires the most elaborate installation: the mounting of a backpack-sized box, typically on the exterior of your home. And as with cable phone service, you need battery backup if the power is out; a battery pack with a claimed 8 hours of running time is provided.

Next-best choice for many households: a highly rated cable company

Better cable companies, including the giant Cox (5, 28, 38) and smaller Bright House (4, 27, 40) and Wow (2, 24), are a fine alternative to Verizon FiOS if they're available where you live. (Wow also offers phone service, but we lacked sufficient data to rate it.) Unlike DSL Internet, satellite TV, and Verizon FiOS, cable company bundles typically require neither a contract nor an investment in equipment.

If TV service is paramount:

25 DirecTV

If Verizon's FiOS TV is not available where you live, consider this satellite-TV provider, which scored significantly higher than all the major cable companies for TV service. It offers hybrid bundles of its TV offerings and DSL and phone service from a telephone provider. Phone partners include Verizon and Qwest; the summary chart on page 35 shows that combinations of their services and DirecTV's television service stack up well against bundles from the best cable companies. Satellite does require getting a satellite dish and other equipment, typically free or at discount in exchange for a contract commitment.

Ratings Internet, TV & phone service

Better ◀ ● ◓ ○ ◒ ● ▶ Worse

Within service type, in order of reader score. Blue key numbers indicate Quick Picks.

Key number	Service provider	Type	Reader score	Survey results: Value	Reliability	Performance	Support
	INTERNET SERVICE						
1	Verizon FiOS	Fiber	83	●	●	●	●
2	Wow	Cable	82	◓	◓	◓	-
3	Cincinnati Bell	DSL	82	◓	◓	○	-
4	Bright House [1]	Cable	82	○	○	◓	●
5	Cox	Cable	82	○	○	◓	○
6	Verizon	DSL	82	○	○	◒	○
7	EarthLink [2]	Cable	82	○	○	◓	○
8	Insight	Cable	82	○	○	◓	○
9	Qwest	DSL	82	○	○	◒	○
10	AT&T	DSL	82	○	○	◒	○
11	Cablevision	Cable	82	○	○	◓	○
12	Frontier	DSL	82	○	○	○	-
13	Time Warner [1]	Cable	82	○	○	◓	○
14	Windstream	DSL	82	○	○	◒	○
15	EarthLink	DSL	82	○	○	○	○
16	RCN	Cable	82	○	○	◓	-
17	Embarq	DSL	82	○	○	◒	○
18	EarthLink [3]	DSL	82	○	○	◒	-
19	Comcast	Cable	82	○	○	◓	○
20	Mediacom	Cable	82	○	◒	○	◒
21	Charter	Cable	82	◒	◒	○	◒
22	HughesNet	Satellite	82	◒	●	●	◒
	TELEVISION SERVICE						
23	Verizon FiOS	Fiber	84	●	●	●	●
24	Wow	Cable	82	◓	●	◓	-
25	DirecTV	Satellite	82	◓	○	●	○
26	Dish Network	Satellite	82	○	○	●	○
27	Bright House	Cable	82	○	○	○	○
28	Cox	Cable	82	○	○	○	○
29	Insight	Cable	82	○	○	○	○
30	Cable One	Cable	82	○	○	◒	-
31	Cablevision	Cable	82	○	○	○	○
32	RCN	Cable	82	○	○	○	○
33	Time Warner	Cable	82	○	○	○	○
34	Comcast	Cable	82	○	○	○	◒
35	Charter	Cable	82	○	◒	○	◒
36	Mediacom	Cable	82	○	◒	◒	◒

Key number	Service provider	Type	Reader score	Survey results: Value	Reliability	Performance	Support
	LONG-DISTANCE PHONE SERVICE						
37	Verizon FiOS	Fiber	82	○	●	●	-
38	Cox	VoIP	82	○	◓	◓	-
39	Skype	VoIP [4]	82	●	◒	●	-
40	Bright House	VoIP	82	◓	○	○	-
41	Cincinnati Bell	Landline	82	○	●	◓	-
42	Cablevision	VoIP	82	●	○	○	○
43	Qwest	Landline	82	○	◓	◓	○
44	Vonage	VoIP	82	●	◒	◒	○
45	AT&T	VoIP	82	◓	○	○	-
46	Time Warner	VoIP	82	○	○	○	○
47	AT&T	Landline	82	○	◓	◓	○
48	Verizon	Landline	82	◒	◓	○	○
49	Windstream	Landline	82	○	○	○	-
50	Comcast	VoIP	82	○	○	○	○
51	Embarq	Landline	82	◒	○	○	○
52	CenturyTel	Landline	82	◒	○	○	-
53	Charter	VoIP	82	○	◒	◒	-

1. Using Road Runner service. 2 On the Time Warner cable system. 3 Using the AT&T phone system. 4 Uses peer-to-peer technology; requires special phones or headsets that attach to a computer.

SUMMARY: How the big players compare

Providers for which we had sufficient data to rate Internet, TV, and phone sevice, listed in order of average reader score for the three services.

Provider	Type	Reader scores by service: Internet	TV	Phone
Verizon FiOS	Fiber	83	84	82
Bright House	Cable	82	82	82
Qwest/DirecTV	Hybrid*	82	82	82
Cox	Cable	82	82	82
Verizon/DirecTV	Hybrid*	82	82	82
AT&T/Dish Network	Hybrid*	82	82	82
Cablevision	Cable	82	82	82
Time Warner	Cable	82	82	82
Comcast	Cable	82	82	82
Charter	Cable	82	82	82

** Combines DSL Internet and landline phone service from the first provider listed with satellite-TV service from the second provider listed.*

Guide to the Ratings

Ratings are based on 37,166 respondents with a home Internet account, 44,457 with TV service, and 26,599 with long-distance phone service who completed the Consumer Reports 2007 Annual Questionnaire online in Spring 2007. They were Consumer Reports subscribers and might not represent the general population. **Providers** are those for which we had sufficient data to score the service. **Type** is the delivery technology including, for phone service, VoIP (Voice over Internet Protocol) and traditional landline service. **Reader score** reflects overall satisfaction and is not limited to the factors listed under survey results. A score of 100 would mean all respondents were completely satisfied; 80, very satisfied, on average; 60, fairly well satisfied. Differences of less than five points (for TV service, four points) are not meaningful. The following **survey results** are relative compared with the average of all providers of each service: **value** for money, service **reliability**; a key **performance** attribute (Internet connection speed; TV-service picture and sound quality; and long-distance phone call quality) and customer **support**. A "–" indicates there was insufficient data to provide a score.

High-def TV service

MORE CHANNELS, MORE COMPETITION

Has the lack of high-definition programming been standing between you and a new HDTV? Then you'll have to find another reason not to buy. Many TV-service providers say they'll be offering 100 to 150 HD channels by the end of this year, up from barely 20 channels a year or two ago.

About one-third of U.S. households now own at least one HD set, and they're clamoring for more high-def content. Because high-def images contain much more detail than standard-definition fare, the best HD programming can look dazzlingly clear and lifelike. Once you're accustomed to that level of quality, it's hard to settle for standard-def TV.

The upsurge in HD is also being driven by increased competition among TV and telecom services. As phone companies—most notably Verizon but also AT&T and others—roll out fiber-optic networks that can handle TV, voice calls, and Internet access, more consumers have a choice of service providers.

About 1.5 million homes get their TV service from a phone company, compared with 65 million cable households and about 30 million satellite subscribers. But the telcos, as the phone companies are called, are expanding fast as they successfully poach customers from their rivals, especially cable carriers.

Many converts seem happy they made the switch. In a recent survey by the Consumer Reports National Research Center, subscribers to the leading telco TV service, Verizon's FiOS TV, were significantly more satisfied overall than those who have satellite or cable. (We don't have enough data to report on AT&T.) Overall, cable scored below satellite, though the best cable carriers were as satisfying as satellite-TV providers.

Unfortunately, competition isn't doing much to reduce the cost of TV service. Cable rates recently jumped 3 to 7 percent, and Verizon increased rates for new customers by 12 percent. Dish Network announced in January that it would not raise prices of its most popular packages in 2008. At press time, DirecTV had not announced any rate changes.

To offset rising costs, more households are subscribing to plans that bundle TV, Internet, and phone service, as we reported in our February 2008 issue.

For the ultimate in cost savings, you can use an antenna to get free HD signals from the major broadcast networks. The quality can be superb, but you won't get channels such as ESPN, Discovery, and others available only on for-pay TV. (See "Are you set for all-digital TV?," page 32.)

As competition heats up, cable, satellite, and telephone companies are waging an advertising war over who has the most channels, the fastest network, and the best picture and sound. This report evaluates the claims to help you decide which TV provider suits you best, whether you want high-def or standard-def service.

HOW TO CHOOSE

If you want to sign up for HD or change providers, consider the following:

Determine what's available. Cable is accessible in most parts of the country except for some rural regions. About 98 percent of markets are served by only one cable company, so you probably have no choice if you want cable but don't like

How the service providers stack up

CABLE

Pros Few or no up-front costs or contracts. Has all local broadcasts, including community channels. Best for video-on-demand (VOD) movies and special events, including, for some carriers, high-def VOD.

Cons Limited bandwidth has prevented some carriers from adding HD channels or offering high-def on-demand movies. Satisfaction with most cable carriers is lower than for other providers in our survey.

What's new Larger carriers are replacing older networks with higher-capacity "hybrid" fiber coaxial systems that run fiber to local residential "nodes" and use standard coaxial cable into the home. Some carriers are dropping analog stations to make room for more HD and VOD.

SATELLITE

Pros Generally more satisfying than cable in our surveys. The most HD content at present.

Cons Limited on-demand offerings. Bad weather can knock out reception. Must acquire equipment, though it might be provided free in exchange for signing a contract. Getting HD might require a new or additional satellite dish.

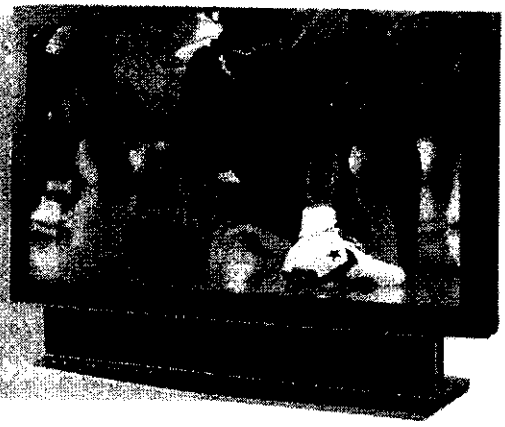
What's new DirecTV and Dish plan to broaden on-demand offerings, which are limited so far, especially in HD. Both allow at least some older standard-def movies to be downloaded via broadband to a DVR. DirecTV also "pushes" newer movies to the DVR each month. You pay for them only if you view them.

PHONE-COMPANY TV

Pros Provides the most bandwidth, minimizing need to compromise picture and sound quality. High scores and user satisfaction for Verizon FiOS, the only telco in our survey.

Cons Limited availability. TV service might not be offered in a market as soon as Internet and phone. Might require a contract when bundled with other services. Extensive installation. Fewer HD channels than satellite or some cable companies, at least for now.

What's new HD on-demand is developing: Verizon introduced it in five cities at the end of 2007 and says it will be available to all its customers later this year. AT&T says its system supports HD VOD, but it hasn't released a timetable for availability. Other smaller telcos are considering TV service.



Sports events are a big reason to get HD with your TV and service. The extra detail in high-def images and the larger size of most HDTV screens make the ACTION MORE LIFELIKE AND THE BALL EASIER TO SEE.

your provider. Satellite service is available nationwide from DirecTV and Dish Network, provided that you're able to mount a dish antenna with an unobstructed view of the southern horizon.

Fiber-optic availability is still limited. By the end of 2007, Verizon's FiOS TV was available in parts of California, Delaware, Florida, Indiana, Maryland, Massachusetts, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Texas, and Virginia. AT&T's U-verse service was available in 14 metropolitan areas in California, Connecticut, Indiana, Kansas, Ohio, Oklahoma, Michigan, Texas, and Wisconsin. Although telco TV has been growing city by city, many states have authorized statewide franchising to speed expansion.

Consider equipment and contracts. Cable service requires no contract, for the most part, and any necessary gear is usually rented. To get high-def, you'll have to rent a high-def box. Monthly fees are typically the same as for standard-def gear: about $5 to $8 for an HD box or DVR, plus $10 to $16 for the DVR programming service.

To get the best deal from a satellite company, you generally have to sign a 12- to 24-month service contract, with penalties imposed for early cancellation. Both satellite providers offer discounts on hardware. Dish gives you one free HD DVR when you sign up for service. You can lease additional receivers for $5 a month each or buy them outright for $300, with no monthly lease fee. DVRs cost $500. A $6 monthly service fee covers all DVRs. With DirecTV, you get an HD receiver free after a $100 rebate; for extra receivers, you pay $5 a month. An HD DVR costs $200 after a $100 rebate; a $5-a-month fee covers all your DVRs.

Verizon offers month-to-month TV service or, when bundled with phone and Internet service, a contract with early-cancellation penalties. There are no upfront charges for equipment; you pay $10 a month for an HD receiver and $16 for an HD DVR.

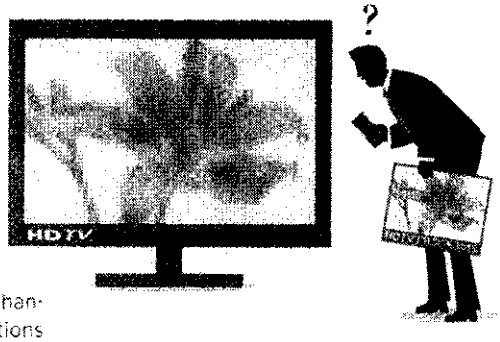
Question HD channel counts. There's no agreement on what constitutes a high-definition "channel," so it's hard to figure out what any given service offers. Some carriers bolster their HD channel counts by classifying each on-demand offering or movie as a channel. Others count each regional sports network feed as a channel even though you might get only those that are available in your area.

We took our own tally, counting only networks assigned a specific channel number; we considered regional sports as one channel. At press time, DirecTV had about 65 HD channels, while Dish and AT&T had about 40. Verizon had 30-plus HD channels. The major cable providers had 25 to 40. We expect all carriers to add channels throughout the year, and most should have 100 or more high-def channels by year's end.

But don't place too much weight on the sheer number of HD channels a service offers. We found only a slight association between more channels and greater satisfaction with channel selection in our survey. Chances are that you regularly watch only a handful of channels anyway.

Find a lineup that suits you. Many HD channels are carried by virtually all providers, including the major broadcast networks and HD versions of Discovery, ESPN, National Geographic, TNT, and Universal. PBS says it will shift all production to HD by February 2009. If you watch mostly stations like those, almost

When 'HD' isn't really high-def



Ever wonder why some HD programs seem, well, more high-def than others? It's because not all programs being billed as high-def are of equal quality. Here's why:

Content might not be true HD. Although more programming is being shot with high-definition video cameras or converted to HD from movie film, there still isn't enough to fill every hour on many HD channels. No regulations require the TV stations to disclose whether you're watching true HD or converted, quasi-HD content.

A few networks, including HDNet, Universal HD, Discovery HD, and Mojo (InDemand), carry only programming shot in HD or converted to HD from film. Others combine some native HD content with material shot in standard-definition and "upconverted" to a quasi-HD resolution. For example, major broadcast networks shoot most prime-time series, sports, and talk shows in HD, but they shoot most news and reality shows in standard-def and convert them to quasi-HD. It falls short of true HD but can look better than standard-def converted by a 1080p set.

Standard-def programming has a squarish shape (a 4:3 aspect ratio), so it usually has bars or graphics on the sides to fill a wide screen. Stations occasionally stretch the image instead to eliminate those bars, but that distorts the proportions.

Bandwidth limits may degrade quality. HD programming requires much more data capacity than standard content, so the increase in HD content is straining TV providers, especially as many expand phone and Internet service. Providers compress the signals to varying degrees to squeeze more channels into the same bandwidth; heavy compression can reduce HD picture quality. They might do so on the fly by "stealing" bandwidth from less data-demanding programming, such as a talk-show interview, and redistributing it to, say, a car-chase scene in an action movie on another channel.

ILLUSTRATION BY JING AND MIKE CO.

any service should have what you want.

Many sports channels, regional sports coverage, and sports packages from the NHL and NBA are widely available in HD as well. Both satellite providers, along with Verizon, Comcast, and many smaller cable companies, carry the NFL Network, with its exclusives on eight league games. If you're a diehard football fan, DirecTV is the way to go. It has an exclusive on NFL Sunday Ticket SuperFan, with 180 HD games a season for about $380.

Cable has had the edge in video on demand (VOD)—movies and other programs, including high-def ones, that you can order, start, and stop whenever you want to within a 24-hour period. Verizon is rolling out HD VOD in some areas. The satellite companies are trying to compete with "quasi" VOD. They download selected programming to your DVR, and you pay for it only if you view it.

Decide on a package. Be realistic about what you'll watch so that you don't pay for stations you'll never tune in. All TV providers charge higher prices for packages with more channels and premium networks.

You'll pay extra for HD with the satellite companies—$10 a month for DirecTV, $20 a month for Dish. Most cable companies don't add a surcharge for HD, but you must rent a high-def box.

Expanded basic programming with HD costs about $50 a month, regardless of provider. We've generally found only modest price differences among providers for comparable packages. You'll pay closer to $75 for a fuller lineup including HD and $100 or more for a package loaded with every available channel, including HD and premium channels such as HBO and Showtime.

Consider picture and sound quality. In our survey, Verizon FiOS and satellite subscribers were generally more satisfied than digital-cable customers as a whole with picture and sound. Cable subscribers getting high-def were much more satisfied with picture and sound than those getting only standard-def, but even cable's high-def picture quality ratings didn't match scores for Verizon and satellite, which combined high-def and standard-def.

CR Quick Recommendations

The **Ratings** shows subscriber satisfaction with fiber, satellite, and digital cable. Of respondents with digital cable, almost half subscribe to high-definition digital TV service. (The Ratings of cable providers in our February 2008 bundling report included analog-cable subscribers, so they differ slightly from these.) Subscribers to lower-scoring cable companies have more to gain by switching to Verizon FiOS or satellite than those with higher-scoring companies such as Cox and Bright House. The **Ratings** are based entirely on survey results. **Quick Picks** also considers other factors.

QUICK PICKS

For highest overall performance:

1 Verizon FiOS

With high scores across the board, Verizon's up-and-coming fiber-optic service is offering fine service with competitive prices, especially if you also subscribe to Internet and phone service, which received top scores in our survey (see February issue).

While the Verizon FiOS digital programming is competitive overall, it has fewer high-definition channels than satellite and cable providers. But the company is rapidly expanding its channel offerings.

For the most HD channels:

2 DirecTV

The largest satellite-TV provider got top scores for channel selection and picture and sound quality scores, and it has about twice as many high-def channels as Verizon. It's especially attractive for football fans because of its exclusive NFL packages.

Ratings digital TV service

Better ← → Worse

In order of reader score. Blue key numbers indicate Quick Picks.

	Service provider	Type	Reader score	Survey results: Channel choice	Image quality	Sound quality	Reliability	Value	Support
1	**Verizon FiOS**	Fiber		●	●	●	●	●	●
2	**DirecTV**	Satellite		●	●	●	○	◓	○
3	**Bright House**	Cable		◓	◓	○	○	○	◓
4	**Dish Network**	Satellite		◓	◓	●	○	○	○
5	**Cox**	Cable		◓	◓	◓	○	○	◓
6	**Insight**	Cable		○	○	○	○	○	○
7	**Cablevision**	Cable		○	○	○	○	○	○
8	**RCN**	Cable		○	○	○	◒	○	◒
9	**Time Warner**	Cable		○	○	○	○	○	○
10	**Comcast**	Cable		○	○	○	○	○	◒
11	**Charter**	Cable		○	◒	◒	◒	○	●
12	**Mediacom**	Cable		◒	●	◒	◒	○	◒

Guide to the Ratings

Ratings are based on 35,660 respondents who subscribe to Verizon's FiOS TV, satellite TV, or digital-cable service and who completed the Consumer Reports 2007 Annual Telecommunications Survey. Respondents were Consumer Reports subscribers and may not be representative of the general population. **Reader score** reflects overall satisfaction with these services and is not limited to the factors listed under survey results. A score of 100 means all respondents were completely satisfied; 80 would mean very satisfied, on average; 60, fairly well satisfied. Differences of less than four points are not meaningful. The following scores are relative and indicate satisfaction compared with the average: **channel choice,** indicating satisfaction with the selection of channels; **image and sound quality** from the service; the **reliability** of the service; **value** for the money; and customer **support.** Providers listed are those for which we had sufficient data to yield a score.

Bank of America

Equity Research
United States

November 20, 2007

Cable & Satellite TV and Wireline & Wireless Telecommunications Services

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Top Picks

Ticker	Rating	Price	Target
CMCSA	B	$19.35	$26.00
TWC	B	$25.24	$32.00

Least Favorites

Ticker	Rating	Price	Target
CHTR	N	$1.28	$1.50

Battle For the Bundle: 3Q07 Wrap Up

Cable VoIP Adds Healthy, Bell Video on Track, Bell Access Line Losses Accelerated, and DBS Maintained Gross Add Share

- We present here our new *Battle for the Bundle Quarterly Wrap Up* report which extracts the key conclusions from Bell, cable and DBS quarterly results regarding incremental market share shifts and product economics.

Voice:

- **In aggregate, Cable VoIP net adds were up 28% y/y, but flat q/q.** Total cable VoIP subs are now estimated at 10.1 million (including public and non-public operators). This is nearly 2x the total VoIP subscribers in 3Q06. We believe the industry's significant Y/Y growth is making for tougher sequential comps.
- **Bell line losses improved sequentially in absolute terms, but the Y/Y rate of loss in percentage terms rose to 7.3% from 7.0% in 2Q.** Business lines are holding up as residential line loss, including wholesale, is tracking at 9.5%.

Data:

- **After slipping in 2Q07, cable broadband net add share is back near 50%.** Cable net add share moved to about 50%, levels similar to the four quarters prior to 2Q. Although broadband net add growth has been decelerating over the past two quarters, we believe growth opportunities do remain for cable and DSL.

Video:

- **DBS gross add growth slowed in 3Q.** 3Q07 saw a slowdown as DISH gross adds declined 6% y/y (the first negative growth since 1Q06). While DTV y/y gross add growth was a healthy 3%, it was below the 4% growth posted in 2Q07. Year-to-date, DBS gross add share has defied concerns it would become far less competitive versus the bell and cable bundles as both DirecTV and EchoStar have recorded 3% gross add growth. However, both Cable voice and Bell video rollouts are still in the early stages and we expect bundle penetration to accelerate.
- **Bell video gains in-line.** Bell facilities-based roll-outs performed in-line, up 35% in net adds sequentially to 277k, while Bell satellite net additions fell 22% q/q.

Economics:

- **Financial results.** The Bells don't provide enough granularity to determine much about consumer wireline economics, but wireline ARPUs generally continue to go up. Bell companies also reversed somewhat aggressive 2Q broadband promotions in 3Q. Cable ARPU growth was driven by higher bundle penetration and basic price increases. Cable margins were up for Time Warner Cable and Comcast and down for the rest of the group. Cable capex was up for all operators as were RGU adds. DBS operators recorded solid margins and 5% ARPU growth was driven by higher penetration of advanced products. DBS churn and SAC were mixed.
- **Sector View:** Our cable sector view is attractive. Voice should benefit data and help offset basic losses, cable is moving past its FCF inflection and competition should remain rational, despite headline risks. We prefer cable to DBS on valuation and lower technological obsolescence risk.
- **PORTFOLIO MANAGERS' SUMMARY: Page 2.**

Stocks We Discuss In This Report

Ticker	Price	Rating	Target
T	$37.75	Buy	$46
CVC	25.75	Neutral	28
CHTR	1.28	Neutral	1.50
CMCSA	19.35	Buy	26
DTV	24.57	Neutral	27
DISH	47.49	Neutral	41
MCCC	4.20	Buy	6
Q	6.38	Buy	12
TWC	25.24	Buy	32
VZ	43.05	Buy	50

Portfolio Managers' Summary

- **Our 12-month thesis on the sector.** Our cable sector view is attractive. Current EV/EBITDA valuations remain near historical lows despite healthier prospects for industry growth than in recent years. We see greater visibility into potential upside to numbers than we have seen historically due to VoIP. Cable FCF is ramping up due to improving FCF conversion rates (FCF/EBITDA). The competitive dynamics should remain rational for the intermediate term as Bell on-net video efforts will not likely reach critical mass until late '08 or beyond. We believe next generation services should boost ROIC.
- **Our call today in a nutshell.** We present here our new Battle for the Bundle Quarterly Wrap Up research report. Read in conjunction with our quarterly Battle for the Bundle pricing survey (see Battle for the Bundle: Consumer Wireline Services Pricing, dated October 14, 2007), this report assesses the competitive dynamic for bundled consumer communications services by extracting the key conclusions from Bell, cable, and DBS quarterly results regarding incremental market share shifts and product economics.
- **Risks to our call.** We believe pay TV stocks have been subject to headline risk regarding competition. For cable stocks, we believe the primary risks are potential margin compression and capex pressure. For DBS, we see the primary risks as higher churn and acquisition/retention costs due to competition from cable and Telco on-net build-outs. DBS companies could also be forced to spend heavily to secure a broadband solution, as we do not believe the Clearwire partnership will meet the long-term needs across the entire DBS footprint.

Investment Considerations

We present here our new *Battle for the Bundle Quarterly Wrap Up* research report. Read in conjunction with our quarterly Battle for the Bundle pricing survey (see *Battle for the Bundle: Consumer Wireline Services Pricing*, dated October 14, 2007), this report assesses the competitive dynamic for bundled consumer communications services by extracting the key conclusions from Bell, cable, and DBS quarterly results regarding incremental market share shifts and product economics.

As context, our general thesis is that local access competition will remain heated, but pricing will remain relatively rationale. As detailed in prior reports, the argument is that, quite unlike the dynamic exhibited in many other telecom services, the market for bundled residential communications services is largely a duopoly and the chief competitors are former monopolists whose chief priority is protecting their core legacy businesses. We believe this market structure provides little incentives for either side to enter its competitors' markets in a predatory way for fear of provoking a similar action in their own core market. Our recent pricing surveys increasingly show that triple play pricing between the Bells and cable operators is stabilizing close to parity. As a result, we think the pricing environment will gradually illuminate "winners" and "losers", or possibly differing degrees of "winners" ("big winners" and "less big winners"), as opposed to resulting in a cataclysmic price-based war in which there are only losers. This report is intended to keep track of who is "winning" and "losing" with respect to market share shifts and economic trends.

Highlights:

- **In aggregate, VoIP net adds from public cable operators were up 28% y/y and flat sequentially.** Total cable VoIP subs are now estimated at 10.1 million (including public and non-public operators). This is nearly two times the total cable VoIP subscribers in 3Q06.
- **Time Warner Cable and Cablevision showed sequential voice net add increases, while other cable operators leveled off.** We believe the industry's significant growth in recent quarters is making for tougher sequential comps. First to market TWC and CVC, however, still experienced sequential growth in the quarter, which bodes well for the long term prospects of the other operators who are still early in their VoIP deployment. Comcast's marketing and provisioning efficiency continues to increase as its net VoIP adds per 1,000 homes marketed is now second only to Cablevision.
- **Bell line losses improved sequentially in absolute terms, but the y/y rate of loss in percentage terms rose to 7.3% from 7.0% in 2Q.** Business lines are holding up as residential line loss, including wholesale, is tracking at 9.5%.
- **After slipping in 2Q07, cable broadband net adds market share is back near 50%.** Based on the tallies from public cable operators and the Bells, cable net add share moved to about 50%, levels similar to the four quarters prior to 2Q. Although broadband net add growth has been decelerating in the past two quarters, we believe meaningful growth opportunities remain for cable and DSL over the next several years. We forecast U.S. broadband penetration will grow from 50% today to 70% by the end of 2010 (27 million new broadband connections).
- **DBS gross add share slowed in 3Q07.** 3Q07 saw a slowdown as EchoStar gross adds declined 6% y/y (the first period of negative growth since 1Q06). While DirecTV y/y gross add growth was a healthy 3%, it was below the 4% growth posted in 2Q07. DBS gross add share has defied some of the concerns that it would become far less competitive versus the bell and cable bundles as both DirecTV and EchoStar have recorded 3% gross add growth YTD. However, both the Cable voice and Bell video rollouts are still in the early stages and we expect bundle penetration to accelerate.
- ***Bell facilities based video gains were in-line.*** Bell facilities-based roll-outs performed in-line, up 35% in net additions sequentially to 277k, while Bell satellite net additions fell 22% q/q.
- **Financial results.** The Bells don't provide enough granularity to determine much about consumer wireline economics, but wireline ARPUs generally continue to go up as customers move up the value chain. Bells in 3Q reversed somewhat aggressive broadband promotions launched in 2Q. Cable ARPU growth was driven by higher bundle penetration and basic price increases. Cable margins were up for Time Warner Cable and Comcast and down for the rest of the group. Cable capex was up for all operators. DBS operators recorded solid margins and 5% ARPU growth driven by higher penetration of advanced products. For DirecTV, churn was down and SAC was up, while EchoStar posted higher churn and lower SAC.

Voice Market Dynamics

Bell Access Line Losses

Access line losses for the Bells, overall, were roughly in-line with expectations in 3Q. Sequential access line losses decreased 71k in 3Q to 2.46 million from 2.53 million reported in 2Q, which historically is a seasonally weaker quarter for the Bells driven by college students going home for the summer and the snowbird effect. Despite the sequential improvement in absolute line losses in 3Q07, the number of combined Bell access lines declined 7.3% Y/Y in 3Q07, accelerating from a decline of 7.0% in 2Q07. Residential access lines declined at a greater rate than overall lines. The number of residential lines among the Bells declined 9.5% y/y in 3Q07 vs. 9.2% in 2Q07. Verizon reported the sharpest percentage decline in residential access lines, losing 10.4% Y/Y vs. AT&T, the next closest, which reported a decline in residential lines of 9.0% Y/Y. Technology substitution, both wireless substitution and VoIP competition, likely account for the majority of the balance of Bell reported residential line losses. Bell management teams generally acknowledged the impact of both on 3Q access line losses. On their 3Q earnings calls, AT&T pointed out increasing cable competition while Qwest acknowledged both cable competition and wireless/VoIP substitution.

Below we highlight Bell management commentary about the source of access lines losses during 3Q (excluding comments about seasonal weakness and natural churn in the customer base).

- **AT&T:** "As UNE-P continues to wind down, I don't know whether that causes – I don't know that that per se causes then a corresponding increase in retail line loss. I think it's more a factor – I think the trend, in terms of what we've seen, the trend in retail and total consumer line loss tends to go with the launch of competitors in new markets and the time period they've been in those markets. Because obviously in the early stages they increase penetration faster and then after they've been in the market for a period of time the rate of penetration slows somewhat. And if you look at, for example, this third quarter – we would always certainly want to see less line loss and strive to reduce the amount of line loss, but this quarter in consumer, and this is a combination of both retail and wholesale, switch consumer line loss was up versus third quarter of last year about 47,000 lines, it was a pretty nominal increase. Last quarter it was almost flat with the year before, and that's despite the fact that cable competition in terms of the number of households where we're facing cable competition is up year-over-year about 30%. So I think that for us is a positive sign looking forward that the offers we bring to the table, the fact that we are increasing our penetration in our base of both broadband and video I think has served to put us in a position where we can compete – are competing very well, compete very well going forward."
- **Qwest:** "Access lines showed the effect of technology substitution and competitors in our territory. The absolute number of access lines lost sequentially in the quarter was at our lowest level since the first quarter of 2006. However, the rate of loss compared to the prior year was slightly worse at 7.2%... As it relates to the wholesale, we have experienced losses from industry consolidation all through the year. I think that going forward our goal here is to continue to replace that lost revenue with higher margin reseller and data and IP revenue. And obviously to date we have not been able to completely replace it. Our goal is to continue to strive to try to replace that in the future."

- **Verizon:** "On an absolute basis, our total line losses this quarter increased sequentially, but were fewer than the amount we lost in the third quarter last year. Retail residential line losses of 664,000 were more than we lost last quarter but are 4.5% less than we lost a year ago... Today about 72% of the 6.5 million FiOS homes open for sale can get the triple play from us. As we continue to increase the availability of FiOS TV, we are seeing an increasing correlation to improve line retention. We're encouraged by the fact that in highly penetrated video markets, access line retention is significantly better... Overall we believe this quarter provides further evidence that our strategies are paying off in the wireline business. On the residential side, even though line losses continue, we have successfully increased revenue per customer, which has resulted in improved revenue growth..."

Figure 1

Bell Access Line Summary – 3Q07

(Lines in Thousands)

Company	3Q07	2Q07	2Q06	3Q07 Q/Q % Change	3Q07 Y/Y % Change	2Q07 Y/Y % Change
Total Access Lines (000)						
AT&T (proforma)	64,921	66,159	69,691	-1.9%	-6.8%	-6.5%
Verizon	42,316	43,288	45,973	-2.2%	-8.0%	-7.8%
Qwest	13,084	13,329	14,103	-1.8%	-7.2%	-7.1%
Total Bell Access Lines	120,321	122,776	129,767	-2.0%	-7.3%	-7.0%
Total Access Line Losses (000)						
AT&T (proforma)	(1,238)	(1,380)	(1,044)	-10.3%	18.6%	7.1%
Verizon	(972)	(866)	(977)	12.2%	-0.5%	-14.8%
Qwest	(245)	(280)	(251)	-12.6%	-2.5%	4.8%
Total Bell Access Line Losses	(2,455)	(2,526)	(2,272)	-2.8%	8.0%	-1.8%
Total Residential Lines (000) (retail + wholesale)						
AT&T (proforma)	37,737	38,728	41,456	-2.6%	-9.0%	-8.7%
Verizon	25,559	26,340	28,523	-3.0%	-10.4%	-10.3%
Qwest	7,546	7,728	8,257	-2.4%	-8.6%	-8.3%
Total Bell Residential Access Lines	70,842	72,796	78,236	-2.7%	-9.5%	-9.2%
Total Residential Access Line Losses (000)						
AT&T (proforma)	(588)	(307)	(486)	91.5%	21.0%	-54.7%
Verizon	(674)	(579)	(689)	16.4%	-2.2%	-16.2%
Qwest	(182)	(212)	(175)	-14.2%	4.0%	9.8%
Total Bell Residential Access Line Losses	(1,444)	(1,098)	(1,350)	31.5%	7.0%	-29.6%

Source: Company Reports, Banc of America Securities LLC Estimates

Cable Voice Growth

- **Cable voice trends were positive, as all operators except Cablevision saw y/y growth.** Voice remains a key driver for cable, and we are still in the early stages of growth. Cable voice penetration is only 9% of U.S. homes passed and that is with VoIP available to just 85% of U.S. homes. For Cablevision, the slowdown in voice net adds was expected due to its industry leading penetration rate of 32% of homes passed and Cablevision's positioning further along the voice sales curve having marketing voice for 17 quarters, more than two years longer than its cable peers.

- **Time Warner Cable and Cablevision showed sequential increases; other cable operators leveled off.** Time Warner Cable and Cablevision both saw sequential voice net add growth in the quarter. However, other operators seem to be leveling off in the rate of additions, as the industry's significant growth has provided for tough comps. To our surprise, first to market TWC and CVC still experienced sequential growth in the quarter. We believe this bodes well for the long term prospects of the other operators who are still early in their VoIP deployment.
- **In aggregate, VoIP net adds from the public operators was in line versus 2Q07 and more than 28% higher y/y.** Total cable VoIP subs are now estimated at 10.1 million (including public and non-public operators), nearly twice the total VoIP subscribers in 3Q06.
- **Cablevision still far and away enjoys industry-high penetration, reaching 32% of homes marketed and 67% of data subscribers by the end of September** (Figure 3). *Although we do not expect the same level of success for the other cable operators, we believe they will be on a similar trajectory.*
- **Comcast's marketing and provisioning efficiency continues to increase.** As a comparison of marketing and provisioning efficiency, we keep tabs on VoIP net adds per 1,000 homes marketed, indexed to the first quarter of commercial launch (thereby normalizing for the size of the marketed footprint and the quarter of initial launch). As shown in Figure 4, Comcast's efficiency is now second only to Cablevision.
- **We believe that VoIP remains a key growth driver for the cable industry.** As the video and broadband markets continue to mature for cable operators, we believe phone represents a key growth driver through 2010. Currently, cable only penetrates 9% of homes passed. By 2010 we forecast cable penetration of 22%, or roughly 24.5 million homes.

Figure 2

Cable MSOs Continue to See Momentum in VoIP

	3Q06	2Q07	3Q07	Total Subs	% chg Y-O-Y
VoIP Adds					
Comcast	*484*	*671*	*662*	*3,774*	*36.8%*
Cablevision	113	81	91	1,490	*-19.5%*
Charter *	92	128	102	778	*11.2%*
Mediacom	17	21	21	165	*23.5%*
Time Warner Cable	187	241	275	2,610	*47.1%*
Total	**893**	**1,142**	**1,151**	**8,817**	

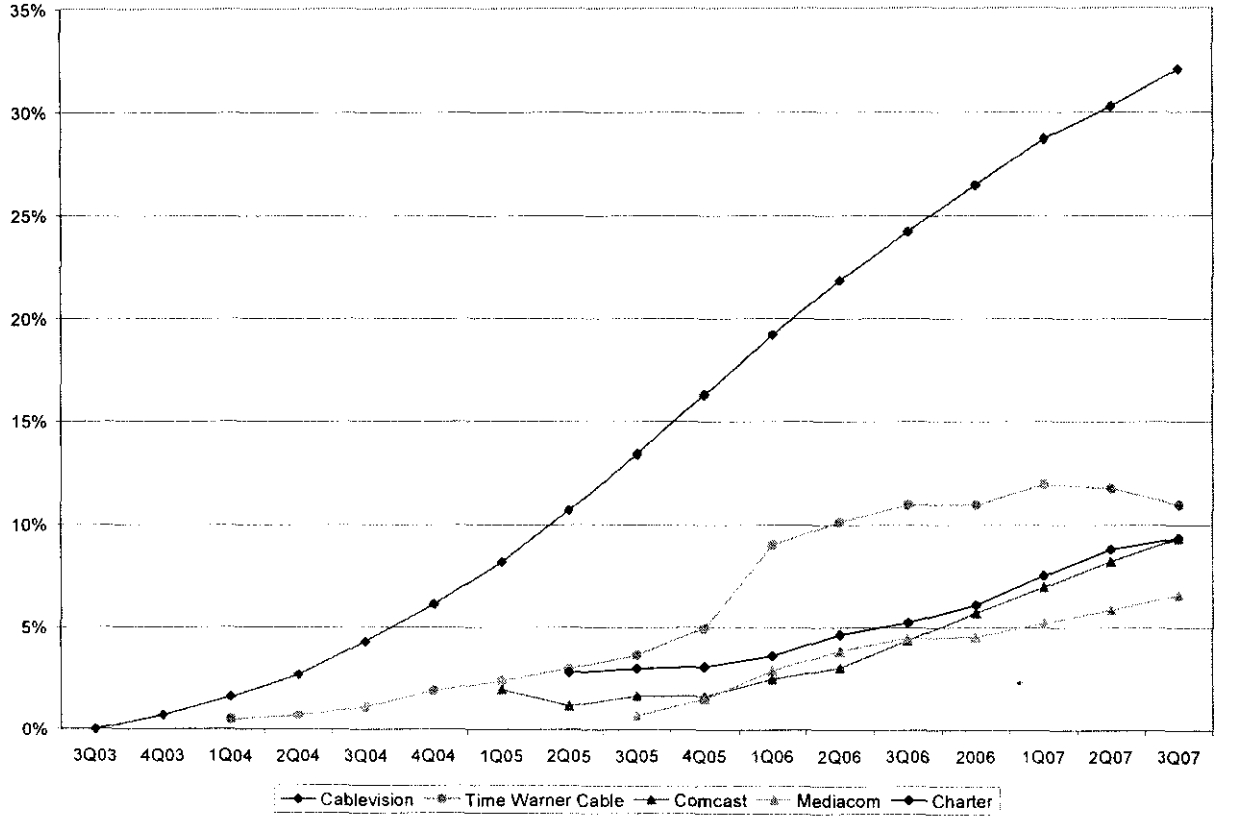
* Breakout of VoIP and circuit switched estimated.

Note: Pro Forma for Comcast, Charter, and Time Warner Cable

Source: Company reports, Banc of America Securities LLC estimates.

Figure 3

Cablevision Is Above 32% Penetration After 17 Quarters of Marketing VoIP

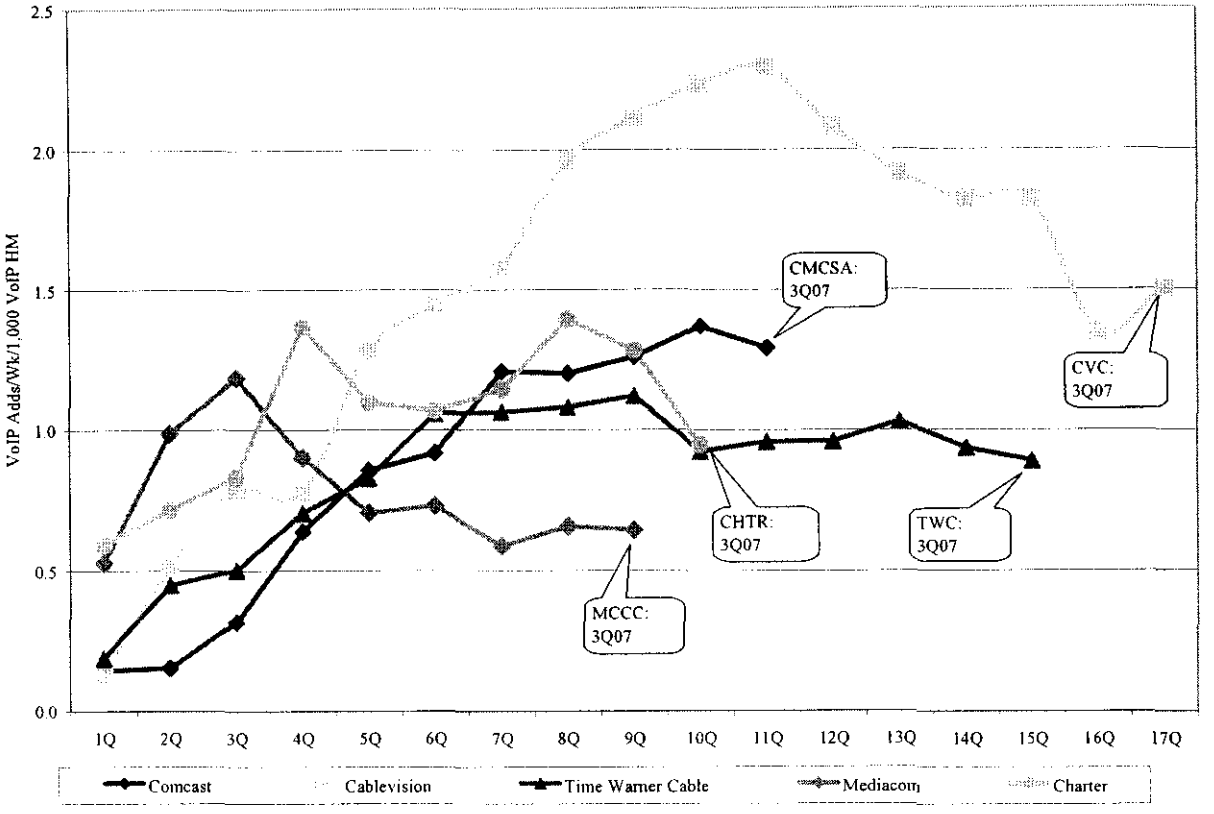


Note: Pro Forma for Comcast, Charter, and Time Warner Cable

Source: Company reports, Banc of America Securities LLC estimates.

Figure 4

Most Operators Are on a Similar Trajectory



Pro Forma for Comcast, Charter, and Time Warner Cable

Normalized for the Quarter of Launch and Marketed Footprint: Q is the first quarter of deployment: Cablevision (3Q03), Time Warner Cable (1Q04), Comcast (1Q05), Charter (2Q05) and Mediacom (3Q05).

Source: Company reports, Banc of America Securities LLC estimates.

Virtual Voice Providers

- **Other than Vonage, the virtual VoIP providers aren't making much of a dent.** At the end of September, Vonage had 2.5 million access lines. This represents roughly 90% of the virtual voice market.
- **Vonage experienced higher churn in the quarter and is still unprofitable.** Vonage churn spiked to 3% in 3Q07 (up from 2.5% in 2Q07 and 2.6% in 3Q06), its highest level since 3Q03. In addition, SG&A represented 133% of revenue in the quarter. Consequently, the sustainability of its model is as yet unproved.

Telephony "Funnel Model"

- Our funnel model, presented below, shows our estimates for the redistribution of the residential telephony subscriber base in the U.S. over the next several years. As shown, we estimate that by 2010, the market will be 54% retained by the traditional switched service providers (ILECs , CLECs, and Bell wholesale), 21% to cable, 20% to wireless substitution, and 5% to alternative providers (such as virtual VoIP providers and cable switched carriers).

Figure 5

Consumer Telephony Market Share Model: The Different Faces of Competition

ILEC FUNNEL MODEL	2003	2004	2005	2006	2007E	2008E	2009E	2010E
Household Forecast								
Total U.S. Households	112,100	113,800	115,507	116,778	118,062	119,361	120,674	122,001
x FCC Reported Penetration Rate	93.7%	92.5%	92.9%	93.7%	93.7%	93.7%	93.7%	93.7%
=HHs with Telephone Service (wireline + wireless)	**105,038**	**105,265**	**107,306**	**109,421**	**110,624**	**111,841**	**113,071**	**114,315**
Wireless Summary								
x Wireless only HHs	3.5%	5.3%	7.6%	11.1%	15.0%	17.0%	18.8%	20.4%
=Industry Wireless Only Homes	**3,624**	**5,553**	**8,128**	**12,118**	**16,594**	**19,013**	**21,257**	**23,320**
note: change in wireless HH penetration		*1.8%*	*2.3%*	*3.5%*	*3.9%*	*2.0%*	*1.8%*	*1.6%*
ILEC Summary								
Total HH - Wireless HH = Wireline HH	**101,414**	**99,712**	**99,178**	**97,302**	**94,031**	**92,828**	**91,814**	**90,995**
note: Penetration of HHs with Phone Service	*96.6%*	*94.7%*	*92.4%*	*88.9%*	*85.0%*	*83.0%*	*81.2%*	*79.6%*
RBOC Primary Retail Residential Lines	72,053	68,481	66,107	62,707	58,721	54,572	50,918	47,777
RBOC Wholesale Residential Lines	11,794	12,305	8,992	5,603	3,216	1,992	1,503	1,321
x secondary Lines % of Total Res Lines	14.6%	13.3%	12.1%	12.0%	10.9%	10.2%	9.5%	9.2%
= Bell Primary Wholesale Residential Lines	10,073	10,669	7,901	4,932	2,865	1,789	1,360	1,200
Total Bell Primary Residential Lines (Retail + Wholesale)	**82,126**	**79,150**	**74,008**	**67,639**	**61,586**	**56,361**	**52,278**	**48,977**
+ RLEC Primary Residential Lines (under coverage)	13,384	12,961	11,936	11,271	11,061	10,400	9,828	9,368
= Total Primary Res Lines for ILECs under coverage	95,509	92,110	85,944	78,910	72,646	66,761	62,106	58,345
+ Other ILEC Primary Res Retail Lines	3,464	3,341	3,117	2,862	2,635	2,421	2,253	2,116
note: percent of total ILEC residential lines	*3.5%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*	*3.5%*
= Total ILEC Primary Res Retail Lines	**98,973**	**95,451**	**89,061**	**81,772**	**75,281**	**69,183**	**64,358**	**60,461**
Facilities Based CLECs (UNE-L)	3,994	3,934	4,481	4,540	3,914	3,771	3,642	3,524
x % residential	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
x % primary	85.4%	86.7%	87.9%	88.0%	89.1%	89.8%	90.5%	90.8%
= Facilities-based CLEC (UNE-L) Primary Res Lines	**341**	**341**	**394**	**400**	**349**	**339**	**329**	**320**
Total ILEC + CLEC Primary Res Lines	**99,314**	**95,792**	**89,454**	**82,171**	**75,630**	**69,521**	**64,688**	**60,781**
note: % of total wireline HHs	97.9%	96.1%	90.2%	84.4%	80.4%	74.9%	70.5%	66.8%
note: % of total telpehon e penetrated HHs	94.6%	91.0%	83.4%	75.1%	68.4%	62.2%	57.2%	53.2%
VoIP Summary								
=Cable VoIP Primary Line	**0**	**506**	**2,129**	**5,651**	**10,778**	**15,796**	**20,548**	**23,669**
Cable VoIP Telephony Connections	0	562	2,366	6,279	11,975	17,551	22,831	26,299
x % LEC and wireless overlap	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
= Virtual VoIP Primary Lines	**68**	**347**	**1,376**	**2,412**	**2,811**	**3,019**	**2,995**	**2,764**
Virtual VoIP Carrier Connections	76	385	1,529	2,680	3,123	3,355	3,327	3,071
note: net adds		*309*	*1,144*	*1,151*	*444*	*231*	*(28)*	*(256)*
x % LEC and wireless overlap	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
VoIP Total Primary Lines (LEC Losses)	**68**	**853**	**3,506**	**8,063**	**13,589**	**18,815**	**23,543**	**26,433**
LEC and wireless overlap	8	95	390	896	1,510	2,091	2,616	2,937
Cable & Virtual Total VoIP Connections	76	**947**	**3,895**	**8,959**	**15,099**	**20,906**	**26,159**	**29,370**
Cable Switched Telephony Connections	2,322	2,602	2,790	2,810	2,760	2,562	2,522	2,522
x % primary	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
=Cable Switched Telephony Primary Lines	**2,275**	**2,550**	**2,734**	**2,754**	**2,705**	**2,510**	**2,471**	**2,471**
Total Cable/Virtual Telephone Primary Lines	**2,344**	**3,403**	**6,240**	**10,817**	**16,294**	**21,326**	**26,014**	**28,904**
Total Cable/Virtual Telephone Connections	**2,398**	**3,549**	**6,685**	**11,769**	**17,859**	**23,468**	**28,681**	**31,892**
Industry Summary								
Total ILEC + CLEC Primary Res Lines		**95,792**	**89,454**	**82,171**	**75,630**	**69,521**	**64,688**	**60,781**
VoIP Total Primary Lines (LEC Losses)		**853**	**3,506**	**8,063**	**13,589**	**18,815**	**23,543**	**26,433**
=Cable Switched Telephony Primary Lines		**2,550**	**2,734**	**2,754**	**2,705**	**2,510**	**2,471**	**2,471**
Total Wireline Primary Res Lines		**99,195**	**95,694**	**92,988**	**91,924**	**90,847**	**90,702**	**89,686**

Source: FCC, Bureau of Labor Statistics, Company reports, Banc of America Securities LLC estimates.

Video Market Dynamics

Cable Basic Sub Performance

- **Cable basic sub growth was impacted by heightened competition from the Bells and DBS operators as well as an economic and housing growth slowdown.** As shown in Figure 6, the five public operators lost 216k basic cable subs in the quarter compared to losses of 6k in 3Q06, with every operator posting declining growth y/y. Conversely, DirecTV and EchoStar together added 350k video net adds and AT&T and Verizon recorded a total of 277k video net adds.
- **The VoIP "halo effect" is not producing the basic sub growth previously expected, although we believe the triple play bundle still helps lower churn.** Cablevision and TWC both experienced an acceleration in basic sub growth one year after launching VoIP. We believe that cable operators are benefiting from adding voice to the bundle. However, this "halo effect" is being offset by both competitive and economic factors.
- **We believe heightened competition will continue to negatively impact cable basic sub performance.** We forecast continued basic sub losses for the cable sector as DBS gross adds stabilize and the Bells gain traction in the video market. In aggregate, we expect the five public cable operators to lose approximately 400k net adds in 2007 and 400k in 2008. However, we expect these video losses to be more than offset by continued RGU growth in digital, data, and voice.

Figure 6

Every Operator Posted Year Over Year Declines

	3Q06	2Q07	3Q07	Total Subs
Basic Cable Adds				
Comcast	10	(95)	(66)	24,156
Cablevision	10	(0)	(16)	3,122
Charter	(9)	(29)	(40)	5,348
Mediacom	(6)	(18)	(10)	1,331
Time Warner Cable	(11)	(57)	(83)	13,308
Total	**(6)**	**(200)**	**(216)**	

Source: Company reports, Banc of America Securities LLC estimates.

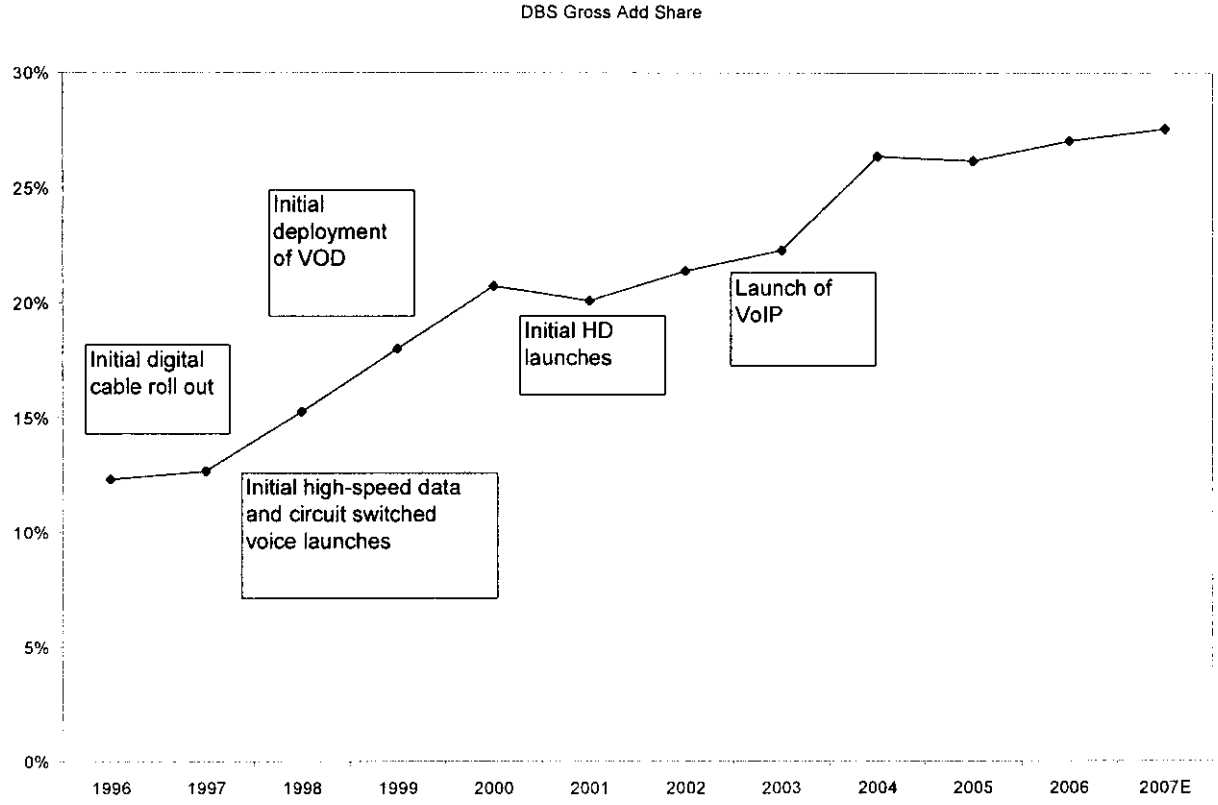
Note: Pro Forma for Comcast, Charter, and Time Warner Cable

DBS Performance

- **DBS has done a good job year to date in gaining gross add share even with the launch of new services from cable** (Figure 7). DBS gross add share has defied some of the concerns that it would become far less competitive as cable continues to roll out VoIP availability and telco aggressively deploys video. Both DirecTV and EchoStar exhibited 3% gross add growth YTD.
- **However, DBS net adds declined again year over year in 3Q**. For the quarter, DBS posted 350k net adds, a 24% decline y/y. As shown in Figure 8, DirecTV net adds increased y/y, while EchoStar net adds declined. This marked the first quarter since 1Q06 in which DirecTV outpaced EchoStar in net adds (DirecTV lost its share lead as it instituted tougher credit standards). Going forward, we forecast gross add share will continue to decline slightly as telcos gain market share. Coupled with rising churn levels into a larger base, we expect a substantial slowdown in DBS net adds going forward.
- **DBS year-over-year gross add growth declined in the quarter.** EchoStar gross adds declined 6% y/y (the first period of negative growth since 1Q06). DirecTV y/y gross add growth was a healthy 3%, but below the 4% posted in 2Q07. We believe EchoStar's losses were due in part to the macro environment and in part to poor execution. Management cited that among other things, the weak housing market and increase in sub prime mortgage defaults impacted gross adds in the quarter.
- **Stable gross add shares are important leading indicators of where markets reach equilibrium.** As shown in Figure 10, assuming that gross add shares are relatively stable prospectively enables us to forecast sub growth for the cable and DBS sectors with a high confidence interval.

Figure 7

DBS Has Gained Gross Add Share Over the Last Decade Even as Cable Has Introduced New Services



Source: Banc of America Securities LLC estimates.

Figure 8

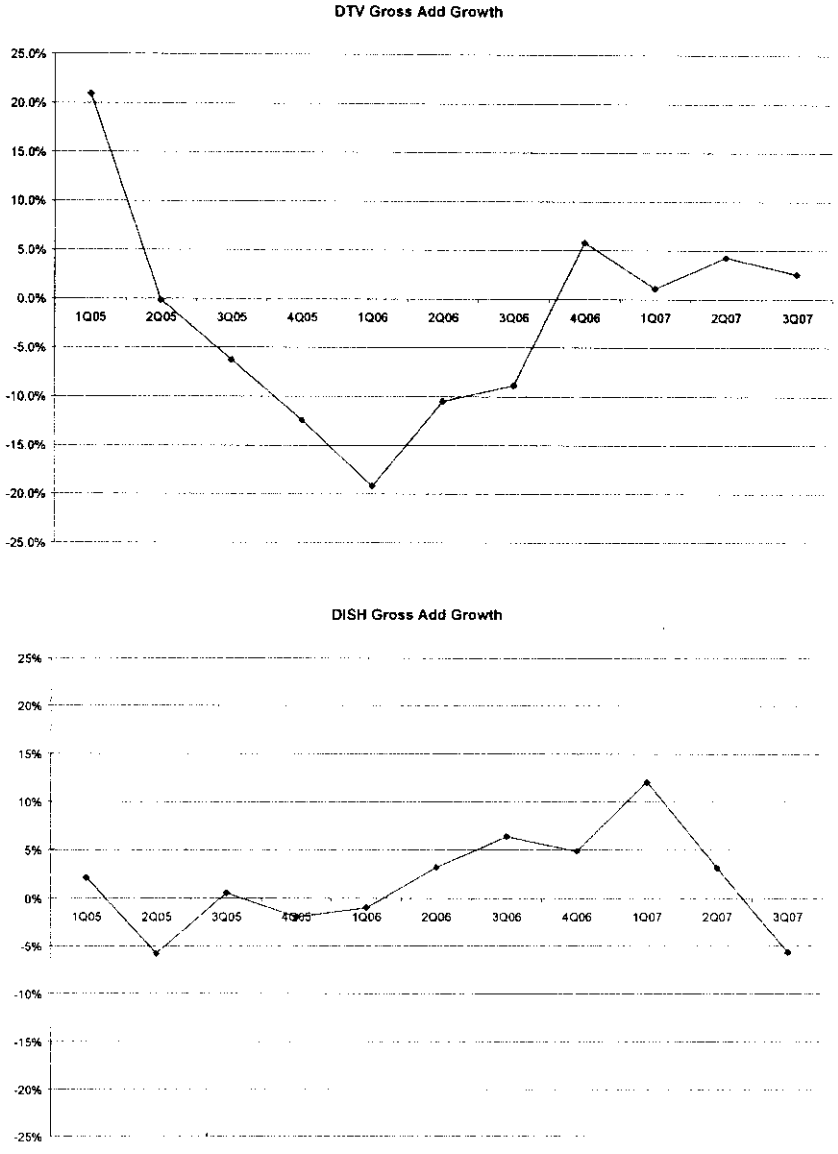
In 3Q07, DirecTV Net Adds Were Up 88% Y/Y, While EchoStar Net Adds Declined 35% Y/Y

	3Q06	2Q07	3Q07	Total Subs	% chg Y-O-Y
DBS Net Adds					
DirecTV	165	128	240	16,556	87.5%
Echostar	295	170	110	13,695	-35.3%
Total	**460.0**	**298.0**	**350.0**		

Source: Company reports, Banc of America Securities LLC estimates.

Figure 9

DirecTV Posted Steady Gross Add Growth while EchoStar Saw Negative Growth



Source: Company reports.

Figure 10

Assuming Gross Add Market Share Stays Stable, We Can Predict Cable and DBS Sub Growth with a High Confidence Interval
(Figure in Thousands)

	2001	2002	2003	2004	2005	2006	2007E	2008E	2009E	2010E
Cable Subscribers	69,990	69,390	69,477	69,139	68,839	68,939	68,469	67,883	67,480	66,907
% Growth	*1.0%*	*-0.9%*	*0.1%*	*-0.5%*	*-0.4%*	*0.1%*	*-0.7%*	*-0.9%*	*-0.6%*	*-0.8%*
Gross Adds	22,422	21,143	21,125	21,286	21,324	19,738	19,316	18,640	18,765	18,376
Net Adds	693	(600)	87	(338)	(300)	92	(470)	(586)	(402)	(573)
Churn	21,729	21,743	21,038	21,624	21,624	19,646	19,787	19,226	19,167	18,949
Churn Rate	*2.6%*	*2.6%*	*2.5%*	*2.5%*	*2.4%*	*2.4%*	*2.4%*	*2.4%*	*2.4%*	*2.4%*
Average Subs	69,644	69,690	69,434	69,308	68,989	68,889	68,704	68,176	67,682	67,194
DBS Subscribers	17,165	19,359	21,638	24,845	27,173	29,068	30,674	31,719	32,432	32,806
% Growth	*16.1%*	*12.8%*	*11.8%*	*14.8%*	*9.4%*	*6.9%*	*5.6%*	*3.4%*	*2.2%*	*1.2%*
Gross Adds	5,641	5,751	6,061	7,627	7,567	7,325	7,364	7,213	7,154	7,005
Net Adds	2,382	2,194	2,279	3,207	2,328	1,885	1,616	1,045	713	373
Churn	3,259	3,557	3,783	4,420	5,239	5,440	5,747	6,168	6,440	6,632
Churn Rate	*1.7%*	*1.6%*	*1.5%*	*1.6%*	*1.7%*	*1.61%*	*1.60%*	*1.65%*	*1.67%*	*1.69%*
Average Subs	15,974	18,262	20,499	23,242	26,009	28,116	29,866	31,197	32,076	32,619
Gross DBS and Cable Subs	87,155	88,749	91,115	93,984	96,012	97,997	99,143	99,602	99,913	99,713
Gross Adds	28,063	26,895	27,187	27,869	27,343	27,071	26,680	25,852	25,919	25,381
Churn	24,988	25,301	24,821	25,000	25,315	25,086	25,534	25,394	25,608	25,580
Churn Rate	*2.4%*	*2.4%*	*2.3%*	*2.3%*	*2.2%*	*2.2%*	*2.2%*	*2.1%*	*2.1%*	*2.1%*
Overlap Subs (Take DBS and Cable)	2,000	2,130	2,164	2,112	2,038	1,889	1,794	1,776	1,776	1,741
Net DBS and Cable Subs	85,155	86,620	88,951	91,872	93,974	96,108	97,348	97,825	98,136	97,972
Other Multichannel Homes	4,053	3,891	3,202	3,036	2,706	2,805	3,711	5,118	7,109	9,367
Total Multichannel Homes	**89,208**	**90,511**	**92,154**	**94,908**	**96,680**	**98,913**	**101,059**	**102,944**	**105,245**	**107,339**
% Growth	*2.9%*	*1.5%*	*1.8%*	*3.0%*	*1.9%*	*2.3%*	*2.2%*	*1.9%*	*2.2%*	*2.0%*
TV Households	105,500	106,700	108,400	109,600	110,806	112,024	113,257	114,503	115,762	117,035
% Growth	*3.2%*	*1.1%*	*1.6%*	*1.1%*	*1.1%*	*1.1%*	*1.1%*	*1.1%*	*1.1%*	*1.1%*
Multichannel Penetration	*85%*	*85%*	*85%*	*87%*	*87%*	*88%*	*89%*	*90%*	*91%*	*92%*
Total Cable and DBS Market Share										
% Cable	82%	80%	78%	75%	73%	72%	70%	69%	69%	68%
% DBS	20%	22%	24%	27%	29%	30%	32%	32%	33%	33%
Growth in DBS Market Share	*12%*	*11%*	*9%*	*11%*	*7%*	*5%*	*4%*	*3%*	*2%*	*1%*
Total Cable and DBS Net Adds	3,075	1,594	2,366	2,869	2,028	1,977	1,146	459	311	-200
% Cable	24%	-41%	4%	-12%	-14%	4%	-38%	-123%	-129%	349%
% DBS	81%	150%	98%	110%	111%	89%	130%	219%	229%	-228%
Total Cable and DBS Gross Adds										
% Gross Adds - Cable	80%	79%	78%	74%	74%	73%	72%	72%	72%	72%
Growth in Cable Market Share	***1%***	***-2%***	***-1%***	***-5%***	***0%***	***-1%***	***-1%***	***0%***	***0%***	***0%***
% Gross Adds - DBS	20%	21%	22%	26%	26%	27%	28%	28%	28%	28%
Growth in DBS Market Share	***-3%***	***6%***	***4%***	***18%***	***-1%***	***3%***	***2%***	***1%***	***-1%***	***0%***

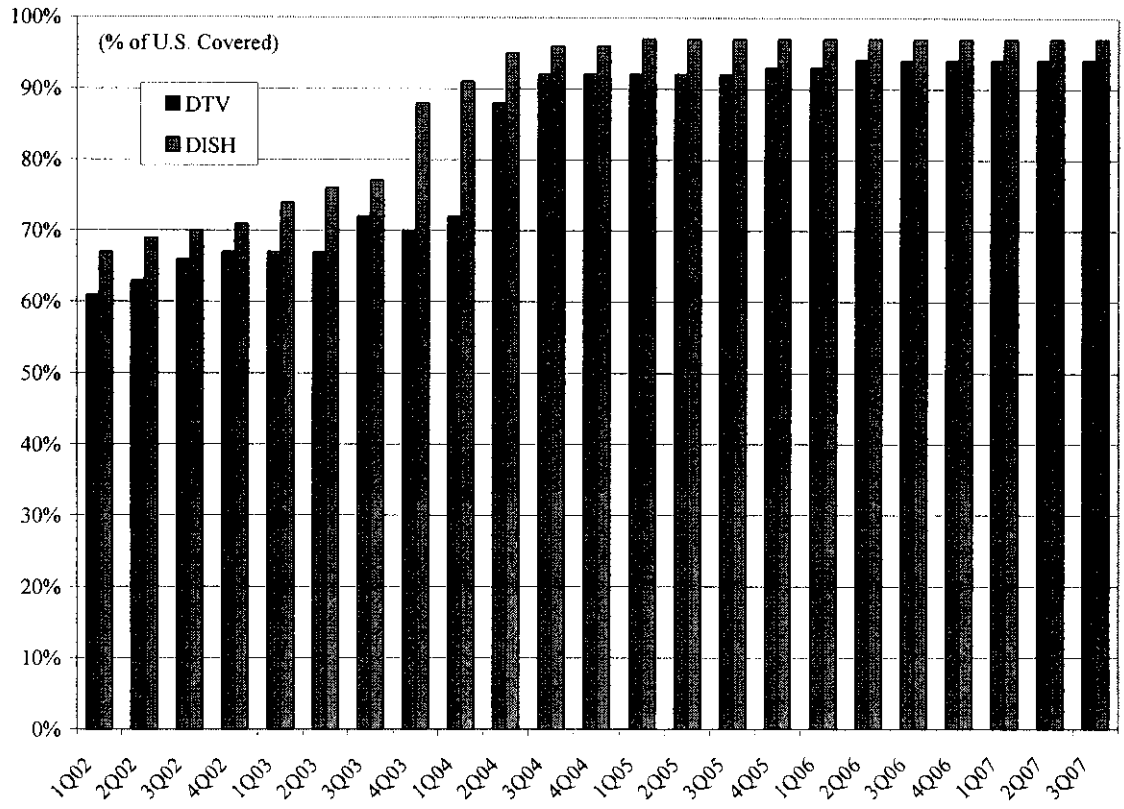
Note: % market share figures total more than 100% because an estimated 12%-15% of DBS subs take both cable and DBS.

Given assumptions about annual increases in multichannel penetration and household formation, keeping gross add market share and churn relatively constant near current levels calculates a peak market size for DBS. Going forward, we assume DBS industry share will level off slightly higher than where it was in 2004 and 2005.

Source: Banc of America Securities LLC estimates.

Figure 11

Local into Local Availability is Hovering Around 95% for Both DBS Providers



Source: Banc of America Securities LLC estimates.

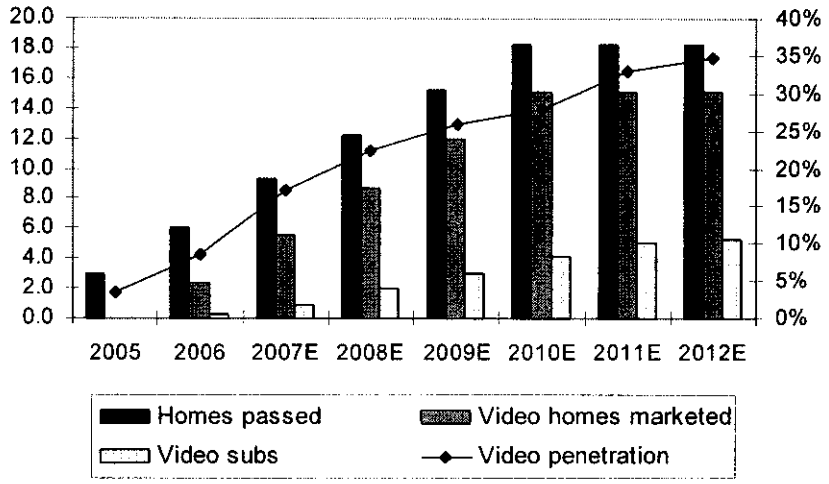
Bell Performance

- **Bell facilities-based video initiatives are all over the map.** Verizon is the grand-daddy of the group with a launch that is 2 years old and supports 717k video customers, of which 202k were added in 3Q up from 167k in 2Q. We estimate the FiOS business will be nearing 1 million customers by the end of this year. U-Verse ramped well this quarter with 75k net adds but the business as a whole remains embryonic with 126k total subscribers. The market is very much abuzz about AT&T's potential to acquire a satellite provider to jump-start its presence in the video space, but as the U-verse product ramps, we are skeptical AT&T would short-circuit its development at this stage.
- **In aggregate, the Bell companies added 502k video customers, 2% up from 2Q07.** The U-verse and FiOS video builds added 277k combined, up 35% from 205k in 2Q. The mix of facilities and resale of satellite shifted notably this quarter. In 3Q07, facilities-based video was 55% of total video adds, the majority now of net adds up from just 42% last quarter.

- **Verizon's FiOS fiber-to-the-premise (FTTP) service deployment appears on track.** The company reported in 3Q that its network has passed 8.5 million homes, on track to meet 9.25 million homes passed by the end of 2007. The company has sold video to 717k customers, 202k added this past quarter, marking a 15% penetration of the company's 4.7 million premises marketed.

Figure 12

Verizon FIOS Video Availability and Penetration Outlook



Source: Company Reports, Banc of America Securities LLC estimates

- **AT&T's U-verse is gaining traction.** U-verse has a 5.8% penetration of homes marketed. The company noted that homes passed totaled 5.5 million by the end of the quarter and roughly 2.2 million of these were "marketed." The company is looking to pass 8 million by year end and defined "passings" as everything north of 'platted housing lots.' We assume the definitional specificity is related to a suit brought by an advertising partner on the issue of how many "living units" the AT&T initiative actually touches. AT&T expects to make U-verse available to around 17 million homes by the end of 2008, with "significant expansion" in following years.
- **Qwest's video plan remains firmly rooted in its satellite video partnerships.** The company has been adding satellite customers at a rate of roughly 60k per quarter of late and now stands at 634k satellite video customers, or 9% of its primary consumer retail line base. While the issue of what the next stage of Qwest's video deployment has weighed mightily on the stock, we expect the answer will come in the middle of December at the conclusion of a large-scale strategic review being conducted by the new CEO. Our discussions with him lead us to believe Qwest will follow its present course and speed on video, sticking with the satellite partner approach.

Video "Funnel Model"

- Our video funnel model shows the distribution of the video market over the next few years. In 2008, we forecast net multichannel home market share of 66%, 31%,

and 3% for cable (public and private MSOs), DBS, and the Bells, respectively. By 2010, as telco continues to gain traction in the video market, we forecast market share of 62%, 31%, and 7%, respectively.

Figure 13

Video Funnel Model
(Homes and Subscribers in Thousands)

	2002	2003	2004	2005	2006	2007E	2008E	2009E	2010E
TV Homes	106,700	108,400	109,600	110,806	112,024	113,257	114,503	115,762	117,035
Growth	*1.1%*	*1.6%*	*1.1%*	*1.1%*	*1.1%*	*1.1%*	*1.1%*	*1.1%*	*1.1%*
Homes Passed By Cable	99,724	100,722	101,729	102,746	103,773	104,811	105,859	106,918	107,987
Growth	*1.0%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*
Cable Subscribers	69,390	69,477	69,139	68,839	68,939	68,469	67,883	67,480	66,907
Growth	*-0.9%*	*0.1%*	*-0.5%*	*-0.4%*	*0.1%*	*-0.7%*	*-0.9%*	*-0.6%*	*-0.8%*
Net Adds	*(600)*	*87*	*(338)*	*(300)*	*100*	*(470)*	*(586)*	*(402)*	*(573)*
DBS Subscribers	19,359	21,638	24,845	27,173	29,058	30,674	31,719	32,432	32,806
Growth	*12.8%*	*11.8%*	*14.8%*	*9.4%*	*6.9%*	*5.6%*	*3.4%*	*2.2%*	*1.2%*
Net Adds	*2,194*	*2,279*	*3,207*	*2,328*	*1,885*	*1,616*	*1,045*	*713*	*373*
Homes Passed By Telco Video					8,800	16,000	23,250	30,250	36,200
Telco Video Subscribers					210	1,196	2,768	4,889	7,206
Growth						*469%*	*132%*	*77%*	*47%*
Net Adds						*986*	*1,572*	*2,121*	*2,317*
C-Band Subscribers	701	502	336	206	155	135	80	60	45
MMDS/LMDS Subscribers	490	200	200	100	90	80	70	60	51
Growth	*-30.0%*	*-59.2%*	*0.0%*	*-50.0%*	*-10.0%*	*-11.1%*	*-12.5%*	*-15.0%*	*-15.0%*
Percent Of Non-Cable Multichannel Hon	*13%*	*6%*	*7%*	*4%*	*3%*	*2%*	*1%*	*1%*	*1%*
SMATV Subscribers	1,600	1,200	1,100	1,000	950	900	800	700	665
Growth	*6.7%*	*-25.0%*	*-8.3%*	*-9.1%*	*-5.0%*	*-5.3%*	*-11.1%*	*-12.5%*	*-5.0%*
Percent Of Non-Cable Multichannel Hon	*41%*	*37%*	*36%*	*37%*	*34%*	*24%*	*16%*	*10%*	*7%*
Overbuilders	1,100	1,300	1,400	1,400	1,400	1,400	1,400	1,400	1,400
Aggregate Multichannel Homes	92,640	94,317	97,020	98,718	100,802	102,853	104,720	107,021	109,080
Growth	*2%*	*2%*	*3%*	*2%*	*2%*	*2%*	*2%*	*2%*	*2%*
Subscribers Taking 2 Or More Services	2,130	2,164	2,112	2,038	1,889	1,794	1,776	1,776	1,741
% of Multichannel Homes	2.4%	2.3%	2.2%	2.1%	1.9%	1.8%	1.7%	1.7%	1.6%
Net Multichannel Homes	90,511	92,154	94,908	96,680	98,913	101,059	102,944	105,245	107,339
Penetration Of TV HH	*84.8%*	*85.0%*	*86.6%*	*87.3%*	*88.3%*	*89.2%*	*89.9%*	*90.9%*	*91.7%*

Source: FCC, Company reports, Banc of America Securities LLC estimates.

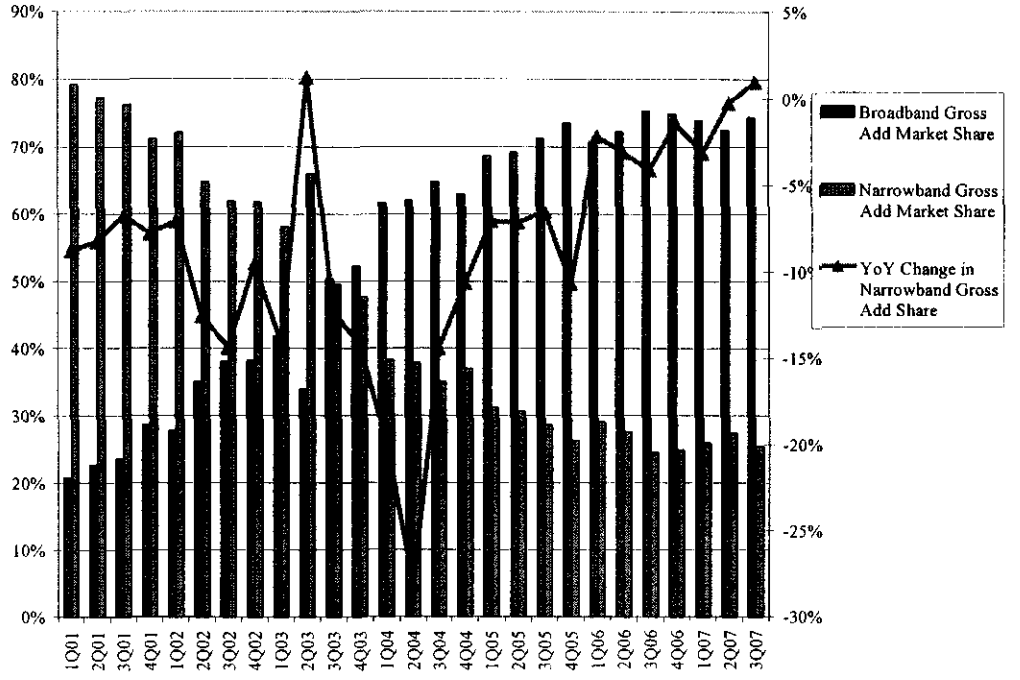
Data Market Dynamics

Narrowband vs. Broadband Growth

- **After considerable decline, narrowband gross adds appears to be stabilizing at around 25%.** As illustrated in our broadband/narrowband gross add share analysis (Figure 14), we estimate that about 25% of all residential Internet gross adds are opting for narrowband.

Figure 14

Narrowband Gross Add Share Continues to Decline



Source: Company reports, Banc of America Securities LLC estimates.

Broadband Market Share Shifts

- **The top four broadband providers missed estimates this quarter.** As shown in Figure 15, the top four broadband providers missed estimates this quarter. However, in aggregate net adds were about flat compared to last year. In addition, we note that 3Q06 provided tough comps from AOL's decision to discontinue marketing dial up at that time and proactively encouraging existing dial up subs to migrate to broadband.
- **After slipping in 2Q07, flow share moved closer to 50/50 in the quarter.** As shown in Figure 16, we estimate that the seven largest cable operators took just under 50% of broadband net add share versus the four bells, levels similar to the four quarters prior to 2Q. As shown in Figure 19 and Figure 20, the VoIP "halo effect" on data seems partially responsible. Note that both Cablevision and TWC have experienced a pick up in data gross add growth since launching VoIP and Comcast is starting to see the same effect (Figure 21).

Figure 15

Top Four Broadband Providers Missed Estimates

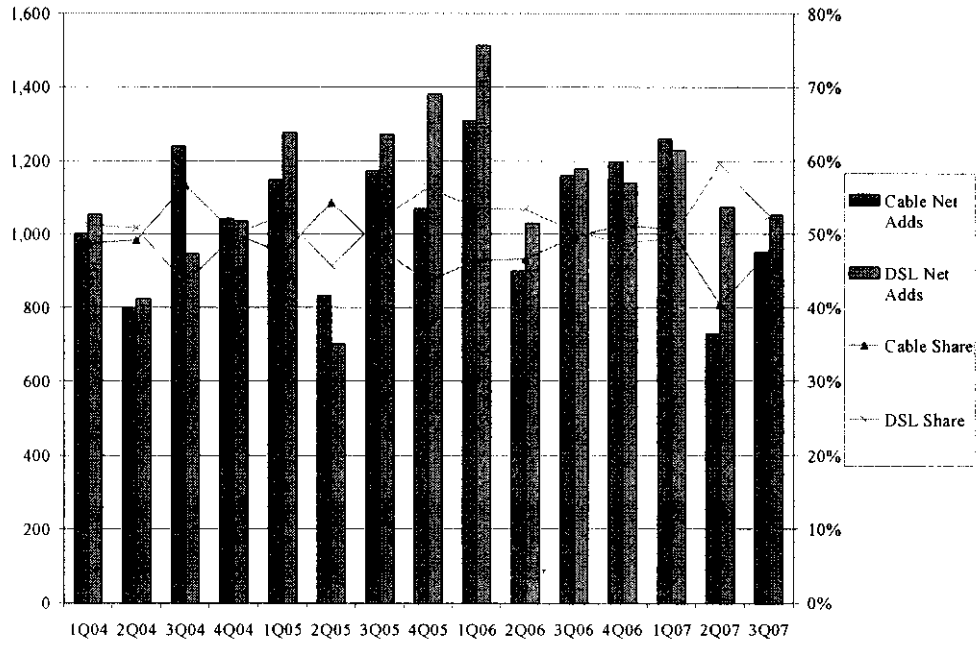
	3Q07E	3Q07A	Variance	3Q06
Verizon	311	285	-8.4%	448
AT&T	476	381	-20.0%	495
Comcast	540	450	-16.7%	537
Time Warner Cable	240	233	-2.9%	268
Top 4 Broadband Providers	**1567**	**1349**	**-12.0%**	**1748**

Source: Company reports, Banc of America Securities LLC estimates (Telecom estimates from David Barden).

Note: 3Q06 as reported and inclusive of acquired/swapped systems for Time Warner and Comcast.

Figure 16

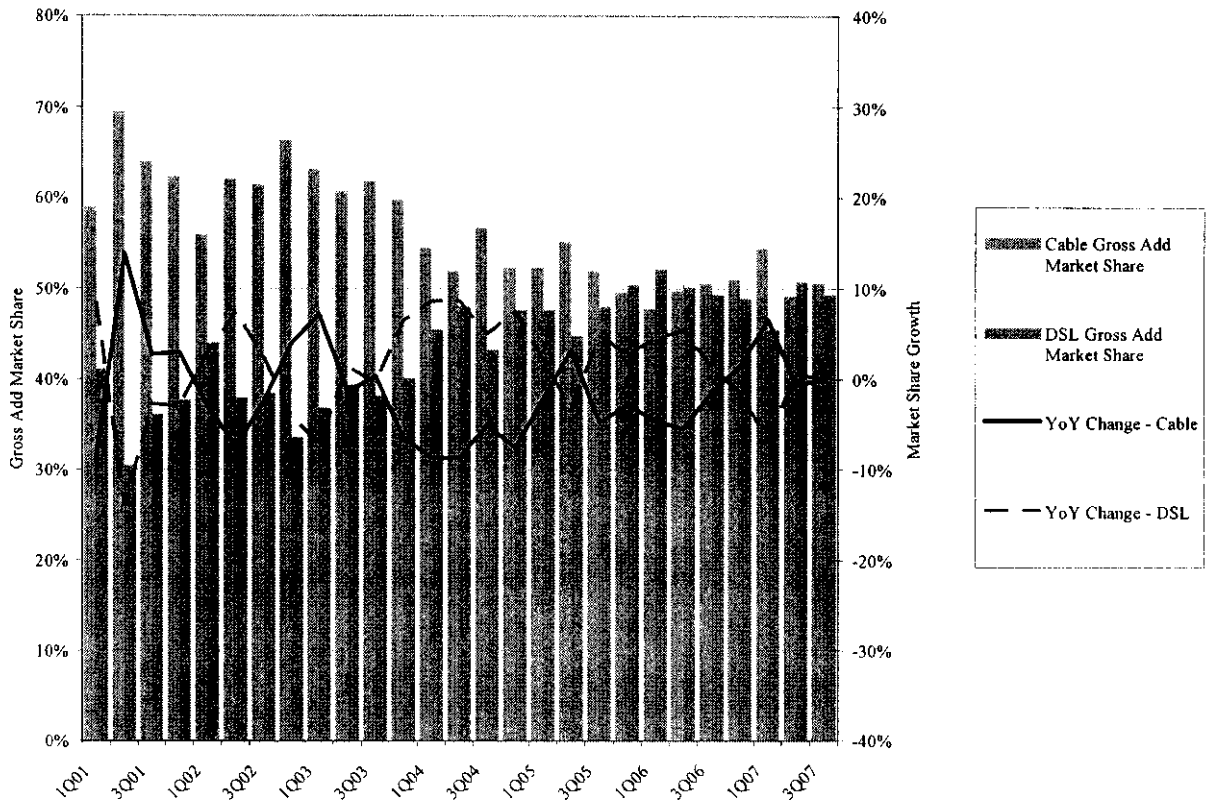
Cable Moved Back Closer to 50% in 3Q06



Source: Company reports, Banc of America Securities LLC estimates. Note: 3Q06 Results for Cox Communications estimated.

Figure 17

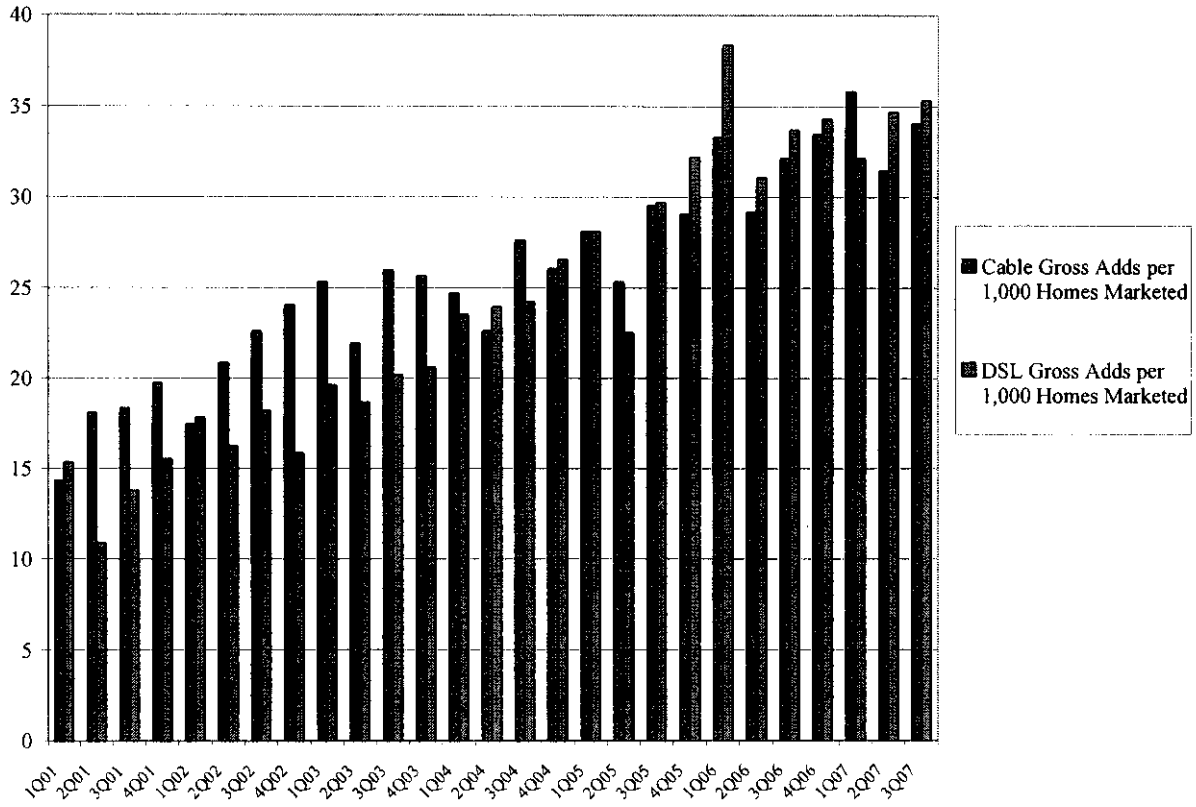
Cable Also Continues to Remain Above 50% Gross Add Flow Share



Source: Banc of America Securities LLC estimates.

Figure 18

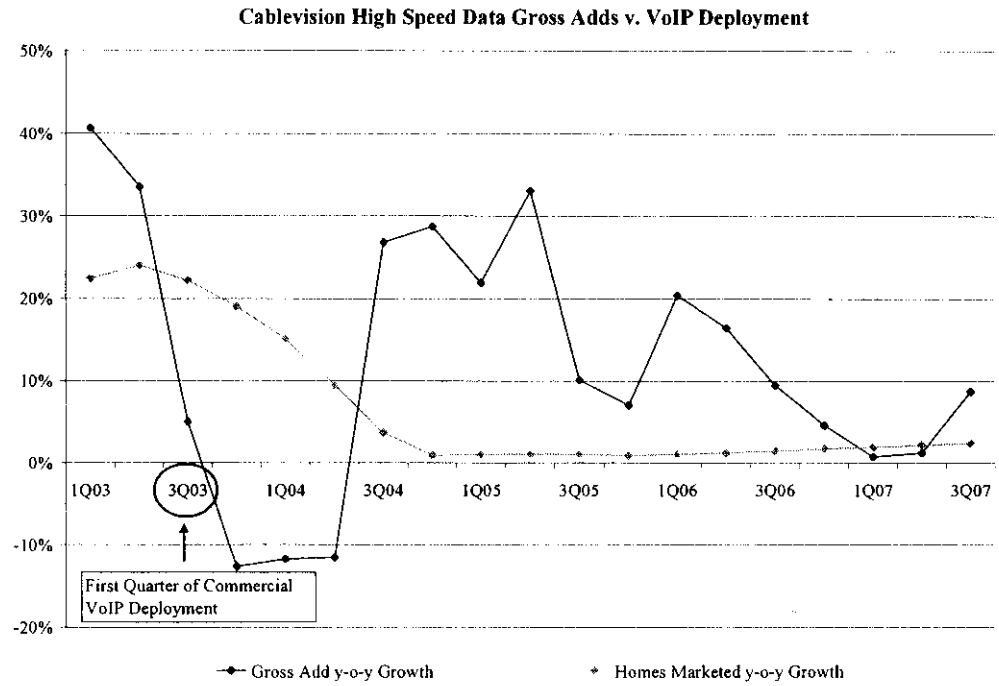
With Less coverage of Homes Passed vs. Cable, the Bells Take More than Half the Gross Adds Where they Offer the Product



Source: Banc of America Securities LLC estimates.

Figure 19

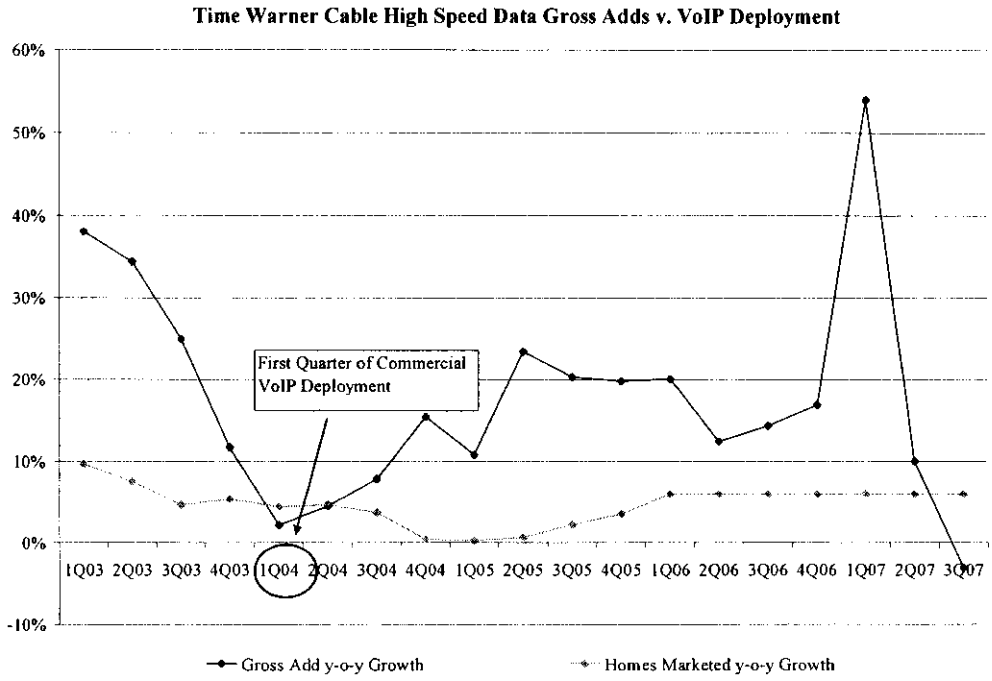
High Speed Data Gross Adds Have Continued to Grow Almost Every Quarter Since Cablevision Launched the Triple Play



Source: Company reports, Banc of America Securities LLC estimates.

Figure 20

TWC's HSD Gross Add Decline was due to Integration Issues; Since its VoIP Launch, Gross Add Growth Has Been Positive

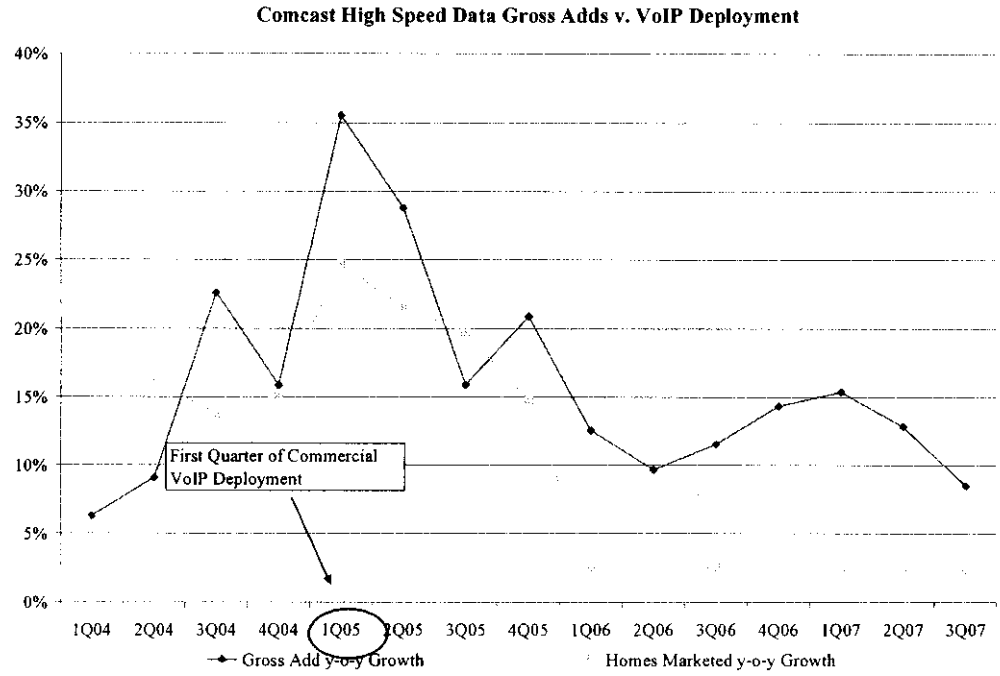


Source: Company reports, Banc of America Securities LLC estimates.

Note: For 3Q06, gross add growth represents organic growth; organic homes marketed estimated using 2Q06 gross add growth.

Figure 21

Comcast Continues to See HSD Gross Add Growth as Well

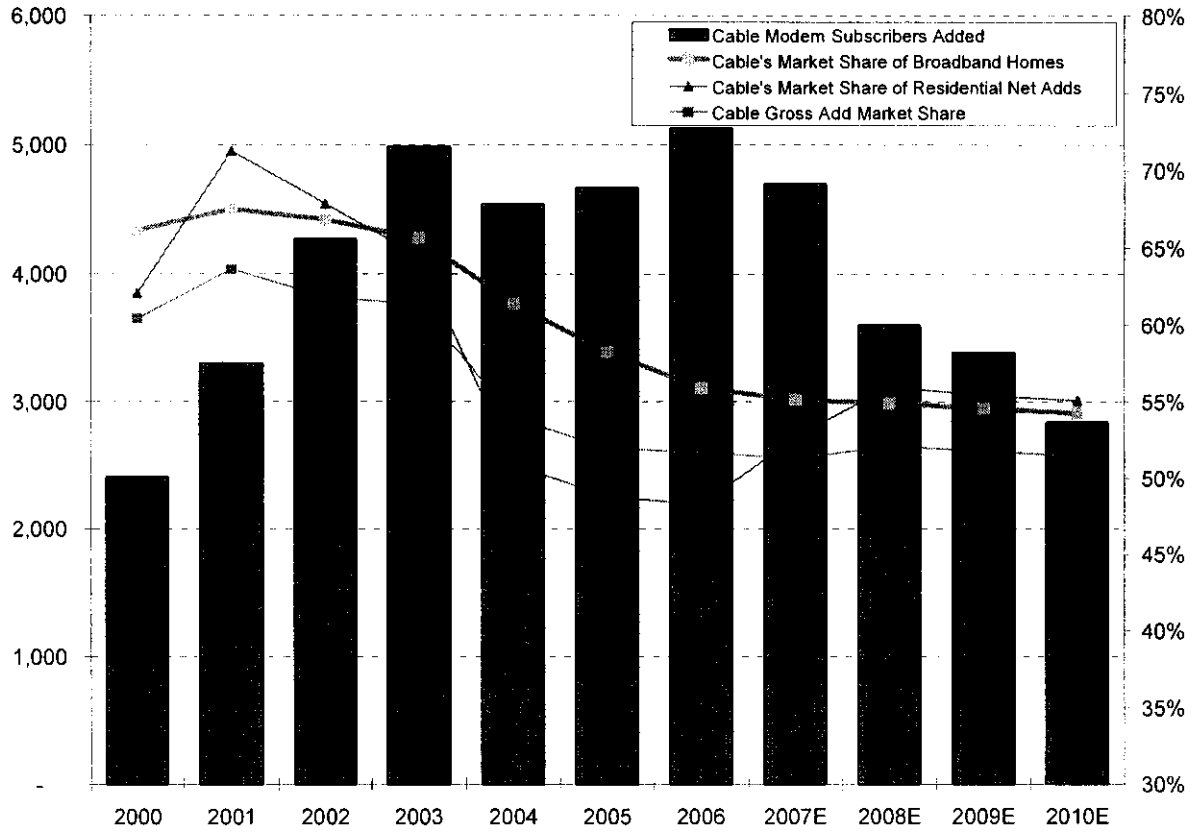


Source: Company reports, Banc of America Securities LLC estimates.

Note: For 3Q06, gross add growth represents organic growth; organic homes marketed estimated assuming same percentage of homes passed as 2Q06.

Figure 22

We Forecast that Cable Share Will Stay Near 50% Prospectively



Source: Company reports, Banc of America Securities LLC estimates.

Broadband Funnel Model

- **We estimate that cable broadband subs still outnumber DSL by about 4 to 3.** In recent years, DSL has considerably closed the gap to cable in broadband penetration. However, we expect market share to stabilize near today's levels through 2010. Note that our model doesn't currently assume that alternative providers, such as fixed wireless or broadband power line, take a material share of the market.

Figure 23

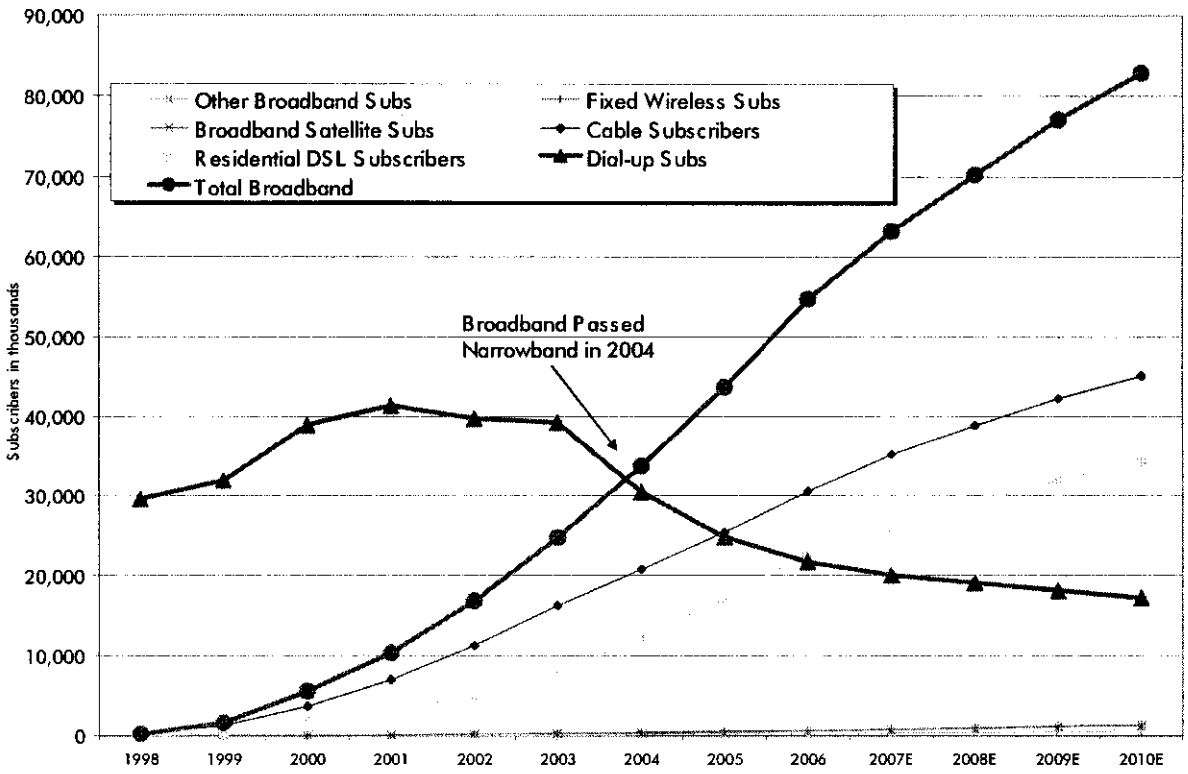
DSL Is Closing the Gap to Cable... But Cable Still Outnumbers DSL, by About 4/3

	2005	2006	1Q07	2Q07	3Q07	4Q07E	2007E	2008E	2009E	2010E
US Households	115,507	116,778	117,027	117,527	117,621	118,062	118,062	119,361	120,674	122,001
US Households with Internet Connections	68,535	76,413	78,566	80,004	81,729	83,468	83,330	89,379	95,210	100,098
% of US HH	59%	65%	67%	68%	69%	71%	71%	75%	79%	82%
Narrowband Households	24,827	21,705	21,286	20,893	20,481	20,069	20,069	19,102	18,152	17,216
% of US HH	21%	19%	18%	18%	17%	17%	17%	16%	15%	14%
Y-o-Y Growth %	-19%	-13%	-12%	-10%	-8%	-8%	-8%	-10%	-13%	-16%
Broadband Households	43,708	54,708	57,281	59,111	61,249	63,399	63,261	70,277	77,058	82,883
% of US HH	38%	47%	49%	50%	52%	54%	54%	59%	64%	68%
Y-o-Y Growth %	29%	25%	23%	21%	18%	16%	16%	23%	30%	35%
Broadband Net Adds	9,860	11,000	19,206	36,226	69,059	135,491	259,982	500,759	965,291	1,861,523
DSL Subs	17,164	22,661	23,634	24,413	25,275	26,168	26,168	29,162	32,028	34,467
Cable Subs	25,454	30,583	32,062	32,992	34,148	35,285	35,285	38,882	42,269	45,109
Other Broadband Subs	1,090	1,464	1,585	1,705	1,825	1,946	1,808	2,233	2,762	3,307

Source: Company reports, Banc of America Securities LLC estimates.

Figure 24

Broadband Should Outstrip Narrowband by Over 3 to 1 by 2007 and Almost 5 to 1 by 2010



Source: Company reports, Banc of America Securities LLC estimates.

Economic Dynamics

3Q07 recorded the following trends:

- The **Bells** don't provide much financial granularity, but overall ARPUs continued to trend higher owing to higher bundled take rates.
- **Cable** operators continued to post solid ARPU growth through higher bundled penetration. Margins were up y/y for Comcast and Time Warner Cable, and down y/y for the rest of the group.
- **DBS** economics were mixed. Churn was down for DirecTV, with higher gross and net adds and greater advanced service box sales driving higher SAC. EchoStar saw much higher churn, with lower gross and net adds reducing total SAC. Both companies exhibited continued ARPU growth and solid pre-marketing cash flow margins.

Bell Economics

- **Bell financial data lacks the granularity of the cable MSOs or DBS providers.** The Bells disclose limited financial data that could provide incremental insight to profitability and the impact bundling competition is having on price and margins. Anecdotal commentary is provided each quarter about residential ARPU trends at the Bells, which continues to trend upward with the success of upselling bundled service (e.g. DSL, unlimited local and LD voice plans, video) offerings despite continued access line erosion. For example, AT&T reported monthly consumer revenue per primary line of $58.55 in 3Q07, up from $58.07 in 2Q07 and $56.46 in 3Q06. Verizon reported monthly consumer revenue per primary line of $58.79 in 3Q07, up from $57.47 in 2Q07 and $53.06 in 3Q06. And Qwest reported monthly consumer revenue per primary line of $55 in 3Q07, up from $53 in 2Q07 and $50 in 3Q06. Regarding margins, granular visibility into consumer retail margins is obscured by their inclusion in a single, rolled-up reported margin for each Bell company's wireline services unit.
- **We estimate Bell DSL/broadband ARPUs continue to decline sequentially and year over year as penetration rates continue to rise.** The Bells have discontinued reporting DSL-related revenue on a quarterly basis. With that caveat, our historical data remains sufficiently robust to continue estimating monthly DSL ARPU we believe. Our ARPU estimate is a blended number, including residential, business and wholesale, but we believe that the vast majority, roughly 85-90% of total DSL subscriptions, are residential. The table below summarizes DSL ARPU trends across the Bells. As shown, ARPUs continued to trend down, we believe owing to mix shift toward consumer and the allocation of bundled discounts.

Figure 25

Bell DSL/Broadband Monthly ARPU Summary Estimates – 3Q07
($ in Units)

Company	3Q07	2Q07	3Q06	Q/Q % Change	Y/Y % Change
AT&T	$32.85	$33.08	$33.78	-0.7%	-2.8%
Verizon	$32.85	$33.18	$34.20	-1.0%	-3.9%
Qwest	$33.30	$33.52	$34.25	-0.7%	-2.8%
Weighted Average	$32.89	$33.16	$33.96	-0.8%	-3.2%

Source: Company reports, Banc of America Securities LLC estimates.

Cable Economics

- **Total ARPU growth continues to be driven by higher bundle penetration.** Generally there has been concern that competition will pressure cable ARPU. In some cases, the use of bundled discounts has reduced the pricing of some components of the bundle (depending on the allocation of the discounts). However, we are starting to see subs roll off promotional periods and into higher priced bundles, resulting in higher total ARPU (Figure 26). Video ARPU growth has been decelerating but was still up mid single digits for all operators. We believe video ARPU increased in part due to higher digital penetration (Figure 28), which ramped in 2Q07 as certain operators accelerated deployment of digital boxes ahead of the July 1 deadline (as of July 1, cable companies were required by the FCC to start shipping new set-top boxes with detachable cable cards). In addition, basic price increases and advanced digital features, like VOD, DVR and HD, helped lift

ARPU. Data ARPU remained flat to slightly down as we have not seen any material change in pricing (Figure 31).

- **Margins increased y/y for Comcast and Time Warner Cable, but were down for the rest of the group.** (Figure 32). Since 3Q is typically a seasonally-high period for gross connects, including the return of college students and "snowbirds" that disconnect in 2Q, marketing expenses and customer service costs tend to increase sequentially. Comcast and Time Warner Cable saw a nice lift in margins y/y driven by increased scale, accelerating voice penetration, and continued growth in higher margin products such as high speed data, digital cable, and HD/DVRs.
- **Cable capex was up for all operators.** Capex was up for all operators y/y, with increases driven primarily by higher customer premise equipment (as subs upgrade to more advanced products) and upgrades/rebuilds. However, ARPU and revenue continues to increase, leaving cable capex-to-sales relatively flat, excluding Mediacom (due to a one-time network upgrade) and Time Warner Cable (due to the Dallas/LA rebuild, Figure 33). In general, 2007 should be the peak for capex as a percentage of sales as network upgrades are nearly complete. We believe future upgrades will be more efficient and far less expensive on an absolute basis due to deeper fiber penetration and the quality of the current networks in place.
- **The sector is moving past its inflection point in free cash flow.** Impressively, Cablevision is running a FCF conversion ratio of over 40% YTD (Figure 35).

Figure 26

Total ARPU Continues to Grow

3Q07 Total ARPU

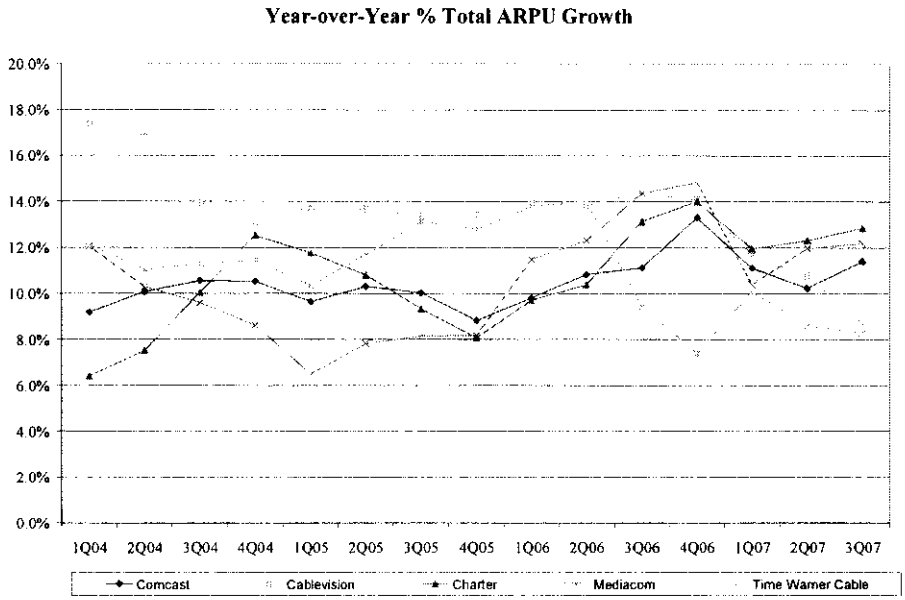
	3Q06	2Q07	3Q07	*% chg Sequentially*	*% chg Y-O-Y*
Comcast	$91.91	$101.01	$102.41	*1.4%*	*11.4%*
Cablevision	$115.45	$125.61	$125.59	*0.0%*	*8.8%*
Charter	$87.83	$92.55	$94.76	*2.4%*	*7.9%*
Mediacom	$72.92	$80.00	$81.81	*2.3%*	*12.2%*
Time Warner	$94.89	$99.61	$100.02	*0.4%*	*5.4%*

Source: Company reports, Banc of America Securities LLC estimates.

Note: Pro Forma for Comcast, Charter, and Time Warner Cable.

Figure 27

Total ARPU Growth has been on an Upward Trajectory



Source: Company reports, Banc of America Securities LLC estimates.

Note: Pro Forma for Comcast, Charter, and Time Warner Cable.

Figure 28

Advanced Products and Price Increases have led to Y/Y Video ARPU Growth

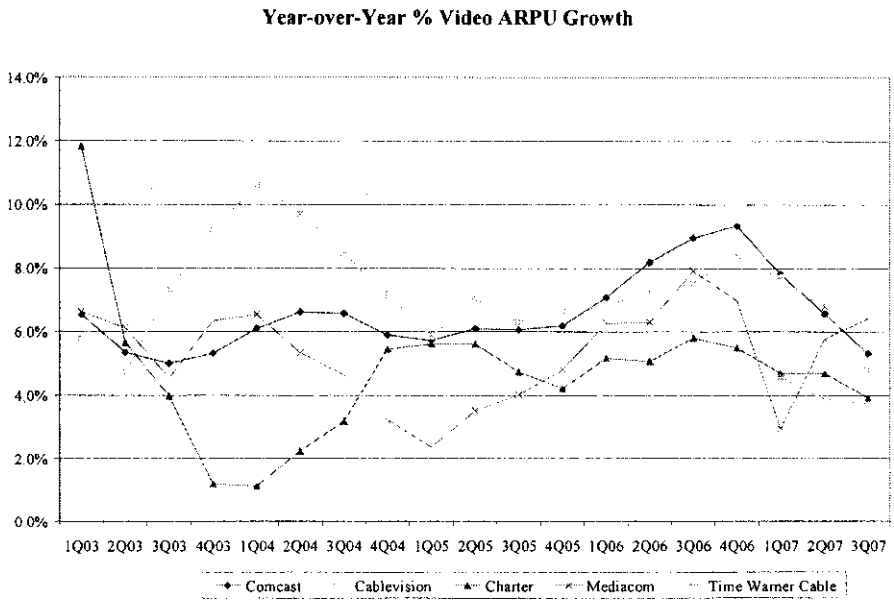
	3Q06	2Q07	3Q07	*% chg Sequentially*	*% chg Y-O-Y*
Comcast	$57.75	$61.53	$60.82	*-1.2%*	*5.3%*
Cablevision	$69.97	$74.44	$73.36	*-1.4%*	*4.8%*
Charter	$50.55	$53.06	$52.53	*-1.0%*	*3.9%*
Mediacom	$52.90	$55.69	$56.30	*1.1%*	*6.4%*
Time Warner	$60.97	$64.00	$63.24	*-1.2%*	*3.7%*
DirecTV	$72.74	$76.42	$78.79	*3.1%*	*8.3%*
EchoStar	$62.75	$66.08	$65.96	*-0.2%*	*5.1%*

Source: Company reports, Banc of America Securities LLC estimates.

Note: Pro Forma for Comcast, Charter, and Time Warner Cable.

Figure 29

Video ARPU Growth Has Been Decelerating But Still Up Mid Single Digits

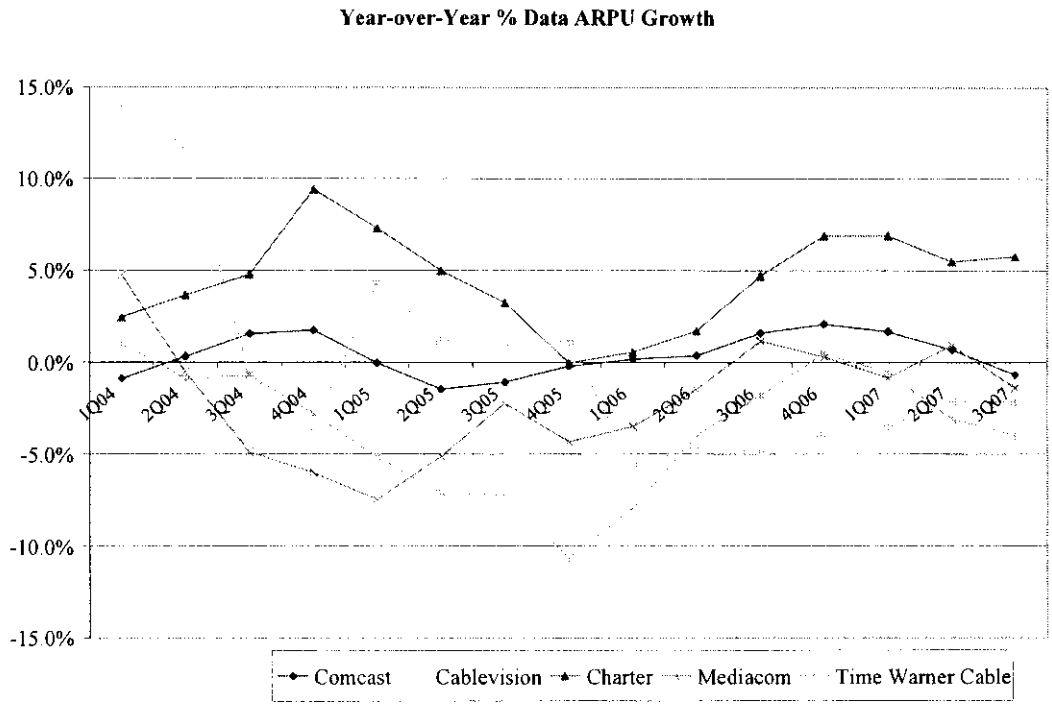


Source: Company reports, Banc of America Securities LLC estimates.

Note: Pro Forma for Comcast, Charter, and Time Warner Cable.

Figure 30

Data ARPU Growth Remains Relatively Flat, With Charter Showing Healthy Growth



Source: Company reports, Banc of America Securities LLC estimates.

Note: Pro Forma for Comcast, Charter, and Time Warner Cable.

Figure 31

Data ARPU Flat to Slightly Down (Excluding Charter)

	3Q06	2Q07	3Q07	*% chg Sequentially*	*% chg Y-O-Y*
Comcast	$43.14	$43.37	$42.86	*-1.2%*	*-0.6%*
Cablevision	$39.43	$39.36	$38.59	*-1.9%*	*-2.1%*
Charter	$38.60	$40.43	$40.83	*1.0%*	*5.8%*
Mediacom	$38.18	$38.15	$37.65	*-1.3%*	*-1.4%*
Time Warner	$43.21	$41.89	$41.49	*-0.9%*	*-4.0%*

Source: Company reports, Banc of America Securities LLC estimates.

Note: Pro Forma for Comcast, Charter, and Time Warner Cable.

Figure 32

Margins Were Up Y/Y for Comcast and Time Warner Cable and Down for the Rest of the Group

	3Q06	2Q07	3Q07	% chg Y-O-Y	% chg Sequentially
Comcast	39.6%	41.4%	40.2%	63 bp	(114) bp
Time Warner Cable	34.2%	36.0%	35.7%	148 bp	(28) bp
Cablevision	38.3%	38.5%	37.9%	(40) bp	(67) bp
Charter	33.6%	35.9%	33.5%	(16) bp	(245) bp
Mediacom	36.2%	36.7%	35.6%	(68) bp	(117) bp

Source: Company reports, Banc of America Securities LLC estimates.

Note: Pro Forma for Comcast, Charter, and Time Warner Cable.

Figure 33

Capex-to-Sales Was Flat to Up

	Comcast	Comcast	Comcast	Cablevision	Cablevision	Cablevision	Time Warner Cable	Time Warner Cable	Time Warner Cable
	3Q06	3Q07	Y-O-Y Change	3Q06	3Q07	Y-O-Y Change	3Q06	3Q07	Y-O-Y Change
Total Customer Premise Equipment (CPE)	$710.0	$767.0	*8.0%*	$127.2	$132.6	*4.2%*	$217.8	$390.0	*79.1%*
Capex per Net RGU Addition	$481	$485	*0.9%*	$457	$747	*63.4%*	$318	$654	*105.5%*
Per Average Basic Subscriber	$30	$32	*7.6%*	$41	$42	*3.4%*	$21	$29	*37.8%*
Scalable Infrastructure	$246.0	$235.0	*-4.5%*	$28.8	$20.0	*-30.6%*	$88.1	$157.0	*78.2%*
Per Average Basic Subscriber	$10	$10	*-4.9%*	$9	$6	*-31.1%*	$9	$12	*37.1%*
Line Extensions	$79.0	$94.0	*19.0%*	$9.6	$9.9	*4.0%*	$66.3	$94.0	*41.7%*
Per New Home Passed	$790	$269	*-66.0%*	$478	$343	*-28.2%*	$721	$639	*-11.3%*
Upgrades/Rebuild	$77.0	$144.0	*87.0%*	$1.0	$1.0	*-1.2%*	$25.7	$81.0	*214.7%*
Support Capital	$135.0	$221.0	*63.7%*	$17.0	$22.2	*30.9%*	$107.9	$142.0	*31.6%*
Per Average Basic Subscriber	$6	$9	*63.0%*	$5	$7	*29.9%*	$11	$11	*1.2%*
Total Cable CapEx	$1,247.0	$1,461.0	*17.2%*	$183.6	$185.8	*1.2%*	$505.9	$864.0	*70.8%*
Per Average Basic Subscriber	$52	$61	*16.7%*	$59	$59	*0.4%*	$49	$65	*31.4%*
% of Cable Sales	*19%*	*20%*	*4.7%*	*18%*	*16%*	*-7.7%*	*14%*	*22%*	*58.8%*

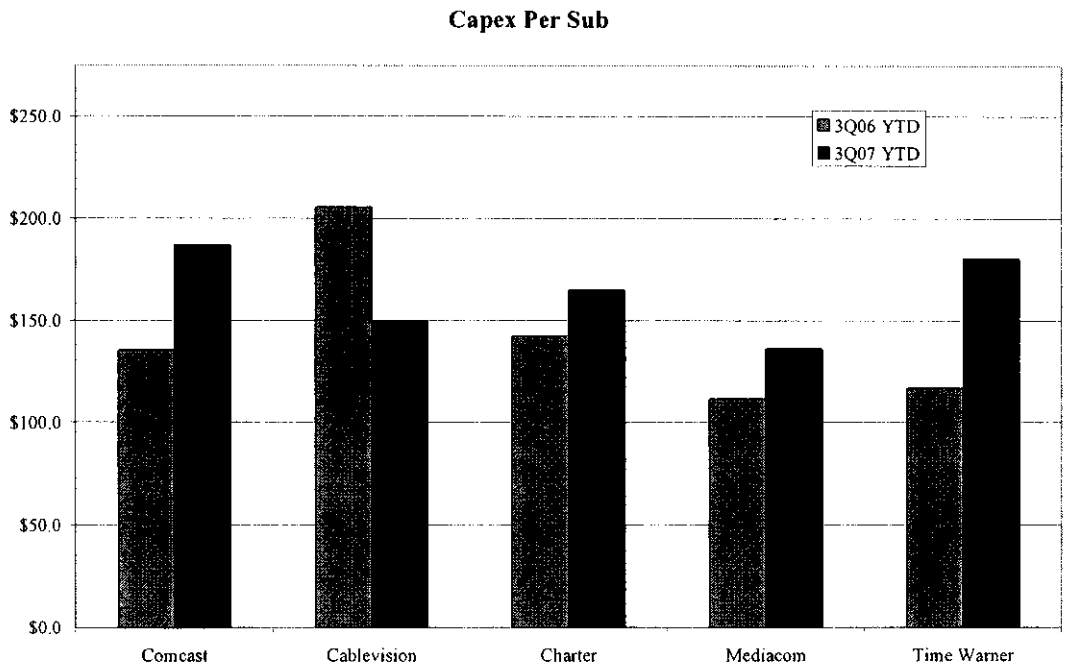
	Charter	Charter	Charter	Mediacom	Mediacom	Mediacom
	3Q06	3Q07	Y-O-Y Change	3Q06	3Q07	Y-O-Y Change
Total Customer Premise Equipment (CPE)	$120.0	$139.0	*15.8%*	$29.9	$34.8	*16.2%*
Capex per Net RGU Addition	$587	$812	*38.4%*	$475	$656	*38.2%*
Per Average Basic Subscriber	$23	$26	*13.7%*	$21	$26	*21.4%*
Scalable Infrastructure	$49.0	$64.0	*30.6%*	$4.6	$9.3	*104.3%*
Per Average Basic Subscriber	$9	$12	*28.2%*	$3	$7	*113.4%*
Line Extensions	$23.0	$27.0	*17.4%*	$4.1	$7.9	*92.7%*
Per New Home Passed	($28)	$846	*NM*	$1,023	$1,970	*92.7%*
Upgrades/Rebuild	$13.0	$11.0	*-15.4%*	$6.8	$14.2	*109.6%*
Support Capital	$51.0	$70.0	*37.3%*	$6.6	$4.9	*-25.0%*
Per Average Basic Subscriber	$10	$13	*34.7%*	$5	$4	*-21.7%*
Total Cable CapEx	$256.0	$311.0	*21.5%*	$51.9	$71.0	*36.9%*
Per Average Basic Subscriber	$49	$58	*19.2%*	$37	$53	*43.0%*
% of Cable Sales	*19%*	*20%*	*10.5%*	*17%*	*22%*	*27.5%*

Source: Company reports, Banc of America Securities LLC estimates.

Note: Pro Forma for Comcast, Charter, and Time Warner Cable.

Figure 34

Year-to-Date, Capex Per Sub is Up (Except Cablevision)

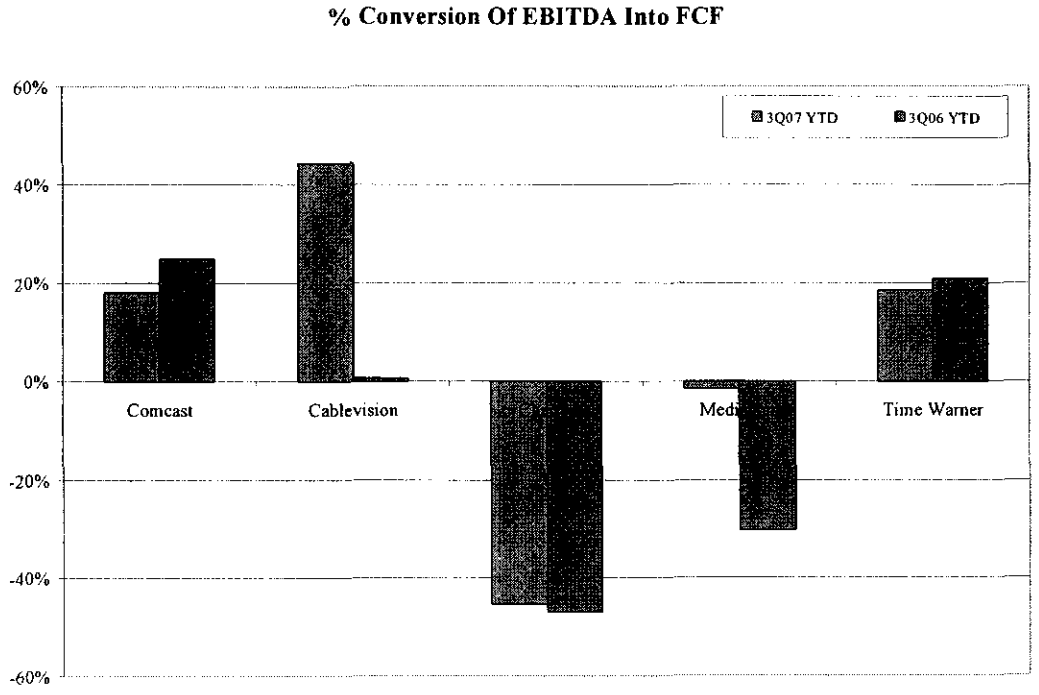


Source: Company reports, Banc of America Securities LLC estimates

Note: Pro Forma for Comcast, Charter, and Time Warner Cable.

Figure 35

Cablevision Is Running a FCF Conversion Ratio Over 40% Year-to-Date

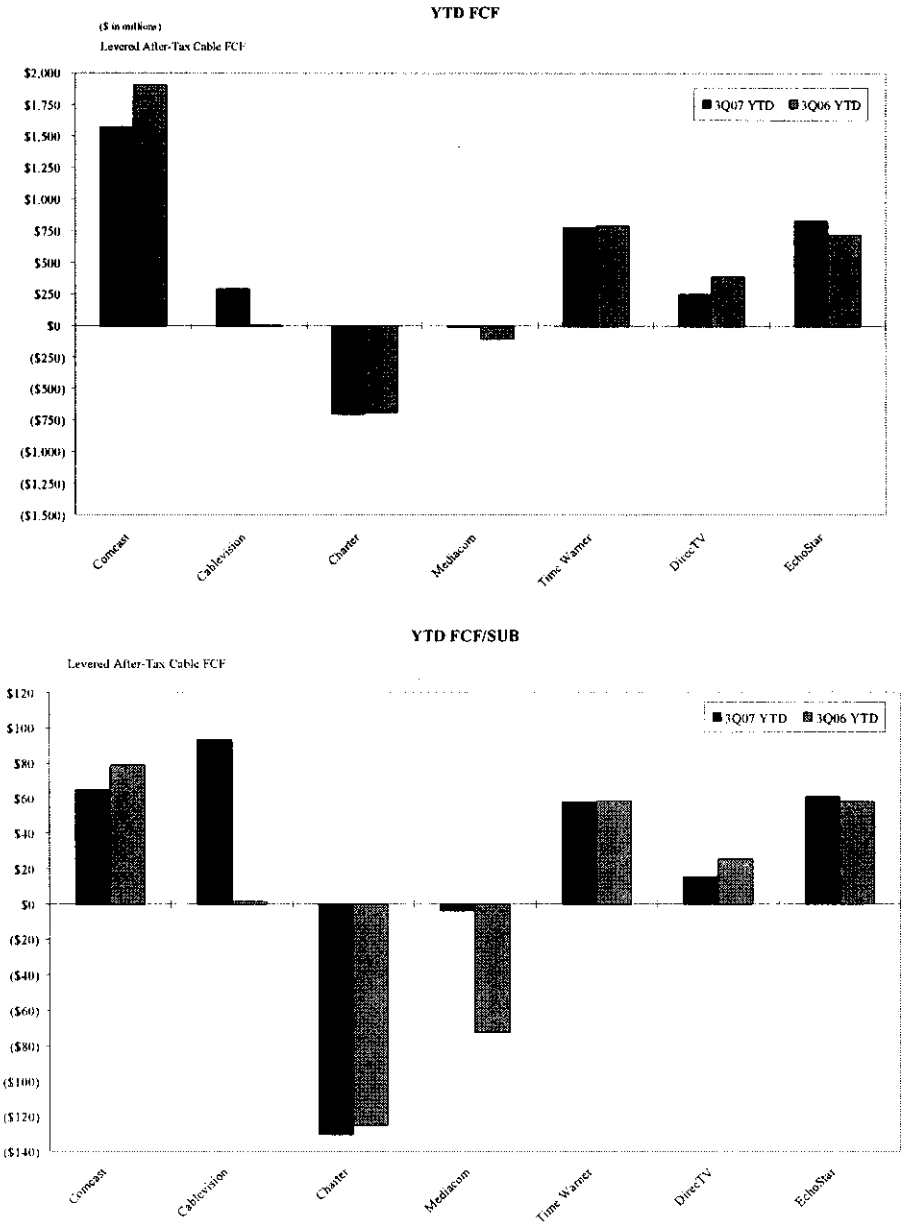


Source: Company reports, Banc of America Securities LLC estimates.

Note: Pro Forma for Comcast, Charter, and Time Warner Cable.

Figure 36

Cablevision and Mediacom Reported Better FCF/Sub Year-to-Date



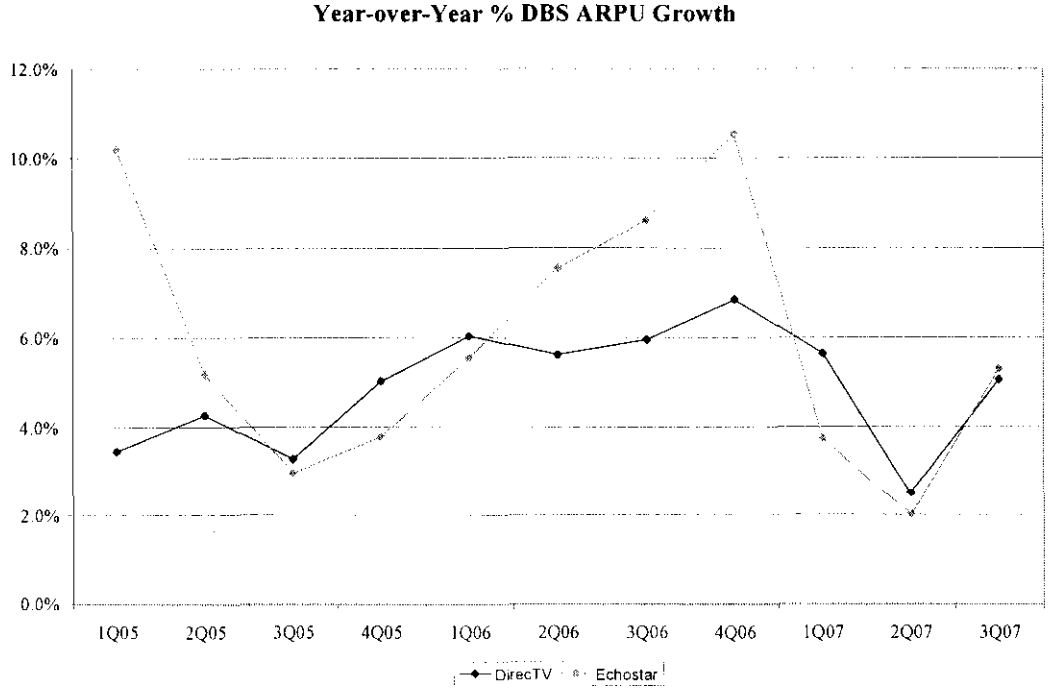
Source: Company reports, Banc of America Securities LLC estimates. As Reported.

Note: Pro Forma for Comcast, Charter, and Time Warner Cable.

DBS Economics

- **ARPU growth remains solid.** As shown in Figure 37, ARPU continues its solid growth, up about 5% for both operators. This is tied both to both price increases and higher penetration of advanced products, such as DVR and HD.
- **Churn headed in different directions** (Figure 39). DirecTV saw a significant improvement in churn (19 bps) as management has made it a top priority to improve this metric. However, EchoStar posted its highest churn rate in company history due mainly to operational inefficiencies, macro economic issues, and involuntary churn from low end subscribers.
- **SAC was mixed.** As shown in Figure 40, SAC was up for DirecTV and down for EchoStar. As DirecTV's penetration rates of advanced products accelerated, costs inevitably rose. EchoStar saw reduced SAC in the quarter.
- **Margins up for DirecTV and flat for EchoStar.** DirecTV has seen margins accelerate in 2007 as it has done a better job of handling the call and service activity of high margin advanced converters (Figure 41). Although EchoStar continues to post solid pre-marketing cash flow margins, it saw a slight deceleration this quarter as the company faced operational inefficiencies (Figure 42).

Figure 37
DBS ARPU Growth



Source: Company reports, Banc of America Securities LLC estimates.

Figure 38

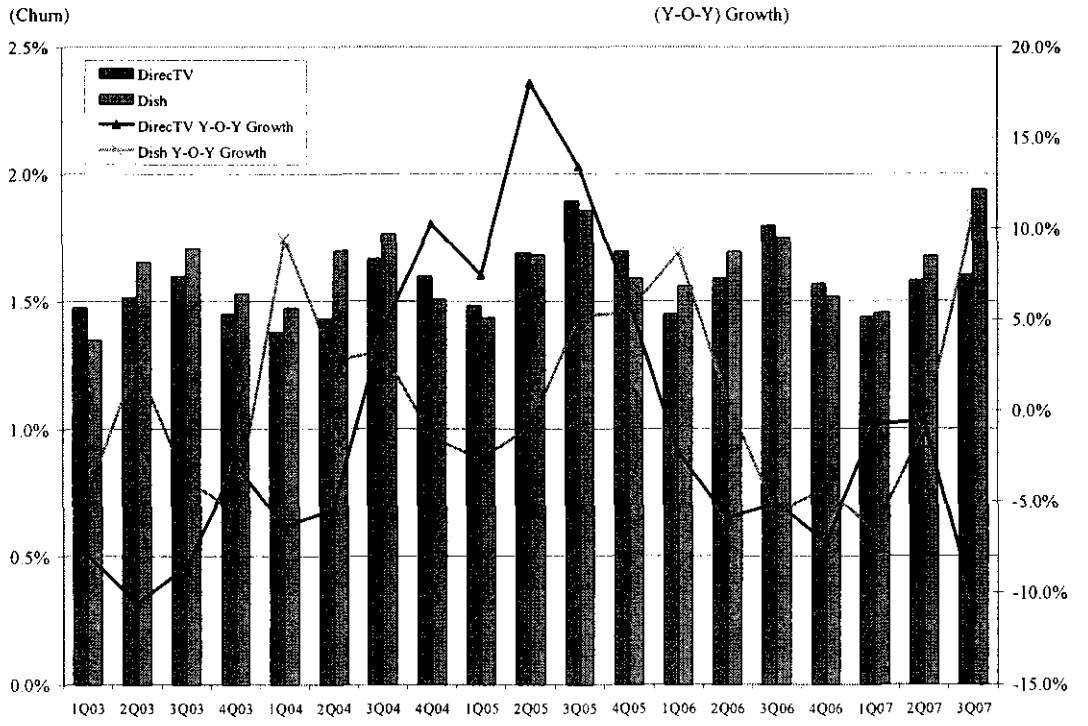
Sequential and Y/Y DBS ARPU Growth

	3Q06	2Q07	3Q07	% chg Seqentially	% chg Y-O-Y
DirecTV	$72.74	$73.40	$76.42	*4.1%*	*5.1%*
Echostar	$62.75	$64.15	$66.08	*3.0%*	*5.3%*

Source: Company reports, Banc of America Securities LLC estimates.

Figure 39

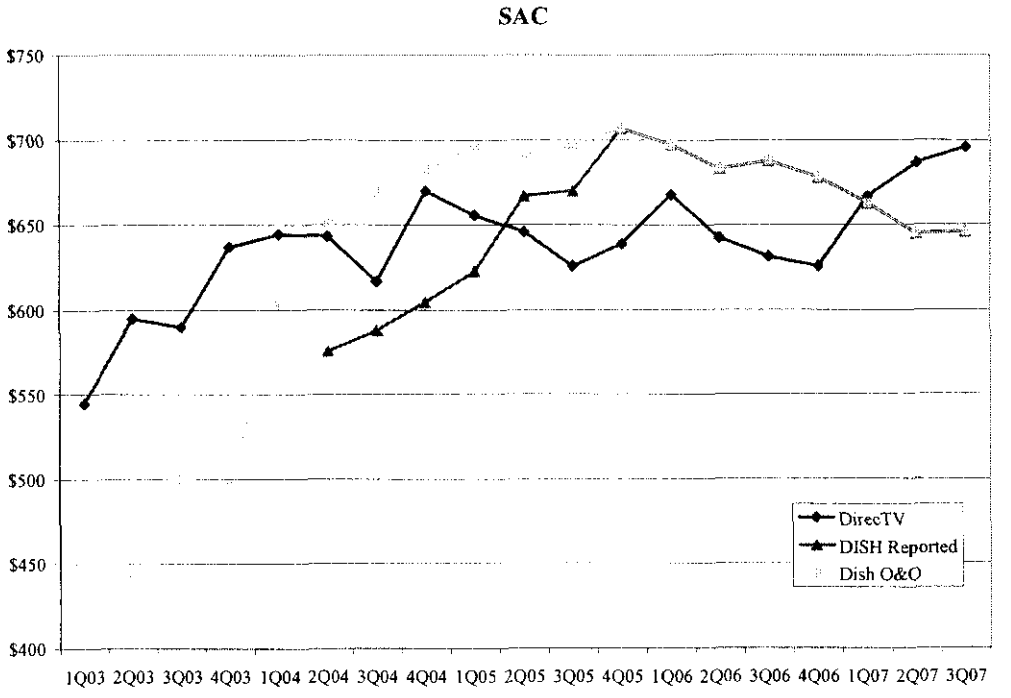
DirecTV and EchoStar's Churn Headed In Different Directions



Source: Company reports, Banc of America Securities LLC estimates.

Figure 40

SAC Has Been Heading Up for DirecTV and Down for EchoStar



Source: Company reports, Banc of America Securities LLC estimates.

Figure 41

DirecTV Financial Metrics

	1Q05	2Q05	3Q05	4Q05	1Q06	2Q06	3Q06	4Q06	1Q07	2Q07	3Q07
Subscriber Acquistion Costs											
Expensed SAC (Sunk)	$656	$646	$636	$648	$626	$465	$429	$434	$465	$497	$483
Capitalized SAC (Recoverable)	$0	$0	$0	$0	$50	$177	$202	$192	$202	$190	$213
Useful Life of Recoverable SAC (Years)	5	5	5	5	5	5	5	5	5	5	5
Note: Annual Amortization of Recoverable SAC	$0	$0	$0	$0	$10	$35	$40	$38	$40	$38	$43
Note: Attributable Portion of Capitalized SAC	$0	$0	$0	$0	$50	$177	$184	$192	$202	$190	$213
Total SAC	**$656**	**$646**	**$636**	**$648**	**$676**	**$642**	**$632**	**$626**	**$667**	**$687**	**$696**
Total SAC-Tax Effected	**$400**	**$394**	**$388**	**$395**	**$412**	**$392**	**$374**	**$382**	**$407**	**$419**	**$424**
Recurring Economics											
Monthly Programming Revenue	$66	$68	$69	$76	$70	$72	$73	$81	$73	$76	$79
Programming Expense	$27	$26	$28	$34	$29	$28	$30	$37	$31	$31	$34
Gross Margin	$39	$42	$41	$42	$41	$43	$42	$43	$43	$45	$45
% Gross Margin	*59%*	*62%*	*59%*	*55%*	*58%*	*60%*	*58%*	*54%*	*58%*	*59%*	*57%*
Recurring Operating Expenses	$16	$17	$17	$18	$17	$16	$18	$20	$20	$19	$17
Pre-Marketing Cash Flow[1]	$23	$25	$24	$24	$23	$28	$24	$23	$22	$26	$28
PMCF Margin	*35%*	*36.5%*	*34.4%*	*31.4%*	*33.6%*	*38.5%*	*33.3%*	*28.9%*	*30.6%*	*34.1%*	*35.6%*
Taxes[2]	$6	$6	$5	$6	$6	$7	$6	$6	$5	$6	$7
Total Months To Payback	**23**	**21**	**21**	**22**	**23**	**19**	**20**	**22**	**24**	**21**	**20**
Monthly Churn	1.48%	1.69%	1.89%	1.68%	1.45%	1.59%	1.80%	1.57%	1.44%	1.58%	1.61%
Implied Life of Average Subscriber (Months)	**66**	**58**	**52**	**59**	**68**	**62**	**55**	**63**	**68**	**62**	**61**

Source: Company reports, Banc of America Securities LLC estimates.

Figure 42

EchoStar Financial Metrics

	1Q05	2Q05	3Q05	4Q05	1Q06	2Q06	3Q06	4Q06	1Q07	2Q07	3Q07
Subscriber Acquistion Costs											
Expensed SAC (Sunk)	$416	$432	$447	$459	$452	$453	$458	$452	$451	$443	$443
Capitalized SAC (Recoverable)	$133	$210	$197	$248	$213	$194	$199	$187	$196	$176	$174
Useful Life of Recoverable SAC (Years)	5	5	5	5	5	5	5	5	5	5	5
Note: Annual Amortization of Recoverable SAC	$27	$42	$39	$50	$43	$39	$40	$37	$39	$35	$35
Note: Attributable Portion of Capitalized SAC	$133	$205	$184	$248	$213	$187	$186	$187	$196	$172	$146
Total SAC	**$549**	**$642**	**$644**	**$707**	**$665**	**$647**	**$658**	**$640**	**$646**	**$619**	**$617**
Total SAC - Tax Effected	**$335**	**$388**	**$385**	**$431**	**$406**	**$391**	**$393**	**$390**	**$394**	**$375**	**$360**
Recurring Economics											
Monthly Programming Revenue	$57	$58	$58	$58	$60	$63	$63	$64	$64	$64	$66
Programming Expense	$22	$22	$22	$22	$23	$24	$24	$24	$24	$24	$25
Gross Margin	$35	$36	$36	$36	$37	$39	$39	$40	$40	$40	$41
% Gross Margin	*62%*	*62%*	*62%*	*62%*	*62%*	*62%*	*62%*	*62%*	*62%*	*62%*	*62%*
Recurring Operating Expenses	$14	$13	$12	$13	$13	$14	$14	$15	$15	$14	$15
Pre-Marketing Cash Flow[1]	$21	$23.5	$24	$23	$24	$25	$25	$25	$24	$25	$26
PMCF Margin	*37.2%*	*40.2%*	*41.1%*	*39.6%*	*39.7%*	*39.1%*	*39.3%*	*38.4%*	*37.9%*	*39.6%*	*38.9%*
Taxes[2]	$5	$5	$5	$5	$6	$6	$6	$6	$6	$6	$6
Total Months To Payback	**21**	**22**	**21**	**24**	**22**	**21**	**21**	**21**	**22**	**20**	**18**
Monthly Churn	1.44%	1.69%	1.75%	1.59%	1.56%	1.70%	1.75%	1.52%	1.46%	1.68%	1.94%
Implied Life of Average Subscriber (Months)	**69**	**58**	**56**	**62**	**63**	**58**	**56**	**65**	**68**	**59**	**51**

Source: Company reports, Banc of America Securities LLC estimates.

Companies Mentioned:

AT&T (T, $37.75, Buy, Target Price: $46.00)

Cablevision (CVC, $25.75, Neutral, Target Price: $28.00)

Charter (CHTR, $1.28, Neutral, Target Price: $1.50)

Comcast (CMCSA, $19.35, Buy, Target Price: $26.00)

DirecTV (DTV, $24.57, Neutral, Target Price: $27.00)

EchoStar (DISH, $47.49, Neutral, Target Price: $41.00)

Mediacom (MCCC, $4.20, Buy, Target Price: $6.00)

Qwest (Q, $6.38, Buy, Target Price: $12.00)

Time Warner Cable (TWC, $25.24, Buy, Target Price: $32.00)

Verizon (VZ, $43.05, Buy, Target Price: $50.00)

Wireless Substitution: Early Release of Estimates From the National Health Interview Survey, July-December 2007

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Overview

Preliminary results from the July-December 2007 National Health Interview Survey (NHIS) indicate that nearly one out of every six American homes (15.8%) had only wireless telephones during the second half of 2007. In addition, more than one out of every eight American homes (13.1%) received all or almost all calls on wireless telephones despite having a landline telephone in the home. This report presents the most up-to-date estimates available from the federal government concerning the size and characteristics of these populations.

NHIS Early Release Program

This report is published as part of the NHIS Early Release Program. In May and December of each year, the Centers for Disease Control and Prevention's National Center for Health Statistics (NCHS) releases selected estimates of telephone coverage for the civilian noninstitutionalized U.S. population based on data from NHIS, along with comparable estimates from NHIS for the previous 3 years. The estimates are based on in-person interviews. NHIS interviews are conducted continuously throughout the year to collect information on health status, health-related behaviors, and health care utilization. The survey also includes information about household telephones and whether anyone in the household has a wireless telephone (also known as a cellular telephone, cell phone, or mobile phone).

Two additional reports are published as part of the Early Release Program. ***Early Release of Selected Estimates Based on Data from the National Health Interview Survey*** is published quarterly and provides estimates of 15 selected measures of health. ***Health Insurance Coverage: Early Release of Estimates from the National Health Interview Survey*** is also published quarterly and provides additional estimates of health insurance coverage.

Methods

For many years, NHIS has included questions on residential telephone numbers to permit re-contact of survey participants. Starting in 2003, additional questions determined whether the family's telephone number was a landline telephone. All survey respondents were also asked whether "you or anyone in your family has a working cellular telephone." A family can be an individual or a group of two or more related persons living together in the same housing unit. Thus, a family can consist of only one person, and more than one family can live in a household (including, for example, a household where there are multiple single-person families, as when unrelated roommates are living together).

In this report, families are identified as wireless families if anyone in the family had a working cellular telephone. Households are identified as wireless-only if they include at least one wireless family and if there are no working landline telephones inside the household. Persons are identified as wireless-only if they live in a wireless-only household. A similar approach is used to identify adults living in households with no telephone service (neither wireless nor landline). Household telephone status (rather than family telephone status) is used in this report because most telephone surveys draw samples of households rather than families.

From July through December 2007, household telephone status information was obtained for 13,083 households. These households included 24,514 adults aged 18 years and over and 9,122 children less than 18 years of age. Analyses of demographic characteristics are based on data from the NHIS Family file. Data for all civilian adults living in interviewed households were used in these analyses. Estimates stratified by poverty are based only on reported income. Income is unknown for nearly 18% of families.

Analyses of selected health measures are based on data from the NHIS Sample Adult file. Data for one civilian adult randomly selected from each family were used in these analyses. From July through December 2007, data on household telephone status and selected health measures were collected from 10,551 randomly selected adults.

Because NHIS is conducted throughout the year and the sample is designed to yield a nationally representative sample each week, data can be analyzed quarterly. Weights are created for each calendar quarter of the NHIS sample. NHIS data weighting procedures have been described in more detail in an NCHS published report **(Series Report Number 2, Volume 130)**. The estimates using the July-December 2007 data are being released prior to final data editing and final weighting to provide access to the most recent information from NHIS. The resulting estimates should be considered preliminary and may differ slightly from estimates using the final data files.

Point estimates and 95% confidence intervals were calculated using SUDAAN software to account for the complex sample design of NHIS. Differences between percentages were evaluated using two-sided significance tests at the 0.05 level. Terms such as

"more likely" and "less likely" indicate a statistically significant difference. Lack of comments regarding the difference between any two estimates does not necessarily mean that the difference was tested and found to be not significant. Due to small sample sizes, estimates based on less than 1 year of data may have large variances, and caution should be used in interpreting these estimates.

Questionnaire Changes in 2007

From 2003 to 2006, families were considered to have landline telephone service if the survey respondent provided a telephone number, identified it as "the family's phone number," and said that it was not a cellular telephone number. If the family's phone number was reported to be a cellular telephone number, the respondent was asked if there was "at least one phone inside your home that is currently working and is not a cell phone."

In 2007, the questionnaire was changed so that all survey respondents were asked if there was "at least one phone inside your home that is currently working and is not a cell phone," unless the respondent indicated not having any phone when asked for a telephone number.

From 2003 to 2006, the questions about cellular telephones were asked at the end of the survey. Because of incomplete interviews, more than 10% of households were not asked about wireless telephones. In 2007, these questions were moved earlier in the survey, resulting in fewer families with unknown wireless telephone status.

In 2007, a new question was added to the survey for persons living in families with both landline and cellular telephones. Respondents were asked to consider all of the telephone calls that their family receives and to report whether "all or almost all calls are received on cell phones, some are received on cell phones and some on regular phones, or very few or none are received on cell phones." This new question permits the identification of persons living in "wireless-mostly" households, defined as households with both landline and cellular telephones in which all families receive all or almost all calls on cell phones.

Finally, in 2007, the questionnaire was redesigned to improve the collection of income information. Initial evaluations of the distribution of poverty among selected demographic variables suggest that poverty estimates are generally comparable to years 2006 and earlier. However, as a result of the changes, the poverty ratio variable has fewer missing values in 2007 compared with prior years. Analyses of the impact of this change have been published by the Early Release program **(http://www.cdc.gov/nchs/data/nhis/income.pdf)**.

Telephone Status

In the last 6 months of 2007, nearly one out of every six households (15.8%) did not have a landline telephone, but did have at least one wireless telephone (**Table 1**). Approximately 14.5% of all adults-more than 32 million adults-lived in households with only wireless telephones; 14.4% of all children-more than 10 million children-lived in households with only wireless telephones.

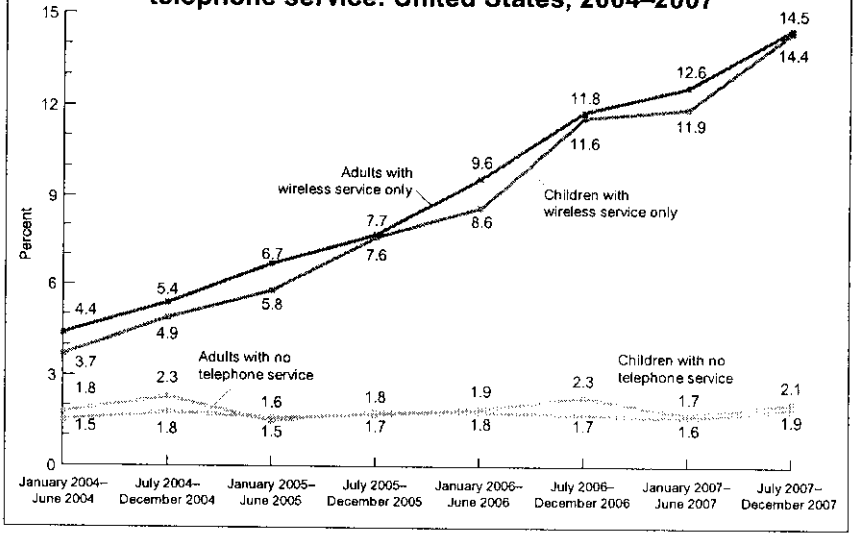
The percentage of adults living in wireless-only households has been steadily increasing (see **Figure**). During the last 6 months of 2007, more than one out of every seven adults lived in wireless-only households. One year before that (that is, during the last 6 months of 2006), fewer than one out of every eight adults lived in wireless-only households. And 2 years before that (that is, during the last 6 months of 2004), only 1 out of every 18 adults lived in wireless-only households.

The percentage of adults and the percentage of children living without any telephone service have remained relatively unchanged over the past 3 years. Approximately 2.2% of households had no telephone service (neither wireless nor landline). Approximately 4 million adults (1.9%) and 1.5 million children (2.1%) lived in these households.

Demographic Differences

The percentage of U.S. civilian noninstitutionalized adults living in wireless-only households is shown by selected demographic characteristics and by survey time period in **Table 2**. For the period July through December 2007:

Percentage of adults and percentage of children living in households with only wireless telephone service or no telephone service: United States, 2004–2007



- More than one-half of all adults living with unrelated roommates (56.9%) lived in households with only wireless telephones. This is the highest prevalence rate among the population subgroups examined.
- Adults renting their home (30.9%) were more likely than adults owning their home (7.3%) to be living in households with only wireless telephones.
- More than one in three adults aged 25-29 years (34.5%) lived in households with only wireless telephones. Nearly 31% of adults aged 18-24 years lived in households with only wireless telephones.
- As age increased, the percentage of adults living in households with only wireless telephones decreased: 15.5% for adults aged 30-44 years; 8.0% for adults aged 45-64 years; and 2.2% for adults aged 65 years and over.
- Men (15.9%) were more likely than women (13.2%) to be living in households with only wireless telephones.
- Adults living in poverty (27.4%) were more likely than higher income adults to be living in households with only wireless telephones.
- Adults living in the South (17.1%) and Midwest (15.3%) were more likely than adults living in the Northeast (10.0%) to be living in households with only wireless telephones.
- Non-Hispanic white adults (12.9%) were less likely than Hispanic adults (19.3%) or non-Hispanic black adults (18.3%) to be living in households with only wireless telephones.

Wireless-Mostly Households

Among households with both landline and cellular telephones, 22.3% received all or almost all calls on the cellular telephones, based on data for the period July through December 2007. These wireless-mostly households make up 13.1% of all households. Both of these estimates of the size of the wireless-mostly household population have increased since the first 6 months of 2007. During the first 6 months of 2007, the estimates were 20.5% and 12.1%, respectively. (These increases are statistically significant at the 0.10 level but not at the 0.05 level.)

Approximately 31 million adults (14.0%) lived in wireless-mostly households during the last 6 months of 2007, an increase from 28 million (12.6%) during the first 6 months of 2007. **Table 3** presents the percentage of adults living in wireless-mostly households by selected demographic characteristics and by survey time period. For the period July through December 2007:

- Non-Hispanic Asian adults (20.3%) were more likely than Hispanic adults (14.5%), non-Hispanic white adults (13.2%), or non-Hispanic black adults (15.1%) to be living in wireless-mostly households.
- Adults with college degrees (16.2%) were more likely to be living in wireless-mostly households than were high school graduates (12.7%) or adults with less education (8.7%).
- Adults living in poverty (8.6%) and adults living near poverty (11.4%) were less likely than higher income adults (15.9%) to be living in wireless-mostly households.
- Adults living in metropolitan areas (14.7%) were more likely to be living in wireless-mostly households than were adults living in more rural areas (10.9%).

Selected Health Measures by Household Telephone Status

Most major survey research organizations, including NCHS, do not include wireless telephone numbers when conducting random-digit-dial telephone surveys. Therefore, the inability to reach households with only wireless telephones (or with no telephone service) has potential implications for results from health surveys, political polls, and other research conducted using random-digit-dial telephone surveys. Coverage bias may exist if there are differences between persons with and without landline telephones for the substantive variables of interest.

The NHIS Early Release program updates and releases estimates for 15 key adult health indicators every 3 months. **Table 4** presents estimates by household telephone status (landline, wireless-only, or without any telephone service) for all but two of these measures. ("Pneumococcal vaccination" and "personal care needs" were not included because these indicators are limited to adults aged 65 years and over.) For the period July through December 2007:

- The prevalence of binge drinking (i.e., having five or more alcoholic drinks in 1 day during the past year) among wireless-only adults (37.3%) was twice as high as the prevalence among adults living in landline households (17.7%). Wireless-only adults were also more likely to be current smokers.
- Compared with adults living in landline households, wireless-only adults were more likely to report that their health status was excellent or very good, and they were more likely to engage in regular leisure-time physical activity.
- The percentage without health insurance coverage at the time of the interview among wireless-only adults (28.7%) was twice as high as the percentage among adults living in landline households (13.7%).
- Compared with adults living in landline households, wireless-only adults were more likely to have experienced financial barriers to obtaining needed health care, and they were less likely to have a usual place to go for medical care. Wireless-only adults were also less likely to have received an influenza vaccination during the previous year.

- Wireless-only adults (47.6%) were more likely than adults living in landline households (34.7%) to have ever been tested for HIV, the virus that causes AIDS.

Conclusions

The potential for bias due to undercoverage remains a real and growing threat to surveys conducted only on landline telephones. For more information about the potential implications for health surveys based on landline telephone interviews, see:

- Blumberg SJ, Luke JV. Coverage bias in traditional telephone surveys of low-income and young adults. Public Opinion Quarterly 71:734-749. 2007.
- Blumberg SJ, Luke JV, Cynamon ML. Telephone coverage and health survey estimates: Evaluating the need for concern about wireless substitution. American Journal of Public Health 96:926-31. 2006.
- Blumberg SJ, Luke JV, Cynamon ML, Frankel MR. Recent trends in household telephone coverage in the United States. In JM Lepkowski et al. (eds.), Advances in Telephone Survey Methodology (pp. 56-86). New York: John Wiley and Sons, Inc. 2008.

In addition, this report is the first to demonstrate that the number of adults living in wireless-mostly households in the U.S. is growing and is nearly equal to the number of adults living in wireless-only households. If the prevalence of wireless-mostly households continues to grow, and if adults living in wireless-mostly households rarely (if ever) answer their landline telephones, landline telephone surveys may experience increasing rates of nonresponse.

For More Information

For more information about the National Health Interview Survey or the Early Release program, or to find other Early Release reports, please see the following websites:

- **http://www.cdc.gov/nchs/nhis.htm.**
- **http://www.cdc.gov/nchs/about/major/nhis/releases.htm.**

Suggested citation

Blumberg SJ, Luke JV. Wireless substitution: Early release of estimates from the National Health Interview Survey, July-December 2007. National Center for Health Statistics. Available from: **http://www.cdc.gov/nchs/nhis.htm.** May 13, 2008.

Table 1. Percent distribution of household telephone status, by date of interview, for households, adults, and children: United States, January 2004–December 2007

Date of interview		Household telephone status						
		Landline households with a wireless telephone	Landline households without a wireless telephone	Landline households with unknown wireless telephone status	Nonlandline households with unknown wireless telephone status	Wireless-only households	Phoneless households	Total
	Number of households (unweighted)	Percent of households						
January-June 2004	16,284	43.2	39.6	9.9	0.5	5.0	1.8	100.0
July-December 2004	20,135	43.1	38.7	9.4	0.5	6.1	2.2	100.0
January-June 2005	18,301	42.4	34.4	13.2	0.8	7.3	1.9	100.0
July-December 2005	20,088	42.6	32.4	13.8	0.8	8.4	1.9	100.0
January-June 2006	16,009	45.6	30.9	10.3	0.7	10.5	2.0	100.0
July-December 2006	13,056	44.3	29.6	10.2	0.8	12.8	2.2	100.0
January-June 2007[1]	15,996	58.9	23.8	1.7	0.1	13.6	1.9	100.0
July-December 2007[1]	13,083	58.8	21.8	1.3	0.1	15.8	2.2	100.0
95% confidence interval[2]		57.27 - 60.29	20.60 - 23.11	0.94 - 1.73	0.05 - 0.19	14.61 - 17.14	1.87 - 2.53	
	Number of adults (unweighted)	Percent of adults						
January-June 2004	30,423	46.9	36.3	10.4	0.5	4.4	1.5	100.0
July-December 2004	37,611	46.8	35.7	9.7	0.5	5.4	1.8	100.0
January-June 2005	34,047	46.1	31.5	13.5	0.7	6.7	1.6	100.0
July-December 2005	37,622	46.4	29.7	13.9	0.7	7.7	1.7	100.0
January-June 2006	29,842	49.5	28.2	10.4	0.6	9.6	1.8	100.0
July-December 2006	24,473	48.1	27.3	10.5	0.7	11.8	1.7	100.0
January-June 2007[1]	29,982	63.3	20.8	1.7	0.1	12.6	1.6	100.0
July-December 2007[1]	24,514	63.2	19.1	1.2	0.1	14.5	1.9	100.0
95% confidence interval[2]		61.69 - 64.75	17.90 - 20.33	0.86 - 1.71	0.05 - 0.18	13.28 - 15.73	1.63 - 2.25	

See footnotes at end of table.

Date of interview	Number of children (unweighted)	Household telephone status: Landline households with a wireless telephone	Landline households without a wireless telephone	Landline households with unknown wireless telephone status	Nonlandline households with unknown wireless telephone status	Wireless-only households	Phoneless households	Total
		Percent of children						
January-June 2004	11,718	49.6	31.6	12.6	0.7	3.7	1.8	100.0
July-December 2004	14,368	49.4	31.4	11.6	0.5	4.9	2.3	100.0
January-June 2005	12,903	49.3	27.0	15.8	0.7	5.8	1.5	100.0
July-December 2005	13,883	50.5	23.9	15.2	0.9	7.6	1.8	100.0
January-June 2006	11,670	53.4	23.8	11.5	0.9	8.6	1.9	100.0
July-December 2006	9,165	51.9	21.5	11.9	0.9	11.6	2.3	100.0
January-June 2007[1]	11,532	68.3	16.4	1.6	0.0	11.9	1.7	100.0
July-December 2007[1]	9,122	68.5	13.8	1.1	0.0	14.4	2.1	100.0
95% confidence interval[2]		66.29 - 70.62	12.26 - 15.51	0.67 - 1.83	0.01 - 0.09	12.94 - 16.07	1.68 - 2.70	

[1] Questionnaire changes that occurred in 2007 should be considered when evaluating recent trends in household telephone status. See text for more information about these changes.

[2] Confidence intervals refer to the time period July-December 2007.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

DATA SOURCE: CDC/NCHS, National Health Interview Survey, January 2004-December 2007.

Table 2. Percentage of adults living in wireless-only households, by selected demographic characteristics and by calendar half-years: United States, January 2004-December 2007

Demographic characteristic	Calendar half-year								95% confidence interval[2]
	Jan-Jun 2004	Jul-Dec 2004	Jan-Jun 2005	Jul-Dec 2005	Jan-Jun 2006	Jul-Dec 2006	Jan-Jun 2007[1]	Jul-Dec 2007[1]	
	Percent								
Race/ethnicity									
Hispanic or Latino, any race(s)	6.0	6.8	8.5	11.2	11.2	15.3	18.0	19.3	(16.86 - 22.07)
Non-Hispanic white, single race	4.2	5.1	6.5	6.9	9.0	10.8	11.3	12.9	(11.54 - 14.32)
Non-Hispanic black, single race	4.1	5.8	6.6	8.5	10.5	12.8	14.3	18.3	(15.90 - 20.88)
Non-Hispanic Asian, single race	3.3	4.7	5.3	6.7	10.2	11.8	10.6	12.1	(9.14 - 15.80)
Non-Hispanic other, single race	7.6	10.2	*11.1	*8.0	9.8	17.2	22.8	17.5	(9.66 - 29.57)
Non-Hispanic multiple race	8.9	11.2	8.1	11.5	15.4	14.6	17.3	22.8	(17.22 - 29.53)
Age									
18-24 years	10.3	14.2	16.6	17.5	22.6	25.2	27.9	30.6	(26.72 - 34.74)
25-29 years	9.9	11.4	16.5	19.8	22.3	29.1	30.6	34.5	(31.48 - 37.62)
30-44 years	4.4	5.4	6.5	7.8	9.4	12.4	12.6	15.5	(14.06 - 16.96)
45-64 years	2.3	2.7	3.2	3.7	5.3	6.1	7.1	8.0	(7.13 - 8.97)
65 years and over	0.9	0.8	0.9	1.2	1.3	1.9	2.0	2.2	(1.67 - 3.01)
Sex									
Male	5.2	6.5	7.5	8.6	10.7	13.1	13.8	15.9	(14.37 - 17.47)
Female	3.7	4.5	6.0	6.9	8.5	10.5	11.5	13.2	(12.12 - 14.26)
Education									
Some high school or less	4.9	5.5	6.7	8.0	8.3	12.9	14.6	15.4	(13.48 - 17.43)
High school graduate or GED[3]	4.2	5.1	6.9	7.6	9.6	10.6	11.8	13.4	(12.17 - 14.77)
Some post-high school, no degree	5.6	7.2	8.2	9.4	11.9	14.4	14.7	17.0	(14.76 - 19.56)
4-year college degree or higher	3.2	4.3	5.5	6.3	8.5	10.1	10.8	12.7	(11.13 - 14.39)
Employment status last week									
Working at a job or business	5.1	6.4	8.0	9.2	11.6	13.9	15.0	16.6	(15.26 - 17.96)
Keeping house	3.6	4.0	5.1	6.1	7.1	8.6	9.5	12.8	(11.09 - 14.72)
Going to school	7.1	12.2	10.8	15.5	17.3	20.4	21.3	28.9	(20.01 - 39.73)
Something else (incl. unemployed)	2.6	2.8	3.6	3.7	4.2	6.2	6.4	7.6	(6.69 - 8.69)

See footnotes at end of table.

Demographic characteristic	Calendar half-year								95% confidence interval[2]
	Jan-Jun 2004	Jul-Dec 2004	Jan-Jun 2005	Jul-Dec 2005	Jan-Jun 2006	Jul-Dec 2006	Jan-Jun 2007[1]	Jul-Dec 2007[1]	
Household structure									
Adult living alone	8.3	9.7	11.2	12.3	16.2	18.2	20.3	22.9	(20.61 - 25.27)
Unrelated adults, no children	19.7	33.1	36.0	33.6	44.2	54.0	55.3	56.9	(43.85 - 69.00)
Related adults, no children	3.2	3.6	5.3	5.9	7.1	8.5	9.8	11.0	(9.82 - 12.25)
Adult(s) with children	3.6	4.7	5.4	7.0	8.6	10.5	11.3	13.0	(11.65 - 14.43)
Household poverty status[4]									
Poor	8.0	10.1	11.8	14.2	15.8	22.4	21.6	27.4	(23.02 - 32.36)
Near poor	6.7	7.6	10.8	12.7	14.4	15.7	18.5	20.8	(18.36 - 23.49)
Not poor	3.7	5.1	6.2	7.0	9.4	11.3	10.6	11.9	(10.79 - 13.18)
Geographic region[5]									
Northeast	2.3	2.9	4.1	4.7	7.2	8.6	8.8	10.0	(7.12 - 13.76)
Midwest	5.1	6.4	7.2	8.8	10.2	11.4	14.0	15.3	(13.56 - 17.31)
South	5.3	6.3	7.6	9.6	11.4	14.0	14.9	17.1	(15.05 - 19.40)
West	4.2	5.4	7.0	6.2	7.8	11.0	10.9	12.9	(10.70 - 15.48)
Metropolitan statistical area status									
Metropolitan	5.0	6.3	7.7	8.7	10.3	12.7	13.7	15.5	(14.14 - 16.99)
Not metropolitan	2.9	3.4	4.1	5.1	7.0	8.0	8.4	10.0	(8.36 - 11.87)
Home ownership status[6]									
Owned or being bought	2.1	2.6	3.1	3.8	5.1	5.8	6.7	7.3	(6.49 - 8.12)
Renting	10.9	13.9	16.7	19.3	22.5	26.4	28.2	30.9	(28.32 - 33.52)
Other arrangement	6.3	10.1	10.7	8.4	10.7	*20.3	22.5	23.2	(15.48 - 33.35)
Number of wireless-only adults in survey sample (unweighted)	1,348	2,065	2,263	2,918	2,804	2,878	3,819	3,558	

*Estimate has a relative standard error greater than 30% and does not meet NCHS standards for reliability.

[1] Questionnaire changes that occurred in 2007 should be considered when evaluating recent trends in household telephone status. See text for more information about these changes.

[2] Confidence intervals refer to the time period July-December 2007.

[3] GED is General Educational Development high school equivalency diploma.

[4] Poverty status is based on household income and household size using the U.S. Census Bureau's poverty thresholds. "Poor" persons are defined as those below the poverty threshold. "Near poor" persons have incomes of 100% to less than 200% of the poverty threshold. "Not poor" persons have incomes of 200% of the poverty threshold or greater. Early Release estimates stratified by poverty are based only on the reported income and may differ from similar estimates produced later that are based on both reported and imputed income. NCHS imputes income when income is unknown, but the imputed income file is not available until a few months after the annual release of NHIS microdata. For households with multiple families, household income and household size were calculated as the sum of the multiple measures of family income and family size.

[5] In the geographic classification of the U.S. population, states are grouped into the following four regions used by the U.S. Census Bureau. Northeast includes Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, and Pennsylvania. Midwest includes Ohio, Illinois, Indiana, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Kansas, and Nebraska. South includes Delaware, Maryland, District of Columbia, West Virginia, Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Oklahoma, Arkansas, and Texas. West includes Washington, Oregon, California, Nevada, New Mexico, Arizona, Idaho, Utah, Colorado, Montana, Wyoming, Alaska, and Hawaii.

[6] For households with multiple families, home ownership status was determined by considering the reported home ownership status for each family. If any family reported owning the home, than the household level variable was classified as "owned or being bought" for all persons living in the household. If one family reported renting the home and another family reported "other arrangements," then the household level variable was classified as "other arrangement" for all persons living in the household.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

DATA SOURCE: CDC/NCHS, National Health Interview Survey, January 2004-December 2007.

Table 3. Percentage of adults living in landline households with wireless telephones, by proportion of calls received on wireless telephones, by selected demographic characteristics, and by calendar half-years: United States, January-December 2007

Demographic characteristic	January-June 2007		July-December 2007		
	Receive some or very few calls on wireless phones[1]	Receive all or nearly all calls on wireless phones[1]	Receive some or very few calls on wireless phones	Receive all or nearly all calls on wireless phones	95% confidence interval[2]
	Percent				
Race/ethnicity					
Hispanic or Latino, any race(s)	41.5	13.2	41.1	14.5	(12.34 - 17.00)
Non-Hispanic white, single race	53.3	12.3	51.7	13.2	(12.10 - 14.45)
Non-Hispanic black, single race	43.0	11.9	39.7	15.1	(12.96 - 17.55)
Non-Hispanic Asian, single race	52.0	16.0	50.5	20.3	(17.33 - 23.55)
Non-Hispanic other, single race	24.4	14.6	40.7	*8.6	(3.13 - 21.35)
Non-Hispanic multiple race	45.7	14.6	37.8	19.7	(13.45 - 27.87)
Age					
18-24 years	38.6	17.3	35.8	18.2	(15.85 - 20.84)
25-29 years	35.5	17.2	31.6	19.7	(17.29 - 22.33)
30-44 years	51.9	15.5	49.5	17.3	(15.59 - 19.05)
45-64 years	58.4	11.5	56.9	13.0	(11.86 - 14.24)
65 years and over	47.7	3.4	49.6	3.9	(3.16 - 4.92)
Sex					
Male	49.6	13.2	48.1	14.3	(13.27 - 15.48)
Female	50.7	12.0	49.2	13.6	(12.54 - 14.81)
Education					
Some high school or less	37.1	8.0	37.7	8.7	(7.38 - 10.30)
High school graduate or GED[3]	48.4	10.6	46.1	12.7	(11.40 - 14.17)
Some post-high school, no degree	51.5	15.7	49.6	16.6	(15.07 - 18.36)
4-year college degree or higher	60.6	14.9	58.3	16.2	(14.65 - 17.92)
Employment status last week					
Working at a job or business	52.1	15.5	49.9	16.8	(15.57 - 18.14)
Keeping house	52.6	9.3	52.9	10.4	(8.50 - 12.57)
Going to school	43.8	17.2	37.2	20.4	(16.56 - 24.91)
Something else (incl. unemployed)	45.8	5.3	46.4	6.7	(5.89 - 7.60)

See footnotes at end of table.

Demographic characteristic	January-June 2007		July-December 2007		95% confidence interval[2]
	Receive some or very few calls on wireless phones[1]	Receive all or nearly all calls on wireless phones[1]	Receive some or very few calls on wireless phones	Receive all or nearly all calls on wireless phones	
Household structure					
Adult living alone	27.7	10.8	27.9	10.7	(9.43 - 12.08)
Unrelated adults, no children	19.7	13.9	13.0	20.1	(13.07 - 29.58)
Related adults, no children	54.6	11.6	53.6	12.1	(10.92 - 13.44)
Adult(s) with children	55.3	14.4	53.1	17.2	(15.61 - 18.96)
Household poverty status[4]					
Poor	26.9	8.4	24.2	8.6	(6.92 - 10.57)
Near poor	37.1	9.7	36.0	11.4	(9.57 - 13.52)
Not poor	58.8	14.8	57.0	15.9	(14.63 - 17.29)
Geographic region[5]					
Northeast	53.4	11.3	52.4	11.7	(9.43 - 14.49)
Midwest	49.7	10.6	48.0	13.3	(11.33 - 15.51)
South	49.1	13.8	46.4	14.3	(12.60 - 16.18)
West	49.7	13.7	49.9	15.9	(14.05 - 18.06)
Metropolitan statistical area status					
Metropolitan	49.1	13.2	48.1	14.7	(13.56 - 15.91)
Not metropolitan	54.5	10.2	51.0	10.9	(9.31 - 12.81)
Home ownership status[6]					
Owned or being bought	59.2	12.1	57.8	14.0	(12.78 - 15.32)
Renting	28.0	13.9	29.0	13.8	(12.14 - 15.64)
Other arrangement	34.0	12.2	33.9	14.1	(9.60 - 20.14)
Number of adults in survey sample who live in landline households with wireless telephones (unweighted)	14,740	3,733	11,779	3,435	

*Estimate has a relative standard error greater than 30% and does not meet NCHS standards for reliability.

[1] The sum of the percentage of adults in households that receive some or very few calls on wireless phones and the percentage of adults in households that receive all or nearly all calls on wireless phones is nearly equal to the percentage of adults living in landline households with wireless telephones. The percentage of adults in landline households with wireless telephones who did not report the frequency of wireless telephone use was generally small (fewer than 1% of households with both landline and wireless telephones).

[2] Confidence intervals refer to the estimate of the percentage of adults living in households that receive all or nearly all calls on wireless telephones, for the time period July-

December 2007.

[3] GED is General Educational Development high school equivalency diploma.

[4] Poverty status is based on household income and household size using the U.S. Census Bureau's poverty thresholds. "Poor" persons are defined as those below the poverty threshold. "Near poor" persons have incomes of 100% to less than 200% of the poverty threshold. "Not poor" persons have incomes of 200% of the poverty threshold or greater. Early Release estimates stratified by poverty are based only on the reported income and may differ from similar estimates produced later that are based on both reported and imputed income. NCHS imputes income when income is unknown, but the imputed income file is not available until a few months after the annual release of NHIS microdata. For households with multiple families, household income and household size were calculated as the sum of the multiple measures of family income and family size.

[5] In the geographic classification of the U.S. population, states are grouped into the following four regions used by the U.S. Census Bureau. Northeast includes Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, and Pennsylvania. Midwest includes Ohio, Illinois, Indiana, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Kansas, and Nebraska. South includes Delaware, Maryland, District of Columbia, West Virginia, Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Oklahoma, Arkansas, and Texas. West includes Washington, Oregon, California, Nevada, New Mexico, Arizona, Idaho, Utah, Colorado, Montana, Wyoming, Alaska, and Hawaii.

[6] For households with multiple families, home ownership status was determined by considering the reported home ownership status for each family. If any family reported owning the home, than the household level variable was classified as "owned or being bought" for all persons living in the household. If one family reported renting the home and another family reported "other arrangements," then the household level variable was classified as "other arrangement" for all persons living in the household.

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

DATA SOURCE: CDC/NCHS, National Health Interview Survey, January-December 2007.

Table 4. Prevalence rates (and 95% confidence intervals) for selected measures of health status, conditions, and behaviors for adults 18 years of age and over, by household telephone status: United States, July-December 2007

	Household telephone service		
	Landline household[1]	Wireless-only household	Phoneless household
	Percent (95% confidence interval)		
Health-related behaviors			
Five or more alcoholic drinks in 1 day at least once in past year[2]	17.7 (16.58 - 18.96)	37.3 (33.76 - 40.91)	27.1 (20.17 - 35.26)
Current smoker[3]	18.0 (16.67 - 19.35)	30.6 (27.60 - 33.68)	38.6 (30.33 - 47.52)
Engaged in regular leisure-time physical activity[4]	29.9 (28.50 - 31.44)	36.4 (32.93 - 39.97)	22.9 (17.04 - 29.94)
Health status			
Health status described as excellent or very good[5]	59.5 (57.91 - 61.03)	67.5 (64.30 - 70.56)	49.2 (41.17 - 57.31)
Experienced serious psychological distress in past 30 days[6]	2.4 (2.05 - 2.89)	4.1 (3.09 - 5.39)	8.4 (4.77 - 14.44)
Obese (adults 20 years of age and over)[7]	27.6 (26.26 - 29.06)	22.6 (19.98 - 25.40)	25.7 (18.87 - 33.85)
Asthma episode in the past year[8]	3.8 (3.37 - 4.37)	3.6 (2.67 - 4.91)	*3.6 (1.57 - 7.95)
Ever diagnosed with diabetes[9]	8.8 (8.11 - 9.47)	4.5 (3.45 - 5.74)	5.4 (3.19 - 9.11)
Health care service use			
Received influenza vaccine during past year[10]	32.7 (31.20 - 34.31)	16.6 (14.45 - 19.02)	20.9 (15.33 - 27.81)
Ever been tested for HIV[11]	34.7 (33.17 - 36.22)	47.6 (44.15 - 51.13)	45.8 (37.91 - 53.82)
Health care access			
Has a usual place to go for medical care[12]	87.5 (86.47 - 88.38)	68.0 (64.90 - 70.88)	61.8 (54.22 - 68.83)
Failed to obtain needed medical care in past year due to financial barriers[13]	7.3 (6.69 - 7.95)	15.9 (13.63 - 18.39)	13.3 (9.14 - 19.07)
Currently uninsured[14]	13.7 (12.69 - 14.68)	28.7 (25.78 - 31.76)	44.1 (36.74 - 51.71)
Number of adults in survey sample (unweighted)	8,424	1,871	256

*Estimate has a relative standard error greater than 30% and does not meet NCHS standards for reliability.

[1] In this analysis, landline households include households that also have wireless telephone service.

[2] A year is defined as the 12 months prior to the interview. The analyses excluded adults with unknown alcohol consumption (about 2% of respondents each year).

[3] Current smokers were defined as those who smoked more than 100 cigarettes in their lifetime and now smoke every day or some days. The analyses excluded persons with unknown smoking status (about 1% of respondents each year).

[4] Regular leisure-time physical activity is defined as engaging in light-moderate leisure-time physical activity for greater than or equal to 30 minutes at a frequency greater than or equal to five times per week or engaging in vigorous leisure-time physical activity for greater than or equal to 20 minutes at a frequency greater than or equal to three times per week. Persons who were known to have not met the frequency recommendations are classified as "not regular," regardless of duration. The analyses excluded persons with unknown physical activity participation (about 3% of respondents each year).

[5] Health status data were obtained by asking respondents to assess their own health and that of family members living in the same household as excellent, very good, good, fair, or poor. The analyses excluded persons with unknown health status (about 0.5% of respondents each year).

[6] Six psychological distress questions are included in the NHIS. These questions ask how often during the past 30 days a respondent experienced certain symptoms of psychological distress (feeling so sad that nothing could cheer you up, nervous, restless or fidgety, hopeless, worthless, that everything was an effort). The response codes of the six items for each person are summed to yield a scale with a 0-to-24 range. A value of 13 or more for this scale indicates that at least one symptom was experienced "most of the time" and is used here to define serious psychological distress.

[7] Obesity is defined as a Body Mass Index (BMI) of 30 kg/m^2 or more. The measure is based on self-reported height and weight.

The analyses excluded people with unknown height or weight (about 4% of respondents each year).

[8] Information on an episode of asthma or asthma attack during the past year is self-reported by adults aged 18 years and over. A year is defined as the 12 months prior to the interview. The analyses excluded people with unknown asthma episode status (about 0.3% of respondents each year).

[9] Prevalence of diagnosed diabetes is based on self-report of ever having been diagnosed with diabetes by a doctor or other health professional. Persons reporting "borderline" diabetes status and women reporting diabetes only during pregnancy were not coded as having diabetes in the analyses. The analyses excluded persons with unknown diabetes status (about 0.1% of respondents each year).

[10] Receipt of flu shots and receipt of nasal spray flu vaccinations were included in the calculation of flu vaccination estimates. Responses to the flu vaccination questions cannot be used to determine when the subject received the flu vaccination during the 12 months preceding the interview. In addition, estimates are subject to recall error, which will vary depending on when the question is asked because the receipt of a flu vaccination is seasonal. The analyses excluded those with unknown flu vaccination status (about 1% of respondents each year).

[11] Individuals who received HIV testing solely as a result of blood donation were considered as not having been tested for HIV. The analyses excluded those with unknown human immunodeficiency virus (HIV) test status (about 4% of respondents each year).

[12] The usual place to go for medical care does not include a hospital emergency room. The analyses excluded persons with an unknown usual place to go for medical care (about 0.6% of respondents each year).

[13] A year is defined as the 12 months prior to the interview. The analyses excluded persons with unknown responses to the question on failure to obtain needed medical care due to cost (about 0.5% of respondents each year).

[14] A person was defined as uninsured if he or she did not have any private health insurance, Medicare, Medicaid, State Children's Health Insurance Program (SCHIP), state-sponsored or other government-sponsored health plan, or military plan at the time of the interview. A person was also defined as uninsured if he or she had only Indian Health Service coverage or had only a private plan that paid for one type of service such as accidents or dental care. The data on health insurance status were edited using an automated system based on logic checks and keyword searches. The analyses excluded persons with unknown health insurance status (about 1% of respondents each year).

NOTE: Data are based on household interviews of a sample of the civilian noninstitutionalized population.

DATA SOURCE: CDC/NCHS, National Health Interview Survey, July-December 2007.

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LATHAM & WATKINS LLP

March 6, 2008

BY HAND DELIVERY

Ms. Marlene Dortch
Secretary
Federal Communications Commission
445 12th St., S.W.
Washington, D.C. 20554

Attention: Enforcement Bureau, Market Disputes Resolution Division

Re: Accelerated Docket Proceeding: Bright House Networks, LLC, Comcast Corporation and Time Warner Cable Inc. v. Verizon, File No. EB-08-MD-002

Dear Ms. Dortch:

Pursuant to the status conference held on March 4, 2008 and the Commission's March 6, 2008 letter, Bright House Networks, LLC, Comcast Corporation and Time Warner Cable Inc. (collectively, "Complainants"), through counsel, hereby amend the stipulations they originally proposed at page 47 of their reply filed in the above-referenced proceeding on February 29, 2008. Specifically, Complainants offer to stipulate as follows:

> Complainants typically require customers to contact them directly to cancel video or broadband Internet access service. There are no statutory or industry-standard processes that allow for provider-to-provider communications relating to the migration of customers' video or broadband Internet access services.
>
> When customers call Complainants directly to cancel video or broadband Internet access service, Complainants offer such customers incentives to remain customers in some instances.

In the event there are any questions concerning this matter, please contact the undersigned.

Sincerely,

/s/ Matthew A. Brill

Matthew A. Brill
Counsel for Time Warner Cable Inc.

cc: Alexander P. Starr
Lisa Saks
Suzanne Tetreault
Aaron M. Panner
Christopher W. Savage
Mark D. Schneider

Cable Show: Comcast to try win-at-any-cost retention program
By Brian Santo
CedMagazine.com - May 20, 2008

Comcast is preparing to institute what seems to be the single-most aggressive customer retention program in the industry, starting June 1.

The company has been building a new call center in Newark, Del., capable of housing 700 call center agents. Comcast will have up to 200 agents devoted specifically to retaining customers "no matter what it takes," said Mike Doyle, president of Comcast's eastern division. Doyle was speaking in New Orleans on a Cable Show panel.

As competition increases, the more important retention becomes, Doyle said. He said that in a high percentage of instances, Comcast agents will not only be able to save a customer, they will be able to upgrade them by offering a bundle.

Many customers that ask to unsubscribe are calling to cancel a single service (frequently video) and are unaware of the cost savings inherent in bundles. That makes it easy to upgrade those customers, Doyle said. "They just don't know the deals they can get."

Doyle doesn't anticipate problems of the sort that Verizon recently got in trouble for. When Verizon phone customers disconnect, they tell the new service provider, and the new service provider negotiates the disconnect with Verizon. Verizon would call those customers to try to retain them, but the telco was accused of violating the privacy of their former calling customers because they were relying on records that arguably should not have been available to them to use for that particular purpose.

Doyle said that since Comcast callers call Comcast directly to disconnect, the MSO will not have the same problem that Verizon had. Further, there is no customer demand for the ability to switch to another video provider and have that video provider negotiate a disconnect with Comcast, similar to the situation Verizon is in.

Despite all that, the new retention program looks to be a high-pressure sales situation. Doyle said it will be a retain-at-any-cost situation. Further, agent compensation will be based on retention rates and the extent of the incentives the agent offers a customer to remain with Comcast, Doyle explained.