BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

In the Matter of the Petition of Sprint Communications Company L.P. for Arbitration of Interconnection Rates, Terms, Conditions and Related Arrangements with U S WEST Communications, Inc.	**)** **)** **)** **)** **)**	**Docket No. UT-003006**

Direct Testimony of Dr. William E. Taylor

Senior Vice President
National Economic Research Associates, Inc.

on behalf of

U S WEST Communications, Inc.

April 26, 2000

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I. IDENTIFICATION OF WITNESS

Q1 PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND CURRENT POSITION.

A1 My name is William E. Taylor. I am Senior Vice President of National Economic Research Associates, Inc. ("NERA"), head of its Communications Practice, and head of its Cambridge office located at One Main Street, Cambridge, Massachusetts 02142.

Q1 PLEASE DESCRIBE YOUR EDUCATIONAL, PROFESSIONAL, AND BUSINESS EXPERIENCE.

A1 I have been an economist for twenty-five years. I earned a Bachelor of Arts degree from Harvard College in 1968, a Master of Arts degree in Statistics from the University of California at Berkeley in 1970, and a Ph.D. from Berkeley in 1974, specializing in Industrial Organization and Econometrics. For the past twenty-five years, I have taught and published research in the areas of microeconomics, theoretical and applied econometrics, which is the study of statistical methods applied to economic data, and telecommunications policy at academic and research institutions. Specifically, I have taught at the Economics Departments of Cornell University, the Catholic University of Louvain in Belgium, and the

Massachusetts Institute of Technology. I have also conducted research at Bell Laboratories and Bell Communications Research, Inc.

I have participated in telecommunications regulatory proceedings before several state public service commissions. In addition, I have filed testimony before the Federal Communications Commission ("FCC") and the Canadian Radio-television Telecommunications Commission on matters concerning incentive regulation, price cap regulation, productivity, access charges, local competition, interLATA competition, interconnection and pricing for economic efficiency. Recently, I was chosen by the Mexican Federal Telecommunications Commission and Telefonos de Mexico ("Telmex") to arbitrate the renewal of the Telmex price cap plan in Mexico.

I have also testified on market power and antitrust issues in federal court. In recent work years, I have studied—and testified on—the competitive effects of mergers among major telecommunications firms and of vertical integration and interconnection of telecommunications networks.

Finally, I have appeared as a telecommunications commentator on PBS Radio and on The News Hour with Jim Lehrer. My curriculum vita is attached as Exhibit WET-1.

Q1 PLEASE DESCRIBE NERA, YOUR PLACE OF EMPLOYMENT.

A1 Founded in 1961, National Economic Research Associates, Inc. ("NERA") is an internationally known economic consulting firm. It specializes in devising economic solutions to problems involving competition, regulation, finance, and public policy. Currently, NERA has more than 275 professionals (mostly highly experienced and credentialed economists) with 10 offices in the U.S. and overseas offices in Europe (London and Madrid) and Sydney, Australia. In addition, NERA has on staff several internationally renowned academic economists as Special Consultants who provide their professional expertise and testimony when called upon.

The Communications Practice, of which I am the head, is a major part of NERA. For over 30 years, it has advised a large number of communications firms both within and outside the U.S. Those include several of the regional Bell companies and their subsidiaries, independent telephone companies, cable companies, and telephone operations abroad (e.g., Canada, Mexico, Europe, Japan and East Asia, Australia, and South America). In addition, this practice has supported a large number of legal firms and the clients they represent, and routinely provided testimony or other input to governmental entities like the FCC, the Department of Justice, the U.S. Congress, several state regulatory commissions, foreign regulatory commissions, and courts of law. Other clients include industry forums like the Unites States Telephone

Association.

II. PURPOSE OF TESTIMONY

Q1 WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A1 I have been asked by U S WEST Communications, Inc. ("U S WEST")—an incumbent local exchange carrier ("ILEC")—to provide an economist's perspective on the issue of inter-carrier compensation for Internet-bound traffic awaiting resolution in this proceeding for the arbitration of an interconnection agreement between U S WEST and Sprint Communications Company, L.P. ("Sprint")—a competitive local exchange carrier ("CLEC").

III. SUMMARY OF TESTIMONY

Q1 PLEASE SUMMARIZE YOUR POSITION ON INTER-CARRIER COMPENSATION FOR INTERNET-BOUND TRAFFIC.

A1 My position on that issue is summarized as follows:

1. The FCC has ruled that calls bound for Internet Service Providers ("ISPs") are jurisdictionally interstate, not local. From a jurisdictional perspective, the proper model of interconnection that applies to ISP-bound calls is not that between an originating ILEC and a terminating CLEC, but that between an originating ILEC and an inter-exchange carrier ("IXC"). Even though the FCC has now been asked by a court to clarify its position on the jurisdictional status of Internet-bound calls, any end-to-end analysis of those calls clearly demonstrates that they are interstate.

2. Regardless of whether ISP-bound calls are jurisdictionally local or interstate, the

correct economic perspective on inter-carrier compensation is formed from the principle of cost causation. On the basis of that principle alone, reciprocal compensation should not be paid by the originating ILEC for ISP-bound calls. Instead, the ISP should compensate that carrier (and any other carrier that switches the ISP-bound call) for the end-to-end cost caused by the ISP customer, and recover that cost directly from the ISP customer.

3. Any incidental resemblance between how local voice calls and ISP-bound calls use carrier networks may help to determine how much those calls cost but is irrelevant for determining how the cost of those calls should be recovered, i.e., who should pay and who should receive compensation. Only cost causation matters for resolving that question.

4. The economic role of the ISP is not that of an end-user (of a serving CLEC) but rather of a carrier. Therefore, like the IXC that pays carrier access charges to partially defray the cost of a long distance call, the ISP should pay analogous charges to defray costs incurred by other carriers on its behalf to switch an ISP-bound call.

5. Persisting with reciprocal compensation (from the ISP customer's originating ILEC to the CLEC that ultimately switches the call to the ISP) would generate an inefficient subsidy for Internet use, distort the local exchange market, and generate unintended arbitrage opportunities for CLECs. These would be opportunities for CLECs to specialize in serving ISPs with the sole aim of accumulating reciprocal compensation revenues.

6. That specialization in serving ISPs and rapid growth in Internet traffic could only combine to shift the burden of the new network facility costs of carrying that traffic almost exclusively on to the ILEC. Historically, these costs were never part of the calculations that regulators made to set residential local exchange service prices and to determine the implicit subsidy needed from other services offered by the ILEC. The substantial new costs of serving the Internet traffic under current circumstances would only worsen the ILEC's revenue deficit from residential local exchange service and put strong upward pressure on the price of that service and other retail services. Raising prices would not only prove untenable under growing competition, it would also be counter to current telecommunications law in the U.S. which requires that implicit subsidies be removed from service prices as expeditiously as possible.

7. Based on the FCC ruling that ISP-bound calls are primarily interstate, four states

(Massachusetts, New Jersey, South Carolina, and Louisiana) have declared that the payment of reciprocal compensation by ILECs originating ISP-bound calls be stopped. Massachusetts and Louisiana regulators, in particular, have noted that by encouraging arbitrage opportunities, the reciprocal compensation regime of inter-carrier compensation for ISP-bound calls subverts real local exchange competition. A considerably larger number of states (including Washington) have upheld reciprocal compensation for ISP-bound traffic. However, in many cases, they have done so in the context of existing interconnection agreements which did not explicitly distinguish local voice calls from ISP-bound calls. At the very least, this proceeding presents an opportunity to consider carefully the proper *economic* foundations of any inter-carrier compensation mechanism for ISP-bound traffic.

8. Because the FCC currently exempts ISPs from paying access charges, the next-best cost-causative form of compensation would be an equitable sharing (between the ILEC and the CLEC) of revenues earned by the CLEC from the lines and local exchange usage that it sells to the ISP. This form of revenue sharing may not be sufficient for the ILEC and CLEC that jointly provide access service to fully recover their costs, but the degree to which they under-recover those costs (or, equivalently, subsidize Internet service) will be the same proportion of their respective costs and, hence, competitively neutral. The third-best and a reasonable interim form of compensation would be bill and keep or, in effect, exchange of ISP-bound traffic between the ILEC and the CLEC at no charge to each other. Because it is not based on cost causation, reciprocal compensation should—from an economic standpoint—not be an option at all.

9. If the Washington Utilities and Transportation Commission ("Commission") should decide to adopt reciprocal compensation for the exchange of ISP-bound traffic, then, it should ensure that the compensation rate is based not on either U S WEST's or Sprint's cost to terminate local voice traffic but rather on the actual (and, very likely, lower) cost to receive and switch Internet-bound calls to ISPs. Otherwise, the perverse incentive will remain to maximize revenue from reciprocal compensation by specializing in serving only ISPs, at the expense of providing the full complement of local exchange services.

IV. INTER-CARRIER COMPENSATION FOR ISP-BOUND CALLS

A. Introduction

Q1 SHOULD RECIPROCAL COMPENSATION BE PAID FOR ISP-BOUND CALLS?

A1 No, for two reasons. First, as the FCC has already determined, calls made to Internet destinations are much more likely to be jurisdictionally interstate than local.[1] Second, and more importantly, the economic principle of cost causation implies that the relationship between the end-user and the ISP is analogous to that between the end-user and an IXC. In fact, regardless of the exact jurisdictional status of Internet calls, there are sound *economic* reasons to (1) reject reciprocal compensation for such calls and (2) require that the ISP pay charges to the ILEC and/or CLEC akin to the access charges paid by IXCs to the ILEC for all long distance calls carried.

Q1 WHAT IS THE SIGNIFICANCE OF THE COST CAUSATIVE BASIS FOR REJECTING RECIPROCAL COMPENSATION FOR ISP-

[1] FCC, *In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996* and *Inter-Carrier Compensation for ISP-Bound Traffic*, CC Docket Nos. 96-98 and 99-68, Declaratory Ruling in CC Docket No. 96-98 and Notice of Proposed Rulemaking in CC Docket No. 99-68 ("*Internet Traffic Order*"), released February 26, 1999. The United States Court of Appeals for the District of Columbia vacated the *Internet Traffic Order* in a decision issued March 24, 2000. (*Bell Atlantic v. FCC*, No. 99-1094, D.C. Cir., March 24, 2000). In doing so, the court remanded the case back to the FCC for further explanation of its conclusion that ISP-bound traffic is predominately interstate. In response to the court's decision, the FCC's Common Carrier Bureau Chief observed that the ruling does not alter his view that ISP traffic is interstate but, instead, requires the FCC to provide further explanation of that conclusion. (*TR Daily*, March 24, 2000)

BOUND CALLS?

A1 As I stated above, regardless of the precise jurisdictional status of ISP-bound calls (i.e., whether they are interstate, local, or something else), the proper application of economic principles holds the key to determining what form of compensation is appropriate for ISP-bound calls, and who should compensate whom. I explain later in my testimony how cost causation helps to make that determination.

Q1 PLEASE FIRST EXPLAIN THE FCC'S FINDING THAT ISP-BOUND CALLS ARE JURISDICTIONALLY MORE LIKELY TO BE INTERSTATE.

A1 In its *Internet Traffic Order,* the FCC stated that it:

> traditionally has determined the jurisdictional nature of communications by the *end points* of the communication and consistently has rejected attempts to divide communications at any intermediate points of switching or exchanges between carriers.[2]

Based on this premise, the FCC explained that calls made to the Internet:

> do not terminate at the ISP's local server … but continue to the ultimate destination or destinations, specifically at an Internet website that is often located in another state. The fact that the facilities and apparatus used to deliver traffic to the ISP's local servers may be located within a single state does not affect [the FCC's] jurisdiction. … Indeed, in the vast majority of cases, the facilities that incumbent LECs use to provide interstate access are located entirely within one state.[3]

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[2] *Internet Traffic Order,* ¶10. Emphasis added.

[3] *Id.*, ¶12. Footnotes omitted.

A call is said to be terminated when it is delivered to the called party's premises.[4] In this sense, an ISP-bound call may *transit* the switch of the carrier serving the ISP, but the call is then delivered to the Internet web site which, as the FCC noted, may be located outside the state in which the call originated. The FCC made it perfectly plain that what matters for determining jurisdiction is the end-to-end transmission itself, not how many different carriers or facilities handle the Internet call on its way. While this ruling has been remanded to the FCC by the D.C. Circuit Court of Appeals for further explanation (see fn. 1, *supra*), an end-to-end analysis of Internet calls clearly demonstrates that they are interstate.

The FCC also noted that while jurisdiction is determined unambiguously when a call originates and terminates entirely within the circuit-switched network, it is a very different matter when the call crosses over from the circuit-switched network into the packet-switched network (that comprises the Internet's backbone network and Internet web sites) on the way to its destination.[5] This is particularly important because the packet-switched network is a "connectionless" network in which termination, in the sense understood within the circuit-switched network, technically does not happen. For example, before it is over, the same Internet call may reach several destination points on

[4] FCC, *In the Matter of Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket No. 96-98, First Report and Order ("*Local Competition Order*"), released August 19, 1996, ¶1040.

[5] *Internet Traffic Order*, ¶18.

the Internet. Also, calls are switched or, more accurately, "routed" over the packet-switched network in a dynamic manner. This means that the Internet call, rearranged in the form of data packets of given length, are sent in a scrambled manner along different available paths within the backbone network, and the "call" is then reconstituted when all of the packets reach the intended Internet destination. This method of transport and routing is nothing like the termination that occurs within the circuit-switched network where, for every call originated and terminated, a dedicated call path is established for the duration of the call. These crucial differences make it all the more likely that an Internet call will cross several

state boundaries—and in a random manner—before it reaches its destination. At best, such a call

would be "jurisdictionally mixed," as the FCC has already correctly determined.

Q1 WHAT HAS THIS COMMISSION DETERMINED WITH RESPECT TO THE JURISDICTIONAL STATUS OF AN INTERNET CALL?

A1 This Commission has on previous occasions determined that Internet-bound or, more precisely, ISP-bound traffic be treated as local traffic for the purposes of the payment of reciprocal compensation.[6] From my perspective,

[6] See WUTC, *Nextlink Washington, Inc., Petitioner, v. U S WEST Communications, Inc., Respondent*, Docket No.

(continued...)

the most definitive Commission statement on this issue was as follows:

> This Commission has authority to resolve this issue pending an FCC rule requiring one outcome or another. *The FCC currently exempts ISP-bound traffic from access charges, so the resolution most consistent with existing FCC rules is to require reciprocal compensation.* The FCC's conclusion that ISP-bound traffic is primarily interstate is not dispositive because neither the Act nor FCC rules preclude interstate traffic from reciprocal compensation. The Commission concludes that ISP-bound traffic should remain subject to reciprocal compensation.[7]

Q1 GIVEN THIS COMMISSION'S PAST RULINGS ON THIS ISSUE, WHAT PURPOSE IS SERVED BY YOUR TESTIMONY THAT RECIPROCAL COMPENSATION SHOULD *NOT* BE PAID FOR ISP-BOUND TRAFFIC?

A1 As the Commission's statement cited above shows, the Commission's current rule with respect to the payment of reciprocal compensation for ISP-bound traffic is in place *pending an FCC rule requiring one outcome or another.* Given its own stated position on the matter (in its *Internet Traffic Order*), the FCC may well decide to institute a different compensation mechanism for

(...continued)
UT-990340, Commission Order Adopting Recommended Decision, In Part, and Modifying Recommended Decision, In Part, September 9, 1999; WUTC, *In the Matter of the Petition for Arbitration of an Interconnection Agreement Between Electric Lightwave, Inc., and GTE Northwest Incorporated*, Docket No. UT-980370, Order Approving Negotiated and Arbitrated Interconnection Agreement, May 12, 1999; and WUTC, *In the Matter of the Pricing Proceeding for Interconnection, Unbundled Elements, Transport and Termination, and Resale (for U S WEST Communications, Inc. and GTE Northwest Incorporated) et al.*, Docket Nos. UT-960369, UT-960370, and UT-960371, 17th Supplemental Order: Interim Order Determining Prices; Notice of Prehearing Conference ("*U S WEST/GTE Pricing Order*"), September 23, 1999.

[7] *U S WEST/GTE Pricing Order*, ¶54. Emphasis added and footnote deleted from cited passage.

such traffic than the interim arrangement—reciprocal compensation—that is currently in place in several states including Washington. At the very least, this suggests that the Commission should be receptive to considering options other than reciprocal compensation for ISP-bound traffic.

Second, the Commission appears to conclude that, because the only other compensation mechanism—access charges—is currently ruled out under an FCC exemption specifically granted to ISPs,[8] reciprocal compensation is *residually* the only mechanism *consistent with existing FCC rules*. From my perspective, this would imply that *alternative* compensation mechanisms could—and should—be contemplated for the possibility that the access charge exemption would be lifted at some future time. More importantly, this presents an opportunity for the Commission and all participants in this proceeding to explore alternative compensation mechanisms *generally* for ISP-bound traffic, not just the two the Commission has had to choose among in the past.

My testimony seeks to introduce a new dimension in that exploration. For this, we should consider what compensation mechanism is appropriate on the basis of *economic* principles. Only a firm economic foundation that looks explicitly—but separately—at

[8] I explore this issue at greater length later in my testimony.

how cost is generated *and* how cost should be recovered can lead to sustainable forms of efficient pricing and compensation, regardless of the actual market environment (e.g., regulated or not, or the degree of competition). Therefore, my testimony offers the Commission an alternative but viable perspective from which to determine compensation policy, one that is likely to endure under all future circumstances in the industry and to maximize economic efficiency and social welfare.

B. Economic Principles for Determining Inter-Carrier Compensation for ISP-Bound Traffic

Q1 PLEASE EXPLAIN THE PRINCIPLE OF COST CAUSATION AND ITS RELEVANCE TO COST RECOVERY.

A1 Cost causation is the fundamental economic principle on which all pricing and cost recovery efforts should be based. This principle asks two questions: (1) who or what has caused the cost in question (cost source)? and (2) how much is the cost in question (level of cost recovery)? Once the person or activity that gives rise to a cost has been identified, the amount of cost in question is recovered entirely from that source. This linkage between cost recovery and the cost source stands on its own, and makes no reference whatsoever to the distribution of benefits. That is, even if an activity provides benefits to others besides the cost-causer, cost should be recovered

fully from its source and not from incidental beneficiaries. For example, if my decision to travel within Washington causes me to employ resources (airline, rental car, lodging, etc.) that cost $1,500 among them, then that entire cost should be recoverable from me, the cost-causer. Whether someone or something else benefits in any material or psychic way from my travel is irrelevant for determining what the cost of that travel is or who should pay the price to recover that cost. In general, the prices that consumers pay should reflect the costs caused by their consumption of specific goods or services.

Consumers determine what and how much to buy on the basis of prices they pay. Their act of buying also causes cost. To ensure that society's scarce resources are put to their best use, and that only the goods and services of highest value to society are produced and consumed, consumers (cost-causers) must be made to pay prices that fully reflect the costs they cause. Application of the cost causation principle thus leads to prices that fully recover costs and, at the same time, ensure that consumption occurs—and resources are used—efficiently.

Q1 PLEASE EXPLAIN HOW COST CAUSATION DETERMINES THAT ISPs ARE ANALOGOUS TO IXCs AND SHOULD THUS PAY CHARGES SIMILAR TO ACCESS CHARGES.

A1 Suppose I am a U S WEST subscriber for local service and an Earthlink customer for Internet traffic. Suppose further that Earthlink obtains access service from Sprint. When I (or my computer) place an Internet-bound call, what costs are incurred and what revenue sources are available to cover those costs? Switching and transmission costs are straightforward: U S WEST carries the call from my computer to its point of connection with Sprint, Sprint carries the call to Earthlink, and Earthlink performs protocol conversion and sends the call out into the Internet. Revenue to cover these costs comes from three sources: I pay U S WEST a regulated price for residential local exchange service, and I pay Earthlink a competitively-determined price for ISP services. Earthlink pays Sprint a price for network access service[9] that is limited by the FCC's ESP exemption from interstate access charges.[10]

Two economic propositions are important in determining who should pay what to whom in this circumstance:

1. When I dial the access number for Earthlink, I am acting as a customer of Earthlink to which I pay a monthly access fee, even though the call is facilitated by the originating ILEC (U S WEST) and the co-carrier CLEC (Sprint) serving the ISP.
2. Earthlink performs the economic functions of a carrier—or an enhanced service

[9] In view of Sprint's recent acquisition of Earthlink, I assume the payment here is of an internal transfer price.
[10] I discuss the implications of the ESP exemption later in my testimony.

provider ("ESP")—that routes the Internet call through the backbone network to its final destination. Earthlink performs standard carrier functions such as transport and routing, as well as maintains leased facilities within the backbone network.

Under these assumptions, an Internet-bound (or, ISP-bound) call is identical in function to an interstate long distance call where the IXC collects the revenue from the cost-causing end-user and pays all the other carriers necessary to complete the call.

The principle of cost causation implies that, *for the purposes of an Internet call*, I am properly viewed as an Earthlink customer placing an Internet-bound call, not a U S WEST customer placing a local call. U S WEST and Sprint simply provide access-like functions to help the Internet call on its way, just as they might provide originating or terminating carrier access to help an IXC carry an interstate long distance call. Therefore, because the economic relationship is analogous to ILEC-IXC interconnection (access), rather than to ILEC-CLEC interconnection (local), the efficient form of inter-carrier compensation is for the ISP to compensate its serving LEC, which, in turn, shares that compensation with any co-carriers that have incurred costs in handling the call.

Inter-carrier compensation through reciprocal compensation is not economically efficient in these circumstances. Reciprocal compensation

makes economic sense for inter-carrier compensation for *local* traffic, where:

1. the ILEC subscriber acts as a customer of the local originating ILEC,[11] purchasing local exchange service out of the ILEC's tariff, and

2. the call terminates at a local exchange end-user, i.e., a party that does not receive revenue from the originating end-user for carrying the call.

For my ISP-bound traffic, I am acting as a customer of Earthlink when I place my call. Although the portion of my Internet call that lies entirely within the circuit-switched network, i.e., up to the ISP, *resembles* a local call, its economic function is very different, since the ISP is not simply a passive end-user recipient of my call.[12] Rather, Earthlink has designed, marketed and sold me the service I am using, collected my monthly fee for Internet access, answered my questions, established telephone numbers at which I can access its services without paying toll charges and paid Sprint for access to the

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[11] I distinguish here between a "subscriber" and a "customer" in order to show cost causation. I subscribe to my local carrier in order to have *access* to the public switched network, but I act as a customer of that local carrier in order to *use* Call Waiting service or of a long distance carrier in order to *use* interstate long distance service. When I am a customer of the local carrier, I cause usage-sensitive cost for that carrier. Similarly, I cause cost for the long distance carrier when I use *its* long distance service.

[12] This point has been made very clearly by the Louisiana Public Service Commission. In becoming the fourth state regulatory agency to deny the payment of reciprocal compensation for ISP-bound traffic, the Louisiana Commission stated:

> There is no prevailing industry custom of treating ISP traffic as "local" for reciprocal compensation purposes. FCC regulations require that ISPs be treated as end users *for only one purpose, the access charge exemption*.

Louisiana Public Service Commission, *In re Petition of KMC Telecom, Inc. Against BST to Enforce Reciprocal Compensation Provisions of the Parties' Interconnection Agreement*, Order in Docket No. U23839 ("*Louisiana ISP Compensation Order*"), October 13, 1999, at 13.

public switched telephone network. Thus, the same subscriber that acts in the capacity of a customer of the originating ILEC when making a local voice call acts in the capacity of a customer of the ISP when making an Internet call. This situation is not an unfamiliar one: it is exactly analogous to the subscriber acting in the capacity of a customer of an IXC when making a long distance call.

Q1 PLEASE EXPLAIN THE CONTRAST BETWEEN THESE TWO "MODELS" OF INTER-CARRIER COMPENSATION IN MORE DETAIL.

A1 ***ILEC-CLEC Interconnection Model***. When a U S WEST subscriber places a local call that terminates to a CLEC subscriber, what functions does U S WEST perform? Obviously, it originates the call by providing dialtone, local switching, and transport to the CLEC's point of interconnection. In addition, U S WEST has marketed the service to its subscriber (and customer of local calls) and, under regulatory direction, determined both price level and structure and other terms and conditions under which the customer decides to place the call. U S WEST will determine if the call has been completed, bill and collect from the customer for the call (if measured service applies) or for flat-rate service, and answer questions regarding the bill or the service. The story is precisely symmetric if the originating party is a CLEC customer and

U S WEST or another CLEC terminates the call.

Thus, under ILEC-CLEC interconnection, the originating subscriber is the cost-causing party and is the customer of the originating ILEC. That originating ILEC charges its cost-causing customer for the entire end-to-end call and compensates the CLEC that terminates the call. The originating ILEC's network costs plus the compensation it pays is—in theory—recovered from the local call charge it levies on its (originating) customer. The terminating CLEC's costs are recovered from the compensation payment it receives from the originating ILEC. In this arrangement, both parties recover their costs, and the cost-causer is (again, in principle) billed for the entire cost he or she causes both carriers to incur. Thus, this arrangement is not an arbitrary regulatory or legal construction: for local interconnection between an ILEC and a CLEC, it makes economic sense. It would arise spontaneously in unregulated competitive markets where the ILEC serving the originating subscriber acts effectively as its agent in making necessary network and financial arrangements with a CLEC to terminate the call, just as General Motors purchases goods or services from Ford or Bendix to include in an automobile purchased by a General Motors customer.

ILEC-IXC Interconnection Model. In contrast, when a U S WEST subscriber places a long distance call using, e.g., AT&T, U S WEST's

function is limited to recognizing the carrier code (or implementing presubscription in its switch) and switching and transporting the call to AT&T's point of presence. While, at some level, the functions its network performs are similar to those used to deliver local traffic to a CLEC[13], the economic functions are very different. It is AT&T that has marketed the service to its customer and determined both the price level and structure and other terms and conditions of the call. AT&T will send, explain, and collect the bill from the customer or lose the revenue if it cannot. Thus, under ILEC-IXC interconnection, the originating subscriber is, from an economic perspective, the customer of the IXC, not the originating ILEC.

When an ILEC (or CLEC) subscriber places long distance calls, he acts as a cost-causing customer of the IXC. The ILEC subscriber, acting as an IXC customer, causes costs at various points in the networks involved: for the ILECs/CLECs that originate and terminate the long distance call, as well as for the IXC that transports it between local exchanges. The IXC receives revenue from the customer which it uses, in turn, to pay originating and terminating access charges to the ILECs/CLECs involved and to cover its own network and administration costs. In effect, the IXC acts as its customer's agent in

[13] U S WEST supplies the customer's loop and provides dialtone, local switching, and transport to AT&T's point of presence.

assembling the necessary local exchange components of the call. The ILECs/CLECs involved recover their costs from access charges. If more than one such carrier is involved in delivering the call from the end user to the IXC, they typically divide the access charges paid by the IXC in proportion to the costs incurred to provision the access portion of the call. Thus, in principle, the cost-causing customer faces a price that reflects all of the costs the call engenders, and all parties that incur costs to provision the call have a claim on the cost-causer's payment.

Thus, from an economic perspective, ILEC-IXC interconnection and ILEC-CLEC interconnection have some important similarities as well as some important differences. In both cases, the originating ILEC subscriber is the cost-causer, and that subscriber pays the supplier (the party with whom the subscriber has contracted for service) for the end-to-end service he receives. The major difference is that in the ILEC-CLEC local interconnection regime, the cost-causing ILEC subscriber is also a customer of the originating ILEC for local service, while in the ILEC-IXC regime, that cost-causing subscriber acts as a customer of the IXC for long distance service.

Q1 FROM AN ECONOMIC PERSPECTIVE, WHY DOES ILEC-CLEC-ISP INTERCONNECTION RESEMBLE THAT BETWEEN THE ILEC

AND THE IXC BUT NOT THAT BETWEEN THE ILEC AND THE CLEC?

A1 The question at issue is: when multiple ILECs/CLECs combine to deliver traffic to an ISP, are they interconnecting in an ILEC-CLEC local interconnection regime or an ILEC-IXC interstate access regime? The FCC has characterized the link from an end-user to an ISP as an *interstate* access service and, absent other considerations, ISPs would be subject to charges analogous to interstate access charges. As far back as 1983, the FCC concluded that ESPs (which, today, would include ISPs) are "among a variety of users of access service" in that they "obtain local exchange services or facilities which are used, in part or in whole, for the purpose of completing interstate calls."[14]

The service provided by an ISP exists to enable that ISP's customers to access information and information-related services stored on special computers or web servers at various locations around the world. The ISP typically facilitates such access by selling a flat-rated monthly or yearly Internet access service that, in most cases, calls for that ISP customer to make a toll-free call in order to reach the ISP's modems. Besides price, ISPs

[14] FCC, *In Re: MTS and WATS Market Structure*, CC Docket No. 78-72, Memorandum Opinion and Order ("*MTS/WATS Order*"), 1983.

compete on the extent of geographic coverage, specifically, the number of local calling areas they can offer to ISP customers as possible points of connection ("POCs"), as well as on various components of service quality including provision of specialized information services.[15] The ISP markets directly to the originating ILEC's subscriber, attempting to maximize its number of customers and the amount of traffic *incoming* to it by publishing and advertising as many local calling numbers (at its POCs) as possible, and doing everything within its power to help the potential customer avoid having to incur per-minute or toll charges to have Internet access. If necessary, ISPs may use foreign exchange ("FX") lines to haul Internet traffic from considerable distances while still offering service to the ISP customer for the price of a local call.[16] Some ISPs offer 800 service for their customers to access their network when flat-rate local calling is unavailable, although there are some which impose a per-minute charge on the subscriber for such

[15] The POCs are points at which the carrier serving the ISP (which may be a CLEC) terminates the ISP-directed call and routes it to the ISP.

[16] In that respect, the implicit contract is analogous to that which exists between a party with a toll-free "800" telephone number and other parties that are invited to call that number. The holder of the 800 number causes cost by signaling others to call him or her and accepts that cost by being willing to pay for it. Moreover, the holder of the 800 number may control the number of potential callers by choosing the method for disclosing the number (e.g., directory information, word of mouth, special invitation, etc.). Similarly, ISPs that use FX lines to provide local connectivity to distant customers signal a willingness to accept—and pay for—the generally higher cost of providing Internet access to those customers. They too can control the number of potential ISP customers by choosing both how many points of connection to offer for providing local connectivity and pricing options for its Internet access service.

access. Some ISPs maintain Internet gateways for their customers and earn revenue from advertisers that depend more or less directly on the number of customers and the number of times its customers access advertised sites. The ISP bills its customers for their access and usage, and stands to lose money if it cannot collect from them. From an economic perspective, then, the party that causes the cost associated with ISP-bound traffic is the originating ILEC's subscriber who acts in the capacity of an ISP customer. In this sense, ISP-bound traffic has the same characteristics as IXC-bound traffic in the ILEC-IXC regime and has characteristics opposite to CLEC-bound traffic in the ILEC-CLEC local interconnection regime.

Q1 ARE THERE DIFFERENCES BETWEEN AN IXC-BOUND CALL AND AN ISP-BOUND CALL?

A1 A theoretical difference is that an ILEC subscriber that places a long distance call does not incur a local usage charge on the originating end, while an ISP customer, in principle, does. As a practical matter, however, this difference is irrelevant. Flat and measured basic local exchange rates have *not* been set to reflect the added cost of serving ISP-bound traffic, and a longstanding public policy concern with the level of basic exchange rates limits the ability of the

regulator to recover these costs from all local exchange customers.[17] In addition, ISPs compete, in part, by providing local exchange numbers so that their customers can reach them without incurring per-minute charges from the serving ILEC or CLEC. Because ISP-bound traffic is caused by the ISP's customer, the ISP would generally bear the cost of the local connection, just as the IXC does for long distance traffic. And, in fact, competitive forces in the ISP market have encouraged ISPs to incur costs and lease facilities so that their customers do not pay additional local exchange costs. For both of these reasons, it would be naïve to think that the originating ILEC's subscriber fully compensates that ILEC for the end-to-end cost of the ISP-bound call.[18]

Thus, I conclude that the ILEC should not be required to pay reciprocal compensation (or, a call "termination" charge) to CLECs for Internet calls by the ILEC subscriber, i.e., the ILEC-CLEC local interconnection regime should not apply for such calls. Instead, I also conclude that the ISP should pay the ILEC (and the CLEC that also serves it) usage charges analogous to carrier access charges paid by IXCs, i.e., the ILEC-IXC interconnection

[17] Indeed, because the longer holding times of ISP-bound traffic impose costs different from those for ordinary voice traffic, raising prices for all local exchange customers to recover costs imposed by the ISP's customers would constitute a subsidy to ISP access. ILECs that originate ISP-bound traffic would effectively charge ISP customers less than incremental cost and ordinary voice customers more than otherwise for local exchange usage.

[18] This problem is likely to be even more acute when the ILEC's subscriber pays flat-rated local charges rather than per-call rates for local service.

regime should apply. Only such a payment would close the gap between the full cost of the call up to the ISP and the local call charge that is assessed to the end-user by the originating ILEC. In this economically correct view of inter-carrier compensation, the CLEC that switches Internet calls for the ISP is compensated not from reciprocal compensation paid by the originating ILEC but from charges paid by the ISP. Moreover, this economically correct perspective does *not* depend on the exact jurisdictional status of the ISP-directed call.

Q1 DO ISPs PAY CHARGES ANALOGOUS TO CARRIER ACCESS TODAY?

A1 No. No rulemaking has yet occurred at the FCC to establish such charges for ISPs, and the D.C. Circuit Court of Appeal's recent decision places into question when such rulemaking will occur. In the meantime, ISPs remain beneficiaries of an exemption from paying interstate carrier access charges that has been granted to ESPs since 1983.[19]

Q1 IN THE ABSENCE OF FCC ACTION TO ESTABLISH INTER-

[19] The FCC has traditionally explained that exemption thus:

> to protect certain users of access services, such as ESPs, that had been paying the generally much lower business service rates from the rate shock that would result from immediate imposition of carrier access charges.

Internet Traffic Order, ¶5, and *MTS/WATS Order*, ¶715.

CARRIER COMPENSATION RULES, HOW HAVE THE INDIVIDUAL STATES ACTED?

A1 For a period of time until the FCC's *Internet Traffic Order* was issued in early 1999, a number of states pursued their own rulemaking on the issue. Those states, including Washington, chose to adopt the ILEC-CLEC local interconnection view of the world and required that the originating ILEC pay reciprocal compensation to terminating CLECs for ISP-bound calls just as they would for local voice calls. After the FCC's *Internet Traffic Order* was issued, regulators in Massachusetts, who had previously also adopted the local interconnection view, reversed themselves and declared the unqualified payment of reciprocal compensation for ISP-bound traffic to be antithetical to real competition in telecommunications.[20] Subsequently, regulators in New Jersey, in reversing an arbitrator's recommendation in October 1998, also ordered that reciprocal compensation not be paid for ISP-bound traffic.[21]

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[20] Massachusetts Department of Telecommunications and Energy ("DTE"), *Complaint of MCI WorldCom, Inc., Against New England Telephone and Telegraph Company d/b/a Bell Atlantic-Massachusetts for Breach of Interconnection Terms Entered Into Under Sections 251 and 252 of the Telecommunications Act of 1996*, Docket No. 97-116-C, Order ("*Massachusetts ISP Compensation Order*"), May 1999. The DTE ordered that all future reciprocal compensation payments by Bell Atlantic be placed in an escrow fund until final disposition on the matter of inter-carrier compensation. The CLECs serving ISPs in Massachusetts currently do not themselves receive any compensation for ISP-bound traffic.

[21] New Jersey Board of Public Utilities, *In the Matter of the Petition of Global Naps, Inc. for Arbitration of Interconnection Rates, Terms, Conditions and Related Arrangements with Bell Atlantic-New Jersey Pursuant to Section 252(b) of the Telecommunications Act of 1996*, Docket No. T098070426, Order, July 7, 1999.

Regulators in South Carolina[22] and Louisiana,[23] too, have directed that such compensation not be paid. Recently, Massachusetts regulators dismissed petitions by several CLECs for a reconsideration of their May 1999 ruling against reciprocal compensation for ISP-bound traffic and called on the parties to negotiate alternative compensation mechanisms for such traffic.[24]

Q1 WHAT REASONS DID MASSACHUSETTS REGULATORS GIVE FOR THIS REVERSAL?

A1 The Massachusetts Department of Telecommunications and Energy explained its reasons for the reversal thus:

> The unqualified payment of reciprocal compensation for ISP-bound traffic, implicit in our October Order's construing of the 1996 Act, does not promote real competition in telecommunications. Rather, it enriches competitive local exchange carriers, Internet service providers, and Internet users at the expense of telephone customers or shareholders. This is done under the guise of what purports to be competition, but is really just an unintended arbitrage opportunity derived from regulations that were designed to promote real competition. A loophole, in a word. … But regulatory policy … ought not to create such loopholes or, once having recognized their effects, ought not leave them open.
>
> Real competition is more than just shifting dollars from one person's pocket to another's. And it is even more than the mere act of some customers' choosing between contending carriers. Real competition is not an outcome in itself—it is a means to an end. The "end" in this case is *economic efficiency* … Failure by an

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22 South Carolina Public Service Commission, *In re Petition for Arbitration of ITC^DeltaCom Communications, Inc. With BellSouth Telecommunications, Inc. Pursuant to the Telecommunications Act of 1996*, Docket No. 1999-259-C, Order No. 1999-690, Order on Arbitration, October 4, 1999.

23 *Louisiana ISP Compensation Order*.

24 "Mass. 'Recip Comp' Order Brings GNAPs, Bell Atlantic Back to FCC," *Telecommunications Reports*, March 6, 2000, at 30.

> economic regulatory agency to insist on true competition and economic efficiency in the use of society's resources is tantamount to countenancing and, encouraging waste of those resources. Clearly, continuing to *require* payment of reciprocal compensation … is not an opportunity to promote the general welfare. It is an opportunity only to promote the welfare of certain CLECs, ISPs, and their customers, at the expense of Bell Atlantic's telephone customers and shareholders.[25]

Q1 HAVE OTHER STATES REACHED DIFFERENT CONCLUSIONS ON THIS ISSUE?

A1 Yes. Prior to the FCC's ruling that Internet traffic is primarily interstate, over half the states in the U.S. had concluded that ISP-bound traffic was "local" and eligible for reciprocal compensation. While the reversal of that position by the above-mentioned four states is noteworthy, several states (including Washington) have re-examined the issue and re-affirmed their original position that reciprocal compensation should be paid. It is my understanding, however, that in many instances state regulators rendered their opinion on the appropriate form of inter-carrier compensation for Internet calls with reference only to the terms of then-existing interconnection agreements that predated the *Internet Traffic Order*. In other words, regulators did not find grounds in those existing agreements for stopping the payment of reciprocal compensation for ISP-bound calls. In other cases, regulators have opted for the reciprocal compensation status quo while waiting for a final FCC

[25] *Massachusetts ISP Compensation Order*. Emphasis added (in part) and in original (in part).

decision.[26] With *new* interconnection agreements going forward (like that being arbitrated between U S WEST and Sprint in Washington), arbitrators and regulators now have a fresh opportunity to revisit the question of appropriate inter-carrier compensation for ISP-bound calls. While prior rounds of interconnection agreements and arbitrations never addressed this question specifically for Internet calls, my testimony offers this Commission the means to reach the economically correct decision—in a new arbitration proceeding—on compensation for ISP-bound calls.

Q1 SOME OBSERVERS CLAIM THAT ISP-BOUND TRAFFIC AND LOCAL VOICE TRAFFIC ARE "FUNCTIONALLY IDENTICAL" BECAUSE THEY USE THE SAME NETWORK COMPONENTS. FOR THIS REASON, SHOULDN'T RECIPROCAL COMPENSATION APPLY TO ISP-BOUND TRAFFIC JUST AS IT DOES TO LOCAL VOICE TRAFFIC?

A1 No. First, there has to be a distinction—of the kind drawn by the FCC—between a local *voice* call and a call to an Internet site. Unlike the voice call, the Internet call does not terminate within the CLEC's network

[26] As I pointed out earlier in my testimony, this Commission has recognized that reciprocal compensation shall apply in Washington as an interim measure until the FCC rules definitively on the matter. The Commission also decided to implement reciprocal compensation because, in its view, the only alternative compensation mechanism—access charges—has been ruled out by the FCC exemption to ISPs.

but, rather, continues on through the Internet backbone to its ultimate destination. Therefore, when viewed from end to end, an Internet call—which treats the ISP as a point of passage into the Internet's packet-switched world—is essentially quite different in many aspects than a voice call, even if it is similar in others.

Second, the implicit premise of the question itself is incorrect because it ignores cost causation. As I explained earlier, there are cost-causative differences between ISP-bound traffic and ordinary local traffic despite a superficial functional resemblance between *parts of* the two types of traffic. From an economic perspective, the ILEC-CLEC model of inter-carrier compensation does not apply to Internet-bound traffic, and reciprocal compensation between local exchange co-carriers is not an efficient method of recovering costs. Moreover, any observation that ISP-bound traffic and local traffic use the same network elements is fundamentally a red herring. Technical characteristics of production or the level of cost may be items of interest in themselves, but they are entirely irrelevant for determining who should be made to pay for the cost. Even if the two types of traffic were functionally identical—which they are not—and generated the same level of cost, it would still be economically inappropriate to apply reciprocal compensation to both.

Third, if the cost *per minute* to terminate a local voice call were truly the same as that cost an ISP-bound call imposes on a CLEC, I would have no hesitation in recommending that compensation rates for the two types of traffic be the same. However, the costs per minute for the two types of calls are *not* likely to be the same because of significant differences between them in (1) average call durations and (2) customer, service, and service location characteristics.

Q1 PLEASE EXPLAIN AGAIN YOUR POINT THAT THE ECONOMICALLY APPROPRIATE FORM OF INTER-CARRIER COMPENSATION SHOULD DEPEND ON COST CAUSATION, NOT ON THE LEVEL OF COST OR FUNCTIONAL EQUIVALENCE.

A1 *How* cost is recovered must always depend on cost causation, i.e., the economic decision or transaction that is the source of the cost. *How much* cost should be recovered (i.e., the level of cost determined by how the network is used) is of only incidental interest to this issue: it determines the *magnitude* of recovery but not the *manner* in which compensation or recovery should be made. The cost-causer for both a local voice call and an Internet call is the same entity: the ILEC subscriber that places either type of call. That same subscriber is also the cost-causer when he places a *long distance*

call through an IXC. Therefore, in all three cases, cost recovery must start with that subscriber (the source of the economic decision to make a call that gives rise to cost). The question is: how should the payment received from that subscriber be used to compensate various carriers that participate in carrying each type of call?

The answer to this question is provided by cost causation. As I explained earlier, the long practice of the IXC recovering the cost of a long distance call from the ILEC subscriber and then using that payment to compensate all facilitating carriers (e.g., those providing switched access) is economically sensible and serves as the proper model for compensation in the other two cases. For a local voice call, the ILEC must recover the cost of that call directly from its subscriber (acting as its customer) and then compensate all other facilitating carriers (e.g., the CLEC that provides interconnection if the local call crosses network boundaries). In the same vein, the ISP must recover the cost of the Internet call directly from the ILEC subscriber (acting as the ISP's customer) and then compensate all other facilitating carriers (e.g., the ILEC, the CLEC, the backbone network providers, etc.).

Q1 WOULD THIS FORM OF COMPENSATION DENY A CLEC LIKE SPRINT FAIR PAYMENT FOR USE OF ITS NETWORK BY AN ISP-

BOUND CALL FROM A U S WEST SUBSCRIBER?

A1 Absolutely not. The point at issue here is whether it should be up to *U S WEST* (the ILEC) to compensate Sprint (the CLEC) for the cost the latter incurs in carrying Internet calls to ISPs it serves. As I explained both above, while Sprint is entitled to recover fully the cost it incurs for ISP-bound calls, such recovery (compensation) ought to come—in accordance with cost causation—from the ISP or ISPs it serves, not from U S WEST. To have it otherwise— particularly in current circumstances in which CLECs are believed to share reciprocal compensation revenues with the ISPs they serve—would only reinforce the perverse incentive to specialize in providing "termination" services for ISPs (to the exclusion of virtually all other local exchange services) or to generate as much traffic as possible from U S WEST's subscribers to ISPs with which those CLECs are allied.[27]

[27] Both the Massachusetts DTE (*Massachusetts ISP Compensation Order*, Section IV and fn. 39) and the FCC (*Internet Traffic Order*, ¶24, fn. 78) took note of —and expressed concern at—that development. Both noted, in particular, the web site claims of ISG-Telecom Consultants International, a Florida-based company formed in the aftermath of the Telecommunications Act of 1996 ("1996 Act"), that promises to turn ISPs into CLECs and IXCs with their own ISP operations. As a rationale for doing so, ISG-Telecom believes that "… as a facility based CLEC, the ISP/CLEC should be able to participate in *reciprocal compensation* with the carriers, providing there is not a negative ruling from the FCC in up and coming months." (emphasis added in part) Clearly, arbitrage opportunities presented by the payment of reciprocal compensation for ISP-bound traffic, not an inherently efficient network arrangement, lies at the heart of this mission statement.

C. Costs Associated with Internet-Bound Calls are Different From Those Associated with Local Voice Calls

Q1 YOU STATED THAT THE COST PER MINUTE TO TERMINATE A LOCAL VOICE CALL WILL LIKELY NOT BE THE SAME AS THE PER-MINUTE TO DELIVER AN ISP-BOUND CALL. PLEASE EXPLAIN WHY.

A1 To understand this point, one must consider the structure of costs. For every call, there are broadly two types of cost: a *fixed* cost (invariant to the length of the call) for call setup at both ends of the call, and an *incremental* or variable cost that arises for every minute a call passes through a switch. The full *per minute* cost of that call is the sum of the incremental cost of that minute plus the fixed cost averaged over the total length of the call. The latter component would obviously diminish as the fixed cost is averaged over an increasing number of minutes. Thus, if the average ISP-bound call is about seven to nine times longer than the average voice call,[28] the average *fixed* cost component for the former would be considerably smaller than that for the latter. *Even if* the incremental cost component of both types of calls were the same (which they are not, see below), the *per minute* cost of the

[28] See, e.g., Kevin Werbach, "Digital Tornado: The Internet and Telecommunications Policy," *OPP Working Paper Series No. 29*, Federal Communications Commission, March 1997, p. 59, Figure 9. Data on the average duration of ISP-bound calls are also available from other sources.

average ISP-bound call would still end up being considerably less than that for the average voice call. A simple numerical example illustrates this fact.

Suppose the incremental cost for each minute is 0.5¢ (for ease of exposition, it is assumed to be constant for all minutes). Then, a 3-minute call would have a total incremental cost of 3×0.5 = 1.5¢ and a 20-minute call would have a total incremental cost of 20×0.5 = 10¢. Suppose the fixed cost of call setup—which does not vary with the length of the call—is 2¢. Then the *total* cost of the 3-minute call (inclusive of call setup) would be 1.5+2 = 3.5¢, and that for the 20-minute call would be 10+2 = 12¢. To figure what each call costs on a per-minute basis, simply divide the total cost of each by the respective number of minutes. Thus, the 3-minute call would cost 3.5÷3 = 1.17¢ per minute and the 20-minute call would cost 12÷20 = 0.6¢ per minute. That is, as the call duration increases, the cost per minute would fall. This reflects simple common sense and is a conclusion reached by all who seriously consider the cost structure underlying each type of call.

Furthermore, even the incremental cost for the two types of calls may differ.[29] The incremental cost of the local call (which is part of the foundation for U S WEST's termination rate) is itself a composite that reflects how the

[29] See the direct testimony of Joseph Craig in this proceeding for an explanation from an engineering standpoint.

cost of local calls varies among different types of customers and customer locations. Unlike Sprint, U S WEST must be prepared to provide local service to any or all such customers, regardless of their usage or

location. In contrast, the incremental cost of an ISP-bound call is *not* a composite. ISPs can place their equipment in high-density, central business locations and frequently can collocate equipment in the CLEC's switch. Transport costs for such calls will be lower than for an average of all traffic terminating within the local exchange.

Q1 ARE THERE OTHER ECONOMIC REASONS WHY COSTS DIFFER TO TRANSPORT AND SWITCH ISP-BOUND AND LOCAL VOICE TRAFFIC EVEN THOUGH SOME SIMILAR NETWORK ELEMENTS ARE USED?

A1 Yes. Besides merely examining *which* network elements are used to provide a service, it is important also to examine *how* those elements are used to provision service. Inter-carrier compensation should only be used to recover the *incremental* costs of delivering traffic, specifically only those costs that are traffic sensitive, i.e., vary with additional usage. *Non*-traffic-sensitive costs, i.e., costs that do not vary with additional usage, should *not* be recovered through the appropriate form of inter-carrier compensation. This follows as a matter of general economic principle and as a requirement of Section 252(d)(2) of the 1996 Act which states that prices for the "transmission and routing of telephone exchange service and exchange

access" should be based on incremental costs:

> such terms and conditions [must be] determine[d] on the basis of a reasonable approximation of the *additional costs* of terminating such calls. [emphasis added]

It is important to account for the manner in which network elements are used for different types of traffic because that affects not only the level of costs but, more importantly, the proper manner for recovering those costs. For example, when a certain network element is used as a *shared* facility, then its cost is properly recovered from all customers who use that facility. On the other hand, when that same element is used as a dedicated facility, then its cost should properly be recovered from the cost-causing customer that is responsible for its placement. Therefore, it would be generally incorrect to conclude that the costs for different types of traffic should be the same merely because they use network elements, some or all of which are similar.

To appreciate the importance of this point in our present context, consider that an important factor in switch investment is the cost associated with the busy hour line CCS (hundred call seconds). Busy hour line CCS is a measure of the type of concentration required on the line side of the switch and is determined by the number of line circuits sharing both a trunk circuit and a circuit path through the switch processor. A concentration ratio of eight to

one, for example, means that eight line circuits share one trunk circuit and one circuit path through the switch processor.[30] Using basic engineering guidelines, the switch is sized and engineered, i.e., a concentration ratio is determined to accommodate a certain level of traffic so that a minimum level of blocking occurs if traffic volume during the busy hour is higher than the volume implied by the chosen concentration ratio. For traditional local voice traffic, busy hour line CCS cost, i.e., the cost associated with the concentration ratio required to achieve an acceptable quality standard, is traffic-sensitive in nature because the underlying network facility (the circuit path) is shared by eight (or whatever number of) customer lines. Given this form of sharing, the use of that facility during the peak hour likely imposes congestion costs on other users if line rationing or call blocking becomes necessary. In these circumstances, the economically efficient cost recovery mechanism should apportion the cost of the shared facility to each cost-causing end-user for whom a circuit path has actually been established.

Busy hour line CCS costs for ISP-bound traffic, however, are generally *not* traffic-sensitive. I understand that CLECs that serve Internet-directed traffic provide ISDN Primary Rate Interfaces ("PRIs") to ISPs and build switches at a concentration ratio of

[30] An ordinary voice loop is generally engineered for 3 CCS at the busy hour, while the interoffice trunks that concentrate those loops are engineered for about 27 busy hour CCS. Thus, for ordinary voice traffic, it is not unusual to observe 8 or 9 loops for every trunk.

1:1, rather than 6:1 or 8:1. This means that line CCS costs are generally fixed with respect to usage because each line serving an ISP has a *dedicated* path through the switch processor and increased usage on other lines does not affect the use of the line serving the ISP. Consequently, when a circuit path is dedicated to the ISP line, its use cannot impose congestion costs on other users, and there can be no need for line rationing or call blocking. Economically efficient cost recovery would, in that instance, *ignore* the line CCS cost because, being non-traffic-sensitive in nature, it would not be part of incremental cost.

Q1 WHY IS IT IMPORTANT THAT NON-TRAFFIC SENSITIVE COSTS BE RECOVERED DIRECTLY FROM THE COST-CAUSER RATHER THAN THROUGH INTER-CARRIER COMPENSATION?

A1 As a matter of general economic principle, charges for *dedicated* facilities should be flat-rated while charges for *shared* facilities should be proportional to the use made of those facilities by cost-causing customers. This results in economic efficiency. A flat-rated charge is most efficient for a dedicated facility because the customer only pays the full cost of the facility—no more, no less—and is likely to purchase additional units of that facility only as long as the economic value to the customer of those additional units exceeds the additional cost of those units. In contrast, a usage-based charge is most

efficient for a shared facility because it forces customers who share the facility to reveal—and use the facility up to—their relative valuations of the facility. Because capacity constraints limit how many customers can actually use the shared facility at any given point in time, usage-based charges act as an implicit rationing device which helps to recover both network costs and costs related to congestion.

ISPs that require non-blocking network paths (based, e.g., on a 1:1 concentration ratio) in order to provide a high level of service quality to their customers use CLEC-provided facilities on a dedicated basis and, therefore, incur dedicated and non-traffic-sensitive costs. While the provision of facilities in this manner is perfectly legitimate and consistent with the operation of competitive markets operate, the costs of the underlying dedicated facilities are not part of the additional cost of delivering traffic to ISPs. The relevant economic and policy question then is who should pay for this additional level of service quality? In competitive markets, the additional costs of providing a non-blocking network would be recovered directly from the ISP demanding such a network—just as the costs of the PRIs provided by CLECs to ISPs are recovered—but not through inter-carrier compensation.

Q1 IF ISPs ARE REQUIRED TO PAY FOR THEIR LINE CCS COSTS,

WOULDN'T THAT HARM THE DEMAND FOR INTERNET SERVICES?

A1 No. The use of the Internet is growing rapidly. It is still, however, in its infancy (from a product life-cycle view) with high growth occurring and new, innovative uses being discovered. The move to more efficient pricing will not reverse any of these trends. Instead, more efficient pricing will produce more efficient means for customers to *connect* to the Internet. For example, more efficient pricing may accelerate the development of high-speed dedicated connections to the Internet that do not rely on dial-up technologies. More importantly, to the extent CLECs only receive inter-carrier compensation that reflect actual incremental costs, ISPs will be more likely to provide their customers with connection options that are more efficient and do not tie up valuable, but congestible, public switched network resources.

D. Reciprocal Compensation for ISP-Bound Traffic Harms Economic Efficiency and Distorts Local Exchange Competition

Q1 WHY WOULD THE ILEC-CLEC LOCAL INTERCONNECTION REGIME WITH PAYMENT OF RECIPROCAL COMPENSATION FOR ISP-BOUND TRAFFIC HARM ECONOMIC EFFICIENCY AND FAIL TO PROMOTE TRUE COMPETITION?

A1 The harm to economic efficiency in an ILEC-CLEC local interconnection regime with payment of reciprocal compensation for ISP-bound traffic occurs for three reasons:

1. Inefficient subsidization of Internet users by non-users.
2. Distortion of the local exchange market.
3. Creation of perverse incentives to arbitrage the system at the expense of basic exchange ratepayers.

Q1 PLEASE EXPLAIN HOW THE ILEC-CLEC INTERCONNECTION REGIME FOR ISP-BOUND TRAFFIC COULD CAUSE INEFFICIENT SUBSIDIZATION OF INTERNET USERS BY NON-USERS.

A1 The principle of cost causation requires that the *ISP customer* pay at least the cost his call imposes on the circuit-switched network.[31] Suppose inter-carrier compensation for ISP-bound traffic is treated as in the ILEC-CLEC interconnection regime. This regime assumes at the outset that the customer initiating the call has paid the originating ILEC for the end-to-end carriage of the call, typically, the per-call equivalent of the local call charge. Out of what it receives, the ILEC then pays reciprocal compensation to the CLEC that carries the Internet call to the ISP. This compensation is a per-minute call

[31] It is assumed that the cost imposed by that customer for the packet-switched network portion of the Internet call is recovered through monthly access charges by the ISP serving that customer.

"termination" charge which, ideally, should reflect the incremental cost that the ILEC *avoids* by not having to deliver the call itself. In this scenario, problems can emerge from two sources.

First, if the local call charge is itself not compensatory, i.e., below the incremental cost of carrying a local voice call from end to end, then it cannot be sufficient to allow recovery of both the ILEC's incremental cost to originate the call and the CLEC's incremental cost to deliver the call. In other words, once reciprocal compensation has been paid, the ILEC would fail to recover its cost of carrying the ISP-bound call when the local call charge itself is non-compensatory or inefficient. If the ILEC still manages to break even for *all* of its services in these circumstances, that could only mean that Internet use (for which the cost exceeds revenue) must be being subsidized by non-Internet and, most likely, non-local exchange services. This scenario is likely to play out whenever, in order to promote universal service, the local residential call charge in a state is set below the incremental cost of that call.

Second, if the per-minute cost to deliver an ISP-bound call is *less* than the per-minute cost to terminate the average voice call (on which most reciprocal compensation arrangements are based), then the CLEC would actually earn revenue in excess of its cost. Even if the local per-call charge were

compensatory, the ILEC could still end up with a higher cost liability than necessary or economically efficient (the sum of its own originating cost and the CLEC's inflated termination charge). If the CLEC could then funnel back some of the excessive compensation so received to the ISP or the Internet user through, e.g., lower monthly charges for Internet use, then the *net* price paid for the ISP call would be below the cost imposed on the originating ILEC.[32] This would be equivalent to receiving a subsidy.

This form of subsidization of Internet use within the circuit-switched network could only stimulate demand for Internet services inefficiently and further aggravate the ILEC's tenuous position under the ILEC-CLEC interconnection regime. Additional negative consequences could be (1) greater congestion at local switches engineered for voice traffic generally and, as a result, poorer quality of voice traffic, and (2) CLECs making the opportunistic choice to specialize only in the delivery of ISP-bound traffic. I discuss the resulting distortion of the local exchange market below.

Q1 WHEN ISP-BOUND TRAFFIC IS ALMOST ENTIRELY ONE-WAY (FROM U S WEST'S SUBSCRIBERS TO ISPs SERVED BY SPRINT), WHAT PRACTICAL EFFECT IS THE CONTINUED REQUIREMENT

[32] See fn. 27, *supra*.

FOR U S WEST TO PAY RECIPROCAL COMPENSATION FOR SUCH TRAFFIC LIKELY TO HAVE?

A1 One often overlooked practical effect of the continued requirement to pay reciprocal compensation despite such traffic imbalance[33] is the ultimate pressure on U S WEST's prices for retail services, including residential local exchange service. Under current practice, U S WEST is allowed to collect a flat monthly amount from each of its residential customers for local exchange service. In principle, this amount is supposed to compensate U S WEST, on average, for the actual cost of providing that service to each customer. In the U.S., however, it is commonplace to encourage greater subscribership by setting the monthly (flat-rated) price of local exchange service to residential customers "affordably low" and frequently *below* the incremental cost to serve each customer. The revenue deficit which results from this is usually made up with implicit (i.e., price-based) subsidies from other services offered—often competitively—by the ILEC. To the extent that U S WEST is not exempted from this practice, *any* addition to that incremental cost can only exacerbate the revenue deficit from local exchange service and compel U S WEST to seek recovery by raising *further* its prices for retail services,

[33] Traffic is said to be "balanced" when originating and terminating volumes are similar.

including residential local exchange service.

The fact is that residential local exchange service prices were never set with the additional and, generally, large Internet traffic-related costs in view. Even if reciprocal compensation rates were properly set so that U S WEST only paid the CLEC the cost it *actually* avoided to deliver traffic to ISPs, U S WEST could never escape the growing spiral of network facilities-related costs it would have to incur in order to serve the ever-increasing volumes of one-way Internet-bound calls made possible by the perverse incentives presented to ISP-serving CLECs by reciprocal compensation revenues.[34] Faced with having to recover costs seriously in excess of revenues available from residential local exchange service, U S WEST would have little choice but to petition this Commission for increases in the price of residential local exchange service in Washington. Raising other retail service prices to effect such recovery may also be an option, but one fraught with two serious problems. First, as those other services become increasingly competitive in the market, raising their prices, rather than lowering them, will prove untenable and counter-productive for U S WEST. Second, raising those other service prices will only continue, rather than mitigate, the current practice of

[34] I explain the perverse incentives issue in greater detail later in my testimony.

relying on extensive implicit subsidies in the pricing of telecommunications services. The 1996 Act made it very clear that those implicit subsidies are to be removed as expeditiously as possible.

Q1 HOW WOULD THE ILEC-IXC INTERCONNECTION REGIME WITH THE PAYMENT OF ACCESS-LIKE CHARGES SOLVE THE PROBLEM OF INEFFICIENT SUBSIDIZATION?

A1 In the ILEC-IXC regime, the ISP customer is held responsible for causing and, therefore, paying all of the origination, transport, and switching costs of an Internet call. Under current FCC rules, the only exception to this would be the explicit subsidy granted to the ISP by exempting it from having to pay interstate access charges. Because of the access charge exemption, ILECs and CLECs that jointly supply access services to ISPs would never be fully compensated for the costs they incur on ISP-bound calls. However, if the ILEC-IXC interconnection regime were to apply, the ILECs and CLECs that jointly provision ISP-bound calls would each contribute to the ISP access subsidy no more than the same proportion of their respective costs. This arrangement would be competitively neutral because *all* ILECs and CLECs so involved would have to contribute to the subsidy rather than just the ILECs that originate ISP-bound traffic. In this regime, an ISP would have no

particular incentive to become a CLEC itself, nor would the competition among ILECs and CLECs to serve ISPs be distorted by incentives to seek compensation for delivering calls.

Q1 PLEASE EXPLAIN HOW THE ILEC-CLEC INTERCONNECTION REGIME FOR ISP-BOUND TRAFFIC COULD CAUSE THE LOCAL EXCHANGE MARKET TO BE DISTORTED.

A1 Under the ILEC-CLEC interconnection regime, the compensation paid to CLECs *for ISP-bound traffic* evidently exceeds their cost of delivering such traffic and also exceeds whatever costs U S WEST might save when CLECs deliver that traffic on its behalf. That such compensation for ISP-bound traffic does not reflect costs should not be surprising. In Washington, compensation is based on U S WEST's forward-looking total element long run incremental cost ("TELRIC") of terminating traffic averaged over a wide range of end-users, services, and service locations. This has important implications for setting compensation for *ISP-bound calls* on the same basis.

First, the per-minute *incremental* cost of terminating or delivering traffic to particular end-users can vary a great deal, depending upon their location, traffic characteristics, and whether shared or dedicated facilities are used. Second, as I explained earlier, because of average call durations, the *full* per-

minute cost of termination (inclusive of both incremental and fixed costs) for averaged voice traffic is typically higher than the full per-minute cost of delivering ISP-bound traffic.

When traffic between the ILEC and the CLEC is balanced, the accuracy of the estimated underlying cost of termination as the basis for reciprocal compensation is less material. Because the same compensation rate applies in both directions, any overpayment (or underpayment) by an ILEC to terminate traffic on the CLEC's network is offset by a corresponding overpayment (or underpayment) by the CLEC to terminate traffic on the ILEC's network. Thus, when traffic is balanced, no individual ILEC or CLEC is helped or handicapped in competing for retail customers in the local exchange market by the requirement that interconnection compensation be based on costs averaged over all customers.

However, when traffic between the ILEC and the CLEC is grossly unbalanced, e.g., when the CLEC terminates traffic from the ILEC but returns little or no traffic to it, the accuracy of the cost-based compensation becomes critical. Suppose, for simplicity, U S WEST's own cost to deliver Internet traffic to an ISP that it serves is the same as the cost experienced by a specialized CLEC that serves a collocated ISP. That is, U S WEST's own cost of carrying ISP-bound traffic is the same as the cost it avoids when a

CLEC handles such traffic instead. If U S WEST is then required to pay reciprocal compensation for ISP-bound traffic at an averaged cost-based rate that reflects *all* forms of local traffic, its total cost of local service would necessarily be higher than if compensation levels were properly tied to the *type*—hence, the cost—of traffic terminated. This cost increase would not be offset by a similar increase in revenue from handling the CLEC's ISP-bound traffic (because the CLEC does not originate any traffic). Thus, local exchange competition would be distorted by the inapplicability of the averaged cost-based compensation to ISP traffic; CLECs that primarily serve ISPs (and originate little or no traffic) would receive revenues in excess of cost while ILECs (or even other CLECs) that serve all types of customers would experience an increase in costs without a commensurate increase in revenues.

Q1 DOES THAT MEAN THAT RECIPROCAL COMPENSATION IS ILL-ADVISED BECAUSE TRAFFIC BETWEEN THE ORIGINATING ILEC AND THE CLEC THAT DELIVERS ISP TRAFFIC IS UNBALANCED?

A1 Yes, but the problem here is not simply that traffic is unbalanced. First of all,

ISP-bound traffic is *not* local and, therefore, not eligible for reciprocal compensation, a form of inter-carrier compensation reserved for local interconnection only. However, even on the matter of traffic balance, it is worth noting that reciprocal compensation was never envisioned as appropriate inter-carrier compensation when all traffic is essentially one-way. This would be particularly true when the true cost to terminate for the carrier that only *receives* traffic is actually lower than the termination cost (experienced by the carrier that *sends* traffic) on which a symmetrical compensation arrangement is based. But, even with balanced traffic, requiring reciprocal compensation payments for ISP-bound calls would violate the economic principle of recovering cost in accordance with cost causation.

Q1 PLEASE EXPLAIN HOW THE ILEC-CLEC INTERCONNECTION REGIME FOR ISP-BOUND TRAFFIC COULD CREATE PERVERSE INCENTIVES TO ARBITRAGE THE SYSTEM AT THE EXPENSE OF BASIC EXCHANGE RATEPAYERS.

A1 Arbitrage is frequently a response to a market distortion. As the DTE in Massachusetts and the FCC have clearly recognized (see fn. 27 *supra*), unintended arbitrage opportunities can easily emerge when competition in the

local exchange market is distorted by basing inter-carrier compensation for ISP-bound traffic on the ILEC-CLEC local interconnection regime. When the compensation available to the CLEC for delivering ISP-bound traffic exceeds its actual cost of delivering that traffic, the CLEC will have a strong incentive to deliver as much ISP traffic as possible. The desire to maximize profits can bring forth some very inventive schemes that take advantage of this discrepancy but which distort market outcomes and reduce the efficiency of the telecommunications network. For example, the CLEC's profits would increase whenever a U S WEST subscriber—or his computer—could be induced to call the ISP and remain on the line 24 hours a day. Sensing this pure arbitrage profit opportunity, CLECs would also have a strong incentive—indeed, have as their *raison d'être*—to specialize in delivering ISP-bound traffic, to the exclusion of offering any other type of local exchange service. These "ISP-specializing" CLECs can—and do—form a three-way axis with a distorted ability and incentive to generate revenues from reciprocal compensation: (1) the CLECs themselves, (2) ISPs served by those CLECs but which may also receive a share of the reciprocal compensation revenues—the spoils of this arrangement—to ensure their loyalty and cooperation, and (3) ISP customers on the originating ILEC's network that generate the ISP-bound traffic.

Q1 CAN YOU GIVE AN EXAMPLE OF THAT PERVERSE INCENTIVE TO CONDUCT ARBITRAGE?

A1 Yes. As I explained earlier, dedicated connections that bypass the public switched network are most efficient for customers desiring "always-on" or 24-hour non-blocked connectivity. Despite this fact, such connectivity is sometimes offered in a manner that involves traffic origination through an ILEC's switch and delivery through an ISP-serving CLEC's switch. As the following real-life example from North Carolina shows, this arrangement is clearly less interested in efficiency or the best use of valuable network resources than it is in generating the maximum possible revenue from reciprocal compensation.

A recent case in North Carolina that involved BellSouth (the ILEC) and US LEC (a CLEC) illustrates perfectly how perverse economic incentives can be created when compensation rates exceed the CLEC's costs.[35] The North Carolina Utilities Commission found:

> US LEC deliberately created a usage imbalance between itself and BellSouth by terminating a greater amount of traffic originating on BellSouth's network than it would be terminating to BellSouth. In furtherance of its plan to create a traffic imbalance and thus large reciprocal compensation revenues for itself, US LEC, among other things, induced MCNC and Metacomm to originate connections on

[35] *In the Matter of BellSouth Telecommunications Inc v. US LEC of North Carolina Inc*, Before the North Carolina Utilities Commission, Docket No P-561, SUB 10, Order Denying Reciprocal Compensation, March 31, 2000.

BellSouth's network and terminate them to US LEC telephone numbers by agreeing to pay them 40% of all reciprocal compensation BellSouth paid US LEC for minutes of use for which they were responsible.[36]

And,

In the fall of 1997, Metacomm and MCNC established networks to generate reciprocal compensation for US LEC and commissions for themselves. They established connections by having routers connected to circuits purchased from BellSouth call routers connected to circuits provided by US LEC. They leased transmission facilities from BellSouth capable of originating up to 672 connections simultaneously. Pursuant to US LEC's instructions, Metacomm and MCNC programmed their routers to disconnect and immediately reconnect each connection every 23 hours and 59 minutes, so that US LEC's switches could create the records US LEC which [sic] needed to bill BellSouth for reciprocal compensation.[37]

This type of behavior also artificially discourages the deployment and use of new broadband technologies (e.g., cable or DSL connections) because such direct connections are not eligible for inter-carrier compensation.

Q1 WHY WOULD THIS PERVERSE INCENTIVE TO ARBITRAGE BE TRUE OF SPRINT WHICH, UNLIKE ISP-SPECIALIZING CLECs, IS A LARGE FACILITIES-BASED PROVIDER OF LOCAL EXCHANGE SERVICES?

A1 The difference between the case of Sprint and that of a pure ISP-specializing

[36] *Id.*, at 7.

[37] *Id.*, at 7. It should be noted that MCNC withdrew its participation in the reciprocal compensation arrangement after its management learned that the "unusual configuration and mix of equipment" making up the network was intended to generate revenue from connections without regard to actual traffic or content traversing the connections.

CLEC is only likely to be a matter of degree. While Sprint is a large facilities-based provider of local exchange and other services, it has steadily positioned itself (through the construction of its large Internet backbone network and acquisitions of, or alliance with, large ISPs and data networks like Earthlink and Alcatel) to become a large *recipient* of Internet and ISP-directed traffic as well. Without actually having to specialize in serving ISPs, Sprint can still stand to enrich itself considerably from reciprocal compensation payments by U S WEST and other ILECs.

There is a larger issue as well. The Commission's decision in this proceeding is very likely to set an important precedent. CLECs that, unlike Sprint, specialize only or mostly in serving ISPs will likely attempt to simply opt into the provisions (including those about compensation for ISP-bound calls) of existing interconnection agreements, such as that between U S WEST and Sprint, pursuant to Section 252(i) of the 1996 Act. Those CLECs should not find their incentives to serve only or mostly ISPs reinforced by the availability of reciprocal compensation payments. Otherwise, the damage to efficient local competition could be great.

Q1 WOULD RECIPROCAL COMPENSATION FOR ISP-BOUND TRAFFIC DISTORT LOCAL COMPETITION?

A1 Yes, in two ways. First, since end-users that generate ISP-bound traffic would not pay the full incremental cost of carrying it, LECs would have an incentive to avoid competing to serve such customers. As most switched ISP-bound traffic comes from residential users, the incentives to compete to serve residential users would be artificially diminished. Second, the ISPs themselves are better off if their customers obtain their local telephone service not from the CLECs that deliver ISP-only traffic but from the ILEC or other CLECs that do not serve ISPs. Suppose, for example, the ILEC serves 95 percent of the residential local exchange traffic in a market. If an ISP obtained access service from the ILEC, only 5 percent of its traffic would generate reciprocal compensation payments. If it signed up with a CLEC, 95 percent of its traffic would generate such payments. When the reciprocal compensation price exceeds the CLEC's cost to handle the traffic, this imbalance gives it a strong financial incentive to seek access service from CLECs as opposed to ILECs. This creates a further distortion in the local exchange market, contrary to the vision of competition embodied in the 1996 Act.

It is not surprising, therefore, that the DTE in Massachusetts felt compelled to opine:

> We note also that *termination* of the obligation for reciprocal compensation

payments for ISP-bound traffic (because that traffic is no longer deemed local) removes the incentive for CLECs to use their regulatory status "solely (or predominately)" to funnel traffic to ISPs.[38]

Q1 HAVE REGULATORS TAKEN EXPLICIT NOTE OF THE FACT THAT THESE ARBITRAGE OPPORTUNITIES ARISE BECAUSE COMPENSATION RATES ARE OUT OF LINE WITH TERMINATION COSTS?

A1 Yes. Where the cost of terminating traffic to a particular type of customer differs greatly from the average, the FCC has recognized the possibility of arbitrage and has declined to use the ILEC's TELRIC of termination as a proxy for those of the CLEC:

> Using incumbent LEC's costs for termination of traffic as a proxy for paging providers' costs, when the LECs' costs are likely higher than paging providers' costs, might create uneconomic incentives for paging providers to generate traffic simply in order to receive termination compensation.[39]

Instead, the FCC has required separate cost studies to justify a cost-based termination rate which the FCC explicitly expects would be lower than the wireline ILECs' TELRIC-based rate. Note that the paging case also involves one-way calling; like ISPs, paging companies do not originate traffic.

More recently, the FCC has acknowledged that:

> efficient rates for inter-carrier compensation for ISP-bound traffic are not likely to be based entirely on minute-of-use pricing structures. In particular, pure minute-of-

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38 *Massachusetts ISP Compensation Order*.

39 *Local Competition Order*, ¶1093.

use pricing structures are not likely to reflect accurately how costs are incurred for delivering ISP-bound traffic.[40]

This is clear recognition of the fact that TELRIC-based rates, such as those developed in Washington, are fundamentally unsound for inter-carrier compensation for ISP-bound traffic. Echoing the FCC's sentiment, the Massachusetts DTE has stated flatly that:

> The revenues generated by reciprocal compensation for … incoming traffic are most likely in excess of the cost of sending such traffic to ISPs. … Not surprisingly, ISPs view themselves as beneficiaries of this "competition" and argue fervently in favor of maintaining reciprocal compensation for ISP-bound traffic. However, the benefits gained, through this regulatory distortion, by CLECs, ISPs, and their customers do not make society as a whole better off, because they come artificially at the expense of others.[41]

Q1 WHAT DO YOU CONCLUDE IN LIGHT OF THESE ACKNOWLEDGEMENTS?

A1 In light of these acknowledgements, it is reasonable to expect that a fairer system of inter-carrier compensation may yet be more widely adopted for all forms of one-way traffic. The ILEC-IXC interconnection regime offers one such alternative. More importantly, under that alternative:

1. perverse incentives and unintended arbitrage opportunities are removed,
2. cost causation guides cost recovery (including the payment of access-like charges by ISPs to ILECs and CLECs that handle their traffic),

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40 *Internet Traffic Order*, ¶29.

41 *Massachusetts ISP Compensation Order*. Emphasis added.

3. more efficient use is made of network resources,

4. inefficient entry for the sake of earning opportunistic arbitrage profits is prevented, and

5. true competition (undistorted by the gain from specializing in terminating one-way traffic) can be realized in the local exchange market.

Q1 IS COST CAUSATION-BASED COMPENSATION THE ONLY FORM OF INTER-CARRIER COMPENSATION FOR ISP-BOUND CALLS THAT THE COMMISSION SHOULD CONSIDER?

A1 Yes. From the economic standpoint, any method of inter-carrier compensation for ISP-bound calls should be based on cost causation. Ideally, such compensation should occur in the form of usage-based charges (analogous to carrier access charges) paid by the ISP to the ILEC and the CLEC that transport and switch Internet calls to it. However, because the FCC currently exempts ISPs from paying access charges, the next-best cost-causative form of compensation would be an equitable sharing (between the ILEC and the CLEC) of revenues earned by the CLEC from the lines and local exchange usage that it sells to the ISP. This form of revenue sharing may not be sufficient for the ILEC and CLEC that jointly provide access service to fully recover their costs, but the degree to which they under-recover those costs (or, equivalently, subsidize Internet service) will be the same proportion of their respective costs and, hence, competitively neutral. The

third-best and a reasonable interim form of compensation would be bill and keep or, in effect, exchange of ISP-bound traffic between the ILEC and the CLEC at no charge to each other. From an economic perspective, because it is not based on cost causation, reciprocal compensation should not be an option at all.

Q1 IF THE COMMISSION SHOULD STILL DECIDE TO ADOPT RECIPROCAL COMPENSATION FOR THE EXCHANGE OF ISP-BOUND TRAFFIC, WHAT WOULD YOU RECOMMEND?

A1 Naturally, I would prefer a form of inter-carrier compensation for ISP-bound traffic that is based on cost causation. However, if it should decide to keep reciprocal compensation for such traffic, then I would recommend that, at the very least, the Commission determine compensation rates based not on the either U S WEST's or Sprint's cost to terminate local voice calls but rather on the actual (and, very likely, lower) cost to receive and switch Internet-bound calls to ISPs. This suggests the importance of "getting the costs right" for ISP-bound traffic. Otherwise, there will be little movement toward removing the perverse incentives and competitive distortions—explained at length in my testimony—which arise from setting, as in current practice, the same compensation rates for both local voice traffic and ISP-bound traffic.

Q1 DOES THIS CONCLUDE YOUR TESTIMONY?

A1 Yes.