

**Before the  
Federal Communications Commission  
Washington, D.C.**

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In the Matter of	)	
	)	
Schools and Libraries Universal Service	)	CC Docket No. 02-6
Support Mechanism	)	
	)	
Proposed Eligible Services List	)	FCC 04-200
_____	)	

**TRILLION PARTNERS’ REPLY COMMENTS ON PROPOSED  
ELIGIBLE SERVICES LIST FOR FUNDING YEAR 2005**

Trillion Partners, Inc. files these Reply Comments in the above-referenced proceeding. Trillion Partners, Inc. is an Austin, Texas-based service provider, offering wireless Wide Area Networks on a Priority One basis to schools and libraries. Its focus is not on hardware sales, but rather, on turnkey telecommunications services. A key benefit that Trillion Partners offers its customers is that Trillion Partners retains ownership of the equipment and provides a turnkey service so the school or library does not have to bear the risk or expense associated with owning and operating a network.

**REPLY TO COMMENTS OF ON-TECH CONSULTING**

On-Tech Consulting states in its comments that the definition of Voice/video over Internet Protocol (“VoIP”) should be modified. On-Tech commented as follows:

“Change the Eligibility section to: “IP-enabled services are the subject of an open proceeding at the FCC to determine, among other things, whether certain types are telecommunications services. Pending FCC action with respect to specific services, such services are not eligible for funding. Internal Connections equipment which transports voice communications over IP within the applicant’s LAN and/or WAN is eligible for discount. Voice communications which are converted to data transmissions over IP and back to voice within the service provider’s network are telecommunications services and eligible for discount.”

“VoIP is largely eligible. The only services that are ineligible are “IP-enabled services” in which the service provider transports voice communications away from the applicant’s site over IP. VoIP within the applicant’s locations are eligible Internal Connections. VoIP within the service provider’s network can be part of an eligible Telecommunications Service; AT&T’s use of IP to transport its

long distance calls within its network does not make AT&T's long distance service ineligible."<sup>1</sup>

Trillion Partners does not necessarily share On-Tech's views that "VoIP is largely eligible," or that AT&T's use of IP to transport its long distance calls should or should not be eligible.

Trillion Partners does, however, have grave concerns regarding the proposed definition of VoIP. The proposed definition vastly enlarges the scope of VoIP, far beyond what the FCC has stated the definition is. The proposed Eligible Services List includes a definition of VoIP as follows:

"Voice over IP (VoIP) is a technology used to transmit voice conversations over a data network using the Internet Protocol. Similar Internet protocols can be used to provide video services."<sup>2</sup>

As proposed, the language would make most Wide Area Networks that carry voice traffic suddenly ineligible. It is very common, if not the industry standard, for voice traffic carried over a Wide Area Network to be converted to a packet-switching protocol, which happens to be Internet Protocol.<sup>3</sup> The proposed definition of VoIP would render such

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<sup>1</sup> On-Tech Comments on Proposed Eligible Services List for Funding Year 2005, FCC 04-200, p. 14 (Aug. 23, 2004).

<sup>2</sup> See Proposed Eligible Services List, page 60.

<sup>3</sup> The term, "Internet Protocol" is often misused to describe only traffic that traverses the public Internet, but in fact, it is simply a packet switching protocol that is used in many applications, only one of which is the public Internet. Virtually all Wide Area Networks in operation today that have nothing to do with the Internet are simply made to run more efficiently by using the IP packet switching protocol.

One problem is that the term "Internet Protocol" has taken on multiple, sometimes conflicting meanings. The term "Internet Protocol" originally referred to the protocol used for "internetworking" which was later used in the public Internet as well as in non-Internet settings. The public Internet is simply "the most notable example" of "internetworking," where the term originated. (See <http://en.wikipedia.org/wiki/Internetworking>.)

Some have tried to distinguish between VoIP and non-Internet IP packet-switched voice traffic by calling the latter "IP Telephony." This term has not been consistently used for that purpose either, so there is still no industry accepted term for non-Internet IP packet-switched voice traffic.

An explanation of "Internet Protocol" can be found at [http://en.wikipedia.org/wiki/Internet\\_Protocol](http://en.wikipedia.org/wiki/Internet_Protocol):

The **Internet Protocol (IP)** is a data-oriented protocol used by source and destination [hosts](#) for communicating data across a [packet-switched internetwork](#).

Data in an IP internetwork are sent in blocks referred to as [packets](#) or [datagrams](#) (the terms are basically synonymous in IP). In particular, in IP no setup is needed before a host tries to send packets to a host it has previously not communicated with.

The Internet Protocol provides an *unreliable* datagram service (also called *best effort*); i.e. it makes almost no guarantees about the packet. The packet may arrive damaged, it may be out of order (compared to other packets sent between the same hosts), it may be duplicated, or it may be dropped entirely. If the [application](#) needs reliability, this is added by the [Transport layer](#).

Wide Area Network voice traffic ineligible even though that traffic never touches the Internet. This is clearly not the intent of the FCC's rules, nor is it within the scope of the FCC's inquiry into VoIP.

The FCC correctly states in its Voice over IP website:

“VoIP converts the voice signal from your telephone into a digital signal that travels over the internet then converts it back at the other end so you can speak to anyone with a regular phone number.”<sup>4</sup> (emphasis added.)

The proposed definition of VoIP is so broad it would include all voice traffic that happens to travel over a data network using the Internet Protocol, even though it never traveled “over the internet.” Chairman Powell said in his comments on the creation of the FCC's Internet Policy Working Group, which was created to “discuss issues related to Voice Over Internet Protocol,” that the forum was created to address “policy issues that will arise as telecommunications services move to Internet-based platforms.”<sup>5</sup> Voice

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Packet switches, or internetwork [routers](#), are used to forward IP datagrams across interconnected [layer 2](#) networks. The lack of any delivery guarantees means that the design of packet switches is made much simpler. (Note that if the network does drop, reorder or otherwise damage a lot of packets, the performance seen by the user will be poor, so most network elements do try hard to not do these things - hence the *best effort* term. However, an occasional error will produce no noticeable effect.)

IP is the common element found in today's public [Internet](#). It is described in [IETF RFC 791](#), which was first published in [September, 1981](#). This document describes the current and most popular network layer protocol in use today. This version of the protocol is assigned as version 4. [IPv6](#) is the proposed successor to IPv4; the Internet is slowly running out of addresses, and IPv6 has 128-bit source and destination addresses, providing more addresses than IPv4's 32 bits. Versions 0 through 3 were either reserved or unused. Version 5 was used for an experimental stream protocol. Other version numbers have been assigned, usually for experimental protocols, but have not been widely used.

<sup>4</sup> The URL at the FCC's website is: <http://www.fcc.gov/voip/>, and the introductory paragraph is as follows:

*What is VoIP/Internet Voice?*

VoIP allows you to make telephone calls using a computer network, over a data network like the Internet. VoIP converts the voice signal from your telephone into a digital signal that travels over the internet then converts it back at the other end so you can speak to anyone with a regular phone number. When placing a VoIP call using a phone with an adapter, you'll hear a dial tone and dial just as you always have. VoIP may also allow you to make a call directly from a computer using a conventional telephone or a microphone. (emphasis added)

<sup>5</sup> See FCC News Release, “Comments of Chairman Michael K. Powell Announces Formation of Internet Policy Working Group,” (rel. Dec. 1, 2003) (URL: [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DOC-241761A1.doc](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-241761A1.doc)). The release states in pertinent part:

Washington, DC – At a Federal Communications Commission (FCC) forum today to discuss issues relating to Voice Over Internet Protocol (VOIP), FCC Chairman Michael K. Powell has announced the formation of an FCC Internet Policy Working Group.

The Working Group will assist the Commission in identifying, evaluating and addressing policy issues that will arise as telecommunications services move to [Internet-based platforms](#). The cross-bureau and multi-disciplinary working group will be directed by a steering committee comprised of senior management and staff from several Commission Bureaus and Offices, and will be staffed as needed by attorneys, engineers

traffic that never comes near the Internet is clearly not “Internet-based.” If the general rule is that voice traffic over a Wide Area Network is eligible, the fact that the traffic is almost always carried in an Internet Protocol means that the currently proposed definition of VoIP (which is ineligible) would be the exception that swallows the rule.

From a practical standpoint, as long as the traffic avoids the controversies associated with VoIP, it should not be included in the definition of VoIP. As long as the traffic that exits or enters the Wide Area Network does so through the public switched telephone network, and not the Internet, the fact that it once existed in an IP packet switched format is irrelevant:

1. The customer’s long distance company pays the same access charges to the local exchange provider as if the traffic had been analog;
2. The customer forwards all 911 calls to the local public safety answering point (“PSAP”) just as if the traffic had been analog; and
3. The customer contributes the same amounts to the appropriate taxing authorities, including the Universal Service Fund, just as if the traffic had been analog.

Essentially, how the customer manages its own Wide Area Network is its own business, and not pertinent to the FCC’s VoIP inquiry. It is the voice traffic which circumnavigates the public switched telephone network that is the focus of the FCC’s review.

Also, the inclusion of the sentence, “Similar Internet protocols can be used to provide video services” would essentially negate most otherwise eligible Video Services. Even if a Video Service never traversed the Internet, if it was transported using a packet-switching protocol that happens to be Internet Protocol, it would be rendered ineligible. Because it is commonplace to transport video services using the Internet Protocol, again, it would be an exception that swallows the rule.

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and economists from across the Commission. This Working Group will also reach out to key constituencies including state regulators, consumer groups and public safety organizations.

Chairman Powell said, “Internet-based services are already revolutionizing the way consumers do things,” said Powell. “They are having an even greater impact on the future of telecommunications. By forming this Working Group, we hope to gain a greater understanding of how policy-makers can create rational policies to encourage growth in Internet services.” (emphasis added.)

## **PROPOSED DEFINITION OF VOIP**

Trillion Partners requests the definition of Voice over Internet Protocol be modified as follows:

“Voice over IP (VoIP) is a technology used to transmit voice conversations or video services over a data network using the Internet Protocol. Similar Internet protocols can be used to provide video services.”<sup>6</sup>

This revision is intended to be concise, yet reasonably focused on the controversy before the FCC: voice and video traffic that travels over the Internet.

## **ON-TECH LANGUAGE IS TOO BROAD**

The proposed language by On-Tech is less concise, and in the context of its comments regarding AT&T's eligibility, may be less precise than Trillion Partners' proposal. One reason Trillion Partners takes no position regarding On-Tech's statements on the eligibility of AT&T's long distance service is that one of AT&T's services has been described by some as being a managed, secure network over the Internet. Although On-Tech's proposed language would fit the garden variety voice over Wide Area Network scenario, and thus address Trillion Partners' concern, it may be too broad. There are a few major telecommunications providers who are not only long distance companies, but are also Internet backbone providers themselves.

On-Tech would explicitly make eligible “[v]oice communications which are converted to data transmissions over IP and back to voice within the service provider's network.” However, a company of AT&T's size could theoretically call its long-haul long distance network “the service provider's network,” and also call its portion of the Internet backbone “the service provider's network.” Trillion Partners asserts that its proposed language would avoid this ambiguity and simply make all voice and video traffic that traverses the Internet ineligible. This would allow normal Wide Area Networks to continue to be eligible, but avoid any controversy with the FCC's inquiry into “Internet-based” traffic.

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<sup>6</sup> See Proposed Eligible Services List, page 60.

**CONCLUSION**

Trillion Partners respectfully requests the Federal Communications Commission and the Universal Service Administrative Company modify its currently proposed Eligible Services List for the Schools and Libraries Division, specifically its proposed definition of Voice over Internet Protocol (VoIP) as described herein.

Respectfully submitted,

Trillion Partners, Inc.

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