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

Petition of Bell Atlantic Corporation For Relief from Barriers to Deployment Of Advanced Telecommunications Services	)))	CC Docket No. 98-11
Petition of Ameritech For Relief from Barriers to Deployment Of Advanced Telecommunications Services	)))	CC Docket No. 98-32
Petition of U S West For Relief from Barriers to Deployment Of Advanced Telecommunications Services	)))	CC Docket No. 98-26

INTERMEDIA COMMUNICATIONS INC. COMMENTS OPPOSING DEREGULATION OF INCUMBENT LOCAL EXCHANGE CARRIER DATA NETWORKS AND SERVICES

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April 6, 1998

No. of Copies rec'd 0+8

SUMMARY

In three separate filings before the Commission, Bell Atlantic, Ameritech and U S West all advance the argument that § 706 of the Communications Act – which charges the Commission with using forbearance where prudent to promote the deployment of advanced services – compels the Commission to deregulate the BOCs' packet-switched data networks and services. As Intermedia shows in these comments, grant of the BOCs' petitions would have exactly the opposite effect, and would stifle the development of competition for advanced services and the deployment of new technologies throughout the country.

The BOC petitions are based on two fundamental premieses: 1) that there is a "bright line" distinction between packet-switched networks and services, and circuit-switched networks and services; and 2) that the internet faces a crisis of capacity, and can only be saved by providing BOCs with regulatory incentives to invest in new backbone and loop plant. The BOCs are demonstrably wrong on both counts.

First, there is no bright line between packet switched and circuit switched networks and services. In fact, "plain old telephone service" is routinely provided over packet switched data networks as well as circuit switched networks. Moreover, a single telephone call can originate on the circuit switched network, be transported over a packet switched data network, and terminate back on a circuit switched network. The commingling of voice, narrowband and broadband services over the same facilities makes any attempt to establish different regulatory regimes for packet- and circuit-switched networks wholly unworkable.

In addition, the BOCs – like other ILECs and competitive carriers – are steadily migrating all of their services over to data networks. If the BOC data networks are deregulated, they could deregulate all of their services at will, simply by moving them onto data facilities.

Second, there is no impending crisis in the national data networks that support the internet and other advanced data-oriented services. In fact, statements taken from the BOCs' home pages and other public statements make clear that they are making massive investments both in high capacity backbone networks, as well as advanced loop technology. Of course, other carriers, including CLECs, IXCs, utilities, and private carriers are also making enormous investments in their networks. These are not the sources of the congestion that is currently found on the internet, however. The industry does need to deploy faster routers, build more internet access points and internet service provider points of presence. These matters are being addressed by the industry, in response to market forces, however, and do not merit the radical steps promoted by the BOCs.

In fact, the BOCs' own conduct has been one of the most serious barriers to the expansion of the internet and the deployment of data services. The BOCs have refused to pay mutual compensation for calls to ISPs located on CLEC networks, costing CLECs hundreds of thousands of dollars. In addition, some BOCs have refused to establish interconnection agreements with CLECs for data services. Fully enforcing the Communications Act's procompetitive mandate to require collocation, interconnection, mutual compensation, economic pricing, and resale for data services is the most effective means of speeding deployment of new technologies and advanced data services, and this concern compels rejection of the BOCs' petitions for deregulation.

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INTERMEDIA COMMUNICATIONS INC.
COMMENTS OPPOSING DEREGULATION OF INCUMBENT
LOCAL EXCHANGE CARRIER DATA NETWORKS AND SERVICES

Intermedia Communications Inc., ("Intermedia") by its undersigned counsel and pursuant to the Commission's Public Notices dated January 30, 1998[1] and March 6, 1998,[2] hereby submits its Comments in opposition to petitions filed by Bell Atlantic, U S West, and Ameritech (jointly, the "BOCs") which seek deregulation of their data networks and services. As Intermedia discusses below, such action would have a dramatic impact on competitive

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1 *Commission Seeks Comment on Bell Atlantic Petition for Relief from Barriers to Deployment of Advanced Telecommunications Services*, CC Docket No. 98-11, released January 30, 1998.

2 *Commission Seeks Comment on U S West Petition for Relief from Barriers to Deployment of Advanced Telecommunications Services*, CC Docket No. 98-26, released March 6, 1998; *Commission Seeks Comment on Ameritech Petition for Relief from Barriers to Deployment of Advanced Telecommunications Services*, CC Docket No. 98-32, released March 6, 1998.

telecommunications markets that would achieve exactly the opposite of what the BOCs project – it would profoundly inhibit the growth of competition and the deployment of advanced telecommunications services and facilities throughout the country. Specifically, deregulation of the BOCs' data networks and services would allow them to insulate the most efficient and useful portions of their networks from the procompetitive mandates of the Telecommunications Act of 1996, including interconnection, collocation, the provision of unbundled network elements, and pricing at economic cost, effectively nullifying the most important competitive legislation of this generation. The patently anticompetitive nature of the BOC petitions compels their summary denial.

I. INTRODUCTION

Intermedia is the largest independent competitive local exchange carrier ("CLEC") in the nation, and provides a full range of telecommunications products in approximately 22,000 cities across the United States. Serving predominantly business and governmental customers, Intermedia provides a full complement of data, internet, long distance, and local voice services. Intermedia currently has over 120 data switches deployed throughout the country, has 20 local voice switches in service, and plans to deploy 10 more by the end of this year.

Intermedia maintains one of the most sophisticated data networks in the country, with over 90 data switches and high capacity transport to provide advanced data services such as asynchronous transfer mode ("ATM"), frame relay, integrated services digital network ("ISDN"), and internet access. In 1994, Intermedia founded the UniSPAN© consortium with three other carriers, through which Intermedia provides end-to-end frame relay service throughout the United States and Canada. Intermedia also currently provides frame relay service to five Central and South American countries through frame relay operating agreements with

several South American carriers – and plans to expand this area of its service considerably over the coming year.

In July 1997, Intermedia acquired DIGEX, one of the country's largest internet service providers ("ISPs"). DIGEX is a first-tier, national internet carrier that operates high capacity data networks across the country. The acquisition of DIGEX both complemented and greatly expanded Intermedia's national data network. As a result of these developments, Intermedia operates one of the largest and most sophisticated data networks in the country. It uses these networks to provide both data and voice services.

As a carrier that is heavily focused on data networks to provide both data and voice services, Intermedia is critically concerned that the Commission continue to perform as it has been charged by the Communications Act, and ensure that carriers are complying with the interconnection, collocation, unbundling, and pricing requirements of the Act. To do so, the Commission must remain engaged in the active oversight of the data and voice networks operated by Bell Atlantic, U S West, Ameritech, and other incumbent local exchange carriers ("ILECs"). As Intermedia discusses below, these considerations compel rejection of the BOC petitions.

II. THE BOC PETITIONS ARE PREMISED ON ASSUMPTIONS REGARDING THE NATURE OF DATA SERVICES AND THE STRUCTURE OF THE INTERNET THAT ARE PROFOUNDLY FLAWED, AND SO MERIT SUMMARY DENIAL

The petitions of Bell Atlantic, U S West, and Ameritech take slightly different approaches, but all seek essentially the same goal – the effective deregulation of the BOCs' data services and networks. Bell Atlantic asks the Commission to deregulate its "high-speed, packet-switched data services, including Internet, 'Intranet,' and 'Extranet' services," and broadband

data services operating at "speeds greater than ISDN, including all xDSL."[3] Ameritech and U S West differ from Bell Atlantic in that they do not attempt to exclude data services below xDSL speeds from their requests from deregulation, but like Bell Atlantic, these BOCs focus on the deregulation of xDSL networks and xDSL-based services.[4] U S West further requests deregulatory treatment for cell-switched networks and services.[5] The BOCs expressly ask the Commission to exempt these services from the full range of regulation that applies to the BOCs' other telecommunications services, including exempting data services from the Commission's Price Cap rules,[6] interLATA restrictions, unbundling requirements, and separations rules that apply to "voice calls."[7]

The BOCs' entire argument for deregulation of their data networks is premised on two assumptions: 1) that BOC circuit-switched networks, and the services provided over them, are wholly distinct and severable from their packet-switched networks and the services provided over those facilities;[8] and 2) that the internet currently faces a crisis of capacity, and can only be saved by massive new investment that deregulated BOCs can provide.[9] As Intermedia discusses below, the BOCs are simply wrong on both counts – their arguments gloss over the most significant recent developments in telecommunications technology and grossly misrepresent the

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3 Bell Atlantic at 3.

4 Ameritech at 10-11; U S West at 42-44.

5 U S West at 1.

6 Ameritech at 19-20; Bell Atlantic at 11, 17.

7 Bell Atlantic at 3.

8 *E.g.*, Ameritech at 11; Bell Atlantic at 3 and *passim*.

9 Ameritech at 5, 8-10; Bell Atlantic at 15-16, Attachment B, and *passim*; U S West at 22, 27-31.

sources of congestion on the internet, and the role that competitive carriers have played, and are continuing to play, in resolving the problem.

A. The BOCs' Petitions Are Premised On a Distinction Between Packet-Switched and Circuit-Switched Networks and Services that Is Wrong As a Technical Matter, and Impracticable As a Regulatory Matter

In order to grant the BOC petitions, the Commission would have to draw a distinction between those portions of a BOC's network that employ relatively new digital technologies, and the services provided over them, and those portions of a BOC's network that have not been upgraded to the new technologies, and the services provided over them. As Intermedia discusses below, it is impossible to make such a distinction as a technical matter, and any regulatory system based on such a dichotomy would be wholly unworkable.

1. Background

In addressing the BOC's petitions to deregulate its high-speed packet-switched networks and services and its broadband data networks and services, it is necessary to define these terms. Currently, telecommunications is marked by a distinction between packet-switched and circuit-switched network technologies. Circuit-switched technology characterizes "plain old telephone service," or POTS. In a circuit-switched network, an entire circuit must be dedicated to a single call – in a voice conversation, the line is open and in constant use between the called and calling parties, even during pauses in the conversation. This is an inefficient means of communications because it monopolizes network resources even when no communication is taking place. The circuit-switched network evolved using analog technology, but has been largely upgraded to use more efficient digital equipment.

In contrast, packet-switched networks evolved for computer-to-computer communications, including data processing and internet applications. In packet-switched networks, all communications are digital, and the individual bits of data are aggregated into individual "packets" of a predetermined size, and are transmitted only when a sufficient amount of data has been gathered together. Packet-switching therefore provides discrete "bursts" of information, and is inherently more efficient than circuit switching. Unlike circuit switching, "bursty" packet-switched transmissions do not monopolize an entire circuit between the communicating parties. Instead, they occupy the circuit only long enough to transfer the packet of data, and then free up the circuit so that all or parts of it can be used to transmit other packets of data to other destinations. While originally designed for computer-to-computer communications, packet-switched technology can be used to transmit voice communications – the packets of information are transmitted so quickly that the parties do not perceive any breaks in their conversation. The economies attained from packet-switching are dramatic – where a circuit-switched network allows one voice conversation per circuit, a packet-switched network can transmit many different conversations over the same facilities.

Regarding the BOCs' references to broadband facilities and services, broadband is one of several categories of services offered over carrier networks. Currently, the majority of services provided by ILECs is provided over narrowband and wideband digital facilities. Narrowband is generally defined as any service requiring voice-grade capacity (64 kbps) or less[10] and typically is used for low-capacity data services and voice services for small office applications. Wideband is generally defined as employing capacity above 64 kbps up to DS1

[10] B. Kumar, *Broadband Communications* 185 (1995).

(1.544 Mbps),[11] and is commonly used to link computer networks in local, wide, and metropolitan area networks for internet access and for aggregated voice and data transmission. Broadband is generally defined as service requiring speeds in excess of 1.544 Mbps.[12] This category of service includes DS3 high capacity transmission services used for both voice and data; new synchronous optical network ("SONET") services, which provide variable bandwidth on demand over fully redundant[13] and diverse[14] fiber networks; and promises to be the foundation for new integrated service offerings that provide full motion video, voice, and data.

2. There is no rational basis for distinguishing between packet-switched or broadband facilities and other facilities

Over the past decade, the BOCs – like most other ILECs – have been transforming their networks, replacing old, analog facilities with digital facilities for aggregating, transmitting, and routing telecommunications traffic. During this time, the BOCs have largely rebuilt their interoffice networks, replacing much of the coaxial copper cable used for interoffice transport with fiber-optic cable. These fiber-optic facilities are capable of transporting any kind of digital signal, whether it is circuit switched or packet switched, narrowband, wideband, or broadband. In fact, the use to which optical fiber cable is put is determined entirely by the electronic equipment that originates and terminates the transmission over the facility. It is, therefore,

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11 *Id.*

12 *Id.*

13 Redundancy is obtained by establishing two separated paths to route a single transmission-if the first path is interrupted, the transmission is completed over the alternate path.

14 Diversity is obtained by routing different transmission paths through different offices or customer premises.

technically impossible to segregate interoffice transport facilities according to the network characteristics defined by the BOCs.

A similar dynamic applies to transport facilities in the local loop. The BOCs – like other ILECs – are increasingly deploying new technologies in the loop, including Digital Loop Carrier ("DLC") and Digital Subscriber Line ("DSL"). These loop technologies place high capacity fiber or coaxial cable in portions of the loop, and condition the remaining twisted pair wire to handle high capacity transmissions. As with interoffice transport facilities, these technologies allow local loop facilities to be used for circuit-switched or packet-switched, narrowband, wideband, or broadband applications.

Any regulatory scheme that attempted to adopt the BOCs' proposal to establish different regulatory treatment for facilities that are used in packet-switched and broadband applications, and those that are used in circuit-switched and narrowband applications would be impossible to implement. Such an approach is unworkable because fiber cable, coaxial copper cable, repeaters, and other transport plant is not inherently packet switched or circuit switched, but can be used for either application, depending on the types of electronic equipment that is attached to it. For example, if a 40-pair interoffice fiber cable runs between two BOC central offices, some of the individual fiber pairs may connect to circuit-switched facilities, while others connect to packet-switched facilities. Moreover, this mix of packet-switched and circuit-switched applications could change at any time, simply by connecting the cables to different electronics in the end office. Similarly, fiber or copper cable in the loop could be characterized as circuit switched or packet switched, depending on the type of DLC or DSL equipment to which they are attached. The ease with which transmission facilities could be converted from a regulated to an unregulated classification would make it impossible for the Commission or competitive carriers

to determine which facilities must be offered as unbundled network elements, or which network costs would be included or excluded from jurisdictional reporting requirements. Moreover, the amount and location of facilities that would be excluded from regulation would be determined solely at the BOC's discretion. Such a regulatory structure would provide incentives for the BOCs to deploy packet switching and broadband technology in response to regulatory considerations, as opposed to market forces or technical efficiency. For these reasons, the regulatory approach urged by the BOCs would be impossible to maintain, and would not serve the public interest.

3. There is no rational basis for distinguishing between services provided over packet-switched or broadband facilities and services provided over other facilities

As the BOCs continue to upgrade their networks, they are constantly migrating the full range of their existing services to the new facilities. The BOCs' interoffice transport of voice and data traffic is increasingly being migrated onto broadband facilities – DS3 special access service for years has been in common use to transport aggregated voice and data circuits to interexchange carrier points of presence. The BOCs have also begun to migrate their switched voice traffic to SONET networks – for example, in late 1996, the BOCs and several other ILECs obtained from the Commission authority to establish new tariffed rate elements "in order to offer SONET-based switched-transport services."[15] As part of this process, the BOCs are introducing other high bandwidth services, designed to provide the whole range of narrowband to broadband services. For example, Bell Atlantic recently gave notice that it would introduce Cell Relay Service, a service provided over asynchronous transfer mode ("ATM") technology that "is able

[15] *Petitions for Waiver of Part 69 of the Commission's Rules to Establish Switched Access Rate Elements for SONET-based Service*, 11 FCC Rcd 21010 (1996).

to carry digitized voice, video and data between end user locations . . . [at] access speeds of 45 Mbps via DS3 and 155 Mbps via SONET OC-3c."[16] In fact, the BOCs' SONET services employ add/drop multiplexing that allows customers to provision a whole range of low-level services – both narrowband services and wideband services – over the broadband SONET network.[17]

The BOC proposals would lead to unreasonable discrimination between users of identical services. For example, POTS telephony offered over a SONET network is indistinguishable from POTS offered over analog, circuit-switched facilities, yet the former would be unregulated and the latter would not. Similarly, a 56 kbps digital data service provided over a universal Digital Loop Carrier could be circuit-switched and regulated, while the same service provisioned through a Digital Subscriber Line facility could be packet-switched and deregulated. Because the BOCs would be able to price their unregulated services at any level, customers receiving exactly the same functionality from the BOCs could pay widely differing rates, based solely on the nature of the facilities that serve their location. The Commission repeatedly has found such discrimination to be unlawful in the past.

Furthermore, the BOC proposals would yield other profoundly unreasonable outcomes. Under the proposals, the access segment of a POTS call could be circuit-switched, and therefore regulated, while the interoffice switched transport segment of the same call would be packet-switched, and therefore deregulated. Ultimately, of course, the BOCs could unilaterally deregulate *all* of their services by deploying packet-switched technology throughout their

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16 *Common Carrier Bureau Network Change Notification Re: Network Change Notification Received*, Report No. NCD-40 (Apr. 18, 1997).

17 Bell Atlantic Tariff FCC No. 1, 2nd Revised Page 539 (effective Feb. 3, 1997) ("services are provided ... with sufficient bandwidth capacity to meet the customer's request").

networks. Because the BOC proposals do not establish a discernible and consistent classification of regulated and unregulated services, they are impracticable and unreasonable.

B. The BOCs' Description of the Internet Misrepresents the Level of Investment In Backbone Networks and the Actual Causes of Congestion

The other fundamental premise underlying the BOCs' petitions for deregulation is that the internet is facing imminent collapse, and only the BOCs – if provided the correct incentive through deregulation – can save it.[18] In addition to being laughably egomaniacal, as Intermedia discusses below, the BOC arguments are based on a gross misrepresentation of sources of congestion in the internet, the current levels of competitive entry in the internet services markets, and the investment in internet networks made by both regulated and unregulated carriers alike.

1. The BOCs grossly misrepresent the capacity of the national internet backbone networks

Bell Atlantic sums up the BOCs' depiction of the internet by stating that: "The core of the problem lies in the limited capacity of the [internet] backbone networks. Because of burgeoning traffic, average speeds for transport across backbone networks are only in the range of 40 kilobits per second (kbps) . . . ."[19]

This is a shockingly incorrect and irresponsible statement, and is belied by Bell Atlantic's own actions and testimony. First, Bell Atlantic Internet Solutions ("BAIS") – the unregulated, wholly owned internet service provider subsidiary of Bell Atlantic – currently offers its customers internet connectivity at 56 kbps, and offers "power packages" that provide

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18 *See*, Ameritech at 5-7, 8-11; Bell Atlantic at 13, Attachments 1 & 2; U S West at 27-31, 22-26.

19 Bell Atlantic at 13; *see also* Ameritech at 5, U S West at 22.

connectivity at 256 kbps, T1 (1.544 Mbps), 4 Mbps, 10 Mbps, 16 Mbps, 25 Mbps and 34 Mbps. A copy of the service description from the BAIS home page is appended at Attachment 1. If it is Bell Atlantic's position that, regardless of the speed of connectivity purchased by the customer, BAIS can only deliver internet access at 40 kbps, BAIS should inform its customers of this limitation. Speaking from Intermedia's own experience, Intermedia faces no such limitation. Intermedia's own internet service provider subsidiary, DIGEX routinely provides its customers with high speed access.

The fallacy of the BOC claims of constraints on the capacity of the internet backbone network is further illustrated in the supporting materials provided by Bell Atlantic. In support of its argument that the internet backbone is only capable of delivering speeds of 40 kbps, Bell Atlantic cites page 12 of the "White Paper" appended to its petition at Attachment 2. That page references a discussion of Integrated Services Digital Network technology deployed by local phone companies, and states that: "ISDN supports digital connections at 128 kbps, three-to-five times faster than analog lines equipped with fast modems. The new Bell Atlantic leads the nation in ISDN deployment: it now offers ISDN to almost 96 percent of its access lines."[20] As this quote makes clear, the 40 kbps limitation cited by Bell Atlantic reflects capacity problems with *analog copper local loop plant*, not internet, fiber-optic backbone networks. These networks consist of multi-pair fiber optic cables capable of transporting data at speeds of OC-48 – that is, *gigabits* of data. Indeed, elsewhere in Bell Atlantic's White Paper, it does discuss internet backbones, and the paper acknowledges that backbone carriers deploy lines of 45, 155

[20] Bell Atlantic, Attachment 2, at 12.

and 622 Mbps capacity, and concedes that "the absolute speeds of these backbones are quite fast . . . ."[21]

Indeed, the carrying capacity of the optical fiber now being deployed, and the fiber already deployed, cannot be overstated. As communications attorney and frequent industry commentator Peter Huber explains in his most recent book:

> The technology to supply almost limitless bandwidth is now at hand. Broadband networks already occupy the top tiers of the telephone network, operated by regional and national telephone companies, and the top tiers of the broadcast networks, operated by video carriers. Only the last mile remains to be conquered.
>
> * * *
>
> The carrying capacity of fiber-optic cable increased a millionfold between the mid-1970s and the early 1990s. Another millionfold increase will occur in our lifetimes. Or perhaps a billion.[22]

Similar observations have caused other industry observers to conclude that "[i]n the U.S., we have a glut of capacity in terms of physical fiber."[23] In light of the facts, and the correct reading of Bell Atlantic's own materials, the BOCs' arguments that their bid for deregulation is compelled by the inadequacy of the internet backbone network must be rejected.

2. The BOCs grossly misrepresent the rate of investment in the national internet backbone networks and new loop technologies

In a further attempt to support their bid for deregulation, the BOCs similarly mischaracterize the level of investment in internet networks currently being made by both incumbent LECs and competitive carriers. The BOCs generally argue that internet investment is

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21 *Id.* at 21.

22 P. Huber, *Law and Disorder in Cyberspace, Abolish the FCC and Let Common Law Rule the Telecosm* 17 (1997).

23 G. Lawson, *Flight Congestion*, Global Telephony, 1997 WL 9662907 (Mar. 1, 1977).

lacking, and that deregulatory incentives are necessary to prompt major BOC investment in internet backbone networks.[24]

The BOCs also argue that deregulatory incentives are necessary to promote BOC investment in DSL technology. In its pleading, Bell Atlantic makes the vague assertion that consumer demand for such new technologies as xDSL is "untested" and that current levels of congestion on the internet causes risk that lessen the "pace of investments."[25] Ameritech similarly argues that xDSL "[deployment costs . . . are huge, and the investment risks substantial."[26] U S West argues that, unless its obligations to resell xDSL services or provide unbundled xDSL elements are eliminated through a grant of its petition, "an incumbent LEC that knows that it alone must bear the costs of any unsuccessful innovations, while being forced to share any resulting benefits, will not risk experimenting with innovations that might not prove successful."[27]

The White Paper submitted with the Bell Atlantic filing provides some selected statistics, citing a few new entrants,[28] and attempts to compare total expenditures by BOCs for "capital improvements" with those of cable companies, wireless companies, and three CLECs. Even a cursory review of available materials, however, makes clear that the internet is not suffering from lack of investment.

The BOC arguments are unpersuasive for two central reasons. First, the BOCs lump together backbone transport networks and xDSL technology in their discussions of investment in

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24 Ameritech at 8-9; Bell Atlantic at 13.

25 Bell Atlantic at 15.

26 Ameritech at 10.

27 U S West at 47.

28 Bell Atlantic, Attachment 2 at 23.

internet networks. This is incorrect in that xDSL is a *loop* technology, and is not used to increase bandwidth in the backbone transport networks. Moreover, xDSL is a new technology that is only now being deployed by competitive carriers as well as ILECs, while high capacity transport is a more mature technology that has been deployed for years. By failing to differentiate between the two segments of internet networks, the BOCs understate the level of investment and overstate the risk of deploying backbone networks, and, at the same time, understate the aggressiveness with which competitive carriers and ILECs are deploying the nascent xDSL technology.

Second, the BOCs mischaracterize the amount of investment being made in both backbone networks and loops. The BOCs' assertions and selected statistics cannot disguise the fact that there is an enormous level of investment by incumbent LECs, CLECs, IXCs, wireless and cable carriers, utilities, educational institutions, the federal government, and state and local governments.

Regarding backbone networks, the Commission's annual *Fiber Deployment Update* provides an excellent overview of the amount of investment in fiber backbone networks by ILECs and competitive carriers. The *Update* for end-of-year 1996 shows that ILECs have dramatically increased their investment in backbone networks over the last five years. Between 1991 and 1996, the amount of fiber miles deployed by the BOCs showed the following increases: Ameritech increased from 400,700 to 1,339,300 miles; Bell Atlantic increased from 809,700 to 2,403,500 miles; NYNEX increased from 637,000 to 1,422,500 miles; and U S West increased from 542,300 to 1,615,300 miles.[29] Moreover, the same Commission report shows that, of the fiber that has been deployed, *the majority has not yet been placed in service. The Fiber*

Deployment Update lists the percent of deployed fiber that is actually "lit" (that is, is attached to electronic transmission equipment and is ready to provide service) is only at 14.5% for Ameritech, 40.8% for Bell Atlantic, 37.7% for NYNEX, and 35.1% for U S West. Therefore, even if the BOCs stopped deploying new fiber – and they are not doing so – they still have enormous capacity held in reserve.

Since 1996, the BOCs have announced substantial new investments. On March 30, 1998, Bell Atlantic "announced its response to the explosion in demand for an anytime, anywhere system with a five year, $1.5 billion construction investment accelerating its next generation broadband data network."[30] As Bell Atlantic's Lawrence T. Babbio stated, "[Bell Atlantic's] aggressive investment in this powerful, leading-edge technology will differentiate us from the competition, attract new customers and convince those who've tried the competition that [Bell Atlantic] is the best choice."[31]

Similarly, in January 1998, U S WEST announced its strategic partnership with Cisco to provide advanced ATM switching and other capabilities to power U S WEST's next-generation national data network.[32] The evidence from publicly available sources clearly indicates that ILEC investment in high-capacity backbone networks is healthy, and does not present a compelling case for the need for additional incentives.

In addition, Intermedia takes issue with U S West's argument that the cost of xDSL technology is prohibitive in low-density service areas, and that incentives are required to

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(...continued)

[29] Industry Analysis Division, *Fiber Deployment Update, End of Year 1996*, at Table 6.

[30] *Bell Atlantic Steps Up Deployment of High-Speed, Broadband Data Network*, http://www.ba.com/pr/1998/MAR/19980330001.html (March 30, 1998)

stimulate investment in rural markets. In fact, the resale of US West's xDSL loop services will have the effect of dramatically increasing U S West's sales force, and will expand its customer base. This will stimulate demand that will decrease the incremental cost of providing service, and will help to ensure that newly-installed plant does not sit idle. Moreover, because state commissions have prescribed the wholesale discounts that will apply to these services, U S West is provided full recovery of its economic costs, plus a reasonable profit on those services. Resale of xDSL-based services will therefore stimulate demand, lower costs, and speed the deployment of xDSL technology.

Regarding investment by competitive carriers, the trade press and web sites are rife with announcements of major new investments in internet networks by established providers and new entrants alike, including: Intermedia/DIGEX,[33] MCI,[34] Sprint,[35] WorldCom,[36] Northwest Iowa Power Cooperative,[37] BBN Corporation,[38] Microsoft,[39] Frontier, GTE, and IXC

(...continued)

32 Http://www.uswest.com/com/insideusw/news/012998.html.

33 Press Releases: *DIGEX Internet Backbone Expansion to Offer Unequaled Bandwidth Capacity; DIGEX Announces OC-3 to OC-48 Connectivity in Metropolitan Markets,* http://www.digex.net (Feb. 22, 1998).

34 *IXC Completes Backbone Improvements*, Telephony (Nov. 25, 1996) (citing $60 million upgrade in 1996, further upgrade planned in 1997).

35 T. Mulligan, *The Cutting Edge: The Internet Backbone*, L.A. Times, D1 (Feb. 3, 1997) (reporting a $100 million investment in backbone upgrades in 196/97).

36 *WorldCom Announces $300 Million Expansion of Unet Network, High Demand for Internet Services Drives Major Expansion,* PR Newswire, *available in* Westlaw USNEWS database (Feb. 19, 1997).

37 *MCI Delivers Advanced Technology and Services to Rural America: First-of-its-Kind Partnership Unites MCI with Power Utility and Independent Telephone Company*, PR Newswire, *available in* Westlaw USNEWS database (Mar. 20, 1997).

38 *BBN Corporation Launches High-speed Internet Hub in Richmond*, Business Wire, *available in* Westlaw USNEWS database (Nov. 21, 1996).

Communications,[40] and Pacific Bell and StrataCom Inc.[41] These provide examples of massive investment in the internet by a wide range of industry players in primary, secondary, and tertiary markets.

Dramatic levels of investment are being made in DSL loop technologies as well. U S West announced in January that it would use NetSpeed central office and modem equipment as part of its MegaBit Services ADSL offering throughout its 14-state region.[42] "Cisco's plan to acquire NetSpeed will enable U S West to accelerate the deployment of DSL services," said Joe Zell, president, U S West !NTERPRISE Networking. "Clearly, NetSpeed will benefit from having a company with the manufacturing and operational strength of Cisco behind it, which in turn will help it to meet the enormous demand we are anticipating from our MegaBit DSL service."[43] U S West's ADSL rollout will reach over 5.5 million customers in its 14-state region. In describing U S West's aggressive ADSL plan, Solomon D. Truijillo, president and CEO of U S West noted that:

> Customers across our region will now be able to get the power and convenience of super-fast Internet and data access (in their homes or at the office). No more 'World Wide Wait.' Now, people will have the speed and simplicity to make the Internet a vital and

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(...continued)

39 *Microsoft Buys Piece of Comcast; Gates' $1 Billion Plunge Into Cable Expected To Speed Up Internet Access*, The Sacramento Bee, E1 (June 10, 1997).

40 R. Krause, *Computers & Technology: There's Cachet and Profit in Owning Fiber Networks*, Investor's Business Daily (July 17, 1997) (discussing these carriers' deployment of 23,000 miles of fiber optic backbone network).

41 *StrataCom to Upgrade Internet Backbone*, Reuters Financial Service, BC Cycle (May 6, 1996) (reporting investment to increase performance and capacity of West Coast segment of the internet backbone by 400%).

42 U S West press release, http://www.uswest.com/com/insideusw/news/012998.html.

43 *Id.*

> useful part of their lives (all at affordable prices and over their existing phone lines.[44]

Thus, well before U S West began to argue that it required radical deregulation of its network as an incentive to deploy DSL technology, it had made a major commitment to roll the technology out throughout its entire region. In light of U S West's published statements that it anticipates enormous demand for the service its pleas to be insulated from the "risk" of deploying the new technology must be rejected. Moreover, its published statement that its initial rollout will reach over 5.5 million subscribers in its region shows that U S West's complaint that the cost of the technology may prevent xDSL from ever being deployed is meritless.

In addition, of course, the Commission, following the direction of Congress and the recommendation of the Federal/State Joint Board, has implemented its new Universal Service rules, which for the first time this year implement the annual $2.25 billion subsidy fund for bringing advanced services – including internet access – to primary and secondary schools, libraries and health care institutions across the country. The BOCs have already stated their intent to use universal service subsidies aggressively to serve these customer bases. Bell Atlantic has launched an all-out effort to maximize the subsidies it draws from the Universal Service Fund: "Bell Atlantic is encouraging as many schools and libraries as possible to develop technology plans and apply for funding." "In addition to [Bell Atlantic's] information campaign, [Bell Atlantic] technology teams and sales staffs are working overtime, reviewing technology plans and requests for service, and developing customized solutions for these important

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44 U S West press release, U S WEST Brings Lightning Fast Internet Access to Homes in 40 Cities by June 1998, released January 26, 1998, http://www.uswest.com/com/insideusw/news/012998.html.

customers."[45] Bell Atlantic has "the systems in place to handle the new [schools and libraries] accounts, the service installation and the equipment acquisitions this program will generate."[46]

Ameritech has initiated a similar program, announcing "Technology Planning Seminars for Schools and Libraries Programs," offering the key to accessing and funding next-generation educational communications tools. According to Ameritech, "the 'Accessing and Funding Educational Technology' seminars will help schools and libraries learn how to take advantage of the Universal Service Fund for Education ... which enables public and private K-12 schools and libraries to save from 20 percent to 90 percent on investments in advanced communications and networking technology."[47]

As the above discussion makes clear, the internet is at no risk from lack of investment either in the backbone network, or the new technology-enhanced loops that will speed internet access to end users – the number of new entrants that commit to major new investments continues to increase every year, and parties that are already in the market are continuing to expand their investments. Moreover, the BOCs need no further incentive to make their own investments, because they already have the strongest incentive possible – if they refuse to make the investments necessary to reduce its costs, increase its efficiencies and offer innovative new products to its customers, it will greatly facilitate entry by competitive carriers. This is the same incentive that has driven competitive carriers since their entry into telecommunications markets.[48]

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45 Http://www.ba.com/mr/1998/MAR/19980312003.html.

46 Http://ameritech.com/news/releases/Sept_1997/03_03.html.

47 *Id.*

48 Indeed, the BOCs' essential argument – "deregulate me or I'll refuse to invest in the internet" – is an argument only a dominant carrier could think of. This type of argument (continued...)

3. The BOCs misrepresent other purported sources of congestion in the internet

While the digital backbone networks are not the source, Bell Atlantic is correct in noting that the internet is experiencing congestion problems. The sources of this congestion are typically acknowledged to be lack of capacity at the Network Access Points ("NAPs"), which are publicly-available central points of interconnection located at several sites across the country.[49] Similarly, routers currently deployed by ISPs, which typically are not adequately "scalable" to accommodate substantial increases in demand, also contribute to comgestion.[50] U S West similarly complains that, in its territory, internet service provider points of presence are far apart, requiring extensive backhauling of traffic.[51]

Industry participants are pursuing a variety of strategies to address these problems: Network operators are actively deploying new points of interconnection, equipment manufacturers are exploring new internet protocol switching technology, and ISPs are actively establishing private peering arrangements to obviate the need to interconnect at NAPs, and to deploy additional points of interconnection throughout the country. It is important to note, however, that nothing prevents the BOCs from actively participating in these solutions now. Bell Atlantic Internet Solutions and U S West !NTERPRISE currently operate their own internet

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(...continued)

simply has no effect in the context of a robustly competitive market such as the market for internet access and services.

49 *E.g.*, W. Wilson, *Hitching a Speedier Internet Ride: InterNAP Can Bypass Access Points Clogged by Soaring Use*, Seattle Post-Intelligencer, B4 (June 2, 1997); K. Hart, *ISPs divided over hub bottlenecks, Communications Week International,* available in 1996 WL 8647413 (Nov. 25, 1996).

50 *E.g.*, B. Phillips, *IP Switches Help Relieve Congestion – ISPs get ready to shift from routers;* CommunicationsWeek, T21 (May 5, 1997).

51 U S West at 23 and *passim*.