

# A STUDY OF VOICE OVER INTERNET PROTOCOL IN MISSOURI



**VoIP INDUSTRY TASK FORCE REPORT  
MARCH 30, 2004  
CASE NO. TW-2004-0324**

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## Introduction

On February 3, 2004, the Missouri Public Service Commission (MoPSC or Commission) issued an Order Establishing Case (Order) for the purpose of conducting a study of Voice over Internet Protocol (VoIP). In its Order, the Commission instructed the Telecommunications Department Staff (Staff) to facilitate industry workshops and prepare a report on different ways VoIP technology is used in the marketplace, and to assess the significance that widespread deployment of VoIP technology may have on telecommunications in Missouri. The Order also directed parties to assess to what extent, if any, VoIP technologies may uniquely affect Missouri. In noting a decision by the U.S. District Court for the District of Minnesota, the Commission's Order made the following statement: "[T]he opening of this case should not be read as indicating a Commission opinion for or against the lawfulness of state regulation of VoIP telephony."

VoIP telephony is unlike traditional telephone service in at least one significant respect. Although both traditional telephony and VoIP telephony utilize digital services, the transmission medium of VoIP uses Internet protocol (IP) as a transport technology, whereas traditional telephony uses time division multiplexing (TDM) as a transport technology. VoIP technology utilizes software applications and computing devices that convert voice conversations into digitized packets and transmits these packets over either the public Internet (Internet) or "managed" Internet protocol networks. Although most VoIP related services enable calling to and from the public switched telephone network, numerous VoIP related services traverse as data packets entirely on the Internet. These data packets are routed using Internet protocol, which is the world's most common method for sending data from one computer to another. When used as a replacement for traditional telephone service, VoIP telephony requires a "broadband" connection to achieve the necessary speed and "always on" functionality.<sup>1</sup>

From its infancy in the mid 1990s, VoIP technologies continue to be deployed as a mass-market addition to, or substitute for, traditional telephone service. One company, Vonage Holdings

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<sup>1</sup> The Task Force acknowledges that there is no single definition of "broadband". For the purpose of its December 2003 Report on High-Speed Services for Internet Access, the FCC defined *high-speed lines* as those that provide services at speeds exceeding 200 kilobits per second (kbps) in at least one direction, while *advanced services lines* are those that provide services at speeds exceeding 200 kbps in both directions.

Corp. (Vonage), has emerged as an industry leader reporting over 55 percent of Internet telephony in the residential marketplace. In early February 2004, Vonage announced that it had activated its 100,000<sup>th</sup> line – less than five months after having activated its 50,000<sup>th</sup> line.<sup>2</sup> According to forecasts by market research and consulting firm Parks Associates, there will be 4.5 million residential VoIP subscribers in the United States by 2007.<sup>3</sup> On a comparative basis, this projection represents approximately 2.4 percent of current wireline access lines in the United States. (The Industry Analysis Division of the Federal Communications Commission’s (FCC’s) Wireline Competition Bureau estimates there were a total of 187.5 million traditional switched access lines and 140.8 million mobile wireless subscribers in the United States as of December 31, 2002. Data for Missouri show approximately 3.5 million switched access lines and approximately 2.3 million mobile wireless subscribers.) According to another study, approximately 4 percent of circuit switched national and international U.S. long distance revenues will derive from VoIP by 2006.<sup>4</sup> VoIP technology is also being incorporated into traditional long distance networks and one company, AT&T Communications, has petitioned the FCC for a declaratory ruling exempting the imposition of local exchange access charges on calls carried over AT&T’s managed Internet backbone. The FCC notes that in 2002, international VoIP traffic increased by 80% to 18.7 billion minutes, and comprised approximately 10.8% of all international call traffic (these numbers include all cross-border calls carried on an Internet protocol network and terminated on the public switched telephone network; personal computer to personal computer (PC-to-PC) communications and Private Virtual Network traffic were excluded). According to the FCC, another source estimates that, in 2002, the total world retail (residential and enterprise) Internet protocol voice traffic volume was approximately 47.5 billion minutes, while approximately 8 trillion minutes were carried using the public switched telephone network.<sup>5</sup> The Internet protocol network traffic represents about six-tenths of one percent of total minutes.

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<sup>2</sup> Statement to the U.S. Senate Committee on Commerce, Science, and Transportation by Jeffrey Citron, Chairman and Chief Executive Officer, Vonage Holdings Corporation. February 24, 2004.

<sup>3</sup> From an article “Viral VoIP - The Spread of Residential IP Telephony”: *Xchange* magazine, March 2004.

<sup>4</sup> Gartner Group, United States: *Fixed Public Network Services, 2001-2007* (Apr. 2003)

<sup>5</sup> Notice of Proposed Rulemaking. *In the Matter of IP-Enabled Services*. WC Docket No. 04-36. Released March 10, 2004. (Footnote 34).

Various parties have raised questions regarding what regulations, if any, should be applied to VoIP. The classification of VoIP as either an “information service” or a “telecommunications service” will play an important role in determining the scope of regulations applied to VoIP. In general, information services are exempt from the regulations commonly applied to traditional telecommunications companies. The FCC is expected to make decisions regarding the classification of VoIP services. In a recent decision, the FCC ruled that one form of VoIP, the “Computer-to-Computer” service of Pulver.com (marketed as Free World Dialup as described in the Pulver.com petition), is an unregulated information service subject solely to nonregulation by the federal government. In its ruling the FCC declared Free World Dialup to be neither a “telecommunications service” nor “telecommunications”. Rather, Free World Dialup was deemed to be an “information service”<sup>6</sup>.

This Report is divided into four general areas: VoIP Technology, Federal VoIP Activity, Missouri-specific VoIP Potential Impacts, and VoIP Issues. “VoIP Technology” is intended to explain and describe how VoIP is currently used. This portion of the report will explain “Phone-to-Phone,” “Computer-to-Phone,” “Computer-to-Computer,” and “cable TV” VoIP applications. “Federal VoIP Activity” will identify and summarize various FCC petitions and rulemakings pertaining to VoIP issues currently before the FCC. The portion of the Report entitled “Missouri-specific VoIP Potential Impacts” is intended to analyze how VoIP may be expected to uniquely affect Missouri. This part of the Report provides analysis and commentary on the potential for VoIP to impact sales tax receipts, Relay Missouri funding, 9-1-1 funding and Missouri Commission assessments. The potential impact of VoIP on Missouri’s local telephone companies will also be examined. “VoIP Issues” will address a wide variety of VoIP-related issues raised by workshop participants. Workshop participants have identified VoIP issues related to regulatory treatment, intercompany issues, public safety/security issues, and telephone

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<sup>6</sup> The FCC’s Order is limited to the Free World Dialup (FWD) service as it was described in Pulver’s petition and the subsequent ex parte. The characteristics on which the FCC based its conclusion that FWD is an information service are as follows: (1) FWD is a computer-to-computer service enabled by peer-to-peer technology; (2) FWD enables voice communications only between FWD members over the Internet; (3) FWD members must have a broadband connection (i.e. dialup access is excluded); (4) FWD is a free service; and (5) FWD does not in any way involve communications that originate or terminate on the public switched telephone network.

numbering issues. The Report provides workshop participant responses to these issues. A glossary of terms is provided at the end of the Report.

Workshops were held on February 23 and March 8, 2004, to discuss the compilation of this Report. Workshop attendees are listed at the end of this Report. Attempts were made to incorporate the views of all parties in the explanation, identification and responses to VoIP-related issues. Although the Report is a collaborative effort with workshop and case participants, certain portions of the Report may not reflect the viewpoint of all parties.

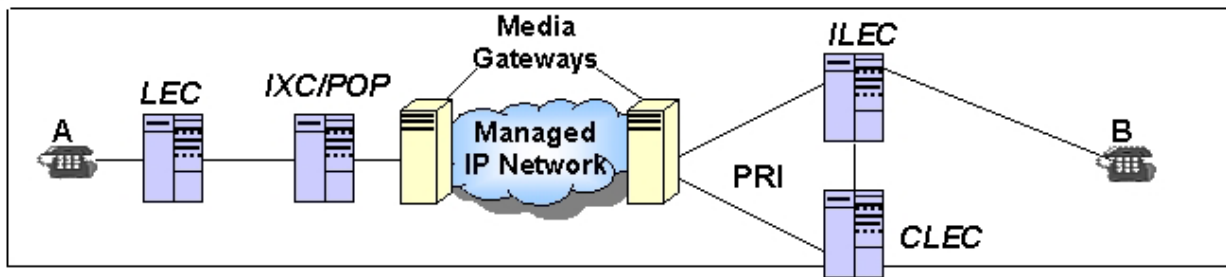
The following entities filed Notices of Participation in this Case:

Alltel Missouri, Inc.  
Ameren Energy Communications, Inc.  
AT&T Communications of the Southwest, Inc.  
Big River Telephone Company  
Brooks Fiber Communications  
CenturyTel of Missouri  
Charter Fiberlink – Missouri  
Cinergy Communications Company  
Covad Communications Company  
Enhanced Communications Group  
Fidelity Telephone Company  
Intermedia Communications, Inc.  
Intrado, Inc.  
KMC Telecom III  
Level 3 Communications  
MCImetro Access Transmission Services  
MCI WorldCom Communications, Inc.  
Missouri Association of Municipal Utilities  
Nuvio Corporation  
SBC Missouri  
Socket Telecom  
Sprint Missouri, Inc.  
The Missouri Independent Telephone Company Group  
The Office of the Public Counsel  
The Small Telephone Company Group  
The Voice on the Net Coalition  
Time Warner Cable Information Services - Missouri  
Vonage Holdings, Inc.  
XO Missouri, Inc.  
Xspedius Communications

## PART I – VoIP TECHNOLOGY

The Commission’s Order Establishing Case directed the parties to discuss the different ways VoIP technology is used in the marketplace. The parties identified four basic applications of VoIP technology. The four applications are described as follows: (1) Phone-to-Phone VoIP, (2) Computer-to-Phone VoIP, (3) Computer-to-Computer VoIP, and (4) cable TV VoIP. The Report describes how calls using these various VoIP applications are placed and routed. In addition the Report attempts to describe how VoIP subscribers receive calls.

### Phone-To-Phone VoIP



The above diagram depicts a long distance call originated by the caller on the left (Telephone “A”) to a customer on the right (Telephone “B”). This call offers an example of “Phone to Phone” VoIP because both Telephone “A” and Telephone “B” are connected to the public switched telephone network in the traditional analog or POTS (Plain Old Telephone Service) manner. This example represents a long distance call being transported via a “managed” Internet protocol network, and not the public Internet. As the VoIP portion of the call occurs between the two media gateways, this example of VoIP is sometimes referred to as “IP in the middle”.

The above example depicts a long distance call being originated on the public switched telephone network in the traditional circuit switched manner, and undergoing a conversion to Internet protocol at a media gateway. After being converted to Internet protocol, the call proceeds along the managed Internet protocol network to another media gateway, where the call is converted back to a time division multiplexed format compatible with the public switched telephone network. As shown in the right-hand portion of the example, a competitive local exchange carrier may be used for call termination or, the call may be routed directly to the incumbent local exchange carrier.



The Phone-to-Phone VoIP application above depicts “media gateways” and Internet protocol being used to transport the long distance call. These transport methods are used in lieu of circuit switched equipment and time division multiplexing commonly used in a long distance carrier’s network. As the long distance call is being processed by media gateways instead of traditional circuit switched equipment, the long distance company in the above diagram has chosen to use methods other than switched access trunks for call termination. When the long distance carrier does not use switched access arrangements for call termination, it uses local business access lines or Primary Rate Interface (“PRI”) trunks for call termination. By using PRI trunks the long distance carrier would terminate its long distance calls onto the local network through the use of reciprocal compensation arrangements or rates for local business lines found in general exchange tariffs.

#### How does Telephone “A” receive calls?

Since Telephone “A” is connected to the public switched telephone network in the usual manner, the user receives incoming telephone calls in the traditional circuit switched manner. Long distance calls are terminated to Telephone “A” by the local exchange carrier’s local network through tandem switching facilities interconnected with the long distance carrier. Calls terminated to Telephone “A” in this manner are subject to exchange access charges of the local exchange carrier.

## **Computer-to-Phone VoIP**

The following examples show two applications of Computer-to-Phone VoIP. The first example, labeled Computer-to-Phone VoIP Broadband Connection explains a Computer-to-Phone application where the caller is a broadband subscriber making an ordinary 10-digit “telephone call” to an ordinary telephone customer connected to the public switched telephone network. The second example depicts a Computer-to-Phone “telephone call” where the caller accesses the Internet using an ordinary modem (and not a broadband connection) to call an ordinary telephone customer connected to the public switched telephone network. The use of an ordinary modem to originate a Computer-to-Phone VoIP application is sometimes referred to as a “dial up” connection.

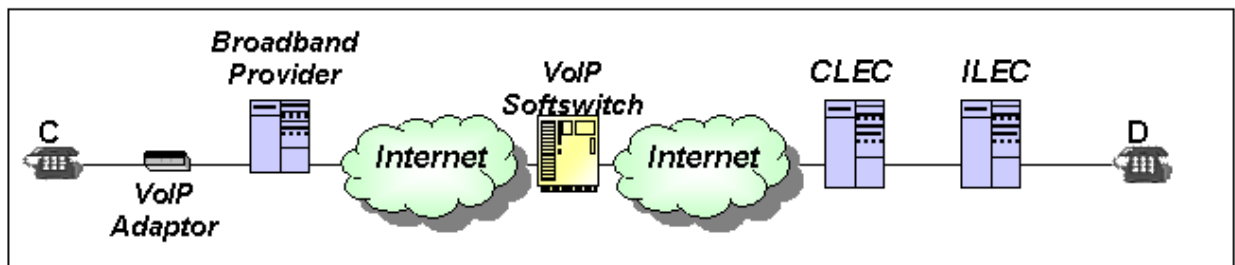
Computer-to-Phone VoIP uses IP technology at the beginning of the call where the caller’s voice is converted to Internet protocol at the customer’s premises. Computer-to-Phone technology is distinguished by at least two unique characteristics: 1) Internet protocol transmission occurs between the end user customer and an Internet service provider (or broadband provider), and 2) the service enables the caller to make calls to (and receive calls from) the public switched telephone network (and not just to Internet subscribers). Stated differently, because the communication leaves the customer’s premises in Internet protocol, and exits the network to the called party’s customer premises in time-division multiplex protocol, a net protocol conversion is said to have taken place.

Although a personal computer may be used to initiate a call using a Computer-to-Phone application, Computer-to-Phone VoIP does not necessarily require use of a personal computer. Rather, the term “computer” refers to a “computing device” which may be embedded in a personal computer, an Internet protocol terminal adaptor and/or an Internet protocol based telephone set. In any case, an important distinction is that the caller’s voice is converted to an Internet protocol at the caller’s premises.

Computer-to-Phone users are typically assigned 10-digit telephone numbers; however, depending on the type of connection, Computer-to-Phone VoIP allows some unique applications

of these telephone numbers. A Computer-to-Phone application can allow a caller to choose a telephone number outside of the caller's local calling area. For example, a Computer-to-Phone VoIP customer located in Kansas City, Missouri may choose both a local telephone number assigned to Kansas City, and a telephone number assigned to, for example, San Francisco, California. Such number assignments would permit the customer to receive locally dialed calls from Kansas City on the first number, and to receive what appears to be locally dialed calls from San Francisco on the second number.

### **Computer-to-Phone VoIP-Broadband Connection**



The above diagram is representative of VoIP technology deployed in a broadband connection. The FCC has been requested to exert jurisdiction and preempt state authority in Minnesota over this form of VoIP telephony. Customers using the type of VoIP technology shown by Telephone “C” must be served by a broadband connection and they must have the necessary customer premises equipment to make the service work properly. Moreover, such VoIP subscribers must also maintain a constant connection to the broadband provider in order for the service to work continuously<sup>7</sup>. While a broadband connection is required, the broadband service provider is not necessarily the VoIP provider. In fact, the broadband service provider and the VoIP provider may have no relationship with each other.

Computer-to-Phone VoIP applications do not require the use of an actual personal computer, and the telephone being used by the broadband subscriber may be an ordinary telephone or it may be a session initiation protocol (SIP) telephone, sometimes called an “IP Phone”. If using an ordinary telephone, the subscriber must also use a multimedia terminal adaptor, often referred to

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<sup>7</sup> Since broadband modems and routers usually operate on AC power, a customer may lose their Internet connection if the electricity goes out.

simply as an “adaptor”. In either case, a computing device is used to put the call into Internet protocol, and a net protocol conversion occurs from Internet protocol format to time division multiplex format prior to the call arriving at the called party’s premises. Such conversions allow ordinary voice conversations to be converted to and from Internet protocol. It should be noted, if a VoIP customer calls another VoIP customer with the same VoIP service provider (or another compatible VoIP provider), the call may never touch the public switched telephone network; instead, it would be a Computer-to-Computer VoIP call.

Computer-to-Phone applications allow a broadband user (in this example, Telephone “C”) to call (or receive calls from) any ordinary telephone number (shown as Telephone “D”). It is important to recognize that both Telephones “C” and “D” are assigned ordinary 10-digit telephone numbers.<sup>8</sup> The VoIP service being offered to Telephone “C” enables the VoIP subscriber to make both “local” and “long distance” voice calls. Using this form of VoIP, it is also possible for the VoIP subscriber to choose a telephone number with the same area code and prefix as Telephone “D”, so that calls between the two will be local instead of long distance, even though the calling and called parties are not physically located within the same local calling area. In this respect, VoIP telephone subscribers enjoy some advantages over traditional telephone service.

VoIP telephone subscribers can choose telephone numbers that are not limited by the geographic boundaries of traditional telephone service. The VoIP provider is generally not certificated by the state commission and, therefore, must obtain telephone numbers from other certificated carriers, often from competitive local exchange carriers. For example, a Missouri VoIP customer may choose a telephone number that is local to Chicago, Illinois. Since it is possible to assign multiple telephone numbers to a single telephone adaptor, the caller at Telephone “C” could simultaneously have telephone numbers that are local to Chicago, Kansas City, St. Louis, and Denver, Colorado. This allows local calling to the VoIP customer from those exchange areas.

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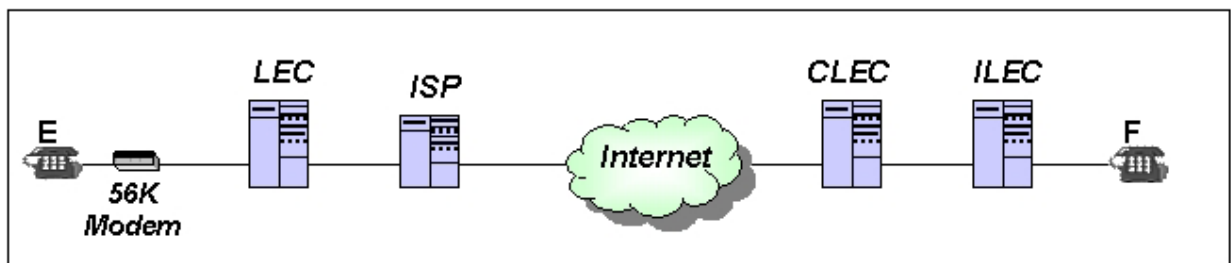
<sup>8</sup> A petition to the FCC claims that the telephone number is assigned to the computing device, and not to the telephone itself.

It is also important to note that an Internet protocol telephone or telephone adaptor may be reached wherever it is connected to a broadband Internet connection. For example, as long as it is connected to broadband Internet, a telephone adaptor assigned to a Kansas City, Missouri telephone number can be reached just as easily at a hotel in Santiago, Chile as at the customer's Kansas City residence. This provides geographic portability not possible with traditional telephone service. To reach the VoIP customer, one must simply dial his or her assigned telephone number(s), which makes Telephone "C's" location transparent to the caller at Telephone "D".

### How does Telephone "C" receive calls?

The above diagram shows Telephone "C" being provided broadband service by a broadband service provider and VoIP telephone service by a VoIP provider using equipment known as a "softswitch". Long distance calls from Telephone "D" to Telephone "C" are routed through the traditional public switched telephone network to a local exchange carrier who maintains business arrangements with the VoIP service provider serving Telephone "C". The VoIP provider then routes the call to Telephone "C" for call termination.

### Computer-to-Phone VoIP - Dial Up Connection



The above example depicts a "dial up" Internet connection used to make long distance calls over the public Internet. This scenario is similar to using a calling card to make long distance calls, except the caller uses a computer to initiate the calls.

In this case, the call from Computer "E" to Telephone "F" begins when the caller at Computer "E" establishes an Internet connection via a 56 kilobit per second (56K) modem over a traditional telephone line and opens a VoIP software application on the computer. The caller logs into the software with a username and password and, once logged in, may dial 10-digit

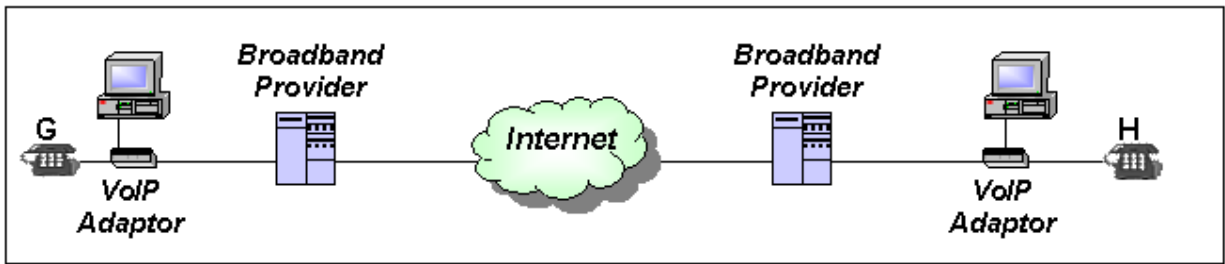
North American Numbering Plan numbers via the VoIP software's Graphical User Interface. The call travels first over the caller's 56K Internet connection to the caller's Internet Service Provider who then processes the call using Internet protocol over the public Internet. The call arrives in the form of Internet protocol at a predetermined media gateway of a competitive local exchange or long distance carrier. The media gateway converts the Internet protocol into the time division multiplex format recognized by the public switched telephone network. Once the conversion takes place, the competitive local exchange or long distance carrier then routes the call to the incumbent local exchange carrier's customer (Telephone "F"). Compensation between the competitive and incumbent local exchange carriers is pursuant to a reciprocal compensation agreement.

The personal computer in the above diagram must meet certain requirements allowing the caller to use a microphone and speakers or headset equipment. This example shows a dial-up connection, but customers with a broadband Internet connection may use the above described service as well. The important thing is that the customer is connected to the public Internet; otherwise, no calls can be placed with this method. Also, in order to make calls to the public switched telephone network, the caller must have prepaid for minutes that are assigned to the caller's username/password combination.

#### How does Computer "E" receive calls?

Although it is theoretically possible to call from Telephone "F" to Computer "E", this type of service does not appear to be prevalent. This type of calling is limited because Computer "E" must remain logged on to the Internet in a "dial up" mode in order to receive calls.

## Computer-to-Computer VoIP – Broadband Connection



In the above example of one popular form of Computer-to-Computer VoIP, two people may conduct a voice conversation using their computers and broadband Internet connections at each end of the call. Websites such as [freeworldialup.com](http://freeworldialup.com) and [nikotel.com](http://nikotel.com) offer free Computer-to-Computer calling for registered users who have an account at a VoIP provider's website. Once the users have their account identification, they may make voice calls to other computers using the same VoIP service (some software providers interconnect their networks to expand these free calling scopes). As with other "computer" related VoIP technologies, Computer-to-Computer VoIP does not require the use of a personal computer. Rather, a computing device may be used at the customer's premises to convert voice into Internet protocol packets for transmission across the Internet to the computing device the called party uses to receive communications. Session initiation protocol phones and telephone adaptors contain the necessary computing devices to enable Computer-to-Computer communications to occur without the use of a personal computer.

The call in the above example does not traverse the public switched telephone network and proceeds in the following manner. The caller at Internet protocol Phone "G" dials Internet protocol Phone "H's" assigned number. (This number may or may not be a 10-digit telephone number.) The call travels from Telephone "G" over broadband to the public Internet and terminates over broadband to Telephone "H". Telephone "G's" calling scope is limited to other people who use compatible software, but is not absolutely restricted from the public switched telephone network. Some companies offer limited access to the public switched telephone network. For example, [freeworlddialup.com](http://freeworlddialup.com) offers free outward dialing to toll-free numbers in the United States, United Kingdom, Japan, and the Netherlands.

These no charge Computer-to-Computer services can often be expanded for relatively little cost to include access to and from the public switched telephone network and a 10-digit North American Numbering Plan number<sup>9</sup>. Fees for service expansion can be subscription (i.e., monthly) or usage based. In certain instances, it is even possible to obtain a local telephone number at no charge from companies such as Ipkall.com. Since session initiation protocol phones, VoIP adaptors, and software-based Internet protocol phones are not geographically restricted, anyone in the world with a broadband Internet connection can configure this service and take it with them wherever they travel. The expanded version of this service may more accurately be classified as a Computer-to-Phone application. The FCC has ruled that Pulver.com's Computer-to-Computer VoIP is not a telecommunications service.<sup>10</sup> However, the FCC's decision did not specifically address the expanded version of the service where calls can be placed to or from the public switched telephone network.

#### How does Telephone "G" receive calls?

Telephone "G" may not be able to receive calls from the public switched telephone network unless Telephone "G" subscribes to the previously described expanded version of the service. However, without the expanded version of the service, Telephone "G" may receive calls from other subscribers to the same VoIP service. If the caller and Telephone "G" are served by the same VoIP provider, then the call travels substantially the same path as the call from Telephone "G" to Telephone "H". This type of call requires the caller and the called party to use compatible software. In other words, both parties must use the same VoIP provider or, alternatively, both parties must use VoIP providers who have made arrangements to interconnect their users. In order for Telephone "G" to receive calls from the public switched telephone network, Telephone "G" must subscribe to the VoIP provider's expanded service, if available. The expanded service allows Telephone "G" to be assigned a 10-digit telephone number. The call from the public switched telephone network to Telephone "G" will ultimately be routed to Telephone "G's" VoIP provider by either the caller's local exchange carrier or the caller's long distance carrier, depending on whether Telephone "G's" number is a local or toll number for the caller. Telephone "G's" VoIP provider will route the call to Telephone "G's" broadband provider who then forwards the call to Telephone "G".

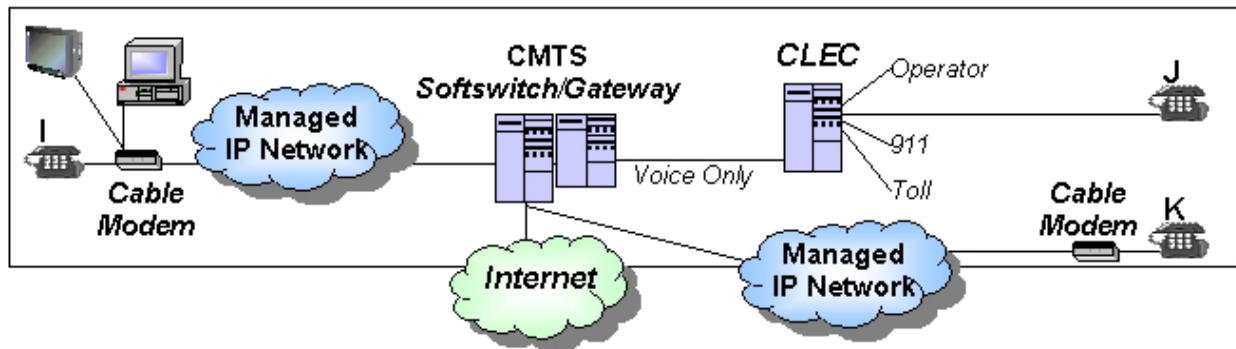
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<sup>9</sup> See "Computer-to-Phone" example for an example of this service.

<sup>10</sup> See Footnote 6.



## Cable TV VoIP



The above example depicts VoIP used in conjunction with a cable TV local network. The example shows how voice services may be delivered to customers using the same fiber and coaxial distribution facilities as are used to deliver data and video services. Customer premises equipment is shown connected to the cable TV company's "head end" facilities whose main components consist of a CMTS (Cable Modem Termination System), "softswitch" and "media gateway".

This form of VoIP technology uses premises-based equipment and a media gateway to perform Internet protocol conversions. The cable modem at the cable TV customer premises contains a multimedia terminal adaptor that digitizes the speaker's voice into packet form. In conjunction with the softswitch, these packets are sent to the media gateway device for termination to the public switched telephone network. Calls destined to the public switched telephone network are converted from Internet protocol to conventional telephone time division multiplex protocol by the media gateway. Calls destined for termination to the public switched network are often referred to as "off network" calls. Calls destined to other cable TV subscribers - often referred to as "on network" calls - may occur over a great distance (such as in another part of the country) and are converted from Internet protocol to voice by that customer's multimedia terminal adaptor within his or her cable modem. An important distinction is that a "managed" Internet protocol network is used to deliver "on network" calling - not the public switched telephone network. A telephone call from Telephone "I" to Telephone "K" in the above diagram is an example of an "on network" call.

The above diagram depicts a business relationship between a cable TV company and a competitive local exchange carrier. The competitive local exchange carrier (shown on the right-hand side of the diagram) serves as an intermediary for calls considered to be “off network” – those not part of the cable TV company’s network. Examples of “off network” calls include those calls going to and coming from other local exchange carriers, operator handled calls, long distance calls, and emergency telephone service calls (E-9-1-1). A telephone call from Telephone “I” to Telephone “J” in the above example depicts an “off network” call.

The cable TV VoIP application has elements of both Computer-to-Computer VoIP and Computer-to-Phone VoIP. “On network” calling, where the same cable TV company serves both the caller and the called party, could be viewed as similar to a Computer-to-Computer VoIP application. Cable TV “on network” calling might be considered similar to Computer-to-Computer VoIP because the call is not routed over the public switched telephone network. In contrast, “off network” calls, or calls from the cable TV subscriber to someone not served by the same cable TV company, may traverse the public switched telephone network and, therefore, resemble a Computer-to-Phone VoIP application.

#### How does Telephone “G” receive calls?

Calls traveling from the public switched network (i.e., “off network” calls) to the cable TV company telephone subscriber are routed to the competitive local exchange carrier and sent to the cable TV company’s facilities via interconnection trunks shown in the diagram as “voice only”. These calls are depicted in the diagram as flowing from Telephone “J” to Telephone “I”. The cable TV company’s softswitch determines which of its subscribers has been dialed. Calls flowing to Telephone “I” from other cable TV telephone customers (shown as coming from Telephone “K” in the lower right-hand corner of the above diagram) do not traverse the public switched telephone network and are routed by the softswitch to Telephone “I”.

## **PART II -FEDERAL VoIP ACTIVITY**

Since the passage of the Telecommunications Act of 1996, the Federal Communications Commission (FCC) has considered various aspects of Internet services and Internet protocol services. For instance, in its 1998 *Universal Service Report* to Congress, the FCC tentatively concluded Computer-to-Computer services and Computer-to-Phone services are “information services” and Phone-to-Phone Internet protocol services are “telecommunications services”, regardless of whether transmitted over the “common” Internet or over interexchange networks that use Internet protocol. The FCC has defined Phone-to-Phone Internet protocol telephony as services: (1) in which the provider holds itself out as providing telephony; (2) which use the same customer premises equipment as ordinary phone calls; (3) which allow customers to call telephone numbers assigned by the North American Numbering Plan; and (4) which transmit information without change in content or form. In its recent Pulver.com Memorandum Order and Opinion, the FCC defined information services as those services offering the capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing or making available information via telecommunications. The FCC also determined that “transmission” was at the heart of “telecommunications”.

Following is a summary of recent federal regulatory actions, which directly or indirectly impact VoIP, including pending notices of proposed rulemakings (NPRM) and petitions.

### **Notices of Proposed Rulemakings**

#### **VoIP NPRM**

The FCC released its Notice of Proposed Rulemaking on March 10, 2003, *In the Matter of IP-Enabled Services*, WC Docket No. 04-36, released March 10, 2004. In its NPRM, the FCC seeks comment on the following issues relating to services and applications making use of Internet protocol, including but not limited to VoIP (collectively, “IP-enabled services”).

Comment is sought on:

- ❖ The impact that IP-enabled services have had and will continue to have on the United States’ communications landscape. (par. 1)
- ❖ The rate and extent to which customers are substituting IP-enabled services for traditional telecommunications services and networks. (par. 1)

- ❖ IP-enabled services available today and those expected to become available in the future. (par. 2)
- ❖ How, if at all, the FCC should distinguish among the various IP-enabled services and whether any regulatory treatment would be appropriate for any class of services. (par. 2 and 35)
- ❖ Should IP-enabled services be divided into discrete categories, and if so, how should those categories be defined? In an effort to stimulate analysis in comments, the NPRM provides a list of functional and economic factors, which is not exhaustive or mutually exclusive, that might be used to divide services into categories (par. 37).
  - Functional equivalence to traditional telephony.
  - Substitutability for traditional telephony.
  - Interconnection with the PSTN and Use of the North American Numbering Plan.
  - Peer-to-Peer Communications vs. Network Services.
  - Facility Layer vs. Protocol Layer vs. Application Layer (i.e., distinguishing between regulation applied to the underlying transmission facility, the communications protocols used to transmit information over that facility and the applications used by the end user to issue and receive information).
  - Other Grounds for Categorization
    - Services offered on a “common carriage” and “private carriage” basis.
    - Services that do and do not utilize the Internet.
    - Services used as “primary line” vs. supplemental lines.
    - Distinctions relating to the CPE used to access a service.
    - Differentiation on the basis of the platform on which they are provided (i.e., wireline, wireless, cable, satellite).
- ❖ Are there technical differences or other characteristics of particular VoIP or other IP-enabled services that suggest providers use the underlying network in different ways or to provide different functionality to end users that warrants differential treatment?
- ❖ Three central questions:

- In which cases is some form of regulation needed to pursue important national objectives?
  - What differentiates those services for which some form of regulation is required from those for which it is not?
  - In what relevant ways is a particular service like or unlike Pulver’s Free World Dialup, which is classified as an “information” service free from regulation under the Commission’s current rules?
- ❖ The proper legal classification and appropriate regulatory treatment of each specific class of IP-enabled services (par. 42-44).
    - Specific, pragmatic proposals that account for the technical, market, or other features that characterize IP-enabled services and that address the interrelationship between those features, the statutory text and the FCC’s policy goals.
  - ❖ The appropriate statutory classification for each category of IP-enabled services (e.g., which are “telecommunications services”, which are “information services”, which are both an “information service” and a “telecommunications service”).
    - Should any statutory definitions be revisited and, if so, are there legal constraints on the Commission’s authority to revise the interpretation of these definitions (e.g., “enhanced services”, “information services”, telecommunications services”)?
    - Should any regulatory treatment associated with the statutory classification be altered for IP-enabled services?
  - ❖ Whether the proliferation of services and applications utilizing a common protocol may permit competitive developments in the marketplace to play the key role once played by regulation. In other words, whether there is a compelling rationale for applying traditional economic regulation to providers of IP-enabled services. (par. 4-5)
  - ❖ The appropriate basis or bases for asserting federal jurisdiction of the various IP-enabled services. (par. 40-41)
  - ❖ Does the end-to-end analysis, designed to assess point-to-point communications, have any relevance in the new IP environment?

- ❖ Are technologies sufficiently accurate for the determination of jurisdiction, and if so, how should they be applied?
- ❖ What service characteristics (e.g., ability to determine the geographical location of the originating and terminating points of customer calls, use of the Internet) justify jurisdictional distinction?
- ❖ Whether, and on what grounds, one or more classes of IP-enabled service should be deemed subject to *exclusive* federal jurisdiction with regard to traditional common carrier regulation.
  - Preemption of state powers under the grounds contemplated by the Supremacy Clause (fn 135).
  - Preemption of state powers under the Commerce Clause (fn 136).
  - Preemption of state powers under Section 253.
  - Section 252(b)'s reservation of state authority.
  - What role could states play in a federal regime?
- ❖ To what extent, if any, could voluntary agreements entered into by IP-enabled service serve the purpose now served by regulation in the context of legacy-circuit switched network? (par 48)
- ❖ Should the FCC use its forbearance authority or Title I ancillary powers to modify the default regulatory framework? If forbearance is recommended, commenters are asked to address the specific section 10 criteria as they relate to IP-enabled services. (par 49)
- ❖ Potential applicability of 9-1-1/E-9-1-1 and critical infrastructure regulation on VoIP and other IP-enabled services (par. 51-57).
- ❖ Will natural evolution of IP-enabled services lead to technological improvements and cost savings in the transmittal of and response to emergency information, interoperability among public safety entities and other elements of critical infrastructure needed to provide public safety and homeland security? If mandatory requirements are necessary, how can the FCC provide for technological flexibility so that its rules allow for development of new and innovative technologies?
- ❖ Technical and operational capabilities of current VoIP and other IP-enabled services to work with 9-1-1 service, including:
  - routing of IP-initiated 9-1-1 calls to PSAPs;

- potential for IP-enabled services to provide a viable and cost-effective alternative to the dedicated 9-1-1 trunking facilities in use today;
  - technological and operational capability of delivering call-back and location information;
  - enhanced 9-1-1 service; or,
  - to provide analogous functionalities that would meet the intent of the 9-1-1 Act and the FCC’s regulations.
- ❖ In addition to software-based solutions, are there other location solutions that equipment manufacturers could provide to enable a PSAP to identify the location of an IP-based 9-1-1 “caller”?
- ❖ Are minimal technical requirements necessary? Should the four criteria identified in the [E-9-1-1] *Scope Order* be modified, weighed differently, or replaced? Should alternative criteria be considered?
  1. The entity offers real-time, two-way switched voice service, interconnected with the PSTN, either on a stand-alone basis or packaged with other telecommunications services.
  2. Customers using the service or device have a reasonable expectation of access to 9-1-1 and enhanced 9-1-1 services.
  3. The service competes with traditional CMRS or wireline local exchange services.
  4. It is technically and operationally feasible for the service or the device to support E-9-1-1.
- ❖ To what extent can voluntary consensus, rather than regulation spur deployment of IP-enabled services?
- ❖ Would promulgation of best practices or technical guidelines promote the provision of effective IP-based E-9-1-1 services?
- ❖ Should the FCC refrain from imposing E-9-1-1 or related regulatory obligations on IP-enabled services until these services are better established and more widely adopted by consumers? If so, would a decision to impose E-9-1-1 rules at a future date require costly and inefficient “retrofitting” of embedded IP infrastructure?
- ❖ Disability Access (par 58-60)

- ❖ How should the FCC apply the disability accessibility requirements set forth in sections 255 and 251(a)(2) to any providers of VoIP or other IP-enabled services?
- ❖ Should, or do, the rules established in the *Disability Access Order*, apply to VoIP or other IP-enabled services?
- ❖ Should interpretations related to the availability of interstate and intrastate telecommunications relay services (TRS) affect deliberations with disability access to IP-enabled services?
  - How will migration to IP-enabled services affect the FCC's statutory obligation to ensure interstate and intrastate telecommunications relay services are available to hearing-impaired and speech-impaired individuals.
  - How will decisions on IP-enabled services affect contributions to the Interstate TRS Fund?
  - Should the FCC amend its TRS rules in light of the increasing use of IP-enabled services?
  - How will any change to TRS rules affect the provision of intrastate TRS by the states?
- ❖ Carrier Compensation (par 61-62)
  - ❖ To what extent should access charges apply to VoIP or other IP-enabled services?
  - ❖ Since the FCC maintains the cost of the PSTN should be borne equitably among those that use it in similar ways, under what authority could the FCC require payment for these services?
  - ❖ If charges are assessed, should they be the same as the access charges assessed on providers of telecommunications services, or should the charges be computed and assessed differently?
  - ❖ If charges should be assessed, should carriers pay access charges or compensation under section 251(b)(5) of the Act?
  - ❖ Would assessment rates lower than access rates require increases in universal service support or end user charges?
  - ❖ If no access charges, or different charges, are assessed for VoIP or IP-enabled service providers' use of the PSTN, would identification of this traffic result in significant additional incremental costs?



- ❖ Universal Service (par 63-66)
  - ❖ How would the regulatory classification of IP-enabled services affect the FCC's ability to fund universal service?
  - ❖ If certain classes of IP-enabled services are determined to be "information services," could or should the FCC require non-facilities-based providers of such services to contribute to universal service pursuant to its permissive authority?
    - If the FCC exercises its permissive authority, how could it do so in an equitable and nondiscriminatory fashion?
    - How would the providers of IP-enabled services identify the portion of the service revenues that constitute end-user telecommunications revenues?
    - How would such service providers identify interstate and international telecommunications revenues?
  - ❖ If IP-enabled services are not subject to contributions, what would be the magnitude of the forgone contribution revenues over the next five years?
  - ❖ Does the advent of IP-enabled services weigh in favor of any specific reforms under consideration in the *Universal Service Contribution Methodology* proceeding (i.e., telephone number-based methodology, connections-based methodology, etc)?
  - ❖ How would regulatory classification of IP-enabled services impact each of the current universal service support mechanisms (high cost, low income, schools and libraries, rural health care)?
  - ❖ How can the FCC ensure that services supported by universal service bear no more than a reasonable portion of the costs associated with facilities that are used to provide both supported and unsupported services?
  - ❖ To what extent would the classification of IP-enabled services affect the eligibility of rural and non-rural ETCs for high cost support?
  - ❖ Will migration to IP-enabled services lower or raise the cost of providing service on the public switched network or IP-enabled platforms?

- ❖ Title III (par 67-69)
  - ❖ What effects will the current statutory framework and history of forbearance for Title III (Provisions Relating to Radio) have on the provision or regulation of IP-enabled services provided over, in whole or in part, a wireless platform?
  - ❖ Should the FCC make any distinction among wireless providers of IP-enabled services based on the nature of the spectrum use (e.g., fixed/mobile, licensed/unlicensed)?
  - ❖ To the extent that CMRS providers offer VoIP or other IP-enabled CMRS services that are classified as subject to Title II, the FCC believes the statutory provisions of Section 332 apply, i.e., states are preempted from regulating entry or rates of such services. Is this analysis appropriate?
  - ❖ Is there any reason the FCC’s existing deregulatory policies with respect to Title II regulation of CMRS should not apply uniformly to IP-enabled CMRS?
- ❖ Title VI (par 70)
  - ❖ Is any class of IP-enabled services properly classified as “cable service”?
  - ❖ What effect, if any, does Title VI have on any potential regulation of cable-based IP-enabled services?
  - ❖ If the FCC determines that any class of IP-enabled services is “telecommunications services”, should it forbear from applying Title II provisions to cable providers offering IP-enabled services?
  - ❖ If the FCC determines that any class of IP-enabled services is “information services”, can it use its ancillary jurisdiction to apply any Title II-like obligation to any cable providers offering IP-enabled services?
- ❖ Consumer Protection (par 71-72)
  - ❖ Is it necessary to extend the customer proprietary network information requirements and other consumer protections afforded in the Act to subscribers of VoIP or other IP-enabled services?
  - ❖ Other consumer protections:
    - Section 214 – requires common carriers to obtain authorization before constructing, acquiring, operating or engaging in transmission over lines of

communications or discontinuing, reducing or impairing telecommunications service to a community.

- Section 258 – prohibits slamming.
- Sections 201 and 258 – Truth-in-billing rules.
- Section 226 – ensures customers are able to reach their preferred long distance carriers from public telephones and receive sufficient information about rates for operator services.

❖ Economic Regulation (par 73-74)

❖ Should the various economic regulations set forth in Title II and the FCC's rules apply to any class of IP-enabled service providers given that the customer often can obtain these services from multiple, intermodal, facilities- and non-facilities-based service providers?

- Requirements to provide communications upon reasonable request at rates, classifications and practices that are just and reasonable.
- Prohibits unjust or unreasonable discrimination in charges, practices, classifications, regulation, facilities or services against similarly situated third-party customers.
- Requires providers to interconnect directly or indirectly with the facilities and equipment of other such providers.
- Requires LEC number portability.
- Entitles providers of telecommunications services to use certain ILEC network elements on an unbundled basis and at cost-based rates.
- Requires facilities-based common carriers to provide the basic transmission services underlying their enhanced services on a nondiscriminatory basis pursuant to tariffs.

❖ What are the market conditions that form the rationale for economic regulation in the context of the legacy network and the extent, if any, to which the market for IP-enabled services calls for application of similar regulation?

- ❖ Rural Considerations (par 75)
  - ❖ Noting that rural ILECs derive a significant portion of revenues from access charges, how might a jurisdictional analysis affect the level of intrastate access charges that rural ILECs receive?
  - ❖ Are there other implications for rural communities and rural providers?
- ❖ Other Considerations (par 76)
  - ❖ Are there potential international implications raised by the use of IP-enabled services, such as the potential impact on international settlement rates and the ability of consumers to take IP CPE overseas and continue to make and receive calls?
  - ❖ Does the growing use of IP-enabled services present any foreign policy or trade issues?
  - ❖ Whether any action relating to numbering resources is desirable to facilitate, or at least not impede, the growth of IP-enabled services, while at the same time continuing to maximize the use and life of numbering resources in the North American Numbering Plan.

### **Wireline Broadband NPRM**

In February 2002, the FCC issued an NPRM, *In the Matter of Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, Universal Obligations of Broadband Providers, Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services; 1998 Biennial Regulatory Review – Review of Computer III and ONA Safeguards and Requirements*, CC Docket Nos. 02-33, 95-20 and 98-10, adopted February 14, 2002, to examine broadband Internet access services provided by entities that are using the traditional telephone platform to offer that service. The FCC sought comment on the classification of the provision of wireline broadband Internet access services and the regulatory implications of that classification. The NPRM focuses on the efforts of the telephone industry and its provision of broadband Internet access services utilizing the traditional telephone infrastructure, and the outgrowths of that infrastructure. The FCC tentatively concluded that when an entity provides wireline broadband Internet access service over its own transmission facilities, the service is an “information service” under the Act. In addition, the FCC tentatively

concluded that the transmission component of retail wireline broadband Internet access service provided over an entity's own facilities is "telecommunications" and not a "telecommunications service". Comments were filed in April, May and July 2002. The record was refreshed and additional comments were filed in February 2004.

### **Cable Modem NPRM**

In February 2002, the FCC issued a Declaratory Ruling and NPRM, *In the Matter of Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities Internet Over Cable Declaratory Ruling Appropriate Regulatory Treatment for Broadband Access to the Internet Over Cable Facilities*, GN Docket No. 00-185 and CS Docket No. 02-52, adopted March 14, 2002, concluding that cable modem service is properly classified as an interstate information service and is, therefore, subject to FCC jurisdiction. The FCC determined that cable modem service is not a "cable service" as defined by the Act and that cable modem service does not contain a separate "telecommunications service" offering and, therefore, is not subject to common carrier regulation. The FCC also issued an NPRM to seek comment on issues such as: legal or policy reasons why it should reach different conclusions with respect to wireline broadband and cable modem service; the scope of the FCC's jurisdiction to regulate cable modem service, including whether there are any constitutional limitations on the exercise of that jurisdiction; whether, in light of marketplace developments, it is necessary or appropriate at this time to require multiple ISP access; and the role of state and local franchising authorities in regulating cable modem service. Comments were filed in May, June and August 2002. Petitions were filed with the United States Court of Appeals, Ninth Circuit seeking review of the FCC's declaratory ruling. The Court previously concluded cable broadband service was not a "cable service" but instead was part "telecommunications service" and part "information service". Because the FCC, in its declaratory ruling, agreed that cable broadband service is not "cable service", but disagreed that it was in part "telecommunications service" the Court affirmed in part, vacated in part and remanded the declaratory ruling for further proceedings. (*Brand X Internet Services, et al, Petitioners v. Federal Communications Commission, et al, Respondents*. 345 F.3d 1120 October 6, 2003). Appeals are pending and additional comments were filed with the FCC in February 2004.

### **ILEC Broadband Services NPRM**

In December 2001, the FCC issued an NPRM, *In the Matter of Review of Regulatory Requirements for Incumbent LEC Broadband Telecommunications Services*, CC Docket No. 01-337, adopted December 12, 2001, to examine the appropriate regulatory requirements for the ILEC's provision of domestic broadband telecommunications services. The NPRM focused on traditional Title II common carrier regulation as applied to the ILEC's provision of broadband services. The FCC sought comment on what regulatory safeguards and carrier obligations, if any, should apply when a carrier that is dominant in the provision of traditional local exchange and exchange access services provides broadband service. Comments were filed in March and April 2002.

### **Intercarrier Compensation NPRM**

In April 2001, the FCC issued an NPRM, *In the Matter of Developing a Unified Intercarrier Compensation Regime*, CC Docket No. 01-92, adopted April 19, 2001, seeking comment on the feasibility of a bill-and-keep approach as the means of attaining a unified regime for the flows of payments "that would apply to interconnection arrangements between all types of carriers interconnecting with the local telephone network, and to all types of traffic passing over the local telephone network" under current systems of regulation. In the NPRM, the Commission emphasizes that it seeks an approach to intercarrier compensation that "will encourage efficient use of, and investment in, telecommunications networks, and the efficient development of competition." Comments were filed in August and November 2001. An ad hoc industry group is holding meetings to develop a compensation proposal for the FCC's consideration.

### **Petitions Pending with the FCC**

#### **AT&T Petition for Declaratory Ruling**

In its Petition, *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, October 18, 2002, AT&T seeks a declaratory ruling that incumbent local exchange carriers are "unlawfully imposing access charges on the nascent "phone-to-phone" Internet Protocol ("IP") telephony service that AT&T and others are providing over the Internet". Comments on the Petition were

filed in December 2002 and January 2003. Several Notices of Ex Parte contacts have been filed since that time as the issues continue to be discussed. FCC action is anticipated in the near future.

Following are some points raised in AT&T's Petition.

- Certain ILECs refuse to provision local business lines to terminate phone-to-phone IP services, take down the line used to provision such calls, use Calling Party Number identifiers to assess access charges that are terminated over reciprocal compensation trunks.
- AT&T compensates ILECs through flat-rate local private line tariff purchases or through reciprocal compensation payments from the CLEC to the ILEC.
- AT&T pays universal service support payments on the revenues from all its non-enhanced VoIP calls.
- A rule that requires VoIP providers to subscribe to local services rather than access charges "can provide that economic reason" for providers to invest in Internet backbone facilities or other IP networks.
- Whether access charges apply is dependent on whether different providers are using identical facilities "in the same way [and] for the same purpose". In other words, according to the Petitions, all types of VoIP providers compete with one another through IP technologies using identical local exchange facilities.

### **Level 3 Communications Petition for Forbearance**

In its Petition, *In the Matter of Level 3 Communications LLC's Petition for Forbearance Under 47 U.S.C. § 160(c) from Enforcement of 47 U.S.C. § 251(g), Rule 51.701(b)(1), and Rule 69.5(b)*, WC Docket No. 03-266, December 23, 2003, Level 3 asks the FCC to forbear from enforcing statutes and rules that could be interpreted to allow ILECs to charge access on IP-PSTN traffic and PSTN-PSTN traffic that is incidental. The Petition does not apply to traffic exchanged with carriers who retain their rural exemption under Section 251(f) of the Act. Comments on the Petition were filed March 1, 2004. Reply Comments are due March 31, 2004.

Following are some points raised in the Petition.

- Level 3 is a telecommunications carrier providing interstate and intrastate telecommunications services.
- Level 3 considers its services “voice-embedded IP” because voice is one of many applications transmitted in IP format (voice with data, video, etc.).
- Compensation for VoIP should be pursuant to Section 251(b)(5) of the Act (interconnection obligations).
- Access should not apply to voice-embedded IP communications carried by a LEC on its side of the point of interconnection with a telecommunications carrier such as Level 3 when the traffic:
  - Originates on the PSTN within the same LATA as the point of interconnection between the LEC and the interconnected telecommunications carriers and is passed to the end-user from an IP network provider in IP format (i.e., Phone-to-Computer); or
  - Is terminated over the PSTN in circuit-switched format after having been transmitted from the end-user to an IP provider in IP format and exchanged between the telecommunications carrier serving the IP provider and the terminating ILEC at a point of interconnection within the same LATA as the called party (i.e., Computer-to-Phone).
  - Incidental communications that originate in a circuit-switched format and that terminate in circuit-switched format, and that are handled in IP format, but excluding traffic that is exchanged between the calling party’s LEC and another telecommunications carrier when the interconnected telecommunications carrier is the calling party’s 1+ presubscribed IXC or a calling card/dial-around provider selected by the calling party.
- Access should apply to calls that do not undergo a net protocol conversion (i.e., conversion to packets).
- The point of comparison to determine when access applies should be the demarcation between the end-user and its network provider.



### **Pulver.com Petition for Declaratory Ruling/FCC Memorandum Opinion and Order**

In its Petition, Pulver.com asked the FCC to rule that Free Word Dialup is neither “telecommunications” nor “telecommunications service” as defined by the Act. The FCC issued its Memorandum Order and Opinion on the Petition on February 12, 2004. (*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.)

Following are a few of the points addressed in the Petition and Memorandum Order and Opinion.

- Free World Dialup offering is an unregulated information service subject to the FCC’s exclusive jurisdiction.
- FWD is an Internet application available on Pulver’s server that bears no geographic correlation to any particular underlying physical transmission facility.
- FWD uses a Pulver-assigned number, not a NANP number.

### **SBC Petition for Declaratory Ruling and Petition for Forbearance**

In its Petition for Declaratory Ruling, *In the Matter of Petition of SBC Communications Inc. For a Declaratory Ruling Regarding IP Platform Services*, WC Docket No. 04-30, February 5, 2004, and its Petition for Forbearance, *In the Matter of Petition of SBC Communications Inc. for Forbearance from the Application of Title II Common Carrier Regulation to IP Platform Services*, WC Docket No. 04-29, February 5, 2004, SBC seeks forbearance from Title II-Common Carrier regulation for the IP platform and IP platform services. SBC also asks the FCC to declare such services as interstate services under the FCC’s exclusive jurisdiction. Comments are due May 12, 2004, and reply comments are due June 11, 2004.

Following are some points raised in the Petition.

- The IP platform is “an overlay network characterized by low barriers to entry, making this market highly competitive without any need for governmental intervention” and consist of: (a) IP networks and their associated capabilities and functionalities; and, (b) IP services and applications provided over the IP platform that enable an end user to send or receive communication in IP format. (It does not matter whether the provider uses copper, coaxial cable, fiber, spectrum, or other medium.)

- Unbundling and other regulatory requirements do not apply to IP platform services.
- As soon as a telecommunications service is handed off to the PSTN, the rules applicable to PSTN communications should apply.
- Even though it is impractical to track the flow of IP platform services for jurisdictional purposes, the circuit switch providers can use the calling party number for assessing access charges.
- If the user can receive nothing more than pure transmission, the service is a “telecommunications service”. If the user can receive enhanced functionality, the service is an “information service”.

### **Vonage Petition for Declaratory Ruling**

The Minnesota Public Utilities Commission ruled Vonage and other providers of two-way Internet communication applications must obtain state certification and it imposed certain E-9-1-1 obligations on those providers. In its Petition, *In the Matter of Vonage Holdings Corporation Petition for Declaratory Ruling Concerning an Order of the Minnesota Public Utilities Commission*, Docket No. WC 03-211, September 22, 2003, Vonage seeks a declaratory ruling that Minnesota is preempted from regulating Vonage service as intrastate because its service is an “information service”. Vonage also asks the FCC to rule that the E-9-1-1 obligations as imposed by the Minnesota PUC are preempted. Comments on the Petition were filed in October and November 2003. Several Notices of Ex Parte contacts have been filed since that time as the issues continue to be discussed.

A federal district court issued an order permanently enjoining the Minnesota PUC from regulating Vonage as a telephone company. The Minnesota Commission appealed this decision to the 8th Circuit Court of Appeals in February 2004.

Following are some points raised in the Petition:

- Vonage service is an information service because it “processes” and “transforms” the information transmitted by its users.
- Vonage provides an “interface” between incompatible network protocols.

- Net protocol conversion is a characteristic of information service. The net protocol conversion test examines the service on an end-to-end basis from the demarcation point at the premises of the originating caller to the demarcation point where the call is terminated.
- Vonage uses the telecommunications capabilities of the underlying cable modem, DSL providers and common carriers to connect its users to the PSTN.

### **PART III - MISSOURI SPECIFIC POTENTIAL VoIP IMPACTS**

The Commission's Order Establishing Case, issued on February 3, 2004, requested participants to address what, if any, significance widespread deployment of VoIP technology may have on telecommunications service in Missouri. The Commission also requested the parties address to what extent, if any, VoIP technologies may uniquely affect Missouri. Workshop participants have attempted to address this Commission request by identifying various impacts of VoIP. The following five impacts have been identified: (1) sales tax revenues, (2) Relay Missouri funding, (3) E-9-1-1 funding, (4) regulatory assessment funding, and (5) local exchange carrier revenue impact. Each of these impacts is separately discussed.

#### **1) Sales Tax Revenue Impact**

VoIP may have an impact on sales tax revenues of Missouri. Through the imposition of sales taxes at the state and local levels, local and long distance carriers contribute substantially to Missouri's tax base. In calendar year 2002, the Missouri Department of Revenue indicates reported taxable sales for telephone communications in excess of \$2.3 billion (including wireless communications). This figure yielded sales tax revenue to the state approaching \$100 million and to the counties exceeding \$134 million (municipal sales tax revenue on telecommunications is not available). Because sales taxes are not collected on VoIP end user services, it is conceivable that as VoIP becomes a substitute for traditional telephone service, there may be less taxable revenue derived from end user telephone lines. Because of the (now expired) congressional "internet tax moratorium" and the FCC's declarations that at least one form of VoIP is an Internet application or "information service" and not a "telecommunications service", the state of Missouri and its counties and municipalities could be impacted by reductions in tax revenue currently generated from telecommunications service. The extent of this impact will depend on the extent VoIP telephony begins to serve as a substitute for traditional telephone service, the nature of the VoIP service used, the market penetration that VoIP services achieve, and the legal and regulatory treatment that is applied to various VoIP services.

#### **2) Relay Missouri Funding Impact**

VoIP may have an impact on Relay Missouri funding. Relay Missouri provides services which make it possible for hearing and speech impaired individuals to use the telephone. This program is administered by the MoPSC and is funded entirely by a line item surcharge on every local

exchange access line in Missouri. The Relay Missouri program is currently funded at approximately \$4 million annually. VoIP is likely to reduce the number of end users that contribute to this funding mechanism. By declaring VoIP telephony an “information service” not subject to MoPSC oversight, VoIP telephony may have an impact on the Relay Missouri program. Again, the extent of any impact would depend on the extent to which VoIP replaces traditional local telephone service, and the legal and regulatory treatment that is applied to VoIP telephony that is used as a replacement for local telephone service.

### **3) E-9-1-1 Funding Impact**

VoIP may have an impact on the present funding of most emergency telephone (E-9-1-1) systems in Missouri. The Missouri Office of Administration indicates that sixty-six counties in Missouri fund emergency telephone service through the use of a line item surcharge on local telephone bills. These sixty-six counties represent 72 percent of the counties who have established E-9-1-1 service. (Other counties finance E-9-1-1 through general revenue or a sales tax.) Because some VoIP providers lease telephone lines on a retail basis, it may be accurately stated that some VoIP providers contribute financially to county E-9-1-1 systems and administrations that are funded by line item surcharges on telephone bills. However, the retail lines used by such VoIP providers are used to aggregate VoIP traffic to and from the public switched telephone network, and the amount of contribution by VoIP providers may not be representative of the actual number of VoIP end users. Moreover, in Missouri the maximum number of lines subject to the E-9-1-1 surcharge is limited to 100 lines per person per location (RSMo, Section 190.305.3). Capping a VoIP provider’s emergency telephone contribution to a maximum of 100 lines may not be representative of the amount of VoIP traffic that may be traveling to and from the public switched telephone network. As with other public services financed by line item contributions on local telephone bills, some Public Safety Answering districts in Missouri may expect to be impacted by VoIP telephony. Again, the extent of such impacts will depend on the extent VoIP telephony begins to serve as a substitute for traditional local telephone service, and it will depend on the extent to which the FCC declares various types of VoIP technology to be an “information service”.

#### **4) Regulatory Assessment Funding Impact**

VoIP may impact assessment revenues of the Missouri Public Service Commission. If VoIP is found to be an “information service” and is, therefore, not subject to intrastate revenue reporting requirements, there will likely be an impact on the regulatory assessment for services that are similar, but still classified as telecommunications services. As end users migrate their telecommunications services to services classified as information services, service providers will likely see a reduction in telecommunications service usage and a corresponding reduction in the revenues generated by those services. Consequently, assessments levied by regulatory agencies will be applied against shrinking annual revenue bases and potentially across fewer contributing carriers.

#### **5) Local Exchange Carrier Revenue Impact**

Most local exchange carriers are concerned about the impact of VoIP on switched access revenues. If switched access rates are not applicable on VoIP traffic then local exchange carriers are concerned they may face significant revenue reductions. These carriers point out that a significant portion of a local exchange company’s total revenue is from switched access charges. Local exchange carriers claim any significant switched access revenue losses will place pressure on a company to raise rates for other services. In contrast to this perspective, other parties point out that the significance of VoIP on local exchange carrier revenues will be dependent upon a wide variety of factors. Some of these factors include: intercompany compensation ultimately applied to VoIP traffic, the extent switched access revenue may be replaced by reciprocal compensation arrangements and subscription to DSL access lines, the extent VoIP telephony substitutes for traditional local and long distance telephone service, the market penetration that VoIP services achieve, and the legal and regulatory treatment that is applied to various VoIP services.

Although VoIP may impact the switched access revenue of all Missouri local exchange carriers, any impact would likely be especially noticeable on those companies who serve predominately rural areas. For rural telecommunications companies, the relative dependence on access revenues is substantially greater than for large urban companies, both because the unit costs are higher in smaller central offices and because local calling areas are substantially smaller than in urban areas with a consequent higher percentage of total network usage for toll services.

The following portion of the Report analyzes revenues from intrastate access charges derived by Missouri's small, mostly rural local exchange carriers. An analysis of the 2001 Annual Reports to the MoPSC for 37 rural Missouri companies indicates that 80% of total operating revenues were reported as access charges. (This data includes state and federal switched and special access charges, federal end user charges, and federal universal service funds.) According to this source, state access revenues were reported as 33% of total operating revenues for these 37 rural companies

While it would be most difficult to estimate the specific revenue loss that may occur from the various market, legal, and regulatory scenarios, estimates of the maximum amount potentially at risk for rural companies from a loss of access revenues can be made. Estimated impacts of the loss of intrastate switched access revenue can be made from data gathered and used in Missouri Case No. TR-2001-65, the inquiry into access costs.<sup>11</sup> Using intrastate access revenues developed for and presented in that case and the corresponding access lines of individual companies, the maximum potential exposure per access line per month of the loss of all intrastate switched access revenue for all the small telephone companies has been calculated and is presented in Table 1.

As can be seen from the following Table representing small telephone companies in Missouri, the maximum potential impacts per company from the loss of state switched access revenue alone vary from a high of \$54.97 per access line per month to a low of \$8.55 per access line per month. For the Missouri small telephone companies, the average impact would be \$23.27 per access line per month, assuming, for purposes of this analysis, a complete displacement of current intrastate access charge revenue streams. The variation in impacts depends on a number of variables, including the average intrastate switched access minutes per access line per month, the size of the company, and the intrastate switched access rates of the company. This analysis, however, is incomplete as to the overall impact since it does not include the impact of the loss of federal switched access revenue data, which is not available from this source.

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<sup>11</sup> RE: *In the Matter of an Investigation of the Actual Costs Incurred in Providing Exchange Access Service and the Access Rates to be Charged by Competitive Local Exchange Telecommunications Companies in the State of Missouri.*

**Table 1**  
**Intrastate Switched Access Revenue per Access Line Per Month**  
**Missouri Small Telephone Companies**

Company 1	\$54.97
Company 2	\$47.97
Company 3	\$44.34
Company 4	\$41.82
Company 5	\$39.43
Company 6	\$38.92
Company 7	\$37.74
Company 8	\$32.49
Company 9	\$28.93
Company 10	\$27.99
Company 11	\$26.11
Company 12	\$25.68
Company 13	\$25.00
Company 14	\$24.50
Company 15	\$23.94
Company 16	\$23.66
Company 17	\$23.51
Company 18	\$23.43
Company 19	\$22.49
Company 20	\$22.04
Company 21	\$21.90
Company 22	\$21.69
Company 23	\$21.51
Company 24	\$21.20
Company 25	\$19.84
Company 26	\$19.37
Company 27	\$18.23
Company 28	\$17.99
Company 29	\$17.57
Company 30	\$17.37
Company 31	\$14.72
Company 32	\$14.26
Company 33	\$13.60
Company 34	\$11.83
Company 35	\$9.43
Company 36	\$8.80
Company 37	\$8.55
	<hr/>
Average	<u><u>\$23.27</u></u>



## PART IV - VoIP ISSUES

The following VoIP issues were developed by the Staff based on feedback from participants of the two workshops. An attempt was made to phrase the issue in a neutral manner and in most instances the issue was phrased so it could generate a “yes” or “no” response. Workshop participants were then asked to provide a brief written response to any issue. In some cases, individual participants did not respond to all issues. The unedited responses from workshop participants are listed in alphabetical order following each question.

### Regulatory Treatment/Competition

#### 1) Should VoIP be solely regulated at the interstate level?

**AT&T:** Congress has declared: “It is the policy of the United States ... to preserve the vibrant and competitive free market that presently exists for the internet and other interactive computer services unfettered by Federal and State regulation ... .”<sup>12</sup> VoIP is, by definition, an interstate information service<sup>13</sup> that should not be subjected to traditional telecommunications regulation. That said, however, there may exist a role for States in so far as public health, safety and universal service concerns are implicated (*e.g.*, 911).

**BIG RIVER:** Regulation at the intrastate level should be focused on ensuring VOIP providers have access to the PSTN and incumbent telephone companies are not engaging in activities that inhibit this new technology.

**CENTURYTEL:** No. Under Missouri law (Section 386.250(2), RSMo 2000), any telecommunications service, regardless of the technology utilized, is subject to this Commission’s jurisdiction unless it falls within specific statutory exemptions set forth in Section 386.020(53). There is no such exemption for Voice Over Internet Protocol (“VoIP”). In addition, the Federal Communications Commission (“FCC”) has not exempted VoIP services from state regulation. (In the *pulver.com* decision, the FCC ruled that the particular service in question was an unregulated information service under Title I of the Act, subject to federal jurisdiction.)

**CHARTER:** No – using the above-stated presumptions, if the service is local exchange it should be regulated as a intrastate service. Services crossing state boundaries should be regulated at the interstate level. There is no rational basis for changing this methodology regardless of transport technology.

**LEVEL 3:** Federal law establishes how information or enhanced services, and entities that provide such services, including VoIP providers, may or may not be regulated at the present

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<sup>12</sup> 47 U.S.C. § 230 (b)(2).

<sup>13</sup> See *In the Matter of Federal-State Joint Board on Universal Service*, Report to Congress, CC Docket No. 96-45, FCC 98-67 (Rel. Apr. 10, 1998) at ¶ 90 [hereinafter “*Stevens Report*”].

time. To the extent that any given VoIP service constitutes an information or enhanced service according to FCC precedent, regulatory authority rests with the FCC. However, because VoIP service providers typically purchase and incorporate telecommunications services in their information services, the Commission retains jurisdiction over the intrastate telecommunications services provided to VoIP providers.

**MCI:** Determining who has jurisdiction over VoIP is somewhat problematic. As an application using the internet, it is not entirely clear whether VoIP has a “location,” and thus fits neatly into one jurisdiction or another. MCI believes that a national framework for VoIP is optimal, which would require exclusive jurisdiction by the FCC. However, one could argue for state or local regulation of the underlying narrowband or broadband transmission facilities, based on the geographic location of those physical facilities and the effects on local markets.

**NUVIO:** Yes. Due to the inherently interstate nature of the service, regulation by the FCC is the only manageable solution. VoIP service (like Nuvio) is portable and can be moved between states with no input or control by the VoIP operator. To subject VoIP providers to 50 sets of regulation, coupled with an end users ability to transport the service to other states, subjects VoIP to regulatory forces that would cripple the emerging industry. A VoIP provider could be put in a position where it is not authorized, or regulations prohibit it from doing business in a state and through no action of its own, an end user could go to these states and use VoIP service or use VoIP service in a manner that might be contrary to regulations in place in that state. This could raise difficult legal issues.

**SBC:** SBC’s position is that IP Platform Services, which include “true” VoIP services, are non-regulated interstate information services subject to the FCC’s exclusive jurisdiction and governed under the FCC’s general authority under Title I of the Act, not the common carrier rules under Title II. SBC defines IP Platform Services as consisting of (a) IP networks and their associated capabilities and functionalities (*i.e.*, an IP platform), and (b) IP services and applications provided over an IP platform that enable an end user to send or receive a communication in IP format.

**SPRINT:** Sprint believes that VoIP issues need to be addressed at both the federal and state level, due to the myriad of issues and the various regulatory processes in place. For example, inter-carrier compensation falls under the jurisdiction of both the FCC and MoPSC and most retail regulations are the purview of state Commissions.

**STAFF:** No. To the extent VoIP services, or some subset of VoIP services, are deemed telecommunications services, they should also be regulated at the intrastate level. Under Missouri law (Section 386.250(2), RSMo 2000), any telecommunications service, regardless of the technology utilized, is subject to this Commission’s jurisdiction unless it falls within specific statutory exemptions set forth in Section 386.020(53). There is no such exemption for Voice Over Internet Protocol (“VoIP”).

**STCG/MITG:** Not solely at the interstate level. The Missouri Public Service Commission (MoPSC) has a responsibility to the telephone companies and Missouri consumers to ensure that services are in the public interest and offered on a level playing field. To the extent that VoIP

providers offer services that are functionally equivalent or substitutable for services offered by other telecommunications carriers, which provide intrastate services, the VoIP providers should be subject to MoPSC regulation.

**VONAGE:** Yes. It is impossible to separate the Internet, or any service offered over it, into interstate and intrastate components. Further, many VoIP services, including Vonage's, are inherently portable because customers can use these services anywhere they can attach their computer equipment to a broadband Internet connection. There is no reliable technical means of consistently determining the actual physical location of Internet users, so it is impossible for VoIP providers, like Vonage, to determine the jurisdictional nature of any particular communication on a real-time basis.

**2) Is there an intrastate component to VoIP Telephony and if so, can it be separated to satisfy previous rulings by the FCC (Computer II and III, etc.)?**

**AT&T:** While the *Computer II and III* decisions essentially preclude Title II regulation of enhanced services<sup>14</sup> and the FCC has, not as yet, determined that VoIP is anything other than an information service,<sup>15</sup> there would appear to be no room for intrastate telephony regulation of such service. Nonetheless, there may be an intrastate component to VoIP service. Certain aspects of public health and safety (*e.g.*, 911, consumer protections, etc.) are typically issues within the jurisdiction of the States. However, not all such issues are within the jurisdiction of State utility regulators; rather, certain issues may fall within the responsibilities of State Attorneys General or others (*e.g.*, enforcement of consumer protection statutes and other consumer complaint-type actions).

**BIG RIVER:** Opening and ensuring access to 911. Ensuring interconnection to PSTN. Telephone number allocation.

**CENTURYTEL:** Yes. VoIP Telephony, just like any other voice service, can have an intrastate component depending upon the nature of any given call. Under Section 386.250(2), the jurisdiction, supervision, powers and duties of this Commission extend

[t]o all telecommunications facilities, telecommunications services and to all telecommunications companies so far as such telecommunications facilities are operated or utilized by a telecommunications company to offer or provide telecommunications service between one point and another within this state or so far as such telecommunications services are offered or provided by a telecommunications company between one point and another within this state . . .

The fact that VoIP telephony might use IP protocol instead of TDMA for a portion of the transmission medium is not significant, as they are both digital. A voice call between the exact

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<sup>14</sup> See *e.g.*, *In re Amendment of Section 64.702 of the Commission's Rules and Regulations (Second Computer Inquiry)*, Final Decision, Docket NO. 20828, FCC 80-189 (Rel. May 2, 1980) at ¶¶ 92 – 104 [hereinafter "*Computer IP*"].

<sup>15</sup> *Stevens Report* at ¶ 90.

same two customers at the exact same two locations should have the same jurisdiction regardless of whether it is transmitted in part via IP protocol or TDMA, or any other medium.

**CHARTER:** There is no consistent service offering under the VoIP Telephony umbrella, rather there are dozens of permeations. Even when you speak of the (NuVio/Vonage) offerings, these have changes and mutated over the last year. The computer inquiry cases clearly articulate distinctions between telecommunications and information services and state that information services are interstate in nature and there is no opportunity for intrastate regulation. This paradigm should not change due merely to VoIP transport. Rather the character of the communication must be assessed to determine whether it falls within the information services category (and as such is an interstate service).

**LEVEL 3:** With respect to most forms of VoIP telephony, it is impossible to separate out an intrastate component. Indeed, IP technology blurs traditional distinctions between local and long-distance by making geographic end-points irrelevant and, sometimes, impossible to determine. As Verizon Communications' Director of Technology Policy recently observed: "[i]t's hard to determine jurisdictionally where that [Internet protocol] end point is . . . you don't know if it's next door, across the state or around the world."<sup>16</sup>

It is important to note, however, that in 1983, the FCC found that enhanced service providers ("ESPs") could be end user customers, rather than providers of telecommunications services,<sup>17</sup> and thus exempted ESPs from the payment of certain interstate access charges.<sup>18</sup> As a result of the "ESP exemption," providers of enhanced services pay local business service rates to connect to the Public Switched Telephone Network ("PSTN").<sup>19</sup> Thus, despite the FCC's understanding that ESPs use *interstate* access services, pursuant to the ESP exemption, the FCC has permitted ESPs to take service under *local* tariffs. In short, the ESP exemption inherently recognizes that a communication can be jurisdictionally interstate but subject to local compensation between carriers.

**MCI:** Trying to create or identify an intrastate component of VoIP, and then attempting to separate out that component for purposes of regulation, will be a difficult task and one that would be counterproductive to the development of VoIP. Under the FCC's Computer II decision in 1980, an "enhanced service" is not subject to regulation whereas basic transmission services, which are traditional common carrier communications services, are subject to regulation.

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<sup>16</sup> See Glenn Bischoff and Vince Vittore, "States Push to Regulate Voice", *Telephony* at 9 (Sept. 22, 2003).

<sup>17</sup> *MTS/WATS Market Structure Order*, 97 FCC 2d 711, 715 (1983).

<sup>18</sup> This policy is known as the "ESP exemption." See *MTS/WATS Market Structure Order*, 97 FCC 2d at 715 (ESPs have been paying local business service rates for their interstate access and would experience rate shock that could affect their viability if full access charges were instead applied); see also Amendments of Part 69 of the Commission's Rules Relating to Enhanced Service Providers, CC Docket 87-215, Order, 3 FCC Rcd 2631, 2633 (1988) ("*ESP Exemption Order*") ("the imposition of access charges at this time is not appropriate and could cause such disruption in this industry segment that provision of enhanced services to the public might be impaired"); *Access Charge Reform Order*, 12 FCC Rcd at 16133 ("[m]aintaining the existing pricing structure . . . avoids disrupting the still-evolving information services industry").

<sup>19</sup> *ESP Exemption Order*, 3 FCC Rcd at 2635 n.8, 2637 n.53.

**NUVIO:** No. Because even if a call originates and terminates at points within the same state, such call will inevitably traverse the Internet, (for our service the communication originates on the Internet) which by its very nature, is solely an interstate network. It is technologically infeasible to separate the intrastate portion from the interstate portion of a VoIP communication.

**SBC:** To the extent the VoIP services are jurisdictionally mixed, the interstate and intrastate components of the services are inseverable. Where jurisdictionally mixed services are 10 percent or more interstate in nature, they are subject entirely to the interstate jurisdiction under the Contamination Principle. *See In the Matter of MTS and WATS Market Structure Amendments of Part 36 of the Commission's Rules and Establishment of a Joint Board, 4 FCC Rcd 5660 (1989).*

**SPRINT:** Most VoIP services will have an intrastate component based on the current method of determining the jurisdiction of a voice call, i.e., the end points.

**STAFF:** Yes. Telecommunications service originating and terminating within a state's boundaries should be considered an intrastate telecommunications service regardless of how or where the traffic is routed. Using IP technology and/or routing calls through the internet should not change this basic concept. Staff acknowledges that determining the jurisdiction of a call has always been somewhat problematic as companies can currently rely on factors in determining jurisdictional usage. For instance, the use of PIU (percentage interstate usage) factors and interMTA (major trading area) factors are commonly used today for determining the jurisdiction of interexchange and wireless telecommunications traffic. Similar factors could be applied to VoIP telephony in determining an intrastate component. Such factors are usually based on limited traffic studies, analysis, or mutual agreement among the involved parties. Alternatively, jurisdiction could be based on technical considerations depending on what requirements, if any, might be placed on VoIP telephony. For example, technical requirements may eventually be developed and applied to make it possible to determine the origin of an IP originated call. Other ideas for determining jurisdiction may include: the point of interconnection, the point the call hits the public switched network or the switch port location for the NPA NXX. Such possible ideas have drawbacks; however, they may deserve further consideration for determining the jurisdiction of VoIP telephony.

**STCG/MITG:** Yes. VoIP services that claim to be "local telephone service" or a "replacement for local telephone service" and which use traditional North American Number Plan numbers provide services which are intrastate in nature. Certainly some portion of the calls placed using these services will originate and terminate within one state while others will be between locations in various states. The use of LEC facilities as a component of completing these services will require LEC's to determine jurisdiction, at least of the use of their facilities, to comply with FCC Part 36 rules to allocate telephone company's facilities between the state and interstate jurisdictions.

**VONAGE:** No. There is no identifiable intrastate component to VoIP services offered by Vonage, as recently recognized by the FCC in its ruling concerning pulver.com Free World Dialup ("FWD") service. Determining the point of origination or termination of VoIP service is impossible. The FCC recently recognized this fact when it determined that the FCC's traditional

end-to-end analysis used to determine the jurisdictional nature of circuit-switched calls was irrelevant when applied to VoIP. In the *Pulver Order*,<sup>20</sup> the FCC stated:

While our traditional end-to-end approach to determining a communication's jurisdiction has relevance for a circuit-switched network, it has little or none with regard to FWD. Indeed, in the case of FWD the concept of "end points" has little relevance. What Pulver provides is information on its server located on the Internet. If an FWD member uses that information to set up communications, such as voice, between itself and other members, that communication—the only conceivable "end points" involved here—is transmitted by that member's ISP over the Internet. That does not, however, impute those "end points" to FWD, which remains a server on the Internet. Furthermore, even if the members' locations were somehow relevant to their use of FWD, FWD's portable nature without fixed geographic origination or termination points means that no one but the members themselves know where the end points are.<sup>21</sup>

While there are differences between FWD and VoIP services that interconnect with the PSTN, the limitations of the end-to-end analysis identified by the FCC in the *Pulver Order* are identical for the portion of a VoIP service that either originates or terminates on the Internet. Just like FWD, the geographic origination or termination of the VoIP portion of an IP-PSTN communication is unknown. The VoIP end of an IP-PSTN communication translates the PSTN telephone number into an IP address. There is no means to identify the location of the IP address as the communication protocols utilized to transmit data over the Internet do not contain such information. Even if the IP address is mapped to a certain device, in many cases the device is portable so its location is unknown. VoIP services also allow end users to exert greater control over their communications services. End users of VoIP services may change the destination of the IP address to another device or location without the knowledge of the service provider. Thus, even for IP-PSTN communications, the IP end point is unknown and irrelevant.

### **3) Will the marketplace sufficiently discipline the conduct of VoIP providers towards consumer protection in the absence of regulation?**

**AT&T:** "Consumer protection" may have many interpretations, not the least of which include fair dealing and honesty in advertising or public safety concerns. At present, the marketplace sufficiently disciplines numerous service and product providers without regulatory oversight, VoIP providers should be treated no differently. Moreover consumers have recourse through statutes such as uniform consumer protections (adopted in numerous states)<sup>22</sup>, small claims court and mediation or arbitration should consumer's need protection. Importantly, consumers may also simply refuse to purchase those products that, for example, do not offer 911 service.

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<sup>20</sup> *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, 20 (rel. Feb 19, 2004) ("*Pulver Order*").

<sup>21</sup> See *Pulver Order*, at ¶ 21.

<sup>22</sup> See e.g., Restatement (Third) of Unfair Competition § 2 (1995)(protecting against deceptive marketing).

**BIG RIVER:** Yes, it seemed to work on ISPs and wireless telephone service providers and should work with VoIP providers.

**CENTURYTEL:** All telecommunications service providers, regardless of the technology utilized, must be treated consistent with Missouri law. All parties offering basic local telecommunications service should be subject to the same rules (except as appropriately modified for those carriers declared to be competitive). It is neither appropriate nor lawful to give one carrier an advantage in the marketplace by imposing disparate regulation not authorized under the statutes.

**CHARTER:** This is a good question. What makes a “VoIP provider” any different from a constant bit rate provider if the service offered is the same? If we state that the market will discipline a VoIP provider we must also state that the market will discipline a provider of the same service (no matter what technology including constant bit rate provider). The commission has carved out a service category that it deems worthy of special consideration as a necessary service to all consumers and regulates it on that basis. How does the technology behind the offer change the basis for protection of the consumer?

**LEVEL 3:** Yes. Level 3 believes that consumers of communications services are served best by markets that facilitate the efficient provision of safe and reliable services at fair prices and encourages the Commission to maintain sight of the ultimate goal of the 1996 Act to remove regulatory barriers to competition. If not burdened by undue regulation, VoIP technologies will continue to develop innovative and economically efficient applications for customers.

Indeed, in its *Report to Congress*,<sup>23</sup> the FCC specifically recognized its international advocacy position that IP telephony serves the public interest by placing significant downward pressure on international settlement rates and consumer prices.<sup>24</sup> The FCC stated that alternative calling mechanisms such as VoIP are an important pro-competitive force in the international telecommunications services market.<sup>25</sup>

As has been the case with other unregulated information services, the competitive forces of the VoIP marketplace will sufficiently discipline VoIP providers to ensure that consumers are protected. Those VoIP providers that fail to address these issues will be left behind as consumers will choose other carriers. Historically, common carrier regulation was imposed on providers of telephone service in order to restrain their monopoly power in the telecommunications marketplace. In a competitive marketplace, however, legacy regulations designed to restrain market power in a service market have no relevance. The nascent service of VoIP is a good example.

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<sup>23</sup> Federal-State Joint Board on Universal Service, Report to Congress, 13 FCC Rcd. 11501 (1998) (“Report to Congress”).

<sup>24</sup> *Id.* at ¶ 93 (citing Rules and Policies on Foreign Participation in the U.S. Telecommunications Market and Market Entry and Regulation of Foreign-Affiliated Entities, Report and Order and Order on Reconsideration, 12 FCC Rcd. 23891 (1997)).

<sup>25</sup> *Id.*

As FCC Commissioner Kathleen Q. Abernathy observed:

[I]t would be a huge mistake to carry forward legacy regulation whenever new technology platforms are established. Many of our regulations are premised on the *absence* of competition, and when that rationale is eroded, we must not reflexively hold on to regulations that no longer serve their intended purpose. In fact, many of our old rules not only become unnecessary as markets evolve, but they can be fatal to new services that need room to breathe.<sup>26</sup>

**MCI:** Yes. The marketplace will sufficiently discipline the conduct of VoIP providers, so long as such providers are operating in a truly competitive marketplace. This has been the experience of internet application providers.

**NUVIO:** Yes. VoIP providers will respond to competitive markets forces much like ISPs did. Unlike many ILECs, there is already a choice among VoIP providers and consumers have the ability to make active choices on service. There is no monopolistic system in place to create an environment where VoIP providers can unfairly use their position in the market to harm consumers as ILECS have done.

**SBC:** Regulation is not necessary where there is a competitive market for services since consumers can choose to switch service providers where their existing service providers do not meet their expectations. To the extent a service provider conducts itself in an unethical or improper way, existing consumer protection laws provide consumers the opportunity to seek redress in the courts.

**SPRINT:** Telecommunications technology is changing rapidly. VoIP deployment is driven by many factors, including network efficiencies, new customer and service applications, and cost savings. VoIP challenges the current regulatory framework and regulation, of course, should not and need not confer artificial economic advantages on VoIP. Market and economic forces alone are sufficient to drive the deployment of this type of technology.

**STAFF:** At this time, no. The market is typically reactive and not proactive. The marketplace may eventually discipline the conduct of VoIP providers; however, consumers may be harmed before the market is able to effectively address problems. Society has placed an importance on high quality telecommunications services. Applying regulatory oversight to all providers regardless of technology ensures limited standards will be maintained, as well as, minimizes competitive advantages caused by different regulatory treatments.

**STCG/MITG:** No. In many other markets, consumer regulations have been determined to be necessary in spite of vigorous market competition. It will not be surprising if some type of consumer regulation will be necessary in telecommunications (or verbal information service) markets as well. While the ideal situation is that the market place will be disciplined towards consumer protection, there is no guarantee that the marketplace will drive consumer protection and this should not be relied upon to ensure consumer protection. To the extent that the

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<sup>26</sup> Kathleen Q. Abernathy, Speech to the United PowerLine Council Annual Conference, *Reaching Broadband Nirvana* (Sept. 22, 2003) (“Abernathy Broadband Nirvana Speech”) (emphasis added).



marketplace is deemed sufficient to discipline the providers of voice telecommunications (and/or information service), incumbent providers of those services should have current regulations removed. In the area of safety protection, there has already been a lawsuit in Minnesota regarding the failure of Vonage's 9-1-1 solution. Many consumers will probably not care about safety issues until there has been a tragedy. So, in the short term, consumer protection may not be a priority in the marketplace.

**VONAGE:** Yes. Like any other business, Vonage is subject to existing laws and regulations applicable to all businesses. Thus, the real question is whether it should be subject to heightened consumer protection rules that have traditionally applied to telephone utilities. Consumer protection rules apply to common carriers because these services have been traditionally provided by monopoly providers, and are not restrained by competitive forces. In a vibrantly competitive market like the VoIP services market, such regulations are not necessary as competitive forces restrain the behavior of VoIP service providers.

#### 4) Should VoIP be regulated differently than other information service providers?

**AT&T:** "Information services"<sup>27</sup> are not subject to traditional telecommunications regulation nor are information service providers ("ISPs"). VoIP, as an information service, likewise should not be subjected to traditional telecommunications regulation nor should providers of VoIP.

**BIG RIVER:** Yes, it seemed to work on ISPs and wireless telephone service providers and should work with VoIP providers.

**CENTURYTEL:** The question assumes that VoIP providers are considered information service providers, which clearly may not be the case. Even the FCC's holdings in *pulver.com* are limited to the Free World Dialup offering and do not extend to other *pulver.com* offerings or other computer-to-computer VoIP services. VoIP has nothing to do with the Internet as the Internet -- it only uses a packet switched technology to effect voice transport. To the extent that VOIP connects into the existing public switched network in any fashion, at any point, VoIP is a transport technology and should be regulated no differently than any other transport technology.

**CHARTER:** The assumption in this question is that a VoIP provider is an information service provider. On what basis do we make this assertion? If a provider offers a service identical to basic local exchange service but uses VoIP technology are they now an information services provider? VoIP on its own does not add or delete from an original signal- rather, it takes the signal and breaks it into packets for shipping and reassembles it on the other end. Unless there is some transformation of the actual information it is not an information service to start with (just because of VoIP). If the provider is offering an information service (using VoIP or any other technology) it should be treated as in information service.

**LEVEL 3:** No. As noted above, federal law governs whether or not information services are regulated. The FCC will soon release a Notice of Proposed Rulemaking ("NPRM") concerning the appropriate regulatory framework for VoIP services as well as what mechanisms to implement to further social policy objectives such as public safety, E911, law enforcement and

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<sup>27</sup> 47 U.S.C. § 153(20).

disability access. The FCC will initiate a separate NPRM to consider VoIP related issues that arise under the Communications Assistance for Law Enforcement Act (“CALEA”). The FCC also has formed an “Internet Policy Working Group” that will hold a series of “Solutions Summits” at which government and industry leaders will meet to discuss policy issues relating to VoIP. State public utility commissions should work cooperatively with the FCC during this important period when the FCC is determining the appropriate regulatory framework for VoIP services, which currently are, for the most part, regulated strictly by the FCC.

**MCI:** VoIP applications should be classified and treated as any other information services; that is, they should not be regulated. Of course, this question acknowledges that VoIP providers are information service providers (ISPs). MCI believes that “other information service providers” roughly has the same meaning as “enhanced service” provider set out in the FCC’s Computer II decision. That is, an enhanced service provider must satisfy one of the following tests: (1) employ computer processing applications that act on the format, content, protocol, or similar aspects of the subscriber’s transmitted information; (2) provide the subscriber additional, different, or restructured information; or (3) involve subscriber interaction with stored information.

It is important to remember that an enhanced service by definition is “offered over common carrier transmission facilities used in interstate communications;” in other words, a basic communications component underlies every enhanced service, so that an enhanced service essentially “rides” on a basic service. Because enhanced services are provided in a competitive marketplace, the FCC decided to leave them unregulated.

**NUVIO:** No.

**SBC:** SBC believes that information service providers, including VoIP providers, should be subject to minimal regulation, the extent of which should be established on a uniform national basis by the FCC. The FCC has opened a proceeding to address issues related to IP services in a comprehensive fashion and SBC looks forward to participating in that proceeding.

**SPRINT:** VoIP services, to the extent they are substitutes for circuit switched services, should comply with a subset of existing regulation and comply with public safety, disability access and security regulation, e.g., USF, inter-carrier compensation, federal, state and local taxes, access to emergency services and CALEA.

**STAFF:** Yes. VoIP should be regulated differently than other information service providers. VoIP telephony is different than other information services because VoIP service may interconnect with the public switched telephone network as a replacement for traditional telecommunications service.

**STCG/MITG:** Yes, at least some types of VoIP should be regulated differently than pure information service providers. VoIP services which use North American Number Plan (NANP) numbers and interconnect with the traditional Public Switched Telephone Network (PSTN) are part of that network and should be treated as such. The VoIP service is a replacement for

telephone service. In fact, the VoIP providers advertise their services as a replacement for the local telephone service and offer vertical services, voice-mail, and toll.

Therefore, VoIP services (such as Nuvio/Vonage/Time Warner) are not solely an information service when they connect to the PSTN. When a VoIP user places a call that connects to the PSTN, a VoIP provider is offering a service, which involves the "transmission" of a call.

**VONAGE:** No. Internet applications, whether they be VoIP, applications that send bits of sound from one destination to the other, or web browser programs that sends bits of images and text back forth, deserve the same regulatory treatment regardless of the content carried.

**5) Will VoIP broadband service offer an alternative form of communication for traditional telephone subscribers, especially in rural markets and non-competitive markets where the ILEC has defacto monopoly status?**

**AT&T:** Yes, like wireless communications, VoIP providers may make their services available in rural markets thus creating an opportunity for competitive choice. However, such deployment will be dependent upon the availability of broadband of sufficient speed in those rural markets.

**BIG RIVER:** No, it is just another supplement to existing wireline service, similar to the way wireless supplements people's use of their wireline service today. Also, VoIP providers provide only enhanced switched services, they do not generally provide local network access and rely on local broadband providers to provide that. This supplement to wireline communications will take hold in rural markets if broadband access is available. In fact, the ability to provide an additional valuable service such as VoIP in rural areas will expedite the rollout of broadband networks in those areas.

**CENTURYTEL:** While VoIP providers utilize an alternative technology for transport, VoIP providers may well be considered alternative local exchange telecommunications companies providing basic local exchange services in competition with incumbent LECs.

**CHARTER:** VoIP providers can offer their services anywhere and will offer their services anywhere someone will buy it. It won't matter if its rural or urban.

**LEVEL 3:** Yes, however, many of the computer-to-phone VoIP services require that the customer purchase a broadband connection to the Internet from an unaffiliated provider. Therefore, if the ILEC is a provider of DSL services, it must not be allowed to use its monopoly position to prevent competitive offerings that customers access via their broadband services. Customers must be able to choose "naked" DSL such as Qwest's new offer that does not require a customer to have local service from Qwest in order to obtain DSL service.<sup>28</sup> Regulators and carriers need to build the foundation, which permits the PSTN to evolve to an open, stable,

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<sup>28</sup> In the past, all of the ILECs at one time or another required DSL subscribers to also have local service from the ILEC. The ILECs often claimed that it was technically impossible - or illegal - to provide DSL to a customer of a voice competitor. Georgia, Kentucky and Louisiana regulators have disagreed, and have ordered BellSouth to continue providing DSL if users switch voice carriers. Similar efforts are underway in North Carolina, and the debate has long raged between SBC and many California customers.

interoperable network over which numerous providers may deliver many applications to consumers. Without access to customers served by ILEC broadband services, VoIP will not be able to offer an alternative form of communication for traditional telephone subscribers.

**MCI:** The ILEC has de facto monopoly status in all markets, urban and rural, either due to its absolute market share or by being the sole provider of essential facilities to competitors. Having said that, VoIP should work wherever high speed broadband access is available. There may, however, be managerial, administrative or other factors that may limit a provider from offering VoIP in all areas where high speed access is available. MCI recognizes that high speed access (cable modem, DSL) may not be available in all locations and, thus, VoIP may not be available everywhere. The lack of ubiquitous high- speed broadband access should not be used to create regulatory roadblocks for the deployment of VoIP.

**NUVIO:** Yes. VoIP providers offer a new breed of competitive services for consumers. In many locales, it is not economically feasible for a competitor to come in and challenge the incumbent. However, VoIP offers those consumers, as long as they have broadband, an alternative. While local numbers may not be offered, voice communications service certainly is available now. VoIP is a disruptive technology and is already forcing the marketplace to make changes. The ultimate beneficiary of these changes is the consumer.

**SBC:** We do not have empirical data reflecting whether customers will consider VoIP to be a supplement to or replacement of existing wireline services. VoIP services are in their infancy, and it is premature at this stage to draw any specific conclusions about rural markets. However, customers are increasingly substituting IP-enabled services for traditional services. Regulators should take this into account in analyzing the competitiveness of local markets and determining the need (or lack thereof) for continued regulation.

**SPRINT:** Some VoIP providers will position their service as a substitute for ILEC service. It is uncertain whether existing or future VoIP services will directly address rural and non-competitive markets. The February 27 Petition for Declaratory Ruling filed with the FCC by Inflexion Communications might suggest they will, as evidenced by the following statement found on page 3 of their filing: “ExtendIP provides customers in underserved markets substantially the same functionality as Plain Old Telephone Service, plus more.”

**STAFF:** Yes. Customers with broadband Internet access may find VoIP service, if available, to be an acceptable alternative form of communication. If the ILEC offers broadband Internet service only when combined with basic local service, some customers may still find VoIP service to be a more economical toll service.

**STCG/MITG:** Yes. In view of the widespread availability of wireless services, we question whether the ILEC really has “defacto monopoly status.”

**VONAGE:** Depends. VoIP is just at the beginning stages of offering an alternative form of communication in competitive markets. Vonage is the leading provider of small business and VoIP services in the United States with over 150,000 users and is driving broadband deployment in competitive markets. However, VoIP services such as Vonage are dependent upon the

deployment of broadband access facilities by third parties, especially rural telephone companies. VoIP cannot drive broadband deployment in non-competitive markets with the same effectiveness since rural carriers are shielded from competition and do not have the same interconnection obligations as other common carriers.

**6) Is VoIP the application that will provide consumers with an incentive to use broadband services?**

**AT&T:** Because many VoIP offerings require the use of broadband Internet access to obtain high quality VoIP service, VoIP will increase the demand for broadband.

**BIG RIVER:** Yes, this single service will make broadband more economical since it will be capable of providing an information service that can supplement service (telephone service) that is in common use today. The broadband connection will not only bring the traditional telephone service to which consumers are accustomed to receive over a pair of copper wires, it will bring the additional benefits of high speed data and Internet access. This development will secure demand for broadband services and allow for a wider deployment of broadband networks across the state.

**CENTURYTEL:** It is not likely that customers will sign up for broadband for the sole purpose of switching their voice service to a VoIP provider. More likely, it is customers who have already signed up for broadband for other reasons who may consider taking voice service from a VoIP provider.

**CHARTER:** Why should it? – consumers don't even know what broadband is and the industry can't even agree on a definition. What VoIP will do is create an opportunity for the delivery of all types of services on a more cost effective basis (less overhead, more flexibility on service delivery etc.). This is certainly evident in the major LECs quick adoption of the technology as a transport medium.

**LEVEL 3:** Yes. VoIP services could stimulate much-anticipated broadband deployment and business development. IP-enabled services, like VoIP, allow providers, businesses and customers to combine voice, data, video, and other applications more seamlessly than is possible on today's PSTN. Indeed, VoIP services show promise as a "killer application" to drive broadband penetration. At present, a major impediment to even greater increases in broadband penetration is consumers' perception that broadband lacks significant value.<sup>29</sup> As Chairman Powell has recognized, however, VoIP applications can greatly enhance the consumer value of broadband service.<sup>30</sup> Driving up broadband penetration will stimulate further innovation, both in VoIP communication and in other uses for "always-on" broadband connections.

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<sup>29</sup> See, e.g., Nat'l Telecomm. Coop. Ass'n, 2003 Internet/Broadband Availability Survey Report at 7 (May 2003) available at [http://www.ntca.org/content\\_documents/ACF36B6.pdf](http://www.ntca.org/content_documents/ACF36B6.pdf).

<sup>30</sup> See, e.g., Letter from Chairman Michael K. Powell to Senator Ron Wyden (Nov. 5, 2003) (expressing "excitement about the potential for VoIP technology" to bring the benefits of broadband to consumers and businesses)

**MCI:** VoIP certainly is *an* application that will provide consumers with increased incentives to use broadband transmission services.

**NUVIO:** Yes. This service certainly gives consumers an incentive to switch from narrowband to broadband services. VoIP allows a consumer to “maximize” their investment in broadband technology, and further broadband demand will result in further broadband deployment by providers.

**SBC:** VoIP services benefit greatly by the growth in the market for Broadband services. The more applications that are available via a Broadband network, the more likely it is that consumers will choose Broadband solutions.

**SPRINT:** VoIP itself may not be the driving force to the further deployment or utilization of broadband services. VoIP can be deployed as an application over a broadband connection, but to the extent VoIP is merely a substitute for circuit switched telephone service, the subscriber would be required to pay for both the VoIP and the broadband service increasing the total cost to the subscriber. In addition, VoIP doesn’t necessarily utilize the Internet, therefore, the two services don’t necessarily have to be tied together. Many applications of VoIP will utilize private IP networks rather than the public Internet, e.g., some forms of VoIP provided by cable companies, IP centrex, etc.

**STAFF:** Yes. If VoIP offerings require the use of broadband Internet access to obtain high quality VoIP service, VoIP will increase the demand for broadband. However, VoIP services offered over broadband will need to be less expensive or provide better quality to provide a significant incentive in many markets. Innovative VoIP product offerings would also provide consumers with more incentives to subscribe to broadband services.

**STCG/MITG:** For some consumers, some types of VoIP may provide additional incentives to use broadband services, but to do so at least two things must happen. First, the consumer is sold on the features and options that a VoIP provider offers. Second, they must perceive it as a way to reduce their overall communication costs. Since a VoIP connection requires broadband, the consumer will only switch when they feel they are receiving an additional benefit for the lower cost, and the negatives are greatly outweighed by the positives (negatives such as unreliable 911 services, positives such as unlimited long distance, numbers from anywhere, etc).

**VONAGE:** Yes. For the first time, consumers in many markets are experiencing widespread local competition. Every day people are upgrading their dialup connections in order to get access to Vonage’s “killer application” that offers better value and new, innovative features.

## 7) Is VoIP really “phone” service?

**AT&T:** The term “phone service” is ambiguous at best, but most likely it is used here as being synonymous with “telecommunications service” and implicates customer premises equipment (“CPE”) that consists of the traditional telephone. Given that understanding, the answer is no, VoIP is not really “phone” service.

**BIG RIVER:** No. It has very different capabilities and limitations than what people consider “phone” service. “Phone” service, as we generally know it, is a set of services provided over a network purpose-built for “phone service”. The network is one and the same as the service, wherein lies the potential for monopolistic control over services provided over that purpose-built network. VoIP is an application of but one service, voice, provided over an IP network built for a multitude of applications.

**CENTURYTEL:** In Missouri, “telecommunications service” is broadly defined as “the transmission of information by wire, radio, optical cable, electronic impulses, or other similar means. As used in this definition, ‘information’ means knowledge or intelligence represented by any form of writing, signs, signals, pictures, sounds, or any other symbols.” (Section 386.020(53), RSMo 2000). While this statutory definition has a few exceptions, such as wireless and paging services, VoIP service is not included in the statutory exceptions. Again, while VoIP providers utilize an alternative technology for transport, VoIP providers may well be considered alternative local exchange telecommunications companies providing basic local exchange services in competition with incumbent LECs.

**CHARTER:** It can be – see comments above.

**LEVEL 3:** No. There are a myriad of technological features and functions that differentiate VoIP from “phone service.” Voice is merely one of a number of possible applications for IP technology and it would be dangerous and extreme to take the position that because voice has become a technically feasible application for IP networks that all other indistinguishable applications must also be regulated as “phone service.” VoIP is less like “phone service” than it is like all other data applications.

In contrast to plain old telephone service (“POTS”), voice service provided on an IP network is not a “pure transmission” service; it is an application or media stream that runs on the IP network, just as e-mail, streaming audio, streaming video and web browsing are applications that run on the IP network. Because it is data provided in IP form, VoIP applications can be combined with other IP-based applications. Thus, VoIP can incorporate features that permit customer interaction with stored data, use of computer processing, or have the “capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing or making available information.”<sup>31</sup> Examples of applications combining transmission with stored data or use of computer processing include playing announcements and tones, performing speech recognition, presence monitoring, click access, VIP list creation, unified messaging, conferencing, number translation, find-me, and forwarding services.

In their attempt to justify imposing legacy common carrier regulations on information services, ILECs make much of VoIP providers’ marketing efforts. As Chairman Powell recently noted, “nobody will let good competition go unpunished.”<sup>32</sup> ILECs generally cite to various web pages and press releases, asserting that a VoIP provider “admits” it is a provider of traditional telephone service because it advertises its service as a replacement for such service. The

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<sup>31</sup> 47 U.S.C. § 152(20) (defining “information service”).

<sup>32</sup> Transcript of Interview of Chairman Powell, Kudlow and Cramer (Nov. 19, 2003).

Commission should reject this attempt to bootstrap VoIP providers into common carrier regulation. In order to gain market share, new entrants must convince customers to leave their current service provider and try something new. Providers of new technologies must walk a fine line between distinguishing their product and assuring customers that their product provides some of the same features customers expect from traditional common carrier telephone services.

**MCI:** VoIP is a software and hardware-based computer application that utilizes the capability of the internet. In other words, VoIP is an Applications-layer program, which uses the internet, as opposed to being a service that is tied directly to the Physical-layer connection to the network. MCI proposes that policymakers adopt a horizontal “layered” approach to regulation. This approach conceptualizes four distinct network layers: (1) Physical Layer (including access and transport components); (2) Logical Layer (the internet protocol function); (3) Applications Layer (this would include VoIP); and (4) Content Layer. This model targets the lower network layers for regulation based on the existence of undue market power, rather than legacy service or industry or network labels. This framework also fosters maximum innovation by leaving otherwise competitive content and applications markets unfettered by unnecessary and counterproductive regulation. Because VoIP is one of many capabilities of the Applications Layer, it should not be saddled with inappropriate Physical Layer regulations.

**NUVIO:** No. VoIP providers have worked hard to create the impression that this is phone service. However, it merely provides a telephone like interface which enables the user to use the service in a familiar manner. The entire infrastructure that enables VoIP is significantly different than traditional telephone service. Further, while some VoIP calls may be routed and terminated to the PSTN, mere interconnection with the PSTN does not make something “phone” service. VoIP is a data service that allows voice transmission by end users.

**SBC:** VoIP services are not “phone” services in the traditional sense, but rather they are interstate information services that utilize Internet Protocol technology. They are often provided over a broadband connection and may provide customers with an integrated suite of applications that includes Internet access, call management and call routing functionality. Such services support both simultaneous voice and data applications over the same broadband connection using the Internet protocol. Whether a particular service is a VoIP service should be based on the features and functionality of the service, rather than merely the name that the provider has given to the service.

**SPRINT:** VoIP provides real-time voice communications between end users. Some VoIP services may have limitations in calling scope, but the vast majority of service providers provide ubiquitous termination of local and long distance calls and provide similar features as circuit switched voice. There will also be VoIP services that include features unlike those typically available today with “traditional” phone service such as unified communications, inter-modal capabilities (conversations seamlessly moving between technologies), geographic portability, etc.

**STAFF:** Yes. VoIP is typically a two-way connection that allows people to communicate. To the extent it offers the same or similar functions as traditional telecommunications services, or is a complement to POTS, it is “phone” service.



**STCG/MITG** Yes, some types of VoIP are really “phone” service. Once voice is introduced, the service becomes a replacement for voice or “phone” communication and is no longer an information service. Perhaps it is time to revise old definitions of what makes up a phone service. VoIP is just as much as phone service as Sprint PCS's Push-to-Talk is (which uses VoIP to connect to users over the Sprint PCS network). A "phone" service should be anything that allows two people to communicate using their voices, it does not matter if it is over a twisted pair, or via the internet, using a satellite, using a cell tower, or using any other method. VoIP is plain and simple a "Phone" service wrapped in the paper of the internet.

**VONAGE:** No. Vonage’s VoIP service performs a “net protocol conversion” in that it converts the asynchronous IP packets generated by specialized customer premises equipment into the synchronous TDMA format used by the public switched telephone network (and *vice versa*).

**8) Should there be a requirement prohibiting the practice of telephone companies who offer DSL only to customers who also purchase basic local telephone service?**

**AT&T:** Yes. Tying DSL service to a demand that the customer also purchase basic local exchange service diminishes consumers’ competitive choice and creates a barrier to competitive entry. It will inhibit the adoption of VoIP service to the extent that VoIP comes to be perceived as a substitute for basic telephone service. Though many subscribers are in fact likely to adopt VoIP service as an ancillary service to POTS (especially in the early stages of VoIP deployment), undoubtedly some customers will want to replace their POTS service entirely. ILECs should not be permitted to restrict such consumer choice.

**BIG RIVER:** Yes. This is anti-competitive and inhibits the further deployment of broadband networks. It is clearly a roundabout way of extending the control over the ‘last mile’ local network beyond traditional telephone service to VoIP. The current practice stifles the development of VoIP and broadband network deployment.

**CENTURYTEL:** Telephone companies can only provide DSL service if they have a physical connection to the customer (i.e. a loop). The cost of that local loop has traditionally been recovered in large part from revenues from local service and access charges. Therefore the issue becomes one of recovery of the costs of the loop. If there is no revenue from local service or access charges, then rates for DSL will have to recover the entire cost of the loop. Telephone companies should not be forced to provide DSL in instances where nobody is paying for the local loop.

**CHARTER:** Not sure how this interfaces with VoIP. This question surely goes to competitive providers as an ILEC could not take this position. As broadband is deregulated this will become a moot point due to the inability of competitors to get at DSL loops for resale.

**LEVEL 3:** Yes. As discussed in the answer to question 6 above, DSL tying is not consistent with the pro-competitive goals of the 1996 Act. Since many consumers and small businesses have to rely on an ILEC’s DSL service for a broadband Internet connection, DSL tying

eliminates these customers' right to choose their voice provider. Consumers' choice of a voice provider should not be so limited.

**MCI:** Yes. Incumbent LECs should not be allowed to engage in tying arrangements that require a customer to take the ILEC's voice service as a condition of obtaining DSL. According to recent news reports, Qwest has indicated that it will begin offering DSL transmission service to all end users and ISPs as a stand-alone product, referred to as "naked DSL." Such actions should be applauded and encouraged, because they help unlock the broadband component for all to utilize without undue tying arrangements.

**NUVIO:** Yes. This is an example of the monopolistic nature of ILECs. By requiring users to purchase antiquated and expensive service to get broadband, telephone companies are unfairly using consumers to avoid active market competition for voice services.

**SBC:** The FCC has repeatedly held that an ILEC has no obligation to continue offering broadband DSL service to a customer who has chosen to take UNE voice service from a CLEC. Instead, the FCC's rules permit a voice CLEC to provide both voice and DSL service over a UNE loop by entering into a "line splitting" arrangement with a data CLEC. As demonstrated by the flurry of new line splitting agreements over the last year involving a host of voice CLECs partnering with data CLECs (such as Covad), the marketplace has shown that "line splitting" provides a viable competitive alternative to ILEC voice and DSL offerings.

**SPRINT:** Standard DSL service does not recover the cost of the local loop on which the DSL is provided. BellSouth has filed a Petition for Declaratory Ruling with the FCC asking the FCC to preempt states from requiring ILECs to provide DSL on a loop the CLEC is providing voice service. In this case, loop recovery is provided to the ILEC via the loop UNE. Additionally, Qwest has recently voluntarily decided to offer DSL on a local loop that does not also provide local telephone service. This new type of DSL includes loop cost recovery within the filed cost study. At a minimum, the ILEC must be provided the ability to recover those loop costs. Any decision on this issue should take into account the pricing, operational impacts and billing issues associated with separating these services.

**STAFF:** Yes. To promote competition, customers should not be tied to one basic local telecommunications provider, and one DSL/broadband provider. Telephone companies should be required to provide access to "naked" DSL, but should also be allowed to recover any costs of providing that access and associated USF surcharges, as appropriate.

**STCG/MITG:** No. There should be no regulatory requirements placed on telephone companies as to how they do or do not offer DSL service. Broadband services are offered in various locations by a variety of providers besides telephone companies including cable TV providers, wireless providers, and satellite providers. It would be better to allow telephone companies to make their own decisions as to how to respond to this multiple provider marketplace rather than imposing regulatory requirements regarding how broadband service should be offered.

**VONAGE:** Yes. Because most small businesses and many consumers do not have a comparable broadband alternative to the incumbent's ADSL service, the incumbent is able to

force them to make a choice they should not have to make – to give up either their chance of obtaining broadband or their right to choose a different voice provider.

DSL tying not only eliminates consumer choice in the voice market, but it also undermines the potential of broadband to integrate digital voice and data with home appliances, other services and applications, and with each other. Broadband therefore remains more expensive and less attractive to American consumers, who, as a result, are falling further and further behind other countries that increasingly are leading the broadband revolution. The cost efficiencies of VoIP and broadband can reverse this course by fueling demand for each other – but only if consumers have the freedom to choose their preferred broadband and voice service providers based upon the strength of the service offerings, unfettered by limitations imposed via the strength of a provider’s market power. The elimination of DSL tying is an essential step in putting this power of choice into the hands of consumers.

#### **9) Should VoIP providers contribute to USF?**

**AT&T:** AT&T has filed a proposal with the FCC urging the Commission to reform the federal USF so that universal service is supported through assessments on working telephone numbers. Notably, both the VON Coalition<sup>33</sup> and the National Cable & Telecommunications Association support this approach to USF in the VoIP environment.

**BIG RIVER:** This needs further analysis. Given the significant changes in this industry, the funding mechanism for the objectives of furthering universal service should be re-examined.

**CENTURYTEL:** Yes, Vonage-type VoIP providers and any other service provider who connects to and relies upon the public switched network should contribute to USF.

**CHARTER:** If the service offered using VoIP technology is a regulated service subject to USF – yes, if it is not – no.

**LEVEL 3:** The federal Telecommunications Act authorizes both the FCC and the state commissions to adopt explicit universal service support mechanisms. Indeed, section 254(f) of the Act grants state commissions the authority to establish state universal service funds.<sup>34</sup> Many states have, at least to some extent, adopted state universal service funds that supplement the federal universal service fund.<sup>35</sup> The FCC is currently considering changes to the methodology for collecting universal service contributions, such as connection-based or telephone number-based mechanisms, that would require, on a technically and competitively neutral basis, universal service contributions from all entities that benefit from connecting to

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<sup>33</sup> Voice on the Net (VON) Coalition.

<sup>34</sup> 47 U.S.C. § 254(f).

<sup>35</sup> See United States General Accounting Office, Telecommunications: Federal and State Universal Service Programs and challenges to Funding, GAO-02-187, at 12-17 (Feb. 4, 2002).

the PSTN.<sup>36</sup> Universal service is an important public policy goal and Level 3 supports reforms that will improve the current system. Level 3 encourages the Missouri Public Service Commission to work cooperatively with the FCC in connection with these USF proceedings.

While the advent of VoIP is one market change the FCC is considering in its USF rulemaking, VoIP is only one of the reasons that the FCC is contemplating universal service reforms. Other market changes, such as the substitution of wireless, email, and instant messaging for long distance services, are driving USF reform. Many VoIP providers or users of such services purchase telecommunications services or private telecommunications from third parties for a fee. Thus those providers or users already contribute to USF as end users. Some VoIP is provided via facilities that do not today contribute to universal service, such as cable modem facilities. The FCC is considering separately whether those services should be required to contribute to universal service directly and explicitly.<sup>37</sup>

**MCI:** No. Ultimate responsibility for USF funding should reside at the Physical Layer. That is, USF payments are dependent on a connection-based approach to the physical network. This is the concept of associating universal service payments not with service provision, but instead with the physical facilities along which the information moves. After all, in an IP world, it is not the voice service that is difficult and expensive to provide to consumers in high-cost regions, but the underlying broadband connection. MCI believes that broadband platform providers should contribute to USF – and receive such funding in turn -- but not the applications that “ride” on those platforms.

**NUVIO:** VoIP providers are retail consumers of telephone circuits from ILECs and CLECs. USF charges are collected from them (Nuvio), and then the CLEC or ILEC submit those payments to the USF. It costs a VoIP provider the same to provide service in urban and rural areas. VoIP providers, unlike LECs, do not concentrate their services in urban areas rather than rural areas due to urban areas being less expensive for deployment.

**SBC:** This is a question that must be answered by the FCC. To date, the FCC has declined to impose Universal Service Fund charges on interstate information services providers. Whether a USF contribution requirement is appropriate requires a more complete analysis by the FCC. In the event that the FCC were to decide to impose USF charges on information services providers, that burden must be borne by all industry players in an equitable and non-discriminatory manner.

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<sup>36</sup> See Report and Order and Second Further Notice of Proposed Rulemaking, In the Matter of Federal-State Joint Board on Universal Service; 1998 Biennial Regulatory Review-Streamlined Contributor Reporting Requirements Associated with Administration of Telecommunications Relay Service, North American Numbering Plan, Local Number Portability, and Universal Service Support Mechanisms; Telecommunications Services for Individuals with Hearing and Speech Disabilities, and the Americans with Disabilities Act of 1990; Administration of the North American Numbering Plan and North American Numbering Plan Cost Recovery Contribution Factor and Fund Size; Number Resource Optimization; Telephone Number Portability; Truth-in-Billing and Billing Format, 17 FCC Rcd. 24952 (¶¶ 66-100) (2002). Level 3 was a member of the Coalition for Sustainable Universal Service, which proposed a connection-based assessment mechanism.

<sup>37</sup> See Notice of Proposed Rulemaking, *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities; Universal Service Obligations of Broadband Providers; Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services; 1998 Biennial Regulatory Review – Review of Computer III and ONA Safeguards and Requirements*, 17 FCC Rcd. 3019, 3048-56 (¶¶65-83) (2002).

**SPRINT:** Today, telecommunications carriers contribute approximately 9% of their interstate and international revenue to the federal USF. Classifying VoIP as an information service will result in a shift in burden from all telecom providers that contribute today to only those not utilizing VoIP technology. There are other USF funding mechanism options that alleviate the strain that may be placed on the USF if revenue from VoIP services do not contribute. One such mechanism is basing contributions on telephone numbers, which would eliminate the technological loopholes.

**STAFF:** Yes. VoIP providers should be required to contribute to USF regardless of whether VoIP is classified as a telecommunications service or an information service. Any provider using a portion of the public switched telecommunications network to originate and/or terminate voice calls should contribute to the USF.

**STCG/MITG:** Yes, VoIP providers whose services interconnect with the PSTN and originate or terminate on the traditional local telephone network, at a minimum, should contribute to USF. Other companies who provide telephone service/voice are required to contribute. Therefore, providers who offer voice over internet protocol should also contribute. The company's universal service contribution base is derived from the interstate revenue a company receives from its end users.

**VONAGE:** Vonage *does* contribute to USF, as an end user. Vonage purchases telecommunications service as an end user. A portion of the fees it pays to carriers for such services include an USF end user surcharge. Prior to requiring VoIP providers like Vonage to contribute to the USF, the FCC and Congress must comprehensively reform a broken program that was in need of modification and revision long before VoIP applications became available to consumers.

#### **10) Should VoIP providers be certificated?**

**AT&T:** No.

**BIG RIVER:** Yes, if they take telephone numbers, directly interconnect to the 911 system and directly interconnect to the PSTN. If they buy services and interconnection via tariffed services from a certificated provider, there is no need to have the VoIP providers certificated.

**CENTURYTEL:** As a telecommunications company providing telecommunications services pursuant to Missouri statutory definitions (§ 386.020(51)-(53)), VoIP providers and their services must be appropriately classified in accordance with Missouri law, which includes certification as required by §392.410, *et seq.*

**CHARTER:** If the service offered using VoIP technology is a regulated service, that requires certification, yes, if not, no.

**LEVEL 3:** No. As discussed in questions 1 and 2 above, VoIP is a nascent service that is governed by federal law as an unregulated information service. The services provided by VoIP are interstate in nature, and thus, these carriers should not have to be certificated. VoIP

providers should be free to develop exciting, innovative and economically efficient applications for their customers without the burden of state regulation.

As noted in question 2 above, FCC Commissioner Abernathy advocates a cautious approach to regulating nascent services like VoIP. Commission Abernathy is not alone. California Public Utilities Commissioner Susan Kennedy recently wrote:

State regulators argue that VoIP is a telecommunications service no different than phone services. Therefore, they should pay the same taxes and fees, as well as provide 911 service and access for the disabled. Regulating VoIP would protect consumers and provide a level playing field. But new technologies don't develop on a level field. They develop in the proving ground of unfettered competition where the risks are high and the rewards are worth it.<sup>38</sup>

And the Chairman of the Illinois Commerce Commission reportedly agrees that "VoIP is in such an embryonic state that the commission needs to look at the competitive landscape before determining whether to exert its jurisdiction or regulation."<sup>39</sup>

Accordingly, Level 3 believes that VoIP providers should not be certificated.

**MCI:** No. VoIP is an information service that by definition cannot be classified and treated as a telecommunications service. *See Vonage Holdings Corp. v. Minn. Pub. Utils. Comm'n*, 2003 WL 225676345, 2003 Minn. PUC LEXIS 106 (D. Minn., 2003)

**NUVIO:** Not any more than any other information service, such as ISPs.

**SBC:** No. There is no need for direct entry, exit, rate, term and conditions regulations for VoIP services, and thus no purpose is served by requiring certification of VoIP providers.

**SPRINT:** VoIP represents several challenges including regulatory classification, i.e., telecommunications service or information service. This categorization leads to the question of certification. Regardless of whether a state finds it necessary to certify VoIP providers, there are certain rights afforded telecommunications providers that should also be available to VoIP providers or their enabling partners. These include at a minimum the right to interconnect, acquire telephone numbers and purchase unbundled network elements.

**STAFF:** Yes. Currently Missouri statutes require any company providing telecommunications service in Missouri to have a certificate of service authority from the Missouri Public Service Commission. Shared tenant service providers and payphone providers are also required to be certificated. Such certification allows the state to have a record and contact information of those companies providing various types of services within the state. Certification also can allow a state commission to ensure minimum consumer protection rights are enforced.

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<sup>38</sup> Susan Kennedy, "Let Internet phone service evolve without rules," *SiliconValley.com* (Nov. 3, 2003), <http://www.siliconvalley.com/mld/siliconvalley/business/columnists/7173969.htm> (visited Nov. 13, 2003).

<sup>39</sup> Glenn Bischoff and Vince Vittore, "States Push To Regulate Voice as Voice," *Telephony*, 9 (Sept. 22, 2003).

**STCG/MITG:** To the extent that VoIP providers offer services that are functionally equivalent or substitutable for services that are offered by other carriers to whom current certification requirements apply, certification requirements for the carriers should be made symmetrical and applied equally to all types of providers.

**VONAGE:** No. As indicated in responses to questions 1-4, VoIP services are information services that are jurisdictionally interstate. Further, they should be treated just like any other information service. As such, VoIP providers should not be subject to certification requirements.

**11) Should VoIP providers be required to adhere to the same quality of service, tariff filing, directory listing, consumer safeguard, certification, and other standards and requirements expected of local exchange carriers?**

**AT&T:** Unlike incumbent local exchange carriers or other monopolists, VoIP providers have had to earn, through competition, every single customer they have acquired. In contrast, the large incumbent customer bases were not won through high service quality and customer satisfaction over-time, rather they were awarded by monopoly franchise to the incumbents with guaranteed rates of return. That is why service quality requirements and reporting obligations were created in the first instance—they were a surrogate to competition put in place to ensure service quality where no incentive to provide superior or even good service quality existed. Competitors do not need the same regulatory incentives. Thus, VoIP providers do not need to adhere to service quality requirements, tariff obligations, etc. imposed upon incumbent local exchange carriers. Moreover, because VoIP cannot be considered a telecommunications service, such traditional telecommunications regulations are inappropriate. With respect to quality of service requirements, such obligations in the VoIP environment are particularly irrelevant since VoIP is a service application provided independently of the underlying network. Thus, VoIP service providers cannot unilaterally control the quality inherent in the underlying networks that carry the service.

**BIG RIVER:** No. The market will dictate the quality and service level to which these providers operate. These standards are required for incumbent monopoly telephone companies where there are no effective competitors.

**CENTURYTEL:** All parties offering basic local telecommunications services should be subject to the same rules (except as appropriately modified for those carriers declared to be competitive). It would not be appropriate to exempt VoIP providers from compliance with statutes and rules applicable to all other provisions of basic local telecommunications service when they are provisioning such services.

**CHARTER:** If the provider using VoIP technology delivers regulated services that require all of these items, yes, if not, no

**LEVEL 3:** No. As discussed in the answer to question 10 above, VoIP is a nascent service that is governed by federal law as an unregulated information service. As such, VoIP providers should not be required to adhere to the same quality of service, tariff filing, directory listing,

consumer safeguard, certification, and other standards and requirements expected of local exchange carriers. The vibrant competitive market will sufficiently regulate VoIP providers.

Level 3 understands and shares the Commission's concern over ensuring that customers receive a reliable level of service. The imposition, however, of service quality standards on IP-enabled services should be discouraged for at least three reasons. First, it is premature to examine service quality from a regulatory perspective while the VoIP market is still maturing. It remains to be seen whether customers will utilize these VoIP services as a substitute for local service in every respect, and whether VoIP might also deliver benefits that outweigh slight (perhaps even unperceivable) discrepancies in service quality. In addition, consumers may desire tiered levels of service quality depending on the use of the VoIP application.<sup>40</sup> VoIP providers must not be encumbered with unnecessary regulations that prevent them from meeting the needs of their customers.

Second, Level 3 submits that the application of traditional ILEC service criteria (e.g., deployment of maintenance personnel in X hours, or installation of service within Y days) may be largely inapplicable in a remotely operated IP-based environment that does not rely upon circuit switches and traditional copper loop technology. In fact, many of the PSTN service criteria in place today do not apply squarely to even traditional services offered by CLECs over circuit-switched networks. Superimposing traditional ILEC network-based service metrics on the distributed network architecture associated with an IP-based network that offers voice, video, and data capabilities to customers all at once could be unmanageable.

Finally, the public interest would be best served by considering service quality issues on a case-by-case basis if and when customers express concern. Many providers such as Level 3 already are compelled by the competitive market to demonstrate the quality of their services to prospective customers in order to attract their business.<sup>41</sup> If complaints from customers regarding VoIP service become prevalent enough, the Commission could at that time consider whether more stringent regulatory protections are required based upon the nature of the service.

**MCI:** No. These are legitimate social priorities, and should be taken seriously as the nation's communications and information platforms continue to evolve. Nonetheless, there are ways of accommodating and even advancing these priorities without doing so within the stifling confines of the legacy legal construct. For example, the government, industry, and interested parties can work together to inform pertinent service providers of the general needs, and early enough in the deployment process to minimize the difficulties (cost, time, other) of supporting such needs. In many cases, the issues can be dealt with consistent with the layers approach, by placing the obligation at the lower physical layers as part of overall network requirements, and by allowing

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<sup>40</sup> For instance, a college student who subscribes to a VoIP service for purposes of keeping in touch with his parents may be interested in purchasing a less expensive service with lower service quality. Businesses, on the other hand, may demand and be willing to pay for the highest level of service quality for communicating with their customers.

<sup>41</sup> For example, Level 3 today offers an IP-based wholesale long-haul voice transport product. In order to attract and retain the business of interexchange carriers, Level 3 tracks a number of service indicators such as Call Success Rate, Network Efficiency Ratio, Latency, Packet Loss, Jitter, and Network Availability. If Level 3's interexchange carrier customers find the service to be of poor quality, those carriers are capable of taking their business elsewhere. As a result, Level 3 has an unmistakable incentive to make sure that the service is of a high enough quality level to meet and exceed its customers' needs.



the market sufficient time to develop robust and efficient solutions that potentially could dwarf the technically-limited capabilities of current-day programs and services.

**NUVIO:** No, because the VoIP marketplace is market driven. ILECs, especially rural ILECs, often are the only provider of telephone service in a marketplace. This fact gives the ILEC the awesome power of forcing consumers to adhere to their whims. Regulation is needed to safeguard the consumer from abuse in this instance. If a consumer isn't happy with the service of one VoIP provider, they can go to others in the marketplace. Often they do not have this choice with an ILEC.

**SBC:** Regulation is not necessary where there is a competitive market for services since consumers can choose to switch service providers where their existing service providers do not meet their expectations. Regulation is only appropriate in the absence of competition, and since there are essentially no barriers to competition in the VoIP market, regulations of this nature are completely unnecessary.

**SPRINT:** Sprint does not believe that all of these requirements are necessary in a competitive market. In addition, to the extent the use of a particular technology defines how a service or service provider is regulated, all providers using the same or similar technology should be regulated in the same manner.

**STAFF:** Yes. If a VoIP provider is found to be providing basic local exchange telecommunications service, the VoIP provider should be required to adhere to the same requirements of other providers of basic local exchange telecommunications service. If VoIP service is classified as an information service, certain standards should still be required and maintained.

**STCG/MITG:** Yes, to the extent that such requirements continue to be appropriate, all providers of functionally equivalent or substitutable services should be subject to the same regulatory requirements.

**VONAGE:** No. As indicated in response to question 3, VoIP providers like Vonage are sufficiently regulated by competition.

## **12) Does the FCC's Pulver Order apply to services provided by other VoIP providers such as Nuvio and Vonage?**

AT&T: In the *Pulver*<sup>42</sup> decision, the FCC stated "in determining the regulatory classifications of [Free World Dialup] we examine only the specific functions [Free World Dialup] provides its members ..."<sup>43</sup> Thus, Pulver applies to those VoIP services similar to Free World Dialup. However, the decision offers insights into the interpretation of "information service" and when a service is to be treated as jurisdictionally "interstate."

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<sup>42</sup> *In the Matter of Petition for Declaratory Ruling that pulver.com's Free World Dialup is Neither Telecommunications Nor a Telecommunications Service*, Memorandum Opinion and Order, WC Docket No. 03-45, FCC 04-27 (Rel. Feb. 19, 2004).

<sup>43</sup> *Id.* at ¶ 7.

**BIG RIVER:** No comment listed.

**CENTURYTEL:** As discussed, *supra* Q. 4, the FCC’s holdings in *pulver.com* are limited to the Free World Dialup offering and do not extend to phone-to-phone or computer-to-phone offerings, or even other *pulver.com* offerings or other computer-to-computer VoIP services.

**CHARTER:** Not if they do not align with the service described in that decision.

**LEVEL 3:** Although the FCC’s finding that Free World Dialup (“FWD”) is an information service is limited to that service offered by Pulver.com, it arguably applies to all similar computer-to-computer VoIP services that are offered for free and do not interconnect with the PSTN. In addition, the rationale supporting this finding sets important precedent for evaluating other VoIP services. For example, the FCC made clear that a VoIP provider’s *use* of telecommunications does not turn the information service into a telecommunications service.<sup>44</sup> It also made clear that regulators may not *ignore* the additional capabilities offered by VoIP service and classify it as telecommunications merely because it facilitates voice communications.<sup>45</sup> The FCC’s finding that *Internet applications* separate users from specific geographic locations, thereby making a traditional end-to-end analysis inapplicable for jurisdictional classification, also has ramifications beyond the FWD service.<sup>46</sup> Finally, if a particular VoIP service qualifies as an information service, the FCC found that seeking to treat such service as subject to state public utility-type regulation would almost certainly conflict with the federal policy of non-regulation and burden interstate commerce.<sup>47</sup> These findings in the Pulver.com order are relevant to all other VoIP services.

**MCI:** The FCC stated in Pulver that the service provided by Pulver is neither “telecommunications” nor “telecommunications service,” but rather it is an unregulated information service. The FCC noted that “Pulver neither offers nor provides transmission to its members. Rather, FWD members ‘bring their own broadband’ transmission to interact with the FWD server.” *Pulver* at ¶9. Pulver’s service (Free World Dialup) is an information service which uses peer-to-peer communications.

The services offered by Vonage are also an internet-based information application, requiring a broadband connection. However, it is not a peer-to-peer application.

**NUVIO:** Yes, we believe it does. Certain portions of the opinion, if the FCC is going to take consistent positions, will be applicable to VoIP providers like Nuvio and Vonage.

**SBC:** The FCC stated that the Pulver decision is limited to the current offering of Free World Dialup Service, which is a free service among its subscribers using broadband connections, with no origination or termination on the switched telephone network. According to the FCC, Pulver merely provides a server attached to the Internet that provides a directory or translation service

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<sup>44</sup> See *Petition for Declaratory Ruling that pulver.com’s Free World Dialup is Neither Telecommunications nor a Telecommunications Service*, WC 03-45, ¶¶ 4, 9 (filed Feb 5, 2003) (“Pulver Petition”).

<sup>45</sup> See Pulver Petition, ¶12.

<sup>46</sup> See Pulver Petition, ¶¶ 4, 21-22.

<sup>47</sup> See Pulver Petition, ¶¶ 15, 24.

informing its members when other members are online and able to receive transmissions (e.g., voice, video, email, voicemail), as well as informing them of the Internet address necessary to reach other members during their on-line presence.

**SPRINT:** The FCC order was very specific in that it applied to a service that is free of charge and does not interface with the Public Switched Telephone Network (PSTN). Although there are other services like that of pulver.com's Free World Dialup service, most forms of VoIP deployed today and in the future will not be as restrictive on the calling scope and will not likely be free of charge. Therefore, to the extent a VoIP service is different from the narrowly defined service addressed by the FCC, the pulver.com order would not apply.

**STAFF:** No. The FCC, in its Memorandum Opinion and Order, limited its determinations to Pulver's "present FWD offering...only to the extent it facilitates free communications over the Internet between one on-line FWD member using a broadband connection and other on-line FWD members using a broadband connection...we specifically decline to extend our classification holdings to the legal status of FWD to the extent it is involved in any way in communications that originate or terminate on the public switched telephone network, or that may be made via dial-up access."<sup>48</sup>

**STCG/MITG:** No, the Pulver Order only applies to VoIP services that are provided solely on a computer to computer basis and specifically declines to extend this ruling when communications can originate or terminate on the PSTN."

**VONAGE:** Depends. On its face, the FCC limited the *Pulver Order* to computer-to-computer, VoIP telephony that is offered for free and that does not interconnect with the PSTN. However, when a Vonage user calls another Vonage customer or the user of another VoIP product, the entire communication is a computer-to-computer VoIP service. As detailed in response to question 2, this similarity suggests that portions of the *Pulver Order* provide a basis for analyzing the appropriate regulatory structure of such traffic.

### **13) What impact will VoIP competition have on (de)regulation of other competitors like LECs and IXCs?**

**AT&T:** VoIP is a nascent technology that is currently being used by under 200,000 residential customers nationwide. Given such little market penetration there is no justification for deregulation of ILECs in response to VoIP. However, the emergence of VoIP does highlight the pre-existing need for broad regulatory reform with respect to intercarrier compensation mechanisms and universal service funding, among other things. VoIP may be just the catalyst the industry and regulators need to get the reformation job done. VoIP offers an inherent natural separation between network and applications. Regulators should seek to guard this pro-competitive separation.

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<sup>48</sup> *In the Matter of Petition for Declaratory Ruling that pulver.com's Free World Dialup is Neither Telecommunications Nor a Telecommunications Service.* Memorandum Opinion and Order. WC Docket No. 03-45. February 19, 2004. at footnote 3.

**BIG RIVER:** To the extent VoIP is similar to wireless and it acts as a supplement and not as a replacement to traditional telephone service, it will have little to no impact on the need to change regulation as it now exists. If VoIP starts to act as a replacement for traditional telephone service, it is highly likely that incumbent telephone companies will leverage their monopoly status and control of the local access network to maintain market share. In that case, regulatory oversight should focus on the anti-competitive actions of incumbents.

If a point in time is reached where VoIP providers have grown sufficiently where the market is open and market forces can limit the control of former monopoly incumbents, the incumbents can be freed of de-regulation.

For instance, DSL will likely be a primary method of access for VoIP services. To date, incumbent telephone companies dominate DSL as they have dominated traditional telephone service. Actions by these incumbents to leverage their existing monopoly to control DSL and VoIP should be monitored and prohibited. Actions such as requiring the customer to subscribe to traditional telephone service to obtain DSL is a prime example of this anti-competitive behavior.

**CENTURYTEL:** As discussed, *supra* Q. 5, VoIP providers may well be considered alternative local exchange telecommunications companies in competition with incumbent LECs, thereby invoking the statutory framework for competitive classifications, etc.

**CHARTER:** If VoIP (as a technology and not as a service offering) is deregulated the LECs and IXC's will be deregulated as well. How do you exclude them unless the deregulation is based on being a certain type of provider – such as a CLEC? If the basis for deregulation is that the technology demands a hands off approach (in and of itself) how do you regulate one company and not another (again unless there is another basis for doing so)?

**LEVEL 3:** While some business and residential users are migrating to IP-based communications for at least some of their voice communications, their numbers are still relatively small. Indeed, the Gartner Group has projected that Voice-embedded IP communications, measured by revenue, will constitute a mere 4% of circuit-switched national and international U.S. long distance revenues in 2006.<sup>49</sup> Many – perhaps even a substantial majority – of the end-users and traffic constituting this eventual 4% share in 2006 will be users and traffic that is incremental to, rather than in substitution for, circuit-switched traffic. The additional features and functionalities available through Voice-embedded IP that are not available from circuit-switched offerings will create new demand, however, it is unclear at this time how that competition will impact on other competitors like LECs and IXC's.

Ultimately as the market becomes fully competitive, it may be appropriate to deregulate competitors like IXC's and LEC's; however, in the near term, such deregulation is not appropriate. To the extent, however, that IXC's or LEC's currently offer services that are comparable to VoIP, these carriers should be able to take advantage of the existing deregulatory environment for such services.

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<sup>49</sup> See Gartner Group, United States: Fixed Public Network Services, 2001-2007 (Apr. 2003).

**MCI:** It is too soon to tell what impact VoIP will have on the regulation of LECs and IXC. As VoIP evolves into a ubiquitous, widely-used application, the proper regulatory response should be to focus on the physical network, rather than what packets of bits are being provided over that network.

**NUVIO:** They are different services and it is impossible to gauge what will happen to legacy providers in the future. However, it is a mistake to say that because the emerging market of VoIP should be subject to little or no regulation to encourage growth and innovation in the market, the same should apply to monopolies that have been in place for over 50 years.

**SBC:** Given that regulation is only justified where there is no competition for services, the need for continuing regulation of traditional providers will diminish over time as competition from VoIP services continues to grow.

**SPRINT:** As markets become more competitive through the entry of VoIP providers or circuit switched providers, it will become increasingly important to move towards less regulation. Regulatory parity among all service providers is important in a competitive market to minimize the competitive advantage/disadvantage resulting from regulation alone.

**STAFF:** The impact will depend on the degree of regulatory parity between VoIP providers versus LECs and IXCs, as well as, whether VoIP service will be viewed as a supplement or a replacement for basic local telecommunications service. If VoIP providers are subject to fewer regulations, or perhaps no regulations, then such a situation may increase pressure to deregulate the entire telecommunications industry. To the extent VoIP acts as a supplement and not as a replacement to traditional telephone service, it may have little, to no, impact on the need to change regulation as it now exists. If VoIP serves as a replacement for basic local telecommunications service, incumbent telephone companies should be expected to seek competitive status under Section 392.245 RSMo.

**STCG/MITG:** We are uncertain what impact VoIP competition will have on deregulation of LECs and IXCs. However, the impact of such competition should be that all providers of functionally equivalent or substitutable services should have regulation or deregulation applied equally.

**VONAGE:** Unclear at this time.

### **Inter-Company Issues**

**14) Should VoIP be subject to access charges/intercarrier compensation? If yes, how should the jurisdiction of the call be determined? (Should the jurisdiction be determined by customer's physical location, when it enters the PSTN, other?)**

**AT&T:** No, VoIP should not be subjected to traditional legacy access charges. VoIP providers are not seeking a free ride, but rather application of cost-based access charges pursuant

to reciprocal compensation and bill & keep mechanisms currently applied to other enhanced/information services.

**BIG RIVER:** Jurisdiction should be determined at the point where a VoIP provider's network interfaces with the PSTN for termination.

**CENTURYTEL:** VoIP service, to the extent it connects with and utilizes the public switched network, should be subject to access charges for interexchange traffic and reciprocal compensation for local traffic. The "jurisdiction" of the call should be determined by the originating and terminating point just as it is today. Those points are determined by the physical location of the party making the call and the party receiving the call.

"Jurisdiction" should not be determined by the point where the traffic is delivered to the local exchange carrier. If this were the case all interexchange carriers, regardless of their medium of transmission, could disguise their traffic such that they could claim that all traffic handed off to the local exchange carrier was local. There would no longer be any access minutes or access revenues to support the public switched network.

**CHARTER:** If it is a service to which assessment applies – yes, if not – no. This issue gets muddied due to virtual calling abilities. Frankly, the existence of virtual calling will create an environment where all providers will look to avoid any kind of access charge if an opportunity to do so exists – see no access for information services. Isn't jurisdiction meaningless once virtual calling is in place? If network providers truly deserve compensation for the traffic on their networks why does it matter what the traffic looks like? We have carved out information services being exempt from access in order to facilitate the development and use of the internet. The thought today is that if we make that traffic subject to access we will stifle further internet growth. Hmm. Let's think about that – if VoIP is determined to be an information service then the traffic is exempt from access. Everyone is going to deploy VoIP so eventually access no longer exists for any traffic. This is the basis for the ILECs claiming that VoIP should be an information service but that it should be subject to access. They want regulatory relief but want to maintain their current subsidies for the network. Should they have it both ways? Should any network provider? Should the folks who build the highway get paid for use of it? – ILEC or otherwise?

At that point, is jurisdiction really the issue? How does an interstate call cost less to transport and terminate on a wire than an interstate call? If compensation is a desired goal (i.e. in order to provide incentive to build networks for all this traffic) then its really the rate at issue not the jurisdiction.

**LEVEL 3:** As discussed in Level 3's Petition for Forbearance filed with the FCC on December 23, 2003,<sup>50</sup> VoIP traffic should be exchanged by a LEC and a telecommunications carrier within the same LATA as the PSTN end-user on a "minute-is-a-minute" basis pursuant to Section 251(b)(5) of the Act over interconnection trunks pursuant to an interconnection

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<sup>50</sup> See Level 3 Communications LLC's Petition for Forbearance Under 47 U.S.C. §160(c) and Section 1.53 of the Commission's Rules from Enforcement of 47 U.S.C. §251(g), Rule 51.701(b)(1), and Rule 69.5(b), WC 03-266 (Dec. 23, 2003) ("Level 3 Petition"), pp. 10, 40.

agreement rather than access trunks. As such, intercarrier compensation would be paid to the terminating carrier at the rates specified for Section 251(b)(5) traffic in interconnection agreements. Since telephone numbers used in VoIP service are divorced from geographic location, it is a technically difficult, if not impossible task, to determine the geographic location of the termination point of a call using VoIP. Pursuant to a “minute-is-a-minute” compensation regime, the jurisdiction of the call is irrelevant.

**MCI:** No. The mere fact that VoIP “touches” the public switched telephone network does not mean that access charges apply. The FCC has made it clear in its Computer II decision that enhanced service providers are end users, not carriers, and thus are not subject to carrier access charges. The Commission should not, as some parties may suggest, treat VoIP as an unregulated service for some purposes, yet treat it as a basic telecommunications service for access charge purposes.

The current federal and state regulatory distinctions for different terminating carrier access rates (IXCs, ILECs, CLECs, wireless carriers, ISPs) already make little sense on their own terms. When imported into the IP world, these distinctions become even more nonsensical. The layers principle offers further compelling support for adoption of a uniform intercarrier methodology, such as a “bill-and-keep” (no charges) regime, applicable to all forms of terminating traffic where at least one party is a regulated carrier. Where both parties are unregulated entities (such as ISPs), the FCC and the states have no regulatory jurisdiction, and market-based arrangements should prevail.

**NUVIO:** VoIP needs to be treated like any other enhanced service provider. The jurisdiction should be determined when the communication enters the PSTN.

**SBC:** To the extent that a VoIP service originates or terminates on the PSTN, access charges should be paid for those originating or terminating access services. The FCC is expected to consider specific issues related to the application of access charges in the context of VoIP services in its IP proceeding and/or its ongoing Intercarrier Compensation proceeding and SBC looks forward to participating in those proceedings.

**SPRINT:** Sprint believes that inter-carrier compensation is a short-term, but significant issue assuming the inter-carrier compensation structure that is in place today is replaced. Therefore, the most reasonable solution is to require VoIP service providers to pay the same inter-carrier compensation as other voice service providers for calls that originate and/or terminate via the PSTN. Jurisdiction should be determined by the end points of the call and jurisdictionalized as local, intrastate or interstate, as appropriate. VoIP service providers should pass the appropriate records to interconnected carriers identifying the actual originating and terminating locations. The fact that some VoIP services are mobile, doesn’t justify not sending the appropriate records. The industry can treat mobile VoIP services in the same manner as it treats wireless service today. This places all service providers on a level playing field.

**STAFF:** Yes, however, the entire access charge/intercarrier compensation scheme needs to be reviewed. The FCC has an open docket specifically considering this issue. Ideally, intercarrier compensation rates should be based on the local exchange carrier’s cost and applied to other

carriers regardless of the technology used on a portion of the call. Reaching such an idealistic state may be difficult to achieve. In regard to determining a call's jurisdiction, see response to Issue No. 2.

**STCG/MITG:** Yes, VoIP services that use local telephone company networks for call completion should be subject to charges applicable to using the local telephone company network. There should be intercarrier compensation and access charges should apply, just as with telephone/voice toll calls today. The jurisdiction of the call should be based upon the end-to-end path of the call, as the FCC has determined in a number of instances.<sup>51</sup>

**VONAGE:** No. The access charge system is in need of reform. The FCC has an open docket specifically considering this issue. While reform efforts are underway, it would be reckless to subject VoIP providers to the broken access charge system.

### **15) Should interconnection rights and access to telephone numbers and UNEs be extended to VoIP providers?**

**AT&T:** The FCC, in interpreting the federal Telecommunications Act, has ruled that ISPs are not entitled to the § 251(c) rights reserved to telecommunications carriers. Further, in its pending VOIP NPRM, the FCC will be examining the proper regulatory classification of VoIP and the ramifications of that classification. However, in *Computer II and III*, the FCC noted a distinction between enhanced service providers ("ESPs" or now "ISPs") and those companies controlling the underlying facilities upon which the ESP or ISP's services ride. In *Computer II*, the FCC essentially ensured that ISPs and ESPs were able to obtain transport on a nondiscriminatory basis.<sup>52</sup> The distinction between those providing the underlying services and those providing VoIP service should remain.

**BIG RIVER:** If they are certificated.

**CENTURYTEL:** Interconnection rights should continue to be governed pursuant to §§ 251 and 252 of the Telecom Act. Access to telephone numbers and UNEs should be in conformance with applicable laws and decisions.

**CHARTER:** If a VoIP provider wants to offer basic exchange service they will need to interconnect with the LECs. Interconnection is mandated for all telecommunications providers (ILEC or otherwise). If VoIP is a non-telecommunications service (based on technology) then when an ILEC becomes a defacto VoIP provider do they escape interconnection responsibilities? If all we needed to do was move internet traffic (the claim of most VoIP providers is that this is just internet calling) then interconnection is not necessary. The reality is that a provider wishing

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<sup>51</sup> See for example [Order] Adopted March 31, 1988; Released April 22, 1998 in CC Docket 88-180, ¶ 28, "In the *NARUC* case *supra*, the Court of Appeals for the District of Columbia Circuit Court concluded that a physically intrastate in-WATS line, used to terminate end-to-end interstate communications, is an interstate facility subject to Commission regulation. That conclusion applies equally in the instant case. Switching at the credit card switch is an intermediate step in a single end-to-end communication." Also see [Order] Adopted August 12, 1996; Released August 29, 1996, DA 96-1443 ¶ 22 "We find that ITT's calls, in the configuration presented to us in this proceeding, are single, end-to-end calls unaffected by ITT's intermediate routing switch."

<sup>52</sup> *Computer II* at ¶ 93 – 98.



to offer local exchange service must have interconnection to offer that service. Whether it's on 251(a) or (c) basis is an economic distinction.

**LEVEL 3:** The Missouri Public Service Commission could consider extending these rights to VoIP providers; however, under existing law, information service providers do not have such rights. In contrast, competitive common carriers that bear the burdens of state and federal telephony regulations also enjoy the rights that accompany that status, for example, rights to interconnect with the ILECs' networks and access to telephone numbers and UNEs. Therefore, it is very important for regulators to ensure that CLECs have interconnection rights, access to telephone numbers, and access to UNEs in order to be able to provide services to their VoIP customers. Because ILECs have a vested interest in maintaining the status quo (and thus current revenue streams), they are much less likely than CLECs to offer VoIP providers innovative services and PSTN connections. CLECs, on the other hand, continue to seek market share and are innovators in addressing the needs of this nascent VoIP market.

**MCI:** The regulator may need to be involved to ensure that there are appropriate interconnection arrangements between legacy (*i.e.* monopoly) networks and IP networks. Government intervention typically involves mandating that the dominant party interconnect its network with others. Stated another way, the owner of the physical network (typically the ILEC) must be directed to interconnect with the IP networks.

**NUVIO:** Not at this time, unless VoIP providers are subject to access charges and other requirements, and then yes. Because VoIP providers are information providers, we don't need access to these things. If however, we are held to the standard of a LEC, all of the items mentioned would be required to have a functioning business.

**SBC:** The FCC is expected to consider specific issues related to interconnection and access to telephone numbers in the context of VoIP services in its IP proceeding and SBC looks forward to participating in that proceeding.

**SPRINT:** Yes, please see Sprint's response to Question 10, above.

**STAFF:** Yes. Any provider offering basic local exchange telecommunications service should have interconnection rights and access to telephone numbers and UNEs. If VoIP service is classified as an information service and not a telecommunications service, then Staff would not expect the VoIP provider to have direct access to some of these items. Nevertheless, Staff anticipates VoIP providers may simply develop affiliated companies that technically offer basic local exchange telecommunications service in order to gain such access. Some internet service providers use such a process today. This type of process may not be entirely efficient; however, Staff is unsure of how to draw the line on obtaining interconnection rights, access to telephone numbers and UNEs unless the provider is offering basic local exchange telecommunications service.

**STCG/MITG:** VoIP providers who provide functionally equivalent or substitutable services to other telecommunications providers and who are subject to the same certification and other regulatory requirements and responsibilities as those telecommunications providers should have

such rights extended to them. VoIP providers, as information service providers, should not have interconnection, UNE and telephone number rights extended to them.

**VONAGE:** No. As detailed throughout these responses, Vonage believes that the proper classification of its service is as an interstate, information service. Title II common carriers are afforded interconnection rights and only facilities-based local exchange carriers and wireless carriers have access to telephone numbers. Accordingly, as a provider of an interstate, information service, Vonage should not have interconnection rights, nor should it have access to either telephone numbers or UNEs. However, Vonage should have the same right as any end user to obtain services from telecommunications carriers, including the use of telephone numbers assigned to those carriers.

**16) Are there transiting traffic issues associated with VoIP traffic?**

**AT&T:** If, by “transiting traffic” the Staff means ISP bound traffic traversing a carrier’s network, then yes, incumbent local exchange providers have been particularly vocal about compensation arrangements related to ISP bound traffic. If, however, the Staff defines “transiting traffic” (regardless of whether it is ISP-bound or not) as traffic that traverses a carrier’s network where it neither originates or terminates on that network, then the answer is again, yes. Several incumbents have suggested in arbitration proceedings and elsewhere that they do not have an obligation to provide transit service to other carriers’ traffic (which may include VoIP traffic bound for the Internet or bound for an end-user employing a phone to respond to a VoIP communication).<sup>53</sup>

**BIG RIVER:** No comment listed.

**CENTURYTEL:** There may be transiting traffic issues associated with VoIP traffic, depending on the routing of the traffic over the public switched network.

**CHARTER:** Certainly. Even calls originating on the internet (in the purest form) that are destined for a PSTN customer are going to hit a switch and potentially more than one.

**LEVEL 3:** No. As discussed above, because VoIP providers do not have interconnection rights, they must purchase services from LECs in order to connect to the PSTN. As end user customers, VoIP providers are treated like any other business customer. Thus, there are no “transit” issues unique to VoIP traffic. As discussed in the response to question 2, ESPs are allowed to buy local services from LECs in order to offer their services. Therefore, the status quo is that ESP traffic is passed as local traffic according the terms of existing interconnection agreements between LECs.

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<sup>53</sup> See e.g., *In the Matter of the Petition of Verizon South, Inc. for Declaratory Ruling that Verizon is Not Required to Transit InterLATA EAS Traffic between Third Party Carriers and Request for Order Requiring Carolina Telephone and Telegraph Comp. to Adopt Alternative Transport Method*, Order Denying Petition, Docket No. P-19, Sub 454 (Sept. 22, 2003) at 6 (Verizon argued that it had no obligation to allow for transit traffic to which the North Carolina Commission responded “[i]f there were no obligation to provide transit service, the ubiquity of the telecommunications network would be impaired.”). Incumbents have lost this argument in other States.

**MCI:** No. See response to question 14.

**NUVIO:** I don't understand this question.

**SBC:** The FCC is likely to consider specific issues related to transiting associated with VoIP traffic in its IP proceeding and SBC looks forward to participating in that proceeding.

**SPRINT:** Yes, assuming such traffic originates and/or terminates via the public switched telephone network, there is likely to be transiting carrier issues.

**STAFF:** Yes. There will always be transiting traffic issues in situations where a terminating carrier may apply different terminating rates and the terminating carrier is unable to readily determine the proper carrier to bill and the carrier's billable jurisdictional traffic.

**STCG/MITG:** Yes. Wireless and VoIP service providers typically obtain interconnection agreements with the larger/urban companies. The interconnecting companies, either directly (SBC) or indirectly (CLEC and IP partners) provide a "transiting" service to other carriers that are connected through the PSTN. There are issues associated with a transiting function such as compensation for the use of facilities to terminate traffic. If appropriate steps are not taken to assure that rural LECs are notified of such interconnections, and that such traffic is properly identified, then the rural LECs will terminate traffic without agreements and the associated compensation, for yet another type of indirect interconnection.

**VONAGE:** No. There are no transiting issues because, as an Enhanced Service Provider, Vonage purchases telecommunications service as an end user. Therefore, Vonage should be able to terminate service to any LEC's exchange in the same manner as any other end user.

**17) Should ILECs be required to provide IP interconnections at the tandem level?**

**AT&T:** In Internet ("IP") architecture, the concept of tandem switching is not applicable. Peering between networks can efficiently occur at any of a number of geographic locations and it is not dependent on the hierarchical circuit switched network architecture. Ultimately, in an efficient network, LECs would make local interconnection available on an IP level. However, if ILECs are permitted to assess access fees on any carrier wishing to terminate IP traffic simply by insisting that all IP traffic be converted to TDM<sup>54</sup> before the ILEC will terminate it, ILECs will naturally resist upgrading local interconnections to IP merely to preserve this artificially inflated revenue stream. Regulators at both the state and federal level should not permit this perverse incentive that the legacy access charge regime would perpetuate if extended to IP traffic.

**BIG RIVER:** No, that should left to the ILEC. They should only be required to allow for traditional PSTN interfaces for certificated carriers.

**CENTURYTEL:** Technically, Part 51 (relevant sections below) permits tandem level interconnection, and to the extent a VoIP provider meets the requisite conditions necessary to enter into an interconnection agreement with an ILEC, then such interconnections may be

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<sup>54</sup> TDM or Time Division Multiplexing is a protocol employed in the public switched telephone network.

appropriate. However, tandem level interconnection is not appropriate for interconnecting with multiple ILECs and multiple local calling areas- only for interconnecting to exchange traffic with one ILEC's multiple switches within the same local calling area.

VOIP providers may, of course, order special access circuits from the tariffs as long as they comply with all tariff regulations and pay appropriate access for all traffic exchanges.

Sec. 51.305 Interconnection.

- (a) An incumbent LEC shall provide, for the facilities and equipment of any requesting telecommunications carrier, interconnection with the incumbent LEC's network:
  - (1) For the transmission and routing of telephone exchange traffic, exchange access traffic, or both;
  - (2) At any technically feasible point within the incumbent LEC's network including, at a minimum:
    - (iii) The trunk interconnection points for a tandem switch;

**CHARTER:** They already do for themselves in some cases. The core of this question is to maintain continuity of signal from origination to termination. Even if an ILEC offers IP interconnection who is going to de-IP the call for delivery to the end user who is not IP? Does this fall to the ILEC as well? If the originating and terminating end user are both IP there is no need for IP interconnection as the provider can use a pure internet transmission (and shouldn't they really?).

**LEVEL 3:** See answer to question 15 above. The Commission should also consider whether ILECs are required to provide IP interconnection to CLECs. As ILECs upgrade their networks to IP, Section 251(c)(2)(C) requires that ILECs provide CLECs IP interconnection that the ILEC provides to itself, any subsidiary or affiliate, or any other party to which the ILEC provides interconnection.

**MCI:** Yes. As long as ILECs retain market power, they must be compelled to continue providing basic interconnection to other carriers and providers, including IP-to-IP interconnections.

**NUVIO:** Yes. Assuming that VoIP providers can have sufficient bargaining in interconnection agreements to make the process fair, this would eliminate inefficiencies in the network and possibly allow for better provisioning of 911 support and tracking of call jurisdictional information.

**SBC:** The FCC is expected to consider specific issues related to IP interconnection in its proceeding and SBC looks forward to participating in that proceeding.

**SPRINT:** ILECs should not be required to modify their network to interface via IP. Tandem level interconnection should be available, but the VoIP service provider may be required to convert VoIP to TDM.

**STAFF:** Yes. If a carrier is providing telecommunications service and accepts responsibilities associated with interconnecting at the tandem, then such interconnection should be allowed.

**STCG/MITG:** No. ILECs should not be required to provide tandem level interconnection to IP providers acting solely as information service providers. If IP providers are willing to be identified as telecommunications carriers and bear the costs and responsibilities of being such a carrier, comply with requirements for notifying subtending carriers and provide necessary records for billing, then ILECs should be required to allow interconnections at the tandem level.

**VONAGE:** Vonage believes that the Commission should allow CLECs to interconnect in any manner and at any level of the PSTN that they choose.

### **Public Safety/Security Issues**

#### **18) Should VoIP providers be required to provide 9-1-1 emergency telephone service?**

**AT&T:** Many VoIP providers are working in conjunction with the National Emergency Number Association's ("NENAs") VoIP – Packet Technical Committee and ATIS (the industry standards setting body) to address existing 911 issues and develop future 911 solutions. Because there are so many permutations possible for VoIP service, it is not appropriate to apply blanket E911 obligations on VoIP nor should it be required. Nevertheless, AT&T is steadfastly committed to developing and implementing with the industry a robust IP-based E911 solution. Rather than imposing unworkable technical requirements on the industry, regulators should work with these industry groups to ensure that public safety concerns are adequately addressed as an interim measure until the IP-based solution is complete.

**BIG RIVER:** Yes.

**CENTURYTEL:** Yes. The *Notice of Proposed Rulemaking (Notice)* adopted by the FCC in February 2004 recognizes that mechanisms to implement important social objectives, such as public safety, emergency 911, law enforcement access, consumer protections and disability access, may change as communications migrate to Internet-enabled services. Specifically, the *Notice* asks which regulatory requirements – for example, those relating to E911, disability accessibility, access charges, and universal service – should be extended to different types of Internet services. Missouri-specific provisions regarding “Emergency telephone service” and applicable definitions are found in Chapter 190, RSMo 2000.

**CHARTER:** Telecommunications provider should, information service providers should not.

**LEVEL 3:** Possibly, however, further guidance is needed on this issue from the FCC which will come from the FCC's “Solutions summits” and its pending NPRM. Level 3 believes that one of the roles regulators need to fulfill is to ensure that critical public safety goals are met,

which includes ensuring public safety or protection of consumers. In this regard, Level 3 has encouraged the FCC to provide a forum to begin addressing immediately the technical and operational issues involved with the provision of 911 in a VoIP environment. Level 3 believes that the availability of 911 is a discrete technical issue that the FCC can address without predetermining the outcome of other important issues such as intercarrier compensation and universal service. The VoIP industry and consumers whom the states seek to protect should not be forced to wait for a comprehensive FCC rulemaking on all issues related to VoIP.

On February 12, 2004, the FCC announced that its Internet Policy Working Group was going to initiate a "Solution Summits" program that will allow industry representatives to participate in discussions with FCC staff on IP regulatory solutions, including 911 and emergency issues. Level 3 believes that the Missouri Public Service Commission should work with the FCC to resolve the important issues related to the provision of 911 service by VoIP providers. Meanwhile, it is worth noting that Level 3 is deploying E911 solutions for VoIP providers today (see answer to question 20).

**MCI:** Starting with the premise that VoIP is not a regulated telecommunications service, it follows that a regulator may not require VoIP providers to offer 9-1-1 service. As a practical matter, however, many VoIP providers already are offering 9-1-1 service. For example, Vonage offers 9-1-1 service to its customers. Rather than attempt to impose a technical requirement based on legacy systems, the regulators should permit industry to develop its own innovative solutions allowing access to emergency services.

**NUVIO:** Many VoIP providers are already providing 911 services and using this as a market differentiator from their competitors. It is likely the FCC will require the gradual phasing in of 911 support. There are questions about whether E911 is even technologically possible.

**SBC:** SBC is committed to working with federal and state regulators, and other stakeholders, to address important public policy issues associated with 9-1-1 service in a VoIP environment. The FCC is expected to consider issues related to 9-1-1 service and VoIP in its IP proceeding and SBC looks forward to participating in that proceeding.

**SPRINT:** All entities providing telecommunications services that hold themselves out as providing a replacement for a consumer's local telephone service should comply with public safety regulations, unless specific regulatory waivers are applicable.

**STAFF:** Yes. All entities providing basic local exchange telecommunications service should provide 9-1-1 service. If VoIP telephony is classified as an information service, then VoIP providers should still be required to provide 9-1-1 service.

**STCG/MITG:** VoIP providers who provide services functionally equivalent to or substitutable for basic local telecommunications service should be subject to the same requirements that apply to other providers of that service.

**VONAGE:** Short form emergency services are critical to our society. As detailed in Vonage's responses to questions 3, 10 and 11, the competitive marketplace necessitates VoIP providers

such as Vonage to provide the services that consumers identify as important. This is demonstrated by Vonage's efforts to implement a 9-1-1 dialing solution. Vonage is the first non-geographic-based VoIP provider to adopt a 9-1-1 dialing solution. Vonage is also working with the National Emergency Number Association to provide an advanced E911 technical solution to the VoIP industry. This spring, Vonage will release a new enhancement to its 9-1-1 solution that will allow users to be notified via e-mail or cell phone when someone from their home dials 9-1-1. However, Vonage is forced today to be reverse-compatible with the existing PSTN infrastructure, not forward compatible with an advanced 9-1-1 system of the future where important emergency information can help save lives. To reach this next generation of "i9-1-1" or IP-based 9-1-1 services, regulations cannot favor one technology over another and standards must be adopted to ensure open access to the necessary 9-1-1 infrastructure to meet these goals.

**19) Should VoIP providers contribute financially to existing/future 9-1-1 systems?**

**AT&T:** By developing IP-based 911 solutions, VoIP providers are already contributing to 911 systems. Moreover, AT&T concurs with the NENA principle that "support for an administrative approach to maintaining funding of 911 resources at a level equivalent to those generated by current or evolving funding processes" is appropriate.

**BIG RIVER:** No. The industry has undergone fundamental change since the introduction of 911 service and the 911 funding mechanism needs major overhaul. 911 systems should be paid for by taxpayers, not telecommunications users. Emergency service and public safety agencies are the users of the 911 system, they should pay for the 911 systems through their funding mechanisms.

**CENTURYTEL:** Yes, to the extent other similarly situated telecommunications service providers must do so.

**CHARTER:** Telecommunications providers should, information service providers should not.

**LEVEL 3:** See answer to question 18 above. This issue should be addressed by the FCC in a 911-VoIP proceeding. However, Level 3 supports adequate funding for 911 systems and contributes to existing 911 systems based on its telecommunications access lines provided to its customers, including its VoIP provider customers that utilize the 911 system.

**MCI:** VoIP providers are not common carriers, and thus should not be subject to legacy carrier requirements. Broadband platforms like DSL and cable modem service are telecom services, however, and should contribute to carrier programs like 9-1-1.

**NUVIO:** VoIP providers are retail consumers of telephone circuits and already pay state and local 911 assessments through the purchase of those circuits. VoIP consumers should not be required to subsidize a 911 system that isn't capable of providing them service.

**SBC:** SBC is committed to working with federal and state regulators, and other stakeholders, to address important public policy issues associated with 9-1-1 service in a VoIP environment. The

FCC is expected to consider issues related to 9-1-1 service and VoIP in its IP proceeding and SBC looks forward to participating in that proceeding.

**SPRINT:** VoIP services should be subject to state, county and local taxes just like other telecom providers. It is likely that VoIP service providers will allow their subscribers to dial 911. Therefore, it's appropriate for VoIP service providers to collect and remit 911 surcharges.

**STAFF:** Yes. All providers, including VoIP providers, who provide basic local telecommunications service should be subject to the same financial requirements for supporting existing/future 9-1-1 systems. If VoIP telephony is classified as an information service, then VoIP providers should still be required to contribute financially to 9-1-1 systems.

**STCG/MITG:** Probably. All providers, including VoIP providers, who provide basic local telecommunications services or services functionally equivalent or substitutable for that service should be subject to the same requirements for financially supporting existing/future 9-1-1 systems.

**VONAGE:** Vonage emphasizes that, depending on the collection mechanism, it is already contributing to existing 9-1-1 systems when fees are imposed as surcharges on end users of telecommunications services. The industry and the relevant government agencies should come together to design and implement a pure IP-based E911 system. As noted in answer (20), that system should enable VoIP providers to access the selective routers and other critical E911 infrastructure. At that point, it would be entirely appropriate for VoIP providers to contribute to the costs associated with such a system.

## **20) Should VoIP providers have access to the selective routers for 9-1-1 purposes?**

**AT&T:** It would be counter to public safety to deny VoIP providers access to selective routers or systems needed to support 911 services, should they request it. However, the origins of the selective router system for 911 trunks were designed in the 1960s and 1970s monopoly environment of wireline telephone service. VoIP is only one of the applications that challenge the current 911 system; upgrading the current 911 system to support VoIP is needed to allow the continuing development and deployment of new technology.

**BIG RIVER:** Yes.

**CENTURYTEL:** To the extent that VoIP providers are facilities-based or have contracted with a facilities-based local provider, they are responsible for their own 911 routing -- either directly or thru a contractual arrangement.

While CenturyTel would not agree with such action, if an ILEC is ordered to provide router access by mandate then it must be under the conditions that the VoIP provider pays all costs associated with the establishment and continuing functioning of such an arrangement, including software development or upgrades to accommodate "unique" VoIP conditions and data, and that the VoIP provider is legally and solely responsible for the accuracy and timeliness of all information used in the routing. Given the issues surrounding 911 provisioning to VoIP end



users, it would be a mistake to require an ILEC, especially a non-VoIP ILEC, to assume any responsibility for the routing of 911 to VoIP end users.

**CHARTER:** Telecommunications providers should, information service should not.

**LEVEL 3:** Yes. See answers to questions 18 and 19 above. Level 3 believes that access to the selective routers is the only way that VoIP providers can develop a native 911 solution for IP-based service. As a CLEC, Level 3 is attempting to offer its VoIP customers a number of possible E911 solutions. The preferred method is through a direct connection to the 911 tandem and the Public Safety Answering Point. That solution, however, is not possible in all markets today or with all VoIP providers, and as such, Level 3 also is deploying alternative solutions, such as 10-digit routing in conformance with the standards of the National Emergency Number Association to ensure that all VoIP customers have access to emergency services.

**MCI:** To the extent regulators want VoIP providers to provide 9-1-1 services using legacy systems, they must have access to the selective routers. As mentioned above, however, rather than attempt to impose a technical requirement based on legacy systems, the regulators should permit industry to develop its own innovative solutions allowing access to emergency services.

**NUVIO:** If it is technologically feasible.

**SBC:** SBC is committed to working with federal and state regulators, and other stakeholders, to address important public policy issues associated with 9-1-1 service in a VoIP environment. The FCC is expected to consider issues related to 9-1-1 service and VoIP in its IP proceeding and SBC looks forward to participating in that proceeding.

**SPRINT:** Yes, either directly or indirectly through other entities enabling the VoIP service provider.

**STAFF:** Yes. Anyone providing basic local exchange telecommunications service should have access to the selective routers. If VoIP telephony is classified as an information service, then VoIP providers should still have access to selective routers on the basis that Staff expects the VoIP provider to provide 9-1-1 service.

**STCG/MITG:** No response at this time since we have not sufficiently researched the technical issues related to the question.

**VONAGE:** Yes. It is only with such access that Vonage can develop a native E-9-1-1 solution for its IP-based service.

**21) Are there homeland security issues related to VoIP? CALEA? Patriot Act?**

**AT&T:** VoIP may be subject to ECPA,<sup>55</sup> Wiretap Act,<sup>56</sup> FISA<sup>57</sup> and USA Patriot Act obligations. Basically, these federal statutes require providers to assist law enforcement. AT&T is committed to working with Law Enforcement and through the FCC's announced NPRM on CALEA issues regarding IP technologies to ensure that its lawfully authorized surveillance obligations are met as efficiently as possible for both AT&T and Law Enforcement authorities.

**BIG RIVER:** Yes, VoIP providers should comply with CALEA for purposes of law enforcement and homeland security.

**CENTURYTEL:** Yes, the FBI and Department of Justice have weighed in on this issue as one of their chief concerns. The FCC and DOJ will address certain aspects of these issues in the NPRM on VOIP. In addition, the FCC announced at its meeting in February 2004 that it will initiate a separate Communications Assistance for Law Enforcement (CALEA) rulemaking proceeding to address the technical issues associated with law-enforcement access to Internet-enabled services. That proceeding will address the scope of covered services, assign responsibility for compliance, and identify the wiretap capabilities required.

**CHARTER:** There are security and CALEA (including Patriot Act) issues related to any and all types of communications.

**LEVEL 3:** There may be homeland security issues related to VoIP, however, CALEA and the Patriot Act are federal statutes that are enforced at the federal level by the FCC and other federal agencies. As such, the Missouri Public Service Commission does not have jurisdiction to implement these statutes. Moreover, on February 12, 2004, the FCC announced that it would be initiating a separate rulemaking proceeding to address the application of CALEA requirements on IP-enabled services. Level 3 believes that the Missouri Public Service Commission should work with the FCC to resolve these important issues.

**MCI:** There may be certain CALEA and/or Patriot Act issues to work out. However, these issues should be addressed by the VoIP industry and appropriate government officials on a national level, not via individual states.

**NUVIO:** No more than with Internet service Providers (ISPs).

**SBC:** SBC is committed to working with federal and state regulators, law enforcement officials, and other stakeholders to address important public policy issues associated with CALEA and the Patriot Act. The FCC is expected to consider issues related to CALEA and the Patriot Act in a VoIP environment in its IP proceeding and SBC looks forward to participating in that proceeding.

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<sup>55</sup> 18 U.S.C. § 3121 *et seq.*

<sup>56</sup> 18 U.S.C. § 2510 *et seq.*

<sup>57</sup> 50 U.S.C. § 1801 *et seq.*

**SPRINT:** It is generally the opinion of certain governmental agencies that VoIP services can impact homeland security, which suggests that CALEA and the Patriot Act compliance should be considered. However, this is an issue that should be addressed at a federal level.

**STAFF:** Yes. The FCC is expected to consider issues related to CALEA and the Patriot Act in a VoIP environment in future proceedings. The FCC is currently considering a petition to open a rulemaking to address these issues.

**STCG/MITG:** Yes. The FBI raised these issues at the federal level and filed numerous comments on this problem. Law enforcement authorities, with proper lawful authorization, should have access to all forms of voice communication, including those provided through computers and VoIP.

**VONAGE:** No. Vonage has been and is fully committed to meeting the needs of law enforcement personnel. Vonage has already received numerous subpoenas for customer information from government agencies and has fully complied in every case. If policy makers are concerned about the application of certain statutes to VoIP services, then Congress should resolve these issues through legislation.

## **Telephone Numbering Issues**

### **22) What is a Virtual NXX?**

**AT&T:** Virtual NXX is a competitive local exchange carrier's service equivalent to foreign exchange ("FX") service offered by many incumbent local exchange carriers. Both Virtual NXX and FX service:

Provides local telephone service from a central office, which is outside (foreign to) the subscriber's exchange area. In its simplest form, a user picks up the phone in one city and receives a dial tone in the foreign city. He will also receive calls dialed to the phone in the foreign city. This means that people located in the foreign city can place a local call to get the user. The airlines use a lot of foreign exchange service. Many times, the seven digit local phone number for the airline you just called will be answered in another city, hundreds of miles away.<sup>58</sup>

Incumbent carriers have offered FX service to their end-user customers for years and many have FX-type offerings aimed specifically at ISPs or business customers.

**BIG RIVER:** No comment listed.

**CENTURYTEL:** VNXX service generally involves the VNXX carrier assigning an NXX to its customers, who are not physically located in the exchange to which the NXX is rate centered. As defined in the FCC's Unified Intercarrier Compensation NPRM, a VNXX code is a central office code that corresponds with one geographic area but is assigned to a customer located in a

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<sup>58</sup> Harry Newton, *Newton's Telecom Dictionary*, 287 (CMP Books, 17<sup>th</sup> ed., 2001).

different geographic area. (Notice of Proposed Rulemaking In the Matter of Developing a Unified Intercarrier Compensation Regime, FCC 01-132, CC Docket No. 01-92, at fn 188, rel. April 27, 2001 (“Unified Intercarrier Compensation NPRM”).)

By way of example, a VNXX carrier could assign a telephone number from a Branson, Missouri NXX to a VNXX carrier customer who is physically located in St. Louis, Missouri. When the CenturyTel customer in Branson dials that number, the call would be routed to St. Louis to be delivered to the VNXX carrier’s customer located in St. Louis.

The purpose of this arrangement is to disguise interexchange traffic to look like local traffic. Even though the call would go from a customer in Branson to a customer in St. Louis, if one were to look only at the originating and terminating NXX it would be recorded as a call from Branson to Branson.

**CHARTER:** An NXX that is coded to one place but used in another.

**LEVEL 3:** There is no industry-standard definition of “Virtual NXX.” No carrier offers any product called “Virtual NXX.” The term “Virtual NXX” typically comes up in regulatory proceedings where carriers are battling over how a CLEC might assign telephone numbers to certain customers and the implications of those assignments for interconnection and intercarrier compensation. ILECs have been doing this for years in response to customer demand. Traditionally, this was called foreign exchange service, and it gave the customers the *exact* same functionality. Because this number assignment practice pre-dated the advent of VoIP services, Level 3 is not aware of any unique number assignment issues posed by VoIP providers in this regard.

From a functional perspective, the services that CLECs provide to their customers—services the ILECs like to call “Virtual NXX”—are no different than those that ILECs have provided for years to their own foreign exchange customers, and are no different than other comparable targeted services that many ILECs market today. While the network architecture may be different and the scope of the service coverage wider, the functionality delivered from the customer’s perspective is no different at all – the customer gets a telephone number in a serving area where the customer has no physical presence. The Commission should encourage, rather than discourage, this type of competition and service innovation. It should also ensure that both CLEC and ILEC services that provide this functionality are treated similarly and on a non-discriminatory basis.

**MCI:** A “Virtual NXX” is a phone number that operates regardless of location. For example, a Vonage customer has the option of using a 214 area code (*i.e.* Dallas phone number) at their home, which may be physically located in the 314 (*i.e.* St. Louis) area code.

**NUVIO:** This is a telco term. To a VoIP provider, this means our ability to provide telephone numbers not tied to a specific geographic location.

**SBC:** Telephone numbers consist of ten digits in the form NPA-NXX-XXXX. The first three digits, or the "NPA," refer to the area code. The second three digits, or the "NXX," refer to the

central office code. Under standard industry practice, an NXX code generally corresponds to a particular geographic area -- or "rate center" -- served by a local exchange carrier. By contrast, "virtual NXX" codes are central office codes that correspond to a particular rate center but are assigned to a customer located in a different rate center. For example, if a customer physically located in a rate center in St. Louis, Missouri, received a telephone number containing an NXX code associated with a rate center in Kansas City, Missouri, that customer would have a virtual NXX code.

**SPRINT:** Virtual NXX is a term used to describe an arrangement whereby a carrier assigns its customer an NPA-NXX-XXXX that corresponds to a different local calling area from which the customer physically resides. In other words, the purchaser of the virtual number is not physically located in the originating caller's local calling area, yet the originating call to the virtual number is considered local from the caller's perspective. This numbering scheme serves the public interest in that it allows end users, even in rural markets, to enjoy affordable local service from local, regional, or national ISPs. Furthermore, it allows CLECs to compete with ILECs for services provided to ISPs.

**STAFF:** Virtual NXX service generally involves a carrier assigning an NXX to its customers when those customers are not physically located in the exchange to which the NXX is rate centered. As defined in the FCC's Unified Intercarrier Compensation NPRM, Virtual NXX codes are central office codes that correspond with one geographic area but are assigned to a customer located in a different geographic area.<sup>59</sup>

**STCG/MITG:** Virtual NXX is used to describe an NPA-NXX code which is designated in the Local Exchange Routing Guide (LERG) as being rated in one exchange location, but whose switch routing is designated for a different location.

**VONAGE:** Virtual NXX ("VNXX") codes provide a virtual local presence for a customer in a rate center, exchange, or local calling area where he or she does not have a physical presence. Traditional foreign exchange ("FX") service provides an excellent example of the use of VNXX codes.

FX service is defined in Newton's Telecom Dictionary as follows:

Provides local telephone service from a central office which is outside (foreign to) the subscriber's exchange area. In its simplest form, a user picks up the phone in one city and receives a dial tone in the foreign city. This means that people located in the foreign city can place a local call to get the user. The airlines use a lot of foreign exchange service. Many times, the seven digit local phone number for the airline you just called will be answered in another city, hundreds of miles away.<sup>60</sup>

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<sup>59</sup> *In the Matter of Developing a Unified Intercarrier Compensation Regime*. Notice of Proposed Rulemaking. FCC 01-132, CC Docket No. 01-92. April 27, 2001. at footnote 188.

<sup>60</sup> NEWTON'S TELECOM DICTIONARY, 16<sup>th</sup> Edition, 2000, at 354.

**23) Will the widespread use of Virtual NXXs contribute to premature numbering exhaust?**

**AT&T:** No, VNXX does not contribute to number exhaust in any greater magnitude than other similar services offered by incumbent carriers. The use of telephone numbers to provide FX or VNXX services is just as legitimate a use of numbers as the assignment of telephone numbers to support any other service or technology. All carriers must efficiently manage the numbers assigned to them, and until the technology arises wherein carriers may provide certain services without the need for new or additional numbers, everyone must implement conservation measures and assign numbers wisely.

**BIG RIVER:** No comment listed.

**CENTURY TEL:** Yes. Typically VNXX providers will create an “800” type service for large business customer who have a need for wide area inward dialing such as an ISP or reservations call center. In the example above, the VNXX provider may have an ISP in St. Louis who would like to receive calls from Branson. The VNXX provider would open up new NXX (or at a minimum 1000 block of numbers) rated to Branson specifically for that one customer located in St. Louis. It is not likely that the VNXX carrier would serve any customers at all in Branson and therefore there would be no use for the other numbers in that newly opened NXX or 1000 block. The VNXX provider would also likely give that same single customer in St. Louis numbers for other CenturyTel exchanges to accommodate calling from those areas as well. A new NXX or 1000 block of numbers would have to be opened up for each additional CenturyTel exchange. It is entirely possible that a VNXX provider could burn up 30,000 numbers just to serve one customer.

**CHARTER:** The expansion of all types of communications services will contribute, not just virtual NXX.

**LEVEL 3:** No. As discussed in response to question 22, Virtual NXX is not unique to VoIP services and ILECs have been assigning Virtual NXX numbers for years in the form of FX services. The implication of this question seems to be that by providing end users with FX-like services that utilize “virtual” number assignments, end users will consume more numbering resources than if FX-like arrangements were prohibited. The availability of new VoIP applications will place no additional strain on number resources. All numbers are obtained through telecommunications carriers, who are under certain obligations to assign and utilize numbers in accordance with FCC rules and orders. Moreover, the fact that some VoIP services might be FX-like or “Virtual NXX” in nature does not change the number exhaust analysis at all. Incumbents and competitors alike currently offer foreign exchange and FX-like services without impact on number assignment and resources, and a FX-like VoIP service would be no different in that regard. A provider’s offering of telecommunications services that utilize virtual number assignment is driven by its own customer demand, and there is no evidence that the advent of VoIP will increase the demand for FX-like services. Further, it is difficult to predict whether VoIP services will increase or decrease number usage generally. Since VoIP services allow for the mapping of telephone numbers to multiple devices, VoIP services may ultimately reduce the

demand for numbering resources as one telephone number could be use to reach a person at their place of business, at home, on their cell phone, or by facsimile.

**MCI:** MCI does not think so. As a practical matter, it seems unlikely that most customers would want a phone number that does not reflect where they actually live. Of course, there may be instances where someone moves frequently because of their job and they want to keep their same number; however, there would likely be few end users fitting this description.

**NUVIO:** No.

**SBC:** The FCC is expected to address numbering issues related to VoIP in its IP proceeding and SBC looks forward to participating in that proceeding.

**SPRINT:** The widespread use of Virtual NXX does not need to contribute to premature numbering exhaust. There are solutions to this issue. For example, Sprint has proposed in other states that using existing LNP and INP architecture would provide the most efficient use of numbering resources and allow the easiest implementation of competitive dial-IP ISP service without major changes to industry standards, network switching, operational support systems, and operating procedures. Additionally, thousand block number pooling has made a significant impact on freeing up numbering resources in many states, including Missouri.

**STAFF:** Yes. Virtual NXX may have an impact on premature numbering exhaust; however, the practical impact of Virtual NXX is unclear. Premature number exhaust can be affected by many other factors besides Virtual NXX usage. In addition, Virtual NXX usage should not be solely attributed to VoIP providers. For example, other providers such as Internet service providers, may also use Virtual NXXs. Recent telephone number conservation efforts have significantly helped to alleviate premature number exhaustion in many areas.

**STCG/MITG:** Yes.

**VONAGE:** No. This question seems to imply that end users who can obtain VNXX services will consume more numbering resources than if VNXX arrangements were prohibited. Vonage's use of telecommunications services that utilize VNXX is driven by its own customer demand. It is Vonage's experience that customers who choose VoIP services will use it as a complement to existing telecommunications services, rather than as a replacement. Vonage has no way of knowing whether its customers are maintaining their existing telephone lines. However, Vonage believes one factor that motivates customers to use its service is a desire to save money. Whether this means that customers use Vonage rather than purchasing additional telecommunications services, or customers actually migrate to Vonage's service, Vonage submits that the overall impact of its service offering on the numbering pool is neutral at worst. Further, it is difficult to predict whether VoIP services will increase or decrease number usage. Since VoIP services allow for the mapping of telephone numbers to multiple devices, it is easy to speculate that VoIP services will ultimately reduce the demand for numbering resources as one telephone number could be use to reach a person at their place of business, at home, on the their cell phone, or to send them a facsimile.

**24) What authority, if any, does the MoPSC have over the issuance/administration of telephone numbers to LECs and VoIP providers?**

**AT&T:** Typically, telephone numbers are issued to LECs, not VoIP providers. VoIP providers acquire numbers from LECs. To the extent that MoPSC oversees numbering resource and conservation obligations, it may oversee LECs that acquire such numbers.

**BIG RIVER:** If they are not certificated, VoIP service providers will have to obtain telephone numbers from a host company that has access to telephone numbers. If they are certificated, VoIP providers will have access to the telephone number inventory.

**CENTURYTEL:** The FCC's March 31, 2000 Order in its Number Resource Optimization docket states that a carrier may challenge a NANPA decision to the appropriate state regulatory commission and the state commission may choose to affirm or overturn NANPA's decision to withhold numbering resources (*Number Resource Optimization*, Report and Order, CC Dkt. No. 99-200, FCC No. 00-104, at App. A; *See also* 47 C.F.R. 52.15(g)(3)(iv)). The Missouri Commission thus has the authority to "affirm or overturn the NANPA's decision to withhold numbering resources from the carrier based on its determination of compliance with the reporting and numbering resource application requirements herein." (*Id.*)

**CHARTER:** What is the service? If a telecommunications service – the same as you have now – if an information service?

**LEVEL 3:** The FCC has plenary authority over numbering issues.<sup>61</sup> Section 251(e) of the Communications Act of 1934, as amended by the Telecommunications Act of 1996, also allows the FCC to delegate to state commissions all or any portion of its jurisdiction over numbering administration.<sup>62</sup> The FCC regulations generally require that numbering administration: (1) facilitate entry into the telecommunications marketplace by making numbering resources available on an efficient and timely basis to telecommunications carriers; (2) not unduly favor or disfavor any particular industry segment or group of telecommunications consumers; and (3) not unduly favor one telecommunications technology over another.<sup>63</sup> Where the FCC does delegate any telecommunications numbering administration functions to any state, the state must perform the functions in a manner consistent with these general requirements.<sup>64</sup> The Missouri Public Service Commission's jurisdiction is limited to carriers, not VoIP providers, who currently are end users.

**MCI:** Assuming that VoIP providers are not regulated by the Missouri PSC, the commission may not have authority to withhold NXXs from VoIP providers.

**NUVIO:** No comment listed.

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<sup>61</sup> *See* 47 U.S.C. § 251(e).

<sup>62</sup> *See* 47 U.S.C. § 251(e)(1).

<sup>63</sup> *See* 47 C.F.R. § 52.9(a).

<sup>64</sup> *See* 47 C.F.R. § 52.9(b).



**SBC:** The FCC is expected to address numbering issues related to VoIP in its IP proceeding and SBC looks forward to participating in that proceeding.

**SPRINT:** The FCC has delegated certain number administration authority to the states. The MoPSC and its Staff should be flexible in how they interpret and administer numbering resources, such that legitimate end user services, including VoIP are not unnecessarily denied numbering resources. For example, the retail service provider may not be the entity requesting numbering resources. There may be an enabling partner that will be requesting numbering resources on behalf of the VoIP service provider.

**STAFF:** Some state commissions have authority over the issuance/administration of telephone numbers. In CC Docket 99-200, NSD File No. L-99-90, the FCC granted the Missouri Commission's petition for additional delegated authority to implement number conservation measures. The FCC gave the Missouri Commission the authority to order the return of unused and reserved NXX codes, to monitor the use of numbering resources through the use of mandatory reporting requirements and number utilization forecasting, to require sequential number assignments, set and establish number assignment and NXX code allocation standards (including the requirement that carriers meet certain fill rates prior to obtaining additional numbering resources). In another FCC decision, in CC Docket No. 99-200, NSD File No. L-01-275, the FCC granted the Commission the authority to implement thousand-block pooling trials, to reclaim unused and underused thousands-blocks, to audit a carriers' use of numbering resources, to order the submission of utilization and forecast data from all carriers including wireless providers and to audit such reporting and order sequential number assignments.

**STCG/MITG:** Limited, at best. The North America Number Plan Administration (NANPA) is the keeper of the numbers and requires support for the request of additional NXXs. There are industry guidelines regarding the request for numbers.

**VONAGE:** The FCC has plenary authority over the North American Number Plan. The FCC has delegated certain administrative functions to all the states, *e.g.*, implementing area code relief in the form of area code splits and area codes overlays. The Commission's authority of numbering resources is limited to that generally delegated to the states by the FCC, absent a specific grant of authority to the Commission. Both the FCC and the Commission are limited to regulating the activities of carriers in regard to numbering resources and not end user VoIP providers.

## Voice over Internet Protocol Glossary of Terms

**56K Modem** - A 56Kbs modem is the fastest modem speed currently available that will work on normal dial up analog phone lines.

**Broadband** - A transmission facility providing bandwidth greater than 200 kilobits per second in both directions.

**Cable Modem Termination System (CMTS)** - An element of data over cable service facilities. This operation is intended to ship high-speed data transfer over cable television systems.

**Competitive Local Exchange Carrier (CLEC)** - “Alternative local exchange telecommunications company”, a local exchange telecommunications company certified by the Missouri Commission to provide basic or non-basic local telecommunication service or switched exchange access service, or any combination of such services, in a specific geographic area.

**Graphical User Interface (GUI)** - A generic name for any computer interface that substitutes graphics for characters. A Graphic User Interface is usually done with a mouse. Microsoft’s Windows Operating System is the best-known GUI.

**Head End** – The originating point of a signal in cable TV systems.

**Incumbent Local Exchange Carrier (ILEC)** - A local exchange telecommunications company authorized to provide basic local telecommunications service in Missouri, in a specific geographic area, as of December 31, 1995, or a successor in interest to such a company.

**Interexchange Carrier (IXC)** - Any company engaged in the provision of interexchange telecommunications service.

**Internet Protocol (IP)** – Internet protocol is a standardized method of transporting information across the Internet in packets of data. It is often linked to Transmission Control protocol, which assembles the packets once they have been delivered to the intended location. Internet protocol is the world’s most common method for sending data from one computer to another.

**IP Network** – A network which utilizes Internet protocol technology to deliver applications and to distribute information by using flexible resources developed for the Internet.

**Internet Service Provider (ISP)** - A vendor who provides access to the Internet. The user typically reaches his or her ISP by dial up with a modem and phone line, or over a broadband connection.

**Internet** - A transport network moving every form of data around the world (voice, video, data and images). A network of computers that allows access, retrieval, processing and storing of all manner of information.

**Local Exchange Carrier (LEC)** - Any company engaged in the provision of local exchange telecommunications service. A local exchange telecommunications company shall be considered a "large local exchange telecommunications company" if it has at least one hundred thousand access lines in Missouri and a "small local exchange telecommunications company" if it has less than one hundred thousand access lines in Missouri.

**Media Gateway** - A piece of equipment that translates streams of traditional time division multiplex (TDM) encoded telecommunications into a single stream of Internet protocol and vice versa.

**Modem** - Acronym for modulator/demodulator. A device that converts digital data from computers into analog data that can be transmitted over the public switched telephone network. Traditional modems can carry data at speeds of up to 56 kilobits per second.

**North American Numbering Plan (NANP)** – NANP is an integrated telephone numbering plan serving 19 North American countries that share its resources. NANP numbers are ten-digit numbers consisting of a three-digit Numbering Plan Area (NPA) code, commonly called an area code, followed by a seven-digit local number. The format is usually represented as NXX-NXX-XXXX, where N is any digit from 2 through 9 and X is any digit from 0 through 9.

**Peer-to-Peer Technology** – A network setup that allows every computer to both offer and access network resources, such as shared files, without requiring a centralized file server.

**Personal Computer (PC)** - A computer for use by one person. It was originally called a personal computer to distinguish it from other computers that existed at the time of the PC's invention.

**Plain Old Telephone Service (POTS)** - A standard single line telephone used for connection to the public switched network.

**Point of Presence (POP)** - The interexchange carrier equivalent of a local phone company's central office. The POP is where the long distance lines terminate before they are connected to the local phone company.

**Private Rate Interface (PRI)** - An Integrated Services Digital Network (ISDN) term used to refer to what essentially is an ISDN version of a T-1 trunk from customer premises to the edge of the ISDN service provider network. A PRI line contains 23 bearer channels (basic communication channels) and 1 data channel (for signaling and control purposes).

**Public Switched Telephone Network (PSTN)** - Any common carrier network that provides circuit switching between public users.

**Session Initiation Protocol (SIP)** - Protocol for the establishment, modification and termination of conferencing and telephony sessions over Internet protocol based networks.

**Softswitch** (software switch) - A type of switch that can replace the central office circuit switch used in the traditional public switched telephone network. Softswitch has the same functionality as a circuit switch, however, it has been designed with new enhanced features to meet today's market demands. Softswitch is a generic term for any open application program interface software used to bridge a public switched telephone network and an Internet protocol network by separating the call control functions of a phone call from the Media Gateway.

**Telephone Adaptor** - The Telephone Adaptor is a handset-to-Ethernet adaptor that allows VoIP subscribers to use Plain Old Telephones with VoIP managed voice services.

**Time Division Multiplex (TDM)** – A method of multiplexing in which a common transmission part is shared by a number of channels on a cyclical basis by enabling each channel to use the path exclusively for a short time slot. In this way, a circuit capable of a relatively high information transfer rate (in bits) is subdivided into time slots to provide a number of lower speed channels. TDM is the most common transmission medium of the public switched telephone network.

**Transparent Dialing** – Dialing that is the same as would be used to make calls over the public switched telephone network.

**Voice Over Internet Protocol (VoIP)** - The transmission of voice communications using Internet protocol over a data network, like one of many networks that make up the Internet. The data transmission network may or may not be the Internet. There are a variety of different applications and services that use Voice over Internet Protocol.

### Voice Over the Internet Protocol Workshop Participants

Name *	Company/Group	Attended Workshop	
		2/23/2004	3/8/2004
Cindy Bambini	Ameren Energy		X
Craig Johnson	Andereck Evans, Milne, Peace & Johnson LLC/MITG	X	X
Matt Kohly	AT&T	X	
Jerry Howe	Big River Telephone Company		X
Trip England	Brydon, Swearngen & England PC/ Small Telephone Company Group	X	X
Arthur Martinez	CenturyTel	X	X
Becky Powell	CenturyTel	X	X
Rich Taylor	Consultant	X	
Dave Beier	Fidelity	X	X
Larry Dority	Fischer & Dority, P.C.	X	X
Rod Cotton	Grand River Telephone Company	X	X
Charles Erke	Green Hills Telephone Company	X	
Renee Reeter	Green Hills Telephone Company		X
Bob Schoonmaker	GVNW Consulting, Inc.	X	
Cindy Clugy	Intrado	X	
Charlie Anderson	Kansas City Business Journal	X	
Randy Meacham	KMC Telecom		X
Paul DeFord	Lathrop & Gage/ Time Warner	X	X
Jim Lyon	Mark Twain	X	X
Stephen Morris	MCI		X
Lee Curtis	MCI, Covad, Socket and XO	X	
Bill Voight	Missouri PSC Staff	X	X
Sara Buyak	Missouri PSC Staff	X	X
Mick Johnson	Missouri PSC Staff	X	X
Larry Henderson	Missouri PSC Staff	X	X
Walt Cecil	Missouri PSC Staff	X	X
Adam McKinnie	Missouri PSC Staff	X	X
Bill Peters	Missouri PSC Staff	X	X
Natelle Dietrich	Missouri PSC Staff	X	
John Van Eschen	Missouri PSC Staff	X	X
Marc Poston	Missouri PSC Staff	X	
Duncan Kincheloe	MO Assoc. of Municipal Utilities	X	
Bryan Lade	MO Independent Telephone Group	X	
Ric Telthorst	MO Telecommunications Industry Assoc.	X	X
Noah Wood	Nuvio	X	
Jason Talley	Nuvio	X	X
Nancy Bodhat	Office of Administration		X
R.D. Porter	Office of Administration		X
Raymond Henagan	Rockport Telephone Company	X	

Keith Epstein	SBC Data Services	X	X
Craig Unruh	SBC Missouri	X	X
Leo Bub	SBC Missouri	X	X
Jason Olson	SBC Missouri		X
John Peery	Software Engineering Services		X
Mark Johnson	Sonnenschein, Nath & Rosenthal/Vonage	X	X
John Idoux	Sprint	X	
Stan Brower	Sprint		X
Lisa Creighton Hendricks	Sprint		X
Phyllis Callahan	Warinner, Gesinger & Associates	X	
Terrence Waldren	Warinner, Gesinger & Associates	X	X
Bill Steinmeier	Wm. Steinmeier, PC/Xspedius, Level 3	X	X
David Woodsmall	Xspedius Communications	X	

\* The list may not be comprehensive since some parties may not have signed the sign-in sheet during the workshop.