



Policy Statement

Voice over Internet Protocol (VoIP)

Prepared by the Commission on E-Business, IT and Telecoms

Introduction

The emerging range of Internet Protocol (IP) - enabled services, including Voice over Internet Protocol (VoIP), represent the most fundamental shift in telecommunications technology since Alexander Graham Bell got us talking 127 years ago. This shift to IP networks enables a revolutionary set of converged voice, data and video applications, bringing better features at lower prices for users, better applications for business, and benefits for the information society as a whole. Moreover, VoIP can help governments achieve their goal of economic and social development by expanding economic activity and bringing the benefits of ICT to their citizens. VoIP can also serve as a catalyst for broadband deployment.

While industry is rapidly migrating to IP based networks, the migration to an all IP environment will take many years to complete, with co-existence of circuit-switched and IP networks expected to continue during the transition. In order to better understand the revolutionary shift resulting from this migration; it is helpful to briefly explain the different technologies. A circuit-switched network reserves a dedicated circuit for the duration of each call and is based on intelligent centralized switches with dumb endpoints. IP networks on the other hand, have numerous available delivery routes, with any given transmission divided into digital packets that travel with their own addressing information through different paths across one or several non-proprietary IP networks, possibly including the Public Internet, being ultimately re-assembled and delivered to the recipient. It is a system of distributed intelligence with the intelligence in the core of the networks, smart end-points and smart applications riding over the network. IP networks offer the ability to deliver not only voice communications, but also the seamless convergence of data and video applications and devices. IP networks also offer the potential for unprecedented innovation and cost savings, as service upgrades often can be made by changes in software rather than hardware.

Business and consumer users are examining how to take advantage of the efficiencies and advanced communications capabilities of IP-based technology. There had been many reasons for resistance to VoIP adoption in the past, including its reliability and quality. But significant improvements are beginning to put IP voice quality on a par with traditional circuit-switched voice. Such improvements are the result of market-driven standards development and major investments by network operators, service providers, and equipment manufacturers.

ICC urges policy makers to focus on the advanced features and attributes of VoIP services, and the potential of these nascent services to revolutionize communications to the benefit of all end users.

In this statement, ICC sets forth its views on the appropriate policy framework for VoIP and identifies policy issues that will require further consideration by business and governments.

Competitive development of VoIP

A number of service providers around the world have begun offering VoIP services providing both voice telephone functionality and advanced data functions that are far more sophisticated and flexible than the current technological capabilities of traditional circuit switched voice telephony. These features currently include advanced call forwarding features that allow sequential or simultaneous forwarding to multiple alternative numbers; “do not disturb” functions that allow the user to dynamically set times to direct incoming calls while also permitting an override for urgent incoming calls; voice mail that can be accessed, saved or forwarded by computer as an electronic file; and advanced call management features such as personalized call logs, phone books, and click to dial functions. The number of features that a VoIP service provider can offer is expanding rapidly, with VoIP evolving as a full-blown application, limited only by the talents of application developers. Unlike circuit switched voice telephony, VoIP offers the potential for the full integration of voice, data, and video and advanced computer applications.

Previously, VoIP could correctly be characterized as “lower quality voice” service. That characterization is changing with current-generation VoIP, such as that delivered over broadband access using a variety of technologies. When “voice” becomes one of many IP data applications available to the end-user, the voice/data distinction becomes less meaningful.

Moreover, with the migration to IP, the end user has the ability to use the communications content with a variety of devices that were unthinkable in a circuit switched environment.

Beyond traditional phone service, VoIP promises voice convergence with other data applications and devices, for the benefit of consumers and enterprises of all sizes, such as:

- | | |
|---|----------------------------------|
| ■ Presence (like Instant Messenger) | ■ IP Centrex |
| ■ One Number/ “Follow Me” services | ■ Multi-Point Video Conferencing |
| ■ IP call centres | ■ Desktop Multimedia |
| ■ Universal messaging | ■ Push to talk cellular |
| ■ Virtual Meetings/Collaboration
(like NetMeeting) | ■ Voice chat |
| ■ Real time language translation | ■ WiFi PDA mobile phone |

With the appropriate policy framework, VoIP could promote both services and service provider competition, with the resulting benefits of greatly enhanced functionality, increased efficiency, lower costs and greater choice.

Appropriate Regulatory Framework for VoIP

Policy makers will maximize the competitive and user benefits of VoIP by creating a policy framework that encourages the continued development of an IP-enabled service environment. Regulatory agencies should adopt a ‘light touch’ approach that focuses on encouraging competition, and maximizes flexibility for the introduction of VoIP services, while respecting the need to ensure consumer protection.

An essential first step is for all governments to ensure that VoIP services are open to provision by all interested service providers, and that where licensing conditions exist, they are objective and non-discriminatory, and the criteria for granting authorizations are transparent.

VoIP offers real differences in services, which will result in consumer benefits as well as some consumer challenges. For both the benefits and also the challenges, these differences merit a flexible regulatory approach that is not tied reflexively to the regulation of traditional circuit switched voice services. In particular, VoIP providers should be free to develop innovative approaches to meeting regulatory requirements where they choose to offer public voice services.

VoIP technology and services will bridge traditional classifications, and create more powerful forms of communication in the process. This development and innovation will occur over time, not overnight, and the policy approach needs to be as flexible as these new services, taking into account essential social and safety regulatory needs that industry and government can cooperatively address.

Appendix 1 provides a diagram that highlights the distinct service and delivery features of VoIP compared with circuit-switched voice. This illustrates the nature of VoIP’s advanced service attributes. Given the unprecedented ability of IP-enabled communications services to bring different services to end users, which the traditional circuit-switched telephony could not, policy makers should recognize that the services are not the same.

Technological Neutrality

Under the technological neutrality principle¹, a policy maker may compare VoIP services providing access to or from the local Public Switched Telephone Network (PSTN) and using geographic numbers that conform to the national numbering plan with having the same functional characteristics as traditional PSTN voice service. In turn, the policy maker may suggest that due to “technological neutrality” principles, it should make these VoIP services subject to all the conditions originally designed for traditional PSTN voice service.

¹ same service is to be regulated under same conditions

This application of the technology neutrality principle may be appropriate if the service offers only the same service attributes as a traditional PSTN voice service, but would be inappropriate if applied to a service that offers new and different additional service attributes.

VoIP services, particularly contemporary forms of VoIP services provided over broadband connections, offer far more than the service attributes of traditional voice services. These include: nomadic capabilities, access independent characteristics, capability to interact with stored data, and other integrated computer application features as mentioned earlier. The principle of “technological neutrality” should not by default mean that due to certain common “voice” features among traditional circuit switched voice and VoIP services, that the same regulations should apply. They may apply where only the same service attributes as a traditional PSTN voice service is being provided.

Economic Regulation

The goal of any regulatory scheme must be the promotion of competition throughout the communications sector so as to support the deployment and take-up of new and evolving services and applications such as VoIP. In this regard, ICC urges governments to liberalize their communications markets and to comply with the provisions of the WTO GATS Telecommunications Annex.

In addition, ICC encourages governments to rely on the application of general competition law wherever possible and only to apply ex ante regulation where necessary to address the lack of a truly competitive marketplace. In particular, in the context of basic telecommunications and in the absence of effective competition, ex ante regulation may be necessary to address bottlenecks and the ability of a major supplier of essential facilities to inhibit competition. Such regulation should be consistent with the WTO Reference Paper. ICC supports migration away from the application of ex ante regulation to general competition law once a truly competitive marketplace for basic telecoms exists.

ICC has long advocated for limiting regulation of emerging technologies and services. In particular in its Policy Statement on Broadband Infrastructure, ICC stated that allowing emerging technologies and services offered in a competitive marketplace to flourish through innovation requires regulatory restraint and should be subject to general competition law to address specific market failures, not ex ante regulation. This long-held position has direct application to emerging VoIP. Given that applications such as VoIP are generally provided in a competitive environment, the preconditions for ex ante regulation at the VoIP application layer typically will be absent.

Public Interest Considerations

An important element of the policy debate surrounding VoIP applies to public interest considerations and the impact of this emerging technology on them. The technological realities of IP-based networks and the specific attributes of VoIP must be considered fully when addressing issues of public interest. In certain circumstances the characteristics of IP-based networks and VoIP can enhance capabilities to address certain public interest considerations, while in other circumstances they may create challenges.

For instance, challenges in areas such as providing location information for emergency services, disability access or line power assurance require cooperative efforts between service providers and both government agencies and end users to design technological solutions. It is expected that the long-term VoIP solutions will improve from what is possible in today's circuit-switched environment, particularly in areas such as IP-enabled emergency services. However these efforts will take time and will best develop by cooperation and not by mandate. A 'phasing-in' period should be considered which allows operators to develop solutions for these issues within a reasonable time-frame defined through industry and government cooperation. In the meantime, consumers should be clearly informed about the limited capabilities of VoIP emergency call functions.

With regards to law enforcement, VoIP presents new challenges to both business and governments in providing appropriate and legal assistance. Business is committed to co-operating with law enforcement to combat crime and terrorism in a manner consistent with legal requirements, but is seeking to ensure that such legal requirements do not conflict with existing obligations to protect the privacy of customers or unduly harm a competitive and dynamic market. Active and receptive consultation with industry to determine appropriate levels and protocols for assistance to law enforcement is essential. Governments need to understand fully the cost, technological impact and proportionality of requirements before they decide to impose them. Measures taken should be justified, limited, proportionate and necessary for the purposes of investigating and prosecuting terrorism and other crime only.

Numbering issues

ICC believes that both geographic and non-geographic numbers may be appropriate for VoIP services, and the availability of geographic numbers in particular should not be limited to certain categories of VoIP providers. At the same time, it may be necessary to ensure that the geographic information contained in the geographic number is maintained also for VoIP services for the purposes of ensuring transparency for the end-user. For end users who are more comfortable with a recognizable number range, a geographic number may be desirable, and the restrictions by regulators under these circumstances should not raise excessive barriers to entry.

Moreover, the right to numbering resources need not depend on the acceptance of the full set of rights and obligations attributable to traditional voice services, except in cases where the VoIP service substitutes for a traditional voice service. It is appropriate that certain regulatory obligations would associate with numbering rights. Policy makers could address the number portability issue by applying specific conditions to VoIP providers for rights of use of number portability. Under these conditions, number portability obligation is one example of a flexible compromise that could be imposed with a view to promote competition and encourage the development of VoIP services.

Conclusion

ICC believes that VoIP has the potential to bring unprecedented communications benefits to business users and consumers in both developed and developing countries by increasing competition and expanding ICT offerings. To ensure that VoIP can reach its full potential and is not stifled by unnecessary or poorly tailored regulation, ICC recommends that governments:

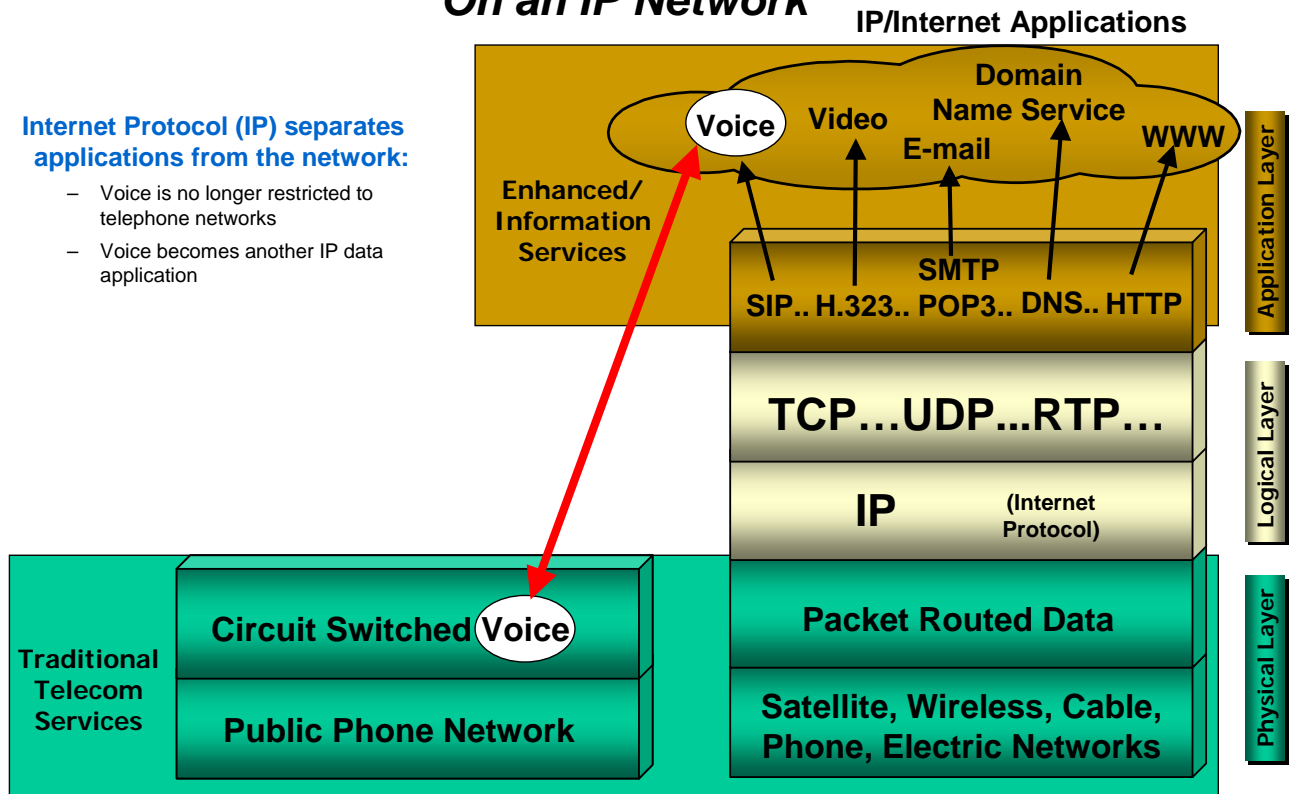
- recognize the distinct potential of VoIP technology and allow all interested service providers to provide IP-enabled services;
- adopt a light handed approach with reliance on general competition law wherever possible and limited application of ex ante regulation as set forth above; and
- work with industry to ensure that adequate attention to the specific attributes of VoIP is given when addressing public interest considerations including numbering, emergency services, universal service and cooperation with law enforcement.

Appendix 1

Voice Becomes Another Data Application On an IP Network

Internet Protocol (IP) separates applications from the network:

- Voice is no longer restricted to telephone networks
- Voice becomes another IP data application



Document N° 373-21/115

2 December 2004 MvdL/MF/dfc