

# ***VOIP REGULATION IN THE AMERICAS***

*Presented by*

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## Biography of Konrad L. Trope, Novo Law Group, P.C.

As the managing shareholder of Novo Law Group, Konrad L. Trope brings 20 years of experience to legal issues involving all aspects of E-Commerce, Cyberspace, Technology, Telecommunications, and Intellectual Property, Technology. His national practice covers litigation, transactions, and regulatory counseling for technology and telecommunications corporations.

Mr. Trope has authored over a dozen articles concerning cutting edge issues in cyberspace, technology, and e-commerce law, which have been published in various national journals and periodicals. Mr. Trope's recent articles and speeches have focused on the development, deployment and regulation of the telecommunications technology known as ***Voice Over Internet Protocol (VoIP)***.

A partial list of his articles and speeches concerning VoIP includes:

**Voice Over Internet Protocol: The Revolution in America's Telecommunications Restructuring Infrastructure**, *The Computer and Internet Lawyer Journal*, December 2005

**Security Risks Involving Voice Over Internet Protocol**, presented at *October 13, 2005 Meeting of California State Bar Cyberspace Committee*, Palo Alto, California

**VoIP: Making Data & Voice Convergence a Reality**, presented at *23<sup>rd</sup> Annual Computer Law Institute*, March 11, 2005, San Francisco, California

**Voice Over Internet Protocol**, *Internet Law and Practice in California, Annual Update, New Chapter*, (CEB 2005, Berkeley, California)

**International Regulation of Voice Over Internet Protocol**, presented at *January 2005 ABA Cyberspace Committee Winter Working Meeting*

**VoIP: Current Developments in the Regulation of Voice Over Internet Protocol**, presented at *High Tech Practice and Privacy Rights Section, San Francisco Barristers Club*, October 20, 2004

**Current Legal Issues Surrounding the Regulation of Voice Over Internet Protocol**, *Intellectual Property & Technology Law Journal*, May 2004

**FBI Seeks Expanded Powers to Wiretap Internet**, *Modern Practice*, February 3, 2004, found at <http://practice.findlaw.com/tooltalk-0204.html>

**Too Late! The Internet is Already Regulated**, *CNET News.com*, January 27, 2004 found at <http://news.com.com/2010-7352-5146559.html>

**Regulation of Voice Over Internet Protocol (VoIP)**, *Comments submitted to FCC Form on Voice Over Internet Protocol (VoIP) on December 15, 2003.*

Mr. Trope currently serves as the chairman of the VoIP Committee of the American Bar Association, International VoIP Task Force of the ABA Cyberspace Committee, investigating regulatory models of VoIP in foreign jurisdictions. He also serves as Chairman of the VoIP Task Force for the California State Bar Cyberspace Committee.

A cum laude graduate of Pomona College, Mr. Trope attended UCLA School of Law where he was an Editorial Staff Member of the UCLA Law Review. In addition, while at UCLA Law School, Mr. Trope served as the Senior Articles Editor of the Century City Bar Association Journal, and the Associate Editor of the Beverly Hills Bar Association Journal.

Upon graduation in 1985, Mr. Trope moved to Washington, D.C. to serve as law clerk to the Honorable H. Robert Mayer\* of the United States Claims Court. Then Mr. Trope went on to serve as law clerk to the Honorable Wilson Cowen, Senior Circuit Judge of the United States Court of Appeals for the Federal Circuit. (\*Judge Mayer later served seven years as the Chief Judge of the United States Court of Appeals for the Federal Circuit).

In 1987, Mr. Trope joined the Washington, D.C. office of Finley, Kumble, Wagner, Heine, Unterberg, Manley & Casey where he worked in the business, intellectual property and litigation departments. In 1989, he joined the Washington, D.C. office of Foley & Lardner. In 1991, he moved back to Southern California where he founded Novo Law Group, with offices in Beverly Hills, Irvine, California, New York and Washington, D.C.

# Voice Over Internet Protocol: Status and Industry Recommendations

## I. Introduction

A broad range of services, including voice, video, and data, can be enabled to ride on Internet Protocol (“IP”) networks. These digital networks require less financial investment, are cheaper to build and operate than traditional circuit-switched networks, and are better suited to provide a range of improved, innovative, and economic service offerings to users of all kinds.

There are many benefits to IP networks, and, in particular one of its applications—Voice over IP (VoIP). First, IP networks are cheaper to deploy. One key benefit that is driving widespread adoption is the tremendous cost savings realized by these networks, which may use both wireline and wireless infrastructure. Second, because of the architecture of IP networks, digital packets of information move in an efficient manner (as opposed to in the end-to-end circuit model), more effectively utilizing the capacity of the network. Third, the multifunctional nature of IP networks allows the cost of the network to be spread more widely since the same network is used to provide all kinds of services (voice, video, data, etc.). Providers of networks and businesses who are adopting IP are already realizing these savings and efficiencies.

IP networks and the applications that run on them provide more choices to users. For example, purchasers of VoIP service may be able to choose to receive their messages in written or voice form, or use their phone number even when they are traveling. VoIP is just one application on an IP network that can support many different applications. Because a company can offer VoIP services without owning its own network, there are fewer barriers to competitive entry, enabling a multitude of competitors to offer consumers more choice and lower prices, and even integrate aspects of video and data services that ride on the same network, to create exciting new products.

Given all of the economic and consumer advantages that VoIP and other IP-enabled services offer, a country will be at a disadvantage if it does not embrace VoIP. Countries that require all voice traffic to be carried over circuit-switched networks and delay adoption of IP networks are committing their future to networks that are becoming obsolete and dooming their country to incur greater expenses for fewer capabilities than other countries. Countries that follow this course will increasingly fall behind, depriving their citizens and businesses of the opportunity to share the benefits of rapid innovation, more competition and lower prices. Indeed, IP networks are already in wide use for the carriage of international traffic, including voice.

Countries are finding ways to embrace the opportunities that VoIP and other IP-enabled technologies provide. Many countries are trying to create a flexible regulatory environment that facilitates investment, competition, innovation and the deployment of IP networks and

applications like VoIP. A few others are moving in a different direction, paying less attention to the tremendous benefits, opportunities and savings from this technology and more attention to how to ensure that VoIP calls do not undermine revenue from high international charges, which is harder to do over IP networks because of their architecture.

This paper is intended to review briefly the technology and its benefits, policy recommendations for how countries should treat both the IP technology and its applications, and how countries and multi-national policymakers are approaching IP-enabled technologies, particularly VoIP, and the policy issues surrounding VoIP.

## II. The Shift to IP In Networks

The shift to IP-enabled services represents the most fundamental shift in communications networks in recent years. Today, IP is driving the same kind of revolution in voice and other applications that IP provided in the data-networking world thirty-five years ago. This revolution in technology is enabling new kinds of Internet services, including VoIP.

VoIP is delivered as an application. Many of the VoIP service providers today are providing only the application, while an entirely different provider may provide the infrastructure. IP enables this separation of infrastructure and application.

The history of VoIP usage began with early conversations over the Internet by some computer users. In its early stages, VoIP required a headset plugged into users' computer systems, and users could only communicate with others with a similar set up, whom they phoned ahead or sent a text message to, alerting them to the upcoming voice exchange at a particular time. The various ways IP have been used to support voice communications have changed rapidly over the last few years; this is shown in Figure 1 below.

### Three Types of VoIP Call Flows

1) IP device to IP device



2) IP device to PSTN phone



3) PSTN phone to PSTN phone



PSTN: Public Switched Telephone Network

*Figure 1*

Today, the phrases "IP Telephony," "Internet Telephony" and "VoIP" are all used, in some cases interchangeably, and in other cases, with distinct meanings. Newton's Internet Dictionary defines these phrases as follows:

Internet Telephony : “In the beginning, Internet telephony simply meant the technology and techniques to let you make voice phone calls — local, long distance, and international — over the Internet using your PC...the definition of Internet telephony is broadening day by day to include all forms of media (voice, video, image), and all forms of messaging and all variations of speed from real-time to time-delayed.”

IP Telephony : (As defined by Microsoft) “IP Telephony is an emerging set of technologies that enables voice, data, and video collaboration over existing IP-based LANs, WANs and the Internet. Specifically, IP Telephony uses open IETF and ITU standards to move multimedia traffic over any network that uses IP (the Internet Protocol).”

Voice over IP (VoIP) : “The technology used to transmit voice conversations over a data network using the Internet Protocol. Such data network may be the Internet or a corporate Intranet, or managed networks typically used by long distance and local service traditional providers and ISPs that use VoIP.”

The ITU Telecommunications' Sector Study Group (SG-2) responsible for developing definitions for ITU T's work has so far not defined VoIP. They have provided definitions for IP Telephony and Internet Telephony . While the communications network providers and their suppliers are moving rapidly to adopt IP in the communications networking infrastructure, enterprise users are also beginning to adopt IP throughout their complex systems and networks used for private business networks. This can enhance corporate efficiencies by facilitating communications among employees whether working at corporate locations, working at home, or traveling. Most enterprises are experimenting with VoIP in small doses, by first installing a remote office with VoIP, doing a trial, or engaging in incremental upgrades. The typical multinational corporation's perspective could be paraphrased as: It isn't a question of “if”; it is a question of "when" we will move fully to VoIP.

Government agencies in many countries are already embracing IP networks and adopting VoIP along the way. In addition, individual users are increasingly looking for the kind of advanced applications that can be provided in an all IP-enabled world. IP networks provide distributed intelligence throughout the networks, smart end points and smart applications. Also, IP networks are capable of delivering voice communications, as well as the seamless convergence of data, voice, and video applications, across multiple and diverse devices. The benefits of IP in the networks also extend to the cost of developing and upgrading applications; upgrades in an IP network are easier and less expensive to make, thus enabling the development of new innovations more rapidly, and at lower cost. Benefits also exist in the life cycle of IP systems and networks, with feature enhancements; updates and maintenance of these systems made electronically, thus improving the performance, and lowering the maintenance costs over the life of the system.

Even as this migration is taking place, the full adoption of IP in the communications networks will take several years to complete, with the co-existence of the Public Switched Telephone Network (PSTN) and IP networks expected to continue through the transitional period. At the same time, new broadband wireless capabilities are emerging in the marketplace. Indeed for many countries, wireless provides a new, exciting, and affordable approach to bringing communications technology to their citizens, who today lack landline access. The developing countries offer exciting adoption of wireless in all flavors, and indeed 3G wireless will continue to advance most rapidly in Africa, Latin America, and the Asia Pacific. IP will be the bridge between the PSTN, wireless and the new broadband IP world.

With the new capabilities supported in the IP enabled world, new services are more easily provided to the end user, both in the enterprise and in the publicly offered services. Voice is now integrated with other applications; some of the new services are:

- Presence detection (instant messaging, “find me” services);
- One number/“follow me” services;
- Universal messaging;
- Virtual meetings/collaboration at the individual and enterprise levels;
- Real time language translation;
- Multi-Point Video Conferencing;
- Push-to-talk cellular; and
- Voice chat.

Now that voice can be just one more application in an IP network, innovation is rapidly occurring. Users are finding VoIP services attractive, regardless of their country or region. Recognizing that the first benefit that users experience is lowered cost, VoIP for some users is merely a way to avoid the traditionally high cost of some network communications services. But, the greatest benefits occur when there is a broadband architecture at the ends of the networks — or the so-called “last mile.” Therefore, users who already have high speed Internet — whether broadband wireless, Digital Subscriber Line (DSL) or cable — are now able to subscribe to a high quality VoIP service and get the benefits of “all distance” calling: new integrated features formerly reserved for business enterprises, such as personal conference bridge services and “follow me” services. Thus, for some broadband users VoIP has emerged as a driver of the rollout of broadband at the ends of the networks. At the same time growth of broadband deployment is encouraging the adoption of VoIP.

But VoIP is sometimes perceived as a threat to the traditional incumbent telecom services of many developing countries. While there is much discussion about lost revenue and threats to the present providers, the facts tell a different story. First, while VoIP is real competition and is growing rapidly, according to *Telegeography 2005*, today only 7 percent of the public Internet traffic is VoIP, and overall, approximately 11-12 percent of the total voice traffic in the world is VoIP. Second, in some developing countries incumbent providers have embraced VoIP and are offering it themselves. But it is understandable that some governments are concerned when the highest uses of VoIP exist in developing countries with the highest settlement fees. These governments fear the continued loss of telecom settlement fees. Of course, VoIP actually is a whole new paradigm about networks and applications, but getting to that discussion can be challenging for many national regulators.

Even as users embrace VoIP, it actually is the IP technology that allows voice to be just one, among a multitude of applications, like Instant Messaging, text messaging, video, and so on. This is a new and complex world. It isn't simple any longer. Countries, whether in the developed world, or in emerging economies, or in the least developed regions have questions about how to treat IP networks, and VoIP.

### **III. Benefits of VoIP**

The benefits of VoIP to users and providers include increased access to information, elimination of boundaries, reduction of costs, consistent quality of service, and enhanced revenue. Specifically, in promoting access to information, VoIP:

- Enables growth in penetration of information services to the home whether via cable, DSL, or other emerging access technologies;
- Is media independent;
- Promotes social development through access to an integrated IP network that facilitates distance learning, telemedicine, and e-government; and
- Promotes economic development through access to new markets.

VoIP technology eliminates boundaries by giving users the flexibility to use one or more communications devices, such as a PC, telephone, PDA, wireless phone, or even a TV set-top box. In addition, VoIP integrates voice in other services that can be offered cost effectively since the network operation is streamlined. Furthermore, VoIP eliminates boundaries between wireless and wireline devices and facilitates interconnection. VoIP technology also can permit geographic independence, mobility, and the potential for convenience of access via one number anywhere.

Costs are reduced in a number of ways when VoIP technology is deployed. For voice traffic, data is compressed and transmitted over an IP-based computer network, which means that VoIP uses up to 90 percent less bandwidth than a traditional PSTN call. Installing a packet-switched network costs about a third of a circuit-switched system and can save about 50-60 percent in operating costs.

IP networks can be specifically designed to deliver quality of service for VoIP. Managed "IP" networks support the capability to prioritize the voice and ensure prompt and consistent communications regardless of how congested the network. In that environment the user does not distinguish a difference in quality between a managed VoIP call and a traditional POTS call.

Finally, VoIP enhances revenue by bringing in new revenue sources, even where there is a drop in traditional revenue sources. Enhanced revenue includes:

- Extra local traffic because VoIP increases total traffic carried over local networks;
- Second lines to homes and more leased lines;
- Growth in backbone traffic;

- New services, such as call transit service through VoIP gateways, unified messaging services, IP virtual private networks for businesses, and VoIP clearing house services for ISPs.

#### **IV. Emerging Global Policy Issues:**

Public policy makers around the world are facing a similar set of questions regarding VoIP, its benefits, its role in bringing more affordable communications services, how and whether to have a licensing regime; whether to treat it as an information service or as a telecom service. Policy issues that are presently under discussion include the following:

- Numbering
- Emergency Service Access
- Universal Service
- Network Security
- Law Enforcement Access

Each of these policy issues presents unique challenges both to governments seeking to serve the public interest while also encouraging competition, as well as to VoIP service providers seeking to keep costs to a minimum while providing seamless, competitive, and efficient services. The purpose of this section is to raise awareness of some of these potential policy issues and identify the challenges they present.

##### *Numbering*

Even though in the future different types of addressing, such as Session Initiated Protocol (SIP) addresses, “handles,” may be used to access different IP-enabled devices—including those that provide voice communications—today and for the near future, telephone numbers are an essential element to VoIP's use and success. With respect to numbering, governments may consider whether reasonable and efficient access to telephone numbers is essential for VoIP Service providers. The primary argument in favor of allocating geographic numbers to VoIP services is that these numbers may be considered to support competition, particularly if they are combined with number portability. Some governments may decide to open new number ranges for movable VoIP services (see Germany, Section VI below). VoIP service providers may oppose number ranges that are distinct from existing number ranges for traditional circuit-switched voice services as these may hinder competition.

Number portability is also a primary enabler of competition by allowing users to retain their telephone numbers when changing service providers. Governments may view number portability as a tool to reduce market entry (if prohibited) or, other the other hand, as a key facilitator of consumer choice and competition. Governments will need to consider whether number portability is possible for all services.

### *Emergency Service Access*

Governments generally view access to emergency services as extremely important for their citizens, regardless of how a telephone service may be classified for regulatory purposes. From a public interest viewpoint, governments like to ensure that access to emergency services is available from as wide a range of electronic communications services as possible. However, governments, when setting VoIP policy, may need to consider whether the infrastructure presently in use to provide emergency services to users of traditional telephone services is compatible with the provision of some types of VoIP services. In particular, the market has not yet resolved the practicalities of call routing and handling and, consequently, it may not be feasible for governments to mandate emergency service access to IP network services, such as VoIP, as has been done with other voice services. Nonetheless, governments could consider requiring VoIP providers that include access to the public telephone network to give precise information to users on how the VoIP providers deals with access to emergency services or caller location. In the future, once fully IP-enabled systems and networks are deployed, VoIP providers can be expected to provide emergency communications that are equal or superior to those provided through traditional voice services.

### *Universal Service*

Universal service is generally determined to be the provision of a defined minimum set of services to all users at an affordable price. Governments may determine that this minimum set of services includes connection to the public telephone network and access to publicly available telephone services at a fixed location. It may also include directory inquiry services, public pay phones, and special measures for disabled users. In order to ensure that all consumers have access to this minimum set of services, governments may designate one or more operators to provide different elements of universal service and/or to cover different parts of the country at an affordable price. Unless exempted under the threshold of the defined minimum set of services, governments may determine that providers of VoIP services may be required to contribute to the cost of Universal Service. However, VoIP providers may argue that their services are exempt from the minimum set of services and, therefore, Universal Service obligations do not apply. On the other hand, some hold the view that all communications service providers, and possibly all information service providers, should have universal service obligations.

### *Network Security*

Governments consider that providers of publicly available communications services should take appropriate measures to safeguard the security of their services. For VoIP services, this could include measures to protect against viruses and denial-of-service attacks. Governments may also require VoIP providers to inform their users of possible security risks.

### *Law Enforcement Access*

The ability for law enforcement authorities to access communications networks (often referred to as Lawful Intercept) also is an issue of great concern to governments. VoIP

providers and industry analysts point out that due to the differences between the protocols used in packet-based networks such as the Internet and circuit-switched telecommunication networks such as the PSTN, a requirement that VoIP providers provide the same type of access to voice traffic would inhibit innovation. VoIP providers may need to work with governments and law enforcement authorities to develop common standards for lawful intercept of VoIP services. Common standards would also make it easier for equipment manufacturers to develop the necessary products and procedures to support lawful intercept from the start instead of trying to develop bolt-on solutions to this difficult problem later.

## **V. Recommendations**

The following are recommendations concerning the role of government in the development of VoIP policy and regulation based on research and information obtained from private industry and various governmental agencies from across the globe:

- Decision-making processes must be transparent. Regulation should foster deployment, capital investment, and competition. Regulatory decisions should be made in a timely fashion and incorporate flexibility, and should encourage innovation and competition.
- Avoid imposing legacy regulations on VoIP and IP networks, including today's international telecommunications settlement regime. A light regulatory approach is appropriate, especially where competition takes root. Greater regulation is appropriate to protect users and competitive opportunity where competition is not taking place, but should be reduced as competition is established. As in all markets, competition law should also remain available to guard against anti-competitive behavior.
- Work to promote achievement of social policy objectives such as law enforcement, emergency services and other national interests—but drive these objectives in an evolutionary manner, relying whenever possible on industry-developed standards, moving toward achievement of these goals consistent with the capabilities of the technology without stifling the service in the meanwhile.
- Users should be able on a non-discriminatory basis to run applications of their choice and to attach any devices that they may choose on underlying networks—particularly broadband connections since those are typically necessary for VoIP to work today—consistent with the user's service plan, unless there would be harm to the network, or theft of service would be enabled.

## **VI. Survey of Latin America: Internet Policy and Regulation--VoIP Policy and Regulation**

The following covers regulations pertaining to access to the Internet and VoIP. The information was gathered from private consulting firms, news reports, regulatory bodies, international organizations and Consulates.

### **ARGENTINA**

#### **INTERNET POLICY AND REGULATION**

The Government of Argentina is proactive in promoting the use of Internet. Several measures to expand Internet access have been implemented, including rate reductions, fair interconnection fees, promoting network development, increased competition, universal access policies, and providing all libraries, schools, universities with free Internet access for tele-education, telemedicine, and R&D projects. This has caused a downward spiral for access prices to the Internet since 1999. The government is also fostering Spanish content development, which is key to expanding the use of Internet in Latin America.

ISPs in Argentina need a value-added service license in order to operate. The point of contact is the Comision Nacional de Comunicaciones (CNC). There are no foreign ownership limits on ISPs. Argentine foreign investment policy is very liberal. There is no distinction between local and foreign companies and there is free repatriation of capital. ISPs and other carriers that provide Internet access and services are allowed to establish and operate their own switches, including international gateways.

There are benchmark interconnection rates established for ISP interconnection with local telephone companies, but ISPs can and usually do negotiate separately because these rates are quite high. Since carriers do not disclose the actual costs of providing service, ISPs often end up negotiating final interconnection fees close to the benchmark rates. The regulations do, however, specifically state that there is freedom between the parties to agree on the interconnection fees.

#### **VOIP REGULATIONS AND MARKET INFORMATION**

According to resolution 764/2000 of the Secretariat of Communications, VOIP services are a free telecommunications service in competition in Argentina. It is officially allowed and there are no known efforts from the Argentine government to regulate it or impose any restrictions on it.

Most major telecom carriers are engaged in the whole range of telecom services. Brazilian Internet service provider UOL announced in October 2004 that its Argentinean unit launched an IP-telephony service for residential users. The service allows customers to make long-distance calls over dial-up connections, by first downloading some application software. (It is useful to note that over 80 percent of Argentinean ISP subscribers are dial-up users.)

In May 2005, Impsat announced a US\$30 million investment in its Argentine operations and said it will launch broadband Internet access and VOIP services to residential subscribers by the end of the year.

**BOLIVIA:**       **May allow VOIP by 2006.**

## **BRAZIL**

### VOIP REGULATIONS AND MARKET INFORMATION

In Brazil, there is no specific legislation for VOIP services. Anatel, the Brazilian telecommunications regulator, considers VOIP a telecommunications service or simply a value-added service, based in the definition established by the Brazilian General Telecommunications Law (GTL) # 9.472 dated July 16, 1997. This law is the legal telecommunications framework for Brazil. It is important to mention that the definition of telecommunications services established by the GTL is not associated with any technology or any service provision media, but rather with the transmission, emission or receipt concept.

The Brazilian government is already allowing telephone numbers to be matched with VOIP service lines. To provide VOIP services in Brazil, a U.S. company has two options: 1) Open a company in Brazil and purchase a license provided by Anatel; or 2) Partner with a Brazilian company that has already the license to provide this service. There are several small players with a license that would take great benefit of jointly pursuing business opportunities with complementary players.

However, the companies that have purchased the licenses to operate the old Telebras system - fixed switched telephone service (FSTS), are expressing some concerns with VOIP because there are numerous companies offering it without any specific commitments. FSTS companies have specific obligations for the provision of services and are submitted to rigorous inspection in terms of quality services rendered as well as specific regulations while the new companies offering VOIP are not subject to these rules. Anatel, on the other hand, has emphasized several times that the agency does not intend to create an additional law for VOIP services.

In Brazil, the use of VOIP services is still concentrated in the corporate world. According to a recent study conducted by Yankee Group, one in every four Brazilian large corporations already uses VOIP. The growth of VOIP for the end-users, however, is highly dependent on the increase of broadband subscribers, which is still less than five percent of the total population. By 2005, market experts predict that VOIP will become the second option for fixed and mobile telephones.

According to recent studies, the international incoming switched traffic reached approximately 240 million minutes by the end of 2004 in Brazil, while the outgoing VOIP traffic reached approximately 130 million minutes. This generated net revenues of approximately US\$20 million. This traffic is expected to increase 40 percent in the next

three years reaching net revenues of approximately US\$28 million. The Brazilian VOIP equipment market was valued at approximately US\$25 million by the end of 2004 and is projected to reach US\$58 million by 2006. VOIP operators include Global Village Telecom (GVT), Easytone, Primeira Escolha, Verso, and TVA.

## **CHILE**

In July 2004, Subtel published its proposed VOIP rules and invited industry comment. The following September, those comments were published. Thirty companies responded, with Telefonica CTC giving the harshest criticism of the proposal.

Chilean telecom service provider Teknos expects to implement VOIP for at least 60 new clients in 2005. Triple-play provider VTR-Metropolis is expanding its IP telephony network. The company's plan is to achieve national coverage and two million customers by 2010. In May 2005, Telmex's Chilean unit claimed to be the first operator to provide nationwide IP network services, with five corporate clients. Netline plans to launch VOIP services by the end of 2005. Other VOIP providers include RedVoiss.

## **COLOMBIA**

### **VOIP REGULATIONS AND MARKET INFORMATION**

In Colombia, there has been a dramatic debate during the last seven years whether the services provided over Internet protocol are either services or technologies. The Colombian authorities have come to the conclusion that technologies used over Internet protocol are allowed with the proper license to provide the service for any commercial purpose. Currently, licenses are issued by the Ministry of Communications according to the regulations currently in force, specifically Law 142 of 1994 and Resolution 087 of 1997. Therefore, VOIP is restricted to only three incumbents that hold international voice licenses (Colombia Telecomunicaciones, Empresa de Telecomunicaciones, and Orbitel) until 2008, at which time these licenses will expire. After 2008, it is predicted that VOIP will be the fastest growing technology among value added companies that already provide related telecommunications services.

The above-mentioned legislation and high licensing fees (US\$150 million) for long distance/international carriers are the main hurdles to VOIP deployment. However, all local services offered over the Internet are liberalized. VOIP is not subject to any regulatory restriction if it is provided from, or to, a computer. Voice services offered to or from a mobile phone via the Internet are restricted.

Orbitel (Empresas Publicas de Medellín) and Colombia Telecomunicaciones (the former Telecom S.A.) have been providing voice services with VOIP technology since 2004. Recently, ETB (Empresa de Telecomunicaciones de Bogota S.A.) introduced VOIP by partnering with Net2Phone.

Since only three incumbents are allowed to apply VOIP technology services in Colombia, there is very little legal competition. However, the three incumbents face competition from international callback operators. There are no official estimates with respect to these illegal practices.

## **COSTA RICA**

### **VOIP REGULATIONS AND MARKET INFORMATION**

According to Article 121 of the Costa Rican Government Constitution, only the Costa Rican government can provide all communication services, including Internet services. Therefore, the Costa Rican government holds the monopoly in VOIP services through its two state-owned companies: Radiografica Costarricense, S.A (RACSA) and the Instituto Costarricense de Electricidad (ICE). In the event that RACSA or ICE needs a strategic alliance with a foreign company to improve its service, the Costa Rican Congress can study the case and approve it if it is considered necessary. A national VOIP project, part of a telecom expansion plan, has been delayed.

## **DOMINICAN REPUBLIC**

The Dominican Institute for Telecommunication (Instituto Dominicano para las Telecomunicaciones, INDOTEL) is currently evaluating a new regulation that will cover the VOIP services in the Dominican Republic.

In early 2004, Economitel announced the deployment of a VOIP network to provide long-distance, wholesale, and pre-paid services for business and residential.

## **ECUADOR**

### **VOIP REGULATIONS AND MARKET INFORMATION**

The National Telecommunications Council (CONATEL) is the FCC equivalent and regulator for the telecommunications sector. The fixed telephone services regulations apply for VOIP services that allow companies and/or individuals to have this service within their own organizations. However, in order to offer this service commercially, companies need a license from CONATEL. The service is only permitted when offered through the authorized telephone operators (Andinatel, Pacifictel, and Etapa).

## **GUATEMALA**

### **VOIP REGULATIONS AND MARKET INFORMATION**

Certain concessions are required in order to provide VOIP services.

In August 2004, Heritage Communications announced plans to launch VOIP services in partnership with Confiansa and LA-MA, targeting both business and residential consumers. Other companies also offer VOIP services, including Net2Phone and HBC.

## **HONDURAS**

State-owned incumbent Hondutel is reportedly losing long-distance market share to the country's Internet cafés, which offer a similar service that is up to 70 percent cheaper. Hondutel has plans to upgrade to a full IP telephony platform in 2006.

## **MEXICO**

### **VOIP REGULATIONS AND MARKET INFORMATION**

At this time there are no laws that specifically regulate VOIP. It is allowed without a license. The Mexican Association for Information Technologies Industries (AMITI-Asociación Mexicana de la Industria de Tecnologías de Información) is discussing the possibility of drafting a bill to regulate all types of transactions over the Internet. Still, COFETEL has established that it is illegal for anyone to offer telephone services without the appropriate license. Independent of the technology used, anyone offering voice through the PSTN requires a license from the Ministry of Communications and Transport (Secretaria de Comunicaciones y Transportes-SCT). The law establishes that in order for an ISP or cable TV operator to be able to offer voice services, it has to do so through a partnership with a fixed-line operator, mainly Telmex, Avantel, Alestra (AT&T), Axtel, or Maxcom.

The Mexican market for VOIP was US\$2.1 million in 2000 and is estimated to reach US\$26 million in 2004. Long-distance carriers Alestra, Avantel, Axtel, and Protel are conducting trials of VOIP. Along with legislation to block the development of specialized VOIP providers (requiring the above-mentioned fixed-line partnership), broadband access penetration is the main inhibitor to VOIP deployment to residential and individual users. Currently, VOIP serves predominantly corporate users seeking to reduce telecom service expenses.

In June 2005, COFETEL published a blacklist of illegal VOIP providers, which they classify as any VOIP provider operating without a long-distance concession license. The list includes around 40 companies, including: Protectolada; Todito; Esmas; Mercado Libre; and Vonage. Todito, a Mexican ISP, has protested its classification as an illegal VOIP provider.

Meanwhile, Mexican cable TV providers are complaining that they still do not have permission to provide VOIP services, despite having requested it over two years ago. Nortel's "Centre for Excellence" in Mexico City provides VOIP and multimedia solutions for operators through the Americas.

## **PANAMA**

VOIP is allowed, subject to 12 percent services tax. The telecom regulatory authority has issued a decree to regulate VOIP, but it is being challenged before the Supreme Court.

## **PERU**

### **INTERNET POLICY AND REGULATION**

ISPs do not need a license. They need only to register at the Ministry of Transport, Communications, Housing and Construction (MTC), since ISPs are classified as value added services. There are no foreign ownership limits that apply to ISPs.

According to the regulations, ISPs cannot transmit voice in real time. However, real time is not defined. The regulator is having an ongoing discussion about whether a provider is transmitting voice when voice is converted to digital signals in order to be transmitted. Voice can also be transmitted as long as the phone network is not used.

ISPs cannot establish and operate their own switches, including international gateways. Carriers need a concession, under which they can establish and operate their own switches, including international gateways.

ISPs do not have interconnection agreements. ISPs lease dedicated circuits. The maximum price the operator can charge to ISPs is regulated. Prices to the end user are not regulated.

### **VOIP REGULATIONS AND MARKET INFORMATION**

There is no a specific law covering only VOIP issues. The law that applies to VOIP is Supreme Decree # 013-93-TCC, article 3, 5, and 7.

IP telephony services are currently being offered by domestic ISPs on a very limited scale. The dominant telecom carriers are also offering VOIP services. In December 2004, Perusat – Peru's fourth largest long-distance operator – announced the launch of international IP telephony services for March 2005.

**URUGUAY:**                    **There are no known regulations regarding VOIP.**

# VENEZUELA

## INTERNET POLICY AND REGULATION

The Venezuelan government has no official policy governing user access to the Internet. Their prevailing telecom law is the 2000 Organic Telecommunications Law.

Internet service providers (ISPs) are required to have a value added license in order to offer services in the Venezuelan market. In order to obtain a license, the firm must have a contract with a private network. The company must then provide the required technical, legal and financial information stipulated in the registration packet. The technical information includes a description of the network as well as the specifications of the equipment to be utilized. The legal requirements include the location of the company's incorporation and who the capital investors are. The financial aspects cover balance sheets and other financial statements translated into local currency and registered with the local school of accountants.

There are no foreign ownership limits that apply to ISPs. ISPs can provide any service other than those that compete directly with basic telephony. ISPs and other carriers providing Internet access and services are allowed to establish and operate their own switches. There is a standard tariff governing ISP interconnection with the local telephone company, CANTV.

## VOIP REGULATIONS AND MARKET INFORMATION

VOIP is allowed, with a license and subject to quality of service standards.

# VoIP Regulation in the Americas

## Latin America

Categories	Argentina	Brazil	Chile	Colombia	Mexico	Panama	Peru	Venezuela
<b>Key Government Oversight Agencies</b>	Comision Nacional de Comunicaciones (CNC) Secretariat of Communications: Lic. Mario Guillermo Moreno Secretario de Comunicaciones	Agencia Nacional de Telecomunicaciones (ANATEL): Eunicio Oliveira, Minister of Communications	Subsecretaria de Telecomunicaciones (SUBTEL), Subsecretaria de Telecomunicaciones: Christian Nicolai Orellana	Comisión de Regulación de Telecomunicaciones: Dra. Martha Pinto de De Hart Ministra de Comunicaciones, Presidente; Gabriel Jurado, Director Ejecutivo CRT; Carlos Herrera, Experto Comisionado; Jaime Andrés Estrada, Experto Comisionado; Santiago Montenegro, Director DNP; Eva María Uribe Tobón, Superintendente de Servicios Públicos	Federal Telecommunications Commission (COFETEL): Jorge Arredondo Martinez, President; Pedro Cerisola Y Weber, Secretary of Communications and Transportation	Ente Regulador de los Servicios Publicos: José Galán Ponce, Director Presidente, Ing. Carlos Rodríguez Bethancourt, Director, Nilson Espino, Director	Ministerio de Transportes y Comunicaciones (MTC) Organismo Supervisor de Inversión Privada en Telecomunicaciones (OSIPTEL): Juan Pacheco Romani, Vice Minister of Communications; Guillermo Villanueva Pinto, Director General of Control and Supervision of Telecommunications	Comisión Nacional de Telecomunicaciones (CONATEL): Alvin Reinaldo Lezama Pereira, Director General
<b>Agency Links</b>	<a href="http://www.cnc.gov.ar">http://www.cnc.gov.ar</a> <a href="http://www.secom.gov.ar">http://www.secom.gov.ar</a>	<a href="http://www.anatel.gov.br">www.anatel.gov.br</a>	<a href="http://www.subtel.cl">Subsecretaria de Telecomunicaciones (SUBTEL)</a>	<a href="http://www.crt.gov.co">http://www.crt.gov.co</a>	<a href="http://www.cft.gob.mx">www.cft.gob.mx</a> <a href="http://portal.sct.gob.mx/SctPortal">http://portal.sct.gob.mx/SctPortal</a>	<a href="http://www.entelregulador.gob.pa">http://www.entelregulador.gob.pa</a>	<a href="http://www.mtc.gob.pe">http://www.mtc.gob.pe</a> <a href="http://www.osiptel.gob.pe">http://www.osiptel.gob.pe</a>	<a href="http://www.conatel.gov.ve">http://www.conatel.gov.ve</a>
<b>Incumbent Operator (PTT)</b>	Telecom Argentina, Telefonica Argentina	Empresa Brasileira de Telecomunicações	Empresa Nacional de Telecomunicaciones	Empresa Nacional de Telecomunicaciones (Coltel)	Teléfonos de México (Telmex)	Instituto Nacional de Telecomunicaciones	Telefónica del Peru	Compañía Anónima Nacional de Teléfonos de Venezuela (CANTV)
<b>Is There an Existing VoIP Law?</b>	Yes	Yes	No; there are proposed regulations but they have not been implemented.	No; but it is necessary to obtain a license for the service that VoIP is facilitating (local or long distance voice services).	Yes	No	No	Yes

<b>Categories</b>	<b>Argentina</b>	<b>Brazil</b>	<b>Chile</b>	<b>Colombia</b>	<b>Mexico</b>	<b>Panama</b>	<b>Peru</b>	<b>Venezuela</b>
<b>General Characteristics of VoIP Law</b>	Resolution 764/2000 of the Secretariat of Communications states that VOIP services are a free telecommunications service in competition in Argentina. VoIP services may be provided without restriction.	VoIP services are allowed. There are no specific regulations or legislation pertaining to VoIP in Brazil.	The regulations are not yet in place.	Licenses are issued by the Ministry of Communications according to the regulations currently in force, specifically Law 142 of 1994 and Resolution 087 of 1997; however, the licenses are prohibitively expensive and only the incumbent operators have them.	COFETEL considers VoIP providers to be voice telephony providers without distinction from traditional long distance or local service providers. VoIP providers have the same licensing requirements and contributions to universal service funds as any other voice (local or long distance) carrier.	There is no specific law. VOIP is allowed, subject to 12 percent services tax. The current decree is being challenged by the Supreme Court.	VoIP services are allowed with a license, but there is no specific law governing VoIP. VoIP providers have been licensed since 1996.	A license is required and services are subject to quality of service standards.
<b>Links to Regulations</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Categories	Argentina	Brazil	Chile	Colombia	Mexico	Panama	Peru	Venezuela
<b>Is VOIP Allowed?</b>	Yes	Yes	Yes	Yes, with a license	Yes, with a license.	Yes	Yes	Yes
<b>Who Can Provide VOIP?</b>	Most major telecom carriers are engaged in the range of telecom services, including VoIP; there are no restrictions.	There are no limitations on who can provide VoIP.	Only licensed operators.	Only licensed operators.	COFETEL classifies a VoIP provider as an illegal carrier if it is not properly licensed or not making contributions to universal service funds.	Only licensed operators.	Only licensed operators.	Only licensed operators that meet quality of service standards.
<b>Active VOIP Proceeding?</b>	No	No	In July 2004, Subtel published its proposed VOIP rules and invited industry comment. The comments were published in September 2004, but the regulations are not yet in place.	Yes; June 2004: Ministry of Communications published an IP consultation paper to gather opinion from a range of interested parties concerning how IP services should be regulated within the market; September 2004: the Ministry held a public meeting on the consultation.	Yes; Mexico is currently studying the benefits of further deregulation in the VoIP market.	The regulator has issued a decree to regulate VOIP, but it is being challenged before the Supreme Court.	OSIPTEL is reviewing regulatory options, but is unlikely to adopt any new regulations that would limit the abilities of operators to provide competition to Telefonica.	No

## North America

Categories	Canada	United States
<b>Key Government Oversight Agencies</b>	Canadian Radio Television and Telecommunications Commission (CRTC): Charles Dalfen, Chairperson; Andree Wylie, Vice Chair, Broadcasting; Richard French, Vice Chair, Telecommunications; Commissioners: Barbara Cram, Rita Cugini, Elizabeth Duncan, James Stuart Langford, Joan Pennefather, Ronald Williams	<a href="#">Federal Communications Commission: Commissioners: Kevin Martin, Chairman; Kathleen Abernathy; Michael Copps; Jonathan Adelstein; 1 vacant position</a>
<b>Agency Link</b>	<a href="http://www.crtc.gc.ca/eng/welcome.htm">www.crtc.gc.ca/eng/welcome.htm</a>	<a href="http://www.fcc.gov">www.fcc.gov</a>

Categories	Canada	United States
<b>Incumbent Operator (PTT)</b>	Bell Canada	Verizon, SBC, Bellsouth, Qwest
<b>Is There an Existing VoIP Law?</b>	Yes: emergency service requirements and general VoIP regulations.	Yes: emergency service requirements
<b>General Characteristics of VoIP Law</b>	<p>1) April 4, 2005: Emergency service obligations for local VoIP service providers: The Commission directs Canadian carriers, offering fixed (i.e., non-nomadic) local VoIP service, where the end-user is assigned an NPA-NXX native to any of the local exchanges within the region covered by the customer's serving Public Safety Answering Point (PSAP), to provide 9-1-1/E9-1-1 service, where it is available from the incumbent local exchange carrier (ILEC), within 90 days from April 4, 2005.</p>	<p>May 19, 2005: The Order places obligations on interconnected VoIP service providers that are similar to traditional telephone providers in that they enable customers to receive calls from and terminate calls to the public switched telephone network (PSTN) :</p> <ul style="list-style-type: none"> <li>• Interconnected VoIP providers must deliver all 911 calls to the customer's local emergency operator. This must be a standard, rather than optional, feature of the service.</li> </ul>
	<p>2) May 12, 2005: Regulatory framework for voice communication services using Internet Protocol: The Commission determines that local VoIP services should be regulated as local exchanges services and that the regulatory framework governing local competition, set out in Local Competition, Telecom Decision CRTC 97-8, 1 May 1997 (Decision 97-8) and subsequent determinations, applies to local VoIP service providers, except as otherwise provided in this Decision. and IP interconnection.</p>	<p>Interconnected VoIP providers must provide emergency operators with the call back number and location information of their customers (i.e., E911) where the emergency operator is capable of receiving it. Although the customer must provide the location information, the VoIP provider must provide the customer a means of updating this information, whether he or she is at home or away from home. • By the effective date, interconnected VoIP providers must inform their customers, both new and existing, of the E911 capabilities and limitations of their service. • The Commission ruling is being vigorously challenged in the Federal Courts.</p>

Categories	Canada	United States
Links to Regulations	<a href="http://www.crtc.gc.ca/archive/ENG/Decisions/2005/dt2005-21.htm">www.crtc.gc.ca/archive/ENG/Decisions/2005/dt2005-21.htm</a> <a href="http://www.crtc.gc.ca/archive/ENG/Decisions/2005/dt2005-28.htm">www.crtc.gc.ca/archive/ENG/Decisions/2005/dt2005-28.htm</a>	<a href="http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-258818A1.doc">http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-258818A1.doc</a> <a href="http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04-28A1.txt">http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04-28A1.txt</a>
Is VOIP Allowed?	Yes	Yes
Who Can Provide VOIP?	Any provider, subject to tariffs depending on the Category of Service (1-4); Canadian Carriers must file tariffs	Any provider, subject to the E911 requirements stated above; note possible future requirements forthcoming from ongoing proceeding (below).
Active VOIP Proceeding?	No	Yes: February 12, 2004; Notice of Proposed Rulemaking proceeding to examine opportunities that allow users greater choices created by voice services provided over the Internet, and to provide a measure of regulatory stability to the communications marketplace and to further promote the development of these Internet-based services.

***Please direct all questions and comments to:***

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