Order Code RL34550

CRS Report for Congress

"Phantom Traffic" — Problems Billing for the Termination of Telephone Calls: Issues for Congress

June 27, 2008

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Prepared for Members and Committees of Congress

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Summary

Every company that terminates telephone calls made to its customers faces some number of calls for which it is unable to obtain its due compensation. For a variety of reasons, a significant amount of telephone (voice) traffic that is originated by the customers of one company and terminated to the customers of another company is not adequately identified, making appropriate billing for that traffic difficult or impossible.

This "phantom traffic" is a more serious problem for small, rural telephone companies than for other telephone companies. One representative of these small carriers has claimed that between 20% and 30% of their intercarrier traffic cannot be billed because it lacks sufficient billing information.

There are three interrelated factors that foster phantom traffic:

- Under the current intercarrier compensation system, charges for the termination of voice traffic vary significantly, depending on the source and type of call, creating a strong incentive for originating carriers to mask traffic that is subject to high termination rates.
- For certain types of calls, the FCC has not yet adopted definitive rules about the interconnection rights and obligations of originating and terminating carriers, the call detail information that must be provided by the interconnecting companies to identify the source and type of traffic, and/or the rates to be charged by companies for terminating calls originated by customers of other companies, thus fostering billing disputes among carriers.
- Given the significant differences in network architectures and the multiplicity of terminating charges for different types of calls, the signaling and call detail systems of many companies cannot accommodate the complex routing of some calls, often resulting in terminating carriers not receiving all the call detail information needed to bill for termination.

From a public policy perspective, phantom traffic can be viewed as a symptom of the shortcomings of the current intercarrier compensation regime and addressed in the context of comprehensive intercarrier compensation reform. Or it can be addressed narrowly, as a unique billing problem created by the lack of call detail information needed to identify and bill specific calls. Each approach has its advantages and disadvantages. S. 2919 takes the latter approach.

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Overview

Every company that terminates telephone calls made to its customers faces some number of calls for which it is unable to obtain its due compensation. For a variety of reasons, a significant amount of "traffic is not adequately identified, making appropriate billing for the traffic difficult or impossible."[1] This "phantom traffic," which has never been formally defined by Congress or the Federal Communications Commission (FCC or Commission), can best be described as:

- telephone (voice) calls made to a telephone company's customers (the "called parties") and that thus traverse and terminate on that telephone company's network, *and*

- that originate somewhere outside of that telephone company's network, typically as traditional long distance calls, cellular calls, or Voice over Internet Protocol (VoIP) calls originated by "calling parties" that are the customers of other providers of voice telephone services, *but*

- for which the telephone company is not receiving from the calling parties' service providers the compensation it is due under current rules and regulations for the use of its network to terminate those calls.

Some have alleged that telephone companies that terminate calls are losing as much as $2 billion in compensation annually as a result of phantom traffic,[2] and that these revenue losses have potentially significant public policy implications. Those lost revenues can force local telephone companies to raise their rates for local service, thus undermining the goal of universal service, and also can reduce company funds available for broadband investment.

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[1] See the prepared Testimony of Lawrence E. Sarjeant, Vice President for Federal Legislative and Regulatory Affairs, Qwest Communications International, Inc., before the Senate Committee on Commerce, Science, and Transportation, Hearing on Phantom Traffic, April 23, 2008, at p. 4.

[2] Ibid., at p. 5, citing estimates that ranged from $600 million to $2 billion in submissions filed in the FCC's intercarrier compensation proceeding (Docket WC No. 01-92).

It is difficult to measure the size of the problem unambiguously, however, because the FCC has not yet adopted definitive rules about the interconnection rights and obligations of certain voice services providers and the termination rates for certain calls.[3] As a result, there are strong differences of opinion among the parties about what the appropriate termination charge is for many calls and, in some cases, whether any payment is due at all. In some cases, what a telephone company that is terminating voice traffic views as phantom traffic, the company that is originating that traffic may consider appropriately compensated traffic — and there has been no definitive FCC ruling to resolve these conflicts.

As will be explained below, phantom traffic is a more serious problem for small, rural telephone companies than for other telephone companies. One representative of these small carriers has claimed that "industry estimates show between 20% and 30% of ... intercarrier traffic cannot be billed because it lacks sufficient billing information."[4]

The Causes of Phantom Traffic

Over the past 30 years, telecommunications policy in the United States slowly has evolved from government sanctioned monopoly provision of all telecommunications services to competitive provision of most telecommunications services. Congress explicitly mandated this competitive market approach in the Telecommunications Act of 1996 (1996 Act).[5] Today, most consumers have access to multiple providers of voice services, often with the option of placing telephone calls using traditional wireline technology, wireless technology, or VoIP technology. In most cases, when a consumer makes a call, to reach the called party that call travels not just over the facilities of the company to which the consumer subscribes, but also over the facilities of one or more other companies. Since the calling party

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[3] Both the federal and state jurisdictions have concluded it is not possible to leave it entirely to the market to set rates for the termination of traffic because the terminating company enjoys, in effect, a monopoly position. Once the called party has chosen her provider, any calls to her must be terminated over her provider's network. If that provider were to impose extremely high charges for terminating long distance or wireless or VoIP calls to the customer, the providers originating those calls would have no option but to pay those charges or else they would not be able to complete the calls originated by their customers. (In many cases, refusing to complete the call is not a legal option. For example, long distance carriers are required to complete all calls originated by their customers, even if they would lose money by completing such calls because the termination charges they had to pay exceeded the nationally-averaged retail rates they are required to charge under federal law.) Thus, the FCC has intervened to set regulatory ground rules for the completion of interstate calls and state regulatory commissions have intervened to set regulatory ground rules for the completion of intrastate calls. These ground rules, however, remain incomplete.

[4] Statement by Raymond Henagan, General Manager, Rock Port Telephone Company, before the Senate Committee on Commerce, Science, and Transportation, Hearing on Phantom Traffic, April 23, 2008, at p.4.

[5] P. L. 104-104, 110 Stat. 56. See, especially, the provisions in "Part II — Development of Competitive Services" and in "Title IV — Regulatory Reform."

only pays the company to which it subscribes for service, a system of intercarrier compensation is needed to compensate the other companies whose network facilities are used to complete the call.[6]

There are two basic elements of any intercarrier compensation system. First, it is necessary for each company to be able to identify the amount and source of traffic

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[6] Each company bears costs associated with handling the calls that are originated by the subscribers of other companies — as an intermediate network that is "transiting" calls and/or as a final network that is "terminating" calls. At the same time, each company benefits from having other companies transit and terminate calls that are originated by its own customers. If the costs and the benefits to each company from transiting and terminating one another's calls were a wash, there would be no need for a system of intercarrier compensation. But traffic patterns are not symmetrical. A carrier may originate more calls than it terminates (for example, a carrier may have many subscribers who are telemarketers and thus make many calls, but receive few or none), or vice versa (for example, a carrier may have many subscribers who are Internet service providers and receive many calls, but originate few). Or a carrier may be at the geographic edge of the web of interconnecting telephone networks that use circuit-switched technology (known, in aggregate, as the public switched telephone network or PSTN) and therefore never be used as an intermediate carrier to transit calls from other companies, but may originate many calls that are transited on other networks. Moreover, rural companies have higher costs than others because they serve low-density, high-cost areas, and thus even if their incoming and outgoing traffic is in balance, their costs for terminating calls originated elsewhere will exceed the costs borne by other companies terminating the calls that are originated on the rural networks. Thus, the costs and benefits of transiting and terminating one another's calls are not a wash, and a system of intercarrier compensation is needed. For a detailed discussion of intercarrier compensation and related policy issues, see CRS Report for Congress RL32889, *Intercarrier Compensation: One Component of Telecom Reform*, by Charles B. Goldfarb. It is worth noting that a carrier might be able to receive compensation for terminating a call even if it is not able to charge the originating carrier. The FCC has ruled that wireless carriers may seek to receive access charges as compensation for terminating calls by negotiating contracts with long distance and other originating carriers, but cannot unilaterally impose access charges (*In the Matter of Petitions of Sprint PCS and AT&T Corp. For Declaratory Ruling Regarding CMRS Access Charges*, WT Docket No. 01-316, Declaratory Ruling, adopted July 2, 2002 and released July 3, 2002). In the absence of a regulatory requirement that they pay wireless carriers terminating access charges, however, the long distance carriers have refused to enter into agreements with wireless carriers to make such payments. But the retail pricing scheme typically used by wireless carriers gives customers a bucket of incoming and outgoing minutes of use for a set price and then imposes a per minute of use charge for any additional incoming or outgoing minutes of use. Thus, the wireless carriers are able to recover at least some of the costs associated with terminating calls originated by other companies' customers through charges on their own customers' incoming minutes of use. There is merit, however, to the wireless carriers' argument that their inability to collect terminating access charges from originating carriers the way wireline carriers do places them at a competitive disadvantage vis-a-vis wireline carriers, since many customers do not like having to pay minute of use charges for incoming calls and the wireless carriers' end user rates (unlike wireline carriers' rates) must be higher to take into account their inability to recover terminating costs from originating carriers. The FCC ruling seems to treat wireless service as a niche, supplement to wireline service, rather than as a competitor, since it does not appear to consider the competitive implications of allowing one set of competitors to receive intercarrier compensation for terminating calls but not another set of competitors.

on its network that is originated by the subscribers to other companies. Second, it is necessary to set rates and bill the appropriate originating voice provider for transiting or terminating that traffic. (If, as currently is the case, the charge for terminating traffic varies depending on the type of traffic, then information on the source is necessary both to determine who to charge and the rate to charge.) For a variety of reasons, neither of these elements is fully in place today.

To a great extent, phantom traffic is a symptom and consequence of the current, still incomplete, intercarrier compensation system. There are three interrelated aspects of the current system that foster phantom traffic.

- Although the underlying cost to a terminating carrier is basically the same for terminating all types of voice traffic, the current system sets different rates for the termination of voice traffic depending on the source or type of traffic involved, thus creating incentives for originating carriers to mask the source or type of calls that are subject to high termination charges, so that they appear to be calls subject to lower termination charges.

- For certain types of calls, the FCC still has not adopted definitive rules about the interconnection rights and obligations of originating and terminating carriers, the call detail information that must be provided by the interconnecting companies to identify the source and type of traffic, and/or the rates to be charged by companies for terminating calls originated by customers of other companies, thus fostering billing disputes among companies.

- The various companies' signaling and call detail systems, challenged by significant differences in the network architectures of the various services providers and the multiplicity of terminating charges for different types of calls, still often are incomplete or incompatible and therefore unable to communicate to one another all the information needed for accurate billing of termination charges.

Multiplicity of Termination Charges

To date, the intercarrier compensation system has been implemented on a piecemeal basis. As specific existing telecommunications services were opened to competitive provision and providers offering entirely new services (such as wireless service) or using new technologies (such as VoIP) were allowed to interconnect with the existing web of interconnecting wireline telephone company networks (known as the public switched telephone network or PSTN), intercarrier compensation rules have been adopted that are specific to those services or technologies. For example, to help keep the rates for local telephone service "affordable" in rural areas, rural telephone companies have been allowed to set above-cost rates for the termination of interstate, and especially intrastate, long distance calls.[7] These rates tend to be

[7] The single biggest cost for a telephone network, especially in rural areas, is the fixed cost (continued...)

much higher than the rates for terminating other traffic. At the same time, in order to encourage new information services, the FCC has treated enhanced service providers (including information service providers or ISPs) as end users, rather than carriers, for intercarrier compensation purposes. This allows ISPs to purchase lines out of the local carriers' tariffs for business customers, which do not include usage-based charges, rather than out of the tariffs for interexchange carriers, which have usage-based charges for both originating and terminating calls. Since ISP customers often stay online for long periods of time, if ISPs had to pay minute-of-use access rates it would have made it prohibitively expensive to offer flat rated retail service. As a result of these piecemeal rules, today intercarrier compensation payments vary widely, depending on:

- whether the interconnecting party is a wireline local telephone company (known as a local exchange carrier or LEC),[8] a long distance company (known as an interexchange carrier or IXC), a wireless carrier (known as a commercial mobile radio service or CMRS carrier), or an information service provider (ISP);

- whether the service is classified by the FCC as telecommunications or information, local or long distance, or interstate or intrastate; and

- if the call uses IP technology, whether the call travels from the calling party to the Internet and then to the called party without traversing the public switched telephone network, or travels in part or in its entirety over the PSTN.

Sprint claims "[t]here are at least nine different classifications of rates between carriers."[9]

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[7] (...continued)
of providing the telephone line, sometimes referred to as the local loop, from the customer premise to the telephone company switch that serves that customer. Some of that fixed cost is recovered through a monthly subscriber line charge. It has been U.S. telecommunications policy to limit the size of the subscriber line charge in high cost areas, however, by recovering some of those fixed costs through above-cost per-call access charges imposed on long distance and wireless carriers that originate calls from outside the rural telephone company's service area. The access charges for intrastate long distance calls, which are subject to regulation by state regulatory commissions, tend to be higher than those for interstate long distance calls, which are subject to FCC regulation.

[8] These payments vary even among LECs, depending on whether the carrier is an incumbent local exchange carrier (ILEC), that is one of the legacy LECs that was a government sanctioned local monopoly provider prior to the implementation of the 1996 Act; a small LEC (sometimes referred to as a rural LEC), that is an ILEC serving a small rural area; or a competitive local exchange (CLEC), that is a new competitive provider of local exchange service that was allowed to enter the market as a result of enactment of the 1996 Act.

[9] Written Testimony of Charles W. McKee, Director of Government Affairs, Sprint Nextel Corporation, before the Senate Committee on Commerce, Science and Transportation, Hearing on Phantom Traffic, April 23, 2008, at p. 3.

As shown in Figure 1, a chart prepared by the Intercarrier Compensation Forum (ICF),[10] in 2004 the *average* intercarrier compensation rate for terminating calls ranged from 0.1 cents per minute for traffic bound to an ISP to 5.1 cents per minute for intrastate traffic bound to a subscriber of a small (rural) incumbent local exchange carrier; individual rates were as low as zero and as high as 35.9 cents per minute.[11] This broad range of rates has not changed significantly since 2004.[12]

In each case, the terminating carrier is providing basically the same functions to complete the call. This has created the strong incentive for those companies that are originating calls for which the termination charges are very high to attempt to mask the type of call — perhaps make an intrastate call appear to be an interstate call or any type of long distance call appear to be a local call — so they can pay a lower termination charge,[13] or, at the least, has created the disincentive for those companies

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[10] The ICF is a group of carriers from different segments of the telecommunications industry that submitted to the FCC a proposal for comprehensive intercarrier compensation reform, *In the Matter of Developing a Unified Intercarrier Compensation Regime*, CC Docket No. 01-92, Ex-Parte Brief of the Intercarrier Compensation Forum in Support of the Intercarrier Compensation and Universal Reform Plan ("ICF Plan"), October 5, 2004.

[11] ICF Plan at Appendix C, p. 2. In Figure 1, "RC" refers to "reciprocal compensation," the cost-based system for intercarrier compensation between providers of local service mandated by the 1996 Act (47 U.S.C. 251(b)(5), 252(d)(1)(A), and 252(d)(2)(A)). "IntraMTA" and "InterMTA" refer to the distinction between those calls originating on wireless networks that are treated as local vs. long distance for intercarrier compensation purposes. All classifications with the words "intrastate" or "interstate" refer to intercarrier compensation rates for long distance calls.

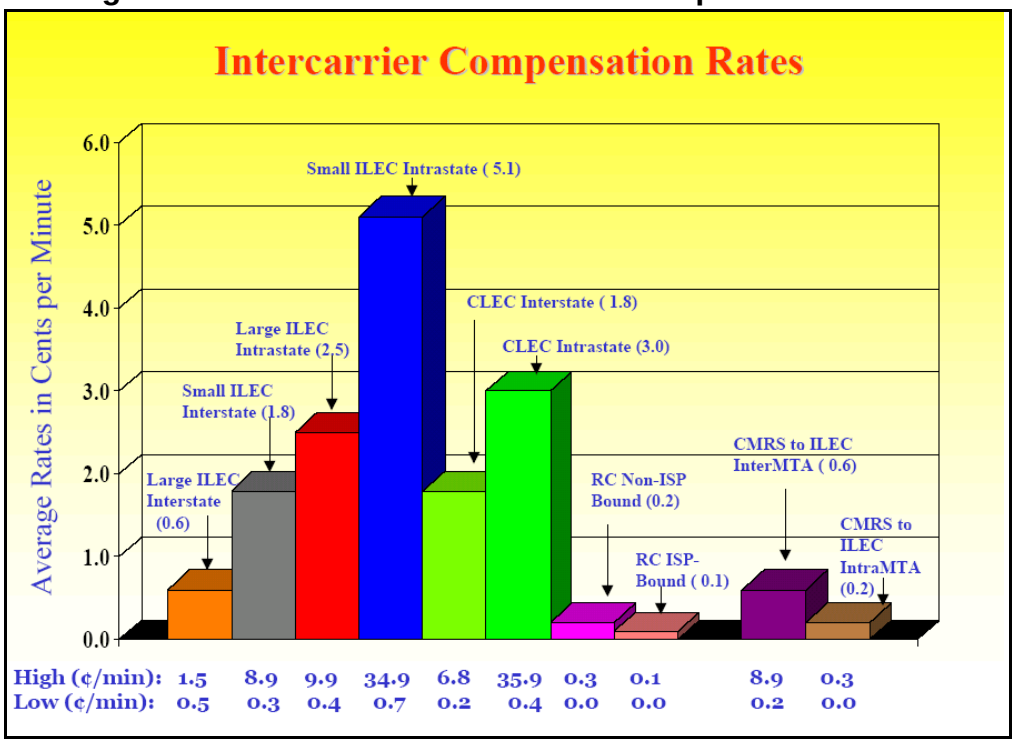
[12] Given the wide variation in intercarrier compensation rules applied to carriers and technologies that are now competing with one another, the FCC adopted a Further Notice of Proposed Rulemaking (FNPRM) in February 2005 to review and reform its rules with the goal of constructing a unified intercarrier compensation regime. The FCC sought public comment on nine comprehensive intercarrier compensation reform proposals or sets of principles that have been submitted to the FCC as well as a staff proposal. The issues raised in the ICC FNPRM were not new to the FCC. In 2001, the Commission opened a rulemaking proceeding and adopted a Notice of Proposed Rulemaking seeking information on how to develop a unified intercarrier compensation regime. To date the FCC has not followed through on any of these proceedings for comprehensive intercarrier compensation reform. In a recent court hearing involving the appeal of an earlier FCC intercarrier compensation ruling, the FCC attorney stated that the FCC chairman has committed to complete the proceeding on comprehensive reform within six months. (See Adam Bender, "FCC Order on Intercarrier Compensation Due in Six Months," *Communications Daily*, May 5, 2008.) Other FCC commissioners indicated, however, they were not aware of such a goal. (See Adam Bender, untitled article in the "Wireline" section of *Communications Daily*, May 12, 2008.)

[13] These intercarrier compensation charges can represent a substantial portion of the costs of providing certain services and, in the case of long distance calls that interexchange carriers are required by statute and FCC rule to offer at a single rate nationally, can exceed the retail price for the service. The access charges that some rural local exchange carriers charge long distance carriers for originating the long distance calls made by customers located in those rural areas, or for terminating the long distance calls made to customers located in those rural areas, exceed the nationally averaged price that the long distance

(continued...)

to take any steps that would make it easier for terminating companies to identify traffic that is subject to high termination charges.

Figure 1. Differences in Intercarrier Compensation Rates



Source: Intercarrier Compensation Forum.

Undefined Interconnection Rights and Obligations and Interconnection Compensation Rates

As part of the mandate for competition in the 1996 Act, the first obligation identified for each telecommunications carrier is "the duty ... to interconnect directly or indirectly with the facilities and equipment of other telecommunications carriers."[14] In implementing this requirement, the FCC developed ground rules for interconnection, including specific requirements and/or general guidance about where the physical interconnection can take place, and the terms, conditions, and rates for exchanging traffic and terminating calls, as well as the call detail information to be provided to be able to identify the source and type of call.

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[13] (...continued)
carriers charge their subscribers for those calls, and thus the long distance carriers lose money on each long distance call into or out of those rural exchanges. As a result, long distance carriers are reluctant to make available to customers in those areas service packages that are likely to be attractive to heavy long distance users.

[14] 1996 Act, section 251(a)(1). This legislation amended the Communications Act of 1934, at 47 U.S.C. 251(a).

These ground rules covered a wide range of issues, for example, identifying certain situations in which terminating traffic would be subject to tariffed access charges or reciprocal compensation or negotiated rates, identifying situations in which one company could request interconnection with another company and invoke the negotiation and arbitration procedures set forth in the 1996 Act, and imposing certain signaling and call detail requirements on companies.

As the wireless and VoIP technologies have come on-stream, for certain types of traffic the FCC has not yet adopted definitive ground rules. There are gaps in the rules about the interconnection rights and obligations of the new providers and the incumbent providers, in the rules about the call detail information that must be provided by the interconnecting companies (to identify the source and type of traffic for billing purposes), and/or in the rules about the rates to be charged by companies for terminating calls originated by customers of other companies. For example:

- Certain VoIP services are provided by software applications providers, such as Skype, that do not own their own networks and do not have interconnection rights to the PSTN since they are not telecommunications providers.[15] A customer who purchases one of these "non-interconnected VoIP services" can only make calls to other subscribers of that non-interconnected VoIP service — unless she also purchases a supplementary service that allows her calls to be terminated on the PSTN (through the use of the network of an interconnected carrier) in order to reach all telephone users. Similarly, a purchaser of one of these non-interconnected VoIP services can receive calls from parties that do not subscribe to that VoIP service only if he pays separately for a telephone number to which the calls from the subscribers of traditional wireline and wireless can be routed. The FCC has not set definitive rules, however, on how to assess charges for the termination of calls that originate with non-interconnected VoIP service providers and terminate on PSTN networks or that originate on PSTN networks and terminate with non-interconnected service providers.[16]

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[15] As explained earlier, under section 251(a)(1), all telecommunications carriers have the duty to interconnect their networks with any other requesting telecommunications carrier. They have no obligation to interconnect their networks with any other entities.

[16] The FCC has made some rulings relating to the termination charges for VoIP service. It has ruled that pulver.com's Free World Dialup (FWD) service, which offers users of broadband Internet access the opportunity to join other such users worldwide in talking with one another directly over the Internet, but has no transmission capability, is an Internet application that facilitates using the customer's broadband access service to make free VoIP calls (but does not directly provide VoIP service), and thus is an unregulated information service subject to FCC jurisdiction under Title I of the Communications Act, rather than a telecommunications service. However, it "expressly decline[d] to exercise Title I jurisdiction over FWD to impose any economic or entry/exit regulation .... or any other type of regulation ... at this time." (See *In the Matter of Petition for Declaratory Ruling that pulver.com's Free World Dialup is Neither Telecommunications nor a Telecommunications Service*, WC Docket No. 03-45, Memorandum Opinion and Order, adopted February 12, (continued...)

- The FCC has ruled that wholesale telecommunications carriers are entitled to interconnect and exchange traffic with incumbent local exchange carriers when providing services to other service providers, including VoIP service providers.[17] This ruling is important because in the 1996 Act local telephone companies are only obligated to interconnect with requesting telecommunications carriers. Thus a retail VoIP provider offering a VoIP service that is classified as an information service cannot itself demand interconnection rights with a local telephone company and if it could not exchange its traffic with the local telephone company it would not be able to compete with that local telephone company. But it can contract with a wholesale telecommunications carrier for that carrier to exchange the VoIP traffic on its behalf. Several recent FCC actions, however, suggest that the Commission has not yet made a definitive ruling on which entities qualify as wholesale telecommunications carriers with interconnection rights. In a recommended decision in one proceeding,[18] the chief of the FCC enforcement bureau found that two entities that had obtained state certificates as wholesale telecommunications carriers and had entered into interconnection agreements with local exchange carriers nonetheless did not meet the definition of a telecommunications carrier because they did not make their services generally available to non-affiliated customers through tariffs or public written or oral offerings, but rather their only customers were their affiliated providers of retail VoIP services. A majority of commissioners (with the chairman dissenting) overruled that recommended

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[16] (...continued)
2004 and released February 19, 2004.) The FCC stated that the customer, not pulver.com, originates the communication, and thus implied, but did not explicitly state, that pulver.com would not be required to pay intercarrier compensation. At the other extreme of voice service involving VoIP technology, the FCC has ruled that a long distance (interexchange) service that (1) uses ordinary customer premises equipment with no enhanced functionality, (2) originates and terminates on the public switched telephone network, and (3) undergoes no net protocol conversion and provides no enhanced functionality to end users due to the provider's use of IP technology, is a telecommunications service and its provider must pay access charges to the local carriers that originate and terminate the call. (See *In the Matter of Petition for Declaratory Ruling that AT&T's Phone-to-Phone IP Telephony Services are Exempt from Access Charges*, WC Docket No. 02-361, Order, adopted April 14, 2004 and released April 21, 2004.)

[17] See *In the Matter of Time Warner Cable Request for Declaratory Ruling that Competitive Local Exchange Carriers May Obtain Interconnection Under Section 251 of the Communications Act of 1934, as Amended, to Provide Wholesale Telecommunications Services to VoIP Providers*, WC Docket No. 06-55, Memorandum Opinion and Order, adopted and released March 1, 2007.

[18] See *In the Matter of Bright House Networks, LLC, et al., Complainants v. Verizon California, Inc., et al., Defendants*, File No. EB-08-MD-002, Recommended Decision, adopted and released April 11, 2008, at paras. 15-20..

decision, however,[19] arguing that the two entities did qualify as wholesale telecommunications carriers, but explicitly limited the decision to "the specific record in this specific case." But because this decision occurred within the context of a "restricted" complaint proceeding, for which only parties with direct interest could comment, the majority chose not to make a general ruling. In a different case, the FCC put out for public comment a petition from an incumbent local exchange carrier claiming it did not have to interconnect with a company that provided wholesale telecommunications services for its affiliated retail provider of VoIP service, questioning whether the entity qualified as a telecommunications carrier (despite having received state certification).[20] The Commission has not yet ruled in that case.

- In a declaratory ruling,[21] the FCC found that "neither the Communications Act nor any Commission rule prohibits a CMRS carrier from attempting to collect access charges from an interexchange [long distance] carrier [for terminating a long distance call]." But it also found that "there is no Commission rule that enables Sprint PCS [a CMRS] unilaterally to impose access charges on AT&T [an interexchange carrier]." Thus, CMRS carriers can receive compensation for terminating long distance calls only if they can negotiate rates, terms, and conditions with the interexchange carriers. Since CMRS carriers are prohibited from blocking long distance calls (if, for example, an interexchange carrier refuses to pay access charges), the interexchange carriers have had no incentive to agree to such payments and no interexchange carrier has made such payments.[22] The FCC stated its intention to "address CMRS carriers' requests to be placed on equal footing with wireline carriers" in its Intercarrier Compensation proceeding, the goal of which "is to move toward a unified compensation regime that eliminates the opportunity for arbitrage due to different regulatory

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[19] *In the Matter of Bright House Networks, LLC, et al., Complainants, v. Verizon California, Inc., et al., Defendants*, File No. EB-08-MD-002, Memorandum Opinion and Order, adopted June 20, 2008 and released June 23, 2008, at paras. 37-41.

[20] See "Pleading Cycle Established for Comments on Vermont Telephone Company's Petition for Declaratory Ruling Regarding Interconnection Rights," *FCC Public Notice*, WC Docket No. 08-56, DA-08-08-916, April 18, 2008.)

[21] *In the Matter of Petitions of Sprint PCS and AT&T Corp. For Declaratory Ruling Regarding CMRS Access Charges*, WT Docket No. 01-316, Declaratory Ruling, adopted July 2, 2002 and released July 3, 2002.

[22] As explained earlier, wireless carriers at least partially recover the costs associated with terminating calls originated by the customers of other voice providers by imposing on their own customers per minute usage charges for incoming calls. This does, however, place them at a competitive disadvantage vis-avis wireline carriers who receive compensation for terminating calls originated by customers of other service providers and who therefore do not have to impose usage charges on their own customers' incoming calls to recover their termination costs.

treatment of different types of traffic." But six years later, the FCC still has not moved forward with that proceeding.

- When first implementing the requirement of the 1996 Act, the FCC determined that "traffic to or from a CMRS network that originates and terminates within the same MTA [major trading area] is subject to [the reciprocal compensation] transport and termination rates under section 251(b)(5) [of the Communications Act, as amended by the 1996 Act], rather than interstate and intrastate access charges."[23] Since MTAs often are very large, sometimes a call made by the customer of a wireline local telephone company to the customer of a wireless carrier is intraMTA, but must be routed over the network of an interexchange (long distance) carrier to reach the called party. Some originating wireline carriers have claimed that these calls should be treated as interexchange calls, which would mean that the wireless carrier terminating the call would not be eligible for reciprocal compensation and, as explained in the previous bullet, also not able to impose access charges. In one appeal of a state regulatory commission decision,[24] the federal court, based on and upholding FCC decisions interpreting and implementing the 1996 Act, found that all intraMTA calls are subject to reciprocal compensation, even if the call was transmitted over an interexchange carrier's network. The FCC, however, has never issued a decision that directly addresses this dispute and there still are many local exchange carriers that maintain they do not have to pay reciprocal compensation on an intraMTA call if they hand off that call to an interexchange carrier.

- There also appear to be unresolved differences of opinion among industry players about other interconnection rules as they apply to wireless carriers.[25] For example, local exchange carriers and wireline carriers disagree about what the LECs must do to meet their duty under Section 251(b)(3) of the Communications Act to "provide dialing parity to competing providers of telephone exchange service and telephone toll service, and the duty to permit

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[23] *In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996; Interconnection Between Local Exchange Carriers and Commercial Mobile Radio Service Providers*, CC Docket Nos. 96-98 and 95-185, First Report and Order, adopted on August 1, 1996 and released on August 8, 1996, at para. 1036.

[24] United States Court of Appeals for the Tenth Circuit, *Atlas Telephone Company, et al.* Appeals from the United States District Court for the Western District of Oklahoma (D.C. No. 03-CV-347-F), March 10, 2005.

[25] See, for example, *In the Matter of Developing a Unified Intercarrier Compensation Regime*, CC Docket No. 01-92, Comments of CTIA — The Wireless Association, submitted to the Federal Communications Commission on December 7, 2006.

> all such providers to have nondiscriminatory access to telephone numbers, ... with no unreasonable dialing delays."[26]

In the absence of definitive FCC rulings on the terms and conditions for interconnection, call data detailed that each company must provide to the terminating carrier, and the rates for such termination, companies will continue to have billing disputes that are difficult to resolve.

Technical Challenges

Even if the FCC were to rule definitively on the various companies' rights and obligations with respect to interconnection, termination rates, and the provision of call detail information, however, there still would remain a number of technical factors that make it difficult to identify the amount and source of traffic on each company's network, and thus phantom traffic would continue to exist.

The current intercarrier compensation system, which sets different termination rates for different types of calls, places a heavy burden on companies to construct, maintain, and keep current and interoperable the signaling and call detail data systems needed to communicate with other companies the information needed to identify and bill for calls. In many case, when the necessary call information is not available to bill terminating traffic, the problem is attributable to limitations in the systems of the originating, intermediate, or terminating company.

There are many challenges to constructing, maintaining, and updating call detail systems and databases needed to identify calls and determine the appropriate rates. The biggest problem is "the complexity of interconnections used to carry traffic."[27] Telephone calls frequently are routed over the networks of multiple companies, and somewhere along that chain the call detail information may be accidentally or purposely lost or modified. It is cost-prohibitive for long distance and wireless carriers to have direct trunks to every local telephone switch in a geographic area — and especially to the switches of small rural telephone companies and other independent telephone companies that serve sparsely populated areas. Instead, they usually have trunks that link their network's single point of presence in the area to a large access tandem switch,[28] which most frequently is owned by the largest telephone company in the region (for example, Verizon, AT&T, Qwest or Embarq)

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[26] 47 U.S.C. 251(b)(3).

[27] Susana Schwartz, "Phantom Traffic: Identifiable but Not Billable," *B/OSS — Billing and OSS World*, July 1, 2005, available at [http://www.billingworld.com/articles/feature/Phantom-Traffic-Identifiable-but-Not.html], viewed on June 18, 2008. The following discussion is based in part on the technical explanation provided in this article.

[28] There are two primary categories of switches in the circuit-switched telephone networks that comprise the public switched telephone network. Tandem switches are hubs in a company's network that receive traffic over large trunks from sources both internal to and external to the company's network and then re-route that traffic over trunks to the next destination, which also can be either internal to or external to the company's network. End office switches are the switches at the edge of the network that are used to route traffic to the company's customers' premises.

but may be owned by a competitive local exchange carrier. These access tandem switches provide centralized switching that aggregates and routes traffic between the various carriers in the region — the long distance companies, wireless companies, rural telephone companies and other independent telephone companies, and CLECs. As a result, except where a company generates enough traffic to a particular destination to justify a direct trunk, all of the traffic destined for a particular telephone company end office — interstate and intrastate long distance wireline traffic, local and long distance wireless traffic, local extended area service traffic between neighboring telephone companies, traffic from CLECs — may be aggregated at an access tandem switch and put on a single direct trunk to that end office.

Addressing and routing mechanisms are needed to deliver each call to the right point on the right network (in order to reach the called party) *and* to provide all the information necessary to identify the appropriate charge for terminating each call. Creating mechanisms that communicate across networks is a challenge when different networks use very different network architectures, especially since many calls traverse several intermediate networks before reaching the terminating network. For example, the PSTN employs addressing and routing mechanisms that rely on the information provided by the calling party's 10-digit telephone number and the called party's 10-digit telephone number. In the past, that provided sufficient information for the terminating carrier to determine how much to bill the originating carrier to terminate the call. But today some customers are able to make voice calls using VoIP services that do not require a telephone number — which can make it difficult for traditional telephone companies to determine who to bill, and what rate to bill, for terminating a call. Also, the billing systems used by some wireline telephone companies are based on locational information that is not relevant for voice services, such as wireless and some VoIP services, that are not made from fixed locations. Even where the location of the called party and calling party is known, the complexity of the current intercarrier compensation system imposes stiff burdens on billing systems. For example, the geographic boundary for what constitutes a local call is different for calls originating on a wireline network and calls originating on a wireless network. The areas considered to be local for wireline-originated calls (known as local calling areas) tend to be much smaller than the areas considered to be local for wireless-originated calls (known as intra-major trading areas or intraMTA). This means that each company's signaling systems and databases must be able to associate each telephone number with both the appropriate local calling area *and* appropriate MTA in order to bill calls correctly.[29] Unfortunately, according

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[29] Consider, for example, a call made by a wireless customer located in one end of the Iowa-wide MTA to a recipient who is a customer of a rural telephone company located at the other end of the same MTA — which qualifies as an intraMTA (local) call, subject to low reciprocal compensation charges. The most efficient way to route that call might be from the originating wireless carrier to a long distance company that is large enough to have facilities throughout the state, and then to the tandem switch provider located near the terminating rural telephone company. Although by FCC rule this qualifies as a local call subject to low reciprocal compensation termination charges, from the perspective of the rural telephone company, that call will look like an intrastate long distance call that should be subject to its intrastate access charges, which are likely to be very high. Thus, there often

(continued...)

to one industry source, the Jurisdictional Information Parameters (JIP) currently encoded in most companies' databases are not sufficient to do this and all the relevant parties — wireless carriers, both large and small local telephone companies, and CLECs — would have to significantly expand their JIP databases to accomplish this.[30] Given the complexity of creating, maintaining, and upgrading these databases and systems, and the lack of incentive on the part of companies (unless required to do so) to make upgrades that might not work to their benefit, it is not surprising that there continue to be some system incapabilities across networks.

Most companies have installed what is known as the SS7 signaling protocol, which provides, during the transmission of the call, information on the calling party number, the called party number, and a "charge number" that depends on the type of call. Sometimes, however, as the call is transmitted from the originating carrier through intermediate carriers to the terminating carrier some of this call detail information is lost. Also, some small rural companies have never deployed SS7 capability. In addition, for calls from mobile sources (wireless or VoIP) information on the calling and called telephone number does not provide information on the actual geographic location of the parties, or the JIP coded into the systems fail to take into account the different jurisdictional boundaries employed by wireless and wireline services.

As a result, other information often is needed for billing. Information can be provided after the call is completed through the exchange of records between companies. For example, although a carrier may receive traffic over a large trunk that carries lots of different types of traffic aggregated together from multiple sources, the company that has aggregated that traffic often can provide information on which companies are responsible for originating which traffic. The aggregating company and the terminating company must negotiate agreements about the collection and exchange of such information. Also, in some situations, companies negotiate "payment factors" based on traffic studies that are used to estimate the percentage of calls that are local vs. interstate long distance vs. intrastate long distance, etc. in order to determine what payment should be. But rural telephone companies claim that originating and intermediate carriers often have provided data that are incomplete or inaccurate.[31] Rural telephone companies are employing a number of auditing capabilities (for example, drilling deeper into signaling data from SS7 billing records for data mining) to verify — and where appropriate challenge —

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[29] (...continued)
is uncertainty about whether a particular call should be treated as local or long distance for the purposes of determining the charge for terminating the call.

[30] See the discussion of Jurisdictional Information Parameters (JIP) in Susana Schwartz, "Phantom Traffic: Identifiable but Not Billable," *B/OSS: Billing & OSS World*, July 1, 2005, available at [http://billingworld.com/article/feature/Phantom-Traffic-Identifiable-but-Not.html], viewed on June 18, 2008.

[31] See Statement by Raymond Henagan, General Manager, Rock Port Telephone Company, before the Senate Committee on Commerce, Science, and Transportation, Hearing on Phantom Traffic, April 23, 2008, at pp. 4-6.

the provided data.[32] But these audits impose costs on the rural carriers, who seek enforceable FCC rules requiring originating and intermediary companies to provide complete and accurate call detail data for billing.

One Possible Arbitrage Scenario

As explained earlier, since many calls pass over multiple networks before reaching the terminating carrier, there are potential opportunities for the call detail data information that would identify a call as one that is subject to high termination charges to be accidentally or purposely modified or removed. Also, since there are very positive efficiencies from aggregating different types of calls (that would be subject to different termination charges) on a single large trunk, rather than requiring companies to use a different trunk for each type of call, intermediate carriers have the strong incentive to mix different types of traffic, from a number of different sources, on a single trunk, but that can facilitate misidentifying the source or type of traffic in a fashion that allows them to pay a lower termination rate.

An originating long distance carrier is not likely to have direct trunks to every small rural telephone company, since it does not send enough traffic to those small companies to justify the investment in such trunks. Rather, a long distance carrier with traffic to the customers of a small rural company is likely to route that traffic to a larger local telephone company located near the small rural company, for that intermediate company to aggregate the traffic with other traffic bound for the customers of the small rural company. Since the originating carrier's traffic is long distance traffic, the rural company would be eligible to receive access charges, which tend to be high, for terminating that traffic. In contrast, the small rural company could only charge reciprocal compensation, which is lower than access charges, for the termination of local traffic that originates on (and is passed from) the larger local telephone company to the small rural carrier. The originating long distance company and the larger, aggregating carrier might find it in their self-interest to perform arbitrage in the following fashion. The aggregating carrier would charge the long distance carrier a termination fee that is higher than the rural carrier's reciprocal compensation fee and lower than the rural carrier's access charge to "terminate" the traffic at the aggregator's network. The aggregator would strip off the call detail information from that long distance traffic so that it appears to be local traffic that originated on its own network, and then send the traffic to the rural carrier to terminate, with the aggregator paying reciprocal compensation to the rural company for terminating the "local" traffic. In practice, this might not require the originating or aggregating carrier to actually strip information from the call detail signal that accompanies that call; it might simply require these companies not to take all the affirmative steps necessary to ensure that the information needed for billing is passed through the chain of networks from the originating network to the terminating network.

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[32] See Susana Schwartz, "Phantom Traffic: Identifiable but Not Billable," *B/OSS — Billing and OSS World*, July 1, 2005, available at [http://www.billingworld.com/articles/feature/Phantom-Traffic-Identifiable-but-Not.html], viewed on June 18, 2008.

Phantom Traffic and Rural Telephone Companies

Phantom traffic is a more serious problem for small, rural telephone companies than for other telephone companies for three interrelated reasons.

First, as discussed earlier, it tends to be more difficult to identify the originating company and the rate to be assessed for terminating a call if that call has passed over multiple networks or if that call has been aggregated with all types of traffic. Since rural telephone companies tend to be located at the edge of the public switched network, a disproportionately large share of their incoming calls pass over multiple networks. Also, since rural telephone companies tend to receive little incoming traffic of any specific type or from any specific company, a disproportionate share of their incoming calls tend to be aggregated with different types and sources of traffic. Thus, rural telephone companies tend to have more incoming telephone calls for which it is difficult to identify the source and type of call for purposes of billing termination charges.

Second, the revenues generated from access charges and other forms of compensation for terminating calls that originate outside the local company's network represent a far greater share of total revenues for small, rural companies than for larger wireline and wireless telephone companies. Therefore the loss of revenues due to the inability to identify the source of calls will have a larger financial impact on rural carriers than on other carriers. One small telephone operator recently told Congress that "NECA [the National Exchange Carriers Association, the organization that administers the FCC's access charge plan for small, rural telephone companies] has estimated that small rural carriers across the nation typically receive about 29% of their total net telephone company operating revenues from intercarrier payments."[33]

Third, although the cost for a carrier to terminate a call does not vary (or varies only very slightly) by the type of call, the access charges set by the rural telephone companies for terminating certain types of telephone calls tend to be both very high in absolute terms and a lot higher than the charge for terminating other types of calls. This partly reflects the higher costs associated with serving sparsely populated rural areas, but also reflects the decision of the FCC and state regulatory commissions to allow access charges that exceed underlying costs in order to keep the rates for local service low. But these high access charges create a strong incentive for the wireline and wireless carriers that originate those calls to avoid full payment by failing to provide all the information needed to identify the source of the call or by masking the type of call and making it look like a local call or an interstate call.

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[33] Statement by Raymond Henagan, General Manager, Rock Port Telephone Company, before the Senate Committee on Commerce, Science, and Transportation, Hearing on Phantom Traffic, April 23, 2008, at p.3.

Issues and Proposals

Comprehensive Intercarrier Compensation Reform vs. Measures Specific to Phantom Traffic

As discussed earlier, there are three interrelated factors that foster phantom traffic.

- Under the current intercarrier compensation system, charges for the termination of voice traffic vary significantly, depending on the source and type of call, creating a strong incentive for originating carriers to mask traffic that is subject to high termination rates.

- For certain types of calls, the FCC has not yet adopted definitive rules about the interconnection rights and obligations of originating and terminating carriers, the call detail information that must be provided by the interconnecting companies to identify the source and type of traffic, and/or the rates to be charged by companies for terminating calls originated by customers of other companies, thus fostering billing disputes among carriers.

- Given the significant differences in network architectures and the multiplicity of terminating charges for different types of calls, the signaling and call detail systems of many companies cannot accommodate the complex routing of some calls, often resulting in terminating carriers not receiving all the call detail information needed to bill for termination.

From a public policy perspective, there are two general approaches to the issue of phantom traffic. It can be addressed broadly, as a symptom and consequence of an inconsistent and incomplete intercarrier compensation system that has created incentives for companies to mask the type of traffic their customers generate in order to pay lower termination charges. Under this approach, phantom traffic would be addressed in the context of a comprehensive intercarrier compensation reform process that explicitly identifies the rights and obligations of all service and network providers and sets up transitional steps leading to the same or similar cost-based rates for the termination of all types of traffic by a date certain.[34] Alternatively, phantom traffic can be addressed narrowly, as a unique billing problem created by the lack of call detail information needed to identify and bill specific calls. Under this approach, it would be addressed through the implementation of narrowly focused rules that set

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[34] It is likely that under any comprehensive reform plan high-cost carriers (such as rural carriers serving sparsely populated geographic areas) would continue to have higher termination charges than lower-cost carriers, to reflect those higher costs, but for any individual carrier its termination charges would be the same or similar for all sources and types of traffic. Also, because intercarrier compensation revenues currently represent a far higher portion of rural carriers' total revenues than of non-rural carriers' total revenues, the transition to the same termination rates for all traffic likely would be longer for rural carriers than for non-rural carriers.

requirements for companies to provide specific call detail information and perhaps prohibit activities that could make it more difficult to identify and bill calls. Each approach has advantages and disadvantages.

Comprehensive Intercarrier Compensation Reform. Comprehensive intercarrier compensation reform is likely to require three concurrent actions — rate restructuring to move toward uniform termination rates for all sources and types of traffic; the creation of explicit and competitively neutral network interconnection rules that set out the technical and financial rights and obligations of all the parties and allow diverse networks to interconnect efficiently with one another; and the creation of new explicit universal service support mechanisms to replace the implicit support in those intercarrier compensation rates that currently are set above cost. Such comprehensive reform is likely to reduce phantom traffic by eliminating incentives for carriers to mask the source and type of traffic they generate. But given the potential impact of comprehensive reform on both providers and consumers, it will not be easy to accomplish. Although the FCC has had open proceedings to address such reform throughout this decade, to date intercarrier compensation issues have only been addressed on a piecemeal basis and many inconsistencies and gaps remain. In 2004, the Intercarrier Compensation Forum, a group of carriers from different segments of the telecommunications industry, submitted to the FCC a proposal for comprehensive reform.[35] The Commission formally sought public comment on the proposal, but there was enough criticism of the proposal that the FCC did not use it as the basis, or even as a starting point, for developing and adopting its own rules. Two years later, the National Association of Regulatory Utility Commissioners' Task Force on Intercarrier Compensation developed a comprehensive intercarrier compensation reform proposal, known as the Missoula Plan, that it filed at the FCC on July 24, 2006.[36] A number of early participants in the development of the plan left the process, and ultimately the primary industry sponsors of the plan were AT&T, BellSouth, Cingular, and hundreds of small rural telephone companies. The FCC also sought comment on this proposal, but again did not use it as the basis, or the starting point, for developing and adopting its own rules.

The continued lack of a comprehensive framework for intercarrier compensation has had significant consequences and generated certain unhealthy market symptoms, one of which is the growth of phantom traffic. Other consequences include distorted investment decisions and uneconomic arbitrage motivated by the existing intercarrier compensation rules rather than by underlying cost and demand conditions; harm to efficient competition as some providers are artificially favored and others are artificially disadvantaged by the inconsistent rules; and forced carrier expenditures of millions of dollars and scarce information technology resources to develop systems to identify, measure, monitor, bill, reconcile, audit, and dispute the classification of traffic.

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[35] *In the Matter of Developing a Unified Intercarrier Compensation Regime,* CC Docket No. 01-92, Ex-Parte Brief of the Intercarrier Compensation Forum in Support of the Intercarrier Compensation and Universal Reform Plan, submitted October 5, 2004.

[36] See, for example, Cheryl Bolen, "'Missoula' Intercarrier Payment Plan Filed at FCC in Hopes of Public Comment," *BNA, Inc. Daily Report for Executives,* July 25, 2006.

There would be several benefits from addressing phantom traffic within the context of comprehensive intercarrier compensation reform. Creation of a consistent rate structure and similar rate levels for the termination charges on all calls:

- would significantly reduce the incentive for companies to mask the source or type of traffic they generate because such activity would no longer yield lower termination charges.

- would reduce the amount of call detail information needed to bill calls and thus reduce the costs of all companies to construct, maintain, and update databases. For example, if it were not necessary to maintain databases capable of determining whether a call was local or interexchange, intraMTA or interMTA, etc., the complexity of coding the necessary information into the call databases would be substantially decreased.

- would reduce the depth of traffic auditing that carriers had to perform in order to ensure that they were receiving proper payment for terminating calls. Carriers still might want to perform audits to ensure originating and transiting carriers fully report the total volume of calls they generate, but it would no longer be necessary to perform the level of data mining required to determine the source and type of calls traversing their networks.

In addition, removing the implicit universal service support incorporated into above-cost access charges would meet the requirement in Section 254(e) of the 1996 Act that "any [Universal Service] support be explicit."

But there also are disadvantages of addressing phantom traffic through comprehensive intercarrier compensation reform.

- As explained above, it is very difficult to accomplish comprehensive reform. Parties that benefit financially or competitively from the current intercarrier compensation system will not have an incentive to support change unless they receive countervailing benefits. Thus, tying resolution of the phantom traffic issue to comprehensive intercarrier compensation reform could slow down relief from phantom traffic — as demonstrated by the inability of the industry and the FCC to accomplish such comprehensive reform this past decade.

- Many of the current differences in termination rates represent explicit public policy decisions at the federal and state level to keep termination charges artificially high or low in order to foster other public policy objectives — such as maintaining affordable rates for rural local telephone service or fostering enhanced services. If these continue to be public policy objectives, then rationalization of intercarrier compensation rates would have to be accompanied by efforts to support those other objectives, for example, through creation of an explicit source of universal service funding to replace

the implicit support currently received from above-cost access charges. But there already is concern that the Federal Universal Service Fund has grown too large and there would be resistance from some parties to expanding it to replace the implicit subsidies currently in access charges.[37]

- Intercarrier compensation rates for intrastate wireline services are within the jurisdiction of state regulatory commissions and thus comprehensive intercarrier compensation reform at the federal level might not be able to address intrastate access charges, which tend to be the termination rates that most exceed cost. Thus unless the reform process includes the active participation and support of state jurisdictions, it may not be able to resolve some of the problems underlying phantom traffic. Section 253 of the 1996 Act,[38] however, allows the FCC to preempt state statutes or regulations that are barriers to entry into the provision of interstate or intrastate telecommunications service, and thus potentially could be used as the basis for the FCC to modify intrastate intercarrier compensation rates as part of comprehensive reform, if the absence of reform can be shown to harm competition.

Measures Specific to Phantom Traffic. The alternative approach is to focus narrowly on traffic that is not adequately identified, and therefore makes appropriate billing for that traffic difficult or impossible, by enacting laws or adopting FCC rules intended to improve identification of the source and type of calls, and by increasing FCC enforcement of its rules. Most trade associations and many industry parties have made specific proposals and/or critiqued the proposals of others, a representative sample of which are presented here.

The National Exchange Carrier Association (NECA), the organization that administers the FCC's access charge plan for small rural telephone companies, has petitioned the FCC to modify its signaling requirements and to take other actions to address phantom traffic issues.[39] NECA claims that small rural carriers cannot rely upon the process enacted in sections 251 and 252 of the 1996 Act,[40] which allows a local exchange carrier that receives a request from another telecommunications carrier to interconnect to its network to negotiate a binding agreement with the requesting carrier and to seek arbitration if the negotiations reach an impasse, to

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[37] See CRS Report RL33979, *Universal Service Fund: Background and Options for Reform*, by Angele A. Gilroy.

[38] Incorporated into the Communications Act of 1934, as amended, at 47 U.S.C. 253.

[39] See letter dated April 24, 2008, and attachments, from Joe A. Douglas, vice president, government relations, NECA, to Marlene Dortch, Secretary, FCC, *Re: WC Docket No. 01-92, Developing a Unified Intercarrier Compensation Regime.* The FCC's signaling rules were developed in its caller ID proceeding, which was concerned with privacy issues, and therefore were not developed with intercarrier compensation billing in mind.

[40] Incorporated into the Communications Act of 1934, as amended at 47 U.S.C. 251 and 252.

obtain the signaling and call detail information needed to bill interconnecting carriers for the termination of calls. It claims the rural carriers are in a weak bargaining position and are constrained from taking advantage of the arbitration option by the costs of pursuing arbitration. Instead, NECA proposes that the FCC impose strict requirements on originating carriers. Specifically, it proposes that the FCC:

- extend its call signaling rules to all interconnected voice service providers.
- require that accurate and unaltered calling party number (CPN) information be transmitted with all voice calls that terminate on the PSTN.
- require CPN to be transmitted through the entire call path.
- establish the use of originating and terminating telephone numbers as a fallback rule to determine the call jurisdiction (that is, intrastate or interstate, local or long distance), absent actual geographic data or a negotiated agreement.

USTelecom, the largest industry trade association with membership that spans a broader range of wireline carriers, also has a multi-pronged proposal,[41] with some elements similar to those of the NECA proposal. Specifically, USTelecom proposes that the FCC apply the following obligations on all traffic originating on or terminating to the public switched telephone network, including traffic originating on other networks:

- Every originating provider must transmit in its signaling, where feasible with its network technology deployed at the time the call was originated, the telephone number received from or assigned to the calling party.
- Every provider must transmit without alteration, except where not feasible with network technology deployed at the time the call was originated, or where PSTN industry standards would dictate otherwise, the telephone number information that it receives from another provider in signaling.
- It should be deemed an unreasonable practice for a provider to route traffic for the purpose of disguising the identify of the financially responsible provider or the traffic's originating jurisdiction.
- The initiating carrier must perform a local number portability query that would identify who the called party is, in order to deliver the

[41] Letter from Glenn T. Reynolds, Vice President - Policy, USTelecom, to Marlene Dortch, Secretary, FCC, *Re: Developing a Unified Inter-carrier Compensation Regime*, WC Docket No. 01-92, May 8, 2008.

call to the tandem switch serving the carrier to whom the called party subscribes.[42]

- The FCC should provide incumbent local exchange carriers the ability to invoke the negotiation and arbitration procedures set forth in sections 251 and 252 of the 1996 Act.

- The FCC should commit to aggressively enforce these rules and obligations.

The primary difference in these two proposals is that USTelecom would have the FCC explicitly take into account the capabilities and limitations of the network technology currently deployed when setting requirements. USTelecom also would rely on the negotiation and arbitration provisions in the 1996 Act to obtain the signaling and call detail information needed for intercarrier billing.

Qwest claims that comprehensive intercarrier compensation reform "is the only true and complete solution to the phantom traffic problem."[43] It states that the FCC could address phantom traffic on an interim basis, however, by (1) reinforcing that the 1996 Act requires and enables all types of service providers to enter into agreements for the exchange of traffic, and (2) expanding the scope of FCC rules requiring the passage of information necessary for accurate billing. This approach appears to be similar to that of USTelecom. Qwest claims the FCC's call signaling rules were targeted to a narrow subset of traffic — interstate traffic using the most common traditional PSTN signaling protocol — and do not cover VoIP-originated calls that terminate on the PSTN.

The Voice on the Net or VON Coalition, representing the VoIP industry, has a very different take on phantom-traffic specific proposals.[44] It claims the FCC already has rules about the call detail information to be provided for a call that is generated and exchanged — specifically, that carriers that utilize SS7 signaling already are required to transmit the calling party number associated with an interstate call to interconnecting carriers — and those rules simply must be enforced. It claims some of the blame for phantom traffic falls on incumbent local exchange carriers that have not updated their networks to accommodate SS7. The VON Coalition could support a requirement that, where technically and operationally feasible with the network

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[42] This is needed because the telephone number, itself, does not identify the called party's carrier since customers can change carriers but retain their telephone number. If the initiating carrier does not perform a local number portability query, the call may be routed to the called party's previous carrier and then have to be rerouted, with the possibility that some of the call detail information needed for billing is lost.

[43] See Testimony of Lawrence E. Sarjeant, vice president for federal legislative and regulatory affairs, Qwest, Before the Senate Committee on Commerce, Science, and Transportation, Hearing on Phantom Traffic, April 23, 2008, at p. 6.

[44] See, for example, the Testimony of Angela Simpson, director of government affairs, Covad Communications, and president of the VON Coalition, on behalf of the VON Coalition, Before the Committee on Commerce, Science and Transportation, Hearing on Phantom Traffic, April 23, 2008.

technology deployed at the time the call was originated, the originating provider transmit the telephone number received from or assigned to the calling party. The requirement would not apply, however, where no telephone number is assigned to the calling party. The VON Coalition opposes any new obligations to generate call identifying information where such information does not generate organically. The VON Coalition strongly opposes any blocking of VoIP calls by terminating carriers.

CTIA, the Wireless Association, generally supports proposed rules detailing the responsibilities of carriers exchanging traffic to deliver signaling and call identifying information to tandem providers and terminating carriers to facilitate the creation of accurate billing records and identification of the parties responsible for payment.[45] It does not oppose an obligation on carriers to transmit call originating information pursuant to relevant Commission rules and industry standards, but does not support mandating any requirements that the industry standards groups have not mandated. For example, some of the fields in the SS7 databases are set aside for Jurisdictional Information Parameters, but it is not mandatory under current industry standards to populate these fields with call detail data. Since such data often will not identify the jurisdiction of a wireless call, CTIA opposes mandatory population of the JIP fields. CTIA supports imposing an obligation on tandem transit providers, or any other provider in the transmission chain, to pass along all call origination information received from the originating carrier, or subsequent carrier in the chain, without alteration. It opposes requiring carriers to make costly investment to enable last generation equipment to make jurisdictional distinctions between categories of traffic while the FCC is considering whether to eliminate those jurisdictional distinctions.

Sprint does not believe the specific issue of phantom traffic warrants legislation.[46] It would oppose any legislation or rule requiring that the called and calling party numbers always be used to determine the jurisdiction or rate applicable to a call for billing purposes, because such a rule would fly in the face of the trend toward mobile calling using wireless and VoIP technologies. It also would oppose any legislation or rule that required carriers to re-engineer their network architecture in an inefficient and costly manner — for example, by requiring carriers to segregate different types of traffic onto separate facilities or to require direct connectivity between carriers. According to Sprint, restrictions on traffic aggregation would undermine scale economies and raise costs, imposing inefficiency and unnecessary investment burdens on many companies.

All the phantom traffic-specific proposals are intended to improve the quality of call detail information available to terminating carriers, but they could have several drawbacks.

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[45] See, for example, *In the Matter of Developing a Unified Intercarrier Compensation Regime*, DD Docket No. 01-92, Comments of CTIA — The Wireless Association, December 7, 2006.

[46] See the Written Testimony of Charles W. McKee, Director of Government Affairs, Sprint Nextel Corporation, before the Senate Committee on Commerce, Science and Transportation, Hearing on Phantom Traffic, April 23, 2008.

- Placing responsibility and liability on intermediate carriers might not be appropriate when it is the originating companies that have failed to provide the call data needed for billing.

- Given the differences in network architectures, the FCC would face a difficult task in determining what call detail information is needed and which set of carriers would have the obligation to update their signaling and call detail database capabilities. For example, the traditional wireline companies' billing databases typically rely on the location-specific information provided by 10-digit telephone numbers to determine termination rates, but the wireless and VoIP providers offer services that are not geographically fixed, and often do not include jurisdictional information parameters in their databases. The FCC would have to determine the extent to which the burden of making their systems compatible should fall on the wireline carriers or the wireless and VoIP carriers. This would be a less difficult and contentious regulatory task if comprehensive intercarrier compensation reform significantly reduced the amount of call detail data needed for billing.

- More generally, focusing solely on the quality of call detail information available to terminating carriers would not reduce the need for all voice providers to develop and maintain highly complex signaling and call detail systems.

- Narrowly focused solutions that do not address the large differentials in termination rates would not eliminate the incentives of originating and transiting carriers to mask the source or type of traffic if that would allow them to pay lower termination charges (though they would make it more difficult to perform arbitrage).

- Comprehensive intercarrier compensation reform is most likely to be achieved if all of the interested parties have something to gain, as well as something to sacrifice, from a compromise package. Since phantom traffic represents the one aspect of intercarrier compensation of most concern to the rural telephone companies, if their most important need was met by a piecemeal solution they might no longer have the incentive to support comprehensive reform, thus undermining that effort.

One Legislative Proposal — S. 2919

Although to date the public policy debate on how to resolve phantom traffic has primarily occurred at the FCC, state regulatory commissions, and industry forums, it is now reaching Congress, as some parties are seeking a federal legislative solution. One piece of legislation has been introduced. S. 2919, the Signaling Modernization Act of 2008, introduced on April 24, 2008 by Senator Stevens, focuses relatively narrowly on improving the quality of call detail information available to terminating carriers, but explicitly takes into account the technical limitations of the signaling equipment currently used in the industry. It applies to voice communications service

providers, where voice communications service means telecommunications service or IP-enabled voice service.[47]

Section 2 of the bill would amend Title VII of the Communications Act by adding a new Section 715, "Network Traffic Identification Accountability Standards" that delineates duties of voice communications service providers. Section 3 of the bill would require the FCC to establish rules and enforcement provisions to implement the requirements of Section 715 within 12 months of enactment. There are three key provisions in these sections.

- A voice communications service provider "shall ensure that all voice communications service traffic that originates on its network contains the signaling information reasonably needed to facilitate intercarrier billing in accordance with industry standards, as determined by the Commission."

- Further, "except as otherwise permitted by the Commission, a provider that transports or transits traffic between voice communications service providers shall forward without altering the signaling information it receives from another provider that is reasonably needed to facilitate intercarrier billing in accordance with industry standards."

- "In determining the signaling information that is reasonably needed to facilitate intercarrier billing, the Commission shall consider, at a minimum — (1) industry standards regarding the transmission of call detail information; (2) the technical limitations of signaling equipment used in the industry; and (3) the costs and resources required to modify equipment or procedures to accommodate any changes from industry standards."

The incorporation of the phrase "signaling information reasonably needed to facilitate intercarrier billing" in all three provisions provides the FCC with guidance, but also with great latitude. The additional instruction for the FCC to consider industry standards, the technical limitations of existing signaling equipment, and the costs of modifying equipment and procedures also provides guidance without taking away FCC discretion, since it does not tell the FCC how to weigh these factors.

Consider, for example, how the legislative language might be applied to two different situations that exist today. Industry standards have long incorporated the SS7 signaling system and almost all carriers have deployed that system. It would appear that the FCC could use the language in S. 2919 to require those few companies that have not yet deployed SS7 to do so. On the other hand, although

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[47] IP-enabled voice service is defined in the bill as "the provision of real-time two-way voice communications offered to the public, or such classes of users to be effectively available to the public, transmitted through customer premises equipment using Internet protocol, or a successor protocol, with two-way transmission capability such that the service can originate traffic to, and terminate traffic from, the public switched telephone network."

most companies encode Jurisdictional Information Parameters into their routing and billing databases, current practice varies widely across technologies. What is standard practice in one industry segment may not be standard practice in another segment. Wireline carriers incorporate certain JIP locational data that many wireless and VoIP providers do not, and many wireline carriers do not encode data that are needed to appropriately identify intraMTA calls.[48] The FCC would have to determine the signaling and call detail database upgrades required for each segment of the voice market. More generally, although the industry standards bodies are open to all companies in the industry, new entrants — particularly those deploying new technologies — are likely to be underrepresented initially. The FCC therefore might have to determine how closely to abide by industry standards that new entrants do not consider appropriate to their network architectures or business plans. This will require the expert agency to exercise its judgment.

One notable aspect of S. 2919 is that it attempts to minimize its intrusion into companies' network architecture and investment decisions. Notably, it would not restrict companies from exploiting economies of scale by prohibiting the aggregation of different sources or types of calls on particular trunks.

S. 2919 has some aspects common to proposals that focus narrowly on the availability of call detail data needed for accurate billing. It does not address the multiplicity of termination charges currently in effect and therefore would not remove the incentive of originating and transiting companies to mask the source or type of traffic they originate in order to try to avoid termination costs. Nor does it reduce the need for companies to invest in very complex signaling and call data information systems. Some observers may argue that its enactment might erode support by rural telephone companies for comprehensive intercarrier compensation reform

[48] See Susana Schwartz, "Phantom Traffic: Identifiable but Not Billable," *B/OSS — Billing and OSS World*, July 1, 2005, available at [http://www.billingworld.com/articles/feature/Phantom-Traffic-Identifiable-but-Not.html], viewed on June 18, 2008.