COVER STORY

Internet could revolutionize phone service

New phone technology could be 'unstoppable'

By Steve Rosenbush
USA TODAY

NEW YORK — Almost a year ago, AT&T research chief David Nagle demonstrated an Internet telephone call during a two-day meeting with stock analysts.

He placed the call from a computer, not a telephone. The sound quality was terrible. The delays were annoying.

The story was far different last month when AT&T executives met once again with Wall Street analysts. President John Zeglis showed off a new kind of higher quality, phone-to-phone Internet call. And the demonstration was accompanied by a stunning announcement that AT&T would be the first major U.S. long-distance carrier to jump into the emerging market now known as Internet Protocol (IP) telephony. It is basically a cheaper, more efficient technology that could allow millions of AT&T phone calls to travel via the Internet instead of the regular phone network.

The shift at AT&T is powerful evidence of a remarkable change that has occurred in telecommunications during the past year. Telephone calls over the Internet, dismissed not long ago as a high-tech version of ham radio, are suddenly taken very seriously by the communications establishment.

That raises the prospect of lower prices and new services for consumers and major changes in the structure of the industry now dominated in the USA by AT&T, MCI, Sprint, GTE and the regional Bell phone companies. AT&T's trial begins during the second quarter. Qwest Communications and a few other carriers already allow people to make calls over the Internet for 5 cents to 7.5 cents a minute.

By 2002, the Internet could account for 11% of U.S. and international long-distance voice traffic, up from just 0.2% last year, predicts analyst Mark Winther of International Data Corp. "Internet telephony is a reality, and telcos have

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Quality of Net calls improving fast

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surprisingly awakened to that rather early," analyst David Goodtree of Forrester Research says. "It will be the catalyst that forces the total restructuring ... of the profits of all telcos worldwide."

Perhaps this forecast was the wakeup call: IP telephony could eliminate the profits of U.S. long-distance carriers by stealing just 6% of U.S. telephone traffic, the International Telecommunications Union warned in a report last year.

Evidence of the hastening convergence of the phone network and the Internet is overwhelming.

The same day that AT&T announced its Internet telephone plans, MCI revealed a pact with Netspeak, a company that makes computers that connect phone networks to the Internet. Bell Atlantic announced a day later that it wants to build high-speed Internet transmission lines across its local phone territory. US West announced the following day that it was forming an Internet-development alliance with equipment maker Cisco Systems.

America Online, the country's largest on-line service, is testing IP telephone service with 5,000 users. Tele-Communications Inc., the country's largest cable TV operator, said in December that it would begin offering Internet phone service in late 1999. Last month, start-up Level 3 said it would build the nation's first telephone network based entirely on Internet standards.

"Over the next few years, you will see very rapid growth in IP telephony," says Joe Nacchio, CEO of Qwest, which is constructing a 16,000-mile fiber network that uses both traditional phone switching technology and the Internet. "I think it will be unstoppable." He already offers consumers IP telephony in nine Western cities.

Humble beginnings

Internet telephony barely existed until February 1995, when an Israeli company, VocalTec, introduced a software program that allowed people to speak to each other using their PCs and a microphone.

"It was like ham radio," recalls analyst Francois de Rentigny of Frost & Sullivan, an early user. People could only talk to other personal computer users who ran the same software and happened to be logged onto the Internet at the same time.

The medium took a huge step forward in 1996, when VocalTec unveiled a "gateway" computer that connects the Internet to the phone network. That allowed people to speak to each other over the Net using regular phones instead of PCs.

The advance was a major break with tradition. The basic design of the phone network hasn't changed since AT&T invented it more than 100 years ago. It's a vast roadway where every call has its own lane, or circuit. A telephone call ties up an entire circuit, even when people pause between words or put the phone down to answer the doorbell. The Internet is much more efficient. Calls travel a short distance over copper phone lines to the nearest phone company office, where a gateway computer converts the sound of the voice into the ones and zeros of computer language and breaks it into little pieces known as packets. Compressed packets are thrust into the Internet or data network, where they share lines with other transmissions, such as e-mail.

The result is that Internet calls are cheaper than regular calls. "This is going to be the stake that finally drives a hole through the heart of the ... extraneous costs associated with traditional voice communications," says Jim Courter, president of IDT, which charges 5 cents a minute for long-distance calls over the Internet. "The cost of calls is going to be dramatically reduced."

IP calls are especially cheap now, because they are exempt from fees long-distance carriers must pay local carriers for access to the local networks, where all long-distance calls begin and end. Local carriers want that to change, but IP

technology would still be more efficient than a regular long-distance call.

Cable TV companies and Internet service providers entering the $80 billion long-distance business are sure to benefit. By 2002, the Internet will drain $3 billion in annual revenue from U.S. long-distance carriers, Forrester Research estimates. That's about 4% of their revenue base. About $2 billion of that will go to new long-distance providers, and about $1 billion will go directly to telephone users in the form of price cuts.

Profitable niches

Others, too, will benefit as IP phone service takes hold:

▶ Up to 10% of the world's fax market, which generates $45 billion in telecom revenue a year, will move to the Internet in two or three years, says CEO David Friend of FaxNet, a long-distance carrier just for faxes.

▶ "The $18 billion market for calls from the United States to foreign destinations will be the first and biggest target of Internet telephony," Forrester says. Key reason: The Internet bypasses international telephone networks, which are often outrageously expensive. USA Global Link announced plans in early 1997 to build an IP-based network just for international calls.

▶ A company can easily slash its phone budget 35% by moving its voice traffic to the same network that handles its data transmissions, says Eric Benhamou, CEO of Internet equipment maker 3Com. A Forrester survey of 52 *Fortune* 1000 companies finds that more than 40% of telecom managers plan to move some voice or fax traffic to the Internet by 1999.

One major force driving the rapid growth of the Internet phone business is that the basic technology behind the Internet is available to the public for free. But today's Internet has drawbacks, too. It is dogged by traffic jams that can occur during peak usage. Even users with high-speed access can get bogged down when the network is overloaded. Newer versions of the Net will be able to assign higher priority to certain kinds of transmissions, such as phone calls.

AT&T's Nagle serves on a presidential advisory committee that is guiding the development of Internet 2, a high-speed network that will be available in several years.

Meanwhile, he says the quality and security of IP telephony on the existing Internet is rising. The implications of that are just reaching consumers.

Bruce Ravenel, TCI's senior vice president for telecommunications, says TCI's 12 million customers won't be able to tell the difference between a regular phone call and an IP call. "The technology inside the network will be IP, but the experience for the customer is that they will make a 'toll' quality phone call, just like they do today with conventional telephone networks."

John Roth, CEO of equipment maker Northern Telecom, goes even further. He sees the day when voice calls will be virtually free and video and data transmission will be the real moneymaker.

Who will dominate?

Newcomers might have an edge in the market to provide this new breed of phone service. "Give me one example of any company in any industry that has managed to deal with an economic change of this magnitude and be dominant in the next era," says James Crowe, CEO of Level 3. "There isn't one."

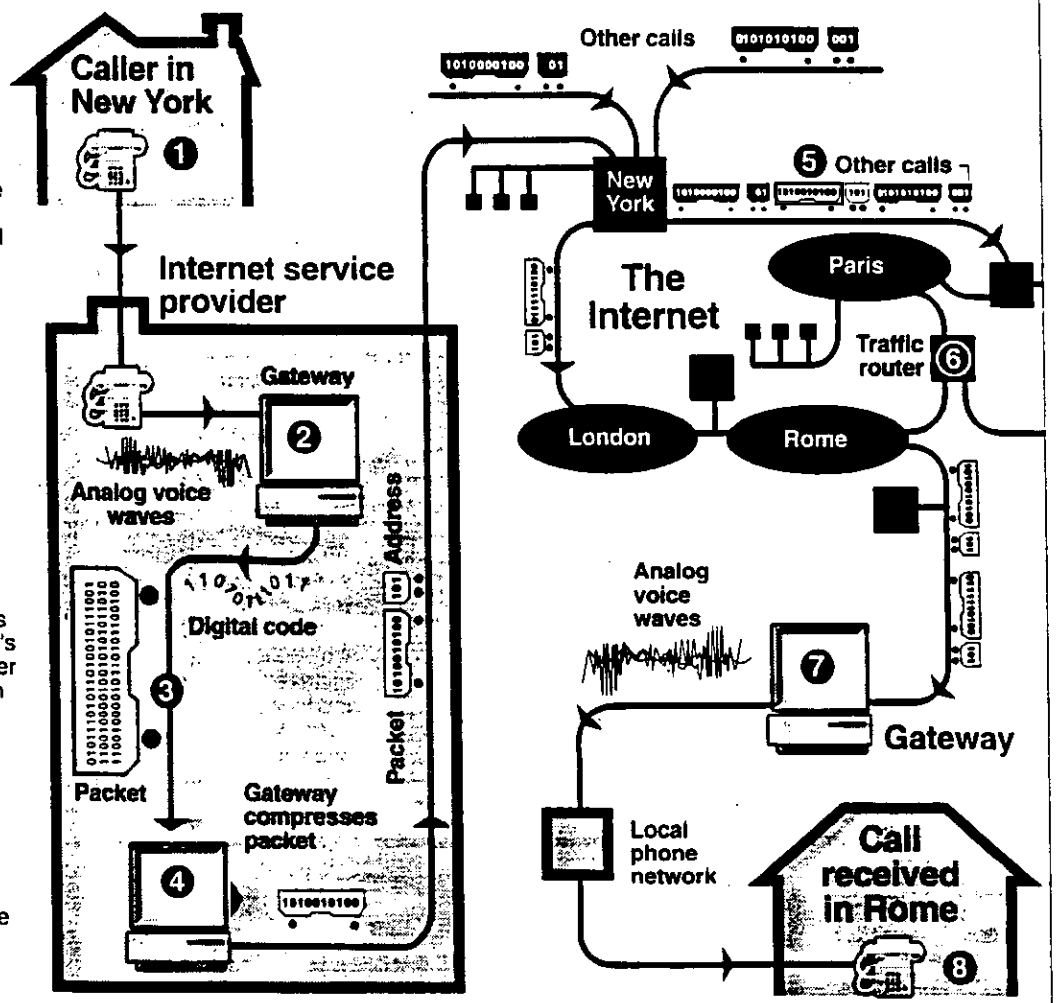
Even old-line phone carriers that develop a good strategy for IP telephony might run into trouble, because they will need to take huge charges to write off their old networks, says Francis McInerney, partner with North River Ventures, an investment and consulting group.

But Nagle says big phone companies already have paid off many of their network investments. And new data networks will lower costs for traditional carriers, so profit margins won't be gutted by falling prices. Finally, he notes, history shows that traffic on communications networks rises as prices fall.

Nagle says the fact that AT&T has been able to create an Internet phone offering between 1997 and 1998 is proof that it can compete.

"The industry is moving more quickly. And more important for us, we're moving a lot more quickly," he says. "We have realized the potential and importance of the Internet, and we are resolved to be leaders in that industry."

How phone calls are made over the Internet



1 The caller

The caller dials a toll-free number and an ID number that connects him or her to a gateway computer, a bridge between the regular phone network and the Internet. The caller then dials the number of the party in Rome. The call travels the phone network until it gets to the gateway.

2 The gateway

The gateway digitizes the caller's voice, turning it into the ones and zeros of computer language.

3 Digitization

The gateway breaks the digitized voice into pieces known as packets. A typical packet includes 10 to 30 milliseconds worth of conversation. Each packet is coded with the second party's phone number, just as a letter is put in an envelope with an address.

4 Compression

The gateway compresses the digitized packets.

5 Transmission

The gateway thrusts the compressed packets into the Internet, where they share wires with other data transmissions.

6 Routers

The packets travel the Internet, passing through routers, computers that read the addresses on each packet and assign them transmission lines.

7 Back to analog

The packets finally arrive at a gateway that decompresses them and converts the digital signal back to analog.

8 Connection

The gateway transfers the call to the local phone network, which delivers it to the intended party.

Source: Northern Telecom

By Dave Merrill, USA TODAY

FORM 10-K
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

(Mark One)
[X] ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 1999

OR

[ ] TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from to

Commission file number: 0-15658

Level 3 Communications, Inc.
(Exact name of Registrant as specified in its charter)

Delaware	47-0210602
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

1025 Eldorado Blvd., Broomfield, Colorado 80021
(Address of principal executive offices) (Zip code)

(720) 888-1000
(Registrant's telephone number including area code)

Securities registered pursuant to Section 12(b) of the Act:
None

Securities registered pursuant to section 12(g) of the Act:

Common Stock, par value $.01 per share
Rights to Purchase Series A Junior Participating Preferred Stock, par value $.01 per share

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes [X] No [_]

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. [_]

Indicate the number of shares outstanding of each of the registrant's classes of common stock, as of the latest practicable date.

Title	Outstanding
Common Stock, par value $.01 per share	341,772,589 as of February 1, 2000

DOCUMENTS INCORPORATED BY REFERENCE

List hereunder the following documents if incorporated by reference and the Part of the Form 10-K (e.g., Part I, Part II, etc.) into which the document is incorporated: (1) Any annual report to security holders; (2) Any proxy or information statement; and (3) Any prospectus filed pursuant to Rule 424(b) or (c) under the Securities Act of 1933. The listed documents should be clearly described for identification purposes (e.g., annual report to security holders for fiscal year ended December 24, 1980).

Portions of the Company's Definitive Proxy Statement for the 2000 Annual Meeting of Stockholders are incorporated by reference into Part III of this Form 10-K

Cautionary Factors That May Affect Future Results

(Cautionary Statements Under the Private Securities Litigation Reform Act of 1995)

This report contains forward looking statements and information that are based on the beliefs of management as well as assumptions made by and information currently available to Level 3 Communications, Inc. and its subsidiaries ("Level 3" or the "Company"). When used in this report, the words "anticipate", "believe", "plans", "estimate" and "expect" and similar expressions, as they relate to the Company or its management, are intended to identify forward-looking statements. Such statements reflect the current views of the Company with respect to future events and are subject to certain risks, uncertainties and assumptions. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those described in this document.

These forward-looking statements include, among others, statements concerning:

- the Company's business plan to increase substantially its communications and information services business and to expand the range of services that the Company offers (the "Business Plan"), its advantages and the Company's strategy for implementing the Business Plan;

- anticipated growth of the communications and information services industry;
- plans to devote significant management time and capital resources to the Company's business;
- expectations as to the Company's future revenues, margins, expenses and capital requirements;
- anticipated dates on which the Company will begin providing certain services or reach specific milestones in the Business Plan; and
- other statements of expectations, beliefs, future plans and strategies, anticipated developments and other matters that are not historical facts.

These forward-looking statements are subject to risks and uncertainties, including financial, regulatory, environmental, industry growth and trend projections, that could cause actual events or results to differ materially from those expressed or implied by the statements. The most important factors that could prevent Level 3 from achieving its stated goals include, but are not limited to, the Company's failure to:

- achieve and sustain profitability based on the creation and implementation of its advanced, international, facilities based communications network based on Internet Protocol technology;
- overcome significant early operating losses;
- produce sufficient capital to fund the Business Plan;
- develop financial and management controls, as well as additional controls of operating expenses as well as other costs;
- attract and retain qualified management and other personnel;
- install on a timely basis the switches/routers, fiber optic cable and associated electronics required for successful implementation of the Business Plan;
- successfully complete commercial testing of its softswitch technology for voice transmission services;
- negotiate new and maintain existing peering agreements; and
- develop and implement effective business support systems for processing customer orders and provisioning.

The Company undertakes no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise. Further disclosures that the Company makes on related subjects in its additional filings with the Securities and Exchange Commission should be consulted. For further information regarding the risks and uncertainties that may affect the Company's future results, please review our Current Report on Form 8-K/A filed with the Securities and Exchange Commission on November 9, 1999.

ITEM 1. BUSINESS

Level 3 Communications, Inc. and its subsidiaries ("Level 3" or the

"Company") engage in the communications, information services and coal mining businesses through ownership of operating subsidiaries and substantial equity positions in public companies. In late 1997, the Company announced the business plan to increase substantially its information services business and to expand the range of services it offers by building an advanced, international facilities based communications network based on Internet Protocol technology (the "Business Plan").

Please see the Glossary of Terms for definitions of certain terms used in this Report.

History

The Company was incorporated as Peter Kiewit Sons', Inc. in Delaware in 1941 to continue a construction business founded in Omaha, Nebraska in 1884. In subsequent years, the Company invested a portion of the cash flow generated by its construction activities in a variety of other businesses. The Company entered the coal mining business in 1943, the telecommunications business (consisting of MFS Communications Company, Inc. ("MFS") and, more recently, an investment in C-TEC Corporation and its successors RCN Corporation ("RCN"), Commonwealth Telephone Enterprises, Inc. ("Commonwealth Telephone") and Cable Michigan, Inc.) in 1988, the information services business in 1990 and the alternative energy business, through an investment in MidAmerican Energy Holdings Company, formerly known as CalEnergy Company, Inc. ("MidAmerican"), in 1991. Level 3 also has made investments in several development-stage ventures.

In 1995, the Company distributed to the holders of its Class D Stock (as defined) all of its shares of MFS. In the seven years from 1988 to 1995, the Company invested approximately $500 million in MFS; at the time of the distribution to stockholders in 1995, the Company's holdings in MFS had a market value of approximately $1.75 billion. In December 1996, MFS was purchased by WorldCom in a transaction valued at $14.3 billion.

In December 1997, the Company's stockholders ratified the decision of the Board of Directors (the "Board") to effect the split-off separating the Company's construction and mining management operations (the "Construction Group") from the remaining operations of the Company. As a result of the split-off, which was completed on March 31, 1998, the Company no longer owns any interest in the Construction Group. In conjunction with the split-off, the Company changed its name to "Level 3 Communications, Inc.," and the Construction Group changed its name to "Peter Kiewit Sons', Inc."

In January 1998, the Company completed the sale to MidAmerican of its energy investments, consisting primarily of a 24% equity interest in MidAmerican. The Company received proceeds of approximately $1.16 billion from this sale, and as a result recognized an after-tax gain of approximately $324 million in 1998.

In November 1998, Avalon Cable of Michigan, Inc. acquired all the outstanding stock of Cable Michigan. Level 3 received approximately $129 million in cash for its interest in Cable Michigan and recognized a pre-tax gain of approximately $90 million.

Business Plan

Since late 1997, the Company has substantially increased the emphasis it places on and the resources devoted to its communications and information services business. Since that time, the Company has become a facilities based provider (that is, a provider that owns or leases a substantial portion of the plant, property and equipment necessary to provide its services) of a broad range of integrated communications services. The Company has expanded substantially the business of its subsidiary PKS Information Services, Inc. ("PKSIS") and is creating, through a combination of construction, purchase and leasing of facilities and other assets, an

advanced, international, facilities based communications network. The Company designed the Level 3 network based on Internet Protocol technology in order to leverage the efficiencies of this technology to provide lower cost communications services.

Market and Technology Opportunity. The Company believes that, as technology advances, a comprehensive range of both consumer and business communications and information services will be provided over networks utilizing Internet Protocol technology. These services will include traditional voice services, as well as other data services such as Internet access and virtual private networks. The Company believes this shift has begun, and over time should accelerate, for the following reasons:

- Efficiency. As a packet-switched technology, Internet Protocol technology generally uses network capacity more efficiently than the traditional circuit-switched PSTN. This is because capacity in a packet switched network is shared between end points only when they are communicating at any given time, whereas in circuit switched networks, capacity is reserved between communicating end points even when no information is actually being transmitted. Therefore, services including voice, e-mail and file transfer can be provided for lower cost over a network using Internet Protocol technology.

- Open Protocol. Internet Protocol technology is an open protocol (a non-proprietary standard) which allows for market driven development of new services and applications for Internet Protocol networks. In contrast, the PSTN is based on proprietary protocols, which are governed and maintained by international standards bodies that are generally controlled by government-affiliated entities and slower to accept change.

- Improving Technologies. The Company and other technology companies have developed solutions to address problems associated with certain Internet Protocol based applications that use the public Internet. For example, typical voice over Internet Protocol solutions are characterized by cumbersome two-stage dialing requirements, latency (delay through the network which can negatively affect timing sensitive communications such as voice), quality and concerns about adequate security and reliability. During December 1999, Level 3 commercially launched (3)Voice long distance service in 10 markets, the first voice service to utilize softswitch technology. Level 3 expects to begin commercial testing of some features associated with local service, such as caller ID, voice mail and call forwarding, during the first quarter of 2000. Level 3's Internet Protocol voice technology provides a seamless interconnection with the PSTN using softswitch architecture.

- Open Architecture. The open architecture of Level 3's distributed network enables new competition among suppliers for the individual components of the Internet Protocol voice switching system. The Company believes that this competition amongst vendors will enable more rapid improvement in the price/performance ratio of individual network components and thereby lower network cost.

Level 3's Strategy. The Company is seeking to capitalize on the benefits of Internet Protocol technology by pursuing the Business Plan. Key elements of the Company's strategy include:

- Become the Low Cost Provider of Communications Services. Our network is designed to provide high quality communications services at a lower cost. For example, the Level 3 network is being constructed using multiple conduits to allow the Company to cost-effectively deploy future generations of optical networking components and thereby expand capacity

and reduce unit costs. In addition, the Company's strategy is to maximize the use of open, non-proprietary interfaces in the design of its network software and hardware. This approach is intended to provide Level 3 with the ability to purchase the most cost-effective network equipment from multiple vendors. New technologies such as packet-switching will also enhance the efficiencies of our network.

- Combine Latest Generations of Fiber and Electronics. In order to achieve unit cost reductions for transmission capacity, Level 3 has designed its network with multiple conduits to deploy successive generations of fiber to exploit improvements in transmission electronics. Optimizing transmission electronics to exploit specific generations of fiber optic technology currently provides transmission

capacity on the new fiber more cost effectively than deploying new electronics on previous generations of fiber.

- Offer a Comprehensive Range of Communications Services. The Company provides a comprehensive range of communications services over the Level 3 network, including private line, (3)Voice long distance services, colocation, Internet access and managed modem.
Level 3 expects to begin commercial testing of some features associated with local service, such as caller ID, voice mail and call forwarding, during the first quarter of 2000. Level 3 is also offering dark fiber and conduits along its local and intercity networks on a long-term lease basis.

- Provide Significant Colocation Facilities. Level 3 has been experiencing higher demand for its colocation services from its web centric customers than was anticipated in preparing the Business Plan. Level 3 believes that providing colocation services on its network attracts web centric customers by allowing Level 3 to offer those customers reduced bandwidth costs, rapid provisioning of additional bandwidth, interconnection with other third-party networks and improved network performance. Therefore, Level 3 believes that controlling significant colocation facilities in its gateways provides it with a competitive advantage. In addition, significant colocation facilities in a gateway allow Level 3 to price the exchange of traffic between its customers that are colocated in the same facility at significantly lower cost than the exchange of traffic between a customer located outside the facility and a customer located within the facility.

As of December 31, 1999, Level 3 had secured approximately 3.4 million square feet of space for its gateway facilities and had completed the buildout of approximately 1.3 million square feet of this space. Level 3 believes it currently has more colocation space than any of its competitors. In January 2000, Level 3 announced an expansion of its Business Plan to increase significantly the aggregate amount of its global gateway facilities to 6.5 million square feet over the next two to three years.

- Provide Seamless Interconnection to the PSTN. During December 1999, the Company launched its (3)Voice long distance service that allows the seamless interconnection of the Level 3 network with the PSTN for long distance voice transmissions. Seamless interconnection allows customers to use Level 3's Internet Protocol based services without modifying existing telephone equipment or dialing procedures (that is, without the need to dial access codes or follow other similar special procedures). The Company's managed modem service uses similar softswitch technology to seamlessly interconnect to the PSTN.

- Accelerate Market Roll-out. To support the launch of its services and

develop a customer base in advance of completing the construction of its network, Level 3 offers services over a combination of leased local and intercity facilities. Over time, these leased networks will be displaced by the networks that the Company is constructing.

- Target Web Centric Customers. The Company's distribution strategy is to utilize a direct sales force focused on communications intensive and web centric businesses. These businesses include ISPs, application service providers, content providers, systems integrators, next generation carriers, web-hosting companies, streaming media companies and Internet Protocol based storage providers. Providing continually declining bandwidth costs to these companies is at the core of the Company's market enabling strategy because bandwidth generally represents a substantial portion of web centric businesses' costs.

- Develop Advanced Business Support Systems. The Company is developing a substantial, scalable and web-enabled business support system infrastructure specifically designed to enable the Company to offer services efficiently to its targeted customers. The Company believes that this system will reduce its operating costs, give its customers direct control over some of the services they buy from the Company and allow the Company to grow rapidly without redesigning the architecture of its business support system.

- Leverage Existing Information Services Capabilities. The Company is expanding its existing capabilities in computer network systems integration, consulting, outsourcing and software

reengineering, with particular emphasis on the conversion of legacy software systems to systems that are compatible with Internet Protocol networks and web browser access.

- Attract and Motivate High Quality Employees. The Company has developed programs designed to attract and retain employees with the technical skills necessary to implement the Business Plan. The programs include the Company's Shareworks stock purchase plan and its Outperform Stock Option program.

Competitive Advantages. The Company believes that it has the following competitive advantages that, together with its strategy, will assist it in implementing the Business Plan:

- Experienced Management Team. Level 3 has assembled a management team that it believes is well suited to implement the Business Plan. Most of Level 3's senior management was involved in leading the development and marketing of telecommunications products and in designing, constructing and managing intercity, metropolitan and international networks.

- A More Readily Upgradable Network Infrastructure. Level 3's network design takes advantage of recent innovations, incorporating many of the features that are not present in older communication networks, and provides Level 3 flexibility to take advantage of future developments and innovations. Level 3 has designed the transmission network to optimize all aspects of fiber and electronics simultaneously as a system to deliver the lowest unit cost to its customers. As fiber and transmission electronic technology changes, Level 3 expects to realize new unit cost improvements by deploying the latest fiber and transmission electronics technology in available empty or spare conduit in the multiple conduit Level 3 network. The Company believes that the spare conduit design of the Level 3 network will enable Level 3 to effect this deployment more quickly and at lower cost than other carriers.

- Integrated End-to-End Network Platform. Level 3's strategy is to deploy network infrastructure in major metropolitan areas and to link these networks with significant intercity networks in North America and Europe. The Company believes that the integration of its local and intercity networks with its colocation facilities will expand the scope and reach of its on-net customer coverage, and facilitate the uniform deployment of technological innovations as the Company manages its future upgrade paths.

- Systems Integration Capabilities. The Company believes that its ability to offer computer outsourcing and systems integration services, particularly services relating to allowing a customer's legacy systems to be accessed with web browsers, will provide additional opportunities for selling the Company's products and services.

The Level 3 Network

An important element of the Business Plan is the development of the Level 3 network, an advanced, international, facilities based communications network optimized for Internet Protocol technology. Today, the Company is primarily offering its communications services using local and intercity facilities that are leased from third parties. This enables the Company to offer services during the construction of its own facilities. Over time, the portion of the Company's network that is owned by the Company will increase and the portion of the facilities leased will decrease. Over the next two to three years, the Company's network is expected to encompass:

- an intercity network covering nearly 16,000 miles in North America;

- leased or owned local networks in 56 North American markets;

- an intercity network covering approximately 4,750 miles across Europe;

- leased or owned local networks in 21 European and Pacific Rim markets;

- approximately 6.5 million square feet of gateway facilities in North America, Europe and the Pacific Rim; and

- undersea capacity, including a 1.28 Tbps transatlantic cable system and a 2.56 Tbps Northern Asia cable system initially connecting Hong Kong to Tokyo.

Intercity Networks. The Company's nearly 16,000 mile fiber optic intercity network in North America will consist of the following:

- Rights-of-way ("ROW") from a number of third parties including railroads, highway commissions and utilities. The Company has procured these rights from sources that maximize the security and quality of the Company's installed network. The Company has secured 100% of the ROW required for the planned North American intercity network. It has obtained these rights pursuant to agreements with railroads, state and local departments of transportation, utilities, pipeline companies and others.

- Multiple conduits connecting local networks in approximately 200 North American cities. In general, Level 3 will install groups of 10 to 12 conduits in its intercity network. The Company believes that the availability of spare conduit will allow it to deploy future technological innovations in optical networking components as well as providing Level 3 with the flexibility to offer conduit to other entities.

- Initial installation of optical fiber strands designed to accommodate dense wave division multiplexing transmission technology. This fiber allows deployment of equipment which transmits signals on 32 or more individual wavelengths of light per strand, thereby significantly increasing the capacity of the Company's network relative to older networks which generally use optical fiber strands that transmit fewer wavelengths of light per strand. In addition, the Company believes that the installation of newer optical fibers will allow a combination of greater wavelengths of light per strand, higher digital transmission speeds and greater spacing of network electronics. The Company also believes that each new generation of optical fiber will allow increases in the performance of these aspects of the fiber and will result in lower unit costs.

- High speed SONET transmission equipment employing self-healing protection switching and designed for high quality and reliable transmission.

- A design that maximizes the use of open, non-proprietary hardware and software interfaces to allow less costly upgrades as hardware and software technology improves.

In December 1999, Level 3 began carrying customer traffic between Dallas and Houston on the first completed and lit segment of its North American intercity network.

To support the launch of its services in the third quarter of 1998, the Company leased intercity capacity from two providers. This leased capacity will be displaced over time by Level 3's North American intercity network.

On July 20, 1998, Level 3 entered into a network construction cost-sharing agreement with INTERNEXT, LLC, a subsidiary of NEXTLINK Communications, Inc. The agreement, which is valued at $700 million, calls for INTERNEXT to acquire the right to use 24 fibers and certain associated facilities installed along the entire route of Level 3's North American intercity network in the United States. INTERNEXT will pay Level 3 as segments of the intercity network are completed which will reduce the overall cost of the network to the Company. The network as provided to INTERNEXT will not include the necessary electronics that allow the fiber to carry communications transmissions. Also, under the terms of the agreement, INTERNEXT has the right to an additional conduit for its exclusive use and to share costs and capacity in certain future fiber cable installations in Level 3 conduits.

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The following diagram depicts the currently planned North American intercity network when fully constructed:

[GRAPHIC OF CURRENTLY PLANNED NORTH AMERICAN INTERCITY NETWORK]

The Company expects to substantially complete its North American intercity network by the end of the year 2000. Deployment of the North American intercity network will be accomplished through simultaneous construction efforts in multiple locations, with different portions being completed at different times. As of December 31, 1999, the Company had completed 9,334 route miles of the intercity network and had approximately 6,200 route miles under construction.

In Europe, the Company is deploying an approximately 4,750 mile fiber optic intercity network with characteristics similar to those of the North American intercity network. As in North America, the Company will provide initial service in Europe over a leased network that will be displaced over time by the intercity network owned by the Company.

On April 29, 1999, Level 3 announced that it had finalized contracts relating to construction of Ring 1 of its European network in France, Belgium, the Netherlands, Germany and the United Kingdom. Ring 1, which is approximately 1,800 miles, will connect Paris, Frankfurt, Amsterdam, Brussels and London. The network is expected to be ready for service by September 2000. Ring 1 is part of the approximately 4,750 mile intercity network. This European network will be linked to the Level 3 North American intercity network by the Level 3 transatlantic 1.28 Tbps cable system currently under development, also expected to be ready for service by September 2000.

On July 26, 1999, the Company announced two important developments of its European network build with agreements with Eurotunnel and Alcatel. Eurotunnel will install and supply Level 3 with multiple cross-Channel cables between the United Kingdom and France through the high-security service tunnel. The first of these cables will be completed by the end of the first quarter of 2000. Subsequent cables will be installed to upgrade and expand the network as and when required or when new fiber technology becomes available. Alcatel will design, develop and install an undersea cable to link the Level 3 network between the United Kingdom and Belgium. The cable system is already under development and will be completed by the end of the first half of 2000.

In addition, on May 4, 1999, Level 3 and COLT Telecom Group plc ("COLT") announced an agreement to share costs for the construction of European networks. The agreement calls for Level 3 to share construction costs of COLT's

planned 1,600 mile intercity German network linking Berlin, Cologne, Dusseldorf, Frankfurt, Hamburg, Munich and Stuttgart. In return, COLT will share construction costs of Ring 1 of Level 3's planned European network.

The Company has entered into transoceanic capacity agreements that will link Level 3's North American, European and Pacific Rim intercity networks. One agreement provides for Level 3's participation in the construction of an undersea cable system that will connect Japan and the United States by the end of the year 2000. The remaining agreements relate to the Company's transatlantic capacity. These agreements are in addition to the agreement relating to the Company's 1.28 Tbps transatlantic undersea cable system.

In the Pacific Rim, the Company currently intends to provide service over a leased line intercity network and long-term leases of submarine cable capacity. In 1999, Level 3 opened its Asia Pacific headquarters in Hong Kong. On January 24, 2000, Level 3 announced two important developments of its Asian network with the planned construction of a 2.56 Tbps undersea cable initially connecting Hong Kong to Tokyo and gateway facilities in each city. This connection between Hong Kong and Tokyo is intended to be the first stage in the construction by Level 3 of an undersea network in the region and is scheduled for completion in the second quarter of 2001.

Local Market Infrastructure. The Company's local facilities include fiber optic networks, in a SONET ring configuration, connecting Level 3's intercity network gateway sites to ILEC and CLEC central offices, long distance carrier POPs, buildings housing communication-intensive end users and Internet peering and transit facilities.

The Company had secured approximately 3.4 million square feet of space for its gateway facilities as of December 31, 1999 and had completed the buildout of approximately 1.3 million square feet of this space. The Company's gateway facilities are being designed to house local sales staff, operational staff, the Company's transmission and Internet Protocol routing/switching facilities and technical space to accommodate colocation of equipment by high-volume Level 3 customers, such as ISPs, in an environmentally controlled, secure site with direct access to the Level 3 network through dual, fault tolerant connections. The Company is offering private line, (3)Voice, colocation services, Internet

access and managed modem at its gateway sites. The availability of these services varies by location.

As of December 31, 1999, the Company had operational facilities based local metropolitan networks in 22 U.S. markets and 3 European markets. Also, as of December 31, 1999, the Company had entered into interconnection agreements with RBOCs covering 49 markets.

The Company has negotiated master leases with several CLECs and ILECs to obtain leased capacity from those providers so that the Company can provide its clients with local transmission capabilities before its own local networks are complete and in locations not directly accessed by the Company's owned facilities.

The launches of services in London and Frankfurt followed the Company's acquisitions of BusinessNet Limited, a leading UK ISP, in January 1999 and miknet Internet Based Services GmbH, a leading German ISP, in September 1998. In addition, in June 1999, the Company completed the construction of its metropolitan network in the City of London. The Company launched its international gateway in London in January 1999 and Paris, Amsterdam and Frankfurt in June 1999. The 75,000 square foot office and operations facility in London is the hub of European operations and houses the operational center and network equipment, along with additional space for expansion and colocation services. In addition, in July 1999, Level 3 acquired a building with an additional approximately 263,000 square feet of space to serve as colocation technical space in London. The Company is currently offering services in and among London, Paris, Amsterdam and Frankfurt.

Communications and Information Services

In connection with the Business Plan, the Company is substantially increasing the emphasis it places on and the resources devoted to its communications and information services business. The Company is building

on the strengths of its information services business and the benefits of the Level 3 network to offer a broad range of other services to business and other end users.

As the Business Plan is being implemented, the Company is offering a comprehensive range of communications services, including the following:

- Transport Services. The Company's transport services consist of private line and special access services and long-term leases of dark fiber and conduits.

  - Private Line and Special Access. Private line and special access services are established as a permanent physical connection between locations for the exclusive use of the customer. The Company is offering the following types of private line and special access services:

    - Private Line. This type of link is a dedicated line connecting two end-user locations for voice and data applications, including ISPs.

    - Carrier-to-Carrier Special Access. This type of link connects carriers (long distance providers, wireless providers, ILECs and CLECs) to other carriers.

    - End-user to Long Distance Provider Special Access. This type of link connects an end-user, such as a large business, with the local POP of its chosen long distance provider.

The Company is currently offering its special access and private line services with available transmission speeds from T1 to OC3 and OC48.

- Dark Fiber and Conduits. The Company is offering dark fiber and conduit along its local and intercity networks on a long-term lease basis. Customers can lease dark fiber and conduit in any combination of three ways: (1) segment by segment, (2) full ring or (3) the entire Level 3 network. Level 3 offers colocation space in its gateway and intercity retransmission facilities to these customers for their transmission electronics. Although Level 3 will not be responsible for the management of the transmission electronics, Level 3 is contemplating providing installation and maintenance services for this equipment on a fee for service basis.

- Colocation. The Company is offering its customers and other service providers the ability to locate their communications and networking equipment at Level 3's gateway sites in a safe and secure technical operating environment. The demand for these colocation services has increased as companies expand into geographic areas in which they do not have appropriate space or technical personnel to support their equipment and operations. At its operational colocation sites, the Company is offering customers AC/DC power, optional UPS power, emergency back-up generator power, HVAC, fire protection and security. Level 3 is also offering high-speed, reliable connectivity to the Level 3 leased network and other networks, including both local and wide area networks, the PSTN and Internet. These sites are being monitored and maintained 24 hours a day, seven days a week.

  Level 3 is offering customers, including ISPs, the opportunity to colocate their web-server computers at the Company's larger gateway sites, enabling them to take advantage of the marketing, customer service, internal company information networks ("intranets") and other benefits offered by such web presence. By colocating its web-server in a Level 3 facility, a customer has the ability to deploy a high-quality, high-reliability Internet presence without investing capital in data center space, multiple high-speed connections or other capital intensive infrastructure. Although the customer is responsible for maintaining the content and performance of its server, the Company's technicians will be available to monitor basic server operation. The Company will also offer redundant infrastructure consisting of multiple routers and connections to Internet backbones.

- Internet Access. The Company is offering Internet access to business customers, other carriers and ISPs. These services include high-capacity Internet connections ranging from 45 Mbps to 1,000 Mbps.

- Managed Modem. The Company is offering to its customers an outsourced, turn-key infrastructure solution for the management of dial up access to either the public Internet or a corporate data network

that may include access to the public Internet ("Managed Modem"). This service was the first offered by the Company that used softswitch technology to seamlessly interconnect to the PSTN. While ISPs are provided a fully managed dial-up network infrastructure for access to the public Internet, corporate customers that purchase Managed Modem services receive connectivity for remote users to support data applications such as telecommuting, e-mail retrieval, and client/server applications. For Managed Modem customers, Level 3 arranges for the provision of local network coverage, dedicated local telephone numbers (which the Managed Modem customer distributes to its customers in the

case of an ISP or to its employees in the case of a corporate customer), racks and modems as well as dedicated connectivity from the customer's location to the Level 3 gateway facility. Level 3 also provides monitoring of this infrastructure 24 hours a day, seven days a week. By providing a turn-key infrastructure modem solution, Level 3 believes that this product allows its customers to save both capital and operating costs.

- Voice. During December 1999, Level 3 commercially launched (3)Voice, its Internet Protocol based long distance service, which uses softswitch technology. This long distance service is currently available in 10 [illegible]. The Company [illegible]

features associated with local service, such as caller ID, voice mail and call forwarding, during the first quarter of 2000. Customers access (3)Voice long distance service by using existing telephone equipment and dialing procedures. The Company believes that (3)Voice long distance service is offered at a quality level equal to that of the PSTN.

Level 3 currently offers, through its subsidiary PKSIS, computer operations outsourcing and systems integration services to customers located throughout the United States as well as abroad. The Company's systems integration services help customers define, develop and implement cost-effective information services. The computer outsourcing services offered by the Company include networking and computing services necessary for older mainframe-based systems and newer client/server-based systems. The Company provides its outsourcing services to clients that want to focus their resources on core businesses, rather than expend capital and incur overhead costs to operate their own computing environments. PKSIS believes that it is able to utilize its expertise and experience, as well as operating efficiencies, to provide its outsourcing customers with levels of service equal to or better than those achievable by the customers themselves, while at the same time reducing the customers' cost for such services. This service is particularly useful for those customers moving from older computing platforms to more modern client/server networks.

PKSIS offers reengineering services that allow companies to convert older legacy software systems to modern networked computing systems, with a focus on reengineering software to enable older software application and data repositories to be accessed by web browsers over the Internet or over private or limited access Internet Protocol networks. PKSIS also provides customers with a combination of workbench tools and methodologies that provide a complete strategy for converting mainframe-based application systems to client/server architecture.

Distribution Strategy

Level 3's distribution strategy is to utilize a direct sales force focused on communications intensive and web centric businesses. These businesses include ISPs, application service providers, content providers, systems integrators, next generation carriers, web-hosting companies, streaming media companies and Internet Protocol based storage providers. Level 3 believes that these companies are the most significant drivers of bandwidth demand. The past distinctions between retail and wholesale have been blurred as these communications intensive and web centric businesses purchase Level 3 services, add value to our services and then remarket the services to end-users. Bandwidth constitutes a significant portion of these companies' cost structure and their needs for bandwidth in many cases are growing at an exponential rate. Providing continually declining bandwidth costs to these companies is at the core of Level 3's market enabling strategy.

Level 3 expects that approximately 85% of its sales will be to web centric customers that package communications services into value added services and directly sell into the residential and business markets. The remaining

approximately 15% of Level 3's sales will be to other customers that are communications intensive and have high growth in communications and information services consumption. Level 3 has segmented its sales organization into four channels to implement this distribution strategy. These include a Regional/Account Sales Group, a Carrier Sales Group and a Dark Fiber Sales Group.

Business Support System

In order to pursue its sales and distribution strategies, the Company is developing a set of integrated software applications designed to automate the Company's operational processes. Through the development of a robust, scalable business support system, the Company believes that it has the opportunity to develop a competitive advantage relative to traditional telecommunications companies. Whereas traditional telecommunications companies operate extensive legacy business support systems with compartmentalized architectures that limit their ability to scale rapidly and introduce enhanced services and features, the Company has developed a business support system architecture intended to maximize both reliability and scalability.

Key design aspects of the business support system development program are:

- integrated modular applications to allow the Company to upgrade specific applications as new products are available;
- a scalable architecture that allows certain functions that would otherwise have to be performed by Level 3 employees to be performed by the Company's alternative distribution channel participants;
- phased completion of software releases designed to allow the Company to test functionality on an incremental basis;
- ""web-enabled" applications so that on-line access to all order entry, network operations, billing, and customer care functions is available to all authorized users, including Level 3's customers and resellers;
- use of a three-tiered, client/server architecture that is designed to separate data and applications, and is expected to enable continued improvement of software functionality at minimum cost; and
- maximum use of pre-developed or "shrink wrapped" applications, which will interface to Level 3's enterprise resource planning suites.

The first four releases of the business support system have been delivered and contain functionality necessary to support the set of services presently offered. See "--Communications and Information Services."

Interconnection and Peering

As a result of the Telecom Act, properly certificated companies may, as a matter of law, interconnect with ILECs on terms designed to help ensure economic, technical and administrative equality between the interconnected parties. The Telecom Act provides, among other things, that ILECs must offer competitors the services and facilities necessary to offer local switched services. See "--Regulation."

As of December 31, 1999, the Company had entered into interconnection agreements covering 49 markets. The Company may be required to negotiate new or renegotiate existing interconnection agreements as Level 3 expands its operations in current and additional markets in the future and as existing agreements expire or are terminated.

Peering agreements between the Company and ISPs are necessary in order for the Company to exchange traffic with those ISPs without having to pay transit

costs. The Company has peering arrangements with approximately 20 domestic ISPs and approximately 50 international ISPs and is currently purchasing transit from one major ISP. The basis on which the large national ISPs make peering available or impose settlement

charges is evolving as the provision of Internet access and related services has expanded. Recently, companies that have previously offered peering have cut back or eliminated peering relationships and are establishing new, more restrictive criteria for peering. In order to maintain certain of its peering relationships, Level 3 will have to meet these more restrictive criteria.

Employee Recruiting and Retention

As of December 31, 1999, Level 3 had 3,175 employees in the communications portion of its business and PKSIS had approximately 681 employees, for a total of 3,856 employees. The Company believes that its ability to implement the Business Plan will depend in large part on its ability to attract and retain substantial numbers of additional qualified employees. In order to attract and retain highly qualified employees, the Company believes that it is important to provide (i) a work environment that encourages each individual to perform to his or her potential, (ii) a work environment that facilitates cooperation towards shared goals and (iii) a compensation program designed to attract the kinds of individuals the Company seeks and to align employees' interests with the Company's. The Company believes the Business Plan and its relocation to new facilities in the Denver metropolitan area help provide such a work environment. With respect to compensation programs, while the Company believes financial rewards alone are not sufficient to attract and retain qualified employees, the Company believes a properly designed compensation program is a necessary component of employee recruitment and retention. In this regard the Company's philosophy is to pay annual cash compensation which, if the Company's annual goals are met, is moderately greater than the cash compensation paid by competitors. The Company's non-cash benefit programs (including medical and health insurance, life insurance, disability insurance, etc.) are designed to be comparable to those offered by its competitors.

The Company believes that the qualified candidates it seeks place particular emphasis on equity-based long term incentive ("LTI") programs. The Company currently has two complementary programs: (i) the equity-based "Shareworks" program, which helps ensure that all employees have an ownership interest in the Company and are encouraged to invest risk capital in the Company's stock; and (ii) an innovative Outperform Stock Option ("OSO") program applicable to the Company's employees. The Shareworks program currently enables employees to contribute up to 7% of their compensation toward the purchase of restricted common stock. If an employee remains employed by the Company for three years from the date of purchase, the shares will vest and be matched by the Company with a grant of an equal number of shares of its common stock. The Shareworks program also provides that, subject to satisfactory Company performance, the Company's employees will be eligible annually for grants by the Company of its restricted common stock of up to 3% of the employees' compensation, which shares will vest three years from the employee's initial grant date.

The Company has adopted the OSO program, which differs from LTI programs generally adopted by the Company's competitors that make employees eligible for conventional non-qualified stock options ("NQSOs"). While widely adopted, the Company believes such NQSO programs reward employees when company stock price performance is inferior to investments of similar risks, dilute public stockholders in a manner not directly proportional to performance and fail to provide a preferred return on stockholders' invested capital over the return to option holders. The Company believes that the OSO program is superior to an NQSO-based program with respect to these issues while, at the same time, providing employees a success-based reward balancing the associated risk.

PAC WEST PROSPECTUS
FINANCIAL INFORMATION 1/1/99-6/30/99

			SOURCE
TOTAL REVENUES		$30.3 MILLION	P. 9
REVENUES FROM ISPS			
% TOTAL REVENUES FROM ISPS:	28.2%		P. 46
REVENUES FROM ISPS:		$ 8.5 MILLION	
NUMBER OF ISP CUSTOMERS:	78		P. 5
ISP REVENUES/ISP CUSTOMER:	$110,000		
REVENUES FROM RECIPROCAL COMPENSATION			
% TOTAL REVENUES FROM RECIPROCAL COMPENSATION:	41.8%		P. 29
REVENUES FROM RECIPROCAL COMPENSATION:		$12.6 MILLION	
RECIPROCAL COMPENSATION REVENUES /ISP CUSTOMER	$ 162,000		
OPERATING COSTS		**$ 8.8 MILLION**	P. 32
OPERATING COSTS AS % OF REVENUES:	28.9%		P. 32

Schedule 4

PAC-WEST TELECOMM INC

Filing Type: 424B4
Description: Prospectus Filed Pursuant to Rule 424
Filing Date: Nov 5, 1999
Period End: N/A

Primary Exchange: NASDAQ - National Market System
Ticker: PACW

robust remote access

platform--with a local

call in their service

area:

--IP fax

--Voicemail

--Paging

--Integrated messaging

--LAN and VPN Services

PROSPECTUS SUMMARY

The following summary highlights selected information in this prospectus. The summary may not contain all of the information that is important to you. This prospectus includes forward-looking statements which involve risks and uncertainties. You should carefully read the entire prospectus, including the risk factors and the financial statements, before deciding whether to invest in our common stock.

Pac-West Telecomm, Inc.

Our Company

Pac-West is a rapidly growing provider of integrated communications services in the western United States. Our customers include Internet service providers, small and medium businesses and enhanced communications service providers, many of which are communications-intensive users. We believe the breadth of our product offerings and the structure of our network enable us to generate high network utilization, substantial revenues, strong profit margins and positive cash flow.

We began offering long distance service in 1982 and local service in 1996 in California, which is our primary market. As of June 30, 1999, we had over 76,000 lines in service, a 137% increase from June 30, 1998. We estimate that over 82% of the current utilization of these lines by our customers is to carry data traffic and that approximately 96% of our current traffic is terminated on our network. Since 1994, we have consistently generated positive cash flows from operations.

To meet demand for communications services in California, we have established a switching site in each of Los Angeles, Oakland and Stockton, and digital connections in each of California's 11 local access and transport areas. In California, our network enables our customers to provide their business and residential customers with access to Internet, paging and other data and voice services from almost any point in the state through a local call. This allows our customers to achieve statewide coverage with lower capital and operating expenses. According to industry sources, the California telecommunications market generated over $27 billion in total revenues in 1997.

We are expanding our network into Nevada with a switch in Las Vegas and digital connections in all of Nevada's local access and transport areas. We intend to continue our expansion into other western states, where many of our existing customers have operations. We expect to have ten switches with operations in ten western states by the end of 2000. As we expand our network, we plan to leverage our existing customer relationships to provide predictable usage rates on our network assets, rapid revenue ramp-up and continued strong

profit margins

Since our inception, we have used a "smart-build" network strategy, building and owning the intelligent components of our network while leasing unbundled loops and transport lines from other carriers. Currently, we lease all of our transport lines, but as traffic on our network increases, we intend to purchase rights of use in high capacity dark fiber transport lines to interconnect certain of our markets with an owned backbone network. This will provide us with greater flexibility in creating and managing data and voice services and result in cost savings. We also provide our customers with collocation services, allowing them to house their equipment in space we operate within our switching centers.

We are a leading supplier of Internet access and other Internet infrastructure services with 78 Internet service providers who have a significant existing customer base in our markets. With this large base of Internet service providers, we believe we are ideally positioned to provide high-speed data services, such as digital subscriber line or DSL services, to Internet users. Recently, we signed an agreement with Covad Communications to provide bundled high-speed services beginning in the fourth quarter of 1999 and are considering other ways to provide our customers with an easy method of ordering, installing and managing high-speed Internet access.

In addition, with our network presence and scale, we are well positioned to serve small and medium business customers. These customers want technologically advanced communication solutions from a single source. Our complete product offering of system design, equipment installation and maintenance, voice, data and long distance services, 24/7 support, subscription services with multi-year contracts and optional upgrades to emerging state-of-the-art equipment directly meets the needs of this under-served market. Our focus on small and medium businesses has resulted in significant market penetration over the past year, as we have increased our business lines in service from approximately 2,500 to over 12,000 from June 30, 1998 to June 30, 1999. According to industry sources, our target markets currently have approximately 1.4 million small and medium businesses and 16.5 million business lines.

Our Strategy

We are focused on becoming the integrated communication provider of choice for our customers. Our strategy to meet this objective is to:

- Capitalize on growing demand in our current markets. The demand for data and voice communications services in our current markets is large and growing rapidly. We intend to increase our market penetration and capitalize on this growth by adding more switches and transport lines to increase our capacity, adding new and innovative products to our existing offerings, and repackaging and repricing our offerings in response to the changing demands of our customers. We believe we are differentiated by the architecture of our network, which supports high calling volumes and long holding times, the ability to access our network throughout our market area through a local call, and the ability of service providers to collocate their equipment at our switch locations.

- Leverage existing customer base through geographic expansion. We are a leading supplier of Internet access and Internet infrastructure services in California with 78 Internet service provider customers. Our customers include: Concentric Network Corp., EarthLink, Inc., MindSpring Enterprises, Inc. and Splitrock Services, Inc. We plan to leverage our existing customer base by entering new markets where our current customers have or are beginning operations to achieve predictable usage rates on our network assets, rapid revenue ramp-up, and continued strong profit margins. By year end 2000, we plan to have operations in California, Nevada, Washington, Arizona, Utah, Colorado, Texas, New

(1) assumes that the underwriters' over-allotment option will not be exercised, (2) assumes that all of the shares offered in the directed share subscription program are purchased by shareholders of Safeguard Scientifics, (3) assumes that all of our outstanding convertible redeemable preferred stock will be converted into common stock concurrent with the closing of this offering, based on the preference amount as of June 30, 1999 and a conversion price of $10.00 per share, (4) reflects a 10-for-1 stock split that was effected on March 19, 1999 and (5) reflects a 1.4-for-1 stock split effected on October 7, 1999.

Summary Financial Data

Our statements of operations data for the period from commencement (October 1, 1996) to December 31, 1996 and for the years ended December 31, 1997 and 1998, shown in the table below, are derived from our audited financial statements. Our statements of operations data for the six month periods ended June 30, 1998 and 1999 and our balance sheet data as of June 30, 1999 have been derived from our unaudited financial statements which, in the opinion of management, include all adjustments, consisting only of normal recurring adjustments, necessary for a fair statement of the results for the unaudited interim periods presented. The unaudited balance sheet data as of June 30, 1999 includes the issuance on January 29, 1999 of $150 million of 13 1/2% senior notes due 2009. The results of our operations for the six month period ended June 30, 1999 are not necessarily indicative of the results of operations which we expect for the full 1999 calendar year. This summary should be read in conjunction with the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements, including related notes thereto, included elsewhere in this prospectus.

The unaudited "As Adjusted" summary balance sheet data reflects the sale of the 11,400,000 shares of common stock offered by us in this offering at the initial public offering price of $10.00 per share, after deducting the underwriting discount and estimated offering expenses payable by us, and the conversion of our outstanding convertible redeemable preferred stock. The unaudited pro forma share and per share data give effect to the conversion of our outstanding convertible redeemable preferred stock into 4,864,947 shares of common stock, based on the preference amount as of June 30, 1999 and a conversion price of $10.00 per share.

On October 1, 1996, we began operations when our predecessor company transferred its telephone and answering service divisions to us. As a result, you have limited comparable historical financial information upon which to base your evaluation of our past performance and the value of investing in our common stock.

Except as discussed below, we recognize revenues for telecommunications services when service is provided. Such revenues include reciprocal compensation due under our new interconnection agreement with Pacific Bell. Reciprocal compensation due under our previous interconnection agreements with Pacific Bell and GTE is recognized as revenue only to the extent received in cash. Pacific Bell and GTE have each refused to pay us the portion of reciprocal compensation due under the prior agreements which they estimate is the result of inbound calls terminating to Internet service providers. Pacific Bell and GTE argue that such calls are not local within the meaning of their interconnection agreements and therefore assert that no reciprocal compensation is due. See Note 5 to the audited financial statements, "Risk Factors--We may not be entitled to receive reciprocal compensation for calls to Internet service providers" and "Business--Regulatory Proceedings--Interconnection Agreements."

Adjusted EBITDA as used in this prospectus represents earnings before interest, net; income taxes; depreciation and amortization; further adjusted for the costs of merger and recapitalization; transaction bonuses and consultant's costs; and extraordinary item. Included in other (income) expense, net, is interest income of $5,000, $90,000, $327,000, $128,000 and $1,185,000

for the period from commencement on October 1, 1996 to December 31, 1996, for the years ended December 31, 1997 and 1998, and for the six month periods ended June 30, 1998 and 1999, respectively. Although EBITDA is not a measure of financial performance under generally accepted accounting principles, we believe it is a common measure used by analysts and investors in comparing a company's results with those of similar companies as well as to evaluate the capacity of a company to service its obligations.

	Period from Commencement on October 1, 1996 to December 31, 1996	Year Ended December 31, 1997	Year Ended December 31, 1998	Six Month Period Ended June 30, 1998	Six Month Period Ended June 30, 1999
	(in thousands, except per share data)				
Statements of Operations Data:					
Revenues	$ 4,232	$ 29,551	$ 42,211	$ 19,932	$ 30,264
Costs and expenses:					
Operating costs	2,064	12,060	15,344	7,791	8,753
Selling, general and administrative:					
Selling, general and administrative	1,519	7,367	10,779	4,219	9,563
Transaction bonuses and consultant's costs (1)	--	--	3,798	--	--
Depreciation and amortization	299	2,204	4,106	1,701	3,292
Income from operations	350	7,920	8,184	6,221	8,656
Interest expense	105	932	4,199	786	9,502
(Gain) on disposal of answering service division	--	(385)	--	--	--
Costs of merger and recapitalization (1)	--	--	3,004	81	--
Other (income) expense, net	11	(119)	(330)	(128)	(1,185)
Income before provision for income taxes and extraordinary item	234	7,492	1,311	5,482	1,339
Provision for income taxes	94	2,997	1,561	2,193	535
Income (loss) before extraordinary item	140	4,495	(250)	3,289	804
Extraordinary item--loss on early extinguishment of debt, net of income tax benefit of $278 (1)	--	--	(417)	--	--
Net income (loss)	$ 140	$ 4,495	$ (667)	$ 3,289	$ 804
Basic and diluted income (loss) before extraordinary item per share	$ 1.00	$ 32.11	$ (0.30)	$ 23.49	$ (0.09)

Basic and diluted net income (loss) per share	$ -1.00	$ 32.11	$ (0.38)	$ 23.49	$ (0.09)
Basic and diluted weighted average shares outstanding	140	140	5,244	140	17,587
Pro forma basic net income (loss) per share	—		$ (0.10)		$ 0.04
Pro forma weighted average shares outstanding			6,563		22,220
Other Financial Data:					
Reciprocal compensation withheld	$ --	$ 3,793	$ 32,591	$ 12,912	$ 28,371
Adjusted EBITDA	633	10,538	16,091	7,922	11,948
Adjusted EBITDA margin %	15.0%	35.7%	38.1%	39.7%	39.5%
Capital expenditures	$ 3,899	$ 11,884	$ 42,466	$ 7,863	$ 21,908
Cash provided by (used in):					
Operating activities	— 75	5,876	12,033	7,387	20,741
Investing activities	(1,682)	(6,619)	(42,031)	(7,433)	(41,604)
Financing activities	1,549	3,658	41,631	3,018	44,513

	As of June 30, 1999	
	Actual	As Adjusted
	(in thousands)	
Balance Sheet Data:		
Cash and cash equivalents	$ 38,886	$144,576
Restricted cash (2)	20,066	20,066
Working capital	44,643	150,333
Equipment, vehicles and leasehold improvements, net	76,010	76,010
Total assets	150,208	255,898
Total long-term debt	150,062	150,062
Convertible redeemable preferred stock, including accrued cumulative dividends of $3,649	48,649	--
Stockholders' equity (deficit)	(75,634)	78,705

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(1) Transaction bonuses and consultant's costs, costs of merger and recapitalization and the extraordinary item all relate to our recapitalization described in Note 1 to the audited financial statements included elsewhere in this prospectus.

(2) Restricted cash represents cash deposited in an interest reserve trust account to fund the first two interest payments due under our senior notes, the first of which was paid on August 2, 1999.

Recent Developments
(unaudited)

Revenues for the third quarter of 1999, including a cash payment of $20.0 million from Pacific Bell in settlement of claims for unpaid reciprocal compensation from prior periods, were $37.0 million, up 134% from the second

quarter of 1999 ($17.0 million or an 8% increase excluding the settlement payment). On a year-over-year basis, third quarter 1999 revenues were up 289% as compared to third quarter 1998 revenues of $9.5 million (a 79% increase excluding the settlement payment). For the third quarter 1999, excluding the settlement payment, gross margin (revenues less direct operating costs as a percentage of revenues) was 66% and includes the effect of a significant price reduction as a result of lower reciprocal compensation rates per minute of use in the new two year Pacific Bell interconnection agreement. See "Management's Discussion and Analysis of Financial Condition and Results of Operations--Factors Affecting Operations."

EBITDA for the third quarter of 1999 was $25.8 million, a 337% increase from second quarter EBITDA of $5.9 million ($5.8 million or a 2% decrease excluding the settlement payment). On a year-over-year basis, third quarter 1999 EBITDA was up 790% from third quarter 1998 EBITDA of $2.9 million (a 100% increase excluding the settlement payment).

Net income for the third quarter of 1999 was $10.0 million (a loss of $0.5 million excluding the settlement payment), compared to net income of $0.2 million for the second quarter of 1999.

As of September 30, 1999, Pac-West had cash and cash equivalents and restricted cash totaling $69.0 million and total debt of $150.1 million.

As of September 30, 1999, Pac-West had a total of 88,009 lines in service versus 76,263 lines in service at the end of the second quarter of 1999, an increase of 15%. In addition, on a year-over-year basis (third quarter 1999 versus third quarter 1998), lines in service increased 150%.

Billed minutes of use increased 14% to 4.0 billion for the third quarter, compared to the second quarter of 1999. On a year-over-year basis, billed minutes of use increased from 2.0 billion to 4.0 billion, a 100% increase. Total personnel increased by 29 in the quarter to 216 at September 30, 1999.

Subsequent to September 30, 1999, GTE paid, and Pac-West recorded as revenue, $6,308,000 of reciprocal compensation that GTE had previously withheld. See "Management's Discussion and Analysis of Financial Condition and Results of Operations--Factors Affecting Operations." GTE has not waived its rights to appeal, contest or seek subsequent reimbursements of amounts paid by it as reciprocal compensation.

RISK FACTORS

You should carefully consider the risks described below before making an investment decision. The risks and uncertainties described below are not the only ones facing our company. Additional risks and uncertainties not presently known to us or that we currently consider immaterial may also impair our operations. If any of the following risks actually occur, our business, financial condition or results of operations could be materially adversely affected. In this case, the trading price of the common stock could decline, and you may lose all or part of your investment.

Failure to continue our expansion would adversely affect our financial condition.

Our failure to expand our business in order to satisfy the growing needs of our customers, to achieve economies of scale and to benefit from the infrastructure we have established would adversely affect our business prospects, financial condition and results of operations. This could result from our inability to:

- assess potential markets;
- obtain required governmental authorizations, franchises, and permits;

- implement interconnection and collocation arrangements with incumbent local exchange carriers;

- lease adequate transmission capacity from inter-exchange carriers, incumbent local exchange carriers and competitive local exchange carriers;

- purchase and install switches in additional markets; and

- develop a sufficient customer base.

We may not be able to manage our growth, which could adversely affect our business.

Future expansion will place significant additional strains on our personnel, financial and other resources. The failure to efficiently manage our growth could adversely affect the quality of our services, our business and our financial condition. Our ability to manage our growth will be particularly dependent on our ability to develop and retain an effective sales force and qualified technical personnel. The competition for qualified managers and technical personnel in the telecommunications industry is intense, and we may not be able to hire and retain sufficient qualified personnel. In addition, we may not be able to maintain the quality of our operations, to control our costs, to maintain compliance with all applicable regulations, and to expand our internal management, technical, information and accounting systems in order to support our desired growth.

We may not be able to comply in a cost-effective manner with current or future regulations.

Our provision of telecommunications services is heavily regulated at the federal, state, and local levels. Compliance with these regulations imposes substantial costs on us and restricts our ability to conduct our business. For example, in each state in which we desire to offer our services, we must obtain prior authorization from the appropriate state authorities. If we experience delays in obtaining required approvals or fail to comply with regulatory requirements, our business and our financial condition could be adversely affected. In addition, regulatory requirements may change with little notice, which would adversely affect our business prospects, financial condition and results of operations.

A failure to establish interconnection agreements on favorable terms would adversely affect our business.

We must interconnect with incumbent local exchange carriers in order to service our customers. The Telecommunications Act of 1996 mandates that incumbent local exchange carriers interconnect with companies like ours to provide us with individual network services components, such as origination, termination and other services. However, it does not assure the time frame in which those services will be offered to us or assure that we will be able to purchase those services at rates and on terms and conditions that allow us to remain competitive and profitable. If we have difficulties obtaining high quality, reliable and reasonably priced services

from the incumbent local exchange carriers, our services will be less attractive to customers and our business will be adversely affected. Our primary interconnection agreements are with Pacific Bell and GTE. Our interconnection agreement with GTE has expired but will remain in force until a replacement agreement is finalized. In addition, we will need new interconnection agreements in each new market we enter. We cannot be certain that we will be able to enter into replacement or new interconnection agreements on favorable terms. Based on current market conditions, we expect that the per minute reciprocal compensation rates under these agreements will

outstanding options with a weighted average exercise price of $1.48 per share as of June 30, 1999; and

- 1,721,300 shares of common stock issuable upon the exercise of options reserved for grant under our stock option plans as of June 30, 1999.

In addition, the calculations above assume the 2,300,000 shares offered by us pursuant to the directed share subscription program are purchased by the shareholders of Safeguard Scientifics and exclude 1,200,000 shares offered by Safeguard Scientifics to its shareholders, for which no proceeds will be received by us.

If all of the options outstanding as of June 30, 1999 had been exercised at that date, there would be additional dilution to new investors.

SELECTED FINANCIAL DATA

The following table sets forth selected financial data of:

- our predecessor's telephone and answering service divisions for the unaudited years ended December 31, 1994 and 1995 and for the nine month period ended September 30, 1996, and
- Pac-West for the period from our commencement on October 1, 1996 to December 31, 1996, for the years ended December 31, 1997 and 1998 and for the unaudited six month periods ended June 30, 1998 and 1999.

Our selected financial data as of the dates and for the periods indicated were derived from audited and unaudited financial statements contained elsewhere in this prospectus and the unaudited financial statements of our predecessor's telephone and answering service divisions for the years ended December 31, 1994 and December 31, 1995. The unaudited financial data as of June 30, 1998 and 1999 and for the six month periods ended June 30, 1998 and June 30, 1999 include all adjustments, consisting only of normal recurring adjustments, which management considers necessary for a fair presentation of results for these unaudited periods. The results of operations for the six month period ended June 30, 1999 are not necessarily indicative of the results of operations that we expect for the full 1999 calendar year. The following selected financial information should be read in conjunction with the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements, including the related notes thereto, included elsewhere in this prospectus.

On October 1, 1996, we began operations when our predecessor company transferred its telephone and answering service divisions to Pac-West. As a result, this prospectus includes our audited financial statements for the period from our commencement on October 1, 1996 to December 31, 1996, and for the years ended December 31, 1997 and 1998. Due to the significant changes in our operations since September 30, 1996, we believe that the financial information of our predecessor's telephone and answering service divisions is not directly comparable to our current results of operations. Accordingly, you have limited comparable historical financial information upon which to base your evaluation of our past performance and the value of investing in our common stock.

Except as discussed below, we recognize revenues for telecommunications services when service is provided. Such revenues include reciprocal compensation due under our new interconnection agreement with Pacific Bell. Reciprocal compensation due under our previous interconnection agreements with Pacific Bell and GTE is recognized as revenue only to the extent received in cash. Pacific Bell and GTE have each refused to pay the portion of reciprocal compensation due under the prior agreements which they estimate is the result of inbound traffic terminating to Internet service providers. Pacific Bell and GTE argue that such calls are not local within the meaning of their

interconnection agreements and therefore assert no reciprocal compensation is due. See Note 5 to the audited financial statements, "Risk Factors--We may not be entitled to receive reciprocal compensation for calls to Internet service providers" and "Business--Regulatory Proceedings--Interconnection Agreements."

Adjusted EBITDA represents earnings before interest, net; income taxes; depreciation and amortization; further adjusted for the costs of merger and recapitalization, transaction bonuses and consultant's costs; and extraordinary item. Included in other (income) expense, net, is interest income of $11,000, $20,000, $15,000, $5,000, $90,000, $127,000, $128,000 and $1,185,000 for the predecessor telephone and answering service divisions for the years ended December 31, 1994 and 1995, and for the nine month period ended September 30, 1996, and for Pac-West for the period from commencement on October 1, 1996 to December 31, 1996, for the years ended December 31, 1997 and 1998, and for the six month periods ended June 30, 1998 and 1999, respectively. Although EBITDA is not a measure of financial performance under generally accepted accounting principles, we believe it is a common measure used by analysts and investors in comparing a company's results with those of similar companies as well as to evaluate the capacity of a company to service its obligations.

	Predecessor Telephone and Answering Service Divisions			Pac-West Telecomm, Inc.				
	Year Ended December 31,		Nine Month Period Ended September 30,	Period from Commencement on October 1, 1996 to December 31,	Year Ended December 31,		Six Month Period Ended June 30,	
	1994	1995	1996	1996	1997	1998	1998	1999
	(in thousands)			(in thousands, except per share data)				
Statements of Operations Data:								
Revenues	$ 6,775	$ 8,980	$ 8,737	$ 4,232	$29,551	$ 42,212	$19,932	$ 30,264
Costs and expenses:								
Operating costs	2,959	3,496	4,362	1,064	12,060	15,244	7,791	8,753
Selling, general and administrative:								
Selling, general and administrative	1,687	1,911	1,123	1,519	7,367	10,779	4,219	7,563
Transaction bonuses and consultant's costs (1)	--	--	--	--	--	1,798	--	--
Depreciation and amortization	499	512	549	299	1,206	4,106	1,701	1,292
Income from operations	630	1,879	663	350	7,920	6,184	5,221	1,656
Interest expense	29	93	11	105	933	4,199	736	1,532
(Gain) on disposal of answering service division	--	--	--	--	(385)	--	--	--
Costs of merger and recapitalization (1)	--	--	--	--	--	1,004	81	--
Other (income) expense, net	(111)	(17)	(34)	11	(119)	(330)	(126)	(1,165)
Income before provision for income taxes and extraordinary item	626	1,803	664	334	7,493	1,311	5,492	1,339
Provision for income taxes	250	722	345	94	2,997	1,561	2,193	535
Income (loss) before extraordinary item	376	1,081	519	140	4,495	(250)	3,289	804
Extraordinary item--loss on early extinguishment of debt, net of income tax benefit of $278 (1)	--	--	--	--	--	(417)	--	--
Net income (loss)	$ 376	$ 1,081	$ 519	$ 140	$ 4,495	$ (667)	$ 3,289	$ 804
Basic and diluted income (loss) before extraordinary item per share				$ 1.00	$ 32.11	$ (0.30)	$ 23.49	$ (0.09)
Basic and diluted net income (loss) per share				$ 1.00	$ 32.11	$ (0.38)	$ 23.49	$ (0.09)
Basic and diluted weighted average shares								

Outstanding				140	140	$ 244	140	17 [illegible]
Other Financial Data								
Reciprocal compensation withheld	$ --	$ --	$ --	$ --	$ 1,793	$ 33,591	$12,912	$ 28,371
Adjusted EBITDA	1,129	2,388	3,431	433	10,538	16,091	7,922	11,948
Adjusted EBITDA margin %	16.7%	26.8%	16.4%	15.0%	15.7%	38.1%	19.7%	19.5%
Cash provided by (used in):								
Operating activities	$ 1,018	$ 1,758	$ 1,092	$ 75	$ 5,876	$ 12,033	$ 7,387	$ 20,741
Investing activities	(1,155)	(1,266)	(2,521)	(1,682)	(6,619)	(42,031)	(7,413)	(41,634)
Financing activities	196	3501	1,778	1,549	1,658	41,631	1,218	44,513
Balance Sheet Data (as of period end):								
Cash and cash equivalents	$ 257	$ 399	$ 746	$ 688	$ 1,603	$ 15,216	$ 6,575	$ 38,886
Restricted cash (2)	--	--	--	--	--	--	--	20,066
Working capital (deficit)	(321)	(219)	626	398	2,598	15,533	3,167	44,443
Equipment, vehicles and leasehold improvements, net	3,211	3,065	5,883	9,483	19,079	57,294	25,155	76,810
Total assets	3,945	5,141	8,441	12,386	27,528	83,493	36,871	158,208
Total long-term debt	509	149	2,536	5,698	12,206	100,116	15,048	150,062
Convertible redeemable preferred stock, including accrued cumulative dividends of $1,126 at December 31, 1998 and $3,649 at June 30, 1999	--	--	--	--	--	46,326	--	48,649
Stockholders' equity (deficit)	1,445	2,526	4,037	4,177	4,672	(74,113)	11,961	(75,634)

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(1) Transaction bonuses and consultant's costs, costs of merger and recapitalization, and the extraordinary item all relate to our recapitalization described in Note 1 to the audited financial statements included elsewhere in this prospectus.

(2) Restricted cash represents cash deposited in an interest reserve trust account to fund the first two interest payments under our senior notes, the first of which was paid on August 2, 1999.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Overview

Pac-West is a rapidly-growing provider of integrated communications services in the western United States. Our customers include Internet service providers, small and medium businesses and enhanced communications service providers, many of which are communications intensive users. Our predecessor, also known as Pac-West Telecomm, Inc., began selling office phone systems in 1980 and reselling long distance service to small and medium businesses and residential customers in 1982. Beginning in 1986, our predecessor began offering paging and telephone answering services to its customers. Effective September 30, 1996, our predecessor transferred its telephone and answering service divisions to us. Prior to September 30, 1996, we did not conduct any operations and, since that time, we have disposed of the answering service division and have focused our business strategy on operating as a provider of integrated communications services. For the year ended December 31, 1998 and for the six month period ended June 30, 1999, recognizing compensation from other communications companies for completing their customers' calls only to the extent such compensation was actually received in cash, we had net revenues of approximately $42.2 million and $30.3 million and adjusted EBITDA of approximately $16.1 million and $11.9 million, respectively.

Factors Affecting Operations

Revenues. We derive our revenues from monthly recurring charges, usage charges and initial non-recurring charges and telephone equipment sales and service. Monthly recurring charges include the fees paid by customers for lines

in service and additional features on those lines, as well as equipment collocation services. Usage charges consist of fees paid by end users for each call made, fees paid by incumbent local exchange carriers as reciprocal compensation for completion of their customers' calls through Pac-West, and access charges paid by carriers for long distance traffic terminated by Pac-West. Initial non-recurring charges are paid by end users, if applicable, for the initiation of our service.

We derive a substantial portion of our revenues from reciprocal compensation paid by incumbent local exchange carriers with which we have interconnection agreements. Reciprocal compensation revenues increased significantly in recent fiscal quarters as a result of increasing inbound call volume from our Internet service provider and other customers. For the years ended December 31, 1997 and 1998 and for the six month periods ended June 30, 1998 and 1999, recorded reciprocal compensation accounted for approximately 37.4%, 37.1%, 36.9% and 41.8%, respectively, of our revenues. As of June 30, 1999, two incumbent local exchange carriers with which we have interconnection agreements, Pacific Bell and GTE, refused to pay that portion of reciprocal compensation due under their prior agreement that they estimated was the result of inbound calls terminating to Internet service providers. These incumbent local exchange carriers contended that such Internet service provider calls are not local calls within the meaning of their respective interconnection agreements and claimed that no reciprocal compensation was therefore payable. The total reciprocal compensation withheld by these incumbent local exchange carriers and not included in revenues was $3.8 million for the year ended December 31, 1997, $32.6 million for the year ended December 31, 1998 and $28.4 million for the six month period ended June 30, 1999. On September 9, 1999, Pac-West entered into a settlement agreement with Pacific Bell regarding our claims for unpaid reciprocal compensation under our prior interconnection agreement. Under the terms of the settlement agreement, Pacific Bell agreed to pay $20.0 million to Pac-West and $20.0 million to certain stockholders of Pac-West as of the date of the recapitalization in settlement of those claims. As a result of these payments, the terms of our September 1998 recapitalization requiring additional distributions to certain of our shareholders have been satisfied. As of September 30, 1999, the total amount of reciprocal compensation, including late fees, which remains withheld by incumbent local exchange carriers is approximately $7.2 million.

On June 24, 1999, the California Public Utilities Commission adopted a decision in an arbitration proceeding between us and Pacific Bell which held that reciprocal compensation would be payable for Internet service provider calls under our new interconnection agreement with Pacific Bell which became effective on June 29, 1999. Pacific Bell has paid the full amount of our billings for calls since the effective date of the new agreement. On August 25, 1999, we, along with the commissioners of the California Public Utility Commission

and others, were named as a defendant in an action filed by GTE California. The action challenges the legality of the California Public Utility Commission's decisions regarding reciprocal compensation as discussed above. We intend to seek dismissal of the action or otherwise contest the claims of GTE California. The obligation of GTE or other local exchange carriers to pay this reciprocal compensation under its current agreement is currently under review by both state and federal regulators. See "Certain Relationships and Related Transactions."

We expect that reciprocal compensation will continue to represent a significant portion of our revenues in the future. We are currently negotiating and implementing new interconnection agreements and the terms of the related reciprocal compensation. The per minute reciprocal compensation rate we receive from Pacific Bell under our new agreement is significantly lower than it was under our previous agreement. Based on current market conditions, we also expect that the per minute reciprocal compensation rate will similarly decline from historic rates under any other future interconnection agreements. See "Risk Factors--A failure to establish interconnection agreements on favorable

terms would adversely affect our business" and "--We may not be entitled to receive reciprocal compensation for calls to Internet service providers."

Operating Costs. Operating costs are comprised primarily of leased transport charges, usage charges for long distance and intrastate calls and, to a lesser extent, reciprocal compensation related to calls that originate with a Pac-West customer and terminate on the network of an incumbent local exchange carrier or other competitive local exchange carrier. Our leased transport charges are the lease payments we incur for the transmission facilities used to connect our customers to our switch and to connect to the incumbent local exchange carrier and other competitive local exchange carrier networks. Our strategy of leasing rather than building our own transport facilities results in our operating costs being a significant component of total costs.

Selling, General and Administrative Expenses. Our recurring selling, general and administrative expenses include network development, administration and maintenance costs, selling and marketing, customer service, information technology, billing, corporate administration and personnel. We expect to incur significant selling and marketing costs as we continue to expand our operations, a significant amount of which will be incurred in a particular market before the switch becomes operational and begins to generate revenue. Consequently, selling and marketing expenses are expected to increase until implementation of our expansion plan is substantially complete. We will incur other costs and expenses, including the costs associated with the development and maintenance of our networks, administrative overhead, premises leases and bad debts. We expect that these costs will grow significantly as we expand our operations and that sales and marketing and administrative overhead will be a large portion of these expenses during the start-up phase in each of our new markets.

Results of Operations

The following table summarizes the results of operations as a percentage of revenues for:

(1) Our predecessor's telephone and answering service divisions for the nine month period ended September 30, 1996 and Pac-West for the period from our commencement on October 1, 1996 to December 31, 1996 on a combined basis; and

(2) Pac-West for the years ended December 31, 1997 and 1998 and for the unaudited six month periods ended June 30, 1998 and 1999.

The "Combined" column in the following table combines the results of operations of our predecessor's telephone and answering service divisions for the nine month period ended September 30, 1996 with those of Pac-West for the period from our commencement on October 1, 1996 to December 31, 1996. Due to the significant changes in our operations since September 30, 1996, we believe that the financial information of our predecessor telephone and answering service divisions is not directly comparable to our results of operations. As a result, prospective investors are cautioned not to place undue reliance on such financial information. The following data should be read in conjunction with the financial statements and notes thereto included elsewhere in this prospectus.

Selling, general and administrative expenses and income from operations for the year ended December 31, 1998 include $3.8 million of one-time transaction bonuses and consultant's costs. Excluding these transaction bonuses and consultant's costs, selling, general and administrative expenses were 25.5% of revenues and

income from operations was 28.4% of revenues for that period. The net loss for 1998 includes the costs of the recapitalization of $3.0 million, transaction bonuses and consultant's costs of $3.8 million and the extraordinary loss on

early extinguishment of debt of $0.7 million before income tax benefit.

	Combined	Pac-West Telecomm, Inc.			
	Year Ended December 31,			Six Month Period Ended June 30,	
	1996	1997	1998	1998	1999
Statements of Operations Data:					
Revenues	100.0%	100.0%	100.0%	100.0%	100.0%
Operating costs	48.3	40.8	36.4	39.1	28.9
Selling, general and administrative expenses	35.8	24.9	34.5	21.2	31.6
Depreciation and amortization expense	6.5	7.5	9.7	8.5	10.9
Income from operations	9.4	26.8	19.4	31.2	28.6
Net income (loss)	5.1	15.2	(1.6)	16.5	2.7

Six Month Period Ended June 30, 1999 Compared to Six Month Period Ended June 30, 1998

Revenues for the six month period ended June 30, 1999 increased $10.4 million to $30.3 million from $19.9 million for the corresponding period in 1998. The increase in revenues was primarily attributed to an increase of $5.3 million in paid local interconnection revenues and an increase of $4.1 million in recurring charges and installation charges billed directly to Internet service providers.

In the third quarter of 1998, we installed new higher capacity switches at our Stockton and Los Angeles switching sites. During the fourth quarter of 1998, we expanded switch capacity to existing and new customers. In the second quarter of 1999, we activated a new higher capacity switch in Oakland and continued to expand our switching capacity in Los Angeles. Our revenues for the second quarter of 1999 significantly increased compared to the second quarter of 1998 as a result of additional switch capacities, and increased utilization of our expanded switch capacities, primarily attributable to Internet service provider customers. In addition, new service orders from small and medium businesses have continued to accelerate in the second quarter of 1999 as we have built our sales force.

The number of access lines in service increased 137% to 76,263 as of June 30, 1999 from 32,176 as of June 30, 1998. Billable minutes of use were 6.6 billion in the first half of 1999, up 105% from 3.2 billion for the first half of 1998.

Inbound local calls and minutes subject to reciprocal compensation revenues in accordance with interconnection agreements increased 65% and 106%, respectively, for the first half of 1999 over the first half of 1998. However, for reasons discussed elsewhere in this prospectus, the incumbent local exchange carriers paid only 31% of the reciprocal compensation billings for the first half of 1999 as compared to paying 36% in 1998. The net effect of those significant increases in inbound local calls and minutes, offset by the lower payment percentage, resulted in the $5.3 million or 72% increase in paid interconnection revenues.

The $4.1 million increase in the first half of 1999 over the first half of 1998 in direct billings to Internet service providers represented a 94% year to year increase. Lines used by our Internet service providers significantly increased in the first half of 1999 over the same period in 1998 to 60,401 lines in service by Internet service providers at June 30, 1999, from 28,108

lines in service at June 30, 1998.

Our operating costs for the six month period ended June 30, 1999 increased $1.0 million to $8.8 million from $7.8 million for the corresponding period in 1998. Our operating costs as a percentage of revenues decreased to 28.9% for the six month period ended June 30, 1999 from 39.1% for the corresponding period in 1998. The increase in operating costs was primarily due to an increase in network operations associated with a higher level of telecommunications activity. We made significant investments in our telephone infrastructure during the second half of 1998 and the first half of 1999 to accommodate future growth of our communications services. As a result of increased utilization of our newly installed switching equipment and the use of higher capacity transmission facilities, our operating costs decreased as a percentage of revenues.

Our selling, general and administrative expenses for the six month period ended June 30, 1999 increased $5.4 million to $9.6 million from $4.2 million for the corresponding period in 1998. As a percentage of revenues, our selling, general and administrative expenses increased to 31.6% for the six month period ended June 30, 1999 from 21.2% in the corresponding period in 1998. The increase in selling, general and administrative expenses was primarily due to the addition of 36 employees in sales and marketing; an increase in network operational, development and administration costs, including 21 additional network employees; an increase of 20 service technicians; and 11 additional employees in other administration, customer service and information technology functions. Our total number of our employees increased from 99 at June 30, 1998 to 187 at June 30, 1999.

Our depreciation and amortization expense for the six month period ended June 30, 1999 increased $1.6 million to $3.3 million from $1.7 million for the corresponding period in 1998. Depreciation and amortization as a percentage of revenues increased to 10.9% for the six month period ended June 30, 1999 from 8.5% in the corresponding period in 1998. The increase in depreciation and amortization expense was primarily due to the additional depreciation on the portion of the $42.5 million of equipment acquired during 1998 which has been placed in service. As the equipment acquired in 1999 is placed in service, depreciation expense as a percentage of revenues is expected to increase in subsequent quarters.

Our interest expense for the six month period ended June 30, 1999 increased $7.7 million to $8.5 million from $0.8 million in the corresponding period in 1998. The increase in interest expense was primarily due to the financing of a significant portion of the $42.5 million of equipment acquired during 1998 and interest on the $150 million senior notes issued on January 29, 1999, including amortization over 10 years of the related deferred financing costs associated with that offering. In addition, the interest rate on the senior notes since January 29, 1999 is a higher interest rate than the rates paid on the equipment financings outstanding in the first half 1998.

Our combined effective federal and state tax rate was 40% for the first half of both 1999 and 1998.

Year Ended December 31, 1998 Compared to Year Ended December 31, 1997

Our revenues for the year ended December 31, 1998 increased $12.6 million to $42.2 million from $29.6 million for 1997. The increase in revenues was primarily attributed to an increase of $4.6 million in paid interconnection revenues, an increase of $5.1 million in recurring charges and installation charges billed directly to Internet service providers, an increase of $1.2 million in local and long distance usage revenues, and an increase of $0.8 million in dedicated transport revenues.

Inbound local calls and minutes subject to reciprocal compensation revenues in accordance with interconnection agreements increased 128% and 232%,

Utah, Idaho, New Mexico and Oregon, by the end of 2000. We believe that the use of communications services is rapidly expanding in each of these areas and that we will be able to effectively use our experience in California and our customer relationships to enter these markets.

The following table sets forth certain information regarding the markets in which Pac-West currently operates and our anticipated geographic network buildouts. Internet service providers are often present in more than one state and are therefore included in the total for each such state. Small and medium businesses are defined as businesses with fewer than 100 employees. The following information is taken from the electronic publication "Boardwatch.com" and publications issued by the FCC and United States Small Business Administration.

	1999 Target Customer Base				1997 Telecommunications Revenues ($ Millions)			
	Services Launch Date	Number of Internet Service Providers	Number of Small & Medium Business	Total Business Lines	Local Exchange Intrastate	Local Exchange Interstate	Long Distance Carriers	Total Market
Current Markets:								
California	1982	1,176	609,996	8,362,883	$ 8,708	$2,434	$16,096	$27,236
Nevada	1999	176	11,589	411,952	333	165	991	1,489
Total Current Markets				8,774,835	9,039	2,599	17,087	28,725
Planned Markets:								
Arizona	2000	581	82,454	816,349	1,008	423	2,236	3,667
Colorado	2000	524	100,979	869,445	1,279	492	2,235	4,006
Idaho	2000	284	25,778	188,212	355	141	571	967
New Mexico	2000	358	31,396	243,928	430	166	774	1,370
Oregon	1999	583	79,046	593,120	798	340	1,582	2,720
Texas	2000	876	348,146	3,644,183	5,286	1,670	9,987	15,943
Utah	2000	351	38,830	357,867	430	190	823	1,443
Washington	1999	713	128,293	1,039,821	1,269	564	2,780	4,613
Total Planned Markets				7,752,625	10,755	3,986	19,988	34,729
Total Current and Planned Markets				16,527,460	$19,794	$6,585	$37,075	$63,454

Network

We built our network to capitalize on the significant growth in demand for switched data and voice communications and the increasing demands of small and medium businesses for customized, integrated communications services. Since our inception, we have used a "smart-build" strategy, building and owning intelligent components of our network while leasing unbundled loops and transport lines from other carriers. We believe that this strategy has provided us with significant cost and time-to-market advantages over competitors that own both their switches and fiber lines. By owning our switches, we can configure our network to provide high performance, high reliability and cost-effective solutions for our customers' needs. By leasing our transport lines, we can reduce up-front capital expenditures, rapidly enter new markets, and provide low-cost redundancy. In addition, we seek to maximize our operating profits by carrying a high percentage of our customer-originated traffic on our network. As traffic on our network increases, we intend to purchase rights of use in high capacity dark fiber transport lines to interconnect certain of our markets with an owned backbone network. This will provide us with greater flexibility in creating and managing data and voice services and result in cost savings.

To meet demand for communications services in California, we have established three California switching sites, one in each of Los Angeles,

Oakland, and Stockton, and digital connections in each of California's 11 local access and transport areas. We believe the structure of our network and, in California, our presence in each California local access and transport area provides us with significant competitive advantages over incumbent local exchange carriers and other competitive local exchange carriers, particularly for Internet service providers, small and medium business and enhanced communications service providers. In California, our network enables our customers to provide their business and residential customers with access to Internet, paging and other services from almost any point in the state through a local call. In this way, our customers can achieve statewide coverage with significantly lower capital and operating expenses. We currently aggregate and concentrate all of our network traffic into our high volume switching sites called Super POPs. Our switching sites offer Internet service providers highly reliable, low cost tandem switching and the ability to build lower cost networks by collocating equipment at our three California switching sites rather than in all 11 local access

and transport areas. In addition, our interconnection arrangements and statewide leased transport network allow Internet service providers to obtain statewide coverage at local calling rates, which reduces switching and transmission costs.

As of June 30, 1999, we had an installed capacity of 309,120 ports in California and Nevada. We expect to have ten switches with operations in ten western states by the end of 2000 with statewide local coverage in each of our target markets. We intend to install a second switch in Los Angeles in late 1999 as well as build switching sites in Washington in 1999 and in Colorado in early 2000.

Switching Platform. We have chosen Alcatel USA's digital tandem switches to switch calls between originating locations and final destinations. Due to their high call carrying capacity, multiple path call routing capabilities and ability to switch multiple digital, voice and data applications of varying bandwidths, tandem switches are ideally suited for handling the high volumes and long holding times involved in serving Internet service provider customers. Tandem switches, software and customer collocation facilities provide the scale, switching capacity and standardization needed to efficiently and reliably serve our target customers. Our uniform and advanced switching platform combined with the structure of our computer network enable us to:

- deploy features and functions quickly throughout our entire network;
- expand switch and transport capacity in a cost-effective, demand-based manner;
- lower maintenance costs through reduced training and spare parts requirements; and
- achieve direct connectivity to wireless and other personal communication system applications in the future.

Transmission Capacity. We currently lease our transmission facilities from inter-exchange carriers, incumbent local exchange carriers and other competitive local exchange carriers. We generally seek to lease fiber optic transmission facilities from multiple sources in each of our current and target markets. We believe that our broad market coverage results in:

(1) an increased number of buildings that can be directly connected to our switching network, which should maximize the number of customers to which we can offer our services;

(2) a higher volume of communications traffic both originating and terminating on our network, which should result in improved operating margins;

businesses. We offer our business customers technologically advanced systems bundled together with local and long distance services.

Sales and Marketing

Sales. We are building an experienced direct sales force. Our direct sales force was increased to 44 as of June 30, 1999, from 21 as of June 30, 1998. We recruit salespeople with strong sales backgrounds in our existing and target markets, including salespeople from long distance companies, telecommunications equipment manufacturers, network systems integrators and incumbent local exchange carriers. We plan to continue to attract and retain highly qualified salespeople by offering them an opportunity to work with an experienced management team in an entrepreneurial environment and to participate in the potential economic rewards made available through a results-oriented compensation program that emphasizes sales commissions.

During the months prior to initiating service in a new market, our salespeople will begin pre-selling our services to target customers. This pre-selling effort is designed to shorten the period between the availability of service and the receipt of customer orders and to generate customers in each market who may enter into service agreements before the local Pac-West network becomes operational.

Marketing. In our existing markets, we seek to position ourselves as a high quality alternative to incumbent local exchange carriers for local telecommunication services by offering network reliability and superior customer support at competitive prices. We intend to build our reputation and brand identity by working closely with our customers to develop services tailored to their particular needs and by implementing targeted advertising and promotional efforts, which will be gradually expanding to mass media.

Customer and Technical Service. We believe that our ability to provide superior customer and technical service is a key factor in acquiring new customers and reducing churn of existing customers. We have developed a customer service strategy designed to effectively meet the service requirements of our target customers. The principal salesperson for each customer will provide the first line of customer service by identifying and resolving any customer concerns. Customer service representatives will provide real time problem identification and resolution and superior customer service. All of these services will be supported by our experienced engineering and technical staff.

Customers

We focus on providing integrated communications services to Internet service providers, small and medium businesses, enhanced communications service providers, paging companies and call centers, many of which are communications-intensive users. For the three month period ended June 30, 1999, ten of our top fifteen customers were Internet service providers. For the years ended December 31, 1997 and 1998 and for the six month period ended June 30, 1999, Internet service providers accounted for approximately 16.2%, 23.3% and 28.2%, respectively, of our revenues, not including reciprocal compensation related to terminating calls to Internet service providers.

In addition to Internet service providers, we have targeted enhanced communications service providers as potential large volume users of our services. Enhanced communications service providers offer unified messaging platforms and fax mail services, in addition to recently introduced free fax and voice mail services. The characteristics of this market segment not only offer us the potential to sell more trunks and bill more minutes of use but also allows us to improve the utilization of our resources.

The following is a list of some of our Internet service providers, enhanced communications service providers, and paging customers:

TELEPHONY

09/17/1998
COMMUNICATIONS DAILY

FCC proposed Wed. to remove barrier to faster modem speeds by allowing digital 56 kbps modems to use more network power. Change suggested in notice of proposed rulemaking would relax 2-decade-old rule that limited amount of signal power that can be transmitted through phone network. If adopted, proposal would allow for "moderately" higher modem speeds (true 56 kbps instead of current 53.6 kbps) from ISPs to consumers, FCC said. Action is latest in Commission's biennial review, in which agency must examine rules and eliminate or streamline those it finds outdated. Power limitations were contained in Part 68 of Commission rules that set technical parameters for terminal equipment and limited power levels to prevent electrocution, malfunctions, interference. FCC said it thinks signal power limitations can be relaxed without causing interference or technical problems, but it asked for comment on "any benefits and harms" that might result. It said that while proposal would produce "somewhat higher" modem speeds, it still intends to remove other impediments to faster data transmission when it's in "public interest." Chmn. Kennard said proposed change is "common-sense move" and is "just a small part of the FCC's ongoing effort to end the worldwide wait." Comr. Furchtgott-Roth approved rules, but reiterated his belief that scope of biennial review is too narrow and should encompass all FCC regulations. Comments on proposal are due at FCC 30 days from when it is published in Federal Register. Reply comments are due 15 days later.

Unit of Nextel leapfrogged Intel Global in bidding for almost every major license in 2nd round of FCC's 220 MHz spectrum auction Wed. Nextel outbid Intel for 2 of 3 national licenses, all 6 regional licenses and spectrum in all top 10 markets except San Francisco. Sophia License bid topped Intel for 3rd national license, FCC said. However, total top bids for auction increased just 2.3% to $5.58 million. Commission's spectrum auctions often last for weeks. Licenses in 220 MHz block are used primarily for mobile data services and paging.

Reciprocal compensation should be abolished for calls to Internet service providers because it reduces incentive for competitive LECs (CLECs) to upgrade to high-speed network. Covad Communications Chmn. Chuck McMinn said Tues. in speech to Economic Strategy Institute in Washington. "I think reciprocal compensation is a boondoggle," he said, and incumbent LECs (ILECs) have "legitimate point." McMinn also said he fully supported recent FCC notice of proposed rulemaking on Telecom Act Sec. 706 to allow ILECs to enter data services market through separate subsidiary. If ILECs are "forced to deal with their own bureaucracy, they'll simplify, streamline and eliminate" process for obtaining capacity on digital subscriber line (DSL) networks, he said. Covad is CLEC providing DSL service in San Francisco area with upcoming service planned for L.A., N.Y. McMinn said DSL is "fundamentally an interstate service" and encouraged FCC to "exercise their authority" to develop set of consistent, national standards. He said local market still is heavily regulated --even for CLECs -- and until this year Covad employed more lawyers than marketers.

Nortel is cutting 3,500 employees as part of plan to shift business from making traditional network equipment to advanced equipment, company announced. It said layoffs, representing 3% of work force, will allow it to focus on "growth opportunities in data networking." Workforce will be reduced in each of Nortel's units except for recently acquired Bay Networks. Company said it will eliminate managers, seek "additional operational efficiencies," realign units. Meanwhile, GTE approved Nortel access equipment for its network and deployed equipment in Cal., Fla., Tex. Nortel also said it extended its integrated service to wireless users, allowing them to move between private office system and public wireless network.

U S West introduced call management service to prevent Web users with single phone line from missing calls. Using technology developed by eFusion, U S West said service identifies caller and allows option of accepting call, sending call to voice mail or transferring call to another number. Service will be available to U S West customers in Omaha, Minneapolis and St. Paul by year-end, with plans to expand to other major markets in 1999.

Objective Communications signed reseller agreement with TDS Datacom, Madison, Wis., for delivery of video services, including videoconferencing and video-on-demand.

Lucent selected Equant's global services management system to provide additional services and support in 55 countries for its international data network.

In victory for CLECs. N.Y. PSC ruled that Bell Atlantic (BA) can't bar former business partners from serving customers they contacted through BA partnership and can't charge customers termination fee for switching service to new competitor. Ruling stems from long-running dispute in which BA tried to block former agent CTC Communications from serving former BA customers that it acquired through work as BA partner. PSC said that charging termination fee to customers who switch to new competitors violates Telecom Act and state law because it's "discriminatory and designed to protect market share." Agency said Act prohibits unreasonable restrictions or limitations on resale. CTC Chmn. Robert Fabbricatore said decision is important because it sets precedent that CLECs can "freely compete."

Minn. Attorney Gen. Hubert Humphrey III filed complaint with state PUC accusing U S West of discriminating against nonaffiliated Internet service providers (ISP) in its marketing and deployment of its high-speed ADSL "MegaBit" Internet access service and with "Internet slamming." Complaint alleges U S West is using its monopoly provision of MegaBit access lines to "squeeze out its [Internet] competition by discriminating in favor of its own affiliate" USWEST.Net. U S West delayed installation of MegaBit service to competitors, filing charged, but provided all of necessary connections to USWEST.Net, giving its own Internet service head start and unfair advantage. Humphrey said: "A delay of 2 weeks or a month in an extremely competitive environment can provide US West with a significant and unfair market advantage." He also charged carrier with Internet slamming by switching MegaBit customers from their designated ISP to USWEST.Net without authorization. U S West is unfairly using MegaBit access-line ordering process to steer customers toward its Internet affiliate, complaint contended. It asked PUC to end discriminatory practices and compel U S West to treat affiliated and nonaffiliated ISPs equally. Complaint also called on PUC to establish monitoring and reporting of capacity availability and to require that MegaBit service be available for resale.

Ida. PUC approved rate rebalancing plan for GTE Northwest that shifts revenues from access services onto basic exchange service. Plan will increase monthly local service rates $1.35-$2.85 per month for most business and residential subscribers. Offsetting increases will be 50% reduction in GTE's intrastate carrier access charges. Changes will take effect by Oct. 11, PUC said. Order also directed AT&T and MCI to report by Dec 1 on how much their toll rates have gone down as result of access charge reduction.

Lansing, Mich., city officials have given up on joint venture with Lansing School Dist. to lease tower sites for wireless personal communications services (PCS). Instead, they have resurrected earlier idea to lease up to 20 PCS tower sites in city parks and vacant city-owned lots and keep proceeds. City Council last week decided there was no hope for plan first aired in Jan. to lease 8 school-owned and 7 city-owned PCS tower sites, with bulk of estimated $700,000 in annual proceeds going to fund educational technology at Lansing schools. Opposition from parents and neighbors concerned about effects of tower radiation led school district to pull from plan all but one of school sites originally listed. "Our people said 'yes' but the school district said 'no'," said Mayor David Hollister. "We said 'okay, we can't make you take this money.'" City Council will hold public hearings next week to determine residents' reaction to first 5 sites in revised plan. Meanwhile, city's finance administrator said he has strong interest in city-owned tower sites from at least one wireless firm.

Tex. PUC adopted rules that prohibit telephone solicitors from blocking display of their numbers and names to persons with caller ID service. Rules implement provisions of 1997 telemarketing law. Telemarketers face fine of up to $1,000 per day if they block display of their company name and originating number. No-block requirement applies regardless of whether live solicitor or automatic dialing and announcing device is used to place calls. Rules require that number that appears must accept incoming calls. They also limit telemarketing calls to hours between 9 a.m. and 9 p.m. and require telemarketers to "make every effort" not to call customer who asks not to be called again.

Frontier Telephone, N.Y. Dept. of Public Service staff and N.Y. Consumer Protection Board proposed to state PSC plan to address chronic service quality problems with Frontier, formerly known as Rochester Telephone. Plan calls for rebate of $2 million to customers in recognition of poor service in 1998, tightening service quality targets, maximum $7 million annual penalty for failure to meet goals, up from current $1 million. Proposal also would provide for $20 credit to any customer who experiences missed repair appointment and waiver of service order charges for missed installation appointment. Frontier also would boost its 1998 network investment to $80 million -- 20% over amount originally budgeted.

Ameritech Mich., saying slamming problem has "gone out of control," urged Mich. PSC to give customers option of freezing their toll and long distance carrier choice to prevent slamming. Ameritech said there already have been 40,000 slamming incidents in 1998, compared with 33,800 for all of 1997 and 3,800 for all of 1996. PSC is holding hearings on implementing mandate of 1998 state antislamming law. As part of carrier freeze program, Ameritech suggested lists of "frozen" customers be made available to all interexchange carriers. It also is asking Mich. Attorney Gen.'s Consumer Div. to provide local prosecutors, Better Business Bureaus, local chambers of commerce and Small Business Assn. of Mich. with "look-out list" of long distance companies doing business in state that have been fined in other states for slamming. Telco also is sending its "Slam the Slammers" fact sheet out for broader consumer distribution through groups such as Mich. Alliance for Competitive Telecommunications, Telecommunications Assn. of Mich., Small Business Assn. of Mich., Mich. Competitive Telecom Providers Assn.

Wash. Supreme Court ruled unanimously last week that federal laws preempting state regulation of wireless services don't preclude state courts from awarding damages to cellular customers affected by contract breaches or deceit. State's top court reinstated 1995 class action lawsuit against AT&T Wireless Services that alleged breach of contract and deceptive advertising because of rounding up cellular calls to next full min. Plaintiffs in that suit claimed that practice could cost cellular customer more than 40% of monthly air time nominally promised by cellular calling plan. State Supreme Court ruling didn't address merits but reversed 1996 King County Superior Court decision that suit couldn't be tried in Wash. because of federal preemption. Top Wash. court said award of damages to consumers isn't equivalent of ratemaking, which is sole domain of FCC. Court also denied AT&T request to refer case to FCC, saying claims of deceptive ads were proper matter for state courts.

SBC Communications and Ameritech reiterated to Ohio PUC Tues. their position that their planned merger doesn't require hearings. Ameritech urged PUC to "reject efforts by competitors to launch an unlawful, expensive and time-consuming fishing expedition on a range of issues that have nothing to do with the merger and instead would only delay the process." Companies said their merger would have no effect on day-to-day telephone operations. Also, AT&T told Ind. Utility Regulatory Commission that issues raised by merger can be addressed only through full hearings. It said agency needs to assess whether merger will impair competition by making Ameritech even more dominant in local exchange, and whether there will be adverse effects on employment levels, rates and Ameritech's community involvement.

ADC Telecom agreed to pay $200 million cash for outstanding shares of Teledata Communications of Israel and said it expects to close deal by year-end. ADC said acquisition will allow it to expand local loop technology offerings, provide new distribution channels to increase international sales, supply platform to develop broadband digital loop carrier system.

Motorola's Cellular Infrastructure Group (CIG) signed $53 million contract with Sichuan Posts & Telecom Administration in China to expand GSM network by 300,000 subscribers. Agreement is part of $210 million contract won by company from Eastern Communications in June.

Nortel won $40 million contract from Chunghwa Telecom of Taiwan for 3rd expansion of its GSM network. Nortel said it will install additional radio equipment for network and expand capacity by 400,000 subscribers to 1.5 million.

DDI Corp. of Japan selected Ciena's dense wavelength division multiplexing (DWDM) system for deployment in nationwide network with service expected to begin early next year. Ciena said DDI is 3rd new Japanese common carrier to select its DWDM products.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Access Charge Reform	)	CC Docket. No. 96-262
	)	
Price Cap Performance Review for Local Exchange Carriers	)	CC Docket No. 94-1
	)	
Transport Rate Structure and Pricing	)	CC Docket No. 91-213
	)	
Usage of the Public Switched Network by Information Service and Internet Service Providers	)	CC Docket No. 96-263

COMMENTS OF AT&T CORP.

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March 24, 1997

HUGHES SCHEDULE 6

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SUMMARY

As the Commission notes in the Notice of Inquiry, the proliferation of new packet-switched services offered by information service and Internet service providers now warrants reexamination of existing regulations regarding information services. The demand for packet-switched data services is growing rapidly, and the information services industry is growing rapidly to meet that demand. But information and other enhanced service providers (collectively, "ESPs") today still use the public local switched network to deliver dial-up services to their customers.

The public switched local network, however, is neither designed nor priced to carry data traffic efficiently. And, as demand continues to grow, packet-switched access networks will be necessary to carry this data traffic. The Commission's current policies have not facilitated the deployment of such networks and have, in fact, created artificial incentives to use existing, circuit-switched networks inefficiently. These failures are due in part to the ESPs' exemption from the obligation to pay federal access charges, even though ESPs clearly use interstate exchange access just as interexchange carriers do.

Contrary to the arguments of some local exchange carriers (LECs), however, the solution is *not* to subject ESPs to the same inflated and subsidy-laden access charges currently paid by IXCs. For reasons explained by AT&T in its comments in the Commission's access charge proceeding, those charges should be set at a level equal to the LECs' total element long-run incremental cost of service (TELRIC) – for everyone,

Moreover, although network congestion is clearly not a problem today, TELRIC-based, traffic-sensitive pricing will send appropriate economic signals and thereby help deter any potential network congestion. And cost-based pricing will protect the universal service contribution base, by stanching the flow of *artificially induced* migration of traffic from the public switched network to the Internet.

Cost-based access charges will not harm the enhanced service industry. Analysis of information provided by CompuServe in the access reform proceeding shows that the transition from state-regulated business lines to TELRIC-based interstate access charges would increase CompuServe's costs by only 56 cents per customer per month. Such an increase will not materially affect overall demand for ESPs' services (assuming the increase is passed on to customers) and, in all events, would not impose significant financial harm upon ESPs operating in competitive environments. Requiring the ESPs to pay cost-based access rates also will not provide a windfall to the incumbent LECs because the Commission can (and should) adjust their price caps to reflect this exogenous increase in revenue.

Finally, there can be little doubt that most ESP services fall squarely within the Commission's jurisdiction. Particularly with respect to the Internet and online services, ESPs and LECs are incapable of dividing the traffic into interstate and intrastate communications, and therefore such services are "inseverably" interstate. Such traffic is therefore fully subject to the Commission's jurisdiction.

Before the
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	)	
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COMMENTS OF AT&T CORP.

Pursuant to the Commission's December 24 Notice of Inquiry ("NOI"),[1] and its subsequent January 24 Order,[2] AT&T Corp. ("AT&T") hereby submits these comments concerning usage of the public switched network by information service and Internet service providers ("ISPs").

INTRODUCTION

AT&T welcomes the Commission's effort to determine whether "additional actions relating to interstate information services and the Internet" are warranted in view of the sweeping changes that have occurred in the information services industry in recent years,

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[1] *Usage of the Public Switched Network by Information Service and Internet Service Providers*, CC Docket No. 96-263, Notice of Proposed Rulemaking, Third Report and Order, and Notice of Inquiry (released December 24, 1996).

[2] *Usage of the Public Switched Network by Information Service and Internet Service Providers*, CC Docket No. 96-263, Order (released January 24, 1997).

and in light of the Commission's ongoing access reform and universal service proceedings. NOI at ¶ 312. AT&T agrees that the time has come to examine the extent to which advances in technology, and the proliferation of new digital services accessed through the circuit-switched networks of the LECs, warrant changes to the regulation of local exchange and exchange access services.

Recent technological and market developments make such an examination both timely and necessary. New information services based on packet-switched technology are becoming increasingly available to American consumers and businesses on a dial-up basis over their residential and business narrow-band phone lines, creating enormous demand for packet-switched higher-speed data services. The information services industry is growing exponentially to meet this growing demand.

Nevertheless, the packet-switched local networks that would be capable of providing those services efficiently have not yet emerged. As a result, these packet-switched services continue to utilize the local public circuit-switched network, which has not been expanded to accommodate, and in all events is not designed or priced to provide, efficient data services. Accordingly, it is becoming increasingly clear that existing regulatory policies neither "facilitate the development of the high-bandwidth data networks of the future" nor "preserv[e] efficient incentives for investment and innovation in the underlying voice network." NOI at ¶ 311.

The tremendous growth of packet-switched services -- and the lack of a market-based response to the demand for new networks to accommodate that growth -- exacerbate

the economic inefficiencies of the current access pricing scheme. These inefficiencies can be traced, in part, to the exemption from access charges that the Commission granted to enhanced service providers ("ESPs") in 1983.[3] At that time, the exemption was a reasonable accommodation to the then-fledgling ESP industry. ESPs had been paying for use of the local network by purchasing business lines under state-tariffed rates, in the same manner as MCI and other common carriers that could not obtain full-feature access services from the LECs. The Commission recognized that the newly created interstate access charge structure it developed in 1983 had many uneconomic subsidies built into it, and that access charges would therefore be considerably higher than the business rates the ESPs were accustomed to paying.[4] Thus, even though the Commission acknowledged that ESPs "employ exchange access for jurisdictionally interstate communications," the Commission found that ESPs would "experience severe rate impacts were we immediately to assess carrier access charges upon them," and classified them under its rules as "end users," thereby removing them from carrier access charges.

In granting this exemption, the Commission explained that it would apply only during a "transition" period.[5] The ESP exemption, however, has now been in place nearly fourteen years, even though the Commission has eliminated a similar exemption for data

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[3] In these comments, AT&T generally uses the term ESP to refer to all categories of enhanced services providers, including Internet service providers ("ISPs"), online service providers, and electronic business information service providers.

[4] *MTS and WATS Market Structure*, Memorandum Report and Order, 97 F.C.C. 2d 682, 715 (1983) ("*MTS Market Structure Order*").

[5] *Id.*

and telex carriers.[6] Like those carriers, ESPs are now capable of paying *cost-based* local network charges, which would represent only a modest increase in the rates ESPs currently pay.

Moreover, it is increasingly clear that perpetuation of the access charge exemption to ESPs causes greater public harm -- in the form of market distortions that send the wrong economic signals to network suppliers, network customers, and end users -- than benefit. For example, new technologies have made it possible for ESPs to provide services that were unimaginable in 1983, such as allowing subscribers to make traditional phone calls over the Internet. As a result, enhanced services are beginning to compete directly with traditional telephony -- to the point that an estimated 16 percent of all U.S. long distance traffic will have migrated to the Internet by 2000.[7] And the ability to provide voice and data services over the same packet-switched networks is leading to a rapid convergence in *all* communications markets.

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[6] *MTS and WATS-Related and Other Amendments of Part 69 of the Commission's Rules*, CC Docket No. 86-1, Second Report and Order, 60 Rad. Reg. 2d 1542 (¶ 11) (rel. Aug. 26, 1986) ("As we indicated in the Supplemental Notice, telex and data carriers, like carriers offering MTS/WATS-type services, use ordinary subscriber lines and end office facilities through their dial-up connections, and should therefore pay the same charges as those assessed on other interexchange carriers for their use of these local switched access facilities. We believe that the non-MTS/WATS nature of these services is irrelevant in determining whether these carriers should pay access charges. Our intention in adopting the exemption in question . . . was not to exempt carriers who provide non-MTS/WATS-type services permanently from carrier access charges, but only to grant them some transitional relief.").

[7] John W. Verity, "Calling All Net Surfers," Business Week, August 5, 1996, p. 27.

The growth of these services presents two distinct and important problems. First, the ESPs' use of the LEC networks is not priced efficiently. ESPs use interstate exchange access from the LECs that is the same as to that provided to the interexchange carriers. Yet ESPs still purchase that access by buying flat-rate business lines, because they remain exempt from paying interstate access charges. This irrational pricing system encourages usage patterns by ESPs that may be efficient when occurring over a totally packet-switched network, but are extremely inefficient over the public switched network. The existing system also maintains powerful incentives to continue loading data traffic onto the existing local circuit-switched networks that are not adequate for that purpose.

Second, to carry traffic between the end-user and the ESP's network, the ESPs that provide packet-switched data services must rely on the incumbent LECs' existing circuit-switched networks, which were not designed for data traffic and are not efficient for that purpose. To best accommodate the continued rapid growth of enhanced services, new packet-switched access networks are already necessary. Yet the access charge exemption, in the Commission's words, "hinder[s] the development of emerging packet-switched data networks" by blunting the incentives to build them. NOI at ¶ 311.

To address these concerns, parties have proposed a range of options. At one extreme are the incumbent local exchange carriers ("ILECs"), who have made grossly exaggerated claims that the growth of packet-switched services is causing severe network congestion that threatens the public switched network. Although access charges paid by IXCs already provide the ILECs with billions of dollars every year in uneconomic and unwarranted

subsidies, the ILECs nonetheless ask for additional revenues to respond to what is still only a limited congestion "problem." The Commission should resist the ILECs' efforts to subject ESPs to the same inflated and inefficient access charges that the ILECs currently impose on IXCs.

At the same time, however, the Commission should not simply perpetuate the status quo. If the status quo is maintained, circuit-switched networks will continue to be used inefficiently, thereby creating a risk of greater congestion, and adequate incentives will not be in place to build alternative packet-switched access networks that are more effective for the delivery of packet-switched data services. In particular, prospective new providers will have little incentive to invest in new networks that will compete against the incumbents' artificially inexpensive circuit-switched access. And the migration of long-distance traffic to the Internet based on these distorted pricing advantages will threaten the funding for the Commission's and Congress' universal service priorities.

The Commission should therefore heed the mandate of Congress in the 1996 Telecommunications Act by removing implicit subsidies from access charges and by pricing access elements under a total element long-run incremental cost (TELRIC) standard. When prices for the local network components provided by incumbent LECs are brought down to their true costs, sound economic and regulatory principles will require that *all* users of those services pay the same prices for those access services, regardless of the nature of the communications being transmitted.

But even if the Commission initially maintains the IXCs' access charges above TELRIC levels for other (and, in AT&T's view, flawed) reasons, the Commission should require the ESPs to pay that TELRIC-based amount. This would help reduce the marketplace distortions and unfair advantages that the current system fosters, even while the Commission moves toward a fully cost-based regime. And the tools for calculating TELRIC costs are readily available; indeed, many states have adopted those costing tools today.

In considering these changes, moreover, the Commission should not be deterred by concerns that such a policy would somehow mire the Commission in "regulating the Internet." As a provider of Internet and other online services, AT&T staunchly opposes unnecessary regulation of truly competitive markets, including the enhanced services market.[8] However, the Commission already regulates (through the ESP exemption) the prices of the basic telecommunications services that ESPs currently use as an input in their own services. The substitution of access charges for the flat-rate business lines ESP purchase today will simply replace the current pricing system with one that more accurately reflects the costs imposed by the ESPs and the manner in which those costs are incurred. Requiring ESPs to pay the true economic cost of the telecommunications services they employ thus does not constitute "regulation of the Internet" any more than price regulation

[8] The enhanced services industry is already demonstrating that it can regulate itself in content-related areas, such as individual privacy, primarily through technology solutions that enable customer empowerment and customer choice.

of electricity used at an automobile factory can be said to "regulate" the automobile industry.

In short, AT&T supports cost-based pricing for all users of the network as the most rational, pro-competitive, and efficient means of achieving the Commission's twin objectives in this proceeding, namely, "facilitat[ing] the development of the high-bandwidth data networks of the future, while preserving efficient incentives for investment and innovation in the underlying network." NOI at ¶ 311. As an Internet and online service provider (through its AT&T WorldNet℠ service), AT&T supports the imposition of cost-based rates on all network users because such reform would give both incumbent and prospective local exchange carriers the proper incentives to build the packet-switched networks that AT&T wants for the delivery of its information services. As a potential entrant into the local and exchange access market, AT&T supports that policy because it would eliminate the distortions that currently allow ESPs to obtain circuit-switched access at below-market prices, and thus make investments in newer, competing technologies less attractive than they otherwise would be. And, as an exchange access customer, AT&T supports that policy because it is the only way to eliminate the uneconomic subsidies that inflate the price of access (and therefore toll) services and artificially drives traffic from the public switched network to the Internet.

The remainder of these Comments is organized as follows. Section I describes the rapid transformation of and growth in the information services market, and explains why existing circuit-switched networks are neither designed nor priced to accommodate this

growth. Section II explains why cost-based pricing for access services would provide the proper incentives for the deployment of packet-switched networks and the efficient pricing of all information services. Section III explains why such a policy would not threaten the viability of ESPs, or give the LECs a windfall. And Section IV explains why the Commission has statutory authority to impose cost-based access charges on these entities.

I. PACKET-SWITCHED DATA SERVICES CARRIED OVER THE PUBLIC SWITCHED NETWORK ARE GROWING RAPIDLY, BUT THE EXISTING ACCESS NETWORKS ARE NEITHER DESIGNED NOR PRICED TO ACCOMMODATE THIS GROWTH.

The Commission first seeks comment on "the effects of the current system on network usage, incumbent LEC cost-recovery, and the development of the information services marketplace." NOI at ¶ 315. In fact, a broad array of new information services based on packet-switched technology are becoming increasingly available on a dial-up basis over residential and business narrow-band phone lines. The rapid growth of these new packet-switched services is most welcome, because of the innovative new features and functions that they provide. Their emergence, however, is also profoundly important because they are becoming directly competitive with traditional telephony. Thus, as the Commission notes, the growth of these services and the subsidies they enjoy presents questions that "concern no less than the future of the public switched telephone network in a world of digitalization and growing importance of data technologies." NOI at ¶ 311.

A. The Enhanced Services Market Has Grown Rapidly In Recent Years.

The recent growth rates of packet-switched data services have been dramatic. For example, Internet service revenue in the United States was expected to grow more than 200 percent from 1995 to 1996 (from $956 million to $3.1 billion).[9] Consumer online services revenues are also anticipated to grow 120 percent over the same period,[10] outpacing the expected increase in the number of subscribers to consumer online services during that same period.[11] It is estimated that there are currently more than 18 million Internet and consumer online subscribers,[12] and that there will be 23.3 million by year-end.[13]

These astonishing growth rates are expected to continue. Internet service revenue in the U.S. is expected to grow at a compound average growth rate of 76 percent from 1995 through 2000, which would lead to nearly $16.2 billion in revenue in 2000.[14] Revenues from U.S. consumer online services are predicted to grow at a compound average growth rate of 64 percent from 1995 to 2000, from $384 million to $4.6 billion.[15]

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[9] International Data Corporation (IDC), "U.S.-Based Worldwide ISP Market Overview 1996-2000" (IDC No. 12373), November 1996, p. 6.

[10] The Yankee Group, "Internet Service Provider Market Analysis," July 1996, ch. 1, p. 2.

[11] Consumer online services subscribers increased from 10.3 million in 1995 to 14.7 million in mid-1996 -- a 42 percent increase. *Id.*

[12] Information and Interactive Services Report, January 31, 1997, p. 1.

[13] IDC, "Interactive Services Bulletin, US Consumer Online Services Forecast 1997-2001," March 1997, Table 2.

[14] IDC, "U.S.-Based Worldwide ISP Market Overview 1996-2000," p. 6.

[15] Yankee Group, ch. 1, p. 2.

Consistent with recent historical trends, moreover, this huge revenue growth is expected to surpass the growth in subscribers. The number of Internet and consumer online subscribers is expected to grow to 43.2 million households by 2000 (a compound average growth rate of 33 percent).[16] Others have estimated that 40 percent of U.S. households will be online by 2000.[17] And the number of Internet users is almost doubling every year: it will grow from about 35 million worldwide today to 160 million in 2000.[18]

Another sign of the emerging stability in the Internet and on-line services market is the consolidation of Internet providers from 1525 in 1995 to 1310 in 1996. Analysts predict that there will be 95 such providers in the year 2000.[19] Moreover, all of the major interexchange carriers now provide consumer Internet and online services. The RBOCs, too, have begun or are about to begin providing such services.[20]

While the Internet and consumer online services providers have been achieving increased growth and approaching stability, other ESPs have already grown into mature,

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[16] *Id.* at ch. 1, p. 1.

[17] IDC, Interactive Services Bulletin, at 5. Most consumers already own or have access to the equipment necessary for Internet use. For example, more than two-thirds (71%) of all Americans have access to a computer at home or at work. Moreover, 45 percent have access to commercial or Internet-based online services at home or at work. Odyssey Report, Taking Off: The State of Electronic Commerce in America, Fall 1996, p. 7.

[18] Kevin Maney, "Online Community grapples with gridlock on info highway," USA Today, January 20, 1997, p. B1.

[19] Yankee Group, "Internet Service Provider Market Analysis," Executive Summary, p. i.

[20] Veronis, Suhler & Associates, "The Veronis, Suhler and Associates Communications Industry Forecast," August 1996, Ch. 14, Interactive Digital Media, p. 319.

a single "session," a consumer can simultaneously send and receive electronic mail, browse the World Wide Web, and complete a phone call by clicking on an icon on a computer screen.

For these reasons, packet-switched networks are rapidly leading to a convergence in all communications markets. Packet-switched technology is already making substantial inroads into traditional telecommunications markets. A good example is the international fax business. ESPs have a significant cost advantage in that market, both because of the access charge exemption, and because of their ability to bypass international settlements. As a result, businesses are quickly moving their fax traffic to the Internet. One analyst has noted that "five months ago, no one was talking about it. Now all of a sudden, there are 40 or 50 companies with new services for faxing over the Internet."[23] Analysts estimate that the Internet fax server and router market will grow to $38 million by 1998,[24] and AT&T

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[23] Brett Mendel, "Net Faxing Awaits Its Day," LAN Times, December 19, 1996, at 25 (quoting Peter Davidson, president of Davidson Consulting).

[24] Barbara DePompa, "New Life for the Fax Machine," Information Week, October 14, 1996, at 62, 64. This projected growth is already being realized. For example, FaxSav offers international fax service, with nodes in England, Hong Kong, France, Germany, South Korea, and the U.S. Rates are quoted at a 90 percent savings over the telephone network. Charlotte Dunlap, "Beating Ma Bell at own game; Internet Faxing aims to replace long-distance calls," Computer Reseller News, June 6, 1996. PSINet Inc. is building Internet fax software into its network, which will allow for centralized management of transmissions. The company claims savings of at least 40 percent over the "high cost of sending faxes over standard phone lines." Wall Street Journal Technology Brief, "PSINet Inc.: Internet Provider to Install Fax Software in Network," December 12, 1996.

estimates that 20-40 percent of U.S. originated international fax traffic will migrate to the Internet before 2000.

Similarly significant migration of basic telephony may be just around the corner. Numerous companies -- including Microsoft, Netscape, Intel, VocalTec, and NetSpeak -- have already placed Internet telephony products on the market. These products have been broadly publicized in articles in the New York Times,[25] Newsweek,[26] Business Week,[27] and other similar publications. These companies may have shipped as many as 1.5 million Internet telephony software packages.[28] Indeed, Microsoft and Netscape are beginning to embed such telephony options into their standard Web browsers; other companies provide the software for free on the Internet.[29]

Although Internet telephony has some limitations, they are being quickly overcome by technological innovation. For example, Internet telephony today usually requires both parties to be online, using a computer. But that is already changing. Voice gateways between the Internet and the Public Switched Network are being deployed that allow telephony over the Internet using regular telephones, without the assistance of a personal

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[25] Peter H. Lewis, "Free Long-Distance Phone Calls," New York Times, Aug. 5, 1996, p. D1; John H. Cushman, Jr., "Calling Long Distance, on a PC and the Internet," New York Times, May 19, 1996, p. 8.

[26] Steven Levy, "Calling All Computers," Newsweek, p. 43 (May 13, 1996).

[27] "Try Beating These Long Distance Rates," Business Week, p. 43 (April 22, 1996).

[28] *Id.*

[29] "Toll Free Net Calls," PC Computing, February 1997, pp. 130-32.

computer. Such technology includes signaling capability so that a call carried over the Internet can "ring" the called party's phone (or personal computer).

Once such technology becomes broadly available, large-scale migration of traffic from the public switched network to the Internet will be facilitated. While such migration may be the logical result of technological innovation, it is also being artificially stimulated by the large disparity in prices resulting largely from the access charge exemption. ISPs typically charge a flat fee of $19.95 per month to users. Using a conservative estimate of ten hours of usage per month per customer,[30] the customer effectively pays a retail price of $0.032 per minute, compared to the charges for "traditional" long distance calls, of which the switched access alone is about $0.05. (On a purely incremental basis, the retail price of such telephony services over the Internet is zero.) These prices are likely to induce many "traditional" long distance customers to switch even where the Internet is not the most efficient option. Thus, it is predicted that today's estimated 400,000 Internet telephony users could swell to 16 million by the end of 1999.[31] Indeed, Probe Research estimates that 16 percent of U.S. long distance traffic will migrate to the Internet by 2000.[32] And as many

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[30] In 1996, the average time online was 12.1 hours per month. Newsweek, September 23, 1996, p. 14.

[31] PC Week, December 12, 1996.

[32] John W. Verity, "Calling All Net Surfers," Business Week, August 5, 1996, p. 27.

as 12.5 billion long distance minutes of use will be carried over packet-switched networks by 2001 -- a compound average growth rate of 137.9 percent over current levels.[33]

Such large-scale migration of traffic raises many issues. Although the demand for high speed data services is growing by leaps and bounds, the local networks capable of supporting such services have not emerged. Therefore, ESPs and their customers continue to use the public switched network inefficiently, and ESPs continue to invest heavily in infrastructure (*e.g.*, modems) to support more traffic over the public switched network. Moreover, flat-rate pricing has given ESPs an artificial economic advantage that only reinforces their incentives to use the network in an inefficient manner. So long as traffic-sensitive local switching and transport costs are being recovered through flat-rate business line charges, the incentive to load the maximum amount of usage onto the network will continue, even as flat-rate pricing provides no incentive to the incumbent LECs to upgrade their networks to accommodate additional traffic.

The 1996 Act has made these concerns especially urgent. As the local exchange and exchange access markets are opened to competition, new entrants can be expected -- and should be encouraged -- to deploy alternative facilities-based networks. The current irrational pricing system, however, sends incorrect signals, not only to ILECs, but also to competitive local exchange carriers ("CLECs"), that discourages the deployment of data networks, which must compete with the below-cost access the ESPs currently receive.

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[33] IDC/LINK, "Residential Broadband Services, Internet Telephony: An Alternative Dialtone?," January 1997, p. 1.

II. REQUIRING ESPs TO PAY COST-BASED CHARGES FOR NETWORK USAGE IS NECESSARY TO ACHIEVE THE COMMISSION'S TWIN OBJECTIVES OF FACILITATING THE DEVELOPMENT OF HIGH-BANDWIDTH NETWORKS AND PRESERVING EFFICIENT INCENTIVES FOR INVESTMENT AND INNOVATION IN THE EXISTING VOICE NETWORK.

The solution to these anomalies, and a necessary condition to ensure the proper incentives for the efficient development of both the information services market and the networks of the future to support that market, is to require *all* users of the local network, including ESPs, to bear their fair share of their costs of using the local network. Such a policy is essential if the Commission is to achieve its stated objectives in this proceeding, namely, "facilitat[ing] the development of the high-bandwidth data networks of the future, while preserving efficient incentives for investment and innovation in the underlying voice network." NOI at ¶ 311.

A. Cost-Based Network Charges Are Necessary To Encourage Prudent Investment In Building The Packet-Switched, Higher-Speed Networks Of The Future.

First, cost-based pricing is necessary to provide the correct incentives for investment in the packet-switched local networks that are efficient for the delivery of packet-switched services. The ILECs' existing networks are circuit-switched networks that were designed primarily for voice traffic. Although these networks can carry data traffic, they are not the most efficient networks for those purposes. For example, during an Internet session, the circuit-switched connection must remain open for the entirety of the session, even though data are being transmitted only a small fraction of that time. *Cf.* NOI at ¶ 313.

A more appropriate solution -- and one that would facilitate the broader availability of packet-switched services -- would be the deployment of high-speed, packet-switched local networks. Such networks could efficiently route data packets from many users without the need to tie up individual switching and transport facilities, as is required in circuit-switched networks.

The access charge exemption, however, creates powerful *disincentives* to build or use such alternative packet-switched networks. Because of the exemption, ESPs today are using traffic-sensitive network facilities but paying for them on a flat-rate basis. As a result, neither the incumbent LECs nor prospective competitive LECs are receiving accurate economic signals that would encourage them to upgrade their existing networks -- or to engineer their planned networks -- to handle traffic more efficiently.[34]

In light of the Commission's (and Congress') overarching goals of opening up the local exchange and exchange access markets to competitive entry,[35] it is particularly important for the Commission to establish market-based rules that send the appropriate signals to potential competitors. Continued below-cost pricing of ILEC network facilities for some users subsidized by higher prices for others will make it *less* likely -- not more likely -- that the efficient packet-switched networks of the future will be built.

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[34] Moreover, to the extent the LECs perceive that they are not being compensated for ESP traffic, that simply increases their incentives to keep access charges above cost as a source of cross-subsidies for the costs imposed by the ESPs.

[35] *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, Notice of Proposed Rulemaking, 11 FCC Rcd. 14171, 14172-73 (1996).

A LEC's incentive to build an alternative network depends largely upon the demand a LEC expects for service on that network. But because the existing network is a substitute for the new network -- albeit an imperfect one -- demand for services on the new network necessarily depends upon the price being charged for service on the old network. And if that price is artificially low -- as it undoubtedly is because of the access charge exemption -- this will artificially suppress demand for service on the new network, thereby reducing both the ILECs' and CLECs' incentives to build a new network.

This is why the Commission should require ESPs to pay cost-based local network charges. The Commission, moreover, should do so promptly because the deployment of alternate networks will take years, and the sooner the pricing system is rationalized, the sooner companies can make rational business decisions to build such networks. Such action is by far the most effective means of encouraging the LECs to "install [] new high-bandwidth access technologies." NOI at ¶ 313. It would be far more effective and defensible than establishing any kind of mandated subsidy scheme in which non-ESPs subsidize the construction of "data-friendly" networks to be used for ESPs' packet-switched services. The Commission should not adopt such a scheme. The proper course is to establish all rates for exchange access at cost-based levels, and allow the marketplace to find and construct the most efficient networks.

Nor should the Commission pick and choose among possible technologies, or mandate the construction of particular networks based on particular technologies. Several data-friendly technologies already exist today. However, there will be a need for multiple

network solutions involving loop, switching, and transport, because of the inherent limitations of each technology. These technologies vary greatly in terms of speed, cost, technical maturity, availability for implementation, reliability, and limits on growth. For example, turning to new generation loop technologies, Integrated Services Digital Network ("ISDN") offers up to 128 Kbps speeds to the home or office over existing narrow-band local loop, and therefore could be widely deployed. Coverage is not universal, however, because of limitations of plant layout and physical loop distances. By contrast, Local Multipoint Distribution Service (LMDS) offers significant two-way voice, data and video delivery, but it is expensive and its coverage is highly limited by physical terrain. Another technology, Digital Subscriber Lines ("DSL"), offers digital communications over existing copper loops, and in one of its three formats (High bit-rate, or "HDSL") it operates at speeds of 2 Mbps. DSL technology is very expensive to deploy (*i.e.*, estimates are $1500 to $3000 per customer), and it suffers from the same limitations as ISDN in that load coils and bridged-taps must be removed from the local loop in order to maximize its capabilities.[16] Similar advantages and disadvantages exist for packet switching and transport as well.

Each of these technologies has advantages and limitations, and indeed, future networks will likely require some combination of a number of these technologies. Similarly, each technology makes possible a different set of features, and therefore which technology wins out will depend on what features customers will want and their willingness

[16] A table comparing the various alternative access technologies is appended as Attachment 1.

to pay. The Commission has no basis for predicting that one or another of these technologies will emerge as the superior technology, and it should not try. Rather, the soundest approach the Commission could take to ensure the development of new, needed higher-speed technologies is to create a pro-competitive environment in which such new services can emerge -- primarily through the establishment of cost-based pricing and enforcement of the local competition rules. Such a technology-neutral approach is consistent with the pro-competitive dictates of the 1996 Act.

B. Cost-Based Network Charges Are Also Necessary To Encourage Efficient Utilization Of Existing Networks.

The Commission also seeks comment on whether its current rules are encouraging inefficient use of the existing network and whether it should change its rules in response to the rise of Internet telephony. NOI at ¶¶ 315-16. The answer to both questions is "yes," but not for the reasons advanced by some RBOCs.

Those RBOCs claim that packet-switched services are causing serious network congestion. Those claims, however, are greatly exaggerated.[37] To be sure, virtually all of ESPs' traffic today is carried over incumbent LECs' facilities to ESP switching centers. Also, the ILECs' facilities were concededly designed to carry voice traffic of relatively

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[37] "Report of Bell Atlantic on Internet Traffic," June 28, 1996; "Pacific Bell ESP Impact Study," July 2, 1996; Letter from NYNEX to James Schlichting, Chief, Competitive Pricing Division, FCC, dated July 10, 1996; "US West Communications ESP Network Study -- Final Results," October 1, 1996; Amir Atai, Ph.D., and James Gordon, Ph.D., "Impacts of Internet Traffic on LEC Networks and Switching Systems," Red Bank, New Jersey, Bellcore, 1996.

short duration, yet users of information services often stay online for significantly longer periods of time, tying up their phone lines when they do so.

ESPs, however, have convincingly shown that the RBOCs' studies purporting to show network congestion are seriously flawed.[38] Those studies are based on a very small set of selectively chosen exchanges where congestion was abnormally high.[39] Therefore, based on careful examination of the data provided in the RBOCs' own studies, it appears that network congestion is not a significant problem today outside of a very small handful of exchanges.[40]

There is nevertheless a significant risk of congestion in the future if the Commission's policies are not reformed. This risk arises from the fact that switching and transport costs are significantly traffic-sensitive,[41] and that the ESPs' use of those network elements therefore generates additional costs. Yet because the ESPs do not *pay* for access on a traffic-sensitive basis, they have an incentive to use it inefficiently.

For the same reasons, the ILECs do not receive the proper economic signals concerning this increased usage because this class of user is exempt from paying traffic-sensitive charges. The existing ESP exemption thus undermines the incentives that the

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[38] Lee Selwyn and Joseph Laszlo, "The Effect of Internet Use on the Nation's Telephone Network," Economics and Technology, Inc. (January 22, 1997) ("ETI Study").

[39] *See id.*, pp. 19-22.

[40] AT&T agrees with the ETI Study (p. 13) that the overpricing of more efficient trunk-side connections has contributed to the proliferation of business line usage by ESPs.

[41] Comments of AT&T Corp. at 55-60 (January 29, 1997); Reply Comments of AT&T Corp. at 29-33 (February 14, 1997).

ILECs would otherwise have to perform the necessary upgrades to accommodate this increased usage. Both of these effects tend to exacerbate congestion. Thus, although there appears to be little network congestion today, network congestion is *potentially* a problem if uncompensated (or under compensated) usage continues to increase at the rate it has been increasing in recent years.

Moreover, as noted above, the access charge exemption and the resulting artificial cost advantages to ESPs are driving forces behind the rapid migration of traffic from the public switched network to the Internet. Such large-scale migration of traffic to services that are exempt from access charges will put enormous pressure on the remaining users of the public switched network to cross-subsidize this growing use of the network by ESPs. Today, interexchange carriers pay above-cost access charges that are used in part to subsidize the ESPs' use of the network. As traffic continues to migrate to the ESPs -- and it is migrating at a rapid rate -- the minutes of use that generate the revenue to pay for that usage will decline. Under the current access charge regime, that will put upward pressure on access charges, and thus on long distance rates.[42] This in turn will encourage all carriers to promote their Internet offerings and to induce more users to migrate to the networks that do not bear those costs.[43]

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[42] This will result from artificially reducing (1) the growth ("G") factor in the common line formula; (2) the LECs' sharing obligations (to the extent that they have selected a sharing option); and/or (3) measured productivity growth and the "X" factor at subsequent price cap review proceedings.

[43] Indeed, the proliferation of Internet-based services is already blurring the distinction between basic and enhanced services, indicating that the exemption will be increasingly (continued...)

This will inevitably lead to two serious, adverse effects. First, it will separate the market into "haves" and "have-nots" -- *i.e.*, "haves" who have access to ESPs' services and thus can obtain telecommunications and enhanced services at low, subsidized rates, and "have-nots" who remain on the public switched network and pay higher rates.

More ominously, the artificially induced migration of traffic to the Internet will shrink the contribution base for universal service support. Ironically, the growth and popularity of ESPs' packet-switched data services may *increase* the demand for and usage of the public switched network, and yet the costs of carrying out the Commission's universal service priorities would have to be recovered from an ever smaller contribution base.

For all of these reasons, the Commission should require ESPs to pay their fair share, and should no longer exempt them from access charges based solely on the basis of technology they use to provide service.[44] Thus, even if the Commission determines, in the access charge reform docket, not to require TELRIC-based charges (and even if the Commission adopts -- improperly, in AT&T's view -- a flat charge per presubscribed line),

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[43] (...continued)
difficult to administer.

[44] The Commission recognized in 1988 that the exemption given to ESPs constitutes discriminatory treatment vis-a-vis those carriers that must pay access charges, but concluded that "it remains, for the present, not an unreasonable discrimination within the meaning of Section 202(s) of the Communications Act." *Amendments of Part 69 of the Commission's Rules Relating to Enhanced Service Providers*, 3 FCC Rcd. 2631, 2633 (1988). As demonstrated above, the events of the last nine years -- and especially of the last two years -- confirm that maintaining the exemption is indeed "unreasonable discrimination." Moreover, ending the exemption will facilitate consideration of whether and how ESPs should participate in fostering the goal of universal service.

the Commission can and should still address the imbalances created by the current ESP exemption in order to avert the adverse consequences its continuation will create. At a minimum, the Commission can assess TELRIC-based charges on ESPs, as a transitional step until network charges for all access customers are brought down to actual cost.[45]

III. RATIONALIZATION OF NETWORK PRICING WILL NOT ADVERSELY AFFECT THE HEALTH OF THE INFORMATION SERVICES INDUSTRY OR GIVE THE LECS A WINDFALL.

Rationalizing network pricing and assessing cost-based rates on ESPs and ISPs, moreover, will not adversely affect the health of the information services industry as long as the Commission proceeds in a sensible way. As AT&T and others have explained in the access reform docket, the mechanism the Commission should use to set access charges at cost is an immediate reinitialization of price caps so that the access charges paid by all users are based on TELRIC.[46] Significantly, under the TELRIC methodology, access charges would not include nontraffic-sensitive ("NTS") costs like the Common Carrier Line Charge ("CCLC"). Nor would it include non-cost-based charges like the Transport Interconnection Charge ("TIC"). Consistent with TELRIC, therefore, ESPs should pay only for local switching (about 0.21 cents per minute) and for transport (which would vary according to the nature of the facilities used but would be around 0.17 cents per minute) --

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[45] Obviously, the long term viability of this approach would depend on the Commission rapidly moving all access charges to a TELRIC cost basis. Any long term disparity between access prices based on the technology utilized would only give rise to distortions and inefficiencies similar to those of the current access charge structure.

[46] *See* Comments of AT&T Corp., pp. 49-61 (January 29, 1997); Reply Comments of AT&T Corp., pp. 24-34 (February 14, 1997).

a total of approximately 0.38 cents per minute.[47] Whether or not the Commission adopts the proposal to establish TELRIC-based access charges in the access reform docket, the Commission can and should require ESPs to pay these TELRIC-based access charges now.

In the past, the Commission has been understandably reluctant to require ESPs to pay the inflated access charges that the Commission currently permits the LECs to charge to interexchange carriers, on the grounds that such high access charges might radically alter ESPs' rates.[48] That the imposition of TELRIC-based rates will not have this effect is made clear from an examination of data provided in CompuServe's Comments in the access reform proceeding.[49] Based on CompuServe's data, CompuServe is today effectively paying \$0.24 cents per minute to the LECs.[50] AT&T estimates that TELRIC-based access charges would increase CompuServe's per minute charges by approximately 0.14 cents per minute -- from 0.24 cents to about 0.38 cents.[51] This increase would translate into an increase in

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[47] *See* Attachment 2 for an illustration of access elements and costs.

[48] *MTS Market Structure Order*, 97 F.C.C. 2d at 715 ("it would be unreasonable immediately to increase as much as tenfold the charges paid by customers who do not presently come under the coverage of the current ENFIA tariffs").

[49] *See* Comments of CompuServe, pp. 10-11 (January 29, 1997). CompuServe is the second largest provider of on-line services in the country, with some 3 million users.

[50] CompuServe indicates that it spends \$35,700,000 per year to purchase 85,000 business lines from the LECs; it also indicates that it uses those local lines "in the range of 240 hours per month." Id., p. 11 n.25. Multiplying that out, CompuServe pays 0.24306 cents per minute.

[51] *See* Attachment 2 for a comparison of current charges compared with TELRIC-based charges.

CompuServe's costs of 56 cents per month per customer.[32] Even if CompuServe chose to pass on that cost to its customers, the price increase resulting from cost-based access rates would not be very large.[33] Thus, the change to market-based pricing of access -- and the resulting economic benefits of such access pricing reform -- can be achieved with little if any adverse consumer impact.

This change, moreover, can and should be implemented in a way that does not create a windfall for the ILECs. To that end, as long as IXCs are required to pay access charges in excess of cost, the Commission should mandate an adjustment to the ILECs' price caps to ensure that the addition of ESP access revenues is revenue neutral to the ILECs. Today's access charges are grossly inflated and provide the ILECs with billions of dollars in pure uneconomic subsidy. The flaw in the current system is not that the LECs are under recovering -- far from it. Rather, the flaw in that system is that it results in a rate structure that does not reflect the way the costs are actually incurred. The ILECs should not be allowed to recover a windfall from the correction of that flaw.

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[32] According to CompuServe, it uses about 1,224,000,000 minutes per month (240 hours x 60 minutes x 85,000 lines). Since it has 3,000,000 subscribers (*see* Compuserve Comments at 10), an additional 0.13694 cents per minute x 1,224,000,000 minutes per month divided by 3,000,000 subscribers comes to 56 cents per month per customer.

[33] According to the Graphic, Visualization, and Usability Center's (GVU) WWW User Survey, the average household income of all Internet subscribers is $59,000. Nearly three-fourths of the respondents are from the U.S. *See* GVU's WWW Users Survey, www.cc.gatech.edu/gvu/user, April 1996. This modest increase in the monthly price is not likely to repress demand significantly among users at this income level.

IV. TRAFFIC GENERATED BY ESPs SHOULD BE CLASSIFIED AS INTERSTATE TRAFFIC SUBJECT TO THE COMMISSION'S JURISDICTION.

The Commission also seeks comment on the scope of its jurisdiction over access charges paid by ESPs, especially in light of "the difficulty of applying jurisdictional divisions . . . to packet-switched networks such as the Internet." NOI at ¶ 315. The answer is that, in part because of that very difficulty, the Commission should adopt a rebuttable presumption that access services provided to an ESP are entirely subject to the Commission's jurisdiction because of their interstate character, but allow that presumption to be rebutted on a showing that the enhanced service for which access is provided is itself intrastate in nature.

Settled case law establishes that when a service or facility (1) has a significant interstate use or character but (2) cannot readily be broken down into distinct interstate and intrastate components, the service or facility can be treated as subject in its entirety to the Commission's jurisdiction under the Communications Act.[54] Both of these conditions are amply satisfied by most enhanced services, in particular Internet and online services.

First, access services provided to most ESPs are not only substantially interstate in character -- as the Commission expressly recognized in finding that ESPs "employ exchange access for jurisdictionally interstate communications"[55] -- but overwhelmingly so.

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[54] *E.g.*, *Louisiana Pub. Serv. Comm'n* v. *FCC*, 476 U.S. 355, 375-79 (1986); *Public Utility Comm'n of Texas* v. *FCC*, 886 F.2d 1325, 1331-34 (D.C. Cir. 1989); *California* v. *FCC*, 39 F.3d 919, 931-933 (9th Cir. 1994), *cert. denied*, 115 S. Ct. 1427 (1995).

[55] *MTS Market Structure Order*, 97 F.C.C. 2d 682, 715 (1983).

For the provision of Internet and online services, for example, the ESP typically routes calls from its POP along a dedicated line to its data center or web server, which is where its "home page" resides. ESPs generally have only a few data centers in the entire country, however, and therefore the caller and the data center are almost always in different states.

For example, AT&T WorldNet has two data centers in the United States, which means that simply accessing WorldNet's home page already involves interstate transmission for virtually all callers. Indeed, when a dial-up customer accesses AT&T's home page, AT&T does not necessarily route that call to the data center that is geographically nearer to the customer.[56]

But even in the small fraction of cases in which a call can reach the ESP's network or home page without crossing state boundaries, during most sessions a customer will still access *applications* and databases that require interstate transmission. For example, when a customer wants to use the Internet to access the home page of a retail business down the street, it is not unusual for that home page to be housed in a server thousands of miles away. Moreover, during a typical session, a customer accesses multiple applications and databases, a large fraction of which are likely to involve interstate transmission. Even a cursory review of the home pages of both large and small Internet service providers reveals literally a "world" of information available at the click of the mouse.[57] Therefore, it cannot

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[56] Attachment 3 provides an illustrative diagram of AT&T WorldNet℠ Service's network, which is representative of how ESPs provide consumer mass market service.

[57] *See, e.g.*, the home pages for ISPs: America Online (www.aol.com); Prodigy (www.prodigy.com); Erol's Internet Service (www.erols.com); and SpectraNet (continued..)

be seriously questioned that the vast majority of ESPs' Internet and online services overwhelmingly involve interstate traffic which falls squarely within the Commission's jurisdiction.

For the same reasons, access services provided for the vast majority of enhanced services applications are just as "interstate" in character as access services provided to interexchange carriers. To be sure, under the Commission's current rules, ESPs benefit from their artificial classification as "end-users," and thus are allowed to buy state-tariffed business lines just like true business users. But the ESPs generally use the LEC's local switching and transport as part of a much more extensive transmission path, just as IXCs do. As already noted, calls to an ESP are typically routed over the local network to the ESP's node, or POP, and from there to a distant data center or Internet site. Thus, such calls made to an ESP do not *terminate* at the ESP's POP, as they would if the ESP were truly a business user. Like an IXC's POP, the ESP's node or POP merely collects traffic for interstate transmission. In fact, the ESPs today use business lines in precisely the same manner that MCI used business lines in providing its Execunet service, prior to the establishment of the current access charge regime.[58]

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[57] (...continued)
(www.spectra.com).

[58] Prior to that time, carriers such as MCI obtained switched access for use in providing long distance service by purchasing line-side service, just as the ESPs do today. *See, e.g., Exchange Network Facilities for Interstate Access*, Memorandum Opinion and Order, 1 FCC Rcd. 618, 619 (1986); 71 F.C.C. 2d 440, 445 (1979). The Commission permitted this arrangement because, at that time, full-feature access services designed for use by competitive interexchange carriers were not available. The Commission mandated the (continued...)

Second, for Internet and online service applications, there is no way to separately identify (much less meter and bill) interstate and intrastate traffic for jurisdictional purposes. *A fortiori*, the LECs providing access to the ESPs likewise cannot possibly determine which calls being made to an ESP are wholly intrastate in character, or interstate.[59] The advent of new product and service platforms that allow customers to perform many different functions at once, coupled with the inability to track which of these applications involve interstate or intrastate communications, means that access services provided to the ESPs for their interstate communications are "inseverable" from access services provided to the ESPs for use in any "intrastate" services.

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[58] (...continued)
development of switched access, however, and in the interim the Commission oversaw a series of transitional access charge arrangements (first the ENFIA tariffs, followed by Feature Group A access and other arrangements, and culminating in today's Feature Group D). In so doing, the Commission considered "the effect of sudden rate increases upon competition and concluded that the phase-in of [the ENFIA tariffs] as OCC revenues increased provided adequate time for OCCs to absorb the increased payments for exchange services." The Commission also found "that the practice of connecting the OCCs to local exchange facilities pursuant to local business exchange tariffs could not continue because the OCCs did not make a contribution to the interstate costs of local exchange service." *See* id. at 620; *see also* id. at 618-24; *Exchange Network Facilities for Interstate Access*, Memorandum Opinion and Order, 71 F.C.C. 2d 440 (1979); *MTS and WATS Market Structure*, Memorandum Opinion and Order, 97 F.C.C. 2d 834, 858-63 (1984) ("OCCs that receive equal access will pay the same per minute charges that are assessed for MTS or WATS usage as equal access becomes available in each end office"); *Investigation of Access and Divestiture Related Tariffs*, Memorandum Opinion and Order, 97 F.C.C. 2d 1082 (1984). In short, the Commission recognized that, as the interexchange market matured and as equal access became available, the interexchange carriers should move to a system in which they paid for the access they used.

[59] *See PUC of Texas* v. *FCC*, 886 F.2d at 1331 (recognizing this inability as key factor in determining that inseparability doctrine applied in that case).

In other contexts, the Commission has recognized that services involving both intrastate and interstate elements -- such as mixed-use special access -- are properly considered interstate in nature for precisely this reason. Most pertinently, the Commission found special access to be an interstate service in large part because attempting to separate the intrastate and interstate traffic "would involve substantial difficulties since . . . the LECs cannot readily measure state and interstate special access traffic . . .," and neither could their customers.[60] The Commission also noted that introducing divided federal-state jurisdiction into an area that has not been jurisdictionally divided in the past would "necessitate significant changes in the LECs' present billing systems," and "would greatly complicate customer bills since both state and interstate charges would apply to each mixed use special access line."[61] Similarly here, for the most prevalent ESP services, it is impossible to separate interstate and intrastate traffic--indeed, both types of communication often take place during the very same "call." Because of this inseverability, *all* access services provided in connection with such services should be presumed to be interstate in character and subject to the Commission's jurisdiction.

Such a presumption, moreover, is supported by sound policy considerations. As explained above, federally imposed, cost-based access charges will remove the existing disincentive for the construction of modern, packet-switched networks; reduce the risk of

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[60] *MTS and WATS Market Structure*, Recommended Decision and Order, 4 FCC Rcd. at 1356; *see also PUC of Texas* v. *FCC*, 886 F.2d at 1331.

[61] *MTS and WATS Market Structure*, Recommended Decision and Order, 4 FCC Rcd. at 1356

future congestion on existing circuit-switched networks; and help protect the revenue base for the universal service fund. Imposition of such charges at the federal level, moreover, will discourage the states from imposing a patchwork of their own access charges on ESPs -- a result that could not only undermine each of these goals, but also hamper the full development and utilization of the Internet.[62]

To be sure, some enhanced services may be completely or almost completely intrastate in character, or their intrastate aspects may be capable of easy identification and separation from their interstate aspects.[63] For example, voice mail could be jurisdictionally intrastate, depending on its network configuration. For these services, and upon a proper showing, the ESP could properly purchase intrastate access (or local network) services, which would not be subject to the Commission's jurisdiction.[64]

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[62] Although the Commission might have authority to preempt such state regulation under the court decisions cited above, AT&T is not requesting such action and, indeed, does not believe there is any need or basis to consider such action here.

[63] *Cf. MTS and WATS Market Structure*, CC Docket Nos. 78-72, 80-286, Recommended Decision and Order, 4 FCC Rcd. 1352 (1989); *MTS and WATS Market Structure*, CC Docket Nos. 78-72, 80-286, Decision and Order, 4 FCC Rcd. 5660 (1989); *Petition of New York Telephone Co. for a Declaratory Ruling with Respect to the Physically Intrastate Private Line and Special Access Channels Utilized for Sales Agents to Computer New York Lottery Communications*, Memorandum Opinion and Order, 5 FCC Rcd. 1080 (Feb. 21, 1990).

[64] The Commission also seeks comment (¶ 315) on metering and billing issues, "given the difficulty of applying jurisdictional divisions or time-sensitive rates to packet-switched networks such as the Internet." With respect to the feasibility of requiring ESPs to pay access charges, metering and billing issues are red herrings. The only issue is how to measure local switching and transport, and the LECs have a system in place for measuring such usage. Indeed, ESPs would receive bills just as the IXCs do today. ESPs, in turn, are certainly capable of billing their customers on a usage-sensitive basis if they choose, as (continued...)

Finally, although the Commission clearly should regulate the prices ESPs pay for network access services, there is no need for the Commission to consider here whether to exercise jurisdiction over any of the services ESPs provide.[65] Indeed, if the Commission adopts cost-based pricing for all users of exchange access -- or at a minimum requires ESPs to pay TELRIC-based access charges -- there will be no need to explore substantive regulation of any services provided on non-traditional networks. The market incentives that cost-based pricing will generate for deployment of new high-speed technologies (provided meaningful local competition is permitted to develop) should send the appropriate signals to suppliers and customers. It would be especially premature for the Commission either to forbear from regulation of new services that constitute "basic" services under the Commission's current rules, or to impose traditional common carrier regulation on them.[66]

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[64] (...continued)
many have done in the past. Even today, many ESPs offer tiered usage plans. For example, America Online offers a Light-Usage Program that allows three hours a month for $9.95, and $2.95 for each additional hour. Prodigy, CompuServe and other providers have similar pricing plans.

[65] *See* NOI ¶ 316 (seeking comment on how new services such as Internet telephony (which appears to be a basic service), as well as real-time streaming of audio and video services over the Internet, "should affect its [the Commission's] analysis")

[66] The Commission also seeks comment (¶ 315) on whether it should distinguish different categories of enhanced and information services for differing regulatory treatment. The answer is no. ESPs use local switching and transport today, and therefore should pay the TELRIC cost of using those services, regardless how their services are classified. Indeed, it has become difficult, if not impossible, to distinguish between the existing regulatory classifications of "basic" and "enhanced" services in today's world of converging communications services.

CONCLUSION

The Commission has before it, in several related dockets, overwhelming evidence that the rational pricing of monopoly LEC network components will create the proper incentives to meet the requirements of the 1996 Act to promote competition in the local exchange and exchange access markets. This docket illustrates the wisdom of that mandate. By pricing the elements of the local network at their actual cost, all entities in the market will receive the proper incentives to upgrade existing networks, develop and deploy new networks and technologies, and build innovative new services to meet customer needs.

For the reasons discussed above, AT&T urges the Commission to issue a Notice of Proposed Rulemaking to eliminate the exemption from Part 69 access charges for enhanced service providers, establish TELRIC pricing for those providers, and adopt a presumption

that all enhanced communications are interstate in nature. AT&T neither recommends nor supports any "regulation" of Internet or online services at this time, and further recommends that the Commission not seek at this time to distinguish between different categories of information or enhanced services for different regulatory treatment.

Respectfully submitted,

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March 24, 1997

ATTACHMENT 1

Comparison of Alternative Access Service Technologies

ALTERNATIVE ACCESS SERVICE TECHNOLOGIES

Technology Comparison:
Probable Relative Capabilities & Limitations

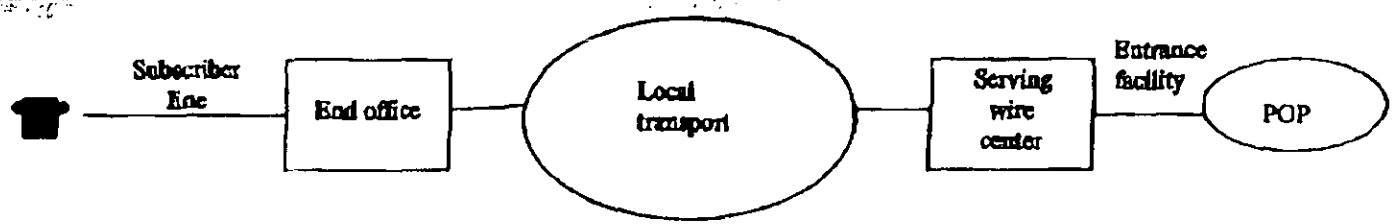
Downstream Bandwidth	Low	Medium	Very High	Very High	High	High	High
Upstream Bandwidth	Low	Medium	Very High	Medium	Low	Medium	Medium
Maximum Territory Coverage	100%	70%	60%	90%	85%	80%	85%
Range	3 mi	2 mi	3 mi	2 mi	U.S.	1 mi	10+ mi
Customer Cost	Low	Medium	High	Medium	High	Medium	Medium
Likelihood of widespread deployment	Exists	High	Medium	Medium	Exists	Low	Lower

ISDN - Integrated Services Digital Network
DSL - Digital Subscriber Line
HFC - Hybrid Fiber Coax
DBS - Direct Broadcast Satellite
LMDS - Local Multipoint Distribution Service
MMDS - Multichannel Multipoint Distribution Service

ATTACHMENT 2

Illustration of Access Elements and Costs

ILLUSTRATION OF ACCESS ELEMENTS AND COSTS



Current Access Rates: Average Costs (Cents per Minute)[1]

	Subscriber line	End office[2]	Local transport	Entrance facility	Total
IXC	CCLC = 0.78	LS = 0.92 Other TS = 0.12 TIC = 0.69	Combined = 0.28 per minute		2.79
ESP - with exemption	0	0	0[3]	Business line rates, depending on type of connectivity. 0.24/MOU according to CompuServe[4].	0.24+

Cost-based Access Rates: Average Costs (Cents per Minute)[5]

	Subscriber line	End office	Local transport	Entrance facility	Total
IXC	0	LS & signaling = 0.21	Combined = 0.17 per minute		0.38
ESP - with exemption	0	0	0 (See note 2)	Business line rates, depending on type of connectivity	0.24+
ESP - without exemption	0	LS & signaling = 0.21	Combined = 0.17 to 0.27 per minute[6], depending on the type of facilities and connectivity.		0.38 to 0.48

[1] Based on 1996 annual access filings of the RBOCs and GTE, and includes both usage and flat-rated elements.
[2] LS is the abbreviation for Local Switching, Other TS for Other Traffic Sensitive; and TIC for Transport Interconnection Charge.
[3] If the ESP and end user are not in the same local calling area, the ESP may purchase FX lines (at private line rates) to the end offices near its customers.
[4] Calculated from data presented in Comments of CompuServe and Prodigy in Docket 96-262, 1/29/97, pp. 10-11.
[5] Based on results from Hatfield model, version 3.1, for LECs with more than 100,000 lines.
[6] Represents a range based on relative use of tandem switching, from 20% (the average for IXCs) up to 50%.

ATTACHMENT 3

Diagram of AT&T WorldNet℠ Services Network

ILLUSTRATIVE DIAGRAM OF AT&T WORLDNET℠ SERVICES DIAL-UP NETWORK

CERTIFICATE OF SERVICE

I, Thomas A. Blaser, do hereby certify that on this 24th day of March, 1997, I caused a copy of the foregoing Comments of AT&T Corp. to be served upon each of the parties listed on the attached Service List by U.S. first class mail, postage prepaid.

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April 26, 2000

Via Fax and U.S. Mail

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Dear Larry,

This letter responds to the April 14, 2000 letters (attached) that MCI WorldCom received from SBC, giving notice that SBC intends to terminate our existing local interconnect contracts for MFS and Brooks Fiber in Missouri. These letters indicate that SBC is terminating the contracts due to a dispute over the proper payment by SBC to MCIW of reciprocal compensation. Your position ignores the fact that the Federal Communications Commission (FCC) left pricing decisions for Internet Service Provider traffic to the states and that, prior to these SBC letters, the FCC assertion of jurisdiction over these calls was vacated by the appeals court. On page 10 of the decision reached on March 24, 2000 the United States Court of Appeals for the District of Columbia Circuit wrote:

> "Because the Commission has not provided a satisfactory explanation why LECs that terminate calls to ISPs are not properly seen as "terminat[ing]...local telecommunications traffic," and why such traffic is "exchange access" rather than "telephone exchange service," we vacate the ruling and remand the case to the Commission. We do not reach the objections of the incumbent LECs - that *S251(b)(5) preempts state commission authority to compel payments to the* competitive LECs.

The strong-arm tactics used in these SBC termination letters are not acceptable and requires that MCI WorldCom continue to press for regulatory action to prevent SBC from continuing to refuse to pay for the transport and termination of calls that SBC customers make to MCI WorldCom customers.

I must also point out that SBC has no right to initiate new contract negotiations under the terms of the Telecommunication Act. Section 251(c)1 provides that the Duty to Negotiate is one of the "Additional Obligations of Incumbent Local Exchange Carriers." Thus, this provision applies to SBC (an ILEC) and not to MCI WorldCom.

Further, Section 252 of the Act only provides procedures for negotiations and arbitration in the event an Incumbent Local Exchange Carrier receives a written request for negotiation.

There are no provisions contained in the Act that would apply when an Incumbent Local Exchange Carrier submits such a request to anyone other than another Incumbent Local Exchange Carrier. Thus, the SBC statement that the 135 to 160 day window for arbitration can be started on the basis of these letters is contrary to the clear language of the Federal Telecommunications Act.

The SBC letters also raise the possibility of addressing these issues through dispute resolution. I believe our contracts remain in full force and effect until a replacement agreement becomes effective and until then SBC is obligated to pay for all local interconnect traffic at the rates contained in these agreements. However, I am willing to meet with you to discuss the matter and the potential for dispute resolution, at your convenience.

Please let me know how SBC would like to proceed.

Sincerely,

Michael A. Beach

Cc: John Stankey

Attachment