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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

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	)	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 Access Providers	)	CC Docket No. 96-263

JOINT COMMENTS OF BELL ATLANTIC AND NYNEX ON NOTICE OF INQUIRY

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Summary

The Internet is often touted as the first Information Superhighway. It has drawn millions of individual and corporate users, a number that grows daily and now numbers over 50 million in the United States and Canada. The vast majority of these users access the Internet for only a few hours a month to send or read electronic mail or to retrieve information. A few, however, take advantage of the widespread availability of flat-rate pricing by ISPs to connect for hours or even days at a time. These users have caused a significant increase in originating traffic in telephone company offices. Moreover, new Internet technologies that are now being implemented, such as "push" services, are effective only if customers remain connected to the Internet at all times when their computers are on. This will cause even more dramatic increases in the traffic in the originating offices.

In addition, the ISPs are causing significant congestion on the switches to which they are connected (for line-side connection) and on interoffice trunk facilities. They take advantage of the ESP exemption to lease standard business telephone lines, or Integrated Services Digital Network ("ISDN") services, which carry no usage charges for terminating traffic. These lines are occupied nearly continuously, receiving traffic from end users for transport into the Internet, much as interexchange carriers receive end user traffic for transport to distant locations. Such circuit-switched lines are less efficient and consume more network resources than alternative packet switching and other technologies that are either being offered today or are on the drawing board. However, the existing price structure under the ESP

exemption gives most ISPs little incentive to adopt those technologies, even though the alternative technologies would allow them to improve service to their customers.

As a result, the present ESP exemption is no longer sustainable. Besides inhibiting deployment of more efficient technologies, the existing scheme is forcing the majority of users to subsidize Internet access services. It allows ISPs to take business lines for as little as $20 per month while avoiding the usage-sensitive interstate access charges that they would pay but for the ESP exemption. It causes network facilities to become congested, forcing emergency investment in expanded facilities just to serve the increased Internet traffic -- nearly $200 million by Bell Atlantic alone in 1996, an amount that is expected to grow to more than $300 million in 1997. Repricing access services provided to ISPs to compensatory levels will ensure that they pay their own way.

The ESP exemption has also caused some competitive local exchange carriers ("CLECs") to take the erroneous position that Internet traffic is "local," and to bill incumbent carriers usage-based rates under reciprocal compensation agreements. This position would double the present inequities. Not only are the ISPs already exempt from the interstate access charges that other providers of interstate communications must pay to originate interstate communications, but the LEC would be required to **pay** the CLEC (or even an ISP claiming to be a CLEC) when the LEC provides originating interstate access service for which it **charges** all other access customers. This concern is by no means theoretical. Bell Atlantic and NYNEX have already seen large shifts of ISP accounts to the CLECs, who are actively marketing their services on the assumption that they will receive reciprocal compensation from the LECs for

traffic that the LECs already provide free of ISP usage charges. A similar problem exists with respect to ESP traffic that includes both database access created by the ESP and Internet access.

In seeking to remedy these inequities, however, any mechanism the Commission adopts should provide the proper incentives to promote the rapid deployment and expansion of Internet access. It should also avoid a rate structure that would discourage Internet usage or stifle the growth of this dynamic industry. For this reason, Bell Atlantic and NYNEX fully concur with the Commission's tentative decision not to apply access charges as presently constituted. Instead, the Commission should adopt a new ISP charge that would compensate the LECs for the investment needed to prevent or alleviate switch congestion caused by the enormous increases in Internet traffic through charges that will fully cover the costs of providing service to the ISPs. Such charges would also provide an incentive for the ISPs to move to more efficient packet-switched solutions that would remove their traffic from all or large parts of the public circuit-switched network. This compensatory charge could either be usage-based, which represents the manner in which the costs are incurred, flat-rated, at a level sufficient to cover costs that the ISPs impose on the network, or a combination of the two.

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JOINT COMMENTS OF BELL ATLANTIC[1] AND NYNEX[2] ON NOTICE OF INQUIRY

I. Introduction

The "exemption" that allows enhanced service providers ("ESPs") to avoid paying interstate charges has served its original purpose, but it has now become counterproductive. Designed in 1983 to promote the growth of a new and struggling enhanced services industry, this exemption is now being used by a new industry -- Internet Service Providers ("ISPs") -- that is

[1] The Bell Atlantic telephone companies ("Bell Atlantic") are Bell Atlantic-Delaware, Inc.; Bell Atlantic-Maryland, Inc.; Bell Atlantic-New Jersey, Inc.; Bell Atlantic-Pennsylvania, Inc.; Bell Atlantic-Virginia, Inc.; Bell Atlantic-Washington, D.C., Inc.; and Bell Atlantic-West Virginia, Inc.

[2] The NYNEX telephone companies ("NYNEX") are New York Telephone Company and New England Telephone and Telegraph Company.

now large and is growing dramatically.[3] The Commission should terminate the ESP exemption as it applies to ISPs and database ESPs (such as companies that provide content and Internet access), and replace it with a separate compensatory interstate charge that, while lower than current access rates, would provide an economic incentive for ISPs to subscribe to packet switched services that Bell Atlantic and NYNEX are offering or are planning to offer. These packet services would provide a more efficient method of transporting data, which would reduce congestion in the public switched network. Such a separate charge would also help the Commission to fulfill its statutory mandate to promote the deployment of new technologies and services.[4] A separate interstate charge would also better compensate local exchange carriers ("LECs") for the ISPs' use of their network facilities.

II. The ESP Exemption Is No Longer Justified.

A. *The Historical Basis For the Exception No Longer Applies.*

In 1983, when the Commission adopted the present system of access charges, it "temporarily" exempted enhanced service providers from application of those charges, because "th[o]se entities would experience huge increases in their costs of operation which could affect their viability."[5] As a result, for more than thirteen years, ESPs have generally subscribed to

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[3] The original justification for the exemption was to postpone the rate increases that ESPs would otherwise incur from application of the then newly-adopted access charges. ***MTS and WATS Market Structure,*** 97 F.C.C.2d 682, 715 (1983) ("Access Charge Order").

[4] 47 U.S.C. § 157(a).

[5] Access Charge Order at 715.

local business lines and other state-tariffed services for their access connections. During that period, the Internet developed from a specialized scientific network into a burgeoning Information Superhighway that has drawn tens of millions of business and residential users.[6] Although most of today's ISPs could not have suffered rate shock in 1983, because they did not exist at that time, they have availed themselves of the ESP exemption to avoid access charges and to subscribe to state-tariffed services for their exchange access.[7] Unlike access services, these services impose no charge for terminating traffic at the ISP. The low, flat rates that the ISPs pay are not covering the massive costs that they are imposing on the telephone network to avoid network congestion that would degrade service to other customers. In addition, these low charges paid by the ISPs, when passed through to end users, are inducing very high usage by those end users, which results in yet more network investment to prevent congestion.[8]

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[6] A recent study estimates that the number of Internet users has doubled in the past 18 months to more than 50 million in the United States and Canada, or nearly one-quarter of the population over 16 years of age. R. Chandrasekaran, "Internet Use Has More Than Doubled in Last 18 Months, Survey Finds," ***Washington Post***, March 13, 1997 at E3.

[7] ISPs are enhanced service providers under the Commission's Rules. Besides providing connections into the Internet, they also offer browser functions and data storage capabilities, which are enhanced functions. Data from the Internet is often downloaded to an ISP's platform, and the end user retrieves that information by interacting with the ISP platform. Therefore, ISPs provide the subscriber with "additional, different, or restructured information" and their services "involve subscriber interaction with stored information." ***See*** 47 C.F.R. § 64.702(a). In addition, many ISPs perform protocol conversion of messages into the Transmission Control Protocol/Internet Protocol to allow any Internet message to be read by any personal computer. Protocol conversion is defined as enhanced under the Commission's rules. ***Id.*** As a result, ISPs' services fall within the Commission's definition of enhanced services.

[8] ***See*** Attachment A.

In a very short time, the Internet has grown into a major commercial communications vehicle, and the ISP industry has become a major factor in the United States economy. It has become a major advertising medium,[9] with nearly every major corporation, a great many smaller companies, and a host of federal, state and local governments, including the Commission, sporting one or more Web pages. In short, Internet access is hardly the incipient, emerging industry that existed when the Commission adopted the ESP exemption in 1983. With all of this actual and potential money being made on the Internet, there is no justification for allowing ISPs to pay below-cost rates for their access.

B. *The ESP Exemption Is Producing Unexpected Adverse Consequences.*

Despite ISPs' claims to the contrary, Internet traffic has already forced Bell Atlantic and NYNEX to expend considerable sums to avoid network congestion. The Internet Access Coalition has submitted a study by Economics and Technology, Inc. ("ETI") that claims that no congestion exists and that the telephone companies should have planned for the Internet traffic growth.[10] ETI claims that the LECs' costs to accommodate Internet traffic are minimal and that no Commission action is needed. As detailed in Attachment B, however, the congestion and costs are real. ETI's study misstated and distorted the facts, and this has led to faulty conclusions.

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[9] ***See, e.g.*** "Internet Advertising Grows," ***Wall Street Journal*** (Dec. 12, 1996) at B7 (reporting that advertising on the Internet more than doubled from the first to the third quarter, 1996).

[10] Comments of the Internet Access Coalition (filed Jan. 29, 1997) ("IAC Comments").

To design and build their networks efficiently, telephone companies rely upon traditional usage patterns, derived from decades of experience with average demand levels of telephone customers. While individual business and residential customers' usage may vary widely from the norm,[11] network construction decisions are, and always have been, based upon projected average usage patterns for the types of customers (business or residence) served by a given office. The rates charged for business and residential services have historically taken these typical usage patterns into account. The growth of the Internet has, however, already dramatically changed the *overall* usage patterns in many offices, throwing out the window many of the traditional statistics on telephone company facility needs. In particular, standard telephone lines served by "typical" central offices are each in use about 5 minutes during the busy hour. By contrast, recent measurements in offices that serve large ISPs show that the lines to those ISPs are in use more than 45 minutes of the busy hour.[12] Nor are the effects confined to the busy hour. In New Jersey, for example, statewide traffic volumes increased 18% between November 1996 and January 1997 over the previous year, a period which corresponded to sharply increased ISP activity in the state. In addition, Bell Atlantic recently summarized in a report to the Virginia State Corporation Commission the congestion problems experienced in the Richmond and Norfolk LATAs as a result of increased Internet traffic. That report appears in Attachment C.

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[11] For example, pizza parlors with delivery service may experience nearly-constant inbound calling before and during a major sports event, but these aberrations do not alter the overall usage patterns of all retail business customers.

[12] Business lines in multi-line hunt groups typically are in use 17-20 minutes of the busy hour.

The affected network facilities, including equipment associated with the switch and interoffice trunks, serve a large number of lines. The number of these facilities that a telephone company installs is determined by the expected amount of peak-hour traffic, based upon historical traffic patterns. As a result of the radically changed patterns stemming from Internet usage, network facilities that were built in contemplation of average traffic volumes per line have proved inadequate.

Without any increase in revenue per line, increased network congestion stemming directly from Internet traffic has forced Bell Atlantic and NYNEX to invest substantial amounts in emergency network expansion. For example, Bell Atlantic alone spent nearly $200 million[13] above its planned network construction budget in 1996 to maintain high-quality service and to avoid failures that would impair service to all customers. That figure is expected to exceed $300 million in 1997. These investments include installation of a large number of new line units and ISDN terminations in central office switches to accommodate additional traffic volumes, and interoffice trunks to carry the traffic between offices.

In February 1997, NYNEX installed an additional $6.2 million central office switch in the SoHo neighborhood of New York City just to handle Internet lines as a result of massive increases in ISP traffic in the area. Within a month, the full capacity of the switch was being used, and an addition is planned. NYNEX has also seen a dramatic increase in the amount of traffic it hands off to competitive local exchange carriers ("CLECs") to terminate ISP traffic. To accommodate this traffic, NYNEX has had to construct new direct trunks between its end

[13] This figure has been revised upward since Bell Atlantic's comments in the rulemaking phase of this proceeding, based upon additional information.

offices and the CLECs' collocation cages. In New York City alone, NYNEX was forced to double the number of direct trunks serving one large CLEC in the last three months to accommodate that CLEC's Internet traffic. Other states, such as Pennsylvania, have experienced similar short-term increases.

Little of this unplanned investment would likely have been required if Internet usage had not substantially altered traditional traffic patterns. Virtually no one in industry, government, or the consumer community foresaw the explosive growth in Internet traffic. Without a reasonable expectation that historical growth patterns would be dramatically altered, it would have been irresponsible for Bell Atlantic and NYNEX to have invested in vast amounts of new plant. Nor does the investment now being incurred help to promote new, more efficient, network technology, which customers want and is the Commission's statutory obligation to encourage.[14] Bell Atlantic and NYNEX would prefer to invest their resources to these new technologies, but that investment would also be wasted unless ISPs are given an economic incentive to use the new services.

These additional investments that are caused by Internet usage have driven the monthly cost of delivering this traffic over a business line to an Internet provider to at least $75, and an ISDN line to about $50.[15] Yet the revenues from that line remains at $16-30 per month, depending on the jurisdiction.

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[14] *See* 47 U.S.C. § 157(a) ("It shall be the policy of the United States to encourage the provision of new technologies and services to the public.").

[15] These figures cover only the traffic-sensitive costs.

Bell Atlantic and NYNEX have previously submitted information showing the growing holding times caused by increased Internet calls on both companies' networks and describing the resulting service problems.[16] Since that time, both Bell Atlantic and NYNEX have substantially increased their investment in central office and interoffice facilities to handle the increased volumes of traffic. These efforts have often entailed emergency installation of new facilities to prevent service degradation. While these emergency installations have for the most part led to the maintenance of good service to all customers, some service problems continue to surface, as shown in Attachment B. In addition, Bell Atlantic and NYNEX have dedicated network engineering teams to responding to unpredictable congestion problems caused by Internet use to minimize the adverse impact on all customers. Yet, because of the ESP exemption, ISPs' rates fall far short of covering all these emergency investments and expenses.

New Internet technologies now being implemented can be expected to exacerbate the congestion problem. "Push" technology, which both Netscape and Microsoft are developing, will send predetermined types of information to the end user's computer without the end user having to retrieve it.[17] This technology will facilitate customer access to pre-designated, personalized types of information in a timely manner. However, it requires that the end user remain connected to the Internet during the entire time the customer's computer is turned on, in

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[16] See Joint Comments of Bell Atlantic and NYNEX at Att. 7 (filed Jan. 29, 1997 in the rulemaking phase of this proceeding); letter to James Schlichting, FCC from Kenneth Rust, Director - Federal Regulatory Matters, NYNEX, dated July 10, 1996 (a copy of which appears in Attachment D of this filing).

[17] ***See*** J. I. Rigdon, "Netscape Says New Browser Software Will 'Push' Data to Desktop Computers," ***Wall Street Journal***, March 10, 1997 at B8; "Microsoft in Plan On Network Browser," ***New York Times***, March 12, 1997 at D9.

order for the information to be "pushed" to that computer as soon as it is available. Holding times are likely again to increase dramatically, as will the need for far higher emergency investment to prevent network congestion. While Bell Atlantic estimated last year to the Commission that that ISPs would generate about 10 billion minutes of use overall on its network during 1996, current estimates show a dramatic increase since that time. Based on assessment of embedded and forecasted orders for facilities from ISPs, Bell Atlantic estimates that they will generate approximately 25 billion minutes during 1997. At the present rate of growth, Internet minutes could overtake minutes from interexchange carriers in just a few years.

Another unexpected result is that some CLECs have misinterpreted the ESP exemption. They have sought to define Internet traffic as local and to recover per-minute transport and termination charges for traffic from other interconnecting LECs that terminates on the CLECs' lines to ISPs. It appears that some CLECs are actively marketing their services to ISPs in contemplation of receiving additional revenues from the LECs for the high volumes of traffic delivered to the ISPs.[18] As a result, not only are Bell Atlantic and NYNEX incurring the investment to upgrade their facilities to absorb the increased Internet traffic, but they are also receiving demands from CLECs, and ISPs that claim CLEC status, for compensation to terminate this traffic.

[18] For example, one company has claimed in informal discussions that it could receive from $14 million to $28 million *per month* in reciprocal compensation revenues from NYNEX by providing service exclusively to ISPs and ESPs through a single switch. Although this claim may be an extreme example, it demonstrates that significant sums are at risk.

C. *The ESP Exemption Prevents Rates Charged to ISPs From Covering Their Costs.*

The fundamental change in traffic patterns resulting from the dramatic increases in Internet use means that a new, large industry that is causing large investments to be made to support its services is not paying anything close to its fair share of the costs of its service.[19] The Commission should replace the ESP exemption with a system that allows the LECs to recover the costs that the ISPs impose on the network.

In the rulemaking phase of this proceeding, the ISPs have attempted to divert attention from the below-cost service they receive as a result of the ESP exemption by arguing that the revenues that LECs are generating from the growing sales of other local services are sufficient to compensate for whatever losses they are incurring in providing service to ISPs.[20] These ISPs not only ignore the subsidies they are currently receiving from all ratepayers, but they claim that they should receive additional subsidies from LEC second line revenues. This argument fails from both public policy and factual perspectives.

First, there is no legal or regulatory justification for using *intrastate* revenues from state-regulated second line rates to subsidize *interstate* access to ISPs, and the Commission has no authority to do so. That, however, is precisely what the ISPs want by arguing that revenues from state-regulated second lines be applied to cover the costs of their service.

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[19] Some customers in some areas pay message units for originating calls; however, in no event is there a usage charge for terminating traffic over state-tariffed local lines. Message unit charges fall far short of compensating Bell Atlantic and NYNEX for the large sums expended to deliver ISP traffic.

[20] ***See, e.g.***, IAC Comments at 16.

Second, there is no statistical support for the ISPs' claim that demand for second lines is primarily caused by Internet use. Bell Atlantic's experience in polling a sample of residential customers who could be identified as purchasers of second lines indicates that most buy additional lines for multiple reasons - not just to surf the Internet. As lifestyles have changed and discretionary income has grown in the 1990s, the need for additional communications channels into the home has grown significantly. Access to the Internet appears to account for only about one-third of the second line demand. Another third is due to the need for separate lines for other family and other household members (such as roommates, grandparents or teenage children). The remaining lines are purchased for home office use (such as for facsimile equipment or to maintain separate telephone numbers for personal and business).

III. The Cost-Based Solution Is For LECs To Deploy and For the ISPs to Use New Technologies That Remove Internet Traffic From the Public Switched Network.

New technologies and services are already available, and others are being developed, that will allow Internet traffic to bypass part or all of the local public circuit-switched network, as shown the Attachment E . If the ISPs take full advantage of these technologies, the public switched network will not be burdened by Internet traffic and Bell Atlantic and NYNEX will be able to devote their resources to investing in new, more efficient data technologies rather than in emergency equipment using older technology to prevent network congestion.

For example, packet-switched services that Bell Atlantic and NYNEX are in the process of deploying will remove Internet traffic from the public switched network at a number

of hub locations.[21] While this does not avoid congestion at the originating switch, it does avoid the need to add additional interoffice circuit-switched trunks and to expand the switching capacity at the ISP's serving wire center, both of which are locations where congestion is severe. Other technologies, currently being evaluated, such as the overlay and off-load architectures discussed in Attachment E, will completely bypass the circuit switched network by intercepting a call that is destined for an ISP on the line side of a customer's switch. The call would then be diverted to a packet switched network. With packet switching, network facilities would be used only when a customer actually sends or receives data, regardless of how long the computer is actually connected to the ISP and the Internet. Through use of this technology, the current practice of allowing unlimited connectivity to the Internet at flat rates would not cause undue network congestion. Because the new technologies will bypass the circuit-switched network, their costs can more easily be isolated and charged to the cost-causer.

IV. Without Price Changes For Existing Services, ISPs Will Not Embrace These New, More Efficient, Technologies.

The existing pricing scheme under the ESP exemption provides a disincentive for ISPs to embrace new network technologies. Under the exemption, ISPs pay only the local business line rate for each terminating line, and they use that line at near-capacity. These low

[21] Bell Atlantic's Internet Protocol Routing Service, now available in nearly all states within the Bell Atlantic region, diverts traffic to a separate Switched Multimegabit Data Service network. NYNEX's similar Information Protocol Access Service, which uses Frame Relay technology, will be implemented later this year.

charges, coupled with their embedded investment in modems and other equipment that would not support the new technologies, will cause few large ISPs to subscribe to the new services. Since Bell Atlantic has begun offering its new packet-based Internet access service, none of the large ISPs -- those that cause most of the network congestion -- has subscribed, preferring instead simply to order more local business lines as their traffic grows. By allowing appropriate pricing of their access services, the Commission will provide ISPs and database ESPs the economic incentive to embrace these new, more efficient, services.

For this reason, the Commission should require the ISPs to pay a compensatory federal charge for their access to the local network that reflects the costs that they cause on the network. This charge could be in the form of (1) a usage-based rate that would reflect the traffic-sensitive costs imposed by Internet usage; (2) a flat rate, at a level sufficient to cover costs that the ISPs impose on the network;[22] or (3) a combination of these two.

V. ISP and Database ESP Traffic Is Interexchange and, Therefore, Is Not Eligible For Reciprocal Compensation.

Contrary to the claims of some ISPs and CLECs, ISP traffic is not eligible for reciprocal compensation, because such traffic is overwhelmingly interexchange, not local.[23] In

[22] As shown in Attachment A, however, it is flat-rate end user charges that have induced users to remain connected to ISPs and the Internet for protracted periods. These long holding times, in turn, have caused a substantial portion of the congestion that has forced Bell Atlantic and NYNEX to incur significant network investment.

[23] The same can be said for database ESP traffic, for which CLECs are also claiming reciprocal compensation.

the Interconnection Order, the Commission found that "the reciprocal compensation provisions of Section 251(b)(5) for transport and termination of traffic do not apply to the transport and termination of interstate or intrastate interexchange traffic."[24] Internet traffic is inherently interexchange and international. The structure of the Internet allows users interchangeably to access hundreds of thousands of databases located throughout the United States and around the world.[25] Neither the user nor the ISP knows or cares where the database is located. Even in those instances when a database is downloaded to a local server, and the end user connects to the ISP's node, the end-to-end communication remains interexchange or international. The Commission has previously addressed a similar case in which voice messages from other states and exchanges were stored in a local voice messaging processor. Even though the end user usually retrieved messages from that processor by placing a local call, the fact that the message itself originated outside the state made the end-to-end communication subject to the federal jurisdiction.[26]

Similarly, database ESP traffic (such as from database service providers that also offer Internet access) tends to be interexchange, because most such ESPs operate centrally-located facilities that serve customers throughout the country. Where the ESP's facilities are

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[24] ***Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, First Report and Order***, CC Docket No. 96-98, FCC 96-325, ¶ 1034 (rel. Aug. 8, 1996).

[25] To the extent that the jurisdictional nature of this traffic cannot be measured, the Commission should follow its "10 percent rule" for Special Access and find that all Internet traffic is subject to interstate jurisdiction.

[26] ***Petition for Emergency Relief and Declaratory Ruling Filed by the BellSouth Corporation***, 7 FCC Rcd 1619 (1992).

located in a different exchange from the end user, there can be no question that all traffic to those facilities is interexchange.

In arguing that all Internet and ESP traffic should receive reciprocal compensation, the CLECs misinterpret the ESP exemption. The Commission did not base the exemption on the notion that ESP traffic is local. Rather, it found that, while ESPs may use incumbent LEC facilities to originate and terminate interstate calls, ESPs should not, for policy reasons, be required to pay federal access charges.[27] Accordingly, although the Commission allowed ESPs to purchase such facilities under the same intrastate tariffs as end users, this did not change the jurisdictional nature of the traffic.[28] The traffic has remained interexchange[29] and is not entitled to reciprocal compensation, regardless of what action the Commission takes on the ESP exemption.

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[27] ***See Access Charge Reform, Notice of Proposed Rulemaking, Third Report and Order, and Notice of Inquiry***, CC Docket No. 96-262, FCC 96-488, ¶ 284 (rel. Dec. 24, 1996).

[28] ***See id.*** at ¶ 285.

[29] The Commission has exclusive jurisdiction over "all interstate and foreign communication by wire or radio." 47 U.S.C. § 152(a).

VI. Conclusion

For the reasons discussed above, the Commission should replace the present ESP exemption with a more cost-causative, compensatory pricing mechanism that recognizes the interexchange nature of the traffic and gives incentives for the ISPs to embrace new network technologies.

Respectfully Submitted,

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ATTACHMENT A

ATTACHMENT A

BELLCORE STUDY OF INTERNET TRAFFIC

Much of the focus of the current debate over Internet traffic congestion has been from the "supply side" -- what resources and technologies are available to relieve circuit-switched traffic congestion. "Demand side" factors must also be considered in resolving economic issues. Consumers respond to pricing signals in making their purchase decisions. Bell Atlantic and NYNEX have observed that current flat rate structures in the Internet access industry (that result from the ESP exemption) cause consumers to spend additional time on-line, because they may do so at no additional cost. This is rational behavior, because, when given the opportunity to use a free resource, the tendency is to use more of it, rather than developing other resources, such as software, that make more efficient use of transmission capacity.

In October 1996, Bellcore conducted for Bell Atlantic a traffic study on Bell Atlantic's network in the Washington metropolitan area to assess consumer reaction to ISP rate structures. Data for five ISPs was examined. Three of the ISPs charged flat monthly rate structures to their customers and two charged measured (per hour) rates. The results demonstrate that call holding times are much longer when consumers have flat rate charges than when they have measured rates. When examined on a per call basis across all five ISPs, individual calls averaged 60% longer with flat rate ISPs. When usage measured on a per-customer basis over the two-week study period, customers with flat rate ISPs had over 100% more usage than customers with measured rate ISPs.

This study supports the conclusion that focusing only on supply considerations (e.g. new technology, build-outs of the circuit switched network, etc.) leads to a half solution. Prices which reflect underlying usage-based costs will result in efficient purchase decisions by consumers. Otherwise, consumers will continue to inflate their usage, resulting in a need for increased LEC investment to keep up with artificially stimulated demand.

Bellcore

Internet and NII Initiatives

Analysis of Internet Traffic: Flat Rate Vs Usage Sensitive Pricing

February, 1997

Executive Summary

Purpose

This report describes the results of a statistical analysis of Internet usage. The purpose of the analysis was to determine the differential impact of two major Internet Service Provider (ISP) pricing plans (i.e., flat-rate vs. measured-rate) on call holding times and on total customer[1] on-line times.

Data Analyzed

The analysis was based on measured call volumes and holding times for incoming calls at three flat-rate ISP locations in Bell Atlantic region, which are denoted in this report as Flat Rate Company #1, Flat Rate Company #2, and Flat Rate Company #3, and two measured-rate locations, which are denoted as Measured Rate Company #1 and Measured Rate Company #2. Measurements for each ISP were collected during three time periods: 10/25/96-10/28/96, 11/01/96-11/04/96, and 11/06/06-11/09/96.

Analyses Conducted

The distribution of call holding times was studied for each of the measured ISPs, and various summary measures were computed. This allowed a comparison of how call holding times (per average call) vary by pricing plan and by ISP within a pricing plan.

A customer-level analysis was also conducted wherein total time on-line (per customer) was computed for each customer observed during the study period. Comparisons of average time on-line were made by ISP and by pricing plan.

[1] Customer, in this study means ISP's customer .

Key Results

Analyses of individual call holding times revealed the following:

- Under flat-rate pricing, call holding time averaged 6.05 CCS[2] (59%) greater than under usage-sensitive pricing.
- The increased average holding time under flat-rate pricing appeared to result from a shift of medium-length calls (5-40 CCS) to longer calls (40+ CCS).
- ISP locations with flat rate pricing had greater average holding times than ISPs with measured-rate pricing.
- Variation between pricing plans was greater than variation between ISP locations.

Analyses of total customer on-line times revealed the following:

- Under flat-rate pricing, average weekday usage per customer was 15.2 CCS (240%) greater than under measured-rate pricing.
- Under flat-rate pricing, average weekend day usage per customer was 12.3 CCS (115%) greater than under measured-rate pricing.
- ISP locations with flat-rate plans had a greater fraction of long total customer holding times than did ISP locations with measured-rate plans.
- ISP locations with flat-rate pricing had greater average daily usage per customer than ISP locations with measured-rate pricing.
- Average daily usage per customer was greater on weekends than on weekdays.
- Variation between pricing plans was greater than variation between ISP locations.

1. Introduction and Overview

1.1. Purpose

This report describes the results of a statistical analysis of Internet usage. The purpose of the analysis was to determine the differential impact of the two major ISP pricing plans (i.e., flat-rate vs. measured-rate) on call holding times and on total customer on-line times.

1.2. Data Analyzed

The analysis described in this report is based on measured call volumes and holding times for incoming calls at five major ISP locations in the Bell Atlantic region. There were three ISPs providing flat-rate services, which are denoted in this report as Flat Rate Company #1, Flat Rate Company #2, and Flat Rate Company #3,. And there were two ISPs providing measured-rate services, which are denoted as Measured Rate Company #1

[2] In this report we use the notation CCS for hundred call seconds and hence 1 CCS = 1 minute and 40 seconds.