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Gilo, David

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A MARKET-BASED APPROACH TO TELECOM INTERCONNECTION

David Gilo^{*}

Abstract

This Article offers an all new solution to the problem of interconnection between telecommunication networks. According to the FCC's recent proposal, interconnection between LECs and long-distance carriers would be mandatory and all charges demanded by LECs for originating and terminating calls would be regulated down to zero. In contrast, this Article claims that interconnection between LECs and long-distance carriers should be deregulated. Several market forces, revealed by the Article, and neglected by the FCC and the previous literature, are expected to keep termination and origination charges from rising above competitive levels and encourage carriers to interconnect. First, long-distance carriers should be allowed to transit long-distance calls made to one LEC's subscribers by interconnecting with the competing LEC. The Article reveals how, with a mandatory zero termination charge between competing LECs, such transit will induce each LEC to directly interconnect with long-distance carriers and to voluntarily charge them no more than the competing LEC's marginal costs of transit. Second, even if we assume for the sake of discussion that the ability to use transit is blocked, if recipients benefit

^{*} Assistant Professor, The Buchman Faculty of Law and The Faculty of Management, The Leon Recanati Graduate School of Business Administration, Tel-Aviv University. SJD, Harvard Law School (1996); LL.B., Tel-Aviv University (1993); B.A., Tel-Aviv University (1993). I wish to thank Aaron Edlin, Hanoach Dagan, Haim Giron, Alon Harel, Patrick Rey, Joseph Spiegel and Omri Yadlin for invaluable comments and discussions and seminar participants at the Hebrew University Law School for their helpful comments. I also gratefully acknowledge financial support from the Cegla Institute.

from being accessible to long-distance callers just as long-distance callers benefit from gaining access to recipients, long-distance carriers possess potentially equal bargaining power vis a vis the LEC. Third, future growth of cellular telephony and broadband IP telephony is expected to strengthen these market forces, especially if the FCC's current requirement that long-distance carriers average their rates is eliminated. As to originating access charges, if the 1996 Act's requirement that long-distance carriers equalize their rates is eliminated, direct competition between LECs is shown to restrain them. Second, long-distance carriers' ability to ask one LEC to transit long-distance calls made by the competing LEC's subscribers is expected to drive originating access rates down to the marginal costs of transit. Interconnection between LECs, on the other hand, should be mandated. Additionally, LECs should not be allowed to charge each other for call termination. If LECs are allowed to negotiate a reciprocal termination rate, as is currently allowed and as the FCC proposes to allow in the future, LECs will be able to use the reciprocal rate strategically to raise their profits and harm consumers. In particular, LECs might negotiate an excessive reciprocal termination rate to enforce an implicit commitment on the part of the new LEC to focus only on net receivers of calls, leaving the rest of the market to the incumbent. Furthermore, LECs might negotiate an excessive reciprocal rate in order to boost termination rates they charge long-distance carriers, thereby avoiding the competitive pressure of transit.

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INTRODUCTION

This Article offers an all new solution to the problem of interconnection between telecommunication networks. Telecommunication networks interconnect with each other in various settings. As local telecom markets open up to competition,¹ competing local exchange carriers (LECS) interconnect with one another so that subscribers of one LEC can call subscribers of a competing LEC. This may include

¹ The Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (codified in scattered sections of 47 U.S.C.) [hereinafter *the 1996 Act*] provided that local telecom markets in the U.S., which were previously dominated by regulated monopolies, open to competition.

Internet Service Provider (ISP) bound calls, where the ISP's subscriber subscribes to one LEC and the ISP subscribes to a different LEC. LECs also interconnect with long-distance carriers,² which enable subscribers of one LEC in one area to call subscribers of another LEC in another area. Similarly, competing cellular providers interconnect in order to enable subscribers of the various providers to call each other's cellular phones. Finally, cellular networks interconnect with LECs and long-distance carriers to enable local and long-distance calls between wireline subscribers and cellular subscribers.

Current regulation of interconnection among telecommunication carriers may be categorized into two classes: The first is interconnection among competing local networks, and the second is interconnection between long-distance carriers and LECs. Interconnection between competing local networks is, pursuant to the 1996 Act, mandatory, and requires LECs to negotiate reciprocal compensation rates for calls originating at one LEC and terminating at the other.³ Interconnection between long-distance carriers and LECs, as well as the rates LECs may charge long-distance carriers for terminating or originating long-distance calls, are regulated pursuant to a series of Federal Communications Commission (FCC) orders and rules.⁴

In light of the high regulatory costs involved in the FCC's methodology of gradual intervention, which constrains LECs' rates for call origination and termination, and in order to cope with alleged distortions in the current regulatory

² Long-distance carriers are typically referred to in the professional and regulatory literature as "Inter- exchange Carriers" or "IXCs."

³ Part I provides a detailed description of current regulation.

⁴ See *infra* Part I.

regime, the FCC recently proposed a revolution to the interconnection regime.⁵ The essence of the FCC's proposal is that, absent agreement between interconnecting networks, all termination and origination charges demanded by LECs will be regulated down to zero.⁶ In other words, LECs will not be allowed to charge another network for call termination or call origination, unless this network is willing to pay.⁷ Instead, LECs will be expected to recover the costs of terminating calls from their own subscribers. This regulation is proposed for both the case of interconnection among competing LECs and the case of interconnection between LECs and long-distance carriers.

Interconnection between long-distance carriers and LECs is therefore characterized by extensive rate regulation and regulatory intervention. Current regulation mandates interconnection while placing a positive cap on charges charged by LECs to long-distance carriers for terminating and originating calls. The FCC's recent bill and keep proposal mandates interconnection and essentially regulates these

⁵ See *Intercarrier Compensation Proposal*, 2001 FCC LEXIS 2339 at *5-6. The FCC's proposal is based mainly on two FCC working papers: JAY ATKINSON & CHRISTOPHER BARNEKOV, A COMPETITIVELY NEUTRAL APPROACH TO NETWORK INTERCONNECTION (OPP Working Paper No. 34, 2000); PATRICK DEGRABA, BILL AND KEEP AT THE CENTRAL OFFICE AS THE EFFICIENT INTERCONNECTION REGIME (OPP Working Paper No. 33., 2000).

⁶ This proposal shall be referred to occasionally using the FCC's terminology, as "the bill and keep proposal."

⁷ According to Degraha's proposal, *supra* note 5, for example, a carrier asking the LEC to terminate a call would be responsible for the costs of transporting the call up to the LEC's central office, while the LEC would be responsible for the costs of transporting the call from its central office to the recipient. *Id.* at 7.

charges down to zero.⁸ Such regulatory intervention is contrary to Congress's intent in the 1996 Act of opening telecommunication markets to competition and allowing competition to replace regulation.⁹ We might as well have remained with the historic

⁸ Since the FCC proposes that carriers be able to negotiate around the zero rate, long-distance carriers would pay rates higher than zero if they agreed to. Of course, this is unlikely. The ability to negotiate around the zero rate is therefore especially important in the case of termination rates between LECs, as discussed *infra* Part IV.

⁹ It is widely acknowledged that in the 1996 Act, "...Congress sought 'to promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers. ...' Telecommunications Act of 1996, Pub.L. No. 104-104, 110 Stat. 56, 56 (1996)." See *U.S. West Communications, Inc. v. Serna*, No. 97-124 JP/JHG, 1999 U.S. Dist. LEXIS 21774, at *3 (D. N.M. August 25, 1999). See also *Reno v. ACLU*, 521 U.S. 844 (1997); *Southwestern Bell Telephone Company v. Federal Communications Commission*, 153 F.3d 523, 547, 549 (8th Cir. 1998) (stressing "Congress's directive that the [FCC] replace regulation with competition to the greatest extent possible consistent with the public interest ... competitive markets are far better than regulatory agencies at allocating resources and services efficiently for the maximum benefit of consumers.") The FCC too repeatedly echoed this purpose of "the Commission's goals of using competition to bring about cost-based rates." See *In re Access Charge Reform*, CC Docket No. 96-262, 15 F.C.C.R. 12962, 12976 (Sixth Report and Order) (2000) [hereinafter *CALLS Order*]; See also *In re Interexchange Carrier Purchases of Switched Access Services Offered by Competitive Local Exchange Carriers*, CC Docket No. 96-262, 14 F.C.C.R. 14221, 14348 (Report and Order) (1999) ("We strongly prefer not to intervene in the marketplace, particularly with respect to competitive new entrants, unless intervention is necessary to fulfill our statutory obligation to ensure just and reasonable rates. If market forces are not operating to constrain CLEC access charges, we seek the least intrusive means possible to correct any market failures"; See also *In re Access Charge Reform*, 12 F.C.C.R. 15982, 16001, 16107 (First Report and Order) (1997) (hereinafter *Access Charge Reform*) ("Regulation cannot replicate the complex and dynamic ways in which competition will affect the prices, service offerings, and investment decisions of both incumbent LECs and their competitors."))

telecom monopolies, and regulated them. This would have saved the extremely high social cost of duplicating infrastructure involved in competitive entry. The FCC proposes to impose the zero rate upon unwilling LECs. This could cause various distortions and regulatory costs relative to an arrangement in which the LEC voluntarily enters into the interconnection agreement. In particular, if LECs don't expect to earn anything from long-distance carriers, the LECs' incentives to provide high quality interconnection and technical assistance would be substantially reduced. Disputes are expected to arise over the non-price characteristics of the interconnection relationships. These disputes would have to be resolved by the FCC and the courts.¹⁰

Furthermore, under the FCC's proposal, LECs will not be able to recover the costs of completing and originating long-distance calls from long-distance carriers. This is while long-distance carriers and their customers no doubt would benefit from access to the LECs' customers. Consequently, LECs' investments in their networks will be inefficiently distorted, as they will not be able to capture even a portion of the value their network creates for long-distance carriers and their customers. In particular, new entrants into local telecom markets [hereinafter *new LECs*],¹¹ which might have been willing to enter local markets and expand their networks, might hesitate to do so under the FCC's proposed regime.¹²

¹⁰ *Infra* section III.A.

¹¹ In the professional and regulatory literature, new LECs are typically called "competitive LECs" or "CLECs."

¹² *Infra* section III.A. In addition, forcing interconnection for no payment could be seen as a taking without just compensation. There are apposing views in the literature as to whether such regulatory changes constitute takings without just compensation. See Kyle D. Logue, *Tax Transitions, Opportunistic Retroactivity, and The Benefits of Government Precommitment*, 94 MICH. L. REV. 1129,

This Article claims that interconnection between LECs and long-distance carriers should be deregulated. This is in sharp contrast to the FCC's current policy and its recently proposed bill and keep approach, both of which involve strict rate regulation of termination and origination charges, coupled with mandatory interconnection. Under deregulation of termination and origination charges, and in the absence of mandatory interconnection, several market forces, neglected by the FCC and the previous literature, can keep these charges at competitive levels and encourage carriers to interconnect and provide their subscribers with ubiquity.

First, long-distance carriers should be permitted to route calls to subscribers of LEC A through interconnection with LEC B, which competes with LEC A.¹³ Such

1149 (1996) (claiming that if previous regulation was meant to induce investment, regulatory change should not be applied retroactively); J. Gregory Sidak & Daniel F. Spulber, *Deregulatory Takings and Breach of The Regulatory Contract*, 71 N.Y.U. L. REV. 851, 860 (1996) (arguing that imposing a zero rate for terminating calls constitutes a taking without just compensation). For views pointing to the conclusion that such regulatory transitions should not be considered takings without just compensation see Louis Kaplow, *An Economic Analysis of Legal Transitions*, 99 HARV. L. REV. 509 (1986) (claiming that firms should bear the risk of regulatory change); Susan Rose-Ackerman & Jim Rossi, *Disentangling Deregulatory Takings*, 86 VA. L. REV. 1435 (2000) (arguing that a presumption against a taking without just compensation claim should be made where the government is acting as a policy-maker). See also Hanoch Dagan, *Takings and Distributive Justice*, 85 VA. L. REV. 741 (1999) (developing a theory according to which if LECs expect roughly countervailing regulatory (or deregulatory) benefits, even in the long-term, there will be no takings claim).

¹³ Such transit arrangements are common in the case of interconnection among Internet backbones. Internet backbones are fiber infrastructure that deliver data to and from the backbones' customers (who consist mainly of Internet Service Providers and end users). The Internet is composed of a "network of networks" interconnecting backbones across the globe. See MICHAEL KENDE, *THE DIGITAL HANDSHAKE: CONNECTING INTERNET BACKBONES* 4 (OPP Working Paper No. 32, 2000). When, say, a

transit of calls would be considered a local call between competing networks, subject to a mandatory local interconnection regime. If LEC A attempts to charge the long-distance carrier supracompetitive termination rates, LEC B would be induced to offer the long-distance carrier competitive rates for transiting long-distance calls made to LEC A's subscribers.

Although transit via LEC B allegedly involves higher costs than having LEC A terminating the calls directly, transit becomes an extremely effective market force if we do not allow LECs to charge each other for terminating each other's calls.¹⁴ The long-distance carrier's credible threat to use transit would induce LEC A to directly interconnect with the long-distance carrier and voluntarily charge it no more than

small backbone purchases transit access from a large backbone, the small backbone typically gains access to all backbones interconnected to the large backbone. See Jacques Cremer, Patrick Rey, & Jean Tirole, *Connectivity in the Commercial Internet*, 48 J. INDUSTRIAL ECON. 433 (2000); Kende, *id.* at 21. Transit arrangements are also abundant in the case of international telecommunication. Two countries that do not have an interconnection agreement can interconnect by transiting calls through a third country. See, e.g., FCC Releases 1996 International Traffic Data, 1998 FCC LEXIS 363, *12-13 (1998). Even in the local telecom interconnection context, such transit situations currently exist. See, e.g., *Intercarrier Compensation Proposal*, 2001 FCC LEXIS 2339 at *70-71. They are not common, however, presumably because interconnection is mandated under regulated rates, so that market forces are not free to act in the above-mentioned manner, and because of LECs' ability to negotiate their reciprocal termination rates, which is shown *infra* section III.C.1 to make transit an unappealing option for long-distance carriers.

¹⁴ Such an arrangement between LECs bears some resemblance to the FCC's recent bill and keep proposal, only it is limited to interconnection between the LECs, and is mandatory, as apposed to the FCC's proposed default rule. See *infra* Part IV.

LEC B's marginal costs¹⁵ of transit. This is because for any higher rate LEC A attempts to charge the long-distance carrier, LEC B would be induced to offer the long-distance carrier a lower rate for transiting the calls to LEC A. Since LEC A will not be allowed to charge LEC B for terminating these transited calls, LEC A would be worse off and would rather terminate these calls directly, and collect this competitive rate from the long-distance carrier. Interestingly, this simple market force does not depend on new LECs possessing substantial market shares. All they need to possess is the technical ability to transit all long-distance calls made to the incumbent LEC's subscribers.¹⁶

This is one justification for this Article's proposed rule according to which LECs would not be allowed to charge each other for termination of each other's calls (including transited calls). This is in contrast to the current rule, and to the rule recently proposed by the FCC,¹⁷ which would allow LECs to negotiate a reciprocal rate for terminating each other's calls. If LECs are allowed to negotiate the rates they pay each other for termination of calls they might be induced to jeopardize the competitive force of transit by negotiating high reciprocal termination rates they pay each other. Such termination rates raise their costs of transiting calls made to their

¹⁵ Marginal costs are the costs of supplying the marginal unit (e.g., a marginal minute of the telephone call).

¹⁶ Even if an LEC is integrated with a long-distance carrier, the LEC's incentives to harm unaffiliated long-distance carriers becomes highly questionable, due to long-distance carriers' ability to transit calls made to the LEC's subscribers via the competing LEC. See *infra* notes 72-76 and accompanying text.

¹⁷ As noted, the FCC proposes that LECs will be able to negotiate the reciprocal rate for terminating each other's calls and that a zero termination rate apply only if LECs do not agree otherwise.

competitor. Accordingly, they could credibly charge long-distance carriers supracompetitive rates for terminating calls notwithstanding the long-distance carrier's option of asking one LEC to transit calls made to the competing LEC.¹⁸

Second, even if we assume for the sake of discussion that long-distance carriers will not be allowed to transit calls made to one LEC via the competing LEC, since recipients benefit from the calls they receive and are generally interested in being accessible to long-distance calls, long-distance carriers possess as much of a monopoly over origination of long-distance calls as the LECs allegedly possess over termination of such calls. Under non-mandatory interconnection, and with local competition among LECs, this grants long-distance carriers bargaining power that can drive termination charges down to competitive levels. If LEC A attempts to charge a long-distance carrier excessive rates for call termination, the long-distance carrier may interconnect only with LEC B, which competes with LEC A and charges competitive rates for call termination. This will result in a competitive disadvantage for LEC A: its subscribers will not be accessible to the long-distance carrier's subscribers, and they will tend to prefer subscribing to LEC B. Therefore, the long-distance carrier's loss from not interconnecting with LEC A is analogous to LEC A's loss from not interconnecting with the long-distance carrier.

These two simple market forces have never been given a chance in practice. Long-distance carriers have always been obligated to interconnect with LECs for regulated termination rates.¹⁹ In areas where the market has been given a chance, such

¹⁸ As illustrated *infra* Section IV.B.3, this fear continues to exist when LECs charge their subscribers fixed fees combined with per minute charges, unless restrictive assumptions are made.

¹⁹ See *infra* notes 79-80 and accompanying text.

as interconnection between Internet backbones and interconnection between cellular providers, the market has indeed produced satisfactory results.²⁰

Two additional market forces strengthening the proposed market-based approach stem from the foreseeable growth of cellular technology and broadband IP telephony. Cellular telephony in the U.S. is developing to a degree of penetration and quality that can compete with LECs on providing termination of calls to recipients.²¹ Cellular providers are going to be willing and able, under current technologies, to distinguish between cellular calls the recipient receives at home or at the office and calls she receives while on the road. Thus the premiums cellular providers may collect on terminating calls when their subscribers are called on the road will not prevent

²⁰ See *Intercarrier Compensation Proposal*, 2001 FCC LEXIS 2339 at *136-137 (“The [Internet] backbones appear to be successfully negotiating interconnection agreements among themselves without any regulatory intervention, and we see no reason to intervene in this efficiently functioning market.”); Kende, *supra* note 13 at 21 (same).

²¹ See *The Surveys Say*, 5 WIRELESS TODAY 54 (2001) (Current cellular penetration is 40 percent and expected to rise above 60 percent by 2005 and reach 84 percent by 2006). Lynnette Luna, *Lehman Brothers Revises Wireless Growth Estimates for The Positive*, RADIO COMM. REP. September 13, 1999, at 10 (wireless penetration will reach 70 percent by 2007); Average monthly minutes of use per subscriber are also escalating. See *The Surveys Say*, *id.*; *U.S. Wireless Telephone Penetration 43 Percent in 1999*, 19 RCR RADIO COMMUNICATIONS REPORT 31 (2000) (average monthly minutes of use increased from 201 minutes per month in 1998 to 241 in 1999 and to 275 in 2001.) Escalated growth and penetration of cellular is a worldwide phenomenon. See *Networks - Wired Vs Wireless - Down To The Wire*, ROAM, April 2001, at 30 (while at the end of 1998 there were 307 million GSM subscribers around the world, according to the EMC World Cellular Database, at the end of January 2001 that figure had more than doubled to 706.8 million.); *The Surveys Say*, 5 WIRELESS TODAY 54 (2001) (The global cellular market is expected to double in size again by the end of 2006.)

cellular termination of calls from being a viable competitor to LEC termination.²² Broadband IP telephony too is expected to compete with the LEC and the cellular provider for call termination.²³ In particular, IP telephony will be used mainly via broadband Internet connections, which will often exist in addition to the regular phone line connection.²⁴

The market forces inherent in the future growth of cellular telephony and broadband IP telephony will be particularly effective if termination charges paid by long-distance carriers were passed on to callers. To this end, the Article proposes to

²² The FCC recently issued a ruling according to which cellular providers can collect termination charges from the caller rather than the cellular recipient. See *In Re Calling Party Pays Service Offering in the Commercial Mobile Radio Services*, WT Docket No. 97-207, 14 F.C.C.R 10861 (Declaratory Ruling and Notice of Proposed Rulemaking) (1999) [hereinafter *Cellular Calling Party Pays Ruling*]. Cellular providers are expected to stop collecting termination charges from their subscribers, in order to induce them to disclose their cellular numbers and turn on their cellular phones.

²³ IP telephony is the ability to initiate and receive telephone calls and facsimiles over IP based data networks. IP telephony technology transforms voice into packets of data that travel over the Internet or over special lines (such as cable infrastructure) and are then transformed back into voice. See *Voice over IP*, at <http://www.techguide.com/titles/voiceip.shtml> (2001); A related term in the professional literature is “Voice-over IP” or “VoIP,” which typically refers to IP telephony calls that at least partially run over special lines. “Internet telephony” refers to IP telephony that runs over the public Internet. See John Williamson, *The Metamorphosis of IP Telephony*, GLOBAL TELEPHONY, June 2001. In the foreseeable future, the quality of an IP telephony call will improve so as to be a viable substitute for a wireline call. See *infra* note 93.

²⁴ See *infra* note 95. Even if broadband Internet connections eventually replace the regular phone line, recipients are expected to hold on to their cellular phones for mobility, while still being connected to broadband Internet, for speed. See *infra* note 99 and accompanying text. In such a case, cellular providers will compete over call termination with broadband Internet providers.

revise the FCC's current requirement that long-distance carriers average their rates.²⁵ As the Article shows, such deaveraging of rates is consistent with both the language and intent of the 1996 Act's requirement that long-distance carriers equalize their rates across states and geographic areas.

The Article also proposes a market-based approach toward originating access rates LECs charge long-distance carriers that wish to originate long-distance calls made by the LECs' subscribers. Originating access rates too are currently regulated, and have been recently proposed by the FCC to be subject to the most strict, zero-rate, regulation. Instead, the Article reveals two market forces that can effectively restrain originating access rates without regulatory intervention. First, the Article proposes to eliminate the 1996 Act's requirement that long-distance carriers charge the same rates from subscribers in different states and in different geographic areas. Had this statutory requirement been eliminated, a simple market force would have maintained originating access rates at competitive levels. Long-distance carriers would have been able to pass on originating access charges to the long-distance caller and an LEC charging excessive originating access rates would have lost subscribers to the competing LEC.

Even short of eliminating the statutory requirement of rate equalization, however, an additional market force can restrain originating access rates: A long-distance carrier should be able to interconnect with LEC B and originate long-distance calls made by LEC A's subscribers, who will call the long-distance carrier at a location in LEC B's network. Such a call would be subject to the local mandatory interconnection regime. Thus, if LEC A attempts to charge supracompetitive

²⁵ See *infra* section III.C.5.

originating access rates, LEC B would be induced to charge the long-distance carrier competitive rates for transiting the long-distance calls made by LEC A's subscribers. In particular, where LECs are not allowed to charge each other for termination of each other's calls, this market force induces each LEC to directly interconnect with the long-distance carrier and offer to originate its long-distance calls for a rate as low as the competing LEC's marginal costs of transit.²⁶ If LEC A attempts to charge a higher rate, LEC B would be induced to offer the long-distance carrier to transit its outgoing long-distance calls for a lower rate, and LEC A would incur the same costs for originating these calls while earning nothing from the long-distance carrier.²⁷

As to interconnection between competing LECs, the Article shows why mandatory local interconnection is essential. Without it, incumbent LECs would have strong incentives to refuse or degrade interconnection to new LECs in order to deter their entry or expansion. Furthermore, under the proposed market-based approach to interconnection with long-distance carriers, LECs might be induced not to interconnect, in order to credibly commit not to transit long-distance calls flowing from the competing LEC. This would enable LECs to charge supracompetitive rates from long-distance carriers for originating long-distance calls.

²⁶ Since callers might have to dial additional digits to use transit, convenience might allow an LEC to charge a somewhat higher rate for direct interconnection.

²⁷ Interestingly, if LECs pay each other a positive reciprocal termination rate, as in the current regime, each LEC's rate for originating long-distance calls is expected to be as low as the competing LEC's marginal costs of transit minus this reciprocal rate. For any higher rate LEC A attempts to charge, LEC B would offer to transit these calls for less, as it expects in addition to earn the reciprocal termination rate from LEC A on these calls. LEC A, for its part, would then bear this reciprocal rate, in addition to its costs in originating the call.

As noted, the Article proposes not to allow LECs to charge each other for terminating each other's calls. If incumbent LECs and new LECs are permitted to negotiate a reciprocal rate for terminating each other's calls, as the FCC proposes to permit, and is permitted in the current regime as well, LECs might use the reciprocal rate strategically to raise their profits.

First, new LECs might push for excessive reciprocal termination rates and then attract subscribers that are net receivers of calls, such as ISPs. Incumbent LECs, for their own reasons, portrayed below, might agree. Indeed many new LECs have been focusing mainly on ISPs. New LECs do this because if they serve mainly net receivers of calls, and the reciprocal rate for terminating calls is high, new LECs make more money, due to calls incoming from the incumbent LEC to the new LEC.²⁸ When new LECs do this, the 1996 Act's aim in opening telecom markets to real competition is undermined. This behavior of new LECs was one of the main driving forces behind the FCC's proposed bill and keep approach. The FCC's premise is that a *default* bill and keep rule will do, as the incumbent LEC is expected to refuse an excessive reciprocal termination rate if it expects the new LEC to attract mainly net receivers of calls.

This Article stresses, however, that the incumbent LEC might agree to an excessive reciprocal termination rate, and play along with the new LEC, for its own reasons. In particular, the incumbent LEC might be content to have the new LEC focus mainly on the niche of "net receivers of calls," while leaving the rest of the market to the incumbent LEC. In fact, as the Article shows, allowing the incumbent

²⁸ The proposed market-based approach will add yet another group of net call receivers: long-distance carriers that ask one LEC to transit long-distance calls made by the other LEC's subscribers. This group too is expected to be a target of new LECs' marketing efforts.

and new LEC to negotiate a reciprocal rate is identical to allowing them to negotiate a market division agreement according to which the new LEC will focus on the segment of “net receivers of calls,” and will not compete with the incumbent over regular subscribers. In exchange, the incumbent agrees to pay the new LEC for such non-competition, through the excessive termination rate that the incumbent pays the new LEC for termination of calls flowing from the incumbent to the new LEC. Interestingly, such an agreement is self-enforcing. If the new LEC starts successfully competing with the incumbent over regular subscribers, who also make calls, the new LEC will start paying the incumbent the excessive termination rate for these calls. Thus, the new LEC will be making less and less, and the incumbent will also be “paying” less, the more the new LEC deviates from the tacit market division arrangement.

Another risk in allowing LECs to negotiate their reciprocal rate for terminating each other’s calls is that LECs might be tempted to negotiate an excessive reciprocal rate in order to boost the rates they charge their own consumers. The economics literature to date has shown this not to be a problem only under restrictive assumptions, which depart significantly from real-life scenarios.²⁹ The virtue in not allowing LECs to charge each other for call termination is that the reciprocal rate for call termination then ceases to be a strategic tool in the hands of the LECs. Rather than seeing LECs as providing each other with call termination, as the economics literature has consistently assumed, this regulatory rule sees the LEC originating the call as providing the caller with call origination and the LEC terminating the call as providing the recipient with call termination.

²⁹ See *infra* section IV.B.2.

I. CURRENT REGULATION

Current regulation of interconnection among telecommunication carriers may be categorized into two classes: The first is interconnection among competing local networks, and the second is interconnection between long-distance carriers and LECs.

As to interconnection among competing local networks, section 251(b)(5) of the 1996 Act³⁰ imposes a duty upon all LECs to "establish reciprocal compensation arrangements for the transport and termination of telecommunications." That is, competing LECs must interconnect with one another, and must negotiate the terms of reciprocal compensation.³¹ When the subscriber of one LEC calls the subscriber of another LEC, the originating LEC pays the terminating LEC the negotiated compensation for call termination, which is the same regardless of which LEC

³⁰ See 47 U.S.C. § 251(b)(5) (Supp. III 1997). The requirement similarly applies to interconnection between LECs and cellular providers. See *U.S. West Communications, Inc. v. Minnesota Public Utilities Commission*, 55 F. Supp. 2d 968 (D. Minn. 1999); *U.S. West Communications, Inc. v. Public Service Commission of Utah*, 75 F. Supp. 2d 1284, 1286 (D. Utah 1999); *U.S. West Communications, Inc. v. Serna*, No. 97-124 JP/JHG, 1999 U.S. Dist. LEXIS 21774 (D. N.M. August 25, 1999); *In re Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, 11 F.C.C.R. 15499, 16024-25 (First Report and Order) (1996) [hereinafter *Local Competition Order*]. A few small and rural LECs are exempt from the reciprocal compensation requirement. See 47 U.S.C. § 251(f) (Supp. III 1997); *Indiana Bell Telephone Company Incorporated v. Smithville Telephone Company, Inc.*, 31 F. Supp. 2d 628, 631-632 (S.D. Ind. 1998).

³¹ According to Section 252(d) of the 1996 Act, 47 U.S.C. § 252(d) (Supp. III 1997), at any time in the negotiations over the terms of reciprocal compensation a party may ask a state commission to participate as a mediator. Furthermore, if no agreement is reached, the Act provides for compulsory arbitration of unresolved issues. See, e.g., *Illinois Bell Telephone Company v. Worldcom Technologies, Inc.*, 1999 U.S. App. Lexis 20828 at *6 (7th Cir. 1999).

originated the call and which LEC terminated it. Normally, compensation is in the form of a per-minute charge.³²

Interconnection between long-distance carriers and local carriers is regulated differently. The former monopoly LECs must interconnect with long-distance carriers, and long-distance carriers must interconnect with the former monopoly LECs and pay them regulated origination and termination charges.³³ Under the most recent FCC order,³⁴ with regard to interstate calls,³⁵ the large LECs, whose termination and origination charges are subject to price-caps imposed by the FCC,³⁶ are given the option of either charging reduced rates, set in that order, within the following five years, or subjecting themselves to price-caps based on “forward-looking” cost measures.³⁷

³² Under a recent FCC order, calls made to ISPs are treated differently. *See infra* section IV.B.1; *In re Inter-carrier Compensation for ISP-Bound Traffic*, CC Docket No. 99-68, 2001 FCC LEXIS 2340 (Order on Remand and Report and Order) (2001) [hereinafter *ISP-bound Traffic Order*].

³³ *Inter-carrier Compensation Proposal*, 2001 FCC LEXIS 2339 at *5-6.

³⁴ *CALLS Order*, 15 F.C.C.R. 12962.

³⁵ The FCC is authorized only to regulate interstate origination and termination charges. Long-distance intra-state origination and termination charges are regulated by the states.

³⁶ *See CALLS Order*, 15 F.C.C.R. at 13014-32 for a detailed description of the regulatory treatment of the price-caps.

³⁷ “Forward looking costs” refer to expected future costs incurred by the LEC’s operation in the market rather than historic “sunk” costs used to establish the network. They conventionally include, however, not only the variable costs of handling calls, but also fixed costs of expected expansion and improvement of the network. *See Alenco Communications, Inc. v. Federal Communications Commission*, 201 F.3d 608, 615-16 (5th Cir. 2000). Historically, origination and termination charges were purposely set at rates well above cost, in order to subsidize local calls and to compensate LECs for their obligation to set an infrastructure sufficient to serve everyone in the local area, including

The rest of the former monopoly LECs are subject to more lenient regulation of their origination and termination charges. They may charge origination and termination charges according to their “rate of return.” “Rate of return” measures enable origination and termination charges to be well above competitive levels, as they take into account the historic costs incurred by the LEC to establish the network’s infrastructure, as well as a prescribed profit.³⁸

Origination and termination charges long-distance carriers pay LECs for *intrastate* long-distance calls are regulated by state commissions, and are not subject to the FCC’s actions.³⁹ Some states enable origination and termination charges to be well above competitive levels, in order to implicitly subsidize local rates or the extension of the networks’ reach to remote areas.⁴⁰ On the other hand, many states “mirror” the FCC’s rules regarding origination and termination charges paid to the different kinds of LECs and apply them to intrastate origination and termination charges as well.⁴¹

subscribers in remote areas. *See Intercarrier Compensation Proposal*, 2001 FCC LEXIS 2339 at *36. The 1996 Act, however, held that this obligation to provide universal service would be funded through explicit funds collected from carriers, and that implicit subsidies inherent in origination and termination charges would be gradually eliminated. *Id.*

³⁸ *See CALLS Order*, 15 F.C.C.R. at 12968.

³⁹ *See, e.g., ISP-bound Traffic Order*, 2001 FCC LEXIS 2340 at *111; Price Caps Standard Form of Telco Regulation in 70% of States, *Communications Daily*, Sept. 8, 1999, available at 1999 WL 7580319.

⁴⁰ *See e.g., CALLS Order*, 15 F.C.C.R. at 13040.

⁴¹ *See, e.g., AT&T Communications of Ohio, Inc. v. Public Utilities Commission of Ohio*, 88 Ohio St. 3d 549, 550 (2000); *Wisconsin State Telephone Association v. Public Service Commission of Wisconsin*, 201 Wis. 2d 761, 764 (Wis. Ct. App. 1996); *Public Utility Commission of Texas v. AT&T*

The new entrants into local telecom markets – the “new LECs” – are, under a recent FCC order,⁴² subject to limited rate regulation of the origination and termination charges they charge long-distance carriers. According to this order, if new LECs charge at or below a certain benchmark level for terminating or originating long-distance calls, long-distance carriers must interconnect with them, while if new LECs charge above this level, long-distance carriers are no longer obliged to interconnect with them.⁴³

II. THE FCC’S PROPOSAL

The FCC recently proposed a revolution to the interconnection regime.⁴⁴ According to the FCC’s proposal, unless otherwise agreed to by the interconnecting carriers, LECs will not be allowed to charge other carriers for terminating or originating calls made to or by the LECs’ subscribers. Instead, LECs will be expected to recover the costs of terminating or originating such calls from their own subscribers. This regulation is proposed for both the case of interconnection among

Communications of The Southwest, 777 S.W.2d 363, 378 (Tex. 1989); *CALLS Order*, 15 F.C.C.R. at 12996.

⁴² *In re Reform of Access Charges Imposed by Competitive Local Exchange Carriers*, CC Docket No. 96-262, 2001 FCC LEXIS 2336, (Seventh Report and Order and Further Notice of Proposed Rulemaking) (2001) [hereinafter *CLEC Order*].

⁴³ The order provides for an exemption for rural new LECs, which may impose higher origination and termination charges on long-distance carriers. See *CLEC Order*, *id.* at *77. Other than the provisions of the *CLEC Order*, new LECs are generally unregulated. See *CALLS Order*, 15 F.C.C.R. at 13005; *ISP-bound Traffic Order*, 2001 FCC LEXIS 2340 at *111.

⁴⁴ See *Intercarrier Compensation Proposal*, 2001 FCC LEXIS 2339.

competing LECs and the case of interconnection between LECs and long-distance carriers.

III. LONG-DISTANCE CARRIER-LEC INTERCONNECTION

A. The Undesirability of Regulating Interconnection

The preceding sections reveal how interconnection between long-distance carriers and LECs is characterized by extensive rate regulation and regulatory intervention. Both under current regulation and under the FCC's proposed bill and keep regime, interconnection is mandated, and the rates LECs may charge long-distance carriers are strictly regulated. Current regulation mandates interconnection while placing a positive cap on these charges. The FCC's bill and keep proposal mandates interconnection while regulating these charges down to zero, unless the long-distance carrier agrees to pay the LEC more than zero, which is obviously unlikely.

Such regulatory intervention is extremely costly. To be sure, prescribing a regulated rate (including the proposed regulated rate of zero) involves lower regulatory costs than firm-specific cost studies establishing a rate for every firm. Under current regulation, assuming the bill and keep proposal will not be adopted, the FCC remains unwilling to prescribe rates without giving carriers the opportunity to show that their costs exceed those rates.⁴⁵ Such a showing demands cost studies for every individual carrier. Furthermore, as technology changes and networks renew

⁴⁵ See *CALLS Order*, 15 F.C.C.R. at 12984. This regulatory cost applies to the case of new LECs as well, since, pursuant to the *CLEC Order*, 2001 FCC LEXIS 2336 at *83, new LECs that wish to mandate interconnection of long-distance carriers for rates above a certain benchmark can prove the appropriateness of their rates by submitting a study exhibiting their costs.

their facilities, carriers that wish to challenge the prescribed rates may need to conduct new cost studies.

Even if the FCC's bill and keep proposal is adopted and an undisputable zero rate prescribed, regulatory intervention continues to be extremely costly. First, regulatory intervention is contrary to Congress's intent in the 1996 Act of opening telecommunication markets to competition and reducing regulatory intervention to the lowest possible level.⁴⁶ What is the point of opening local markets to competition, and having new LECs duplicate extremely costly infrastructure, if extensive regulatory intervention is still required? We might as well have remained with LECs that do not face competition, save the costs of duplicating infrastructure and prescribe their rates. After all, rate prescription can be used not only to regulate interconnection, but also to regulate the rates monopolistic LECs charge their own subscribers.

Furthermore, while prescribing a rate of zero saves the regulatory costs involved in individual cost-studies for each LEC, it involves other substantial regulatory costs and distortions. Interconnection relationships between LECs and long-distance carriers involve an array of *non-price* factors related to the quality of interconnection, technical standards and repair services. If LECs can charge nothing from long-distance carriers, as the FCC proposes, the LECs' incentives to provide long-distance carriers with high quality interconnection and technical assistance will be substantially reduced.⁴⁷

⁴⁶ See *supra* note 9.

⁴⁷ It could be claimed that LECs would want to give quality interconnection to long-distance carriers, because otherwise the LECs' own subscribers would suffer from low quality of the long-distance calls they make and receive. This may or may not be true. We cannot be certain whether this factor alone would induce LECs to grant quality interconnection, despite the fact that LECs are forced

Even to date, before the FCC's bill and keep proposal is adopted, several disputes between long-distance carriers and LECs have arisen over these non-price factors. In the order executing AT&T's divestiture into separate LECs and a separate long-distance carrier, these LECs were ordered to provide all long-distance carriers with "equal access." "Equal access" has been defined as that which is equal in type, quality and price to the access to local exchange facilities provided to AT&T and its affiliates.⁴⁸ Section 251(g) of the 1996 Act preserved these equal access obligations, subject to the FCC's authority to modify them.⁴⁹ One important feature of these obligations is the LEC's obligation to enable callers to use the long-distance carrier they presubscribe to by dialing only a "1" before the recipient's number, and to

to interconnect for a zero rate. The virtue of the market-based approach presented in this Article is that LECs will voluntarily grant long-distance carriers quality interconnection for competitive rates, with no need for regulatory intervention.

⁴⁸ See *United States v. American Tel. & Tel. Co.*, 552 F. Supp. 131, 227 (D.D.C. 1982), *aff'd sub nom.* *Maryland v. United States*, 460 U.S. 1001 (1983) [hereinafter *U.S. v. AT&T*].

⁴⁹ 47 U.S.C. @ 251 (g). Section 251(g) reads:

"On and after the date of enactment of the Telecommunications Act of 1996 ... each local exchange carrier, to the extent that it provides wireline services, shall provide exchange access, information access, and exchange services for such access to interexchange carriers and information service providers in accordance with the same equal access and nondiscriminatory interconnection restrictions and obligations ... that apply to such carrier on the date immediately preceding the date of enactment of the Telecommunications Act of 1996 ... under any court order, consent decree, or regulation, order, or policy of the Commission, until such restrictions and obligations are explicitly superseded by regulations prescribed by the Commission after such date of enactment. ... "

choose a different long-distance carrier by dialing a five or seven digit access code.⁵⁰

Several disputes arose regarding the interpretation of this obligation.⁵¹

These obligations also include the technical quality of interconnection LECs are supposed to provide long-distance carriers.⁵² In particular, long-distance carriers require service and technical standards from the LEC in connection with “the provision of network control signaling, answer supervision, automatic calling number identification, carrier access codes, directory services, testing and maintenance of facilities and the provision of information necessary to bill customers. . .”⁵³ The types of problems connected to the quality of interconnection may be related, among other problems, to the clearness and volume of transmission, echo, high static, noise, post-dial delay, failed call attempts characterized by fast

⁵⁰ See, e.g., *In Re Investigation of Access and Divestiture Related Tariffs*, 101 F.C.C. 2d 911, 928 (1985).

⁵¹ See, e.g., *In Re Allnet Communication Services, Inc. v. Cincinnati Bell Telephone Company*, 11 F.C.C.R. 8519 (Memorandum Opinion and Order on Reconsideration)(1996) (the FCC dismissed a long-distance carrier’s claim that the defendant LECs’ obligations to give callers access to their presubscribed long-distance carrier by dialing only a “1” included interstate calls within the LECs’ calling area.)

⁵² See, e.g., *U.S. v. Western Electric Company, Inc.*, 569 F. Supp. 1057, 1107 (D. C. 1983) (LECs’ obligations include the obligation that interconnection with long-distance carriers will be of the same technical quality and using the same kinds of facilities regardless of whether the long-distance call is within or outside the LEC’s calling area). See also *In re Authorization of Common Carrier Facilities to Provide Telecommunications Service off the Island of Puerto Rico*, 8 F.C.C.R. 63 (1992) (the FCC held that the need to dial additional digits in order to access a long-distance carrier does not necessarily render the LEC’s service to be of inferior quality, thereby justifying lower interconnection rates.)

⁵³ *U.S. v. AT&T*, 552 F. Supp. at 228.

busy tones, calls left “high and dry” because no connection is made after all digits have been correctly dialed, blocked calls caused by translation errors in the LEC’s switches and the LEC mistakenly routing a long-distance call to the wrong long-distance carrier.⁵⁴

LECs and long-distance carriers may also have conflicting interests as to the points in the LEC’s network in which they physically interconnect. For example, the LEC may prefer that the long-distance carrier take its own trunks to a point closest to the LEC’s subscribers while the long-distance carrier may prefer to interconnect with the LEC at a point further away from the LEC’s subscribers.⁵⁵ Also, long-distance carriers need technical assistance from the LEC in assuring the quality of long-distance calls made to and from the LEC, including quality testing and maintenance.⁵⁶

Interestingly, the FCC has hesitated in the past to intervene in disputes between long-distance carriers and LECs regarding the quality of interconnection because, as the FCC put it:

... [W]e expect that the LECs will continue to cooperate with all the IXC’s to solve these problems because the LECs have several basic self-interested incentives to provide high quality service. The greater the amount of traffic the LECs carry, the more they will receive from the IXC’s in access charge

⁵⁴ See *In re Investigation into the Quality of Equal Access Services* 1986 FCC LEXIS 3378 (Memorandum Opinion and Order) at *12-17 [hereinafter *Quality of equal access order*].

⁵⁵ *Id.* at *45.

⁵⁶ *Id.* at *65-66.

revenues. ... Given these incentives, the LECs are likely to respond quickly to complaints from the [IXCs] that they are receiving degraded service.⁵⁷

Indeed, once LECs are forced to interconnect with long-distance carriers without receiving any payment from long-distance carriers in return, we should expect problems related to the quality of interconnection to be significantly exacerbated. LECs may no longer have the above-mentioned incentives to voluntarily cooperate with long-distance carriers to resolve these problems. This is expected to result in regulatory costs. First, long-distance carrier's complaints to the FCC, FCC intervention, and complex litigation will become abundant. Litigation is complex in these instances, as it is often difficult to define whether the problem stems from the long-distance carrier's own network or from the LEC's network. Second, the FCC will be compelled to further specify complex and comprehensive standards regarding the quality of interconnection, and it would have to monitor and enforce these standards on an ongoing basis. As the technology utilized by the interconnecting networks changes, these standards would have to be changed accordingly.

These costs will be avoided under the proposed market-based approach to long-distance interconnection. Under this approach, LECs will enter interconnection agreements with long-distance carriers voluntarily and for their own benefit. Accordingly, while the market forces described below⁵⁸ will keep termination and origination rates at competitive levels, LECs will be induced to provide long-distance carriers with high quality interconnection, with no need for regulatory intervention.

⁵⁷ *Id.* at *31.

⁵⁸ *Infra* sections III.C-D.

An additional cost of the FCC's proposed bill and keep approach to long-distance interconnection concerns the threat that such a regime would deter entry and expansion of new LECs, and efficient investment by incumbent LECs in their networks. As we shall see, under the proposed market-based approach, LECs could recover at least a portion of their marginal costs of providing long-distance carriers with interconnection from long-distance carriers. This revenue would be added to the revenue LECs could collect from their own subscribers on account of the fact that the LEC's subscribers also benefit from receiving and making long-distance calls. Under the FCC's proposed bill and keep approach to long-distance interconnection, on the other hand, LECs, including new LECs, would have to settle for collecting revenue from their own subscribers.

The more the LECs could capture the value that investments in their network generate, the more efficient LECs' investment decisions would be. Therefore, the FCC's proposal might deter efficient investment decisions, as it allows LECs to recover less of the value generated by these investments. In particular, it might deter new LECs from investing in entry, establishing infrastructure and expanding their networks' coverage, while these investment incentives would be stronger under the proposed market-based approach. In the case of new LECs, such investment incentives are important for an additional reason. They raise the prospects of viable competition between incumbent LECs and new LECs, thereby enabling deregulation and competitive pricing for consumers in the long-run.

B. What is the Rationale for Regulating termination rates?

If regulation of termination rates is so costly and clearly contrary to Congress's aim of opening telecom markets to competition, why is such extensive

rate regulation nevertheless implemented? The well-cited rationale for such regulatory intervention, at least in the case of termination of long-distance calls,⁵⁹ is that call termination is an essential service, which the caller and his network seek and which can be provided only by the recipient's LEC (assuming the recipient subscribes to only one LEC).⁶⁰ The FCC's premise is that this enables the LEC, absent rate regulation, to charge long-distance carriers excessive rates for call termination. Furthermore, it is alleged that even when the LEC faces competition in the local market, it still possesses a monopoly over termination of calls to its subscribers, again enabling excessive termination charges absent regulatory intervention.

C. Competitive Pressures on LECs' Rates for Terminating Calls

In sharp contrast to the FCC's current policy and its recently proposed bill and keep approach, both of which involve mandatory interconnection and strict rate regulation of termination charges, this Article claims that interconnection between LECs and long-distance carriers should be deregulated. Under deregulation of termination charges, and without mandatory interconnection, several market forces, exposed by this Article, and neglected by the FCC and the previous literature, are expected to keep termination charges at competitive levels and encourage carriers to interconnect and provide their subscribers with ubiquity. These market forces will be discussed in the following paragraphs.

⁵⁹ Originating access rates charged by LECs for long-distance calls made by the LECs' subscribers are treated *infra* section III.D.

⁶⁰ See *Inter-carrier Compensation Proposal*, 2001 FCC LEXIS 2339 at *16-17.

1. Using Competing LECs to Transit Long-distance Calls

Long-distance carriers should be permitted to route calls to subscribers of LEC A through interconnection with LEC B, which competes with LEC A. LEC B will transit the call to LEC A's subscribers through the local interconnection arrangement between LECs A and B, as illustrated in Figure 1 below.⁶¹ As will be illustrated later on,⁶² this Article proposes that incumbent LECs will still be obligated to interconnect with competitive LECs and vice versa, and it further proposes that they will not be allowed to charge each other for call termination. A long-distance carrier's ability to route calls to LEC A's subscribers through LEC B will cause LEC A and LEC B to become competitors for termination of calls to LEC A's subscribers. In particular, if LEC A attempts to charge the long-distance carrier supracompetitive termination rates, LEC B will be induced to offer the long-distance carrier a better deal to transit its calls to LEC A's subscribers.⁶³ This will pressure LEC B to cut its termination rates as well.⁶⁴

⁶¹ For examples of transit arrangements in other contexts, *see supra* note 13.

⁶² *Infra* Part IV.

⁶³ LECs should be forbidden from making a commitment to their competing LECs that they will not transit such calls. In fact, it would be unnecessary to draft such a special prohibition. A commitment not to transit such calls should be considered an antitrust offense. It is an overt commitment among competitors not to compete over call termination, which should be seen, in this context, as a violation of Section 1 of the Sherman Act, 15 U.S.C. 1 (1994) (prohibiting agreements that restrain trade).

⁶⁴ As will be demonstrated *infra* section III.C.4, IP telephony is expected, in the foreseeable future, to become a viable alternative to regular telephony. IP telephony providers too should be able to route IP telephony calls made to LEC A's subscribers via LEC B. Under the proposed market-based approach, if an IP telephony provider wishes to directly interconnect with LEC A, LEC A will be free

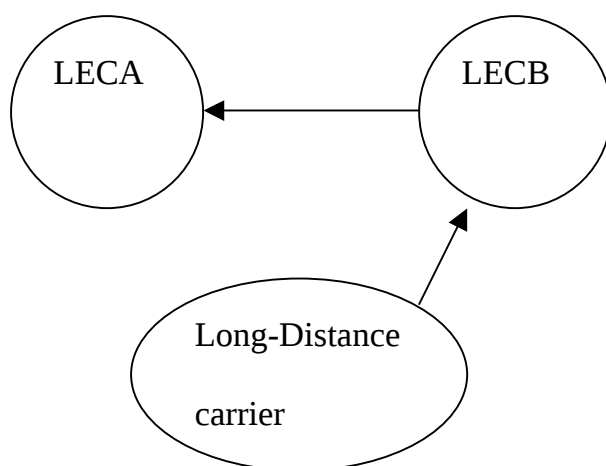


Figure 1: transit of incoming calls

As will be demonstrated below, this market force proves to be extremely effective in constraining termination rates. This is despite the fact that reaching LEC A through LEC B is, in a sense, less efficient than interconnecting directly with LEC A. Nevertheless, the long-distance carrier's credible threat to use such transit induces LEC A to interconnect directly with the long-distance carrier for termination rates equal to LEC B's marginal costs of transit. Let us demonstrate this with a simple example. When the long-distance carrier interconnects directly with LEC A, LEC A incurs the marginal costs per minute of terminating the long-distance calls to LEC A's

to charge the IP telephony provider for access to LEC A's subscribers. Currently, ISPs, as "Enhanced Service Providers," enjoy a regulatory exemption from paying LECs origination and termination charges. See *In re MTS and WATS Market Structure*, CC Docket No. 78-72, 97 FCC 2d 682, 715 (Memorandum Opinion and Order) (1983); Amendments of Part 69 of the Commission's Rules Relating to Enhanced Service Providers, CC Docket 87-215, 3 F.C.C.R. 2631, 2633 (Order) (1988). Under the proposed market-based approach, this exemption would be cancelled. However, the same market force discussed in the text would cause LEC A's termination charges to IP telephony providers to be competitive. For simplicity of exposition, IP telephony providers will be discussed below as ordinary long-distance carriers.

subscribers. I shall call this marginal cost per minute “termination.”⁶⁵ When the long-distance carrier, instead, interconnects with LEC B, which transits to LEC A calls made to LEC A’s subscribers, LEC B incurs the marginal cost per minute of transiting the calls to the point where LECs A and B interconnect. I shall term this marginal cost per minute “transit.” As mentioned above, I propose that LEC A not be allowed to charge LEC B for terminating calls coming from LEC B, regardless of the fact that they first originated from the long-distance carrier. Thus LEC B incurs *only* these marginal costs of transit per minute. As to LEC A, it would have to incur the same marginal costs per minute of terminating these transited calls (equal to “termination”) just as when the long-distance carrier interconnects with LEC A directly.

Suppose now that LEC A attempts to charge the long-distance carrier a supracompetitive price per minute of “termination” + “profit” for direct interconnection. However, LEC B would be induced to offer the long-distance carrier a lower price for transiting these calls (say, “termination” + “profit” – 0.25 cents per minute), under which the long-distance carrier would prefer not to directly interconnect with LEC A. LEC B would be induced to offer this price cut because it could make a profit on granting such transit, as long as it receives a price higher than its marginal costs in granting transit. However, LEC A would then offer an even lower price, since it would rather interconnect with the long-distance carrier directly and receive, say, “termination” + “profit” – 0.50 cents per minute, than receive nothing and still incur a cost of “termination” per minute to terminate these same calls

⁶⁵ “Termination” includes the marginal costs the LEC incurs in transmitting the calls from the point of interconnection to the recipients.

after they were transited by LEC B.⁶⁶ This sort of price cutting will drive termination rates down. At which price will this price war stop? It turns out that it will stop at LEC B's marginal cost of "transit." To see why, suppose LEC A attempts to charge the long-distance carrier a price per minute of "transit" + "profit," which is higher than LEC B's marginal cost of transit. Such a price too is not sustainable. LEC B would be induced to offer a lower price, of, say, "transit" + "profit" – 0.25 cents, and make a profit on such transit. Both LECs would continue price-cutting, until the price equals "transit." LEC B would not go below "transit," because then it would lose from offering transit services (it would incur costs of "transit" per minute and receive less). LEC A would be willing to receive a price of "transit" per minute and interconnect directly with the long-distance carrier, because it knows that if it refuses to do so, LEC B would offer transit services to the long-distance carrier (for the price of "transit" per minute)⁶⁷ and LEC A would still have to bear costs of "termination" per minute (due to these transited calls), while it would receive nothing from the long-distance carrier (that is, LEC A would rather interconnect and receive "transit" minus "termination" per minute than just bear the cost "termination" per minute).

Accordingly, the long-distance carrier is expected to interconnect with LEC A for the modest rate per minute of "transit." Analogous reasoning implies that LEC B would directly interconnect with the long-distance carrier for a per minute rate of no

⁶⁶ LEC A could perhaps recover some revenue from its own subscribers for terminating calls made to them, but it could do so whether or not it interconnected directly with the long-distance carrier. Therefore, the ability to charge its own subscribers for incoming calls should not change LEC A's decision regarding whether to interconnect with the long-distance carrier and how much to charge it.

⁶⁷ More precisely, LEC B would be willing to transit the long-distance carrier's calls for a rate slightly above (but very close to) the marginal costs of transit, in order to make positive profits.

more than LEC A's marginal cost of transit to LEC B. If LEC B attempts to charge a higher rate, the long-distance carrier would rather purchase transit from LEC A, which would route the calls to LEC B for a rate per minute that would be driven as low as LEC A's marginal costs of transit. In such a case, LEC B would receive nothing from either LEC A or the long-distance carrier for these calls, while it would have to bear the costs of terminating these transited calls to its subscribers.

This simple example also helps justify a rule according to which LECs A and B may not charge each other for termination of *each other's* calls (regardless of the fact they may be transited calls). Suppose we were to allow LECs to negotiate positive reciprocal charges that they can charge each other, as is the regime prevailing today,⁶⁸ and as would be possible even under the recent FCC's proposal.⁶⁹ In such a case LECs A and B are induced to negotiate a high, above-cost, reciprocal rate for terminating each other's calls, in order to jeopardize the competitive force of transit and earn more profits, at the expense of long-distance carriers and their consumers. This is because a high reciprocal rate raises an LEC's costs of transiting long-distance calls to the other LEC. Each LEC would have to incur not only its costs of transit, but also the high reciprocal rate it has to pay the other LEC for terminating the call.

To illustrate, let us define the reciprocal rate per minute that LECs A and B negotiate for terminating each other's calls as "reciprocal." LEC A, for example, could credibly charge the long-distance carrier that directly interconnects with it not only "transit" per minute (which is LEC B's marginal cost of routing calls made to

⁶⁸ Described *supra* Part I.

⁶⁹ Recall that the FCC proposes to apply a zero rate for terminating calls only as a default rule. Thus LECs will be allowed, under the FCC's proposal, to negotiate a positive reciprocal rate for terminating each other's calls.

LEC A up to the LECs' point of interconnection) but rather "transit"+"reciprocal" per minute (where "reciprocal" is the negotiated rate LEC B must pay LEC A per minute). These are LEC B's *total* costs involved in such transit. LEC B not only has to route the transited calls to its point of interconnection with LEC A, but also pay LEC A "reciprocal" per minute for terminating these calls. LEC B would not be able to offer the long-distance carrier a better deal than "transit"+"reciprocal" per minute for transiting calls made to LEC A's subscribers, since any lower rate would make LEC B lose on such transit. Similar reasoning implies that LEC B too would be able to charge the long-distance carrier that directly interconnects with it a high rate per minute of "reciprocal" plus LEC A's marginal cost of transit. The higher LECs A and B negotiate "reciprocal" to be, the more they can credibly charge from the long-distance carrier, notwithstanding the competitive force of transit. Imposing a zero reciprocal rate for terminating calls between LECs A and B solves this problem. As shown above, they would be able to charge the long-distance carrier no more than their competitor's marginal costs of transit.⁷⁰

The question of whether the rate "transit" covers all of an LEC's marginal costs of terminating long-distance calls depends on whether these costs (that we labeled "termination") are greater or smaller than "transit." Normally, the marginal costs of transit will be smaller than the marginal costs in terminating long-distance calls. Transit involves routing all calls together through trunks that connect between the LECs. Call termination, on the other hand, involves a similar action of routing incoming calls together through trunks that connect between the point of

⁷⁰ It could be thought that the fear of such a high reciprocal rate might be alleviated when LECs compete with each other with regard to fixed fees they charge, but this proves to be the case only under restrictive assumptions, discussed *infra* section IV.B.3.

interconnection and the appropriate switch located in the LEC's network, but, in addition, it involves using this switch to route each call to its final recipient. Accordingly, the market force explored here is so strong that it induces LECs to settle for a rate smaller than their marginal costs. An LEC is willing to receive a rate smaller than its marginal costs from the long-distance carrier, because if it refuses, it would have to incur the same marginal costs, to terminate the transited calls, without receiving even this modest rate. This would induce the LEC to become more efficient, in order to bring its marginal costs of terminating calls closer to the marginal cost of transit.⁷¹

Note that rates for terminating long-distance calls will be pushed down to the marginal cost of transit regardless of LECs' corresponding market shares. In particular, LEC B, in the above-mentioned example, could be a new LEC with a very small market share and LEC A could be a dominant incumbent LEC. As long as LEC B has the infrastructure capable of transiting long-distance calls made to LEC A's subscribers (namely, trunks connected to LEC A that can carry enough telecom traffic), LEC A will charge the long-distance carrier no more than LEC B's marginal costs of such transit. Hence, even in local markets where the incumbent LEC still enjoys dominance, we needn't wait until the new LEC grows to possess a market share similar to the incumbent in order to deregulate LECs' interconnection with long-distance carriers.

⁷¹ Additionally, the LEC can charge its own subscribers, who also benefit from receiving long-distance calls, for these calls, so that it could break even or even make a modest profit on call termination. If viable competition exists between LECs, we need not fear that these charges will be excessive, since excessive charges would push subscribers to the competing LEC.

What if one of the LECs (say, LEC A) is integrated with a long-distance carrier, and allegedly would like to charge a competing long-distance carrier excessive termination rates, in order to grant its' long-distance affiliate a competitive advantage? This fear too would be alleviated, with no need for regulatory intervention, due to the long-distance carrier's ability to transit calls made to LEC A via LEC B. As in the previous example, LEC A would be forced to charge the long-distance carrier no more than LEC B's costs of transit (a rate equal to what I termed "transit"). If LEC A attempts to charge a price above "transit" ("transit"+"profit"), LEC B would transit the long-distance calls to LEC A for a lower price (say, "transit"+"profit"-10 cents). How would LEC A respond? Economists Ordoover, Salop and Saloner [hereinafter OSS]⁷² analyzed a similar question. If we apply their model to the situation before us, they conclude that LEC A would not want to undercut LEC B, because having to pay LEC B ("transit"+"profit"-10 cents), rather than only "transit" *raises the costs* of the long-distance carrier, in a way that grants LEC A's affiliated long-distance carrier a competitive advantage.

However, OSS's conjecture that LEC A is able to credibly commit not to undercut LEC B was criticized in later literature. Hart & Tirole,⁷³ as well as David Reiffen,⁷⁴ stress that such a commitment on the part of LEC A usually is not credible. In particular, LEC A would be induced to offer the long-distance carrier a small discount, say, a rate of ("transit"+"profit"-15 cents). This would raise LEC A's

⁷² Janusz A. Ordoover, Steven C. Salop & Garth Saloner, *Equilibrium Vertical Foreclosure*, 80 AM. ECON. REV. 127 (1990).

⁷³ Oliver Hart & Jean Tirole, *Vertical Integration and Market Foreclosure*, 1990 BROOKINGS PAPERS: MICROECONOMICS 205.

⁷⁴ David Reiffen, *Equilibrium Vertical Foreclosure: Comment*, 82 AM. ECON. REV. 694 (1992).

revenues, and sacrifice LEC A's affiliated long-distance carrier only slightly, as the competing long-distance carrier's costs are still raised by "profit" – 15 cents. But price-cutting would not stop at that. LEC B would offer to transit the calls to LEC A for ("transit"+"profit"-20 cents). LEC A would be tempted to grant a small discount, say, of another 5 cents, gain all of the business of terminating the unaffiliated long-distance carrier's calls and "sacrifice" its strategy of raising the unaffiliated long-distance carrier's costs by only another 5 cents. This would go on, as Reiffen shows,⁷⁵ until LEC A charges the unaffiliated long-distance carrier the same rate it would have charged but for LEC A's affiliation with a competing long-distance carrier.

Of course, both the literature that claims that LEC A would be able to harm unaffiliated long-distance carriers and the literature that claims otherwise is limited to the assumptions underlying the particular economic models used. The point made here is that the theory according to which LEC A would be able to harm the unaffiliated long-distance carrier is subject to serious criticism. Moreover, harm to nonintegrated competitors by integrated competitors, in markets with only a few firms is a concern properly dealt with by antitrust law and principles.⁷⁶ It does not warrant rate regulation of LECs' interconnection arrangements with long-distance carriers.

⁷⁵ *Id.* at 694.

⁷⁶ See, e.g., Michael H. Riordan & Steven C. Salop, *Evaluating Vertical Mergers: A Post Chicago Approach*, 63 ANTITRUST L.J. 513 (1995); Daniel L. Rubinfeld & Hal J. Singer, *Open Access to Broadband Networks: A Case Study of the AOL/Time Warner Merger*, 16 BERKELEY TECH. L. J. 631 (2001). The main antitrust bulwark against foreclosure is vertical merger policy. If an LEC and a long-distance carrier seek to merge, antitrust authorities, or the FCC, should take into account incentives to harm unaffiliated rivals when assessing the merger. Mergers are often upheld subject to consent decrees in which the integrated firm commits not to discriminate against unaffiliated competitors. See, e.g., *United States v. Tele-Communications*, No. 94-0948, 1994 U.S. Dist. LEXIS 20983 (D.D.C. Aug.

Taking account of the fixed costs⁷⁷ an LEC and a long-distance carrier incur in order to physically interconnect their networks introduces another implication. If these fixed costs are large enough, and the long-distance carrier did not directly interconnect with the LECs yet, a long-distance carrier might prefer directly interconnecting with only one of the LECs (say, the LEC with which physical interconnection is the least costly) and using it to transit long-distance calls made to the other LEC, so as not to duplicate these fixed costs by interconnecting with both LECs. This LEC may be able to charge the long-distance on account of these savings. Normally, such a charge is expected to take the form of a fixed payment (that does not change as a function of the number or length of long-distance calls), as the costs saved are also fixed. Therefore, a profit maximizing long-distance carrier will not pass this fixed charge on to consumers.⁷⁸ Furthermore, LECs are expected to compete over who will be the one interconnecting with the long-distance carrier. Therefore, they are also expected to undercut each other with respect to what they collect from the long-distance carrier on account of the costs of physical interconnection.

19, 1994); *In re Time Warner, Inc.*, 123 F.T.C. 171 (1997); *In re Silicon Graphics Inc.*, No. 951-0064, 1995 F.T.C. LEXIS 159 (July 5, 1995). It would probably be undesirable to approve two competing LECs being vertically integrated with long-distance carriers. In such a case, both might have incentives to refuse interconnection with a third long-distance carrier, despite the fact that this would make them less attractive to their consumers.

⁷⁷ Fixed costs are costs that do not change as a function of the number or length of long-distance calls.

⁷⁸ A profit-maximizing firm supplies an additional unit if the marginal revenue from supplying it exceeds the marginal cost of supplying it. Accordingly, once it incurred its fixed costs, it decides on the quantity it supplies and the price it charges only according to its marginal costs and revenues, regardless of these fixed costs.

The simple market force stemming from long-distance carriers' ability to transit calls made to one LEC via the competing LEC has never been given a chance in practice. Long-distance carriers have always been obligated to interconnect with LECs under the LECs' regulated rates.⁷⁹ Mandatory interconnection under regulated rates, for the most part,⁸⁰ continues until today, and will continue under the FCC's proposed bill and keep regime. Furthermore, as noted, interconnection between competing LECs is governed today not by a mandatory bill and keep regime, as assumed above, but mainly by the reciprocal compensation regime, where LECs negotiate a reciprocal rate per minute they pay each other for terminating each other's calls. As shown above, LECs might negotiate an excessive reciprocal rate, in a way that jeopardizes the power of transit to push long-distance termination rates down. Accordingly, even if long-distance carriers had been free to refuse direct interconnection with one LEC and prefer transit via the competing LEC, the ability to use such transit would not have effectively restrained termination rates.

⁷⁹ See *CLEC Order*, 2001 FCC LEXIS 2336 at *2.

⁸⁰ As noted above, the FCC recently relieved long-distance carriers from interconnecting with new LECs charging rates above a certain threshold. *CLEC Order*, *id.* at *3. This indeed is a small step toward a market-based approach. It is far from the comprehensive market-based approach advocated here because it continues mandatory interconnection when rates are at or below the benchmark prescribed by the FCC. Thus, it continues the tradition of rate regulation (the requirement that the regulator determine the appropriate benchmark) as well as the regulatory mandate for interconnection when the benchmark rates apply. Furthermore, as noted, the FCC invites new LECs that claim their costs to be above the benchmark to present a cost study demonstrating this. *Id.* at *83. Costly regulation will therefore remain intact.

2. Long-distance Carriers as “Origination Bottlenecks”

Even if we assume for the sake of discussion that the long-distance carrier is unable to use one LEC to transit calls made to the competing LEC, an alternative simple market force would nevertheless restrain LECs’ rates of terminating long-distance calls. The FCC justifies its bill and keep proposal by asserting that recipients generally benefit from the calls they receive, just as callers benefit from the calls they make.⁸¹ Thus, according to the FCC, it is just for the terminating LEC to recover its costs of terminating the call from the recipient. However, adopting the FCC’s reasoning according to which recipients benefit from being called just as much as callers benefit from calling, it follows that just as the LEC has an alleged monopoly over termination of a call to the recipient, the long-distance carrier has a monopoly over origination of the caller’s call. After all, callers generally subscribe to only one long-distance carrier at any given time. If, as the FCC asserts, the recipient indeed benefits from being accessible to a caller just as much as the caller benefits from calling the recipient, the LEC needs interconnection with the caller’s long-distance carrier just as much as the long-distance carrier needs interconnection to the LEC.

Therefore, under a market-based approach, where carriers are not obligated to interconnect, and where viable competition exists among LECs, the long-distance carrier has considerable bargaining power *vis a vis* the LEC. This will restrict termination charges, which are part of the terms of interconnection. If LEC A, for example, tries to ask the long-distance carrier for excessive termination charges, the long-distance carrier might decide not to interconnect with LEC A, but rather only

⁸¹ See *Intercarrier Compensation Proposal*, 2001 FCC LEXIS 2339 at *40 (“When a LEC terminates a call originating on the network of another LEC, it provides a benefit to both the originating caller and to its customer, the called party.”)

with LEC B, which competes with LEC A in the local market, and which will ask for competitive termination charges. This will result in a competitive disadvantage for LEC A. Local consumers interested in being accessible to the long-distance carrier's subscribers will tend to shift to LEC B.⁸² To be sure, the loss is mutual: the long-distance carrier prefers to grant its subscribers accessibility to LEC A's subscribers as well. The point made here, however, is that the long-distance carrier and the LEC possess symmetric bargaining power when it comes to their control on access to their subscribers. The long-distance carrier's competitive disadvantage from not granting its subscribers access to LEC A's subscribers is analogous to the competitive disadvantage LEC A will suffer from making its subscribers inaccessible to the long-distance carrier's subscribers.⁸³

Even in the case of a small long-distance carrier, with fewer subscribers than the LEC, interconnection is generally as valuable to the LEC as it is to the long-distance carrier. Although interconnection allows the LEC's subscribers to gain access to fewer people, the LEC has a greater number of subscribers that gain access to new people.

⁸² Note that if the long-distance carrier is able to ask LEC B to transit long-distance calls made to LEC A's subscribers, as discussed *supra* section III.C.1, LEC A's subscribers remain accessible to the long-distance carrier's subscribers even if the long-distance carrier interconnects only with LEC B, and LEC A would not be disadvantaged in the sense mentioned in the text. Still, section III.C.1 shows how LEC A, in such a case, would voluntarily interconnect with the long-distance carrier directly and charge it competitive rates.

⁸³ As the market force stemming from a long-distance carrier's ability to use one LEC to transit calls made to the competing LEC, the market force currently discussed has not been given a real chance in practice, due to long-distance carrier's regulatory obligation to directly interconnect with LECs for regulated rates. See *supra* notes 79-80 and accompanying text.

This point does not apply to local markets that lack viable competition between at least two LECs. If an LEC is a monopoly or enjoys dominance, its customers might have no viable alternative, even if this LEC does not interconnect with a long-distance carrier. This grants the LEC more bargaining power *vis a vis* the long-distance carrier. A similar caveat exists with regard to the FCC's proposed bill and keep proposal: it relies on viable competition among local LECs to bring down termination charges.⁸⁴ Without such competition, dominant LECs, even if unable to collect termination charges from long-distance carriers, could collect excessive termination charges from recipients. Therefore, rate regulation of termination charges recipients are charged (as well as regulation of other rates they are charged) would still be needed.

3. Cellular Telephony as a Competitive Termination Option

Another market force that is expected to bring termination charges down is cellular telephony. Cellular telephony in the U.S. is developing to a degree of penetration and quality that can compete with LECs on terminating long-distance calls.⁸⁵ If the long-distance carrier passes on termination charges stemming from a

⁸⁴ See *Intercarrier Compensation Proposal*, *id.* at *45-6, Degraha, *supra* note 5 at 25-26. (“[the proposed bill and keep regime] eliminates [the problem of LECs possessing monopoly power over call termination] by requiring a carrier to recover its termination costs from its own end-user customers. To the extent that a carrier faces competition from other carriers for end users, it would not have monopoly power over termination, since any attempt to charge above-cost rates is likely to cause it to lose customers to competing carriers.”)

⁸⁵ See *supra* note 21.

call to the long-distance caller,⁸⁶ and these terminating charges are supracompetitive, the caller would be induced to call the recipient's cellular phone.⁸⁷ Competition over call termination is expected to develop between the recipient's cellular providers and their LECs.

To be sure, cellular providers might charge higher termination charges due to their inherent advantage in making their subscribers accessible while on the road. In fact, when the recipient is on the road, the cellular provider does not face competition from the recipient's LEC in terminating the call. If cellular providers do not distinguish between charges for terminating calls when the recipient is on the road and when the recipient is near a wireline phone the caller is familiar with (e.g., at home or at her office), cellular termination rates are allegedly excepted to be higher than LEC termination rates, making cellular termination a poor substitute for wireline termination. However, under current cellular technologies, cellular providers will be able to distinguish between calls the recipient receives on the road and calls she receives at certain destinations where wireline phones known to the caller are typically available.⁸⁸ Given this technological capability, cellular providers will have

⁸⁶ As will be shown *infra* section III.C.5, long-distance carriers may pass on termination charges to the caller notwithstanding their obligation to equalize their rates under the 1996 Act.

⁸⁷ Section III.C.6 *infra* will demonstrate how the market is expected to induce LECs and cellular providers to provide callers with sufficient information regarding termination rates.

⁸⁸ See Hiawatha Bray, *New Systems Let Cellphone Companies Pinpoint Caller's Location*, B. GLOBE January 22, 2001 ("Cellphone companies will soon deploy new systems that will identify a caller's location to within a few hundred feet"); Susan Glairon, *Boulder, Colo.-Based Maker of Software for Wireless Networks Plans Expansion*, DAILY CAMERA, October 12, 2000 (reporting cellular providers offering lower rates for cellular calls from home than from the road); Drew Esson, *Location, Location, Location*, WIRELESS REV., August 31, 1999 ("Location-sensitive rate plans base

an incentive to charge less for call termination when the recipient is at home or at her office than when she is on the road. This is because if cellular termination rates are to be uniform and excessive, and the long-distance caller is to bear them, he may well prefer trying to call the recipient first at home or at the office, and the cellular provider would lose termination revenues to the LEC. On the other hand, if the cellular provider charges competitive termination rates for calls that find the recipient at home or at the office, the cellular provider can snatch termination business from the LEC.⁸⁹ This is while the cellular provider continues enjoying termination premiums on calls the recipient receives on the road, where competing terminators of calls are not available.⁹⁰

tariffs on individual subscriber locations. When the subscriber is in or near his home, for example, you adjust his rates to compete with landline rates. When in a car, at the airport or at a shopping mall, he pays higher rates that reflect the added benefits of mobility. This strategy allows you to offer subscribers preferential rates when users are in a limited number of geographic locations.”)

⁸⁹ Currently, cellular providers do not seem to distinguish between call *termination* rates charged when the recipient is near a wireline phone and those charged when she is on the road. This is while cellular providers do often distinguish between rates the cellular subscriber pays for calls she *makes* when she is near a wireline phone and when she is on the road. The reason seems to be that currently, termination charges paid by long-distance carriers to cellular providers are seldom passed on to the long-distance caller. As section III.C.5 shows, however, such passing-on of termination charges should be enabled. It is consistent with the 1996 Act’s mandate that long-distance carriers equalize their subscribers’ rates. Furthermore, the FCC has recently issued a statement facilitating such passing-on of cellular termination charges to the caller. *See Cellular Calling Party Pays Ruling*, 14 F.C.C.R 10861.

⁹⁰ When the recipient is on the road, the cellular provider probably holds a monopoly over terminating calls to the recipient. However, as the FCC has refrained from intervening in termination charges charged by cellular providers to long-distance carrier’s to date, the FCC may well continue exercising such forbearance. Moreover, in the long run, it might be good policy to enable cellular

One might be concerned with the fact many cellular providers charge their subscribers for calls they receive. It could be alleged that this induces cellular subscribers to switch off their phones, or withhold their cellular number, thus making cellular termination a poor alternative to LEC termination.⁹¹ As noted, however, the FCC recently issued a ruling facilitating a change in cellular providers' practice of charging cellular recipients for calls they receive.⁹² According to the FCC's ruling, cellular providers will be able to charge callers, and not recipients, for cellular termination charges. When cellular penetration and quality reaches a state where cellular termination of calls is a viable substitute for LEC termination, we should expect cellular providers to prefer not to charge cellular recipients for calls they receive. This will induce cellular subscribers to switch on their cellular phones and disclose their cellular numbers. In turn, it will enable cellular providers to snatch termination revenue from the LECs.

4. Broadband Internet as a Competitive Termination Option

Another technology that will probably compete with the LEC and cellular provider for access to recipients is IP telephony via broadband Internet. In the foreseeable future, two notable factors are expected to make IP telephony a viable

providers to collect premiums for such calls, in order to further stimulate cellular penetration, and make cellular a more viable competitor to wireline. See Julian K. Wright, Competition and Termination in Cellular Networks (January 25, 2000) (unpublished manuscript, on file with author) (presenting an economic model showing how above-cost termination charges can raise welfare by increasing cellular penetration).

⁹¹ See *Intercarrier Compensation Proposal*, 2001 FCC LEXIS 2339 at *16-17.

⁹² See *Cellular Calling Party Pays Ruling*, 14 F.C.C.R 10861.

competitor for telephone access to the recipient. First, the quality of an IP telephony call will improve so as to be a viable substitute for a wireline call.⁹³ Second, IP telephony will often be delivered via broadband Internet, due to its enhanced features, which will enable improved quality.⁹⁴ Potentially, firms other than the LECs, such as

⁹³ See Jim Barthold, *Slo-mo Packets*, TELEPHONY, March 26, 2001 (“in the long run, according to industry watchers, packetization is the most economical way to deliver voice, data and, eventually, streaming video services.”); 3 CTI NEWS 8 (2001) (citing industry analysts who forecast that 18 percent of enterprise voice traffic will travel via IP-based networks by the year 2002, 43 percent of all international phone calls will travel over IP networks by 2003, and that voice-over IP quality is quickly becoming equivalent to regular telephony under emerging technologies); Hassan Fattah, *IP Telephony Finds its Voice*, RED HERRING COMMUNICATIONS, December 7, 2000 (according to Yankee Group estimates, IP telephony services reached 1.8 billion minutes of talk in 1999 alone and expected to double annually through 2005. Additionally, according to Gartner Group estimates, IP telephony infrastructure is expected to reach \$19 billion by 2003.); See also Bryan Betts, *Cutting Costs The Web Phone Way*, COMPUTING, October 5, 2000, at 51; *InfoAccel Brings the Ease of Use and Voice Quality of Ordinary Telephones to Internet Telephony*, PR NEWswire, November 8, 1999. In addition to becoming equal in quality to regular telephony, IP telephony will possess certain inherent advantages. These advantages include: the ability to combine data with voice; the ability to control and add telephony and data services remotely through console commands; multiple voice lines at low cost; ‘click to talk’ features; improved video conferencing features; and lower costs of switching among service providers. See John Gleiter, *Profiting from the VoIP Broadband Home*, 26 BUSINESS AND INDUSTRY 114 (2000); Williamson, *supra* note 23.

⁹⁴ See Kate Gerwig, *Don't Write the Obituary for Voice Services Just Yet. It's finding New Life over IP. -- Voice Rises Up*, TELE.COM, November 27, 2000, at <http://www.teledotcom.com/article/TEL20001127S0022>; Gleiter, *id.* (“With-VoIP and home networking technology, cable operators can offer their customers not only additional telephone lines, but a fully integrated package of broadband services that far outstrip telephony options available with traditional circuit-switched solutions. ... Eventually ... the VoIP equipment will perform end-to-end IP

the recipient's cable operator or an Internet backbone, will provide end users with broadband Internet infrastructure.⁹⁵ Accordingly, if the LEC attempts to charge

transport, where the voice packets are carried through to their destination as packets and are never converted to the public phone network.”); Williamson, *supra* note 23. The FCC reported that high-speed lines connecting homes and businesses to the Internet increased by 63% during the second half of the year 2000, to a total of 7.1 million (a yearly rate of growth of 158%). Of the total 7.1 million high-speed lines, 5.2 million were residential and small business subscribers. About 4 million of the 7.1 million high-speed lines provided 200 kbit/s in both directions, meeting the FCC's definition of advanced services. Those advanced services grew at a rate of 118 percent in 2000. *See Federal Communications Commission Releases Data on High-Speed Services for Internet Access*, FCC NEWS (August 9, 2001), at http://www.fcc.gov/Daily_Releases/Daily_Business/2001/db0809/nrcc0133.html. The FCC study further said that at the end of 2000, high-speed services were being offered in all 50 states and the District of Columbia, Puerto Rico, and the Virgin Islands, with subscribers reported in 75 percent of the nation's ZIP codes, compared to 56 percent at the end of 1999. *Id.* Broadband Internet penetration is expected to continue escalating in the future. *See* Grant Buckler, *Studies Forecast Quadrupling Of Broadband By 2005*, NEWSBYTES, June 13, 2001 (“The number of subscribers to broadband Internet access services will top 21 million this year and roughly quadruple to about 84 million by the end of 2005 ... [with] even faster growth in broadband services to multi-tenant buildings.”)

⁹⁵ *See* Betts, *supra* note 93 (predicting that users will typically stick to their traditional phone lines while using IP telephony); Steve Strauss, *The Line On Home Networking -- Phone-Line Technology Offers Mature Path To New Applications*, ELECTRONIC BUYERS NEWS, June 18, 2001 at 32 (“Clearly, the home of the future isn't going to depend on a single network technology. Instead, homes will contain hybrids of interconnected networks ... As a result, other non-phone-line technologies will also find their way into the home.”)

supracompetitive termination charges, and these charges are passed on to the caller,⁹⁶ the caller would be induced to access the recipient via broadband IP telephony.

Even if termination charges are not passed on to the caller, say, due to the current FCC requirement that long-distance carriers average their rates,⁹⁷ long-distance carriers themselves will be able to access recipients via broadband IP telephony, if LECs attempt to charge them supracompetitive termination charges.⁹⁸

Thus competition among three call termination providers – the recipient's LEC, the recipient's cellular provider, and the recipient's broadband IP telephony provider, is expected to drive termination charges down to competitive levels. Even if broadband IP telephony reaches a degree of development so as to replace some subscribers' connection to regular phones, or if broadband IP telephony is provided by the LEC itself, competition between the broadband Internet provider and the cellular provider over termination of calls to the user will remain. Users are expected to continue possessing cellular phones, for mobility, while continuing to possess broadband Internet connection, for speed.⁹⁹

⁹⁶ See *infra* section III.C.5 (showing that even if long-distance carriers' rates are equalized according to the 1996 Act, long-distance carriers may pass on the costs of call termination to the caller).

⁹⁷ See *infra* section III.C.5.

⁹⁸ In fact, several long-distance carriers are currently purchasing considerable stakes in IP telephony providers or building IP telephony infrastructure. See Fattah, *supra* note 93 (reporting that Cable & Wireless and Global Crossing are building IP telephony infrastructure, while AT&T purchased a 39 percent stake of IP telephony provider Net2Phone in August 1999 for \$1.4 billion.)

⁹⁹ See, e.g., David Crowe, *Air Apparent?*, WIRELESS REVIEW, February 1, 2000. Cellular technology is not expected, in the foreseeable future, to provide a viable alternative to broadband Internet provided with non-cellular technologies. See Buckler, *supra* note 94.

Of course, the market forces inherent in IP telephony via broadband Internet and cellular technology are not yet strong; the growth of these technologies is still expressed in terms of future probabilities rather than certainties. Accordingly, unlike the market forces discussed in sections III.C.1-2 above, these technologies alone would not justify an immediate implementation of a market-based approach. They do strengthen the case for a market-based approach, however. They also strengthen the proposition that the FCC's proposed permanent move to more strict rate regulation of termination charges (namely, regulating termination charges down to zero) is unwarranted.

5. A Case for Deaveraging Rates

Under current FCC rules which implement Section 254(g) of the 1996 Act,¹⁰⁰ long-distance carriers must average their rates. Section 254(g) of the 1996 Act, reads:

“Interexchange and interstate services. Within 6 months after the date of enactment of the Telecommunications Act of 1996 [enacted Feb. 8, 1996], the Commission shall adopt rules to require that the rates charged by providers of interexchange telecommunications services to subscribers in rural and high cost areas shall be no higher than the rates charged by each such provider to its subscribers in urban areas. Such rules shall also require that a provider of interstate interexchange telecommunications services shall provide such services to its subscribers in each State at rates no higher than the rates charged to its subscribers in any other State.”

¹⁰⁰ 47 U.S.C. § 254(g) (Supp. III 1997).

The FCC implemented section 254(g) by maintaining its policy prior to the 1996 Act of requiring long-distance carriers to geographically average their rates.¹⁰¹ One of the consequences of the FCC's rate averaging was that charges long-distance carriers pay for terminating long-distance calls were spread out among all the long-distance carriers' subscribers, rather than passed on to the particular long-distance caller causing the termination charge.¹⁰²

The FCC's historic rationale for rate averaging was that:

“Geographic rate averaging redounds to the benefit of rural ratepayers, and customers of high cost local exchange carriers: First, geographic rate averaging ensures that interexchange rates for rural areas, or areas served by high cost companies, will not reflect the disproportionate burdens that may be associated with common line recovery costs in these areas. Thus, geographic rate averaging furthers our goal of providing a universal nationwide telecommunications network. Second, geographic rate averaging ensures that ratepayers share in the benefits of nationwide interexchange competition. If prices are falling due to competition in the corridors carrying the most traffic, prices will also fall for rural Americans.”¹⁰³

¹⁰¹ See *In re Policy and Rules Concerning the Interstate, Interexchange Marketplace Implementation of Section 254(g) of the Communications Act of 1934*, as amended, CC Docket No. 96-61, 11 F.C.C.R 9564 (Report and Order) (1996) [hereinafter *Averaging Order*].

¹⁰² See, e.g., *Intercarrier Compensation Proposal*, 2001 FCC LEXIS 2339 at *41, *131.

¹⁰³ See *Averaging Order*, 11 F.C.C.R at 9567.

However, nothing in the language and intent of Section 254(g), or, for that matter, the FCC's purpose, requires *averaging* of rates.¹⁰⁴ As will be illustrated below, the section can be applied in a manner that enables long-distance carriers to pass on charges for terminating calls to the long-distance caller causing them. There are at least two good reasons long-distance carriers should be able to pass on termination charges to the long-distance caller. First, the party causing the costs of call termination is the long-distance caller asking to terminate that call. Under the FCC's rate averaging, the caller does not bear these costs. She is subsidized by other long-distance subscribers, who did not make this call. This will induce long-distance callers to make more calls than is efficient.

Additionally, making the caller bear costs of terminating the call enables other forms of call termination available to the caller (such as the recipient's cellular phone

¹⁰⁴ The FCC does mention in the *Averaging Order*, 11 F.C.C.R at 9566, that the legislative intent behind section 254(g) was to preserve the FCC's averaging policies ("The legislative history of this section indicates that Congress intended for us to codify our pre-existing policies of rate averaging and rate integration, and to apply these policies to all carriers.") The FCC further asserts that the legislative history "states that new section 254(g) is intended to incorporate the policies of geographic rate averaging and rate integration of interexchange services in order to ensure that subscribers in rural and high cost areas throughout the Nation are able to continue to receive both intrastate and interstate interexchange services at rates no higher than those paid by urban subscribers. ... " (*Averaging Order, id.*) Indeed, it seems that the representatives of the legislator cited by the FCC assumed that the legislative intent of having rural subscribers pay no more than urban subscribers would be implemented by continuing the FCC's pre-existing measures. This, however, is not evidence of *legislative intent* to require the averaging of rates. The legislative intent expressed in these citations (as apposed to representatives' ideas of how this intent would be implemented) is no different from the section's language: *equalization* of rates paid by rural and urban long-distance subscribers, and not necessarily averaging of rates, as will be explained below.

or broadband IP telephony) to place competitive pressures on the rates of terminating the call.¹⁰⁵ Under the FCC's rate averaging policies, even if an LEC charges supracompetitive charges for terminating calls, and even when cellular and broadband Internet access become potentially viable competitors for such call termination, such competition will not function properly. In order for such competition to function properly, the long-distance caller must bear the termination charges caused by the call, so that the caller can switch to a competing access provider if an access provider charges supracompetitive termination rates. Under the FCC's rate averaging, the caller will not enjoy the benefit of using the competing access devices.¹⁰⁶

How, then, can section 254(g) be applied so as to enable long-distance carriers to pass on call termination charges to the caller that caused them? Suppose LEC A's termination charges are half a cent greater than LEC B's termination charges. There is nothing in the language of section 254(g) to prevent the long-distance carrier from passing on this cost difference to all of its subscribers alike, regardless of whether they are urban or rural, and regardless of the state in which they reside. For example, the long-distance carrier could charge an urban customer a cent and a half per minute to call a recipient at LEC A and one cent to call a recipient at LEC B. The very same

¹⁰⁵ See *supra* sections III.C.3-4.

¹⁰⁶ In any case, the market force inherent in the long-distance carrier's ability to use one LEC to transit calls to the other LEC (*supra* section III.C.1) remains intact despite averaging of long-distance rates. Similarly, rate averaging does not hinder the market force inherent in the long-distance carrier being an "origination bottleneck" (*supra* section III.C.2). Both these market forces operate effectively even if long-distance carriers do not pass on charges for call termination to the long-distance caller. They hinge on the long-distance *carrier* bearing these charges. Furthermore, the long-distance carrier itself can choose to terminate calls via the recipients' cellular providers or broadband IP telephony providers. This too does not necessitate deaveraging of rates.

rates would apply to the long-distance carrier's rural customers, or to customers in another state, and section 254(g)'s language and intent would be fulfilled.¹⁰⁷

6. Callers' Information Regarding Termination Rates

Assuming termination charges are passed on by the long-distance carrier to the caller, the market forces involved in cellular or broadband IP telephony access to recipients are particularly significant if the long-distance caller is aware of the terminating carriers' termination rates. Such awareness enables the caller to compare these termination rates and choose the access provider accordingly. The same market forces causing competition over access to the recipient are expected to produce mechanisms that make callers aware of termination rates. If the recipient's cellular provider wishes to steal call termination business away from the LEC, it will make long-distance callers to the recipient's cellular phone aware of its competitive rates.¹⁰⁸

¹⁰⁷ In fact, the FCC itself asserts in the *Averaging Order*, 11 F.C.C.R at 9570 that "[d]ifferent rate structures may satisfy our rule. For instance, we believe that carriers that offer their customers rates based on reasonable differences in duration, time of day, and mileage bands will satisfy their obligations under Section 254(g) to provide geographically averaged rates between subscribers in rural and high-cost areas and subscribers in urban areas." The FCC continues to say that "... We do not believe that our current policy of allowing carriers to offer contract tariffs and Tariff 12 options conflicts with geographic averaging because we require that these offerings be available to similarly situated customers throughout the carrier's service area." *Id.* at 9575.

¹⁰⁸ Under current technologies, terminating networks can do so by using a short announcement of rates when the caller calls the recipient via these networks. See *e.g.*, *Cellular Calling Party Pays Ruling*, 14 F.C.C.R at 10883 (discussing the mechanisms that can be used to inform the caller of the cellular provider's termination rates).

The LEC is expected to “fight back,” and make callers aware of its rates for terminating these calls, as is the broadband IP telephony provider.

Moreover, competition among providers of access to recipients over long-distance callers’ business is potentially even stronger than competition among local LECs. Competition among local LECs is limited by subscribers’ often significant costs of switching networks.¹⁰⁹ On the other hand the costs born by a long-distance caller who wishes to choose an alternative access path to the recipient are miniscule; all the caller has to do is dial a different digit sequence in order to call via the LEC, cellular, or broadband Internet provider at any given time. Furthermore, such choices require no long-term or short-term commitments toward carriers. The caller can decide on the spot which route grants her the best value.

Finally, even assuming termination charges are not passed on to long-distance callers or that callers are unaware of these charges and do not effectively compare between them, long-distance carriers themselves will have appropriate incentives to compare these charges. Under a market-based approach, and since in the foreseeable future cellular or IP telephony will be reasonable substitutes to wireline technology, a long-distance carrier dissatisfied with an LEC’s high termination rates may choose to terminate long-distance calls via the recipients’ cellular or broadband IP telephony providers. The LEC, the cellular provider and the broadband IP telephony provider will be competing not only over long-distance callers but also over long-distance carriers.

¹⁰⁹ Naturally, local networks wish to raise these costs in order to increase consumer “loyalty” and their captive markets. They can do so, for example, by offering subscribers attractive deals or bonuses in exchange for long term commitments.

D. Competitive Pressures on LECs' Rates for Originating Calls

As noted earlier, originating access charges, levied on long-distance carriers by the LEC that the long-distance callers subscribe to, are also subject to rate regulation.¹¹⁰ Under the FCC's bill and keep proposal, originating access rates, like call termination rates, will be regulated down to zero: LECs will not be permitted to charge long-distance carriers for originating the long-distance calls that the long-distance carriers carry toward their destination. Instead, the originating LECs will be expected to collect these charges from their own subscribers. Again, the FCC's bill and keep proposal is a move toward more strict rate regulation (lowering the regulated cap down to zero) coupled with mandatory interconnection. In contrast, this Article proposes to apply a market-based approach to originating access as well as to call termination. Under the proposed market-based approach, originating access rates too will be subject to downward pressures produced by market forces, as demonstrated below.

1. Allowing long-distance carriers to pass originating access charges on to callers

Section 254(g) of the 1996 Act, which was discussed earlier,¹¹¹ stands in the way of simple competitive forces that could have restrained originating access charges. Let us imagine an LEC in one state that charges a long-distance carrier originating access charges of 1 cent per minute and an LEC in another state that charges the long-distance carrier half a cent per minute. The long-distance carrier should have been able to pass these charges on to its consumers. Had this been the

¹¹⁰ *Supra* Part I.

¹¹¹ *Supra* section III.C.5.

case, local competition among LECs would have prevented supracompetitive originating access charges, since customers bearing these costs would have transferred to the LEC that charged less for originating access. Section 254(g), however, requires the long-distance carrier to charge similar rates to subscribers of these two LECs. That is, even if an LEC charges excessive originating access rates, the LEC's subscribers will be receiving incorrect pricing signals, since the long-distance carrier will be barred from passing on these excessive originating access rates to the caller.

Therefore, in order to strengthen market forces that could cause originating access rates to be competitive under a market-based approach, section 254(g)'s requirement of rate equalization should be eliminated, or at least amended, to allow long-distance carriers to pass originating access rates on to callers. If subscribers in particular rural and high cost areas need to be protected from rates that exceed a certain threshold, explicit transfer payments, funded by explicit universal service funds, could be granted to those subscribers.¹¹²

It should be noted that, with originating access, long-distance carriers do not possess the same bargaining power *vis a vis* the LEC as they could possess with regard to termination of long-distance calls. In the case of call termination, as

¹¹² Moreover, it has been recently shown that the cost of telecommunication services in rural or so called "high cost" areas is not in fact that high. See Maria E. Maher, *Access Costs and Entry in the Local Telecommunications Network: A Case for De-averaged Rates*, 17 INT'L J. INDUST. ORG. 596 (1999). Introduction of new telecom technologies, such as IP telephony, are further expected to bring these costs down. This implies that competition among LECs and among long-distance carriers in rural areas may well suffice to bring rates in these areas to reasonably low levels.

noted,¹¹³ in order to be attractive and not suffer a competitive disadvantage, the terminating LEC needs to provide its subscribers with interconnection to the long-distance carrier's customers. On the other hand, the originating LEC does not need that badly to strike a contract with every long-distance carrier. Its subscribers would not necessarily enjoy less interconnection and ubiquity if one long-distance carrier, rather than the other, were to serve them.¹¹⁴

2. Competitive transit of outgoing long-distance calls

Even if this Article's proposal to eliminate long-distance rate equalization under section 254(g) is not adopted, there is an alternative, and extremely effective, market force that would place downward pressure on originating access rates. A long-distance carrier should be able to interconnect with LEC B and originate long-distance calls made by LEC A's subscribers, who will call the long-distance carrier at a location in LEC B's network, as illustrated in Figure 2 below. Such a call would be subject to the local mandatory interconnection regime¹¹⁵. Thus, if LEC A attempts to charge the long-distance carrier supracompetitive originating access rates, LEC B

¹¹³ *Supra* section III.C.2.

¹¹⁴ At the extreme, an LEC integrated with a long-distance carrier would have an incentive to grant originating access to its subscribers only through its affiliated long-distance carrier, possibly offering its subscribers the same degree of ubiquity as competing long-distance carriers would.

¹¹⁵ *See infra* Part IV. LEC A should not be allowed to refuse to enable such local calls. Such refusal should properly be seen as an infringement of the mandatory local interconnection requirement. Furthermore, LEC B should not be allowed to commit to not allowing long-distance carriers to do this. As noted earlier, such commitments should be considered antitrust conspiracies, in violation of section 1 of the Sherman Act, 15 U.S.C. 1 (1994).

would be induced to charge the long-distance carrier competitive rates for originating the long-distance calls made by LEC A's subscribers.¹¹⁶

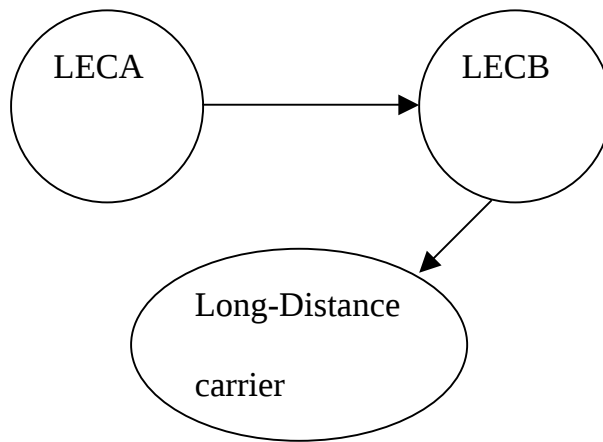


Figure 2: transit of outgoing calls

To illustrate how effective this simple market mechanism is, suppose LEC A incurs marginal costs of “origination” per minute in order to route the call from the caller to LEC A’s point of interconnection with the long-distance carrier. Suppose further that interconnection between LECs is governed by a mandatory bill and keep regime. That is, LECs are not allowed to charge each other for terminating each other’s calls, regardless of whether the calls will be transited further to a long-distance carrier. Suppose now that LEC A charges the long-distance carrier a supracompetitive originating access rate of, say, “origination” + “profit” per minute for originating long-distance calls. LEC B would then be induced to offer the long-distance carrier to

¹¹⁶ A similar mechanism can be used by IP telephony providers that wish to originate long-distance IP telephony calls made by LEC A’s subscribers. If LEC A’s originating access rates are excessive, the IP telephony provider can interconnect with LEC B instead, and LEC B would transit calls originated by LEC A’s subscribers to the IP telephony provider, which would handle the long-distance IP telephony call.

interconnect with LEC B so that LEC B can transit, for a lower per minute rate, long-distance calls made by callers at LEC A, who subscribe to the long-distance carrier. For example, LEC B could offer to do this for “origination” + “profit” – 0.25 cents per minute. LEC B makes a profit from such a deal as long as this rate exceeds LEC B’s marginal costs of transiting the calls (labeled by “transit”). But then LEC A would want to win back the long-distance carrier’s originating access business and offer to interconnect with the long-distance carrier directly and originate the long-distance calls for, say, “origination” + “profit” – 0.50 cents per minute.

Such price competition would go on until the long-distance carrier finally directly interconnects with LEC A for an origination access rate as low as LEC B’s marginal costs of transit (“transit”). LEC A would not be able to charge a higher rate, because then LEC B would steal the long-distance carrier’s originating access business by charging a lower rate and still making a profit. Whether the long-distance carrier directly interconnects with LEC A, or rather uses LEC B’s transit services, LEC A would have to bear the costs of “origination” per minute for all long-distance calls that the long-distance carrier’s subscribers make from LEC A. LEC A would rather directly interconnect with the long-distance carrier and receive from it a rate of “transit” than lose the long-distance carrier’s originating access business to LEC B and receive nothing from the long-distance carrier.¹¹⁷

Analogous reasoning implies that LEC B will directly interconnect with the long-distance carrier and originate its subscriber’s calls for a per minute rate as low as

¹¹⁷ Note that LEC A could additionally charge its own subscribers for originating their long-distance calls, but this capability exists also when the long-distance carrier does not directly interconnect with LEC A. LEC A could nevertheless charge its subscribers for making calls to LEC B that are to be transited to the long-distance carrier.

LEC A's marginal costs of transit. Any higher rate LEC B would attempt to charge would be undercut by LEC A, which would make a profit from a lower rate to transit long-distance calls made by LEC B's subscribers.

Note that if LEC A's marginal costs of "origination" are greater than LEC B's marginal costs of "transit," LEC A will not cover its marginal costs from the long-distance carrier's payments. LEC A could cover the difference by charging its own subscribers for long-distance calls they make.¹¹⁸ Additionally, the caller would probably need to dial a longer sequence of digits when making a long-distance call transited by LEC B. This might grant LEC A a modest competitive advantage and enable it to charge a somewhat higher per minute rate for direct interconnection to originate long-distance calls.

The competitive force of transit discussed here would be effective even if one of the LECs were to possess a small market share, as new LECs often do. It suffices if the small LEC has the infrastructure needed to transit long-distance calls made by the competing LEC's subscribers. Therefore, we need not wait until new LECs expand to have a significant share of the market in order to rely on the market force currently discussed. Originating access rates will nevertheless be restrained to competitive levels.¹¹⁹

¹¹⁸ Naturally, such charges would be constrained by competition between the LECs.

¹¹⁹ Even if LEC A were to be integrated with a long-distance carrier, for reasons similar to the ones already discussed *supra* notes 72-76 and accompanying text, there would be no particular concern that LEC A would be induced to charge unaffiliated long-distance carriers supracompetitive originating access rates. In any case, as noted earlier, such concerns could be dealt with using standard antitrust intervention, with no need for rate regulation. See *supra* note 76 and accompanying text.

We have assumed that interconnection between the LECs is governed by a rule that does not allow them to charge each other for terminating each other's calls. Interestingly, if we assume LECs *do* pay each other for terminating each other's calls, say, a positive reciprocal rate per minute equal to "reciprocal," LECs would be even more eager to cut originating access rates. If a long-distance carrier chooses to interconnect with LEC B to transit long-distance calls made by LEC A's subscribers, LEC A would have to bear not only its marginal costs of "origination" per minute but it would also have to pay LEC B the call termination rate of "reciprocal" per minute. Conversely, LEC B would bear marginal costs of "transit" per minute in transiting these calls but would collect additional revenue of "reciprocal" per minute from LEC A.

Thus, LEC A would be willing to directly interconnect with the long-distance carrier and originate long-distance calls for a rate as low as "transit"- "reciprocal" per minute. For any higher rate (say, "transit"- "reciprocal"+0.50 cents per minute), LEC B would be induced to offer a lower rate for transiting the long-distance calls and still make a profit. For example, LEC B would offer such transit for "transit"- "reciprocal"+0.25 cents per minute. It would make a profit of 0.25 cents per minute on such calls. This price covers its marginal costs of "transit" and such calls generate revenue of "reciprocal" per minute, paid by LEC A pursuant to the interconnection arrangement between the LECs. LEC A, for its part, would rather directly interconnect with the long-distance carrier for an originating access rate of "transit"- "reciprocal" per minute (and thus receive "transit"- "reciprocal" and bear costs of "origination" per minute). Otherwise, the long-distance carrier would ask LEC B to transit these calls, and LEC A would bear costs equal to "reciprocal" per minute (that

it would have to pay LEC B for such calls) plus costs of “origination” per minute, without receiving anything from the long-distance carrier.¹²⁰

As will be demonstrated *infra* section IV.B., however, it would be bad policy to allow LECs to charge each other for terminating each other’s calls. One of the reasons is related to the discussion above. As we shall see,¹²¹ if LECs charge each other a reciprocal rate for terminating each other’s calls, new LECs might possess distorted incentives to attract mainly net receivers of calls, and incumbent LECs might play along in order keep new LECs focused on that niche. A long-distance carrier asking an LEC to transit long-distance calls made by the other LEC’s subscribers is an example of a net receiver of calls. Such a scenario would produce an additional target for the new LEC’s distorted efforts.

IV. LEC-LEC INTERCONNECTION

As noted, the FCC proposed to adopt a default bill and keep approach to interconnection between local carriers as well as to interconnection between long-distance carriers and LECs. This Article apposed the FCC’s bill and keep proposal insomuch as it deals with long-distance carrier-LEC interconnection and instead put forward a market-based approach to such interconnection. With regard to local interconnection this Article proposes to adopt a bill and keep approach to local interconnection, but, unlike the FCC, claims that bill and keep should be mandatory

¹²⁰ Thus LEC A earns more under direct interconnection (“transit”-“reciprocal”-“origination”) than without it (zero-“reciprocal”-“origination”).

If there is a considerable fixed cost of physical interconnection between the long-distance carrier and LECs, and the long-distance carrier is not yet interconnected, additional implications, analogous to the ones discussed *supra* notes 77-78 and accompanying text, might arise.

¹²¹ *Infra* section IV.B.1.

rather than merely a default rule. To be sure, this is regulation, and it possesses disadvantages of regulation similar, for the most part, to those discussed *supra* section III.A.¹²² However, unlike regulation of interconnection between LECs and long-distance carriers, which I have shown is unnecessary, due to market forces, we shall see below why regulation of interconnection between LECs is necessary.

A. Why Interconnection between LECs Should be Mandatory

One of the reasons mandatory interconnection between LECs is still warranted is that incumbent LECs have a strong incentive to deny interconnection, or offer inferior interconnection, to new entrants into the local market in order to deter entry.¹²³ The new LEC is a direct potential competitor to the incumbent LEC, threatening to erode the incumbent's market share, profitability and dominance in the future. When the incumbent refuses interconnection with the new LEC or degrades its

¹²² For example, the FCC will need to unambiguously determine the appropriate "meeting point" of the two interconnecting LECs, so that the originating LEC will bear the costs of transporting calls up to that point, and the terminating LEC will bear the costs of terminating the call from this point. Otherwise, disputes and manipulation would arise regarding the nature of this point. See Degraha, *supra* note 5, at 30-31.

¹²³ This incentive incumbents possess to deter entry has been extensively discussed in the economics literature. See, e.g., Michael Carter & Julian Wright, Asymmetric Network Interconnection 4, 24 (2001) (unpublished manuscript, on file with author) [hereinafter Carter & Wright, *Asymmetric Interconnection*]; Michael Carter & Julian Wright, *Bargaining over Interconnection: The Clear-Telecom Dispute*, 75 ECON. REC. 230, 249 (1999) [hereinafter Carter & Wright, *The Clear Telecom Dispute*]; Jean-Jacques Laffont, Patrick Rey & Jean Tirole, *Network Competition: I. Overview and Nondiscriminatory Pricing*, 29 RAND J. ECON. 1, 20-21 (1998) [hereinafter *LRT I*]; Jean-Jacques Laffont, Patrick Rey & Jean Tirole, *Network Competition: II. Price Discrimination*, 29 RAND J. ECON. 38, 54 (1998) [hereinafter *LRT II*].

quality, the incumbent's subscribers will hesitate to shift to the new entrant, because they would then possibly lose access to the incumbent's large customer base. Staying with the incumbent, on the other hand, promises access to this customer base, even without interconnection to the new entrant.¹²⁴ Furthermore, the new entrant typically has no other large LEC to interconnect to. Interconnection with the sole incumbent is essential to successful entry. Even if the new LEC did dare to enter, as long as it is substantially smaller in market share, the above-mentioned network effect continues to exist, and the incumbent LEC might be induced to refuse or degrade interconnection, in order to induce subscribers to stick with the incumbent, drive the new LEC out of the market, or keep the new LEC as an insignificant competitor.¹²⁵

Of course, the need for mandatory interconnection also necessitates regulatory constraint on charges for terminating calls. Otherwise, the incumbent could effectively "refuse" interconnection, or considerably raise the costs of entry, by unilaterally setting very high termination charges, while offering to pay the entrant low termination charges for calls flowing from the incumbent to the entrant.¹²⁶ The current reciprocal compensation regime is a form of regulatory constraint on such

¹²⁴ This is a classic case of a "network effect," i.e., where subscribing to a network is more valuable the more subscribers that network has. A well-known result in industries that possess network effects is their tendency to tip into monopoly. See, e.g., Degaba, *supra* note 5 at 28; Nicholas Economides, *The Economics of Networks*, 14 INT'L J. INDUST. ORG. 673 (1996); Michael L. Katz and Carl Shapiro, *Systems Competition and Network Effects*, 8 J. ECON. PERSPECTIVES 93 (1994); Rubinfeld & Singer, *supra* note 76 at 639.

¹²⁵ In New Zealand, for instance, a market-based approach to *local* interconnection did not go smoothly. See Carter & Wright, *The Clear Telecom Dispute*, *supra* note 123; Cremer, Rey & Tirole, *supra* note 13 at note 12.

¹²⁶ See, e.g., Carter & Wright, *Asymmetric Interconnection*, *supra* note 123 at 12.

behavior. If the incumbent wishes to insist on a high termination charge, it would have to pay the same rate to the entrant reciprocally. This solution, however, has its own problems, as will be illustrated below.

There is an additional reason mandatory interconnection is required. Suppose the rule is that LECs do not have to interconnect with each other. Under a market-based approach to interconnection with long-distance carriers, both LECs might prefer not to interconnect, in order to credibly commit not to transit long-distance calls originating at the other LEC. As shown *supra* section III.D.2, an LEC's ability to transit long-distance calls made by the competing LEC's subscribers drives rates LECs charge long-distance carriers for originating long-distance calls down to the competing LEC's marginal costs of transit minus the reciprocal termination rate. Accordingly, LECs might both prefer not to interconnect.¹²⁷ If they are not interconnected, they avoid the competitive pressure caused by the ability to transit, since without local interconnection, transit is not an option. This will enable LECs to charge long-distance carriers supracompetitive originating access rates,¹²⁸ which

¹²⁷ Similar reasoning does not hold for the case of LECs' charges for *terminating* long-distance calls. If LECs do not interconnect they avoid the market force inherent in an LEC's ability to transit long-distance calls made to the competing LEC, discussed *supra* section III.C.1. However, as shown *supra* section III.C.2, the market force stemming from the long-distance carrier's bargaining power vis a vis the LEC is expected to restrain the rates LECs' charge for call termination.

¹²⁸ This would not be the case if the 1996 Act's prohibition that long-distance carriers pass originating access charges on to callers is eliminated, as the Article advocates *supra* section III.D.1. In such a case even without the ability to transit, originating access rates are expected to be competitive.

could more than offset the benefits LECs expect from interconnecting with each other.¹²⁹

B. Why a Zero Reciprocal Termination Rate Should Be Mandatory

This section demonstrates why the FCC's proposal, according to which LECs could negotiate a reciprocal rate for terminating each other's calls, is unwarranted.

1. The reciprocal rate as a self-enforcing market division

One of the FCC's primary motivations for proposing a bill and keep default approach to local interconnection is the trend of new LECs to attract mainly ISPs so as to terminate more local calls than they originate. ISPs are net receivers of calls. They exclusively receive calls – from ISP subscribers using their PCs' dial-in modems. Many new LECs make efforts at attracting ISPs as their subscribers and less efforts at attracting regular subscribers. Such a practice enables the new LECs to use the reciprocal compensation regime¹³⁰ in order to collect handsome revenues from incumbent LECs due to the large number of lengthily calls the incumbents'

¹²⁹ If LECs do not interconnect with each other, subscription would be less valuable to subscribers, and they might be willing to pay lower subscription fees. In addition, if both LECs face competition, say, from cellular networks, they might lose subscribers to the cellular networks, who would offer them more ubiquity.

¹³⁰ In most states, ISP-bound calls have been under the regular reciprocal compensation regime for local interconnection. See *ISP-bound Traffic Order*, 2001 FCC LEXIS 2340 at *89. For the background of the regulatory debate and litigation over the ISP-bound calls issue see also *In re Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket No. 96-98, 14 F.C.C.R 3689 (declaratory ruling) (1999); *Bell Atl. Tel. Cos. v. FCC*, 206 F.3d 1 (D.C. Cir. 2000).

subscribers make to their ISPs subscribing to the new LEC.¹³¹ In such cases, new LECs would be expected to try to push for a high reciprocal rate that LECs would pay each other for terminating each other's calls. The higher the reciprocal rate, the more revenues new LECs would collect from calls flowing from the incumbent to the new LEC.¹³²

The proposed market-based approach to interconnection with long-distance carriers generates yet another group of net receivers of calls that new LECs might have a similar incentive to focus upon. As shown *supra* section III.D.2, one LEC's ability to transit long-distance calls made by subscribers of the competing LEC constitutes an important market force restraining originating access rates LECs charge long-distance carriers. However, a long-distance carrier that asks one LEC to transit long-distance calls coming from the other LEC is an additional example of a net receiver of calls.

A new LEC's incentives in attracting mainly net receivers of calls distort its motivations for efficient entry. After all, the 1996 Act envisioned entry of true

¹³¹ As the FCC states in the *ISP-bound Traffic Order*, 2001 FCC LEXIS 2340 at *93-94: "The four largest [incumbent LECs] indicate that CLECs, on average, terminate eighteen times more traffic than they originate, resulting in annual CLEC reciprocal compensation billings of approximately two billion dollars, ninety percent of which is for ISP-bound traffic. ... Verizon states that it sends CLECs, on average, twenty-one times more traffic than it receives, and some CLECs receive more than forty times more traffic than they originate."

¹³² Incumbent LECs cannot cope with this threat by themselves focusing mainly on net receivers of calls, since incumbent LECs, unlike new LECs, are under universal service obligations that require them to serve many residential consumers. New LECs, on the other hand, have more freedom in choosing their subscribers. See Julian Wright, *The ISP Reciprocal Compensation Problem* 6 (February 13, 2001) (unpublished manuscript, on file with author).

competitors to the incumbent LECs: networks which will serve regular residential and business subscribers that originate and receive calls and not only net receivers of calls. Furthermore, a markup on call termination would cause inefficient pricing of the services given by these net receivers of calls, such as ISP services. ISP dial-in, for example, would be subsidized using the markup earned from the incumbent's termination payments. Therefore, dial-in ISP users would not bear the true costs of using the telecom networks and the Internet. Inefficiently high congestion of the telecom networks and the Internet would result.¹³³ Similarly, in the case of new LECs transiting long-distance calls made by the incumbent LEC's subscribers, these long-distance calls are expected to be inefficiently subsidized by the markups on termination charges the new LEC expects to collect from the incumbent LEC. Long-distance callers would not bear the true costs of their call, and would make too many and too lengthily calls, unless the incumbent LEC is permitted to pass the termination charges it bears on to the caller.

New LECs' distorted incentives to attract mainly net receivers of calls are eliminated if LECs are not allowed to charge each other for termination of each other's calls. This is because under such a regime, new LECs would not expect to collect revenue from the incumbent LEC from calls received from the incumbent

¹³³ See Wright, *id.*, at 12-13. If the incumbent would be permitted to charge its subscribers different prices depending on whether their calls were terminated at the competing LEC, the incumbent could pass the termination charges it pays the new LEC on to the dial-in callers. Such a practice, if permitted, would tend to alleviate the distortion of ISP overuse. To be sure, healthy development of the Internet is important, and it could be claimed that ISP services need to be subsidized. However, if Internet users do not incur the true costs of their use of the Internet, congestion occurs and other Internet users are harmed.

LEC. The FCC hopes to solve the problem by imposing a default bill and keep regime on interconnection between LECs.¹³⁴ However, a mere *default rule* will not suffice. The FCC assumes that when new LECs will try to push the negotiated reciprocal termination rate to a high level, incumbent LECs would disagree and revert to the default termination rate of zero. What the FCC overlooks is that incumbent LECs might agree to supracompetitive reciprocal termination rates for their own reasons, notwithstanding the costs they would have to bear when more calls flow from the incumbent to the new LEC than the other way around.

In particular, incumbent LECs might have a strategic long-run incentive of keeping the reciprocal termination rate at a relatively high level, in order to induce the new LEC to focus on the niche of subscribers who are net receivers of calls, leaving the rest of the market to the incumbent. This is a distortion of the “ISP-bound calls problem” unidentified so far by regulators and the literature. Incumbents themselves, whom the regulators¹³⁵ and the literature¹³⁶ consistently claim are harmed by the trend of new LECs attracting mainly ISPs, may well be interested in this trend: it helps the incumbent secure a captive market that includes all subscribers except for ISPs and other net receivers of calls. This captive market will not enjoy competitive entry into

¹³⁴ *Intercarrier Compensation Proposal*, 2001 FCC LEXIS 2339 at *12-13. Currently, the FCC has already ordered a gradual transition to a bill and keep approach when it comes to ISP-bound calls. See *ISP-bound Traffic Order*, 2001 FCC LEXIS 2340 at *11, 13. If the FCC’s bill and keep proposal is adopted, it would presumably replace the order that is particular to ISP-bound calls.

¹³⁵ See *ISP-bound Traffic Order*, 2001 FCC LEXIS 2340 at *8-9; *Intercarrier Compensation Proposal*, 2001 FCC LEXIS 2339 at *12-13.

¹³⁶ See, e.g., Wright, *supra* note 132 at 14-15.

the local market and will effectively continue to be subject to a regulated monopoly.¹³⁷

In this sense, negotiating a reciprocal rate for call termination resembles an arrangement for division of the market, according to which the new LEC commits to serving mainly net receivers of calls and to not competing with the incumbent LEC over other kinds of subscribers. The incumbent, in return, pays the new LEC, in the form of the above-cost negotiated termination rate. Moreover, this tacit arrangement is self-enforcing. If the new LEC starts competing with the incumbent over regular subscribers, who also make calls, more calls would flow from the new LEC to the incumbent, for which the new LEC would have to pay the incumbent the negotiated above-cost reciprocal termination rate. The more the new LEC successfully competes with the incumbent over regular subscribers, the less net revenue the new LEC makes from the reciprocal termination arrangement. Conversely, the more regular subscribers the new LEC attracts the less the incumbent will lose from the reciprocal arrangement.

An arrangement between an incumbent and a new entrant into the incumbent's market, according to which the incumbent pays a bribe to the entrant as long as the entrant serves only a certain segment, leaving the rest of the market to the incumbent, is obviously an illegal conspiracy in violation of Sherman Act Section 1.¹³⁸ But we have just seen that allowing an incumbent LEC and a new LEC to negotiate a reciprocal termination rate -- which is perfectly legal under the current regime, and

¹³⁷ Presumably, costly state and FCC regulation of the incumbent's rates and practices will continue given that the incumbent continues to enjoy such dominance.

¹³⁸ 15 U.S.C. 1 (1994).

will continue to be legal under the FCC's recent proposal -- achieves precisely the same result.

2. LECs might negotiate excessive reciprocal rates to raise retail prices

There are a few results in the economics literature that raise the concern that, if LECs are left to negotiate their reciprocal rate for terminating each other's calls, they will use this rate in order to raise the retail prices they charge their own consumers. First, if LECs charge their subscribers only a per minute rate (without a fixed fee), Laffont Rey and Tirole,¹³⁹ as well as Armstrong,¹⁴⁰ show that LECs will be induced to negotiate a high reciprocal rate, in order to deter each other from cutting retail prices. LEC A, for example, would hesitate to cut its retail prices in order to expand its market share because, if it does so, its subscribers would make more (and longer) calls to people at LEC B, and LEC A would have to pay LEC B the high termination rate for these calls. The same goes for LEC B. It would similarly hesitate to cut its retail prices. This makes both LECs better off, because their profits rise when they are less eager to price-cut.

The obvious question arising now is whether this result applies similarly in the case where LECs charge their subscribers not only per minute rates, but also fixed monthly fees, or other sorts of pricing packages that have fixed components in them. It might be thought, at first blush, that the fear of an excessive negotiated reciprocal rate might disappear when LECs charge fixed fees as well. This is because what drives the fear of an excessive negotiated reciprocal rate is that LECs use the per-minute rate to steal market shares from each other. When LECs charge only per

¹³⁹ See LRT I, *supra* note 123 at 10-11.

¹⁴⁰ Michael Armstrong, *Network Interconnection in Telecommunications*, 108 ECON. J. 545 (1998).

minute rates, they are deterred from cutting their rates to steal subscribers, because this makes their subscribers call more, thereby raising the LECs' termination payments. However, LECs could steal subscribers from each other by lowering their fixed fees. This would not involve additional termination costs, because lower fixed fees, unlike lower per minute rates, do not induce subscribers to call more. Therefore, so the conjecture goes, LECs might as well negotiate a cost-based reciprocal termination rate, for an above-cost rate will not raise their profits.

Indeed, a few recent economics papers have shown this to be the case, but under quite restrictive assumptions, which the literature purports to be critical to the results.¹⁴¹ These restrictive assumptions include the assumption that networks have identical marginal costs of originating and terminating calls;¹⁴² the assumption that both LECs would have equal market shares if they charge the same prices;¹⁴³ the assumption that more "heavy" users (such as businesses) see the new LEC as a substitute for the incumbent LEC just as "light" users (such as households) see the

¹⁴¹ See LRT I, *supra* note 123 at 21-22; LRT II, *supra* note 123, at 52-53 (both showing such a result with consumers who are identical to each other); Wouter Dessein, Network Competition with Heterogeneous Calling Patterns (1999) (unpublished manuscript, on file with author) (showing such a result in the case of two types of consumers: heavy users and light users); Jong-Hee Hahn, Network Competition and Interconnection with Heterogeneous Subscribers (January 2000) (unpublished manuscript, on file with author) (showing similar results with consumers of various types).

¹⁴² This assumption will not hold, for example, if the new LEC utilizes a different technology or kind of facility than the incumbent LEC, or if they handle different volumes of calls.

¹⁴³ If there is consumer loyalty to the incumbent LEC, for example, or high costs for consumers of switching to the new LEC, this assumption will not hold. Carter & Wright, *Asymmetric Interconnection*, *supra* note 123, show, for example, that when the incumbent LEC enjoys such customer loyalty, the new LEC might want to push for an excessive reciprocal rate.

LECs as substitutes;¹⁴⁴ the assumption that all users are willing to be connected to a network, for any price the LECs would like to charge;¹⁴⁵ the assumption that recipients do not pay for calls they receive and also have no utility from receiving calls.¹⁴⁶ Finally, all of the economics models exploring this issue stress that the models “do not work” (in economic terms, there is no equilibrium) where the reciprocal termination rate is sufficiently above marginal costs, or where the LECs are close enough substitutes to one another.¹⁴⁷ Accordingly, the economics literature fails, to date, to supply an answer to what happens when LECs *do* negotiate an excessive termination rate. This is precisely the underlying policy concern. Also, LECs *are* often close substitutes to one another. After all, telecom service may be seen as quite fungible, and switching costs between networks, in many cases, might be small.

Accordingly, the economics literature does not yet have a clear answer to the question of whether the fear of excessive negotiated reciprocal rates goes away in real

¹⁴⁴ This assumption will not hold if, for example, households tend more to stick with their old telephone company out of inertia, or lack of information or sophistication, while businesses switch between LECs more easily, being more sophisticated and informed, and having more to lose from sticking with their old telephone company. Wouter Dessein, *Network Competition in Nonlinear Pricing*, (April 1999) (unpublished manuscript, on file with author) shows, for example, that when the assumption does not hold, LECs may negotiate either excessive, or below cost, reciprocal termination rates, depending on the characteristics of heavy and light users.

¹⁴⁵ Steve Poletti & Julian Wright, *Network Interconnection with Participation Constraints* (September 2000) (unpublished manuscript, on file with author) indeed show that when this assumption does not hold, LECs might negotiate an excessive reciprocal rate.

¹⁴⁶ As the FCC indeed acknowledges in its recent bill and keep proposal, recipients *do* benefit from calls they receive. Furthermore, the FCC’s premise is that LECs will be able to charge recipients for calls they receive. See *Inter-carrier Compensation Proposal*, 2001 FCC LEXIS 2339 at *40.

¹⁴⁷ See, e.g., LRT I, *supra* note 123 at 21-22; LRT II, *supra* note 123 at 52-53.

life settings. A rule that does not allow LECs to charge each other for termination of calls has the virtue of eliminating the reciprocal rate as a strategic device in the hands of the LECs. It sees termination of calls between LECs as a service each LEC grants its own subscribers. The economics literature bases its analysis on the notion that call termination is a service the recipient's LEC grants the originating LEC and the caller. But recipients *do* benefit from calls they receive, contrary to the economics literature's assumptions. Accordingly, LECs need not charge each other for termination of calls that flow between them. The LEC originating the call will charge the caller for call origination and the LEC terminating the call will charge the recipient for call termination.¹⁴⁸

We do not know, at this stage of economic study, if this solution is the first-best regulatory solution that would maximize total welfare, but at least we know that LECs will not be able to use the reciprocal rate strategically to harm consumers and reduce total welfare, as the economics literature predicts would happen, in certain

¹⁴⁸ This raises the issue of unwanted calls. Since generally the caller initiates the call, it would be problematic to charge anything from the recipient for a call she did not want (such as a call from a telemarketer during dinner, etc.). Several solutions to this problem exist, however. First, the recipient can quickly hang up on unwanted calls and thus minimize the termination charges involved. Second, LECs could be required to offer a one minute grace period, in which recipients do not have to pay for incoming calls. Such grace periods have been voluntarily adopted by several cellular providers, which charged recipients for incoming calls. See, Degraha, *supra* note 5 at 33. Third, many recipients are expected, in the foreseeable future, to possess caller ID technology, which will enable them to screen many of the unwanted calls. *Id.* at 33-34. One type of unwanted call that it would be difficult to screen is an unwanted fax message. However, since fax messages are generally expected to run from each LEC to the other, LECs could be allowed to negotiate a separate compensation arrangement, such as reciprocal compensation, for fax messages.

cases.¹⁴⁹ Furthermore, prohibiting LECs from negotiating termination rates has the clear virtue of eliminating the above-mentioned problem of new LECs attracting mainly net receivers of calls, and incumbent LECs acquiescing in order to enshrine their dominance.

3. *Raising the reciprocal rate to raise long-distance termination charges*

As shown *supra* section III.C.1, if we allow LECs to negotiate a reciprocal rate for terminating each other's calls they might be induced to negotiate an excessive rate, in order to boost the rates they charge long-distance carriers for termination of long-distance calls. This adds a rationale for a rule prohibiting LECs from charging each other for call termination. Recall that under such a rule the long-distance carrier's ability to ask one LEC to transit calls made to the competing LEC would drive the rates LECs charge the long-distance carrier for terminating calls down to the marginal costs of transit.¹⁵⁰

Will the LECs' incentive to negotiate excessive reciprocal rates to boost long-distance termination rates disappear when we take into account fixed fees LECs can charge their consumers? Under the simplifying assumption that all of the LECs' subscribers receive the same volume of long-distance calls, the fear of an excessive reciprocal rate might indeed disappear. To see why, suppose LECs negotiate an excessive reciprocal rate, so that they could charge long-distance carriers supracompetitive rates for terminating calls. Any new subscriber attracted by the LEC will receive a certain volume of long-distance calls, for which the LEC will collect the

¹⁴⁹ Imposing upon LECs a positive "optimal" reciprocal rate would involve the regulatory costs of determining this "optimal rate" in each situation, and updating it as circumstances change.

¹⁵⁰ See *supra* section III.C.1

supracompetitive termination rates from the long-distance carriers. Accordingly, LECs would be more willing to cut their fixed fees to steal customers from each other. In this simple setting, it turns out that fixed fees will go down by the very supracompetitive profits the LECs expect to make from the long-distance carriers. In such a case, the LECs might as well negotiate a reciprocal rate that would not allow them supracompetitive profits for terminating long-distance calls. This is because they know these supracompetitive profits would be “competed away” through competition with regard to the fixed fees.¹⁵¹

However, the assumptions underlying the claim that supracompetitive profits from long-distance carriers would be “competed away” by reduced fixed fees are too restrictive to make concrete policy implications. Most importantly, consumers differ with respect to the volume of long-distance calls they attract. An LEC cannot offer a new subscriber a fixed fee discounted by exactly the amount of profits the LEC expects to make in terminating long-distance calls to this subscriber, because the LEC does not know exactly the volume of long-distance calls the subscriber will receive. Therefore, LECs might still negotiate excessive reciprocal rates in order to boost long-distance termination rates, since they might not be willing to cut their fixed fees as much as they would in the simplified model with identical subscribers.

¹⁵¹ Michael Carter & Julian Wright, *Local and Long-distance Network Competition* (December 1999) (unpublished manuscript, on file with author) reach a similar result with a model in which LECs interconnect with a long-distance carrier. They do not discuss the possibility of transit, but show that any profits LECs expect to make from the long-distance carrier are “competed away” through competition with regard to the fixed fees.

CONCLUSION

While local telecom markets are being opened to competition, paradoxically, the FCC is proposing to move toward the strictest possible regulation of interconnection between long-distance carriers and LECs: mandatory interconnection coupled with regulation of termination charges down to zero. In sharp contrast to the FCC's approach, this Article proposes to deregulate interconnection between long-distance carriers and LECs. Under deregulation and non-mandatory interconnection, several market forces will restrain termination charges paid by long-distance carriers and callers. First, a long-distance carrier's ability to transit calls made to one LEC via the competing LEC would drive LECs' rates for terminating long-distance calls down to the marginal costs of transit (under a bill and keep regime for local interconnection). Second, ignoring the ability to transit, LECs' need to give their subscribers access to long-distance calls grants the long-distance carrier bargaining power that can drive termination rates down. Third, recipients' cellular phones and broadband Internet IP telephony connections are expected to compete with LECs on terminating long-distance calls, especially if the long-distance carriers will no longer be required to average their rates.

Originating access rates LECs charge long-distance carriers can also be driven down by competitive forces. First, they can be driven down through direct competition between the LECs, if the 1996 Act is amended to allow long-distance carriers to pass originating access rates on to callers. Second, even short of amending the 1996 Act, a long-distance carrier's ability to ask one LEC to transit long-distance calls made by the competing LEC's subscribers is expected to drive originating access rates down. The rate will reach the marginal costs of transit under a bill and keep

approach to local interconnection, and it will reach even lower rates if there is a positive reciprocal termination rate.

On the other hand, local interconnection should remain mandatory. Otherwise, the incumbent might refuse or degrade interconnection in order to deter entry. Furthermore, even established networks might decide not to interconnect, in order to disable transit and boost originating access rates charged to long-distance carriers. LECs should not be allowed to charge each other for call termination. This would prevent new LECs and incumbent LECs from using the reciprocal termination rate as a strategic tool to raise their profits at the expense of consumers. In particular, LECs might negotiate an excessive reciprocal termination rate to enforce an implicit commitment on the part of the new LEC to focus only on net receivers of calls, leaving the rest of the market to the incumbent.