ATTACHMENT 2 TO DECLARATION OF C. MICHAEL PFAU AND JULIE S. CHAMBERS

News Center

SBC Launches $6 Billion Broadband Initiative

'Pronto' to Provide 'e-Tone' - Dialtone for the Internet - to 77 Million Americans, Accelerate Company's Move to Advanced Voice, Data, Video Converged Network

Pronto First of Many Benefits of Ameritech Merger

San Antonio, Texas, October 18, 1999

SBC Communications Inc. today announced an unprecedented, $6 billion initiative designed to transform the company over the next three years into the largest single provider of advanced broadband services in America, making super-fast, always-on Internet access available to nearly all of its customers and creating a platform to deliver next-generation, broadband-powered services.

The initiative - called Project Pronto - is the first of many SBC will undertake to secure the benefits of its recent acquisition of Ameritech for customers and shareholders. Specifically, SBC intends to:

- Provide an estimated 77 million Americans - about 80 percent of its Ameritech, Nevada Bell, Pacific Bell, SNET and Southwestern Bell customers - with always-on, high-speed voice, data and video services via faster Digital Subscriber Line (DSL) services than it currently offers by the end of 2002. Ultimately, the company intends to make broadband services available to all of its customers.
- Rearchitect its network to push fiber deeper into the neighborhoods it serves and accelerate the convergence of its voice and data backbone systems into a next-generation, packet-switched, designed-for-the-Internet network. Together with the advanced, long-haul network of Williams Communications Inc., with which SBC has a strategic alliance, SBC will be able to provide end-to-end advanced voice, data and video services on one of the most sophisticated, efficient, flexible and scalable networks in the industry.
- Dramatically reduce its network cost structure. Expense and capital savings alone are expected to offset the cost of the entire initiative.
- Create a platform to deliver next-generation services including, potentially, entertainment quality video, and expand development and marketing to more quickly bring customers such emerging products as Voice-over-ADSL, personal videoconferencing, interactive online games and home networking.

"This initiative is about the future - about building a new company around how all of our residential and business customers use, and will use, the Internet while providing them with dialtone-like reliability," said Edward E. Whitacre, Jr., chairman and chief executive officer of SBC. "It is also about giving SBC the opportunity to continue to capitalize on incredible growth in data and broadband services and achieve significantly more operating and cost efficiencies well into the next millennium.

"We see a rapidly changing marketplace where traditional dialtone is still a staple service, but where millions of our customers will demand the convenience, productivity, availability and reliability of our broadband service - service which we call 'e-tone,'" said Whitacre. "With Project Pronto, SBC will lead the nation in speeding the widespread availability and meeting the demand for broadband and emerging broadband-powered services."

With the completion of its recent acquisition of Ameritech, SBC is one of the largest

With the completion of its recent acquisition of Ameritech, SBC is one of the largest telecommunications providers, serving approximately 100 million people or about one-third of the nation's access lines.

"By converting the 'last mile' into a high-speed 'first mile' on-ramp to the Internet, we are making nearly all of our approximately 60 million access lines more powerful for customers and more valuable to shareowners," Whitacre said. "Project Pronto, together with our expanding service footprint and plans to provide long-distance service, is an integral part of our plan to be a full-service, global provider and the only communications company our customers need."

"e-Tone" Unlocks Promise of the Internet

Today, SBC's DSL broadband service features Internet connectivity speeds that are up to 200 times faster than traditional access, allowing for near instantaneous downloads of files and graphics, and effectively ending the "World Wide Wait." It also provides "always-on" connectivity that eliminates frustrating and time-consuming dial-up connections to Internet Service Providers (ISPs) or corporate Local Area Networks (LANs) and makes the computer a true, real-time information appliance.

In the near future, mass availability of broadband service will spur demand by consumers for broadband-dependent applications, such as video messaging, home networking and in-home cordless web devices. It will become a catalyst for small businesses to become e-businesses by providing them with affordable technology. For schools and libraries, readily available broadband service will help bridge the "Digital Divide" and ensure youth of today are prepared for the Internet world of tomorrow. And, it will revolutionize the way Americans work by making telecommuting an even more attractive, productive and common work alternative.

New Broadband Network Increases Reach, Speed of SBC's DSL Service

Project Pronto is creating a vast, sophisticated broadband platform to enable SBC to make DSL service available to the vast majority of its customers in cities large and small over the next three years, and offer new and more powerful broadband-powered services in years to come. The new platform will evolve via a multi-pronged approach:

- In the major metropolitan markets where SBC has begun deploying DSL, the company plans to equip its additional central offices with DSL equipment.
- In these markets, SBC also plans to push fiber deeper into its neighborhoods and install or upgrade "neighborhood broadband gateways" containing digital electronics - essentially pushing network capabilities now housed in central offices closer to customers. The redesign of the local network will eliminate distance constraints that currently limit service reach and enable SBC to provide nearly all customers with DSL service, traditional phone service and next-generation services, all from a single, integrated platform.
- In additional towns and cities outside of major metropolitan areas, SBC plans to deploy DSL services by 2002; however, it will name these markets at a later date.

Earlier this year, SBC announced its plans to deploy DSL in more than 500 central offices. The company will meet this commitment in early November, making DSL service available to nearly 10 million customer locations in Texas, California, Nevada, Missouri and Arkansas. At the completion of Project Pronto, SBC's goal is to quadruple its DSL deployment - equipping approximately 1,400 central offices with DSL technology, laying more than 12,000 miles of fiber sheath, installing or upgrading 25,000 neighborhood broadband gateways - and reach an estimated 77 million Americans in nearly 35 million customer locations in 13 states.

As a result of expanded deployment, SBC customers will be able to receive minimum downstream connection speeds of 1.5 megabits per second (Mbps), with more than 60 percent eligible to receive guaranteed speeds of 6.0 Mbps. The higher speeds will give SBC the capacity to offer numerous personal computer (PC) based video products including video streaming and videoconferencing; in fact, at 6.0 Mbps speeds, users

can receive the highest quality video available over a PC. Today, the company's basic DSL service guarantees minimum downstream connections of 384 Kbps or 1.5 Mbps, depending on the package purchased.

Next year, SBC intends to offer advanced broadband-powered services such as:

- **Voice-over-ADSL**, which will provide four additional voice lines, in addition to a DSL line and a primary voice line - all over a single line. SBC is looking at technologies that will allow it to offer, in the future, a similar product that will provide up to 16 additional voice lines over a symmetrical DSL line.
- **Switched Virtual Circuit**, which will allow telecommuters to easily switch between their Internet Service Provider (ISP) and their corporate Local Area Network (LAN) without rebooting their computer.
- **HDSL**, which will feature minimum 1.5 Mbps upstream and downstream connections, allowing teleworkers to send and receive data-intensive files.

For many of its business customers, SBC intends to transition its existing copper connections to their premises with state-of-the art fiber optics, enhancing their ability to receive advanced data services and giving them virtually unlimited bandwidth that they can dynamically control.

Business customers will benefit from SBC's line-up of broadband-powered services including Online Office, a suite of services that helps small businesses easily and affordably become e-businesses, and Enterprise Virtual Private Network, a suite of equipment and services that allows large businesses to securely connect multiple locations without expensive, dedicated lines.

"With e-tone, we have a powerful way to retain and attract customers in an increasingly competitive market," said James D. Gallemore, executive vice president of strategic marketing and planning for SBC. "It will enable customers to easily access hundreds of emerging, broadband-dependent products and services, and it makes our current integrated packages of services even more compelling. e-Tone also will change the way America goes to work."

In related announcements (see separate releases for details), SBC today said it will:

- Provide as many as 15,000 IBM telecommuting employees remote access to IBM's corporate network via DSL service in select areas. According to industry analysts, this agreement is the largest announced high-speed remote network application of its kind anywhere.
- Provide high-speed DSL Internet access to thousands of E*TRADE's most active investors, enabling them to react more quickly and effectively to breaking financial market news and benefit from E*TRADE's rich content offerings.

SBC recently announced a similar agreement for thousands of PeopleSoft's telecommuting employees.

Gallemore added that in addition to offering the services and integrated packages business and residential customers want, SBC will be first to market, ahead of competitors.

"All we need is long distance, which is just around the corner," said Gallemore, "to provide consumers and businesses with their total communications needs."

Company Aggressively Migrates to Converged Voice, Data, Video Network

In addition, Pronto is an important step in the company's migration to a converged voice, data and video network, which will be predominantly packet-switched and utilize an Asynchronous Transfer Mode (ATM) distributed network system (ADNS) architecture.

As part of the ADNS architecture, the company plans to deploy the most-advanced,

voice-switching technology available today, voice trunking over ATM (VTOA), which will allow the company to efficiently transport voice as it does data communications - via packets - without degradation in call quality or reliability. SBC, working in conjunction with leading equipment manufacturers, has spearheaded the development and testing of VTOA technology and intends to begin field trials next year in Houston and Los Angeles. Upon the successful completion of these trials, SBC plans to complete its VTOA deployment in its largest markets by 2004.

The VTOA technology will result in significantly increased network productivity and scalability, allowing the company to keep pace with skyrocketing volumes of data traffic, offer a full range of voice and data services such as private lines and virtual private networks, and in the future, incorporate a full range of even more advanced technologies.

Importantly, the VTOA technology results in significant cost savings by greatly reducing any future investment in traditional tandem circuit-switched equipment and improving trunking efficiency by 50 percent.

"We are taking aggressive steps to ensure that SBC's network remains among the most-advanced and cost-efficient in the industry and that we can serve our customers' needs well into the millennium with the same quality and reliability they receive today," said Whitacre.

"Also, while other service providers tout their next-generation networks, only SBC will have all the pieces to provide end-to-end service," said Whitacre. "Our network combined with the long-haul network of Williams, which has one of the newest and highest-quality networks in the world, will allow SBC to offer both a first-class network and the breadth of reliable and advanced products and services that customers want."

Pronto Increases Shareowner Value

SBC's more than $6 billion Project Pronto investment is targeted to decrease future capital requirements, reduce network operating expenses, and generate $3.5 billion in new revenues by 2004.

"With our Project Pronto broadband deployment and the accelerated pace of our national markets rollout, SBC is targeting double-digit annual revenue growth by 2001 with strong 8 percent to 9 percent growth in 2000. This is at least a 100-basis-point improvement over SBC's previous plans," said Donald E. Kiernan, chief financial officer for SBC. "Even as we make these value-creating investments in broadband capability and the national expansion into 30 additional major markets, SBC's goal is to achieve mid-single-digit earnings growth in 2000 before one-time items. Driven by the strong top-line revenue growth from our broadband and national markets growth initiatives, we are targeting 15 percent earnings growth in 2001 and beyond."

Kiernan added that, "Pronto cements our industry leadership by essentially reconfiguring SBC into a broadband-services company, and creates a rock-solid platform from which we can launch new revenue-generating services while dramatically reducing our cost structure. Importantly, the network efficiencies and reduction in capital needs we expect to gain as a result of Project Pronto will mean that this project will pay for itself, while enabling SBC to compete even more effectively in the future and enhance long-term shareowner value. In fact, we expect it will create in excess of $10 billion in value."

SBC Communications Inc. (www.sbc.com) is a global communications leader. Through its trusted brands - Southwestern Bell, Ameritech, Pacific Bell, SBC Telecom, Nevada Bell, SNET and Cellular One - and world-class network, SBC provides local and long-distance phone service, wireless and data communications, paging, high-speed Internet access and messaging, cable and satellite television, security services and telecommunications equipment, as well as directory advertising and publishing. In the United States, the company currently has 59 million access lines, 10.1 million wireless customers and is undertaking a national expansion program that will bring SBC service to an additional 30 markets. Internationally, SBC has telecommunications investments in 22 countries. With more than 200,000 employees, SBC is the 14th largest employer in the U.S., with annual revenues that rank it among the largest Fortune 500

in the U.S., with annual revenues that rank it among the largest Fortune 500 companies.

Information set forth in this news release contains financial estimates and other forward-looking statements that are subject to risks and uncertainties. A discussion of factors that may affect future results is contained in SBC's filings with the Securities and Exchange Commission. SBC disclaims any obligation to update or revise statements contained in this news release based on new information or otherwise.

ATTACHMENT 10 TO DECLARATION OF C. MICHAEL PFAU AND JULIE S. CHAMBERS

Citation
1/20/00 BOSTONG D1
1/20/00 Boston Globe D1
2000 WL 3309113

Search Result

Rank 1 of 1

Database
BOSTONG

The Boston Globe

Thursday, January 20, 2000

Business

FLAG DROPPED IN RACE TO WIRE US FOR SPEED AOL DEAL SEEN DRIVEN BY PROVIDING 'BROADBAND' NET ACCESS

Peter J. Howe, Globe Staff

A s shock waves recede from the stunning $160 billion acquisition of Time Warner by America Online, one piece of emerging conventional wisdom seems to be that to the extent the deal makes sense, what AOL gains most from the combination is access to high-speed cable modems from Time Warner.

Throughout most of the country, "broadband" access to the Internet - ultra-high-speed, "always on" service - remains mostly a dream. Just 6 percent of US Net households had access to high-speed cable systems or upgraded telephone access at the end of last year, according to International Data Corp. of Framingham.

While the numbers have been small, AOL clearly has seen the writing on the wall.

Over the next few years, more and more of AOL's 22 million subscribers will have a choice between paying $20 a month for torturous dial-up access to AOL and perhaps $40 to $50 a month for super-fast access to a rival provider like Excite At Home or RoadRunner.

Even if the rivals offer thinner content, analysts say AOL has every reason to expect large numbers of subscribers to bolt, especially those who just want a fast way onto the Web and to their electronic mail.

That makes getting access to Time Warner's fast cable modems, which are available to more than 18 million homes across the country,

crucial for AOL to survive and probably even more important than access to the media giant's huge stable of magazines, movie houses, and television networks.

"Access to cable broadband was a very high priority for them," said Amy Harris, a top high-speed-access analyst with IDC. "From that perspective, I think it was a very good deal

for them."

Broadband net access right now resembles the Oklahoma land rush of the 1890s, with Baby Bells, cable companies, and independent digital subscriber line rivals like HarvardNet and Network Access Solutions racing to be the first company that can offer a "fat pipe" to a given home or business.

While some people will always have a preference between dealing with "the phone company" or the cable company based on their customer-service experiences, it is generally conceded that whoever gets a broadband customer first, whatever the technology, will likely keep that customer for years.

"If you can knock on the door first and you can sell that product, it's likely that you can maintain that service, most definitely," said Jeffrey Waldhuter, Bell Atlantic's director of network services strategy and a top DSL guru.

For now, the cable companies clearly have the lead, but only in the first lap of the race. As of the end of 1999, IDC estimated cable firms had 1.35 million Net subscribers among the 36 million American homes on line, led by Time Warner and Media One with nearly 200,000 apiece and Cox, AT&T, and ComCast close behind with more than 100,000 each.

DSL subscribers totaled 330,000, most of them apparently from Baby Bells such as Bell Atlantic and SBC Communications, which generally do not release subscriber numbers. ISDN lines, also generally offered by Baby Bells, accounted for another 240,000 broadband users.

DSL and cable modems both work by adding electronics to take advantage of vast amounts of previously unused capacity on either the standard copper telephone wires or coaxial cables that carry television signals to homes. Despite cable's early lead, DSL

advocates like Waldhuter claim the long-term advantage.

"Copper already terminates in every home and every public area and every business in America," Waldhuter notes. "You can't say that for cable."

Within four years, IDC predicts that 65 million American households will be using the Net. But despite the billions being poured into cable upgrades and DSL networks, only 31 percent will be on broadband. IDC predicts cable and DSL each will have 14 percent, fixed-wireless or satellite systems counting for another 2 percent, and IDSN the last 1 percent.

Word-of-mouth reports of the wonders of broadband access have fueled insatiable demand among consumers. Several industry reports have found that people with broadband access offering download speeds of 1.5 million bits per second or higher spend four to 10 times as much time on the Net as people relying on 56-kilobit-per-second access.

"Broadband is the crack cocaine of Internet access," says Richard Sabot, a Williams College economics professor who is active in several Northern Berkshire Net start-ups, including on-line global crafts bazaar eZiba.com. "Once you get it, you can't get enough of it."

Joan Rasmussen, a spokeswoman for Bell Atlantic's DSL operations, which have been launched in 735 of its 2,300 "central offices" from Maine to West Virginia, said: "People tell us this product is wonderful for the speed, but what they always cite first is having it always on" and not having to go through the frustrating 30-second process of dialing in or keeping other family members from using the telephone.

MediaOne's Colorado-based research lab last year conducted anthropological studies of 16 Greater Boston families aimed at learning how having broadband access changes family life.

"We were not prepared for what we found," said study leader Ken Anderson. "Once logging into the Internet is no longer a special, time-consuming event, instant Web access is treated like just another home appliance, like a refrigerator or light switch, taken for granted and used just as casually."

Cable modem families averaged 22 1/2 hours on the Net each week - nearly one of every five waking hours - compared with 4.7 hours per week for dial-up homes, Anderson found.

People with broadband access, the study said, are far more likely to use it instead of turning on the radio or television to check weather, traffic reports, and news headlines, for example. Many broadband homes also found they moved their computer from a bedroom or study into the kitchen or family room because they found it so much more useful.

For all the predictions of how high-speed Internet access will revolutionize Americans' usage of the Net, it bears noting that Greater Boston is far ahead of the rest of the country in actually having the service, and in many places having several choices.

Nearly a tenth of all cable modem subscribers in the country are MediaOne RoadRunner customers in 156 Eastern Massachusetts and southern New Hampshire cities and towns, where better than 9 percent of homes with access to the service have signed up. Residents of towns served by cable franchises that have been slower to move into Net access, such as Cablevision in Boston and Brookline, regularly clamor to know when they will get broadband.

The competitive heat has pushed Bell Atlantic to roll out competing digital subscriber line service around Greater Boston, although early problems keeping up with completing orders have led it to delay by three to six months plans to make it available throughout the state.

Factors that explain why Eastern Massachusetts is a national hotbed of broadband include the region's affluence and high educational levels - and also just basic geography.

Cable modems and DSL are most economical to roll out in the kinds of densely developed older neighborhoods that dominate Greater Boston. Streets full of triple-deckers occupied by people who work in high-tech or communications-intensive occupations, like those that line Cambridge, Somerville, and other parts of Boston, are a dream for companies weighing the huge investments that must be made to roll out high-speed data.

DSL reaches only customers within three miles of a central office

that has the proper equipment, which makes it more accessible in densely developed New England communities where many people live close to a downtown or village center. Likewise, cable franchises can most economically upgrade to high-speed access in communities with a high number of homes per mile of fiber-optic cable to be installed.

Susan Shelby of HarvardNet, the first company to begin rolling out DSL service in New England in October 1996, said: "The physical layout of New England towns, set up in Colonial times, allows service providers to offer better DSL coverage than in any other region. Consumers in New England don't realize how fortunate we are to have such widespread availability of high-speed Internet access" compared with the rest of the nation.

This region may have a permanent lead over more sprawling parts of the country on getting cable and DSL broadband services. But given the intense demand for broadband, it is likely only a matter of years - and in many areas months - before AOL Time Warner and other telecommunications giants push to get the rest of the United States caught up.

---- INDEX REFERENCES ----

COMPANY (TICKER): Time Warner Inc. (TWX)

NAMED PERSON: ANDERSON, KEN

NEWS SUBJECT: Business, Finance & Economy Section; World Equity Index; High-Yield Issuers; Internet: World Wide Web; Internet (BFN WEI HIY IWWW NET)

NEWS CATEGORY: ECO

INDUSTRY: Film, Television & Music; All Entertainment & Leisure; Recreational Products & Services; Publishing; Media (MOV ENT REC PUB MED)

PRODUCT: Internet (DIT)

REGION: North America; Eastern U.S.; United States; Massachusetts (NME USE US MA)

EDITION: THIRD

Word Count: 1419

ATTACHMENT 11 TO DECLARATION OF C. MICHAEL PFAU AND JULIE S. CHAMBERS

Goldman Sachs

Communacopia

United States

Broadband

August 12, 1999

The Race to Build the Broadband Kingdom

A Primer on the Broadband Access Market

Analysts

Frank J. Governali
frank.governali@gs.com
(Portland) 1-207 772-3300

Barry A. Kaplan
barry.kaplan@gs.com
(New York) 1-212 902-6847

Mary Henry
mary.henry@gs.com
(New York) 1-212 902-6787

Ken Hoexter
ken.hoexter@gs.com
(New York) 1-212 902-2646

Louis Kerner
louis.kerner@gs.com
(New York) 1-212 902-2298

Michael Parekh
michael.parekh@gs.com
(New York) 1-212 902-8960

Matthew Walker
matthew.walker@gs.com
(London) 44-171 774-6306

- **Over the Next Decade, the Transition to Broadband Will Be Bigger and Happen Faster Than Most People Expect.**
- **No Single Access Technology Will Dominate, But Cable Modems and DSL Will Be the Leaders.**
- **Execution, Bundling, Customer Service, and Billing Will Be More Important Than the Access Technology.**
- **We Project Broadband Data Penetration of 74 Million Households by 2008, Representing Two-Thirds of the Total Online Market. This Breaks Down to 43% Cable, 41% DSL, and 16% Other Access Technologies.**
- **Large-Scale Internet Service Providers/Portals Are Well-Positioned to Transition Large User Bases to Broadband with Incrementally Higher Ad/Commerce Revenues.**
- **We Recommend a Basket Approach to Investing in the Broadband Market, Including the Following Stocks:**

Adelphia Communications	Level 3 Communications
Allegiance Telecom	Liberty Media Corporation
America Online	MCI WorldCom Inc.
AT&T	McLeodUSA Incorporated
Cablevision Systems	Metromedia Fiber
Comcast Corp.	NEXTLINK Communications
Covad Communications	NorthPoint Communications
Cox Communications	RealNetworks
EchoStar Communications	Scientific-Atlanta Inc.
Excite@Home	Teligent, Inc.
General Instrument Corp.	Time Warner, Inc.
Hughes Electronics Corp.	WinStar Communications
	Yahoo!

Table 12: Cable Projections "Sanity Check" Year 2007

(millions)

Total Online Homes	% Broadband	Broadband Homes	Cable Modem Homes	% of Broadband	Implied DSL Homes	% of Broadband
96.4	20.0%	19.3	29.2	151.5%	(9.9)	-51.5%
96.4	25.0%	24.1	29.2	121.2%	(5.1)	-21.2%
96.4	35.0%	33.7	29.2	86.5%	4.5	13.5%
96.4	40.0%	38.6	29.2	75.7%	9.4	24.3%
96.4	45.0%	43.4	29.2	**67.3%**	14.2	32.7%
96.4	50.0%	48.2	29.2	**60.6%**	19.0	39.4%
96.4	55.0%	53.0	29.2	**55.1%**	23.8	44.9%
96.4	60.0%	57.8	29.2	**50.5%**	28.6	49.5%
96.4	65.0%	62.7	29.2	**46.6%**	33.5	53.4%
96.4	70.0%	67.5	29.2	**43.3%**	38.3	56.7%
96.4	75.0%	72.3	29.2	**40.4%**	43.1	59.6%

Source: Goldman Sachs Research.

Essentially the analysis says that if the total broadband market approaches or exceeds 50% of the total online market, then our cable projections still allow for a very large competitive broadband market, specifically DSL. We do not believe that a 50%-70% share of the total online market going to broadband by 2000 is at all unreasonable given our earlier discussion.

DSL — Building on Nascent Potential

Relative to the size and potential of the high-speed data services market, the telephone industry has minimal DSL penetration, creating the opportunity for great upside. We anticipate a major acceleration in DSL deployment availability over the next three years, which will be driven by the competitive response to cable, industry mergers, and freedom from long distance restrictions.

The potential for DSL penetration thus will not be driven by the availability of networks but rather by the strategies of the phone companies and other DSL suppliers.

Nearly 94% of homes subscribe to phone service, and telephone networks pass virtually *all* homes. The potential for DSL penetration thus will not be driven by the availability of networks but rather by the strategies of the phone companies and other DSL suppliers. By the end of 2002, we believe that approximately 75% of all homes will be DSL-capable. By 2004, we believe that upward of 90% of American homes will be DSL-capable. However, we believe that approximately 15% of DSL-capable homes will have DSL service by yearend 2005, and that by the end of our forecast period (2008), approximately 29% of DSL-capable households will have service. This would give DSL a 41% market share of all broadband-connected households.

Table 13: Year 2007 DSL Projections — What Does It Imply for Cable?

(millions)

Total Online Homes	% Broadband	Broadband Homes	DSL Homes	% of Broadband	Implied Cable Modem Homes	% of Broadband
96.4	20.0%	19.3	25.0	129.7%	(5.7)	-29.7%
96.4	25.0%	24.1	25.0	103.7%	(0.9)	-3.7%
96.4	35.0%	33.7	25.0	74.1%	8.7	25.9%
96.4	40.0%	38.6	25.0	64.8%	13.6	35.2%
96.4	45.0%	43.4	25.0	**57.6%**	18.4	42.4%
96.4	50.0%	48.2	25.0	**51.9%**	23.2	48.1%
96.4	55.0%	53.0	25.0	**47.2%**	28.0	52.8%
96.4	60.0%	57.8	25.0	**43.2%**	32.8	56.8%
96.4	65.0%	62.7	25.0	**39.9%**	37.7	60.1%
96.4	70.0%	67.5	25.0	**37.0%**	42.5	63.0%
96.4	75.0%	72.3	25.0	**34.6%**	47.3	65.4%

Source: Goldman Sachs Research.

Table 13 is simply the mirror image of Table 12. That is to say that assuming our DSL home projections are correct, what share of the total online market would DSL have to achieve in order to allow for a very significant competitive, (i.e., cable modem) universe. Again, as you reach about 55% penetration of broadband out of the total on line universe, the model can accommodate our separately derived cable modem and DSL numbers. We think that type of market share for broadband is not unreasonable.

RBOCs — Coming to Grips with Self-Cannibalization

In our view, the regional Bell operating companies (RBOCs) have been slow to roll out their broadband DSL capability. Theoretically, they have a number of natural advantages that they are not capitalizing on, including ubiquity, scale, resources, and sheer size. We believe that this conservative approach has been driven by several factors: lack of competition driving the Bells to innovate and invest; concern about the dilutive aspect of undertaking a major network enhancement along with new marketing efforts, and fear of cannibalizing existing high-profit services.

We see this attitude shifting somewhat as the incumbent local exchange carriers (ILECs) recognize that (1) the competition is mounting quickly, (2) they are better off cannibalizing themselves rather than having someone else do it, (3) implementing costs for DSL.lite are coming down, and (4) there is significant upside opportunity to capturing the lead on broadband.

We recently heard from SBC that it recognizes the immensity of the broadband market, and we believe that the company is willing to absorb the short-term negative impact of pursuing the opportunity.

SBC Communications — Embracing Broadband

A good example of this change in the RBOCs' attitude is SBC Communications. We recently heard from SBC, which is the most aggressive and most competent of the RBOCs, that it recognizes the immensity of the broadband market, and we believe that the company is willing to absorb the short-term negative impact of pursuing the opportunity. We expect SBC to soon announce that its goal over the next three years is to give 100% of its customers 1.0MB-1.5MB DSL capability, with potentially 60% of households passed actually being able to obtain 6MB speed. There often is a gap between goals and reality, but the fact that the company is recognizing the opportunity and is planning to capitalize on it by devoting $2 billion-$2.5 billion to network upgrades is extremely significant.

DSL as a Business Offering

Over the next year, approximately 10% of small to medium-size businesses should have access to high-speed digital connections, and the percent penetration of DSL in those businesses should rise to nearly 45% over the next five years.

Approximately 50% of businesses today utilize Internet access. By 2004, we believe that Internet penetration by business will increase to at least 75%. Over the next year, approximately 10% of small to medium-size businesses should have access to high-speed digital connections, and the percent penetration of DSL in those businesses should rise to nearly 45% over the next five years. This year, over 1,000 central offices (COs) upgraded to the equipment necessary to start launching DSL service. Over the next few years, we believe that the rollout and reach of DSL will rapidly gain speed.

Satellite — Ubiquitous Coverage with the Flick of a Switch

One of the great advantages of satellite is that the technology hits all of the homes in the United States. Out of 100-million-plus potential subscribers, we believe that the direct-to-home market will have approximately 17 million subscribers receiving video via satellite. By 2002, we believe that 1 million-2 million subscribers will have some type of broadband one-way service, which will scale to 5 million-6 million in five to seven years, with many subscribers receiving broadband two-way services.

On the Migratory Path to Two-Way Broadband

Satellite operators realize that cable has a significant advantage today with its two-way broadband cable modem service. EchoStar has teamed with Microsoft, and DirecTV has paired with AOL, in efforts to bring branded narrowband/hybrid data services to the home as the first step to an eventual two-way broadband service. EchoStar will take a second step in 2000 with the deployment of a DSL-enabled WebTV product integrated into its satellite receiver. DirecTV is pursuing a two-track process, preparing to market an AOL+ service using broadband downstream and an AOL TV product, integrating the product into its set-top receiver as a narrowband set-top product. Through its Spaceway service, Hughes plans to offer a broadband two-way service in 2002, while EchoStar has not outlined its plans yet.

Mobile Wireless — Speed Will Improve Dramatically, But Mobility Will Continue to Be the Driver

Historically, wireless data over cellular, PCS, or paging networks has not been a significant service, essentially because the necessary software and technology has not been in place. Over the course of the next year, new technologies for Internet access over cellular PCS networks will become available — although they will not provide high speed. GPRS will be overlaid over cellular networks to allow for speed in the vicinity of 384K. By 2001, a faster technology, called EDGE, will penetrate the wireless market. Subsequent to that, the market will move to third-generation (3G) wireless networks, which are purported to be capable of 2.5Mb speed in a stationary mode. In a mobile mode, the technology speed obviously slows down. Initially, the greatest utility of the cellular and PC application services will be their mobility — not their speed. True high speed will only really be available in a fixed mode.

In the wireless industry in Europe and, in many cases, Asia, everyone is "rowing the same boat in unison." Europe is two to three years ahead of the United States in terms of wireless technology and in deploying wireless because the industry operates under a common standard — the Global System for Mobile Communications (GSM). We believe that GSM broadband will roll out in Europe in one to two years and that 3G wireless will roll out roughly one to two years sooner in Europe than it does in the United States. Subsequently, the "true" high-speed data applications will be deployed in Europe much earlier. At this point, it is difficult to forecast what the addressable market will be for these technologies.

Fixed Wireless — "The Sweet Spot" Between the Other Access Technologies

Fixed wireless is an access technology in the "sweet spot" between DSL, cable, and satellite. Approximately only 3%-5% of commercial buildings have actual fiber connections, although those few buildings tend to have most of the access lines for the business market. Over a fixed wireless platform, the reach of the T1 capacity to the end user can fundamentally be expanded. The technology recently has been gaining momentum and credibility. Increased numbers of radios are being installed, and businesses are starting to utilize the technology as a primary service on a mass basis — not just for back-up data. Radios have expanded capacity to DS3 to OC-3 from DS0 level. Fixed wireless point-to-point communications lines have expanded to point-to-multipoint. Layered on top of this will be new efforts to utilize multichannel multipoint distribution services (MMDS) for small business and high-end consumer broadband applications. MMDS is a digital wireless transmission system that works in the 2.2GHz-2.4GHz range. The transmission medium provides 33 analog channels, or from five to ten times as many digital channels.

In three to four years, all businesses in the country will have the ability to interconnect at a relatively high speed. We believe that third-generation fixed wireless will begin to be deployed in Asia by 2001, in Europe by 2002, and in the United States by 2003.

In a relatively short time horizon, the ubiquity for high-speed access — specifically for Internet — is telling. In three to four years, all businesses in the country will have the ability to interconnect at a relatively high speed. We believe that third-generation fixed wireless will begin to be deployed in Asia by 2001, in Europe by 2002, and in the United States by 2003.

WinStar Communications (MO, $44.81) has been rolling out its point-to-point network over the past few years with **Teligent, Inc.** (MO, $64.00), rolling out an advanced point-to-multipoint network. Recently, more carriers have joined in: **NEXTLINK Communications** (RL, $79.69) purchased LMDS spectrum through WNP Communications, and Qwest Communications International Inc. bought 18% of Advanced Radio Telecom (ART) Corp.

Narrowband — Don't Disregard Dial-Up

In the meantime, narrowband — "plain old dial-up" — will be here for a while. In the United States and internationally, the widespread availability/ubiquity and pricing of narrowband will sustain its presence in the Internet access arena. Moreover, in many cases, narrowband will have immediate applicability to new types of devices that will connect to the Internet. The number of online U.S. households will grow from nearly 25 million at the end of 1998 to roughly 50 million by the end of 2001. By the end of 2003 we expect nearly 70 million U.S. households to have Internet access in some form. Dial-up is not going to go away any time soon.

Marketing — The Ultimate Goal of Bundling

Ultimately, winning the customer will be determined by the providers' abilities to provide speed and service and to bring new e-commerce opportunities to life for *all* end users.

Many of the different technology advantages or disadvantages among the providers are actually meaningless, because the average consumer really is not going to know the difference. They are going to be barraged by marketing from the telephone companies as well as from cable and satellite operators, and they are not really going to be able to know exactly who is telling the truth or stretching the truth. Ultimately, winning the customer will be determined by the providers' abilities to provide speed and service and to bring new e-commerce opportunities to life for *all* end users — residential and small, medium, and large business users. The successful companies will be those that can efficiently deploy and install service. Companies *must* provide exceptional customer

service and be capable of marketing bundled services and billing for the services on a bundled basis.

Access technology companies will need to determine their target customers. This may not be a significant issue from the cable operators' perspective, but the telephone companies essentially have two different types of competitors: (1) video competitors, which are entering the market with thoroughly differentiated service offerings, and (2) other telephony competitors, such as long distance operators and CLECs. Moreover, for success in the broadband arena, companies that already have a ubiquitous presence will need to figure out which customers they *really* want to keep. For example, at this juncture, the long-distance phone companies need to effectively decide what 20% or 30% market share they want to relinquish, which is not easy. It is very costly, distracts management, and adds another layer of complexity to the marketing of the services.

DSL

Data CLECs — Market will Support Leaders and Loners

Among the CLECs, one of the surprises has been the number of companies that have come to the market and the subsequent fact that the market has supported all of the various stand-alone strategies . . . so far. On the heels of this has been the lack of near-term consolidation. The general consensus expected rapid consolidation of the smaller carriers; instead, the larger carriers consolidated. The same scenario occurred when the industry was going through the narrowband growth phase of 1994-1999: The larger players grew larger through acquisitions, but the overall number of participants in the industry actually grew. Initially, the market expected the number of ISPs to drastically shrink; instead, today there are over 5,000 ISPs in North America. We believe that the broadband initiatives are going to be similar. There will be continued fragmentation in the broadband arena as well as an explosion of companies, but essentially the larger companies will have the scale and will continue to grow organically and through acquisitions.

As the DSL industry moves toward the G.Lite standard, a carrier's success will be determined by its ability to deliver high-speed Internet access to the end users and ultimately to deliver voice, so that local, long distance, and Internet access can be bundled over the same DSL pipe.

Businesses desire local, long distance, data, and Internet access all within a bundled package. Subsequent to that, businesses will begin to want advanced services such as Web hosting and private virtual networks. For enhanced Web hosting, DSL carriers will be able to provide businesses with symmetric speed so that they can have powerful upstream speed *and* downstream speed. In order to make their services "sticky," DSL carriers must have the ability to bundle services to offer a business the tremendous cost-cutting advantage of having all products — data, voice, and Internet access — over a single copper line. As the DSL industry moves toward the G.Lite standard, a carrier's success will be determined by its ability to deliver high-speed Internet access to the end users and ultimately to deliver voice, so that local, long distance, and Internet access can be bundled over the same DSL pipe.

RBOCs Defending Turf in the Residential Market

The ILECs need to be very aggressive in broadband because for the first time they will face real local competition in the residential sector. In the past, deployment of new services and features was largely discretionary. Those days are quickly coming to a close. Now the battle will be for the entire customer account, not just the incremental revenue dollar.

The challenge for the broad deployment of DSL into the residential market is twofold. Traditional carriers must (1) create a sticky bundle that helps to minimize market share

loss and (2) create a revenue stream that can substitute for lost revenues from inevitable market share loss. Bundled offerings not only create a larger revenue pool but also make it more difficult for customers to break away from their historical relationships. A substantial challenge for carriers will be figuring out how to price and deliver services in an economical fashion.

At minimum, we expect the ILECs to lose 30% of the residential market over the next five years.

At minimum, we expect the ILECs to lose 30% of the residential market over the next five years. As AT&T has experienced over the past 20 years, it is likely that they will lose many of their most important customers. In substituting for this lost revenue base, broadband serves a critical need in two respects. First, it is likely to have higher margins and higher growth than other new revenue streams (most notably long distance, where pricing and margins are already eroding to the commodity level). Second, phone companies that fail to become dominant broadband operators run the risk of becoming completely marginalized communications carriers.

Because all networks are migrating to broadband and, ultimately, IP standards, if the telcos lose their competitive advantage in controlling the end user, there is great operating risk in the future in terms of participating in the broadband revolution more universally. The last thing that the telcos can afford to do is become relegated to the supplier of last resort, of low margin, low growth, narrowband services.

Residential market share in broadband therefore is critical for the phone companies as the foundation for future growth. This implies a need to invest capital dollars and SG&A dollars early in order to capture broadband share. Only broadband is the path to sustainable high margins and growth in the future — not long distance, not wireless, not new narrowband vertical services.

The ubiquity and "openness" of the phone networks can be the primary competitive strength of the phone companies. To capitalize on these strengths, the phone companies need to maximize the number of marketing relationships and channels.

RBOCs — Searching for Multiple Marketing Channels

The ubiquity and "openness" of the phone networks can be the primary competitive strength of the phone companies. To capitalize on these strengths, the phone companies need to maximize the number of marketing relationships and channels. Their goal should be to get as many different resellers and marketers to be exploiting the phone network, while the cable networks remain relatively proprietary. This would maximize usage, drive down unit costs, and proliferate the amount of R&D dollars devoted to exploiting the embedded phone network.

Therefore, telcos are looking for multiple marketing channels — internal channels as well as affiliated relationships. These relationships include those with AOL as well as with other ISPs, such as MindSpring. These types of affiliated relationships generate wholesale revenues and help prevent a complete loss of the customer to cable companies, AT&T, and other competitors. In a two- to three-year time frame, these relationships can be very synergistic. They develop new revenue streams and help establish the phone network as the broadband network of choice.

Of course there always is a risk in establishing big wholesale businesses — end users can become controlled by a company's wholesale customers. In particular, we would expect AOL and DSL operators to be extremely focused on the opportunity to capture the entire customer account and relegate the RBOCs to being just "dumb pipes" collecting $20 a month fixed rental. Thus a healthy mix of wholesale and retail operations are important for the phone companies. We believe that "healthy" implies that a company's wholesale customers control no more than 20%-30% of its incoming

ATTACHMENT 12 TO DECLARATION OF C. MICHAEL PFAU AND JULIE S. CHAMBERS

EXHIBIT RM
PAGE 1 of

September 21, 1999

[redacted]
Dallas, Tx 75209

Dear Mr. [redacted]

We regret to inform you that we will have to disconnect the ADSL from your line September 28th if we do not hear from you by that date. We would be glad to welcome you back with Southwestern Bell to enable us to continue to provide the ADSL service.

Sincerely,
Sandy
1 888 [redacted]

Southwestern Bell Telephone
[illegible] Avenue Q, Room [illegible]
Lubbock, Texas 79411

[redacted]

PRESORTED
FIRST CLASS

U.S. POSTAGE

Mr. [redacted]

[redacted]

Dallas, Tx 75209

AUTO 75209 [redacted]