



Electronic Communications Committee (ECC)
within the European Conference of Postal and Telecommunications Administrations (CEPT)

**APPLICATION OF THE NEW EU REGULATORY
FRAMEWORK TO IP TELEPHONY**

Paris, March 2002

EXECUTIVE SUMMARY

Assessment of Internet Telephony under Existing Directives

The Communication from the Commission (December 2000) relating to the status of voice on the internet under Community law still forms a good basis for assessing the regulatory position of “voice communication over the internet” in the context of the existing directives (see section 2.1 – 2.2). The new regulatory directives that will come into force in 2003 introduce a new framework for electronic communication services and networks and future assessment should be based on the new definitions set out in these directives.

Service obligations under the new directives

Obligations on Providers of PATS

The new Universal service directive retains specific obligations on Publicly Available Telephone Services (PATS) and these obligations will apply to PATS providers delivering voice communications services over IP technology networks.

Undertakings which provide a service that fall under the definition of “PATS delivered over electronic communication networks, such as, for instance, IP based technology or the Internet,” given in the Universal Service Directive would be required to fulfil the regulatory obligations set out in the Universal service Directive Chapter IV (see section 3.9).

Obligations on other providers deploying voice communication services

Providers of voice communications services (delivered over IP technology networks or Internet) that employ other name identifiers, such as Internet names, rather than telephone numbers, but who are in other respects similar to providers of PATS would therefore not fulfil the requirements of the PATS definition set out in the directive and thus would not be subject to PATS regulations. They would however be subject to some minimal obligations specified in the directives (see section 3.10).

Technology and service definitions

The definitions for electronic communication services as well as PATS as defined in the new framework directives are expressed in relatively technology neutral language and keep therefore commonly used technology dependent terms such as – VOIP, IP telephony, Internet telephony, voice over Internet, etc. do not have any specific regulatory relevance in the context of the new RRFD. Hence these commonly used technology dependent definitions are not particularly useful or relevant in assessing whether or not Providers of electronic communication services and PATS fall under the new regulatory framework (see section 2.4).

Interconnection and access

Any undertaking providing publicly available electronic communication services over electronic communication networks delivered over any technology, such as for instance IP or the Internet, will be subject to the conditions set out in the new Access and Interconnection Directive which requires such undertakings to negotiate interconnection and access (see section 3.11). Therefore the new directives extend the scope of the requirements for interconnection and access to all electronic communications networks, including the IP-based networks.

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APPLICATION OF REGULATORY REVIEW FRAMEWORK TO IP TELEPHONY

1 INTRODUCTION

This report is a follow up to the ECTRA report on IP telephony (July 2001) that provided an overview on a wide range of the related issues.

The purpose of this report is:

- To summarise how service providers can be assessed in the current regulatory framework (based on the definitions of the Services Directive¹ and the amended Voice Telephony Directive).
- To assist NRAs in CEPT countries to assess the future position of IP telephony in the context of the new regulatory review framework directives.

In particular the report addresses how the specific aspects of the Universal Service Directive arising from the 1999 communications review² may apply to those undertakings, which are currently being described as IP telephony providers, VOIP providers, Internet voice providers, etc.

It touches on relevant implications stemming from the Access and Interconnection Directive (AID), as well as the Data protection Directive.³

It also reviews some of the commonly used technology specific terms in the context of the new RRFD in which the approach is towards technology neutrality.

2 EXISTING FRAMEWORK

2.1 Background to discussion

The July 2001 ECTRA report on IP telephony gives a brief summary of the European Commission position regarding how Internet Telephony should be considered for regulatory purposes in the context of the conditions established in the existing Service directive. The Commission's approach focuses on the provision of services as opposed to applications run by users. A key question has been whether a voice communications service provided over the Internet should be subject to the same regulations that apply to public telephony, provided hitherto over circuit switched networks.

The main issue dealt with by the Commission has been whether the Internet voice communications service is a substitute for traditional public telephony. It should be noted that whilst the Commission properly focuses on services, there will be many voice communications applications that run over the Internet from user to user without any specific service provision or by service providers or facilitators on the "user side" of a network termination point, and that these applications are outside the scope of the present discussion.

The Commission's December 2000 Notice⁴ has addressed this particular issue of substitution and has identified relevant criteria that can be applied when making assessments of substitution.

¹ Commission Directive 90/388/EEC of 28 June 1990 on competition in the markets for telecommunications services, as amended.

² Proposal for a Directive of the European Parliament and of the Council on universal service and users' rights relating to electronic communications networks and services. Reference to the Universal Service Directive is to the text of the political agreement reached at the 27-28 June 2001 Transport and Telecommunications Council.

³ The Universal Service Directive, together with the Framework, Access and Authorisation Directives, is due to be adopted in February / March 2002 for implementation in 2003. The Communications Data Protection Directive, another of the measures that arose from the package, is expected to be agreed later in 2002 for implementation in 2003.

⁴ Communication from the Commission - Status of voice on the Internet under Community law, and in particular, under Directive 90/388/EEC - Supplement to the Communication by the Commission to the European Parliament and the Council on the status and implementation of Directive 90/388/EEC on competition in the markets for telecommunications services.

2.2 Current EC position towards the Internet telephony

Before discussing how Internet telephony may be considered in the context of the new regulatory framework it would first be helpful to briefly identify the position taken by the European Commission on how Internet telephony should be considered in the context of the current regulatory framework, in particular the Service Directive.

The key points stated in the Commission December 2000 communication on status of voice on the Internet are:

- Confirming that the definition of voice telephony in the existing Service Directive still provides a good basis for assessing the regulatory position of “Voice communication services over the Internet”;
- Reiterating the four key conditions that underpin the definition of voice telephony pursuant to the Service Directive, namely that (1) voice telephony is a commercial offering, (2) it is offered to the public, (3) it is provided to and from public switched network termination points and (4) it involves real time speech of a quality and reliability level similar to PSTN;
- Making a distinction between VoIP (Voice over the Internet Protocol) and Voice over the Internet (equals Internet telephony) such that “VoIP” is considered to cover all kinds of conveyance of voice in which IP is used as the routing and transmission technology and ‘voice over the Internet’ is considered as a subset of VoIP in which voice “services” only are provided over public Internet;
- Taking a view that quality of “Voice over Internet” service is currently unlikely to meet the requirement of transport and switching of speech in real time because of congestion and the difficulty of managing the public Internet, but recognising potential for technology improvements and recognising real time condition would be satisfied if service provider guarantees PSTN like quality;
- Stating that when voice communication is only a (ancillary?) part of an integrated (bundled) Internet services it is not considered as a commercial offering in the context of the Service Directive and therefore would not fulfil one of the key conditions of the directive. If however the voice element is marketed separately or billed separately this is then considered to be a commercial offering;
- Concluding that “Voice over the Internet” still continues to fall outside the definition of voice telephony given in the current Service Directive, except where it meets each of the conditions set out in the definition (see above). Where it does not meet all conditions it would be considered as data and therefore not require a voice provision authorisation;
- Qualifying the above by further reiterating that where it meets the four conditions and hence appearing as a substitute for traditional voice telephony services it would be subject to existing regulatory rules and would accord with the principle of technological neutrality.

Hence the above criterion as per the Commission Communication December 2000 can still be used as a guideline to assessing how Internet telephony should be considered for regulatory purposes in the context of the existing regulations (Service Directive).

2.3 Terminology meaning

ECC PT 2 (TRIS) did not attempt to precisely define the commonly used terms (e.g. IP telephony etc) in the above referenced ECTRA report and instead illustrated the different scenarios through a diagram, reinserted as Figure 1. In this case both VOIP and IP telephony terms are shown diagrammatically as covering voice services delivered over IP networks, which can comprise public Internet or managed IP networks. These services may be public telephony services or may be offered to closed user groups.

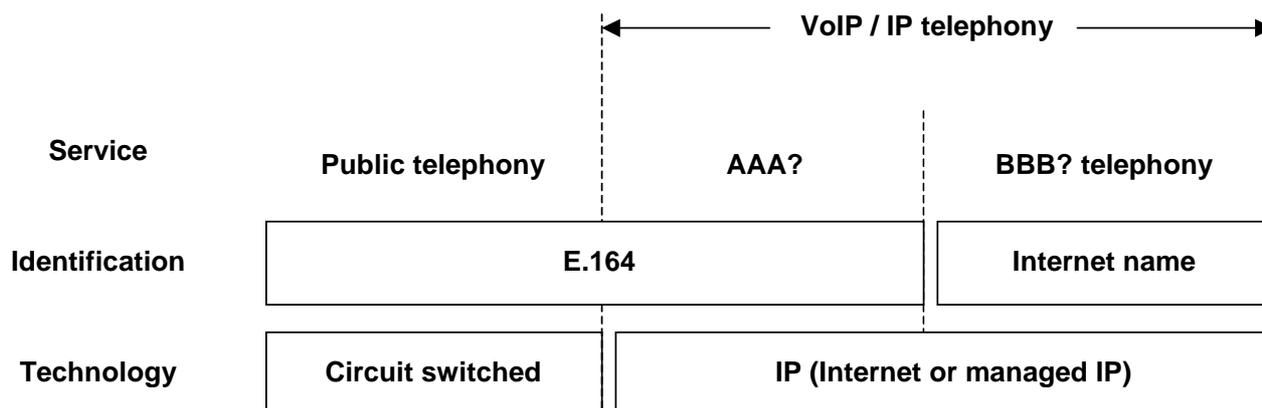


Figure 1 : Illustration to service definition

Note 1: Replace BBB? Telephony with "voice communications", note this is a change to the diagram that appeared in the original TRIS report.

Note 2: Note that AAA is the area under discussion in this document.

It is important to note that IP technology networks in the context of Figure 1 are considered to include both managed IP networks and public Internet, but it should be recognised that the distinction between them is blurred. In this regard a managed IP network can typically be an IP technology network that a traditional telecommunication operator has introduced as part (or all) of its public network. In this case the operator would have the means to control and manage quality and interconnect conditions of its IP network. The public Internet on the other hand is also an IP network and might be considered to have PSTN voice quality capabilities in those cases where service providers have the means to be able to implement some degree of management (congestion) control.

The expressions "Internet telephony" or "Voice over the Internet" referenced in the Commission notice have not been shown on the diagram of in Figure 1. However the term "voice over Internet service" used by the Commission can be regarded as a specific instance of voice "services" provided over public Internet and would appear alongside VOIP and IP telephony. If the four conditions of the service directive are met then "voice over Internet service" would occupy the AAA slot of Figure 1 and in this instance would be considered as a public voice telephony service.

The diagram in Figure 1 shows two modes of service identification – one using E.164 phone numbers and the other using Internet names (e.g. user@domain). The former is well established and operates world-wide with billions of phone numbers in use. The latter is likely to emerge in the next couple of years as new IP terminals (e.g. SIP terminals) begin to enter the market.

2.4 New approach to definitions

Definitions are used to be formulated for a specific purpose in a given context. Hence the expressions – IP telephony, VOIP, Voice over Internet, Internet telephony are all technology specific terms and have been introduced over a number of years by the Internet and IP technology players.

In contrast, the definitions included in the new regulatory framework directives (see appendix 1) are less technology specific, that is they apply to electronic communication services rather than to voice telephony per se (as per existing directives see Appendix 2) and these services are delivered over electronic communication networks (using different technologies). Hence the focus of the new directives is on services and not on how they are provided.

The definitions use language that is relatively independent of the underlying network technology and hence the above terms – VOIP, IP telephony, Internet telephony, voice over Internet etc are not particularly useful or relevant in determining how future providers of electronic communication services (in the context of the new regulatory framework) and in particular publicly available telephone services should be assessed (see section 3 below).

Although there may be merit in clearly describing these technology specific terms to aid some of the ongoing work in technical standardisation bodies (e.g. ITU and ETSI), from a regulatory perspective it is the service as seen by the customer that matters and in particular it is the category of “publicly available telephone services” that is subject to a number of regulatory provisions in the new RFD.

3 NEW EU REGULATORY FRAMEWORK DIRECTIVES (RFD)

3.1 A new regulatory framework

The new RFD have been designed as an intermediate phase between the current framework and an anticipated future situation where the telecommunications market will be sufficiently mature to allow it to be governed solely by general competition law.

The new RFD comprise the Framework Directive itself, the Authorisation Directive, the Universal service Directive, the AID and the Data protection Directive. In the context of this report which deals with the application of the RFD to IP telephony it is the Universal service Directive that is of particular relevance since it deals with obligations on providers of publicly available telephone services (PATS).

Although there are issues of relevance in the AID and the Data protection Directive and which are summarised later, it is really the Universal service Directive that has most relevance in the context of understanding which obligations may be applicable to providers of PATS delivered over public telephone networks and public electronic communication networks.

3.2 The Universal Service Directive

The Universal Service Directive deals with rights of end-users and the corresponding obligations on undertakings providing publicly available electronic communications networks and services. It obliges Member States to ensure that all reasonable requests for connection at a fixed location to the public telephone network and for access to publicly available telephone services at a fixed location are met by at least one undertaking. In addition it deals with regulatory controls on undertakings with significant market power in specific markets.

The Directive stipulates that the connection provided shall be capable of allowing end-users to make and receive local, national and international telephone calls, facsimile communications and data communications, at data rates that are sufficient to permit functional Internet access, taking into account prevailing technologies used by the majority of subscribers and technological feasibility.

3.3 Definition of services

The Universal service Directive sets out the principles for provision of a PATS the definition of which is repeated in Appendix 1 of this report. Further key definitions from the RFD are also included in Appendix 1. It should be noted that the definition, are technology neutral in that they do not link the PATS to the type of network technology that is used to support service delivery.

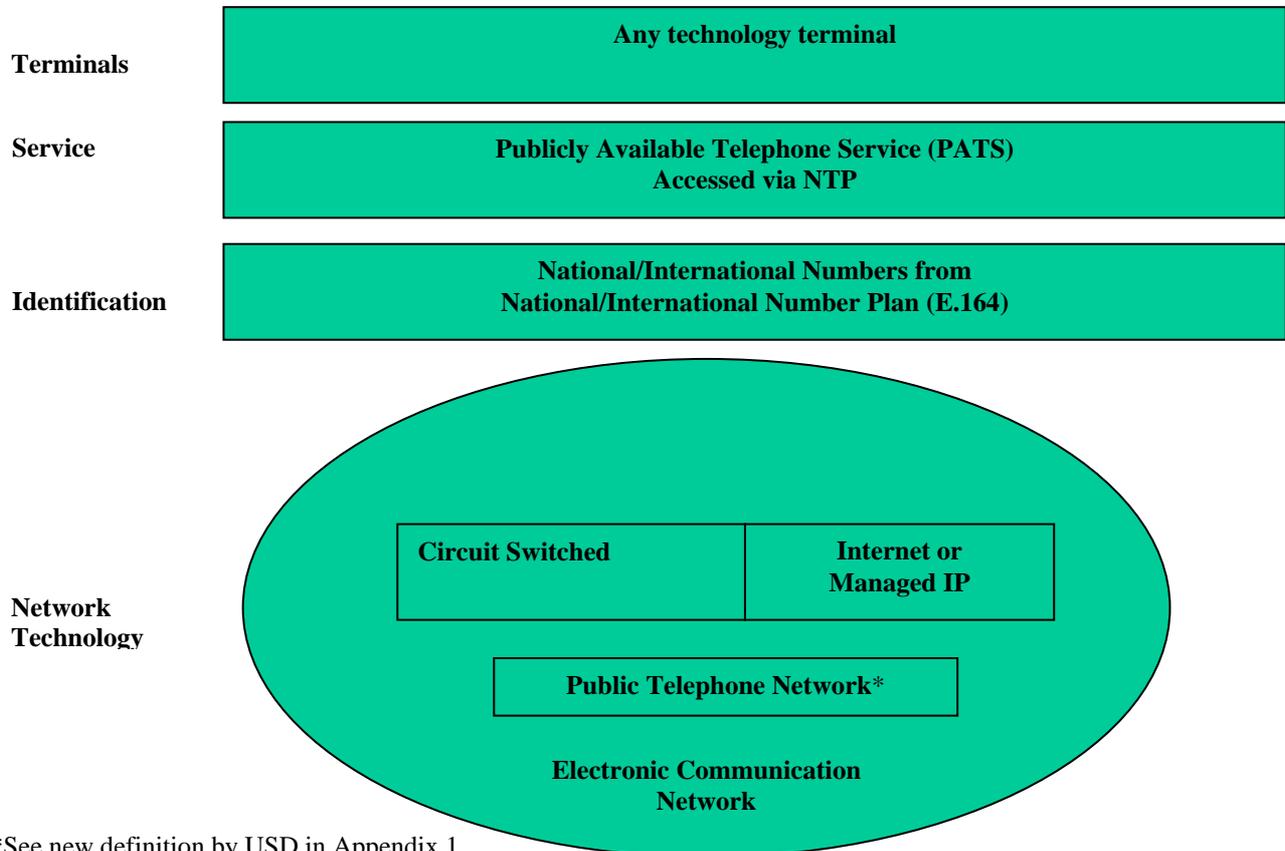
3.4 Universal Service Directive (USD) and providers of IP telephony

The previously mentioned ECTRA report on IP telephony identifies four categories of market players as potential providers of voice telephony delivered over the Internet or managed IP platform (see section 3 of the report). All these potential providers can deliver the voice service over some form of IP network using phone numbers as the principle means of identifying parties and of originating and receiving calls. The secondary issue of using only Internet names as the principle method of identifying parties in a service is discussed later.

Thus if an undertaking offers publicly available voice services that enable the public to make and receive national/international calls (including emergency access) by means of telephone numbers assigned from a national/international number plan, then they would be considered to be providing a service that falls under the definition

of PATS given in the Universal Service Directive (USD). Member States would then be required to ensure that such providers fulfil the obligations of the Directive. This applies irrespective of the technology used (e.g. IP).

Figure 2 below illustrates the case of PATS. The boxes marked “Services and Identification” are the key elements of the definition of a PATS in the new USD. The service and identification elements are independent of technology that is deployed within the electronic communication network.



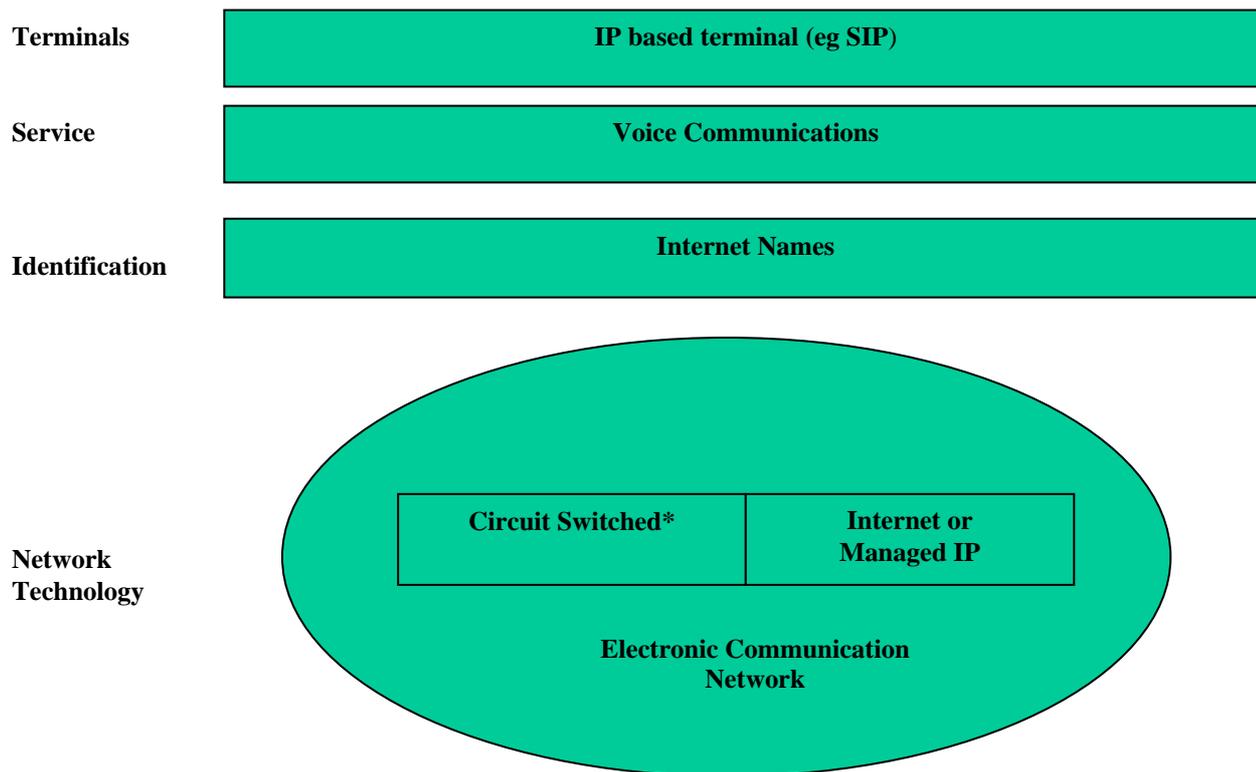
*See new definition by USD in Appendix 1

Figure 2 : Publicly Available Telephone Services

3.5 The case of voice services not using phone numbers

This issue was addressed in the previously referenced ECTRA report on IP telephony occurring when users may be able to make and receive national/international calls using Internet names (e.g. [user@host](#)) as the principle means of call identification and delivery.

In this case the numbers from a national/international telephone plan are not used as part of the service and therefore this particular type of service would not be deemed to be a PATS in the context of the USD. Figure 3 below illustrates this case.



*Theoretical assumption as circuit switched networks do not normally support Internet names at present

Figure 3 : Voice Telephony using Internet Names

3.6 Speech quality

The new RFD as such do not include definitions of speech quality but the USD does permit NRAs to require undertakings that provide publicly available electronic communications services to publish comparable, adequate and up-to-date information for end-users on the quality of their services. Where appropriate, the parameters, definitions and measurement methods given in Annex III of the USD could be used.

Given that speech quality is not included in the definition of PATS and neither it is one of the parameters identified in Annex III of the USD, it is clearly not one of the determinants in assessing whether a particular voice telephony service is deemed to be a PATS service as set out in the new framework.

This suggests that service providers offering a PATS service as per the new RFD could offer a range of quality services but this would need to be taken into account by those operators offering interconnection services to others.

3.7 Obligations under the Universal Service Directive (USD)

There are obligations under the USD that will apply to those undertakings designated to guarantee the provision of universal service as well as to undertakings that are not designated as universal service providers, but nevertheless provide PATS. The USD sets out these specific obligations and also applies some general (minimum) obligations to all undertakings that provide electronic communications services (e.g. see USD chapter 4).

Given that there could be considerable number of undertakings that will provide PATS using IP technology networks, such as managed IP or Internet, then it will be these undertakings rather than the service providers designated as the “universal service” undertakings that are likely to be affected by obligations in providing PATS.

3.8 Undertaking that are subject to USD obligations

Article 8 of the USD permits Member States to designate one or more undertakings to guarantee the provision of universal service, which includes:

- provision of access at a fixed location,
- directory enquiry services and directories,
- public pay telephones;
- special measures for disabled users and consumers identified as having low incomes or special social needs.

In addition, such undertakings are subject to requirements in relation to affordability of tariffs, control of expenditure, quality of service and costing and financing of universal service obligations.

The Directive also requires Member States to maintain all obligations relating to retail tariffs, leased lines and carrier selection or pre-selection until a market analysis has been carried out and a determination made in accordance with the procedure set out in Article 16 of the Framework Directive⁵.

3.9 Providers of PATS

The USD requires Member States to ensure that end-users have specific rights and interests in relation to:

- Contracts for services (USD Art 20): applies to providers of PATS and ECS (Electronic Communication Services);
- Transparency and publication of information (USD Art 21): applies to providers of PATS;
- Quality of service (USD Art 22): applies to providers of PAECS and PATS;
- Network integrity (USD 23): applies to providers of PATS;
- Operator assistance and directory enquiry services (USD art 25): applies to providers of PATS;
- The single European emergency call number 112 (USD art 26): applies to providers of PATS;
- European telephone access Code (USD art 27): applies to providers of PATS;
- Non-geographic numbers (Art 28);
- Provision of additional facilities (USD art 29): applies to providers of PATS;
- Number Portability (USD Art 30): applies to providers of PATS.

Hence those undertakings that provide PATS will be subject to the USD obligations, as shown in the above list in respect of ensuring end-user rights irrespective of the type of network technology they employ to provide the services. Hence all undertakings using Internet or IP technology networks providing publicly available telephone services as defined in the Directive will be subject to the above referenced USD regulatory requirements.

⁵ Proposal for a Directive of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services. Reference to the Framework Directive is to the text of the political agreement reached at the 4-5 April 2001 Transport and Telecommunications Council

3.10 Providers of voice communication services that fall outside the definition of PATS

Providers of ECS offering voice communication services, which fall outside the scope of PATS, such as, for instance, those providers using Internet names as per illustration in Figure 3, would not be subject to the obligations outlined in section 3.9 above with the exception of the obligation specified for Contracts (USD Art 20).

3.11 Interconnection and Access obligations stemming from the Access and Interconnection Directive (AID)

In an open and competitive market there should be no restrictions that prevent undertakings from negotiating access and interconnection arrangements between themselves and in particular on cross-border arrangements subject to competition rules EU Treaty.

The new AID requires that operators of public communication networks shall have the right and, when requested by other operators of public communication networks, an obligation to negotiate interconnection and access with each other for the purpose of providing publicly available electronic communication services.

The AID enables NRAs to have the power to secure agreement, where commercial negotiations fail to provide adequate access and interconnection and interoperability of services in the interest of end users.

The obligations to interconnect are applicable to operators of electronic communication networks and the AID sets out these obligations in terms of SMP operators, undertakings controlling access to end-users and non SMP undertakings.

SMP operators are subject to obligations of transparency, non-discrimination, accounting separation, access to special network facilities and price control/cost accounting.

An undertaking providing publicly available electronic communication over public electronic communication networks that may be based on IP or internet technology would therefore be subject to the conditions set out in the new AID which requires such undertakings to negotiate interconnect and access.

3.12 The Data protection Directive

The new communications Data protection Directive follows the principle of technology neutrality - it will apply to providers of Internet voice services, except where the provisions are aimed at particular forms of network or service (e.g. the provisions on calling line identification where operators who provide this facility must make certain suppression and barring options available to their subscribers).

The draft Directive includes requirements on network security, controls on the retention of traffic and location data by operators, and requirements to offer non-itemised bills if requested.

4 CONCLUSIONS

Until the new Regulatory Framework Directives (RFD) come into force (2003) the definition for voice telephony in the existing regulatory framework should be used to assess whether providers of "Internet voice services" will be subject to national voice telephony regulation or whether the service should be considered as data and hence not subject to voice regulation. The Commission notice provides guidance on this assessment.

The RFD that will come into force in 2003 introduces a framework of electronic communication services and networks but still retains specific obligations on PATS providers.

The new definition for PATS does not use criterion relating to a specific network technology. Therefore the technology specific terms that are commonly used by industry (e.g. VOIP, Internet telephony, IP telephony, etc.) will need to be viewed from the perspective of the service that is being delivered and whether or not the service fits the conditions of the

definition. Hence these technology specific terms are not relevant in the context of assessing compliance with the new RFD.

Given the pace of technology it is likely that many providers of services using IP based networks or public Internet will offer services that fulfil the conditions of publicly available telephone services and as such will be subject to national requirements based on the new regulatory framework. The regulatory obligations on providers of publicly available telephone services are summarised in section 3.9 and set out in the Universal Service Directive.

Those providers of IP based voice telephony services that do not comply with the above criterion (e.g. do not use telephone numbers to identify and reach other users) will not fulfil the PATS definitional requirements of the Directive and therefore there are no obligations on Member States to apply PATS regulation to such providers.

It is recognised that this particular market of voice communication services using, for instance, Internet names is far from being mature and it may therefore take some considerable time before a sizeable market is reached. Also there may be other developments such as ENUM that will integrate phone number services with Internet domain name services. Note that ENUM still uses phone numbers to identify users and therefore voice communication services using ENUM may fulfil the condition of PATS.

Appendix 1

Definitions used in the new EU Regulatory Framework Directives:

The following text is taken from the latest available drafts of the Framework and Universal Service Directives – at the time of writing (February 2002) these were undergoing final linguistic checks prior to adoption. The final text may therefore be subject to small editorial change (not substance) and readers are asked to refer to the final agreed text when it becomes available later.

DEFINITIONS FROM THE NEW FRAMEWORK DIRECTIVE:

Electronic Communication Network

"Electronic communications network" means transmission systems and, where applicable, switching or routing equipment and other resources which permit the conveyance of signals by wire, by radio, by optical or by other electromagnetic means, including satellite networks, electricity cable systems, to the extent that they are used for the purpose of transmitting signals, fixed (circuit- and packet-switched, including Internet) and mobile terrestrial networks, networks used for radio and television broadcasting, and cable TV networks, irrespective of the type of information conveyed.

Electronic Communication Service

"Electronic communications service" means a service normally provided for remuneration which consists wholly or mainly in the conveyance of signals on electronic communications networks, including telecommunications services and transmission services in networks used for broadcasting, but exclude services providing, or exercising editorial control over, content transmitted using electronic communications networks and services; it does not include Information Society services, as defined in Article 1 of Directive 98/34/EC, which do not consist wholly or mainly in the conveyance of signals on electronic communications networks.

Public Communication Network

"Public communications network" means an electronic communications network used wholly or mainly for the provision of publicly available electronic communications services.

DEFINITIONS FROM THE NEW UNIVERSAL SERVICE DIRECTIVE:

Publicly Available Telephone Service

"Publicly available telephone service" means a service available to the public for originating and receiving national and international calls and access to emergency services through a number or numbers in a national or international telephone numbering plan, and in addition may, where relevant, include one or more of the following services: the provision of operator assistance, directory services, provision of public pay phones, provision of service under special terms, provision of special facilities for customers with disabilities or with special social needs and/or the provision of non-geographic services.

Public Telephone Network

"Public telephone network" means an electronic communications network which is used to provide publicly available telephone services; it supports the transfer between network termination points of speech communications, and also other forms of communication, such as facsimile and data.

Network Termination Point

"Network termination point" (NTP) means the physical point at which a subscriber is provided with access to a public communications network; in the case of networks involving switching or routing, the NTP is identified by means of a specific network address, which may be linked to a subscriber number or name.

Appendix 2

Definitions in the Existing Directives:

Voice Telephony Definition from Service Directive (90/388/EEC)

“Voice telephony” means the commercial provision for the public of the direct transport and switching of speech in real-time between public switched network termination points, enabling any user to use equipment connected to such a network termination point in order to communicate with another termination point.

Voice Telephony Definition from Voice Telephony Directive (98/10/EC)

“Voice telephony” means a service available to the public for the commercial provision of direct transport of real time speech via the public switched network or networks such that any user can use equipment connected to a network termination point at a fixed location to communicate with another user of equipment connected to another termination point.