



Regulation of VoIP Services

Statement and further consultation

Consultation

Publication date: 22 February 2006

Closing Date for Responses: 10 May 2006

Contents

Section		Page
1	Summary	1
2	Introduction and background	5
3	Regulatory approach to VoIP services	14
4	Application of the General Conditions	23
5	Number portability issues	32
6	Consumer Protection – consultation on draft code	42
7	Consumer Protection – Legal framework for implementation of the code (Consultation on the Notification of modifications to General Condition 14)	56
8	Enforcement, monitoring and review	66
9	Other Issues	71
Annex		Page
1	Responding to this consultation	77
2	Ofcom’s consultation principles	79
3	Consultation response cover sheet	80
4	September 2004 Consultation questions	85
5	Non-confidential respondents to the initial consultation	88
6	Draft Guidelines on the application of PATS obligations to VoIP service providers	90
7	Notification of proposed modification to General Condition 18 of the General Conditions of Entitlement	111
8	Notification of proposed modification to General Condition 14 of the General Conditions of Entitlement	114
9	Market Research	122
10	Glossary	123

Section 1

Summary

Introduction

- 1.1 This consultation document sets out Ofcom's proposed approach to regulating voice telephony services in the light of new technological developments. In particular, it addresses how different types of VoIP services should be regulated to ensure that consumers' interests can be best protected.
- 1.2 Traditional telephone services have existed for over 100 years. However, changes are underway that could significantly affect the way voice services are provided in the future. In particular, Voice over Internet Protocol ("VoIP") services change the way voice services are delivered. These services typically use a broadband connection to provide voice calls using VoIP technology via a PC with handset/headset or a special adaptor connected to a traditional telephone handset. They have the potential to deliver significant consumer benefits through reducing the cost of delivering existing services, enabling new and innovative services and increasing competition.
- 1.3 Consumers benefit most when new technology can be adopted quickly, when regulatory rules do not prevent new services from being offered, and when competition between old and new services occurs on a level playing field. It is also important that as technology develops, measures to protect consumers are revised to ensure that they remain fully effective.
- 1.4 In response to the early developments in VoIP services and discussions with stakeholders, Ofcom published a consultation document entitled *New Voice Services: A consultation and interim guidance* on 6 September 2004 (the "2004 consultation")¹. That document set out Ofcom's proposals for the regulatory framework for VoIP services to help ensure that consumers' interests were best met. The proposals reflected both the constraints of relevant European Community directives and also the relative infancy of the market.
- 1.5 Since September 2004, there have been a number of further developments that require a reassessment of Ofcom's previous proposals to ensure our objectives in relation to VoIP services are achieved.
- 1.6 So this document sets out Ofcom's revised approach for fostering the development of VoIP services to ensure they best meet consumers' interests.

Scope and key proposals

- 1.7 This document will be of relevance to all providers of VoIP services (whether or not they provide 'publicly available telephone services', known simply as "PATs"). It is not primarily aimed at operators deploying next

¹ New Voice Services: A consultation and interim guidance.

http://www.ofcom.org.uk/consult/condocs/new_voice/new_voice/?a=87101

generation networks (NGNs) although some issues may be relevant. As this document discusses regulation that is imposed on providers to protect consumer or end-user interests (including number portability), it may be of interest to consumers using and operators providing public voice services by means of other technologies (such as PSTN).

- 1.8 This document discusses a number of proposals and makes statements on a number of aspects of regulation of VoIP services. The key proposals are:
- to discontinue Ofcom's interim forbearance policy for VoIP services² (as introduced in the 2004 consultation) to ensure compliance with Community obligations under the relevant European Community directives;
 - to withdraw the Essential Requirements Guidelines³ given the inappropriate nature of these guidelines for VoIP services and for NGNs;
 - to establish guidelines on how Ofcom will investigate potential contraventions of obligations in relation to network reliability and emergency calls, to aid transparency and understanding of the requirements and increase the incentive for VoIP services to offer 999 access⁴;
 - to discontinue Ofcom's interim policy for number portability (as introduced in the 2004 consultation); that allowed a communications provider to restrict number portability to those PATS providers who were not complying with PATS obligations under the interim forbearance policy.
 - to modify General Condition 18 to clarify the availability of number portability rights to consumers of services using receive only geographic and non-geographic numbers and increase the incentive for VoIP services to offer 999 access;
 - to specify the information that providers must offer their customers to ensure customers are well informed of the capability of VoIP services and a proposal to modify General Condition 14 to mandate this code in respect of certain providers;
 - a planned approach to encourage and enforce the maximum level of compliance by providers of VoIP services; and,
 - a planned approach to monitoring and reviewing so that as the market and technology develops regulation can be quickly adapted to meet consumers needs continue to be met particularly the need to maintain widespread availability of high quality 999 access.
- 1.9 The consultation also highlights other relevant proposals and consultations that Ofcom has or is carrying out that may be relevant to providers of VoIP services.

² Ofcom stated in the September 2004 consultation document that it would take an interim position to allow providers of NVS to enter the market and offer 999 access without having to meet all the regulatory requirements associated with PATS. In essence, this meant that Ofcom would forbear from enforcing PATS obligations imposed through certain General Conditions against NVS providers entering the market, even if they would offer access to 999. This policy, which is referred to as the 'interim forbearance policy' throughout the rest of this document, was interim in nature until Ofcom had received further clarification from the European Commission on how the relevant European Community directives should be interpreted.

³ See document entitled *Guidelines on the essential requirements for network security and integrity*, published by Ofcom on 9 October 2002; http://www.ofcom.org.uk/static/archive/oftel/publications/ind_guidelines/guid1002.pdf, referred to throughout the rest of this document as the 'Essential Requirements Guidelines'.

⁴ 112 is the single number for emergency calls in Europe. Throughout the rest of this document, references to 999 access should be read as including access to 112.

Structure of this document

- 1.10 The key elements of this document are described below.
- 1.11 Section 2 (Introduction and Background) provides some background to VoIP services and Ofcom's previous policy activity in the area. In particular, it discusses:
- Ofcom's 2004 consultation, the key objectives we identified and the main proposals that we made
 - a summary of responses to that consultation from over 50 stakeholders who responded; and,
 - recent developments in VoIP services that have, in part, shaped our approach in this consultation.
- 1.12 Section 3 (Regulatory Approach to VoIP Services) discusses the overall policy and regulatory framework that has shaped our regulatory proposals including:
- a summary of Ofcom's objectives in developing its policy and regulation;
 - a review of the key legal regulatory framework;
 - the challenges that this framework creates in respect of VoIP services;
 - a summary of Ofcom's regulatory proposals; and,
 - links to other projects such as NGN access and interconnection that may be relevant to VoIP service providers.
- 1.13 Sections 4 to 9 describe the proposed measures to address these challenges.
- Section 4 (Application of General Conditions) outlines proposals, guidance and links to other projects that affect obligations on VoIP service providers particularly GC 3 and GC 4
 - Section 5 (Number Portability) describes proposed changes to number portability obligations and rights including a consultation on a proposed change to General condition 18 to correct an inconsistency in definition
 - Section 6 (Consumer Protection – consultation on draft code) describes Ofcom's detailed code for the content of consumer information
 - Section 7 (Consumer Protection - Legal framework for implementation of the code) Consultation on a change in General Condition 14 to mandate the code
 - Section 8 (Monitoring, enforcement and review) explains Ofcom's approach to enforcement of obligations on providers and how Ofcom intends to consider future changes to policy and regulation
 - Section 9 (Other issues) discusses other concerns that VoIP service providers have raised such as naked DSL and the blocking of VoIP traffic

Next steps

- 1.14 A number of the measures in this document will have immediate effect in particular discontinuance of the interim forbearance policy and withdrawal of the Essential Requirements Guidelines.
- 1.15 Ofcom is consulting on some other elements of this document and is inviting representations on specific questions addressed in this document. Written views and comments on these matters should be made to Ofcom by **no later than 5pm on 10 May 2006**.
- 1.16 Ofcom expects, at present, to make a statement on these aspects in August 2006.

Section 2

Introduction and background

- 2.1 This section provides some background on VoIP services including Ofcom's previous policy activity in this area and recent developments that have initiated Ofcom to revise its policy from the one set out in the 2004 consultation.

Background

- 2.2 VoIP services typically use a broadband connection⁵ to provide voice call services using VoIP⁶ technology from either a personal computer ("PC") and dedicated handset/headset or a traditional telephone handset using an adaptor (as shown in Figure 1).

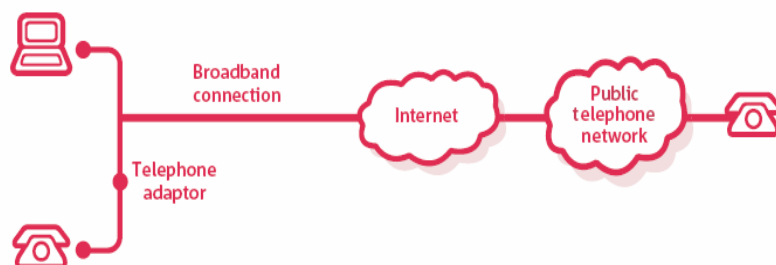


Figure 1: VoIP Service

- 2.3 Over the last five years, VoIP services have begun to have an increasing impact on the UK communications market. In time, VoIP services have the potential to deliver significant consumer benefits through reducing the cost of delivering existing services, enabling new and innovative services and increasing competition. However, VoIP services are still in their infancy, relative to established technology, and the future developments of these services and technology is, at present, unclear.
- 2.4 In response to the early developments and discussions with stakeholders, Ofcom published the 2004 consultation. In that document, Ofcom explained that some new voice services ("NVS"), such as VoIP services, have the potential to 'look and feel' like traditional telephone services but may not be able to deliver, in the same way or to the same standard, the features consumers have come to expect as standard. Whilst Ofcom recognised that these new services can bring opportunities (in terms of increased innovation, potential for competition and reduced costs), it pointed out that there were also challenges (in terms of potentially lower levels of consumer protection).
- 2.5 In dealing with these opportunities and challenges, Ofcom identified its top level aims consistently with its principal statutory duty to promote the interests of citizens and consumers, as:

⁵ Theoretically any Internet connection could be used including dial-up, but dial-up is not believed to be widely used to provide VoIP services

⁶ Throughout the rest of this document, references to VoIP should be read as including Voice over Broadband (VoB).

- to help create an environment in which new technologies can be developed and deployed successfully in the market, so that consumers can benefit from a wider and more innovative range of services;
 - to ensure that consumers are properly informed and protected in relation to the services they are using; and,
 - to minimise distortions in the market caused by regulation.
- 2.6 Ofcom also recognised that there was a clear and strong public interest in widespread availability of access and calls to the emergency services (referred to in this document as '999 access') that was highly reliable and provided location information to the emergency services.
- 2.7 On the basis of these objectives, in our 2004 consultation, we made proposals in several areas. These were:
- our interim forbearance policy position to allow providers of NVS to enter the market and offer 999 access without having to meet all the regulatory requirements associated with PATS. Ofcom explained that it had sought clarification from the European Commission (which at the time was also consulting on the treatment of VoIP services under the EU regulatory framework) on some key legal issues which could affect the future application of this forbearance approach. Ofcom therefore emphasised that this policy was interim in nature and was subject to potential change;
 - our related policy as to how number portability rights for NVS would be affected during the interim forbearance policy period. In particular, we stated that a communications provider would not be expected to provide portability to a PATS provider which was not complying with all other applicable PATS obligations. This in effect limited number portability rights to PATS providers who were complying with obligations, so as to increase the incentive to offer 999 services;.
 - asking for views on whether to retain, re-issue or withdraw the existing Essential Requirements Guidelines with reference to network integrity, together with related issues;
 - initial proposals in respect of the appropriate substance and framework for consumer information in relation to NVS.
- 2.8 At the same time as the 2004 consultation, Ofcom issued a statement that made both geographic number ranges and a new 056 number range available for VoIP services. The availability of geographic numbers has allowed VoIP service providers to offer services without the need for users to have to use an unfamiliar number range.

Responses to consultation

- 2.9 In addition to asking for input on Ofcom's specific proposals Ofcom also invited input on a number of other questions in particular regarding 999 access and the ability of NVS to deliver high network quality and reliability (commonly known as network integrity). A list of the questions is provided in Annex 4 of this document to this document.
- 2.10 Ofcom received over 50 responses to the 2004 consultation from VoIP service providers, existing network providers and consumer groups. A

summary of the responses is provided below and list of non-confidential responses received by Ofcom is set out in Annex 5 to this document. Broadly, the responses supported Ofcom's overall proposals, although there were some disagreements in certain areas. The responses have been taken into account in developing the various measures contained in this document.

General Comments (including Ofcom's top level aims)

- 2.11 The majority of respondents were broadly supportive of Ofcom's attempt to provide clarity for providers of NVS. Many supported Ofcom's overall approach to foster innovation backed up by the development of a code of practice for consumer information. Most network operators considered that the interim policy was preferable in the absence of EC guidance.
- 2.12 The interim forbearance policy (question 18) was broadly accepted by the majority of respondents as a realistic policy in light of the arguments set out in the 2004 consultation. There were alternative views. Five respondents indicated that their support for the policy was qualified pending Ofcom receiving guidance or further advice from the European Commission. One provider wanted to see the interim policy made permanent. Two respondents considered that forbearance was not a reasonable method of regulation, with one of them indicating that this set a bad precedent with likely implications on consumer and market confidence.
- 2.13 The linking of number portability rights to only those providers designated as PATS was challenged by three respondents. An equipment supplier argued that all communications providers should be allowed number portability. One global network operator considered that it was inappropriate to use the right of subscribers to port their number to another provider's service, as an incentive for a communications provider to meet other PATS obligations.
- 2.14 In respect of the provision of caller location information to support the work of the emergency services (questions 24 and 25), most respondents agreed in the main that it is technically feasible for NVS to provide such information. Many argued, however, that whilst feasible it was though technically complex. A significant minority said that they would like to see Ofcom and industry working groups taking a lead in developing a suitable solution. (In respect of this latter point, it is worth noting that Ofcom has facilitated meetings and is a member of the NICC working group on providing location in IP networks)
- 2.15 As regards to our questions on other aims and policy issues that Ofcom should be considering (Questions 4 and 5), respondents stated that there were other areas that Ofcom should address, such as naked DSL, interconnection and EU harmonisation. Some of these issues are addressed by Ofcom in section 9 of this document and others are being addressed in other Ofcom projects which are referred to in this document.

999 Access

- 2.16 Most respondents agreed that not all voice services should be required to offer 999 access, provided that consumers were properly informed

(Question 12). There were some exceptions to that general view from operators and consumer groups. They considered that allowing voice services into the market which did not provide 999 access was an alarming development and that market forces could not be relied on to deliver high levels of availability of 999 access. There was, however, some support for waiting for a common European position to evolve and for measures to be adopted to ensure that any NVS launched provided features and services similar to that of voice services provided by traditional public switched telephone networks ("PSTN"). One consumer body wanted to see existing services on PSTN (such as text relay services) replicated in NVS.

- 2.17 Most respondents disagreed with Ofcom's view (expressed in question 11) that most consumers value 999 access and would thus retain at least one line at home with 999 access. A consumer body advised of the affordability issues for low earners in maintaining separate lines. One network provider concluded that there would be multiple methods of contacting 999 (such as mobile phone) rather than one single high quality access method provided over a fixed line.
- 2.18 Most respondents considered that most providers would prefer to offer a basic form of 999 access (question 10). One provider concluded that any provider with a Corporate Social Responsibility (CSR) programme would offer 999 access. One service providers association and another respondent disagreed suggesting that it would be (and should be) a purely commercial decision for providers whether to provide 999 access.

Network Integrity Requirements

- 2.19 A majority of respondents supported the withdrawal of Essential Requirements Guidelines (question 20). In support they stated that those guidelines were considered specific to PSTN and had no relevance to VoIP services (particularly those that did not control the underlying network) and NGNs. A significant number of respondents said that General Condition 3 provides a suitable test for ensuring reliable service and should be applied on a case-by-case basis. A PATS provider and equipment supplier indicated their respective concerns at the effect withdrawal would have on the telecoms aspects of critical national infrastructure.
- 2.20 In response to question 19 as to having different network integrity requirements for nomadic services compared to services at a fixed location, two equipment manufacturers argued that the distinction between fixed and mobile is becoming blurred and it is not appropriate to have different regulatory requirements on nomadic services. However two network operators indicated that the requirements as applied to a mobile PATS service should also be applied to nomadic NVS. A consumer body would like to see features such as 999 access, caller location and lawful intercept provided on both nomadic and fixed NVS.
- 2.21 Most respondents agreed that more robust and reliable services could be offered by NVS service providers through negotiating service level agreements ("SLAs") with network/infrastructure providers (questions 21 and 22). One existing VoIP service provider, amongst others, indicated that entering into SLAs would be problematic where a NVS service provider is offering service across multiple networks. An existing network provider

responded that they would prefer to have control over any voice service offered over its network.

- 2.22 Line powering is a method of ensuring the continued operation of a telephone service in the case of a power outage on a customer's premises. Line powering in respect of NVS (question 23) was not considered a viable option by any respondent. But respondents indicated that line powering should still be required in respect of certain services such as ISDN and PSTN. Battery backup was suggested as an option for NVS by an approvals body.

Consumer Information

- 2.23 As regards Ofcom's proposals and questions relating to the provision of information to consumers (questions 26, 27 and 28), almost all of the respondents agreed with Ofcom's initial views. Namely, where a service differs from a traditional telephone service (and therefore may not meet consumer expectations) consumers should be made fully aware about these differences in order to enable them to make informed decisions about what services they wish to purchase and how to use them. In particular respondents agreed that consumers need to be fully aware of whether 999 access is provided and in that case how reliable that service is. Further discussion of these questions is provided in Section 6.

Recent market and regulatory developments

- 2.24 At the time of the publication of our 2004 consultation, we anticipated that the effect of our policy would be to allow market entry and innovation. As we describe below, market entry has occurred to a large degree. However, since September 2004, a number of market and regulatory developments point toward the need to revise some aspects of this policy. These developments are discussed below.
- 2.25 Over the last 18 months, VoIP services have developed significantly both in terms of range and number of providers and service/equipment propositions leading to a greater number of consumers taking up these services. Some of the key developments are described below.
- 2.26 There are now a wide and increasing number and variety of VoIP service propositions in the marketplace including:
- PC-based services that allow calls from one personal computer ("PC") to another (such as Skype PC-to-PC and Google Talk) commonly referred to as PC-to-PC services⁷;
 - services marketed as secondary line services that allow calls to and from traditional telephone numbers (such as Freetalk, Wanadoo, BT Communicator, Tesco and Gossiptel); some of these services include 999 services and some do not;
 - other services that are marketed as replacements for traditional PSTN based call services; typically, the PSTN line remains in place and the VoIP service is then used only for calls.

⁷ A more detailed description of PC-to-PC services is set out in section 3 of the September 2004 consultation document.

- services targeted for nomadic and mobile use have also begun to enter the market. Voice over Wireless (“VoWLAN”) services are being developed⁸ and other services are being deployed which rely on wireless access solutions using licensed radio spectrum.
- 2.27 These services are based on a variety of software/equipment including adaptors that support standard telephones, adaptors with dedicated headsets/handsets, PC based software solutions with software based phone functions, 3G smartphones and Personal Digital Assistants (PDA)/Wi-Fi/WiMax devices with software clients.
- 2.28 These services are being offered by a range of providers – in some cases they are offered bundled with Internet access services and in others as stand-alone services.
- 2.29 No single combination of equipment, features or business model has yet emerged to lead the market and Ofcom expects that this diversity is likely to remain for the foreseeable future as users access services in a variety of different ways. However, although VoIP service providers are making a wider range of services with new features available to consumers, the core capability to enable voice calls between users remains a key feature common to all such voice services.
- 2.30 These VoIP services are now raising awareness and driving penetration in the mainstream market. Basic awareness of VoIP services has risen to around 50%⁹. A recent Ofcom survey suggested that an additional 3 million customers were considering purchasing/using VoIP services in the next 6 months¹⁰. Some forecasts suggest that by the end of 2007 there will be about 3 million PC-to-PC VoIP services users and over 1 million who use VoIP services to call to/from PSTN numbers¹¹. However, other forecasts suggest higher growth in take-up of VoIP services in part driven by the increasing uptake in broadband. Also uptake in other countries suggest high growth in the UK may be likely.
- 2.31 Next generation networks (“NGNs”) (such as BT’s 21st Century Network) are also increasingly relevant to VoIP services with NGN deployment starting in earnest this year. The emergence of these NGNs which are IP-based multi-service networks are driving much of the change in the way voice services are delivered. These networks permit a variety of different services, including voice, to be carried over a common transport networks. The resulting economies of scope reduce costs.
- 2.32 The way in which providers typically exploit this trend varies depending on their background:
- Some providers with existing PSTN networks, and with end-users connected to those networks, are migrating to ‘Next Generation Networks’. These leave existing end-user connections in place, but migrate the remainder of the network to IP-based transmission.

⁸ These services rely on the Unlicensed Mobile Access (“UMA”) network of public Wireless Fidelity (“Wi-Fi”) and Worldwide Interoperability for Microwave Access (“WiMax”) base stations combined with PDA/Wi-Fi end-user devices

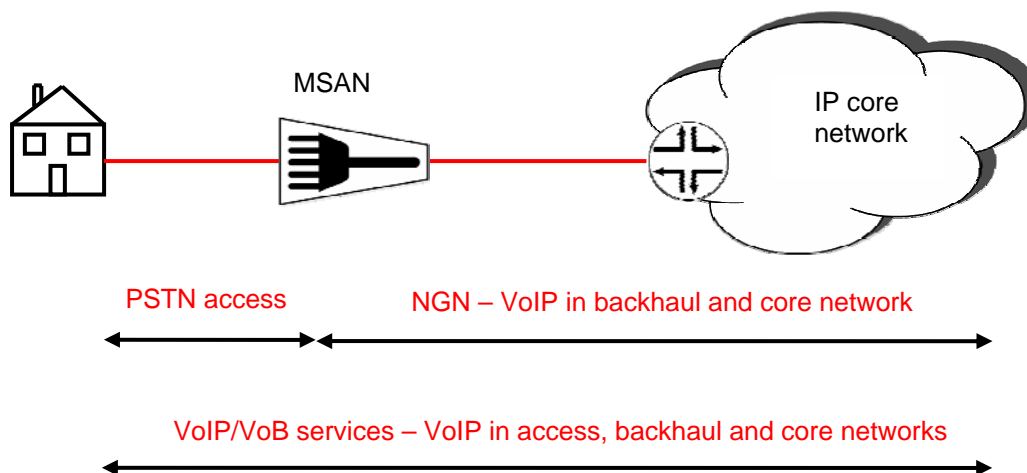
⁹ 50% of total population. Source: Ofcom Research 2005

¹⁰ Source: Ofcom Research 2005

¹¹ Analysys report (Retail VoIP in Western Europe: forecasts 2005-2010)

- Those providers who currently provide broadband services to end-users, which have historically been used for internet access, are now starting to use this broadband access to deliver voice services (typically referred to as 'Voice over Broadband – VoB')

2.33 The two different models are illustrated In figure 2 below:



2.34 Therefore, the development of VoIP services must be viewed in the context of developments in NGNs. Ofcom is separately consulting on the deployment of NGNs including its impact on regulated voice services and interconnection.

2.35 In addition to market and technology changes there have also been a number of significant changes in the regulatory area and wider policy debate that have some bearing on our approach to regulation of VoIP services;

- UK regulation is based on relevant European Community directives. In its paper of 14 June 2004¹², the Commission set out the basis on which a service qualifies as PATS and thus the obligations on certain VoIP service providers. At the time, Ofcom understood that the Commission's view was that providers should be allowed to choose whether or not they are providing PATS, even if they offer a service that has features that include all of the PATS gating criteria¹³ (including 999 access). After discussion with Commission services (DG Information Society), and further internal legal review, Ofcom has concluded that where a VoIP service does meet all the gating criteria, it automatically becomes a PATS service.
- In parallel to development with the European Commission, the European Regulators Group (ERG) set up a working group to consider VoIP services policy and the potential for harmonisation. Ofcom was an active participant in the group. After the conclusion of the group's work, the ERG published a statement¹⁴ on their approach to VoIP policy. This

¹² See paragraph 4.3 of the document entitled *Information and consultation paper on the regulatory treatment of Voice over Internet Protocol (VoIP) under the EU regulatory framework*; http://europa.eu.int/information_society/policy/ecomms/doc/info_centre/commiss_serv_doc/406_14_voip_consult_aper_v2_1.pdf

¹³ The four gating criteria are: a service available to the public (that is to say, a publicly available service); for originating and receiving national and international calls; through a number or numbers in a national or international telephone numbering plan; access to emergency services

¹⁴ ERG Common Statement for VoIP Regulatory Approaches
http://erg.eu.int/doc/publications/erg0512_voip_common_statement.pdf

demonstrated a wide diversity in regulatory approach to VoIP services in each member state based on individual national communications law.

- Over the last 12 months, regulation in other countries has also evolved outside Europe. For instance, in the US following high profile incidents in 2005, the FCC changed the relatively liberal regulatory environment in the US to one where they now require that VoIP services interconnected with the PSTN (that is, that allow calls to or from traditional telephone lines/numbers) must provide access to emergency services as provided by incumbents¹⁵.
- 2.36 In response to one of the key recommendations in the 2004 consultation, a group of providers have taken the initiative to develop a code of practice for VoIP service providers setting out the information that should be provided to purchasers and users of VoIP services. This code has now been developed and now needs to be formally implemented.
- 2.37 VoIP service providers in the UK have also expressed a general desire for increased clarity of the regulatory framework and have also voiced concerns over other barriers to the development of their services such as difficulty in gaining number portability and suspected blocking or degrading of VoIP calls by operators and/or Internet service providers ("ISPs").

The role and scope of this document

- 2.38 Ofcom believes that consumers benefit when regulation is well-adapted to changing market conditions. Given the significant developments in the market and in the regulatory environment over the last 16 months, we believe that it is now appropriate and timely to re-look at the overall policy framework that impacts on VoIP.
- 2.39 This document describes a modified package of measures to reflect this changed environment. In particular, this document describes:
- application of certain General Conditions to VoIP service providers;
 - policy in relation to number portability issues for VoIP service providers;
 - approach in relation to consumer information and protection issues, including a draft code on what information providers should give to their customers;
 - plan for enforcing this regulation and approach to reviewing the policy;
 - approach on other issues relevant to VoIP service providers e.g. the availability of 'naked DSL', how VoIP fits into the *ex ante* framework and the blocking/degrading of VoIP calls.
- 2.40 Taken together, Ofcom believe that the package of measures combined with other initiatives described in this document will provide a robust platform for the development of VoIP services ensuring consumers' interests continue to be met.
- 2.41 This consultation will be relevant mainly to providers of VoIP services that are (potentially) subject to certain obligations and rights¹⁶. It is not primarily

¹⁵ <http://ftp.fcc.gov.uk/cgb/voip911order.pdf>

¹⁶ These obligations may, depending on circumstances, apply to operators who solely use VoIP as a transmission mechanism in a core network

aimed at operators deploying next generation networks (NGNs) although some issues may be relevant – in particular, the consultation does not specifically address the use of VoIP in core networks. The consultation may also be of interest to end-users, subscribers or consumers of VoIP services, or other stakeholders who are interested in the effectiveness of VoIP services regulation within communications markets. Certain aspects may also be relevant to providers of other voice services such as those based on PSTN technology and to providers of networks over which VoIP services are provided.

- 2.42 In the 2004 consultation, the term new voice services or 'NVS' was used to describe the types of service under consideration in the consultation. This new consultation uses the term VoIP services, which for clarity includes those voice services described in the 2004 consultation and services being provided in the UK over IP which include voice services provided over the public internet, voice over broadband (including managed and unmanaged services), voice over Unlicensed Mobile (Wireless) Access, voice over licensed wireless including 3G data services and (pre)WiMax based services.

Section 3

Regulatory approach to VoIP services

Introduction

- 3.1 This section summarises Ofcom's key policy objectives, the legal regulatory framework that applies to VoIP services, the challenges in meeting the objectives that emanate from this framework and the package of measures to achieve the objectives. At the end we also highlight other Ofcom projects that may be relevant to VoIP service providers.

Policy aims

- 3.2 After more than 100 years of traditional telephone services, we are on the brink of a potentially fundamental transformation in voice services. VoIP services could deliver substantial benefits for consumers such as:
- lower network costs, lower user prices and new pricing structures
 - new features such as unified messaging, conferencing, video and personalised call handling
 - greater choice of innovative and differentiated services as entry barriers fall and competition in the voice market increases
 - more competition in broadband as ISPs will be able to offer consumers more compelling propositions combining voice with Internet access
- 3.3 Consumers benefit most when new technology can be adopted quickly, when regulatory rules do not prevent new services from being offered, and when competition between old and new services occurs on a level playing field. It is also important that as technology develops, measures to protect consumers are revised to ensure that they are still fully effective.
- 3.4 Therefore, one key objective in regulating VoIP services is to avoid creating and/or removing barriers to the development of VoIP services. In particular, the regulatory framework should not prevent different business models to enter the market – for instance: services aimed at providing second line as well as primary line replacements; or alternatively, services bundled with access (line rental) as well as those offered as a standalone service of voice calls alone. In doing this, Ofcom seeks to ensure that regulation is technology neutral, in order that new technologies are able to be deployed as soon as competitive forces dictate that consumers will benefit. Put another way, regulation should avoid special treatment of one technology over another.
- 3.5 The second objective results from the fact that VoIP services may offer different features and capabilities than PSTN-based services that most consumers use and whose features consumers have come to expect as standard. It is essential that any differences (particularly any deficiencies) are well understood by both the purchasers of such services as well as the users of the service. Therefore, the features and capabilities of any service must be properly described including the dependency of the service on a

power supply in the home and on the availability of a broadband connection. A clear understanding of features and capabilities is particularly critical in relation to 999 services. In the event of an emergency situation, it must be clear to the consumer and users of a VoIP service whether, and under what conditions, the VoIP service will provide 999 access to summon help. Such issues were demonstrated in the US in 2005 where a VoIP service did not offer traditional access to 911 as provided by conventional voice services and a user was both unaware and unable to quickly summon assistance as a result.

- 3.6 The third objective is to maximise the availability of 999 access. This is because access to the emergency services is an important feature of existing telephone services. Consumers and citizens in the UK currently enjoy high levels of 999 access in terms of the extent of fixed voice services with 999 access (all current fixed voice services provide 999 access), the reliability of these services and the ability of these services to provide accurate location information to the emergency services. This level of access is both highly valued by consumers and citizens and helps the emergency services in providing their high quality services. Accordingly, Ofcom regards it as important that these benefits are not lost or reduced as a result of changes in services or technology.
- 3.7 If some voice services were allowed to be provided without 999 access high availability could be jeopardised. It may be that market forces combined with consumer information regarding the availability of 999 access could ensure a continuing high level of availability. However, there may be two factors that may mean that market forces alone do not lead to an optimal level of availability. Firstly, it may be that consumers are unable to properly evaluate the potential costs and benefits of taking a service without 999 access. The second reason may be due to the nature of 999 access. In particular, the benefit of high levels of 999 access is enjoyed not only by the subscriber but also by other citizens who may be able to use the service in emergency situations. In this case, without any requirement to offer 999 access services operators and/or subscribers would be able to 'free ride' by offering a low cost service with no or limited 999 access whilst relying on customers of other networks to allow them to make emergency calls, or to make emergency calls on their behalf, if the need arises. This may lead to a sub-optimal level of provision to society as a whole (i.e. under provision).
- 3.8 These three objectives build on the top level aims we set out in the 2004 consultation document. Ofcom believe that together these capture the key objectives that Ofcom should consider in formulating its policy.

Question 1: Given recent developments, do you agree that Ofcom's focus should be on the following three objectives in developing our policy for VoIP services, namely (in so far as is possible) (i) enabling innovation in a technological neutral way, (ii) ensuring consumers are well informed, and (iii) ensuring maximum availability of 999 services?

Legal regulatory framework

- 3.9 In 2002, a package of European Community directives was adopted to establish a harmonised framework for the regulation of electronic communications services ("ECSs"), electronic communications networks ("ECNs"), associated facilities and associated services. These directives entered into force on 24 April 2004 and member states were required to apply their domestic law transposing the directives from 25 July 2003.
- 3.10 That harmonised framework also established certain rights of end-users and corresponding obligations on undertakings providing publicly available ECSs and ECNs. Such regulation derives mainly (but not exclusively) from certain provisions in the Universal Service Directive ("USD"). In particular, the USD requires, in effect, that in the UK Ofcom ensures that certain matters (such as network integrity, emergency calls and planning, metering and billing, number portability) are regulated to protect the interests and rights of end-users (or, as the case may be, 'subscribers') of ECSs.
- 3.11 As a result of these community obligations, Ofcom has already imposed domestic regulation in the form of general conditions of entitlement ("GC")¹⁷ set under section 45 of the Communications Act 2003 which GCs took effect from 25 July 2003.
- 3.12 One of the effects of that harmonised framework is that the provision of all ECSs and ECNs is generally authorised and the system of explicit decisions or any other administrative acts (such as licences) by national regulatory authorities prior to being allowed to provide ECSs and ECNs has been abolished. Therefore, in the UK, the licensing regime under the Telecommunications Act 1984 has been replaced by the so-called General Authorisation regime. Thus, everyone is 'generally authorised' to provide ECSs and ECNs in the UK. However, the General Authorisation is subject to the GCs¹⁸. In other words, all providers of ECSs and ECNs can enter the market as they wish, but if they do so they then have to comply with any obligations imposed on them.
- 3.13 Importantly, it is to be emphasised that the GCs apply to anyone who is *providing* an ECS or ECN, or a particular description of an ECN or ECS, specified in the GC in question. Therefore, it is the responsibility of each and every provider to comply with relevant GC obligations upon provision of a particular service as no individual notification or designation will be given to it by Ofcom that these obligations apply to it. Failure to comply with such obligations is subject to enforcement action by Ofcom under the procedures set out in the Communications Act 2003. Accordingly, a provider must consider whether it falls within the definition of a "Communications Provider" in respect of a GC, which term is defined separately for each and every GC.

¹⁷ The majority of the GCs is, at present, set out in a notification under section 48(1) of the 2003 Act dated 22 July 2003 by the Director General of Telecommunications, which regulatory functions have since 29 December 2003 been transferred to Ofcom http://www.ofcom.org.uk/telecoms/loi/g_a_regime/gce/gcoe/. Certain GCs have been more recently amended by Ofcom, such as GC 14 on 13 April 2004.

¹⁸ Individual providers may be subject to additional obligations, such as SMP conditions (imposed as a result of a finding of Significant Market Power), access related conditions or conditions imposed as a consequence of a provider being designated as a universal service provider. Any provider which is subject to these additional conditions will have been notified individually when the conditions were imposed. Such additional obligations are not relevant as such to matters covered by these Guidelines.

- 3.14 Some of these GCs apply to each and every person (normally, a company) providing ECSs or ECNs. Other GCs apply only to a narrower category of persons – for example, those who are providing PATS (or, as the case may be, a provider of a public telephone network or PTN).
- 3.15 A person is providing PATS if, and only if, all of the following core elements (collectively referred to throughout the rest of this document as the “PATS gating criteria”) are satisfied:
- ‘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’
- 3.16 In other words, where each and every above-mentioned core criterion has been satisfied in respect of the particular ECS in question, that service constitutes a PATS and the relevant PATS obligations would apply to the provider in question automatically. Fuller details of the legal regulatory framework relevant in this context are set out in our proposed Draft Guidelines on the application of PATS obligations to VoIP service providers at Annex 6 of this document.

Challenges in meeting the policy objectives

- 3.17 As we highlighted in section 2, in the September 2004 consultation document, Ofcom adopted an interim position (referred to as the interim forbearance policy) to allow providers of NVS (such as VoIP services) to enter the market and offer 999 access without having to meet all the regulatory requirements associated with PATS. To note again this interim position meant, in effect, that Ofcom would forbear from enforcing PATS obligations against NVS providers entering the market, even if they were to offer 999 access. As Ofcom is now discontinuing its interim forbearance policy (see section 3), this means that VoIP services offered to the public will need to comply with the requirements applicable to any voice service.
- 3.18 This situation creates a number of inter-linked potential challenges in meeting our above mentioned policy objectives of enabling innovation in a technology neutral way, ensuring maximum availability of 999 services and ensuring consumers are well informed. We describe below these challenges and broadly how we intend to address these challenges.
- 3.19 First, certain PATS obligations (for instance, to provide uninterrupted access to the emergency services in GC 3.1) could impose a burden on VoIP service providers who want to offer PATS services to the degree that it prevents market entry and thus innovation. Whilst some of these obligations have certain qualifications, (such as ‘where reasonably practicable’), the lack of clarity about how these obligations might be interpreted creates potentially unnecessary and counter-productive uncertainty for potential providers.

- 3.20 This uncertainty for VoIP service providers has possibly been increased by the Essential Requirements Guidelines. These Guidelines provide non-legally binding guidance on how obligations in GC 3 should be met. These Guidelines were, however, designed with PSTN technology in mind and largely on the basis that a service provider would also be the provider of the access network and would therefore be able to control end-to-end network integrity. These guidelines are inappropriate for VoIP services and those provided by an NGN
- 3.21 In recognition of the potential issues related to VoIP service providers meeting GCs, Ofcom has taken a number of measures to reduce inappropriate burdens and uncertainty in relation to these PATS obligations for VoIP services. This includes, withdrawing the Essential Requirements Guidelines and providing guidance on how Ofcom would investigate compliance with GC 3 and GC 4.
- 3.22 Secondly, the combination of the above mentioned PATS gating criteria and the potentially high burden of meeting certain PATS obligations creates a disincentive for providers to offer 999 access. This disincentive arises since, by not offering 999 access a VoIP service would not constitute PATS and the relevant PATS obligations would therefore not apply as a result of that fact. Part of the rationale underlying the forbearance policy in the 2004 consultation was to remove this disincentive. Whilst customer information can help ensure that customers are able to choose appropriate services for their individual needs this may lead to under-provision of 999 access due to the potential for free riding described in paragraph 3.7. This concern is likely to be greatest in the case where the VoIP service is the only voice service available in the home.
- 3.23 In addressing this challenge Ofcom has sought to strike a balance between creating a market where consumers' choices of new and innovative services as individuals, are not constrained by regulation while society collectively continues to benefit from widespread availability of 999 access. Ofcom's expectation is that, in time, (and particularly as NGNs are increasingly widespread), VoIP services may become the primary means of offering voice calls. At that point it may be necessary that VoIP services provide 999 access at a similar or greater level of availability and functionality as currently exists. That point may be some way off, perhaps years in the future. However, the balance to be struck is to create rules that do not stifle innovation and creativity in introducing VoIP services in the meantime. Ofcom's considers that its proposals strike the right balance and in particular reduce the disincentive to provide 999. For instance, our approach to consumer information, the restriction on availability of number portability to PATS providers and measures to reduce inappropriate burdens and uncertainty in relation to these PATS obligations for VoIP services all reduce this disincentive.
- 3.24 Our third challenge concerns adequate consumer information. The vast majority of voice services today are based on PSTN technology. As mentioned above, consumers have now come to expect many of these features to be standard in voice services. Both PATS and non-PATS VoIP services may offer different services than traditional PSTN voice services – for instance, availability of 999 and reliability of the service. This creates a

risk of customers being insufficiently informed and protected. Therefore, it is essential that consumers are properly informed of any differences. This is particularly critical in the area of 999 access given the potential detriment that could result in a situation where 999 access is not available. This consultation provides clear guidance to providers of VoIP services of their obligations in respect of consumer information and proposes to mandate that requirement.

Ofcom's approach

- 3.25 The remainder of this section summarises a package of measures to address these potential challenges and issues to remove barriers to innovation, whilst simultaneously minimising the disincentives to offer 999 services and to ensuring a high level of consumer protection.
- 3.26 This builds on (and in some cases revises) the position set out in the 2004 consultation. Ofcom considers that this package will, for the time being, provide an appropriate and balanced regulatory framework to VoIP services. Ofcom expects that as technology and the market evolves further it may be appropriate to make further modifications to regulation
- 3.27 The main measures and related projects are described briefly below. These are discussed in more detail in Sections 4 to 9.
- 3.28 In relation to the application of General Conditions to certain types of VoIP services (as discussed in Section 4), our:
- discontinuance of Ofcom's interim forbearance policy;
 - withdrawal of the Essential Requirement Guidelines;
 - proposed draft guidance on application of PATS obligations to VoIP service providers;
 - proposed approach for network providers who carry third-party PATS services;
 - approach to nomadic services in longer term;
 - forthcoming review of general conditions;
 - input into the Commission's 2006 review of the relevant directives.
- 3.29 In relation to number portability issues (as discussed in Section 5), our:
- discontinuance of Ofcom's interim policy in relation to number portability rights;
 - proposed modification to GC 18 on the definition of PATS in relation to number portability rights and an impact assessment for this modification.
- 3.30 In relation to consumer information and protection issues (as discussed in Sections 6 and 7), our:
- proposed detailed content for the code for what information VoIP service providers should offer to their customers;
 - proposed legal framework for implementation of this code;

- proposed modification to GC 14 to have the effect of mandating the code and an impact assessment for this modification.
- 3.31 Section 8 outlines Ofcom's future approach in this area. In particular it discusses our approach to proactive enforcement. It also describes Ofcom's planned approach to monitoring and reviewing so that, as the market and technology develops, regulation can be quickly adapted to ensure that consumers' interests continue to be met particularly maintaining widespread availability of high quality 999 access.
- 3.32 Providers of VoIP services as well as other stakeholders have also highlighted a number of other aspects related to regulation that they see as potential barriers to market development and issues with VoIP services such as naked DSL and blocking of VoIP calls. These are discussed in Section 9 and include:
- VoIP in the *ex ante* framework
 - Naked DSL
 - Blocking of VoIP calls
 - Routing/termination
 - Crime detection/prevention
 - SPAM
 - Extraterritoriality of VoIP service providers
 - Privacy and encryption

Links to other projects

- 3.33 For matters considered in sections 4 to 9 of this document, a number of other Ofcom projects are discussed where they are relevant to the particular issues discussed in those sections. We mention below a number of other areas of Ofcom's work that may also be of more general relevance to providers of VoIP services.

Ofcom's NGN Policy

- 3.34 Next generation networks ("NGNs") (including BT's 21st Century Network) deliver convergence by using a common access to provide multiple services including voice, data and multimedia with guaranteed quality of service. They have the potential to transform the way telecoms services (including voice services) are delivered and the features they offer. However, they also present a number of challenges. A number of aspects of Ofcom's policy proposals for NGNs may be relevant to VoIP service providers including interconnection and future evolution of multi service broadband access.
- 3.35 NGNs based on IP are in the early stages of design and deployment based on standards work by ETSI. Ofcom is consulting on the regulatory framework that should apply to NGNs, and how this might best promote competition between interconnected NGNs, whilst also addressing consumer protection concerns. Existing VoIP service and future NGN based

voice services share common issues that are being addressed by standards work and technological development including:

- ensuring network performance in the event of congestion;
 - reliably providing location to support the work of the emergency services;
 - providing customer information on how the service differs from PSTN.
- 3.36 NGNs may also have an impact on current interconnection arrangements and traditional voice services such as those provided through Carrier Pre-Selection. Therefore, Ofcom is considering the impact that migration from the traditional PSTN to NGNs will have.
- 3.37 The deployment of BT's 21st Century Network also creates the opportunity to build a solid platform for competition by designing in equivalence from the outset. Therefore, a key priority for Ofcom has been to ensure that the deployment of BT's NGN does not foreclose competition, either through disrupting existing competitive businesses or through preventing equality of access being provided in the future.
- 3.38 In June 2005 we published a consultation entitled Next Generation Networks: Further Consultation¹⁹ which set out several policy principles to ensure that a solid platform for competition was being built and most were subsequently implemented as part of BT's Undertakings²⁰. These included commitments by BT to provide unbundled network access to key economic bottlenecks, to do so on an 'Equivalence of Inputs' basis, and not to make design decisions which would foreclose specific product options without adequate consultation.
- 3.39 We are planning to publish a further consultation on NGNs in early March which describes the way forward for:
- processes to support development of NGNs, in particular the creation of a new NGN industry body;
 - development of the ex ante framework to support NGNs, including relevant market reviews and charging principles;
 - NGN related consumer issues.

Number portability functional specification

- 3.40 Number portability in the UK is currently provided based on a Functional Specification which prescribes a method of providing number portability using a PSTN technique called onward routing. This approach of using the Functional Specification could act as an unnecessary barrier to the development of VoIP and NGN networks and services.
- 3.41 Alternatives to the onward routing solution are currently under consideration, including an implementation of "all calls query" based on the use of ENUM. This is likely to deliver benefits to consumers in the form of

¹⁹ <http://www.ofcom.org.uk/consult/condocs/nxgnfc/#content>

²⁰ <http://www.ofcom.org.uk/telecoms/btundertakings/btundertakings.pdf>

increased resilience to operator or network failure, as well as improved routing efficiency.

- 3.42 On 3 November 2005, Ofcom published a consultation on Number portability²¹ which proposed that the Functional Specification should not apply to number portability over NGNs providing VoIP services. The consultation closed on 22 December 2005 and Ofcom expects to make a statement in respect of the consultation by the end of March 2006.

Ofcom's Strategic Numbering Review

- 3.43 On 6 September 2004, Ofcom issued a final statement on numbering²² which makes both geographic number ranges and a new 056 number range available for new services including VoB.
- 3.44 Ofcom's 'Strategic review of numbering policy' aims to develop a coherent strategy to meet current and future numbering challenges across the whole numbering range including geographic number and 056 numbers. As well as setting a strategic approach, it looks in detail at a number of discrete issues. These include how to ensure continuing availability of geographic numbers (given rising demand for number blocks, including for providers of VoIP services), how to ensure consumer transparency of prices on non-geographic numbers, protecting consumers from those using numbers for abusive practices, and the potential to use market mechanisms such as charging for numbers. In addition Ofcom's plans to consider how to make room for innovative services within the National Telephone Numbering Plan. Ofcom will publish an initial consultation on these issues on 23 February 2006²³.

Guidance on fibre access for new build

- 3.45 Ofcom's guidance document on fibre access for new build premises and community broadband networks is being published at the same time as this consultation and seeks to provide guidance on a number of common issues and questions posed to Ofcom from property developers and other potential investors in fibre local access networks.
- 3.46 Underlying these questions are a number of common themes relating to existing regulation. The guidance aims to provide such investors access to relevant existing regulation in a single location to ensure informed decisions are made on investment in physical infrastructure and fibre to new build premises or for community broadband developments.

²¹ <http://www.ofcom.org.uk/consult/condocs/numport/np.pdf>

²² <http://www.ofcom.org.uk/consult/condocs/vob/vobs/?a=87101>

²³ Telephone Numbering – Safeguarding the future of numbers
<http://www.ofcom.org.uk/consult/condocs/numberingreview/>

Section 4

Application of the General Conditions

Introduction

4.1 This section discusses a number of measures that Ofcom are taking that are relevant to the application of GCs to providers of VoIP services. The measures are:

- discontinuance of Ofcom's interim forbearance policy;
- withdrawal of the Essential Requirement Guidelines;
- proposed draft guidance on application of PATS obligations to VoIP service providers;
- proposed approach for network providers who carry third-party PATS services;
- approach to nomadic services in longer term;
- forthcoming review of general conditions; and,
- input into the Commission's 2006 review of the relevant directives.

Discontinuance of Ofcom's interim forbearance policy

4.2 In the 2004 consultation, Ofcom clarified its position on the meaning of PATS. Namely, the PATS definition means, in effect, that providers offering services that fulfil *all* of the PATS gating criteria *automatically*²⁴ qualify as PATS and so have to comply with all regulation applicable to PATS providers. Ofcom also explained that providers of services that do not meet all of such gating criteria could, however, be regulated as providers of PECS or ECS depending upon the factual circumstances in each case.

4.3 In its paper of 14 June 2004, the Commission set out the basis on which a service qualifies as PATS. Prior to publishing the 2004 consultation, Ofcom discussed these passages with the Commission. Given that the GCs imposing obligations on providers of PATS are seeking to implement consumer protection requirements under Chapter IV of the Universal Service Directive ("USD"), Ofcom considered it important to seek clarity from the Commission as to whether such approach would accord with the USD.

4.4 At the time, Ofcom's understanding was that the Commission's view was that providers should be allowed to choose whether or not they are providing PATS, even if they offer all of PATS gating criteria (including 999 access). On the basis of this understanding, Ofcom introduced its interim forbearance policy and anticipated formalising this policy once the Commission had formalised its guidance. As discussed in previous

²⁴ Put differently, in their wholesale relationships with other providers, PATS providers may "self-declare" themselves as such, provided that they meet all the gating criteria as no individual notification will be given by Ofcom as to their status.

sections of this document, this interim position meant, in effect, that Ofcom would forbear from enforcing PATS obligations against NVS, who met the PATS gating criteria.

- 4.5 However, Ofcom emphasised in the 2004 consultation that its interim policy would be subject to review and that Ofcom had not made any commitment to continue this policy after the publication of its statement concluding on its proposals.
- 4.6 In recent informal discussions with European Commission Services, specifically DG-Information Society, it has become apparent to Ofcom that the Commission has no current plans to provide formal clarification on this matter. Ofcom understands following an internal legal review process that:
- where a VoIP service does meet all of these gating criteria, it automatically becomes a PATS and the provider of VoIP services would have to be regulated by reference to relevant PATS obligations imposed under domestic laws, implementing the requirements of the USD.
 - where a VoIP service does not meet *all* of the PATS gating criteria, it cannot be considered to be a PATS;
- 4.7 In the light of this (and also taking into account of those of Ofcom's statutory duties under the Communications Act 2003), Ofcom has decided to no longer pursue its interim PATS forbearance policy as set out in our 2004 consultation. In other words, Ofcom will no longer forbear from enforcing PATS obligations against providers of NVS (such as VoIP services) who are designated as PATS and, if Ofcom were to investigate a potential breach of a relevant GC by a VoIP service provider of PATS, such a provider will be subject to enforcement action by Ofcom.
- 4.8 Ofcom recognises that the discontinuance of the forbearance policy may result in certain VoIP service providers having to comply with certain PATS obligations where previously they did not have to. Therefore, to allow providers in this position sufficient time to consider whether to continue offering a PATS service and, if appropriate, make the necessary arrangements to comply with the obligations, providers will not be subject to enforcement action until after the statement to this consultation, expected in August 2006. Following the expiry of that date, all providers providing PATS (including VoIP service providers) will be subject to immediate enforcement action by Ofcom.

Withdrawal of the Essential Requirements Guidelines

- 4.9 Oftel set up a project in 1998 to produce and publish guidelines on the network security and integrity requirements in Condition 20 to a Public telecommunications Operator's (PTO) licence, along with criteria for the restriction of network access on the grounds of network integrity or security. The guidelines were issued as Annex A - licence condition 20 in 2002²⁵. Oftel did not take this action due to major shortfalls in network security and integrity but rather to address the gap in guidance and clarity. Oftel considered that there should be a common understanding between Oftel and the industry of what might represent appropriate measures to protect network security and integrity, and what actions an operator might

²⁵ http://www.ofcom.org.uk/static/archive/oftel/publications/ind_guidelines/esre1002.htm

legitimately be required to take in pursuit of this goal. These guidelines are commonly referred to as the Essential Requirements Guidelines.

- 4.10 In the 2004 consultation, Ofcom proposed that the Essential Requirements Guidelines be withdrawn. The key reasons for that proposal are described below.
- 4.11 First, at the time those Guidelines were developed, the expectation was that providers of call origination (even if those calls were resold by an Indirect Access or Carrier Pre Select Operator) would normally also be the provider of the access network. In other words, the provider of the access part of the PTN over which PATS were being provided would also be the PATS provider. This meant that the PATS provider would have direct control over the integrity of the access network used. However, we recognised in our 2004 consultation that VoIP services have introduced the possibility that call origination services can be provided independently of the access network provider. VoIP services can (and are) offered by providers who do not control underlying network assets (including access and core) as well as providers who do. A similar challenge is faced by all CPs whose service is based on the resale of capacity leased from other providers.
- 4.12 The second reason was that the guidelines might unreasonably constrain the way in which new voice services were provided by new communications providers, and might also constrain the way in which existing communications providers migrated their PSTN networks to NGN technologies. These new technologies are too immature for a regulator such as Ofcom to be able to specify what constitutes best practice in relation to network design, and any attempt to do might stifle innovation.
- 4.13 A majority of respondents who answered question 20, in the 2004 consultation, supported the withdrawal of Essential Requirements Guidelines, since they were considered specific to PSTN and, in particular had no relevance to those new entrants including services only based providers. A significant number of respondents made reference to the fact that GC 3 provides a suitable test for ensuring reliable service and should be applied on a case by case basis. However an existing PSTN provider and an equipment manufacturer both indicated their concern at the effect withdrawal would have on the telecoms aspects of critical national infrastructure.
- 4.14 In the light of the above, Ofcom hereby withdraws its Essential Requirements Guidelines. Ofcom will instead apply the 'reasonably practicable' test set out in GC 3 on a case-by-case basis. In Ofcom's view, this approach (in combination with the proposed draft guidelines on the application of PATS obligations to providers of VoIP services at Annex 6 to this document), will provide the best balance between our objectives to promote innovation and competition, on the one hand, and to protect consumers, on the other hand. In particular, we consider that, taking such a case-by-case approach, would allow obligations to reflect the particular circumstances of a particular provider and also to ensure that the measures that providers take improve and adapt as technology evolves.
- 4.15 It is worth noting in relation to the Essential Requirements Guidelines that the Cabinet Office has been working with industry to develop a set of

guidelines which are intended to set out best practice for the maintenance of network resilience, particularly in relation to those UK networks which form part of the critical national infrastructure. Such guidelines may be considered useful for consideration by service providers and infrastructure owners. Designers of systems using IP networks predominantly look to standards bodies such as ETSI, ITU, and the IETF for best practice in the design and optimisation of their networks.

Draft guidance on application of PATS obligations to VoIP service providers

- 4.16 Some stakeholders have expressed uncertainty as to how PATS obligations would be applied and interpreted in respect of VoIP services. The discontinuance of Ofcom's interim forbearance policy to take place after the statement is published in August 2006, means that these PATS obligations may now fall onto more providers.
- 4.17 Accordingly, to assist VoIP service providers who are PATS in meeting their PATS obligations Ofcom is providing draft guidance on how we propose in the context of VoIP services to investigate compliance with certain PATS obligations and the type of considerations Ofcom are likely to take into account. The proposed draft guidelines are set out in Annex 6 to this document. We invite stakeholders' views on a number of questions set out in that draft guidance.
- 4.18 In Ofcom's view guidelines normally have the benefit of contributing to effective regulation by improving transparency and understanding. In particular, they are aimed at encouraging compliance by explaining obligations imposed, thereby ensuring that relevant providers understand their obligations and enabling potential customers to identify contraventions. Specifically, Ofcom believes that the proposed draft guidelines would help to reduce the potential disincentive involved in offering 999 access.
- 4.19 Therefore, the proposed draft guidelines illustrate how Ofcom would investigate potential contraventions of requirements or obligations set out in GC 3 and GC 4 to providers of such new services. In particular, they:
- seek to provide clarity on the meaning of some of the legal concepts used in relevant GCs applicable to PATS providers, so as to inform stakeholders of Ofcom's general view on them and the applicability of these GCs to different types of PATS;
 - describe factors that Ofcom would consider in assessing whether these GCs have been complied with.
- 4.20 That said, whether or not (and, if so, how) a particular matter is regulated will usually turn on the specific facts in each case. Stakeholders (and, in particular, those persons providing certain services) should always seek their own independent advice on specific matters taking into account the facts in question to answer specific questions on their legal obligations.
- 4.21 In developing the proposed draft guidelines, Ofcom has reflected the need to provide reasonable certainty, as well as the need to avoid being overly prescriptive in a market where technology is evolving and the facts of each

case vary. So for instance we believe it would be inappropriate to set a specific service reliability level. If Ofcom set one, there would be a risk that it could be too low (in which case providers would be able to comply whilst offering a standard that is below that which is reasonably practicable) or too high (in which case providers would be discouraged from entering the market).

- 4.22 The general approach taken in these guidelines is not to set out a particular technical approach that might be taken, but to encourage adoption of a formal risk assessment methodology, which considers which are the most likely failure modes of the service, and takes whatever steps might reasonably be taken to mitigate the risks associated with these failure modes. The aim is to promote a responsible approach to network integrity issues, but without specifying the precise solution.

Approach for network providers who carry third-party PATS services

- 4.23 Ofcom is aware that the application of GC 3 is also of concern for network providers that, for example, offer Internet access, over which third party service providers might independently offer PATS. This concern arises because a Public Telephone Network (PTN), for the purposes of the GCs, is defined as an ECN which is used to provide PATS.
- 4.24 Therefore a network could be considered to be a PTN, even if the network provider was not providing PATS and had no relationship with the service provider offering PATS over their network. Under GC 3, a PTN provided at a fixed location has certain network integrity requirements. Consequently, providers have expressed concern that they could be subject to these requirements even though they had not intended that their network and Internet access service be used for the purpose of providing PATS and/or they were not even aware that their network was being used to provide PATS service.
- 4.25 In the 2004 consultation, Ofcom considered that it does not seem reasonable as a matter of practical reality for such network providers to independently take steps to ensure network integrity. Instead, Ofcom generally considered that, in practical terms, it would be up to providers of PATS to take the initiative to inform the relevant network provider (over which the former's PATS are being provided) and take reasonable steps to develop an appropriate service level agreement (SLA). This is because in that particular scenario it would be the PATS provider causing the network provider to become a PTN provider. However, Ofcom said it would consider each case on its own merits and facts, so as to ensure that network providers generally comply with any obligations that they have under GC 3 and will require network operators to show that, in a particular case, such obligations should not apply because of above-mentioned factors.
- 4.26 In the 2004 consultation we asked stakeholders for their views on this issue (Question 22). Most respondents broadly agreed that it was not reasonable for network providers to independently take steps to ensure network integrity. The majority of respondents further suggested that the PATS provider should endeavour to put in place SLAs with the relevant network provider(s). Other respondents suggested instead that there should be a

requirement on the PATS provider to explain service limitations to their customers that resulted from the lack of control of the underlying network.

- 4.27 Ofcom's current view is that it may not be reasonably practical for PATS provider to negotiate SLAs with the range of network providers that are used to deliver their service. However, we would encourage PATS providers and network providers to develop SLAs if as part of their risk assessment, addressing service reliability they see the need to address possible concerns in this area.

Question 2: Do respondents agree with this approach for the interaction between network providers and PATS providers?

Evolution of regulation of nomadic services

- 4.28 Certain obligations in GC 3 are limited to those providers of PATS services at a 'fixed location'. This derives from Article 23 of the Universal Service Directive. That Article provides:

Member States shall take all necessary steps to ensure the integrity of the public telephone network at fixed locations and, in the event of catastrophic network breakdown or in cases of force majeure, the availability of the public telephone network and publicly available telephone services at fixed locations. Member States shall ensure that undertakings providing publicly available telephone services at fixed locations take all reasonable steps to ensure uninterrupted access to emergency services.

- 4.29 Certain VoIP services are marketed and used as nomadic services. In accordance with the position of the European Commission (as mentioned in the proposed draft guidelines at Annex 6 to this document), Ofcom considers that, if a service is provided at a contractually agreed location which is fixed in its nature (for example the end user's residential home or business), then this would constitute a service provided at a fixed location. However, there might be nothing to prevent a user technically from connecting to the service from another location (such as a Wi-Fi hotspot or Internet café). However, Ofcom considers that the network integrity requirements in Article 23 of the USD (as transposed in GC 3) would not be relevant when the service is used in these other locations.
- 4.30 This results in there being three types of PATS services – those provided at a fixed location, nomadic services and mobile services (as typically provided by mobile operators). Only the first category has obligations in respect of the network integrity requirements in GC 3.
- 4.31 Ofcom's view is that such a framework might become unsustainable moving forward. The reason for this is that VoIP services will become increasingly nomadic in their nature. There is likely to be an increase in fixed mobile converged services such as BT Fusion. VoIP services which have a nomadic capability and/or are marketed and used in a nomadic manner are also taken a step further with NGNs. In an NGN, a service is enabled using

an intelligence layer that is not associated with access line and local exchange geography. Thus, such a service could work anywhere where an operator provides it. Potentially, therefore, many voice customers served over an NGN could perhaps be classed as nomadic users for the purposes of GC 3.

- 4.32 The implication of this would be that many providers of voice services may be exempt from GC 3 requirements so that consumers would have little or no choice of a provider of services that meets GC 3 requirements. This would clearly be inconsistent with Ofcom's above mentioned objective to provide maximum availability of 999 services particularly taking into account the 'free rider' aspects of having 999 access.

Question 3: Do you agree that the limitation of GC 3 obligation to providers of service at a 'fixed location' is not sustainable in the long term? What views do you have on how this may be addressed?

Ofcom's forthcoming review of the General Conditions

- 4.33 Ofcom has decided to commence a broader review of the effectiveness of various GCs in 2006. Our review will especially focus on those GCs (3,4,5,17 and 18) dealing with network integrity, location, disaster/emergency planning, numbering and number portability. The review will address the suitability and applicability of these GCs in relation to developments in communications technology and usage so that measures to protect consumers' interests are adapted to ensure they are still fully effective and also to ensure regulation is appropriately technology neutral.
- 4.34 As part of this project, Ofcom will also consider whether any further changes to the regulation in relation to VoIP services should be proposed to deal with the provision of VoIP services. Ofcom will consult in due course on any changes it considers are needed to address such issues.

Question 4: In light of the other measures proposed in this document, are there particular issues in relation to VoIP services that should be addressed in this review?

Ofcom's input on the Commission's 2006 review of the Directives

- 4.35 In accordance with the 'review clauses' under the directives²⁶ adopted in 2002 (which package of directives is referred to in section 3 of this document), the European Commission is required to periodically review the functioning of these directives, and report to the European Parliament and to the Council on the first occasion not later than 26 July 2006.
- 4.36 In its Working Document (COCOM05-32) dated 30 September 2005²⁷, the Communications Committee has set out the following timetable for the review of the regulatory framework, including revision of the recommendation on relevant markets:

²⁶ See Articles 25 of the Framework Directive (Directive 2002/21/EC), Article 16 of the Authorisation Directive (Directive 2002/20/EC), Article 17 of the Access Directive (Directive 2002/19/EC) and Article 36 of the USD.

²⁷ http://forum.europa.eu.int/irc/Download/kfesA8JBmcGGer6O2EGqbGY4RbNUng--0I8RmAuwACAS0RCF-9ggmf-Hc9icN_oCslUcu1DHM/COCOM05-32%20Review%20timetable.pdf

Regulation of VoIP Services

Date	Action
End November 2005	Launch 'call for input' on Review of regulatory framework and Recommendation on relevant markets (Deadline for contributions - end January 2006)
1 December 2005	Telecom Council
End July 2006	Adopt a Commission Communication on regulatory framework and launch public consultation on proposed approach. Publish draft revised version of Recommendation on relevant markets for comment
End September 2006	Deadline for public consultation
End 2006	Commission adoption of legislative proposals; Commission adoption of revised Recommendation on relevant markets.

- 4.37 Ofcom understands that any changes to the above-mentioned directives that result from the review of the regulatory framework are unlikely to be ready to be transposed into UK law until 2009. The result of the review of the recommendation on relevant markets will take effect from 2007.
- 4.38 On 25 November 2005, the Commission published its document entitled *Call for input on the forthcoming review of the EU regulatory framework for electronic communications and services including review of the Recommendation on relevant markets*²⁸. The Commission has highlighted technological developments and convergence aspects, such as VoIP services, as one of the possible drivers of a need to adapt the framework.
- 4.39 Ofcom and the UK Government will be responding jointly to the commission's call for input in February 2006. The UK Government's response to the review is being led by the Department for Trade and Industry (DTI). The DTI has invited input from stakeholders. Ofcom has set up a separate project and will be responding jointly with HM government to the EC request for input, in February 2006.
- 4.40 Some of the challenges that are associated with meeting Ofcom's policy objectives in respect of VoIP services derive from the actual directives themselves rather than the UK's transposition or implementation of those directives – for example: the applicability of nomadic services; and the inter-play between the obligations of PATS providers and the underlying network provider. In addition, the review will address the potential for harmonisation which was highlighted as a concern by many VoIP service providers who responded to our 2004 consultation. Therefore, as part of the Commission's 2006 review of the Directives, Ofcom intends to input into the

²⁸

http://europa.eu.int/information_society/policy/ecomm/doc/info_centre/public_consult/review/511_25_call_for_input_comp.pdf

review to ensure that the directives are appropriate for the longer term development of VoIP services.

Question 5: Are there particular issues in relation to VoIP services that should be addressed in this review?

Section 5

Number portability issues

Introduction

5.1 This section considers describes a number of initiatives that Ofcom is taking in respect of number portability that are relevant to providers of VoIP services. These are particularly aimed at ensuring that number portability is reasonably available to VoIP service providers to promote competition and allow innovation. The measures are:

- discontinuance of Ofcom's interim policy in relation to NP rights;
- a proposed modification to GC 18 on the definition of PATS in relation to NP rights; and,
- an impact assessment for the proposed modification.

Discontinuance of interim policy for number portability

5.2 As part of our interim forbearance policy, in the 2004 consultation, Ofcom clarified also how number portability rights²⁹ for NVS would be affected during the interim period when that policy would be applied. In particular, we stated that a communications provider would not be expected to provide portability to a provider of PATS, if that provider was not complying with PATS obligations as a result of our interim forbearance policy. The details of that policy in respect of number portability are set out in section 5 of, and Annex 9 to, the 2004 consultation document.

5.3 The aim of this policy was to limit the eligibility of NVS providers for number portability (and therefore also the corresponding right to number portability of a subscriber) to those providers who comply with the relevant PATS obligations in the GCs. On 20 December 2004³⁰, we wrote to industry groups to further clarify this policy concerning the eligibility of NVS providers for portability, and to provide guidance on related matters. Ofcom reminded communications providers that its interim forbearance policy (including its related policy in respect of number portability rights) would be subject to review and that Ofcom had not made any commitment to continue this policy.

5.4 In section 4 of this document, we have made it clear that Ofcom is no longer maintaining its interim forbearance policy as set out in our 2004

²⁹ It is to be noted that GC 18 (which regulates the provision of number portability) distinguishes between 'Number Portability' and 'Portability'. The former refers, in essence, to the right of a 'Subscriber' (that is, any person who contracts with a PATS provider for the supply of PATS in the UK) to retain a telephone number on a PTN, independently of the person providing the service at that Subscriber's network termination point. In other words, this is the end-user subscriber interest that GC 18 mainly seeks to protect when such a person wish to transfer the relevant numbers to another service provider, in accordance with Article 30 of the USD. On the other hand, 'Portability' relates, in effect, to the wholesale relationship between the two communications providers concerned in respect of such a transfer. In particular, it refers to any facility which may be provided by a communications provider to another enabling any subscriber who requests number portability to continue to be provided with any PATS by reference to the same telephone number irrespective of the identity of the person providing such a service.

³⁰ http://www.ofcom.org.uk/telecoms/groups/nvs_index/pats.pdf

consultation. In other words, Ofcom will no longer forbear from enforcing PATS obligations against providers of NVS (including VoIP services) who provide PATS.

- 5.5 In light of this, Ofcom has also decided to discontinue the operation of the part of its above-mentioned previous interim policy in respect of number portability. This discontinuance will take effect from the publication of the statement to this consultation, expected in August 2006. In other words, from the publication of the statement, Ofcom will, expect each and every communications provider to:
- provide number portability as soon as it is reasonably practicable on reasonable terms, including charges, to any of its Subscribers who so requests where the service in question falls within the meaning of a PATS, in accordance with that provider's obligations under GC 18.1; thus, this obligation applies to both VoIP and non-VoIP service providers who provide PATS to its Subscribers;
 - pursuant to a request from another communications provider, provide portability (as defined in GC 18) (other than paging portability) as soon as it is reasonably practicable in relation to that request on reasonable terms in accordance with that provider's obligations under GC 18.2 and irrespective of whether (or not) the other communications provider complies with relevant GCs other than GC 18;
 - provide portability in accordance with this said above-mentioned obligations under GC 18.2 without, prior to providing such portability, requesting proof (or written confirmation) from the other provider that he actually provides PATS; as further explained in the proposed draft guidelines at Annex 6 of this document,. (Specifically, this clarification is given by Ofcom to address the above-mentioned related guidance given to industry groups in Ofcom's letter of 20 December 2004, which guidance will no longer be applicable in the light of the above.)
- 5.6 We firmly believe that the discontinuance of the interim policy with respect to number portability will help to ensure that the relevant end-user (subscriber) interests are adequately protected in line with Article 30 of the USD.

Modification to the definition of PATS in respect of GC 18

- 5.7 At Annex 9 of our 2004 consultation, we explained that in 2003 the Director General of Telecommunications inserted into GC 18 a definition of PATS which was a different definition to that used for other GCs. The reason for this was, in essence, because the standard definition of PATS (as set out in the USD) does not, on the face of it, in itself provide for the porting of non-geographic services which do not include the ability to make calls (such as 'receive only' services, e.g. freephone³¹).
- 5.8 The Director General justified this different definition of PATS for the purposes of GC 18 on the basis that it was clearly not the intention of the USD to exclude such services for number portability, given that its Article 30(1)(b) of the USD expressly provided for subscribers' rights to be ensured

³¹ For instance, a freephone service would not be classified as PATS (using the four gating criteria model) since it does not provide outgoing calls or access to emergency service

in relation to number portability for non-geographic numbers (which term, by its own definition in Article 2(f) of the USD, includes mobile, freephone and premium rate numbers).

- 5.9 However, Ofcom further clarified that, in every other regard, the Director General intended that GC 18 should reflect Article 30 of the USD, including the overarching policy that the rights afforded to subscribers should be tied to PATS, that is to say, a service which is available to the public; for originating and receiving national and international calls and 999 access through a number or numbers in a national or international telephone numbering plan. It was in this light that Ofcom set out its interim policy in respect of number portability, as mentioned above.
- 5.10 Ofcom also recognised that it would seek to take steps to resolve this tension over the definition and the provision of non-geographic number portability. In the light of this, Ofcom now proposes to modify GC 18 so as to substitute the definition of PATS in GC 18.5 which, at present, reads:

“Publicly Available Telephone Service” means a service made available to the public for originating and receiving, or only receiving, national and international telephone calls through a number or numbers in a national or international telephone numbering plan;

for the following new definition of PATS:

“Publicly Available Telephone Service”:

(a) in relation to a service to be used with a Telephone Number for receiving calls only under the contract between the person and the provider in question, means a Public Electronic Communications Service for only receiving national and international telephone calls through a number or numbers in a national or international telephone numbering plan.

(b) in relation to a service to be used with a Telephone Number for originating and receiving calls and access to Emergency Organisations under the contract between the person and the provider in question, has the meaning ascribed to it under paragraph 1 of Part 1 of this Schedule;

- 5.11 This proposed amendment to the PATS definition means, in effect, that subscribers of receive only services using geographic or non-geographic numbers will have a continued right to number portability irrespective of, for instance, whether 999 access is offered or whether the provider in question is also complying with its obligations under GCs other than GC 18. Given that the definition of “Portability” already cross-refers to the definition of PATS, this will also mean that corresponding obligations are placed on communications providers at a wholesale level to ensure that such porting takes place.
- 5.12 At the same time, the proposed amendment will provide legal certainty that, in respect of services using geographic numbers, all of the gating criteria in

the standard definition of PATS must be satisfied. Thus, this will mean that the formal PATS definition would reflect current policy, so that eligibility for number portability in respect of such services (and consequently, a communications provider being required on request to provide portability to another a communications provider) will depend on 999 access being offered. In so doing, this proposed amendment will increase the incentive for VoIP services to offer 999 access.

- 5.13 If the publicly available service in question would not provide such 999 access, it would not constitute PATS in relation to a service to be used with a geographic number for the purposes of GC 18 by reference to the proposed new definition of PATS. As a result, GC 18 would not apply to such a case and therefore no rights (or obligations) in respect of number portability would be present. Nor would such a service constitute PATS for the purposes of GCs other than GC 18 and any PATS obligations in such GCs would not therefore apply and the provider in question will be subject to separate enforcement action by Ofcom if it were not to comply with all of its obligations under GCs applicable to PATS providers.
- 5.14 Accordingly, Ofcom considers that the proposed amendment would serve to resolve the tension that we raised in our 2004 consultation. The statutory notification published under section 48(2) of the Communications Act 2003 of our proposal to modify GC 18 in the above respects is set out in Annex 7 of this document. Ofcom is inviting written views and comments— which should be made to Ofcom by no later than 5pm on 10 May 2006 in the form and manner specified in Annex 1 to this document—on this proposal in the light of the following impact assessment (“IA”).

Impact Assessment

- 5.15 The analysis presented in this section, when read also with the rest of this document, represents an IA in accordance with section 7 of the Communications Act 2003. In making the following assessment, we have taken into account our guidelines³² entitled *Better Policy Making*, which were published on 21 July 2005. You should send any comments on this IA to us by the closing date for this consultation. Ofcom will give careful consideration to all comments received during the consultation period before deciding whether to implement our proposals.
- 5.16 IAs provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policy-making and are commonly used by other regulators. This is reflected in section 7 of the Act, which generally means we have to carry out IAs where our proposals would be likely to have a significant effect on businesses or the general public, or where there is a major change in Ofcom’s activities.
- 5.17 In previous sections of this document, we have referred to Ofcom’s principal duty in carrying out its functions, which is to further the interests of citizens in relation to communications matters, and to further the interests of consumers in relevant markets, where appropriate by promoting competition. We have also referred to Ofcom’s additional statutory duties for the purposes of fulfilling community obligations. In relation to the proposed

³² http://www.ofcom.org.uk/consult/policy_making/guidelines.pdf

modification discussed above, Ofcom has considered all of the relevant requirements in the Communications Act 2003 and, in particular, its duty to further both the interest of citizens and consumers in relevant markets, where appropriate by promoting competition.

- 5.18 In the light of this, Ofcom considers that there are two broad options to resolving the above-mentioned tension concerning the PATS definition in GC 18. First, Ofcom could simply maintain the *status quo*, so that the PATS definition remains as it is, that is to say to do nothing in respect of the PATS definition. We will refer to this alternative as Option 1 below. Secondly, and in the alternative, Ofcom could modify the PATS definition for the purposes of GC 18 as set out above. This is referred to as Option 2, which is our preferred option. We set out below our assessment of each of these two alternative options. In particular, we set out the costs and benefits identified flowing from the impacts which each option is likely to have. We also assess the key risks associated with each option.

Option 1: 'Do nothing'

Costs

- 5.19 The main cost of not making the proposed modification to the PATS definition in GC 18 (as it currently stands) is that the maintenance of it is likely to give rise to legal uncertainty in terms of how Ofcom would interpret, apply and enforce the regulation in question.
- 5.20 In particular, such uncertainty could possibly arise from the situation where a subscriber seeks to transfer a geographic number from their existing provider to another provider. This point could be illustrated in further detail by taking the example where a subscriber requests number portability of a geographic number from a PATS provider to (say) a provider of VoIP services, which is not providing 999 access. In such a case, it is possible that the provider of VoIP services may seek to rely on the current definition of PATS for the purposes of GC 18.5, which (as discussed above) was intended to deal with number portability in respect of services using non-geographic numbers and geographic in-bound only numbers. As seen above, that definition excludes any reference to 999 access. In this case, the PATS provider from whom the subscriber wishes to transfer the geographic number in question could be advised that, by reference to express terms of GC 18, it could not refuse portability of the geographic number to the VoIP service provider simply on the ground that the VoIP service provider does not provide 999 access as, strictly speaking, the VoIP service could satisfy the current definition of PATS.
- 5.21 This example shows that the cost of maintaining the status quo is the risk that some providers might rely on the current definition of PATS in GC 18 in their commercial dealings with other providers to argue that they are not required to provide 999 access to qualify as PATS. This would appear to open the possibility of providers of certain services (such as VoIP services) not providing 999 access, yet believing or claiming that they are to be treated as PATS providers for all purposes under GC 18. Their incentive to be considered as PATS providers in respect of GC 18 is that they are then able to offer number portability to their subscribers.

- 5.22 This scenario, however, is clearly at odds with the policy intention of ensuring that, except in relation to a service to be used with a non-geographic number and inbound only geographic numbers, number portability rights are restricted to those services meeting the four PATS gating criteria (which includes 999 access). In other words, where a provider's service constitutes PATS by satisfying all the above-mentioned gating criteria, the provider in question must comply with all relevant PATS obligations but, at the same time, benefiting ultimately from the ability to request portability from another PATS provider under GC 18 to gain custom.
- 5.23 The main practical adverse implication of a regime that may be more open to the possibility of VoIP service providers being granted number portability (where they are not offering 999 access) is that it makes these providers more attractive to consumers, relative to the case where these providers are unable to port in numbers. In other words this could reduce the incentive to offer 999 access. This follows from the fact that the ability to take their phone number with them when switching providers is a key attraction to consumers. Put another way, the lack of ability to port their number represents a barrier to switching for consumers. This reflects the value that consumers place on continuity of their existing number³³. The net impact is a greater than otherwise uptake of VoIP services which do not offer 999 access. As discussed in 3.7, one potential consequence of the availability of voice services without 999 access is that consumers/operators may 'free-ride' by purchasing/offering a low cost service with no or limited 999 access, whilst relying on customers of other networks for emergency calls if the need arises. To the extent this is a prevalent factor, this could over time compromise the provision of networks with 999 access.
- 5.24 The above presents a qualitative discussion of the potential costs of maintaining the status quo. These costs appear to be potentially considerable. However, the quantification of these costs is not straightforward, since these costs relate to the competitive disadvantage experienced by providers due to the ongoing uncertainty of whether services are legitimately PATS.

Benefits

- 5.25 The benefits of maintaining the status quo appear limited to the general benefit derived from not imposing changes to an existing framework. This would obviate any need to communicate changes to industry stakeholders. One might argue that the intention of the framework is sufficiently clear such that formalising it in the GCs is unnecessarily regulatory.
- 5.26 It could be argued that a further benefit is the reduced burden to offer 999 access as a result of the legal ambiguities the entry barriers for VoIP services are lowered. Where VoIP service providers are offering number portability, they will offer a more attractive proposition to consumers, especially in the case of second lines. The absence of 999 access reduces the cost and hence price of these services, thus further enhancing the appeal to consumers.

Risks

³³ Research carried out for Ofcom's *Strategic Review of Numbering* suggests that continuity of their existing number is valued by consumers.

- 5.27 The risks of maintaining the status quo appear to revolve around the high probability that the inconsistency in the definitions will continue to engender unnecessary uncertainty for all providers (including PSTN and VoIP) of what comprises their regulatory rights and obligations.

Option 2: Modify the definition of PATS

Costs

- 5.28 The costs of this option appear quite contained. The change would not impose any material costs on providers of PATS (including VoIP services), and would only amount to a nominal administrative cost to Ofcom.
- 5.29 Providers of VoIP services would potentially lose the competitive advantage over traditional operators resulting from the legal inconsistency. That is, VoIP service providers could no longer offer number portability as an attraction to consumers where they are in addition not offering 999 access, which raises entry barriers for these providers. However, this is arguably not a legitimate cost of public policy; it is better seen as an alleviation of a competitive distortion

Benefits

- 5.30 The benefits of this option arise principally from the considerable enhancement of clarity and consistency of relevant definitions, and formally bringing the GCs into line with the express intention of public policy. More specifically, the proposed change to the PATS definition in GC18 would mean that all parties are clear on the position as regards providers' ability to port in geographic numbers where these numbers do not provide 999 access.
- 5.31 As explained above, the current definition of PATS in GC 18 introduces unnecessary uncertainty in how this applies in the context of NP. The proposed modification alleviates this uncertainty. With these changes, it should be clear that the provision of number portability for geographic numbers requires the provision of 999 access. That is, VoIP service providers will not be able to invoke the GC 18 definition of PATS as a basis for claiming that they have the right to port in geographic numbers even where they do not provide 999 access. The proposed changes make clear that the exemption in respect of the requirement to provide 999 access in order to qualify as PATS applies only to non-geographic numbers, as well as to geographic inbound-only numbers.
- 5.32 This clarification of the legal standing of VoIP service providers in respect of their number portability rights results in the matching of the legal regime to common sense policy. Where VoIP service providers are not providing 999 access, it would amount to a competitive non-neutrality to have a regime which allowed them to port in geographic numbers when, at the same time, traditional voice providers are required to offer 999 access before qualifying for number portability. It is important to recognise that, against the obligations, a major incentive to become PATS is the ability to offer number portability to subscribers. Were it the case that VoIP service providers could enjoy the benefits of offering number portability without incurring one of the major costs of PATS – i.e. good quality 999 access – the point of the incentive-

based system to become PATS is undermined. In the case of non-geographic and receiving-only geographic numbers however, the relevance of 999 access is negligible.

- 5.33 Thus the main benefit of the proposals is to align the legal regime with broad policy aims. In absence of these proposals, uncertainty would remain as to the conditions under which number portability and 999 access is a right and an obligation, respectively.
- 5.34 Further, the clarification addresses the potentially harmful consequences of maintaining the inconsistency in the definition of PATS. In the absence of the clarification, it is possible that VoIP service providers may claim to be PATS where they do not offer 999 access, and represent to consumers that they are a substitute for traditional voice services. This raises serious consumer protection, as consumers may not be aware of the lesser quality of 999 access on VoIP devices.
- 5.35 In addition, as discussed in 5.23, the clarification of the inconsistency means that it is less likely that voice services with number portability but without 999 access will be offered in the market. As a result, the free-rider problem – where consumers rely on good quality 999 access purchased by others – is less likely to be present, and hence the investment in services with 999 access is not threatened

Risks

- 5.36 The risks arising from making the clarification to the definitions are likely to be low. One possible risk might be that the clarification is unnecessary, in the sense that all market players are clear under the current regime. However, Ofcom considers, as argued above, that there is sufficient uncertainty to justify the proposal.
- 5.37 Another potential risk is that the proposal somehow acts to unnecessarily stifle the development of the VoIP services market. In the absence of this clarification, it is possible that VoIP market players might enjoy the benefits of the easier access to number portability. As discussed, in the absence of the clarification, VoIP players may benefit from being able to offer number portability for geographic numbers whilst also not offering 999 access. This both makes VOIP services more attractive and lowers barriers to entry.
- 5.38 Ofcom does not consider, however, that this risk is a material one. The VoIP market is expected to flourish over the next few years due to a range of factors. In any event, Ofcom does not believe that the VoIP market should be able to develop artificially via exploiting a legal loophole.

Conclusions on the best and preferred option

- 5.39 Option 1 is likely to be associated with immaterial benefits and some costs arising from the continuance of the inconsistency.
- 5.40 In contrast, the modifications to the definition of PATS (as under Option 2) are likely to give rise to minimal costs and relatively substantial benefits.

- 5.41 In this light, Ofcom's proposal to adopt Option 2 represents the more sound regulatory decision.

Legal tests for modifying GC 18

- 5.42 The modification to the definition of PATS in GC 18 would constitute a modification to GC 18 itself. In modifying conditions (such as GCs), Ofcom is required to meet various tests set out in the Communications Act 2003. These tests and Ofcom's assessment of how they are met in respect of the above-mentioned proposed modification to GC 18 are set out below.
- 5.43 The main test under the Communications Act 2003 is that Ofcom must not modify the GC 18 as proposed above unless Ofcom is satisfied that this modification satisfies the test set out in section 47(2) of that Act.
- 5.44 The test in section 47(2) of the Communications Act 2003 is that the modification is:
- (a) objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates;
 - (b) not such as to discriminate unduly against particular persons or against a particular description of persons;
 - (c) proportionate to what modification is intended to achieve; and
 - (d) in relation to what it is intended to achieve, transparent.
- 5.45 Ofcom considers that the proposed modification to GC 18 as set out above (and also as set out in the statutory notification at Annex 7 of this document) satisfies this test. The reasons for this view are set out below.
- 5.46 The proposed modification is objectively justifiable because it ultimately relates to the need to ensure that effective competition develops between all types of PATS providers to the benefit and protection of consumers. In particular, it addresses unintended potential disincentives of providers of services (such as VoIP services) by them not offering 999 access. This is because the terms of GC 18 allow voice service providers to take advantage of number portability in the case of geographic numbers, while at the same time such providers having no obligations under the other GCs which apply to certain other PATS providers. In this way, Ofcom seeks by this proposed modification to ensure that GC 18 itself more closely reflect the aims of the consumer protection measures set out in Chapter IV of the USD, which includes PATS obligations such as uninterrupted 999 access (Article 23), on the one hand, and number portability (Article 30), on the other hand.
- 5.47 It does not unduly discriminate against particular persons or against a particular description of persons in that the respective proposed definition of PATS, depending on whether the service in question is to be used with a geographic or a non-geographic number, will apply to all persons providing such service.

- 5.48 It is proportionate to what the proposed modification is intended to achieve in that, in the light of the IA set out above, it is necessary to ultimately ensure effective competition as well as consumer benefits and protection, but is not unduly burdensome on the providers to which the respective PATS definitions apply.
- 5.49 Further, it is transparent in that it is clear in its intention to ensure when number portability rights and obligations apply under GC 18 to services that constitute PATS in relation to services used with geographic or a non-geographic numbers, respectively.
- 5.50 In addition, Ofcom considers that its proposed modification is consistent with its principal duty in carrying out its functions as set out in section 3 of the Communications Act 2003. In particular, it considers that its proposal will further the interests of citizens in relation to communications matters and consumers in relevant markets for reasons set out above, particularly in the IA.
- 5.51 In proposing the modification, Ofcom has also considered its additional duties for the purpose of fulfilling the Community obligations set out in section 4 of the Communications Act 2003. In particular, Ofcom considers that, by making this proposed modification, it would be acting in accordance with the first Community requirement to promote competition in the provision of electronic communications networks and services and in relation to the provision and making available of services and facilities that are provided or made available in association with the provision of those networks and services.

Question 6: Do you have any comments on Ofcom's proposed modification to the PATS definition in GC 18?

Section 6

Consumer Protection – consultation on draft code

Introduction

- 6.1 As set out in the *New Voice Services: A consultation and interim guidance* on 6 September 2004 (the ‘2004 consultation’), Ofcom’s initial policy view was that:

“It is not desirable for all voice services to be required to offer the same features as traditional telephone services and we should instead enable consumers to make informed decisions.”

- 6.2 Because VoIP services may differ from traditional voice services, they may not meet consumer expectations unless choice is underpinned by an understanding of the services on offer. On this basis in the 2004 consultation we consulted on encouraging industry to improve the information flows between VoIP service providers and consumers. We put forward a number of options for achieving this and initially favoured the publication of an industry code – drafted by a stakeholder working group – which would specify the type of information suppliers must give their customers and which would be enforceable by Ofcom via a General Condition.
- 6.3 In the 2004 consultation, Ofcom asked the following questions in respect of consumer information:

Question 26: Do you agree that consumer information is required where services look and feel like a traditional telephone service but not where services are clearly different (e.g. PC based)?

Question 27: Do you agree with a two stage approach to consumer information, first to ensure the purchaser is aware of the nature of the service at the point of purchase and second to ensure that all potential users are aware the service does not provide access to 999 at the point of use?

Question 28: If consumer information is required to ensure that consumer interests are protected, which of the above frameworks (self-regulatory, co-regulatory or formal regulation), if any, is appropriate to ensure it is successful?

- 6.4 As outlined in Section 2 and below, Ofcom still sees appropriate consumer information as a critical element of its overall approach to regulation of VoIP services. This section considers stakeholders’ responses to the 2004 consultation on the need for consumer information and confirms Ofcom’s proposed approach to ensuring consumers are fully informed about the VoIP services they are subscribing to by encouraging industry to develop a

code. As such, this section includes a consultation on a new draft code which sets out the information all PECS providers offering voice services should supply their customers.

- 6.5 Section 7 considers the legal framework for implementation of the code and consults on a notification of a modification to General Condition 14 which would make compliance with the code mandatory. This section forms part of that consultation by setting out the consideration of the application and content of the Code.

Statement on development of draft code

- 6.6 This section summarises the responses from the September 2004 consultation, the key findings from the focus group research Ofcom carried out and Ofcom's overall conclusion regarding the approach to customer information based on these important inputs.

Responses to the 2004 consultation

- 6.7 Virtually all respondents to the 2004 consultation agreed with Ofcom's initial view that where a service differs from a traditional telephone service in terms of service reliability and available features and therefore may not meet consumer expectations, consumers should be informed about these differences. This will enable them to make decisions about what services to buy and how to use them. In particular, respondents agreed that consumers need to be fully aware if 999 access is provided and, if it is, whether the level of reliability meets consumer expectations. These respondents favoured Ofcom's initial proposals to develop an industry code as a means for ensuring appropriate information is delivered to consumers.
- 6.8 However a small minority of respondents thought all voice services should be required to offer exactly the same features as traditional services or at least offer reliable 999 access (also referred to in this section as 'access to emergency calls'). They argued that on this basis there would be no need for providers to inform their customers about any 'differences' because services would continue to meet consumer expectations.
- 6.9 In the consultation Ofcom proposed a two stage approach to consumer information, first to ensure purchasers are aware of the nature of services at the point of purchase, and second to ensure all potential users are aware if the service does not provide 999 access at the point of use. The majority of respondents agreed with this proposal. The National Consumer Council also suggested a third stage of information which they termed 'time of use'.
- 6.10 However, some respondents were uncertain about Ofcom's proposal that equipment should be labelled where 999 access is not available for the following reasons:
- the application of stickers or labels would degrade an otherwise 'high end' product and could easily be removed;
 - since stickers can easily be removed, labelling is therefore not a practical solution and there may be a need for permanent markings;

- if the phone does not support 999 access there is nothing the consumer can do about it anyway; and
- there is no similar requirement on DECT phones which are also affected by line powering failure.

Focus group research

- 6.11 During the consultation, Ofcom sought feedback directly from consumers on how VoIP services might be used and how Ofcom should deal with potential consumer protection issues. In November 2004, Ofcom held a series of focus groups to understand which features consumers expect and require from their phone service and how best to inform consumers about the ways in which new services might be different from their normal service. The focus group research by RDW research is being published on the Ofcom web site along with this consultation³⁴.
- 6.12 In summary, possible exclusion of access to emergency calls was very controversial. This service was taken for granted by everyone and its possible exclusion was a surprise to some and unacceptable to many others. It followed that the vast majority would not consider purchasing a replacement primary telephone service without access to emergency calls and very few were content to rely on their mobiles.
- 6.13 However, participants were divided over the issue of whether all services should be required to offer access to emergency calls or whether consumers should be able to make an informed choice. Opinions were based on personal attitudes about freedom of choice rather than, for instance, life-stage or other demographic criteria. In contrast, there was agreement that VoIP service providers should not necessarily have to provide the other standard features currently required from traditional services, such as operator assistance and itemised billing. Participants wished to be able to pick and choose according to their individual preference.
- 6.14 Participants believed that informing consumers about new voice services was the service providers' responsibility, but Ofcom should provide an industry code. They suggested that Ofcom should ensure purchasers had to actively acknowledge somewhere on the contract that they understood whether access to emergency calls was provided. It was generally agreed that responsibility for informing other members of the household about the type of service should lie with the purchaser and this person could be assisted by permanent markings on the telephone handset.

Ofcom's conclusions

- 6.15 Ofcom considers that the focus group evidence and responses to the consultation support Ofcom's view that consumer information is appropriate and also our proposed approach to publish a code outlining what information PECS providers providing voice services should supply to their customers. We strongly believe that choice needs to be underpinned by an understanding of what services are on offer particularly in relation to the availability and reliability of access to emergency calls.

³⁴ Research published at: http://www.ofcom.org.uk/telecoms/groups/nvs_index

- 6.16 We also conclude that information needs to be provided at various stages – this includes during the sales process and at the point of signature (prior to a contract being entered into) and at important points thereafter, to warn all potential users of the service (not just the subscriber or bill payer) of the availability and reliability of access to emergency calls.
- 6.17 We believe that permanent markings on equipment could cause confusion since equipment can be used for a variety of services and in some cases is interchangeable with existing traditional telephones. It is our view that non-permanent labelling is therefore a more appropriate solution.
- 6.18 Ofcom recognises that because equipment is often not part of the service, it would be at the customer's discretion whether to use the label and ensure it is not removed. If subscribers are taking responsibility for managing expectations about reliability and functionality in their household or at their premises, Ofcom believes that this in no way reduces the importance of service providers keeping their subscribers informed. Ofcom also believes that there may be a broader role for consumer education in this area. This is discussed in Section 8.
- 6.19 We do not agree that labels should not be provided to consumers because they could degrade otherwise 'high end' products. If a service does not provide access to emergency calls it is vital – given consumers appear to take for granted that such access will be available - that this is made visible to all potential users of that service. Ofcom recognises that there is no similar requirement on DECT phones. However we believe the level of consumer information required for (potential) non-availability of access to emergency calls is far higher than for just non-availability of line powering alone. Moreover, brochures accompanying DECT phones raise awareness that they require a power source and there should be back up if power fails. This has not stopped people from using these handsets and accessing the emergency services and is a good example of where consumers have exercised effective and informed choice.
- 6.20 Most respondents who commented on the idea of providing recorded announcements at the point of use - where 999 is dialled but not available - were in favour of this. However there was some concern about the cost of implementing such a scheme and how useful it would be during an emergency. On balance, Ofcom believes that this facility would provide useful back up to labels for people with visual impairment or indeed where a sticker has been removed. This measure has the support of industry members involved in the industry working group (below) and we do not therefore believe the cost of implementation would be too burdensome. As such, Ofcom is still of the view that labelling is appropriate.
- 6.21 On the basis of these conclusions, Ofcom is now consulting on specific proposals to deliver information to consumers, as set out in the draft code below. As part of this document we are seeking stakeholders' views on the scope and content of the code.
- 6.22 For the avoidance of doubt, the code in no way reduces the requirements on providers to meet their relevant obligations under other GCs. So for example, GC 3 requires that certain providers shall take all reasonably practicable steps to maintain uninterrupted access to Emergency

Organisations. The requirement in this code to provide customers with information regarding service reliability of 999 access in no way reduces the obligations to meet obligations under GC 3.

New Voice Services (NVS) Consumer Information Industry Working Group

- 6.23 The New Voice Services (“NVS”) Working Group (“the Group”) was convened at the end of 2004 following a meeting between Ofcom and stakeholders on consumer information for NVS such as VoIP services. The aim of the Group was to discuss what information should be highlighted to consumers of NVS, define best practice and draw up a set of minimum consumer information requirements.
- 6.24 Following eight months of regular meetings, detailed discussions and engagement with consumer groups, the Group agreed and presented to Ofcom a draft code. This is a considerable achievement and Ofcom has been greatly encouraged by the commitment and cooperation demonstrated by those participating in the group. Regular attendees included:
- BT
 - Centrica
 - Communications Management Association
 - Easynet
 - Gossiptel
 - ISPA
 - ITSPA
 - Kingston Communications
 - Level 3
 - Magrathea
 - Ntl
 - Ofcom
 - Telewest
 - Thus
 - Vonage
 - Wanadoo
 - Xconnect
- 6.25 The group agreed that not all voice services will raise the same concerns and issues for consumers (since some services may fully or partially meet consumer expectations more easily than others). For this reason the Group was clear that a one-size-fits-all code of practice was not appropriate. Instead, the Group concentrated on developing principles and practical measures, in the format of a code, which providers could use to ensure their

consumers are clearly informed of the differences between traditional and VoIP services.

- 6.26 Ofcom has refined the Group's code during the drafting of this document to ensure the requirements are clear and unambiguous, and that all terms are defined. We consider that these changes will enable Ofcom to monitor and enforce compliance with the code effectively (see section 7). However, we have not altered in any significant way the principles or practical measures put forward by the Group.
- 6.27 The group worked closely with consumer groups, including disability representatives, during its discussions. Ofcom is now seeking the views of the wider stakeholder community on the code via this consultation process. We set out a number of questions on the application and content of the code below. The code is published in draft form in Annex 8.
- 6.28 It is important to note that Ofcom's proposed code is distinct from the Internet Telephony Service Providers' Association's (ITSPA's) Code of Practice.

Application of the code

- 6.29 This section describes the applicability of the code to different providers/services in terms of the type of services/equipment and different customer segments.

Services/equipment

- 6.30 Respondents to the 2004 consultation generally accepted that appropriate consumer information - particularly with regard to access to emergency calls - may be more important where services look and feel like a traditional telephone. However a majority also argued that all NVS services should be subject to a consumer information requirement, including those used via PCs.
- 6.31 Ofcom believes that even where services clearly look different from a normal telephone, providers should still give their customers clear and appropriate information regarding the features and limitations of the service. Therefore we propose that the code should apply to all providers of PECS that provide voice services (referred to as 'voice PECS'), regardless of the equipment used. To do otherwise has the potential to be problematic for a number of reasons:
- For many services, customers are able to choose whether to use their PC/headset or a separate broadband adapter/traditional phone or USB phone to access the service. Therefore drawing a distinction between different types of hardware could make a consumer information strategy unnecessarily complicated and may result in long term confusion as equipment and hardware change. In any case, if services are offered using a PC, then arguably information can be readily provided.
 - Even when a visible distinction between services provided using different equipment is apparent, one cannot assume – especially in the early stages

of this new market – that all consumers of all new services will be clear about what services are and what are not available on their new service.

- Furthermore, consumer information requirements for services that differ according to what equipment they are accessed by could result in distortion as service providers change the appearance of their equipment to avoid consumer information obligations.

- 6.32 The purpose of the draft code is to enable consumers to make informed decisions about the voice services they subscribe to and use. We believe this is necessary where a voice service may not meet consumer expectations. As such, we are proposing that the code sets out the minimum requirements for all voice PECS to ensure their customers are provided with information about any feature and/or limitation in the provider's service that differed from a PATS provided over the PSTN in the ways set out below in 6.38 (service reliability; emergency calls; number portability and other information).
- 6.33 Different sections of the code may be applicable to different providers, depending on the services the provider is providing. Annex 6 provides some information on some of the legal concepts associated with PECS.
- 6.34 Notwithstanding that the code will not apply to providers of voice services who are not PECS, Ofcom would strongly encourage such providers to adopt the relevant parts of the code in respect of their voice services if it is likely that consumer expectations are that their service will behave like a normal telephone service.

Customer segments

- 6.35 Ofcom recognises that the needs of large business users are different to those of domestic and small business customers. The former has less need for consumer protection measures and has limited requirements for many of the features. We are therefore proposing that the code will apply to CPs of services provided to Domestic and Small Business Customers, as defined by General Condition 14 ('customers').
- 6.36 In some cases, a VoIP service may be provided by a CP to a larger business with more than 10 employees for the purposes of providing home-worker solutions to its employees. Generally, the consumer information requirements set out in the code apply to the party with whom there is the billing relationship. Where a large business has home workers, there may therefore, be no legal requirement for service providers to provide information. However, some of the issues that the consumer information code is intended to address (such as information at the point of use) are relevant. Therefore, in this case, Ofcom would strongly encourage service providers to provide relevant information to their larger business customers, and also service providers and the business customers to work together to provide relevant information to their employees.

Timing

- 6.37 Ofcom recognises that it will take some time for CPs to implement the provisions of the code. Therefore, Ofcom proposes that this code will come into force one month after the modification to GC 14 is published. Currently,

Ofcom envisages that the statement including the modification will be published in August 2006. Given the involvement that CPs have had in drafting the code and the period from this document being published to the code coming into force, Ofcom believes that this provides sufficient time for CPs to comply.

Question 7: Do you agree with the proposed application of the code?

Content of the draft code

Introduction

6.38 The Code sets out the information providers must supply to their customers under four key headings:

- service reliability;
- Emergency Calls (three aspects)
 - no access to emergency calls
 - reliability of access to emergency calls
 - emergency location information
- ability to Port Numbers;
- Other information for Domestic and Small Business Customers

6.39 Under each heading, the code sets out what information providers must supply their customers and when and where they must provide this information - for instance at 'point of sale' (during the sales process), 'point of signature' and 'point of use' (e.g. labels and announcements), in the terms and conditions and/or in a user guide.

Service reliability

6.40 The draft code require providers to inform their customers about the circumstances under which the service may cease to function:

- if the service will cease to function if there is a power cut or failure; or
- if the service will cease to function if the consumers' data network (i.e. broadband connection) fails.

6.41 In some cases, the VoIP service provider may be able to limit the circumstances in which the service could cease to function, for example:

- If the equipment being used for a VoIP service has battery back-up it will continue to function in the event of a power failure; or
- If the service automatically switches to the PSTN when a VoIP call cannot be made, consumers will still be able to make calls when their broadband connection is down

6.42 In these circumstances, consumer expectations may continue to be met and therefore fall outside of this proposed requirement. However, where the service could cease to function because the broadband connection fails or there is a power cut or failure, the code proposes that customers should be informed at the following stages:

- During the sales process; and
- Within terms and conditions of use; and
- In a user guide (if one is provided).

6.43 The proposed code includes the following text as an indicative example that can be adapted to the specific requirements of service providers:

“IMPORTANT INFORMATION: This is a voice service provided over a Data Network service and, as such, service availability is not guaranteed. Therefore if your broadband connection fails, your voice service will also fail. Your service may cease to function if there is a power cut or failure. Power cuts or failures may be caused by reasons outside our control.”

Question 8: Do you agree with the proposed approach for informing consumers that services may cease to function if the broadband connection fails or there is a power cut or failure?

Access to Emergency calls

6.44 As set out in Section 4, certain voice PECS may not offer 999 access. Where access to emergency calls is provided, access may be affected by a power cut or failure, or if the customer’s broadband connection fails. The section below explains the information proposed that should be provided in different cases.

No access to emergency calls

6.45 Where the service does not provide access to Emergency Calls the draft code requires that customers should be informed at the following stages:

- During the sales process;
- At point of signature;
- Within terms and conditions of use; and
- In a user guide (if one is provided).

6.46 In addition, the code proposes that customers should be informed at the ‘point of signature’ and at the ‘point of use’. In particular, service providers must:

Point of signature

- take appropriate steps to ensure that the customer acknowledges at point of signature, that they understand the service will not provide access to

emergency calls. At present the Code proposes that the service provider is required to get acknowledgement from their customers in the form of a signature (or online equivalent) at the point of signature; and,

- after the contract has concluded, provide the customer with a printed statement or an on-screen statement (that the customer is encouraged to print) out, clearly indicating that emergency calls cannot be made with this service. If this is not done as part of the sales process it should be part of the first subsequent communication to the customer.

Point of use

- make labels available (at no charge other than reasonable postage and packaging if applicable) stating that emergency calls cannot be made and recommend that customers fix these labels on their equipment; and
- Where an on screen or display is used with the service, indicate using a graphic, words or legend to indicate access to emergency calls is not available;
- if emergency calls are made, provide a network announcement stating that *“Calls to Emergency Services cannot be made from this handset; please hang up and redial from an alternative telephone service”* (or similar wording); and
- intersperse the announcement with a ‘number unavailable’ tone for the benefit of hearing impaired users.

Question 9: Do you agree with the proposed approach for informing customers where access to emergency calls is not available?

Reliability of access to emergency calls

6.47 Where access to emergency calls is offered, the service may cease to function if there is a power cut or failure or a failure of the customer’s broadband connection, as set out above.

6.48 In these circumstances, the draft code requires that clear information to this effect, highlighting the differences in reliability and their implications, must be provided to all potential users of the service. Consumers should be informed at the following stages:

- During the sales process (‘point of sale’); and
- Within terms and conditions of use; and
- In a user guide (if one is provided).

6.49 In addition, the draft code requires that providers shall, on request from the customer and at no charge other than reasonable postage and packaging, provide labels which clearly indicate that emergency calls may fail. Labels could indicate likely causes of this failure, such as a loss of power at the customer’s location or a fault with their broadband connection.

Question 10: Do you agree with the proposed approach for informing consumers that access to emergency calls may cease to function if the Data Network fails or there is a power cut/ failure?

6.50 Currently, the draft code only requires providers to get acknowledgement from their customers in the form of a signature (or online equivalent) when no access to emergency calls is available. Ofcom is keen to hear the views of stakeholders on whether the draft code should be extended to require providers to ensure that customers positively acknowledge at point of signature that although access to emergency calls is provided, the service may cease to function if there is a power cut or failure, or their broadband connection fails. Ofcom recognises that requiring this may increase the disincentive for providers to offer access to emergency calls.

Question 11: Should the code be extended to point of signature acknowledgement in respect of reliability of access to emergency calls?

Emergency location information

- 6.51 Emergency location information is important to the emergency services. Location information is used to dispatch relevant emergency assistance and aids in crime prevention and detection. In the PSTN a network termination point is matched with a callers' location which can be identified from the caller line identification (CLI) present in signalling system Number 7, even when CLI is withheld by the caller.
- 6.52 A VoIP service provider would be expected to provide CLI where viable and feasible in accordance with General Condition 16. This of course is not viable for those VoIP service providers who do not use or assign an E.164 number (telephone number) as a user identifier.
- 6.53 Certain providers have obligations in respect of providing emergency location information. These obligations are discussed in Annex 6. Notwithstanding these obligations, it is important that customers are aware of whether, and under what circumstances, emergency location information is provided

Services that do provide emergency location information

- 6.54 Where the service does provide access to emergency calls and is expected to be used principally at a single fixed location, the draft code requires providers to ask their customers to register with it the address of the place where the service is going to be used.
- 6.55 Where the provider has a reasonable expectation or has been informed that the service is to be accessed from several locations, the draft code requires the provider to ask their customers to register and update their location information whenever accessing the service from a new location.
- 6.56 The code does not currently specify at what point providers should request this information (set out in 6.54 and 6.55) from their customers. The code could therefore be enhanced to ensure customers register their location

information before accessing the service for the first time and/or from a new location, or are prompted to do so each time they access the service. We would welcome stakeholder feedback on this point.

- 6.57 In addition, the draft code also requires providers to advise their customers of any limitations on the location information that will be provided to the Emergency Services if the information they have provided is not up-to-date. The code requires that this information is provided:
- At the point of signature;
 - In any user guide; and
 - In any terms and conditions of use.
- 6.58 The code requires that where a customer chooses not to provide location information, the provider should inform them of the consequences as part of the sales process.

Question 12: Do you agree with the proposed approach to location information providers where the service does provide access to emergency calls? In particular, do you believe that subscribers should be required to register their main location prior to activation of the service?

Service Providers that do not provide emergency location information

- 6.59 Where the service does not provide Emergency Location Information, the draft code requires that clear accessible information to this effect must be provided to all potential users of the service;
- During the sales process;
 - At the point of signature; and
 - Within terms and conditions of use; and
 - In a user guide (if one is provided).

Question 13: Do you agree with the proposed approach to informing consumers where services do not provide emergency location information?

Ability to port numbers

- 6.60 Number portability enables consumers to change their communications provider without having to suffer the potential inconvenience and costs of a new telephone number. Millions of numbers have been transferred under the current number portability solution providing a boost to the effectiveness of competition in the UK communications market.
- 6.61 General Condition 18 requires all PATS providers to provide number portability but only to subscribers of publicly available telephone services (PATS) who request it (and only to providers of PATS services). In practice,

this means that customers of non-PATS services may not be able to take their number with them if they choose to switch provider.

- 6.62 We consider it is important for consumers to be informed of their number portability rights before signing up to a service. Around half of the consumers participating in the November 2004 focus groups – in particular those with home businesses – saw number change as a nuisance and therefore we believe it is important that consumers are effectively informed.
- 6.63 The draft code requires that if a provider does not offer number portability, customers must be informed. This information should be made available:
- During the sales process;
 - In the provider's basic code of practice (General Condition 14);
 - Within terms and conditions of use; and
 - In a user guide (if one is provided).

Question 14: Do you agree with the proposed approach to informing customers where services do not provide number portability?

Other information for customers

- 6.64 We consider that customers have come to expect certain standard features from their telephone service. The focus group participants' primary considerations when purchasing a new telephone service related to cost and customer service. These considerations included reduced international call costs, transparency of price plans, the ability to talk to a trained operator and fast response to faults.
- 6.65 It is our view that where these features or services are not available, customers should be fully informed so that they can make decisions about the type of services they wish to subscribe to and how they want to use the service.
- 6.66 In addition to the requirements set out above, the draft code therefore requires that materials describing the service that are made available by providers the information describing the service made available by a provider to a prospective customer during the sales process must make it clear if any of the following facilities features are not available by means of the service:
- a) access to a Directory Enquiry Facility;
 - b) access to operator assistance services (described in General Condition 8.1);
 - c) calling Line Identification Facilities;
 - d) provision of a Directory on request;

e) special measures for end users with disabilities (as described in General Condition 15); and

f) the non-itemisation of calls which are made from a Subscriber's telephone which are free of charge.

- 6.67 Finally, the draft code propose that providers must also make clear any restriction on the Number Ranges or Country Codes that may be called using the Service. It is recommended that dialling such numbers should produce the standard network unavailable tone.

Question 15: Do you agree with the proposed approach to informing consumers about the types of facilities that might not be available, but which they have come to expect from a telephone service?

Section 7

Consumer Protection – Legal framework for implementation of the code (Consultation on the Notification of modifications to General Condition 14)

Introduction

- 7.1 In the 2004 consultation document, Ofcom consulted on what regulatory framework would be appropriate to ensure that consumer interests are protected in the context of VoIP services.
- 7.2 Ofcom initially favoured the development of an industry code, drafted by a stakeholder working group, that would specify the type of information suppliers must give their customers and which would be enforceable by Ofcom via a General Condition. This was described as a co-regulatory approach.
- 7.3 As set out in Section 6 Ofcom is confirming its proposed approach. A code has now been drafted and forms part of this consultation (as set out in this section and given in Annex 8). We therefore turn again in this section to a legal framework for the implementation of the code.

Responses to the consultation

- 7.4 A number of industry respondents to the consultation argued that whilst further customer information requirements were necessary to protect customers of VoIP services and ensure they were informed about the services they are buying, any requirement should be based on self-regulation, to ensure processes are flexible and realistic.
- 7.5 However, the majority of providers agreed with Ofcom's initial view that given the diverse range of providers and services involved, agreement may be difficult and therefore it may be necessary to make the code mandatory.

Ofcom's Proposals

- 7.6 Ofcom does not consider that industry should be left to self regulate at this stage of the market's development, in particular in relation to information about access to the emergency calls. Ofcom believes that in the absence of an obligation certain providers may chose not to provide appropriate information and therefore customers will not be appropriately informed. Another risk of self-regulation is that the burden of consumer protection may fall on some key players, while other companies misuse the flexibility and rely on information provided by others or cause consumer detriment. This would result in a distortion of competition.

- 7.7 Ofcom recognises the need for an industry code to remain flexible and adaptable in the event of technological developments and we believe this has been achieved in the drafting by the industry working group and Ofcom. We do not believe this flexibility will be comprised if the code is made mandatory.
- 7.8 Some stakeholders have suggested that only the emergency service aspects of the code of practice should be a mandatory requirement and the other aspects should be self-regulatory and could be implemented individually by each provider or through a trade body or group such as ITSPA. Ofcom's current view is that all aspects should be mandatory.
- 7.9 The impact of the different options is considered below.

Question 16: Do you agree with Ofcom's view that all aspects of the code of practice should be mandatory?

Consultation on the Notification of modifications to GC 14

- 7.10 In order to make the code enforceable, there needs to be a requirement on providers of voice PECS to comply with the provisions of the code. Ofcom proposes to achieve this by means of modifying a General Condition. There is already a relevant General Condition on Codes of Practice and Dispute Resolution (GC 14).
- 7.11 As such, Ofcom is proposing that GC 14 would be modified so that there is a regulatory obligation upon PECS providers providing voice services to comply with the code, as set out in Annex 8.
- 7.12 In addition to this consultation on modifying GC 14, Ofcom has consulted on further proposed modifications to General Condition 14, in relation to Premium Rates Services (PRS) and 'rogue' internet diallers and other such problem services³⁵. Therefore there are, concurrently, two consultation exercises to modify General Condition 14. However, these are in relation to different parts of GC 14.
- 7.13 The relevant procedures for setting, modifying or revoking conditions are set out in section 48 of the Act. Under section 48 of the Act, Ofcom is required to publish a notification of the proposed modification (the 'Notification') and to consult for a period of not less than one month after the day of publication of the Notification.
- 7.14 The Notification and proposed modification are attached in Annex 8. Ofcom is inviting written views and comments by 5 pm on 10 May 2006 on the Notification and proposed modifications to GC 14, attached at Annex 8, which set out the obligation to establish, under a code, procedures to inform customers of voice PECS services about any limitations between these and traditional PSTN services.
- 7.15 Details of how to respond can be found in Annex 1.

³⁵ Providing citizens and consumers with improved information about Number Translation Services and Premium Rate Services http://www.ofcom.org.uk/consult/condocs/nts_info/

Impact assessment

- 7.16 The analysis presented in this section, when read also with the rest of this document, in particular section 6, represents an Impact Assessment (IA), as defined by section 7 of the Act. You should send any comments on this IA to us by the closing date for this consultation. Ofcom will give careful consideration to all comments received during the consultation period before deciding whether to implement our proposals.
- 7.17 IAs provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policy-making and are commonly used by other regulators. This is reflected in Section 7 of the Act, which generally means we have to carry out IAs where our proposals would be likely to have a significant effect on businesses or the general public, or where there is a major change in Ofcom's activities. In producing the initial IA in this document, Ofcom has had regard to its own guidance on carrying out impact assessments.

Aim of the proposed modification to General Condition 14

- 7.18 Ofcom's principal duty in carrying out its functions, as set out in section 3(1) of the Act, is to further the interests of citizens in relation to communications matters, and to further the interests of consumers in relevant markets, where appropriate by promoting competition. Section 4 of the Act sets out Ofcom's duties for the purposes of fulfilling community obligations. In relation to the proposals set out in this document, Ofcom has considered all the requirements in those sections and, in particular, its duty to further both the interest of citizens and consumers in relevant markets, where appropriate by promoting competition.
- 7.19 The general issue relevant to this context is the fact that some types of voice services, typically VoIP services, do not offer the full range of services commonly associated with voice services/products. As a result, in the absence of regulation, consumers may not be fully informed of these differences.
- 7.20 The proposed modifications to GC 14, described in Sections 6 and 7, attempt to address this issue. Essentially, these changes relate to the necessity for voice PECS providers to inform Domestic and Small Business Customers where their products/services may not meet customers' expectations. For example, the change to GC 14 creates an obligation for the provider to inform Domestic and Small Business Customers if the service may cease to function if the Data Network (e.g. Broadband connection) fails or there is a power cut or failure.
- 7.21 This section considers whether this option represents the most appropriate course of action for Ofcom to address the issue, in light of other options including that of doing nothing.

Options

- 7.22 There are two main regulatory options available to Ofcom following on from the September 2004 consultation in addressing this issue:

- 7.22.1 Doing nothing – in effect allowing the industry to self-regulate
- 7.22.2 Making modifications to GC 14 – Ofcom mandating the proposed code

Option 1: do nothing – self-regulatory

- 7.23 The major costs of not making any policy change with respect to the consumer information and protection relate to the likely adverse impact on consumers arising as a result of their not having full information about the services they are consuming.
- 7.24 In the absence of policy intervention, voice PECS providers are under a much less constraining obligation to provide customers with vital information about their services. In particular, under self-regulation, such providers are not under a legally enforceable regime in respect of conveying certain important information about their services, as compared to a regime of formal regulation. This means that compliance with a desired level of information being propagated is likely to be sub-optimal.
- 7.25 This adverse impact takes a variety of forms, dependent on the type of information in question that is missing. In the case of the customer not being informed that the service they are consuming does not provide directory assistance, the customer suffers a welfare loss associated with not being able to make use of that service when it could have reasonably been expected to be provided.
- 7.26 A more concerning situation is where a customer is not made aware that the service does not provide access to emergency calls. The costs of this can of course be very serious. In an emergency situation, the unaware customer would be surprised to discover if their phone does not provide access to emergency calls. In such cases the time lost contacting the emergency services could be critical.
- 7.27 It is worth emphasising that the cost in this situation is better understood as the customer not having made a fully informed decision, in combination with the consequences which flow from that. The inability to reach the emergency services per se is not the main cost, since a well-informed customer may well choose to subscribe to a service which does not offer quality or any access to emergency calls. This customer is rationally taking account of the expected costs of not having ready connection to the emergency services.³⁶

³⁶ That said, this assumes that private costs are equal to social costs of consumption, i.e., where are no external costs or benefits (negative or positive externalities) which arise from the consumption but which are not taken into account by the consumer in their decision. In the case of phone access to emergency services, there is an argument that even well-informed consumers who purchase these NVS services do not take into account the wider social costs arising from their having less-than-certain access to the emergency services. For example, were a fire to rage a neighbour's house, the consumer of such NVS services is less likely to reach the relevant emergency services, and thus increase the likelihood of devastation to the house and its occupants. However, the presence or otherwise of negative externalities when subscribing to NVS services which do not offer standard access to emergency services is not an issue that is principally relevant to the propagation of information to consumers. Rather, it is a more fundamental question about the desirability of having voice products available at all which do not offer emergency services access. As discussed in the body of the document, Ofcom considers that the benefits of encouraging greater innovation and investment in new voice products outweighs the costs arising from these negative externalities. However, this proposition assumes a well informed market.

- 7.28 In terms of the impact on competition, to the extent that customers are uncertain about the features of some voice services, there may be a competitive distortion in voice markets. For example, established providers with traditional models may have an advantage over VoIP players due to the reputation that may grow amongst customers that VoIP services are not reliable or are subject to mis-selling.
- 7.29 There is an argument that VoIP service providers would convey important information to customers if it was in their best interests. However, this assumes that all voice PECS providers would comply with any agreed code. In order to save compliance costs, some providers may have an incentive to depart from the code. This imposes a negative externality on those providers which are complying with any code, since the value of complying with regulations will be mitigated by the deviation of a few providers. Also, this would place an unequal burden on certain providers and distort competition.
- 7.30 The main benefit of reliance on self-regulation is that it saves on the costs of regulation. These benefits are better understood as the costs of Option 2, and are discussed below.
- 7.31 Self-regulation is potentially beneficial if there is a high probability that providers will adhere to agreed industry guidelines or codes of practice. In theory the content of any code may mirror those obtainable under regulation.
- 7.32 Self-regulation also has the potential benefit in that customer information could be modified and adjusted more quickly in response to changing market conditions than a mandated code could.
- 7.33 The biggest risk associated with the policy option of self-regulation is that providers do not: (a) come to agree on an industry code of practice; and, (b) that compliance, being voluntary, to any code is not sufficiently widespread to assuage concerns about lack of important information to customers about the providers' products and services. Ofcom considers this is a material risk to consumer protection of adopting this option.

Option 2: modifications to GC 14

- 7.34 The major costs arising under this option are associated with the cost of compliance with regulations. Compliance with these provisions will entail some costs for providers. These costs essentially relate to the creation and communication of information about services to customers, such as labelling.
- 7.35 Information provided to Ofcom by one provider suggests that compliance with labelling requirements will cost about £1 per customer.
- 7.36 In respect of the impact on competition, it could be argued that these provisions impose an unreasonable compliance burden on VoIP service providers, and thus undermine the development of this sector. However, the information which must be provided to customers relates only to the departures from norms associated with those particular services. Therefore, these costs are not truly asymmetric, since the customer is only being made

aware of how their service differs from what they might expect. Further, the information is of considerable importance from the perspective of consumer protection.

- 7.37 The major benefit of making modifications to General Condition 14 is that it provides the highest possible assurance of universal compliance with a consumer protection regime. The rectification of incomplete information in any market is generally a desirable objective. It is particularly so in the case of the provision of consumer information about communication products and services, due to the nature of the circumstances under which these services are used and relied upon.
- 7.38 As discussed above, the costs of a customer not being fully informed of the features of the services to which they subscribe could be very high. Where a customer is under the impression, by virtue of the look and feel of the phone handset, that access to emergency calls is guaranteed, the consequences of not connecting to emergency services in the event of an emergency are of course potentially disastrous. For example, where a customer's house is on fire or where a householder suffers a sudden life-threatening medical episode, any unnecessary delay of the fire brigade or ambulance could have very serious consequences.
- 7.39 The key notion underpinning the proposed modifications made to GC 14 is that the customer should always be fully informed about the features of the services they rely upon in these fraught situations. By enshrining this form of consumer protection within the General Conditions, Ofcom is best ensuring that customers are made fully aware of how the products/services to which they subscribe differ from certain norms.
- 7.40 Importantly, the degree of compliance under formal regulation is likely to be significantly higher as compared to self-regulation. Providers will be incentivised to comply with these regulations in order to avoid significant sanction in the event of a violation.
- 7.41 Thus the purpose of the proposed modifications to General Condition 14 is not only to maximise the amount of information made available to customers, but also to achieve the highest possible assurance that these provisions will be adhered to by all providers.
- 7.42 Qualitatively, these benefits can be understood as the expected alleviation of consumer detriment (including saved lives) which would result from a sole reliance on self-regulation. These benefits are difficult to quantify, however it is not clear that conducting this exercise would be proportionate in this case.
- 7.43 The key advantage of regulation over self-regulation is the lower risks that it entails, due to the imposition of consumer protection within the General Conditions.
- 7.44 In terms of the risks specific to this policy option, it could be argued that it poses unnecessary compliance costs on some voice PECS, thus impairing the development of this sector. However, Ofcom considers that this information is not only vital from a consumer protection point of view, but is indeed likely to be beneficial to the growth of VoIP services. This is because

provision of this information will promote trust in these services. Customers will also have a better understanding of these products/services, and thus be in a better position to make a well-informed decision as to whether to consider these services as a substitute or complement to traditional voice services.

- 7.45 Introducing regulatory change via General Conditions is likely to bring considerable incremental net benefits over and above those achievable under self-regulation. On the benefits side, this reflects the greater likelihood and comprehensiveness of consumer protection measures arising under a regulatory regime, along with the relatively low costs (e.g. £1 per customer) of complying with these measures (though of course this figure could become a more significant burden on providers' as subscriber numbers grow).
- 7.46 Therefore, Ofcom considers option 2 to represent the most appropriate decision, and proposes the modifications to GC14 as detailed in this section.

Tests set out under the Communications Act 2004

- 7.47 In modifying conditions, Ofcom is required to meet various tests set out in the Act. These tests and Ofcom's assessment of how these are met in connection with the proposed modification to GC 14, are set out below.

Section 3 – Ofcom's general duties

- 7.48 Section 3(1) of the Act sets out the principal duty of Ofcom:.
- To further the interests of citizens in relation to communications matters; and,
 - To further the interests of consumers in relevant markets, where appropriate by promoting competition.
- 7.49 Ofcom is required by this section to carry out its functions in line with this duty.
- 7.50 Ofcom considers that its proposed decision to require providers to comply with the code to facilitate customer choice and adequately protect customers falls within the scope of section 3 of the Act.
- 7.51 This is because, as explained in this document, Ofcom considers that the balance of evidence and responses to the 2004 consultation support the position that customers must be adequately informed about the services they subscribe to, in particular where services may not offer access to emergency calls, and that measures to require providers to inform their customers are therefore required.
- 7.52 Ofcom considers that because VoIP services may differ from traditional voice services they may not meet customer expectations unless choice is underpinned by an understanding of the services on offer. In particular, it is a widely held assumption that all fixed phone lines in the UK provide access to emergency calls and therefore consumers have an expectation that a phone line will provide them with access to emergency calls. Ofcom

considers that the proposed requirement set out in this document would ensure that their customers are protected and that it would provide a greater incentive on providers to improve performance and follow best practice in this area.

- 7.53 Ofcom has also considered when carrying out its functions, amongst other things, the requirements in section 3(2) of the Act to secure the availability throughout the UK of a wide range of electronic communications services and section 3(4) of the Act, namely that in performing its duties Ofcom must also have regard to such of the following as appears to be relevant in the circumstances, in particular:
- The desirability of promoting competition in relevant markets;
 - The desirability of promoting and facilitating the development and use of effective forms of regulation;
 - The desirability of encouraging investment and innovation in relevant markets; and
 - The opinions of customers in relevant markets and of members of the public generally.
- 7.54 Ofcom considers that the proposed requirement set out in this consultation meets the above criteria. In particular, Ofcom is supporting innovation by enabling a wide range of services to be delivered to customers. Requiring providers to make sure their customers are fully informed about the services they are buying will help drive innovation and choice and will therefore be beneficial to competition.
- 7.55 We also consider that the proposed requirement should have the effect that all providers of voice PECS would be subject to the same rules and that this should also help promote competition. As set out in Section 6, the code would require providers to set out the minimum requirements for all voice PECS to ensure Domestic and Small Business Customers are provided with information about any feature and/or limitation in that provider's service that differs from a PATS provided over the PSTN.

Section 4 – European Community requirements for regulation

- 7.56 Section 4 of the Act requires Ofcom to act in accordance with the six European Community requirements for regulation. In summary these requirements are to:
- Promote competition in the provision of electronic communications networks and services, associated facilities and the supply of directories;
 - Contribute to the development of the European internal market;
 - Promote the interests of all persons who are citizens of the European Union;
 - Not favour one form of or means of providing electronic communications networks or services, i.e. to be technologically neutral;
 - Encourage the provision of network access and service interoperability for the purpose of securing;

- o Efficient and sustainable competition; and
- o The maximum benefit for customers of Communications providers; and
- Encourage compliance with certain standards in order to facilitate service interoperability and secure freedom of choice for the customers of communications providers.

7.57 For the reasons set out above, and in particular, that it would provide greater incentives for providers to meet customer expectations by ensuring choice is underpinned by an understanding of the services on offer, Ofcom believes that its proposed decision would meet these requirements.

Section 47 – Test for setting or modifying conditions

7.58 As set out under 47(1) of the Act, in modifying a condition, Ofcom must be satisfied that the test set out under 47(2) has been met. The test is that the modification is:

- Objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates;
- Not unduly discriminatory against particular persons or against a particular description of persons;
- Proportionate to what it is intended to achieve; and
- Transparent in relation to what it is intended to achieve.

Objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates;

7.59 Ofcom considers that the proposed modifications are objectively justifiable and a critical element of our overall approach to the regulation of voice PECS. Where services have the potential to differ from a traditional telephone service - and therefore may not meet their customers' expectations – customers must be informed about these differences in order to enable them to make decisions about what services to buy and how to use them. In particular customers need to be fully aware if access to emergency calls is provided and, if it is, whether the level of reliability meets consumer expectations.

7.60 Ofcom therefore considers that the proposal to establish a code would provide enhanced protection for their customers and ensure that providers have incentives to follow best practice in this area.

Not unduly discriminatory against particular persons or against a particular description of persons;

7.61 Ofcom considers that the proposals are not unduly discriminatory. This is because the proposed requirement would apply equally to all providers of voice PECS. Providers offering data services are not covered by the requirement because the consumer expectations described above (for example the expectation to be able to call emergency services and directory enquiries) do not exist.

Proportionate to what it is intended to achieve

- 7.62 Ofcom considers that the proposed modifications are proportionate on the grounds that it is the least onerous solution to achieving Ofcom's three key objectives – namely, allowing innovation in the development of VoIP services, ensuring reasonable consumer information and encouraging the availability of 999 services. Introducing regulatory change via a GC is likely to bring considerable benefits over and above those achievable under self-regulation. These benefits include increased consumer protection, along with the relatively low (e.g. £1 per customer) of complying with these measures. The risk of self-regulation is that the burden of consumer protection may fall on some key players, while other companies abuse the flexibility and rely on information provided by others or cause consumer detriment.

Transparent in relation to what it is intended to achieve

- 7.63 Ofcom is satisfied that the proposed modifications are transparent insofar as the nature and obligations are clearly set out in this document.

Section 8

Enforcement, monitoring and review

Introduction

- 8.1 Ofcom believes that the approach summarised above will in the current environment provide a robust platform to meet Ofcom's three key objectives – namely, allowing innovation in the development of VoIP services, ensuring reasonable consumer protection and encouraging high availability of 999 access.
- 8.2 However, Ofcom recognises that the dynamic nature of these services and technology and the unclear consumer behaviour could mean that in time this approach may not be sufficient to continue to meet the three key objectives. For instance, customers could purchase a VoIP service with no 999 access as a secondary line and then terminate their primary line resulting in the customer having no fixed line 999 service which could put consumers at risk in emergency situations. Alternatively, operators/subscribers could 'free ride' leading to under-provision of 999 access.
- 8.3 Therefore, Ofcom is beginning a programme of systematic activities to ensure that we both keep abreast of market developments and take appropriate remedial action to meet our objectives. The key elements of this are:
- customer education activities;
 - a proactive enforcement programme particularly in respect of the consumer information code (set out in sections 6 and 7) to ensure maximum compliance with regulation;
 - further research to assess customer understanding and attitudes to VoIP services and to understand the effectiveness of the code in achieving high level of customer awareness. If this reveals, for instance, a level of customer understanding that is likely to result in detriment Ofcom will consider appropriate remedial action; and,
 - research and analysis to understand the level of availability of 999 access and whether this level of provision is sufficient to meet societal needs. If this shows a sub-optimal level of provision then Ofcom will formulate and impose further regulation to address this issue.
- 8.4 Each of these is described below.
- 8.5 Ofcom may include the results of this work in future publications on the sector and on consumer policy.

Question 17: Do you consider that the overall programme of activities is appropriate?

Consumer education

- 8.6 A number of respondents to the 2004 consultation urged Ofcom to support our approach to the regulation of VoIP services with a consumer education campaign (led by either Ofcom or industry).
- 8.7 Alongside this consultation we have published a 'VoIP Consumer Report'. This report describes the background to VoIP services in the UK and offers consumers advice on what to consider when subscribing to a VoIP service.
- 8.8 As set out in Ofcom's Consumer Policy Review (published 8 February 2006) Ofcom considers that it should not have the primary role in improving information flows between suppliers and consumers and that this activity is best left to the market.
- 8.9 However, we recognise that in some cases the market alone may not deliver to customers the information they want and need. Where the evidence suggests that this has resulted in customer harm, or is likely to do so in the future, there may be a case for regulatory intervention. This intervention may either take the form of requiring providers to provide certain information (as is required in relation to VoIP services) or other forms of intervention such as customer education.
- 8.10 Consistent with this approach, we are continuing to develop the Consumer Advice section of Ofcom's web site during 2006. This section will be designed to improve the ease with which consumers can obtain information on different aspects of communications services such as where to find price and quality of service information, links to relevant websites and advice on how to decide between different offers and suppliers. It is also aimed at enhancing consumers' ability to deal with new problems as they emerge. We will ensure that in developing this part of the website, the needs of potential or actual users of VoIP services are addressed.
- 8.11 If Ofcom considers that the consumer information requirements set out in Sections 6 and 7 are not delivering the expected level of consumer understanding and awareness required to underpin our overall approach to VoIP services, Ofcom will first consider the need for further initiatives (this is described below). However only in exceptional cases will Ofcom provide information about suppliers or their products and services itself.

Question 18: In light of Ofcom's Consumer Policy Review, are there other consumer education measures that Ofcom should consider?

Proactive enforcement

- 8.12 Ofcom is resolute in its desire to achieve a high level of compliance. Accordingly, Ofcom will be taking a highly proactive approach to increase understanding of the obligations, promote and monitor compliance and if necessary take enforcement action. Below we have identified initial steps that we will be taking.
- 8.13 Ofcom is writing to industry to inform providers of the regulatory framework and the forthcoming consumer information code.

- 8.14 Ofcom will be meeting with industry members in advance of the final statement being published to discuss how they see compliance working in respect of any new obligations and to give them the opportunity to highlight any particular challenges or opportunities they face.
- 8.15 Following implementation of the new requirements, Ofcom will invite industry representatives to present an overview of compliance activity and how the market is developing alongside industry's application of the code.
- 8.16 Ofcom will monitor how effectively the consumer information code is applied by providers. Ofcom plans to start a mystery shopping exercise starting in the second half of 2006. The purpose of this will be to establish whether providers are complying with the consumer information code.
- 8.17 If evidence suggests that providers are not complying with the requirements, Ofcom may act swiftly to instigate compliance procedures. Where Ofcom determines there are reasonable grounds for believing a condition has been contravened, it can issue a provider with a notification under Section 94 of the Communications Act ('the Act'). A section 94 notification will set out the steps that Ofcom believes a provider should take to ensure that it becomes compliant with the condition, along with the consequences of the breach that Ofcom believes should be remedied. Failure to fully comply with a section 94 notification will lead Ofcom to consider issuing an enforcement notification under section 95 of the Act and/or imposing a penalty under section 96 of the Act. Penalties may be as much as 10% of the provider's relevant turnover. Under section 100 of the Act, Ofcom ultimately has the power to suspend a provider's right to provide electronic communications services where the provider consistently fails to comply with conditions.

Question 19: Do you have comments on this proposed enforcement approach?

Research to assess consumer understanding and attitudes

- 8.18 Ofcom is undertaking research to determine whether consumers' understanding of VoIP services is sufficient to deliver Ofcom's objectives. If this understanding is not adequate (for instance, potential purchasers and users are unaware of potential deficiencies) a more interventionist approach may be required. Equally, if consumers' understanding has improved significantly, it may be appropriate to reduce regulation.
- 8.19 Ofcom is currently tracking awareness of the ability to make voice calls using a VoIP service as well as current future usage of VoIP services. Going forward and as usage of such services increases, we will be extending this research to capture consumers' understanding of what VoIP services offer, including the potential for cheaper call charges as well as possible limitations such as no 999 access.
- 8.20 Ofcom's consumer research reports that half (49%) of UK consumers are aware of the possibility to make calls over the internet (VoIP) rising to 59% amongst internet customers, and further still (63%) amongst those using

broadband. Current claimed use of VoIP services however, remains low in comparison to use of other voice telephony services, 9% of internet customers say they are using VoIP services in Q3 2005. Annex 9 provides a summary of the research report.

Question 20: Are there other areas of research activity that Ofcom should consider to ensure it understands market developments?

Ensuring a high level of availability of 999 access

- 8.21 One of Ofcom's objectives is to achieve a high level of availability of 999 access. As we highlighted in section 2, due to in particular the potential 'free-rider' issue in respect of 999 access it may be that even with good customer information that there may be under provision of access.
- 8.22 Ofcom believes that although the regulatory framework allows VoIP services to be offered without 999 access, a good level of provision of 999 access by VoIP service providers is likely to be achieved due to a number of factors:
- Based on focus group research, most consumers expressed a strong preference for services that provided 999 access. Combined with the customer information code it is likely that many customers of VoIP services will select services with 999 access
 - The incentive to offer 999 access is increased by some aspects of our approach:
 - providing certain guidance on meeting GC 3 obligations – without this guidance the lack of certainty about how GC 3 might have been enforced would have created a risk and therefore increased the disincentive to offer 999 access;
 - mandating all providers of voice PECS to provide clear information regarding whether the service offers 999 access including the need to gain positive acknowledgement; and,
 - restricting number portability rights to PATS providers who offer 999 access.
- 8.23 Furthermore, we have taken steps to encourage providers of VoIP services who offer 999 access to provide good quality access. The guidance on both GC 3 and GC 4 will ensure that PATS providers understand and are aware of their obligations. It will also help to ensure that they take all reasonably practicable measures to maintain good network reliability and provide emergency location information.
- 8.24 It is also worth noting a number of other factors that will help maintain a high level of provision of 999 access into homes from a combination of VoIP, PSTN and other technologies. For instance, the lack of any naked DSL product today will mean that any subscriber to a VoIP service delivered over a BT wholesale DSL service will need to maintain their PSTN line. Also, BT

and Kingston are required to provide access to basic telephone services, including 999 access, under their Universal Service Obligations.

- 8.25 However, the future level of provision of 999 access is not fully predictable particularly as uptake increases beyond the early adopters. Therefore, Ofcom will closely monitor the market to understand both the attitudes of consumers as well as the availability of services with 999 access. This research will assess the mix of different services in each household since the potential detriment resulting from having a VoIP service without 999 access is less if there remains, say, a PSTN line in service. The research will also consider how the level of provision differs by demographic groups.
- 8.26 If it becomes apparent that the availability of 999 access of a good quality is, or is likely to be, significantly reduced and that this is likely to result in consumer-citizen detriment then Ofcom will consider various actions to address the problem. These might include depending on the circumstances at the time:
- requiring all voice PECS to offer 999 access;
 - setting more stringent requirements in relation to GC 3 and GC 4 such as a requirement for battery back-up;
 - modifying the consumer information requirements to emphasise the impact of non-availability of 999 access;
 - in the case where a naked DSL service was available, restricting the availability of it to PATS providers;
 - requiring providers to publish service reliability information; and/or
 - in combination with other agencies providing further consumer education and information.
- 8.27 In light of the potential issues relating to under-provision of 999 access and the potential consequences that this may have Ofcom would encourage providers to consider additional measures to ensure high levels of consumer awareness, particularly regarding 999 access and quality of 999 access. Examples of such measures might include:
- monitoring whether their VoIP service is being used as a primary or second line and flag up relevant issues to the customer;
 - in cases where the PSTN line is still active encouraging customers to keep a handset connected to it for emergency use;
 - not proactively removing the customer's PSTN line without informing them of this and its possible consequences;
 - intermittently and proactively asking customers if they have maintained a PSTN line on their premises; and
 - identifying if the VoIP service is being used in many locations and proactively explain the potential implications of such use.

Question 21: In relation to ensuring high availability of 999 access, are there other measures that Ofcom could consider?

Section 9

Other Issues

9.1 Stakeholders have raised a number of issues that affect the development of VoIP services. These are discussed in brief in this section and Ofcom would welcome industry input on the appropriate approach to take. The issues are:

- VoIP in the *ex ante* framework
- Naked DSL
- Blocking of VoIP calls
- Routing/termination
- Crime detection/prevention
- SPAM
- Extraterritoriality of VoIP service providers
- Privacy and encryption

9.2 Ofcom understand that there may be other issues of concern to VoIP service providers such as interception and data retention. However, these are best addressed by the relevant authorities such as the Home Office.

VoIP in the *ex ante* framework

9.3 A number of stakeholders have questioned whether or not VoIP services are in the same market as fixed telephony services. The relevance of this is that if VoIP call services were in, for instance, the narrowband calls market and BT (for example) were found to have SMP (significant market power – akin to dominance) then a BT VoIP service would then be subject to *ex ante* remedies in that market. Such *ex ante* obligations could include for instance, price floors or wholesale supply obligations to prevent anti-competitive behaviour. It is worth noting that such *ex-ante* obligations are further to the general provisions under competition law prohibiting abuse of dominance (and which apply to any undertaking found to be dominant – regardless of whether, under *ex-ante* regulation, they have separately been designated as having SMP). The issues of which markets VoIP services would fall into and what remedies, if any, would apply, will be considered by Ofcom in the context of the relevant market reviews. The most likely relevant markets are:

- Markets for fixed narrowband retail services (which include retail line rental and retail calls);
- Wholesale call origination market; and
- Wholesale call termination market.

- 9.4 As we highlighted in the second consultation of the Strategic Review of Telecommunications³⁷, we expect that in time that VoIP services will increasingly act as a competitive constraint on traditional voice services to the degree to which they may be considered in the same market. However, we have probably not reached that point today. The rate at which VoIP services develop to be an effective constraint and/or are in a new separate market will depend on a wide range of factors including the services offered, broadband and VoIP uptake and service pricing. Ofcom will continue to monitor the market to understand whether the conditions have been met to review the market.
- 9.5 The wholesale call origination market was last fully reviewed in November 2003³⁸ (a no material change review was carried out in 2005 as part of the review of BT's network charge controls)³⁹ and BT was found to have SMP in that market. Similarly to the retail market, VoIP services were not considered due to their very nascent state at the time.
- 9.6 Ofcom's preference is to address any retail dominance via wholesale level remedies so as to allow competition to develop in the retail market. Accordingly, the current remedies in the wholesale call origination market are intended to facilitate retail level competition and include carrier pre-selection obligations and cost orientation obligations for charges. Ofcom intends to begin the wholesale call origination market review in 2006/7 and will consider VoIP in this review.
- 9.7 The wholesale call termination market is fundamentally different to either of the other two markets. This market was reviewed in November 2003⁴⁰. The outcome of this review was that all PECN operators were found to have SMP because each network is a separate identifiable economic market and each operator therefore has a monopoly on termination of calls on its network. All PECN operators are therefore required to provide termination services to other CPs on fair and reasonable terms and in the case of BT and Kingston charge controls apply.

Naked DSL

- 9.8 Currently, customers can only purchase a DSL broadband product from BT (at the retail or wholesale level) if there is also a rented BT PSTN line into the premise⁴¹. In other words, DSL 'piggy backs' on the PSTN service. Naked DSL is in effect a DSL-based product that does not require a customer to have a PSTN line and functionality. Naked DSL could be provided as a retail or wholesale product.
- 9.9 There are potentially two key benefits for consumers associated with a naked DSL product:
- For consumers that do not use/need a PSTN call service (for instance, because they exclusively use a VoIP service or mobile for making voice

³⁷ http://www.ofcom.org.uk/consult/condocs/telecoms_p2/tsrphase2/maincondoc.pdf

³⁸ http://www.ofcom.org.uk/consult/condocs/narrowband_mkt_rvw/nwe/

³⁹ NCC <http://www.ofcom.org.uk/consult/condocs/charge/main/#content>

⁴⁰ http://www.ofcom.org.uk/consult/condocs/narrowband_mkt_rvw/Eureviewfinala1.pdf

⁴¹ The situation is different for cable broadband

calls) a naked DSL service would allow them to avoid some of the cost associated with the PSTN line;

- Naked DSL allows VoIP service providers to 'break' the billing relationship between BT and the customer and thus enables more competition as other operators are able to offer a bundled service of line rental and calls.

9.10 It is worth highlighting a number of points in relation to these issues:

- the potential cost saving that could be gained from moving to naked DSL is not the full line rental charge (typically £11-12 per month retail inc VAT). This is because the line rental charge covers both the copper loop and certain elements of the PSTN network plus associated overhead costs. Even in a naked DSL product the copper line would still be required and there would still be a need to cover the various overhead costs. The main PSTN-specific element which is included within the line rental is the cost of a line card, and this represents a small fraction of the line rental. The costs associated with PSTN switches are not included in the line rental, but are recovered from per-call costs of call origination and conveyance;
- Unlike some of the countries that have introduced a naked DSL product, the UK has a viable wholesale line rental (WLR) product that is both cheaper than the retail product and allows competing operators to break the billing relationship between BT and the end-customer;
- Competing operators can today technically use local loop unbundling (LLU) to develop a naked DSL retail service based.

9.11 We asked in the Strategic Review of Telecommunications Phase 2 Consultation what Ofcom's approach should be to naked DSL. There was not a huge response to this question and the responses were mixed. They varied from: at one end that Ofcom should mandate a specific naked DSL product immediately; to operators who said that it should be mandated only in 'non-LLU' areas; to, at the other extreme, operators who suggested that the market should be left to decide. In recent months, we understand that a number of operators have considered requesting a naked DSL product from BT.

9.12 Ofcom also believes that it is inappropriate for Ofcom to proactively intervene and mandate a specific naked DSL product at this stage. In this instance the appropriate first step is for operators to request a product from BT. Clearly Ofcom retains its dispute resolution powers if a dispute is referred to it on this issue.

9.13 Ofcom also recognises that use of naked DSL services may impact on the availability of 999 access services. Without naked DSL type products, consumers will need to maintain a PSTN service into the home. This will ensure at least one reliable connection to the emergency services. If a naked DSL product is then used this reliable PSTN connection will be removed.

Question 22: Do you agree with Ofcom's approach to naked DSL?

Blocking of VoIP calls

- 9.14 VoIP service providers have expressed concern that their ability to provide a reliable service may be impacted by Internet Access Providers (ISPs) selectively degrading or blocking their VoIP traffic. Software exists to enable such blocking at the IP or application layer and is believed to have been deployed in China to hinder VoIP service providers.
- 9.15 At the moment Ofcom is aware of no evidence that this is occurring in the UK. Also, compared to other countries the presence of a highly competitive ISP market may deter this from happening since ISPs who degrade traffic may lose customers. If degrading/blocking does happen then the appropriate approach may be to require ISPs to ensure their customers are aware of any service limitations such as degradation or blocking.
- 9.16 In light of the lack of evidence of this occurring today Ofcom is not minded to take any proactive action in this area. However, we would encourage operators to bring to Ofcom's attention any experience they have of blocking.

Routing/termination

- 9.17 The ability of all subscribers being able to call to 056/055 numbers has been raised by both VoIP service providers and consumers groups as a potential barrier to the development of VoIP services. In general take up of geographic numbers has been preferred by VoIP service providers with limited take up of 056. Ofcom understands that one reason for the limited take up of 056 is due to the lack of an agreed termination rate for 056 and 056 not being datafilled on PSTN switches, another may be consumer preference for geographic numbers. Datafill is the process by which a CP provisions valid number ranges on its PSTN local exchange – without this, a number cannot be called.
- 9.18 In the light of potential consumer detriment, Ofcom would encourage PSTN operators to rapidly progress agreement on a termination regime for 056 and datafilling of switches. Ofcom could facilitate a cross industry meeting with interested parties to see if progress can be made on the approach and process for datafilling switches to ensure consumers aren't disadvantaged by lack of connectivity when choosing to use an 056 number.

Question 23: Do you agree a cross industry meeting would be a useful approach to move this issue forward? What other steps could be taken to provide support for 056 numbers?

Malicious and nuisance calls

- 9.19 The tracing of calls to detect/prevent malicious and nuisance calls is primarily a concern of the Home Office and other agencies. Since VoIP calls do not have the same robust authentication and security mechanisms associated with the PSTN SS7 signalling system they may be more difficult to trace. Malicious and nuisance calls are also limited by allowing users to filter and block calls from certain numbers. Such an approach may not be

effective in a VoIP environment when calls are originated not using an E.164 number, but instead rely on a user identifier such as a SIP URI, or where the originating identifier may have been spoofed.

- 9.20 Ofcom would like to get comments on whether services such as those provided by nuisance call bureau or Telephone Preference Services (TPS) can be provided by VoIP service providers.

Question 24: How can a VoIP call be traced for detection and prevention of malicious and nuisance calls? How could a suitable call screening service work in a VoIP network?

SPAM, Malware and DoS

- 9.21 SPAM over internet telephony or SPIT, is where a user is subjected to unsolicited voice calls. This could be a problem as in the case of on-net calls where the effective termination rate for delivery of a VoIP call is zero. SPAM is already a serious problem in email and is being addressed in several industry fora by use of mechanisms such as email address authentication, email SPAM filters and whitelists. VoIP service providers could use similar mechanisms to control SPIT by use of blocking techniques for unauthorised calls, but as in SPAM email, spammers are able to use techniques such as changing originating header information to overcome such coarse filters.

Question 25: Do you agree that SPIT could be a potential problem and what techniques can be used to minimise the impact of SPIT on consumers of VoIP services.

- 9.22 VoIP services as an application also presents a new avenue for purveyors of viruses and other malware to compromise PC/PDA operating systems, and an alternative communications method in which to disable or deny service to a user through a denial of service (DoS) attack. Ofcom would welcome input on the scale of the potential problem and what effective steps can be taken to protect consumers of VoIP services.

Question 26: Have there been any instances of a VoIP service being compromised or used to deliver malware or a DoS attack?

Extraterritoriality of VoIP service providers

- 9.23 Some consumer groups have expressed concerns to Ofcom about VoIP service providers based outside the UK providing services.
- 9.24 It is worth noting that any CP offering VoIP services are subject to the general authorisation and general conditions of entitlement regime previously described in Section 4 when offering services in the UK. Therefore, the protections that the GCs afford consumers are not affected by the location of the provider or service. However, enforcement can be more difficult if the relevant entity does not have a presence in the UK.

- 9.25 In light of the current regulatory regime, Ofcom believes that extraterritoriality is an important issue and will look at options for enhancing enforcement in this area.

Question 27: Are there any other considerations that need to be taken into account when a provider does not have a UK entity?

Privacy and encryption

- 9.26 Ofcom considers that a VoIP service provider should consider indicating if the privacy of the VoIP call is secured by means of encryption, including the algorithm used and what steps are taken to maintain the security of any user data. Various schemes and initiatives are in use in the e-commerce world to enhance user confidence in security of an IP network, these include trust, SSL and digital certificates

Question 28: Is it reasonable to ask VoIP service providers to participate in schemes designed for e-commerce?

Annex 1

Responding to this consultation

How to respond

Ofcom invites written views and comments on the issues raised in this document, to be made by **5pm on 10 May 2006**

Ofcom strongly prefers to receive responses as e-mail attachments, in Microsoft Word format, as this helps us to process the responses quickly and efficiently. We would also be grateful if you could assist us by completing a response cover sheet (see Annex 2), among other things to indicate whether or not there are confidentiality issues. The cover sheet can be downloaded from the 'Consultations' section of our website.

Please can you send your response to first robindhra.mangtani@ofcom.org.uk.

Responses may alternatively be posted or faxed to the address below, marked with the title of the consultation.

Robindhra Mangtani
Competition Group
Riverside House
2A Southwark Bridge Road
London SE1 9HA

Fax:020 7981 4103

Note that we do not need a hard copy in addition to an electronic version. Also note that Ofcom will not routinely acknowledge receipt of responses.

It would be helpful if your response could include direct answers to the questions asked in this document, which are listed together at Annex 3. It would also help if you can explain why you hold your views, and how Ofcom's proposals would impact on you.

Further information

If you want to discuss the issues and questions raised in this consultation, or need advice on the appropriate form of response, please contact Robindhra Mangtani on 020 7981 3030.

Confidentiality

Ofcom thinks it is important for everyone interested in an issue to see the views expressed by consultation respondents. We will therefore usually publish all responses on our website, www.ofcom.org.uk, ideally on receipt (when respondents confirm on their response cover sheet that this is acceptable).

All comments will be treated as non-confidential unless respondents specify that part or all of the response is confidential and should not be disclosed. Please place

any confidential parts of a response in a separate annex, so that non-confidential parts may be published along with the respondent's identity.

Ofcom reserves its power to disclose any information it receives where this is required to carry out its legal requirements. Ofcom will exercise due regard to the confidentiality of information supplied.

Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use, to meet its legal requirements. Ofcom's approach on intellectual property rights is explained further on its website, at www.ofcom.org.uk/about_ofcom/gov_accountability/disclaimer.

Next steps

Following the end of the consultation period, Ofcom intends to publish a statement in August 2006.

Please note that you can register to get automatic notifications of when Ofcom documents are published, at http://www.ofcom.org.uk/static/subscribe/select_list.htm.

Ofcom's consultation processes

Ofcom is keen to make responding to consultations easy, and has published some consultation principles (see Annex 2) which it seeks to follow, including on the length of consultations.

If you have any comments or suggestions on how Ofcom conducts its consultations, please call our consultation helpdesk on 020 7981 3003 or e-mail us at consult@ofcom.org.uk. We would particularly welcome thoughts on how Ofcom could more effectively seek the views of those groups or individuals, such as small businesses or particular types of residential consumers, whose views are less likely to be obtained in a formal consultation.

If you would like to discuss these issues, or Ofcom's consultation processes more generally, you can alternatively contact Vicki Nash, Director for Scotland, who is Ofcom's consultation champion:

Vicki Nash
Ofcom Scotland
Sutherland House
149 St. Vincent Street
Glasgow G2 5NW
Tel: 0141 229 7401
Fax: 0141 229 7433
E-mail: vicki.nash@ofcom.org.uk

Annex 2

Ofcom's consultation principles

A2.1 Ofcom has published the following seven principles that it will follow for each public written consultation:

Before the consultation

A2.2 Where possible, we will hold informal talks with people and organisations before announcing a big consultation to find out whether we are thinking in the right direction. If we do not have enough time to do this, we will hold an open meeting to explain our proposals shortly after announcing the consultation.

During the consultation

A2.3 We will be clear about who we are consulting, why, on what questions and for how long.

A2.4 We will make the consultation document as short and simple as possible with a summary of no more than two pages. We will try to make it as easy as possible to give us a written response. If the consultation is complicated, we may provide a shortened version for smaller organisations or individuals who would otherwise not be able to spare the time to share their views.

A2.5 We will normally allow ten weeks for responses to consultations on issues of general interest.

A2.6 There will be a person within Ofcom who will be in charge of making sure we follow our own guidelines and reach out to the largest number of people and organisations interested in the outcome of our decisions. This individual (who we call the consultation champion) will also be the main person to contact with views on the way we run our consultations.

A2.7 If we are not able to follow one of these principles, we will explain why. This may be because a particular issue is urgent. If we need to reduce the amount of time we have set aside for a consultation, we will let those concerned know beforehand that this is a 'red flag consultation' which needs their urgent attention.

After the consultation

A2.8 We will look at each response carefully and with an open mind. We will give reasons for our decisions and will give an account of how the views of those concerned helped shape those decisions.

Annex 3

Consultation response cover sheet

- A3.1 In the interests of transparency, we will publish all consultation responses in full on our website, www.ofcom.org.uk, unless a respondent specifies that all or part of their response is confidential. We will also refer to the contents of a response when explaining our decision, without disclosing the specific information that you wish to remain confidential.
- A3.2 We have produced a cover sheet for responses (see below) and would be very grateful if you could send one with your response. This will speed up our processing of responses, and help to maintain confidentiality by allowing you to state very clearly what you don't want to be published. We will keep your completed cover sheets confidential.
- A3.3 The quality of consultation can be enhanced by publishing responses before the consultation period closes. In particular, this can help those individuals and organisations with limited resources or familiarity with the issues to respond in a more informed way. Therefore Ofcom would encourage respondents to complete their cover sheet in a way that allows Ofcom to publish their responses upon receipt, rather than waiting until the consultation period has ended.
- A3.4 We strongly prefer to receive responses in the form of a Microsoft Word attachment to an email. Our website therefore includes an electronic copy of this cover sheet, which you can download from the 'Consultations' section of our website.
- A3.5 Please put any confidential parts of your response in a separate annex to your response, so that they are clearly identified. This can include information such as your personal background and experience. If you want your name, address, other contact details, or job title to remain confidential, please provide them in your cover sheet only so that we don't have to edit your response.
- A3.6 A list of the questions in this document repeated below.

Cover sheet for response to an Ofcom consultation**BASIC DETAILS**

Consultation title: Regulation of VoIP Services

To (Ofcom contact): Robindhra Mangtani

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

CONFIDENTIALITY

What do you want Ofcom to keep confidential?

Nothing

☐

Name/contact details/job title

☐

Whole response

☐

Organisation

☐

Part of the response

☐

If there is no separate annex, which parts?

If you want part of your response, your name or your organisation to be confidential, can Ofcom still publish a reference to the contents of your response (including, for any confidential parts, a general summary that does not disclose the specific information or enable you to be identified)?

DECLARATION

I confirm that the correspondence supplied with this cover sheet is a formal consultation response. It can be published in full on Ofcom's website, unless otherwise specified on this cover sheet, and I authorise Ofcom to make use of the information in this response to meet its legal requirements. If I have sent my response by email, Ofcom can disregard any standard e-mail text about not disclosing email contents and attachments.

Ofcom seeks to publish responses on receipt. If your response is non-confidential (in whole or in part), and you would prefer us to publish your response only once the consultation has ended, please tick here.

☐

Name

Signed (if hard copy)

List of questions in this document

Question 1: Given recent developments, do you agree that Ofcom's focus should be on the following three objectives in developing our policy for VoIP services, namely (in so far as is possible) (i) enabling innovation in a technological neutral way, (ii) ensuring consumers are well informed, and (iii) ensuring maximum availability of 999 services?

Question 2: Do respondents agree with this approach for the interaction between network providers and PATS providers?

Question 3: Do you agree that the limitation of GC 3 obligation to providers of service at a 'fixed location' is not sustainable in the long term? What views do you have on how this may be addressed?

Question 4: In light of the other measures proposed in this document, are there particular issues in relation to VOIP services that should be addressed in this review?

Question 5: Are there particular issues in relation to VoIP services that should be addressed in this review?

Question 6: Do you have any comments on Ofcom's proposed modification to the PATS definition in GC 18?

Question 7: Do you agree with the proposed application of the code?

Question 8: Do you agree with the proposed approach for informing consumers that services may cease to function if the broadband connection fails or there is a power cut or failure?

Question 9: Do you agree with the proposed approach for informing customers where access to emergency calls is not available?

Question 10: Do you agree with the proposed approach for informing consumers that access to emergency calls may cease to function if the Data Network fails or there is a power cut/ failure?

Question 11: Should the code be extended to point of signature acknowledgement in respect of reliability of access to emergency calls?

Question 12: Do you agree with the proposed approach to location information providers where the service does provide access to emergency calls? In particular, do you believe that subscribers should be required to register their main location prior to activation of the service?

Question 13: Do you agree with the proposed approach to informing consumers where services do not provide emergency location information?

Question 14: Do you agree with the proposed approach to informing customers where services do not provide number portability?

Question 15: Do you agree with the proposed approach to informing consumers about the types of facilities that might not be available, but which they have come to expect from a telephone service?

Question 16: Do you agree with Ofcom's view that all aspects of the code of practice should be mandatory?

Question 17: Do you consider that the overall programme of activities is appropriate?

Question 18: In light of Ofcom's Consumer Policy Review, are there other consumer education measures that Ofcom should consider?

Question 19: Do you have comments on this proposed enforcement approach?

Question 20: Are there other areas of research activity that Ofcom should consider to ensure it understands market developments?

Question 21: In relation to ensuring high availability of 999 access, are there other measures that Ofcom could consider?

Question 22: Do you agree with Ofcom's approach to naked DSL?

Question 23: Do you agree a cross industry meeting would be a useful approach to move this issue forward? What other steps could be taken to provide support for 056 numbers?

Question 24: How can a VoIP call be traced for detection and prevention of malicious and nuisance calls? How could a suitable call screening service work in a VoIP network?

Question 25: Do you agree that SPIT could be a potential problem and what techniques can be used to minimise the impact of SPIT on consumers of VoIP services.

Question 26: Have there been any instances of a VoIP service being compromised or used to deliver malware or a DoS attack?

Question 27: Are there any other considerations that need to be taken into account when a provider does not have a UK entity?

Question 28: Is it reasonable to ask VoIP service providers to participate in schemes designed for e-commerce?

Question 29: Do you have any other comments on the proposed approach to investigating the application of the GCs applicable to providers of PATS in the context of VoIP?

Question 30: Do you have any comments on Ofcom's views on the meaning of above-mentioned terms and legal concepts?

Question 31: Are there any other steps that a VoIP service provider could consider in respect of the IP network layer and service application layers to ensure network integrity?

Question 32: Are there any other steps that a VoIP service provider could consider in respect of parts of the underlying network that they do not control?

Question 33: What additional steps could a VoIP service provider take to support nomadic users with regard to maintaining network integrity?

Question 34: Do respondents consider whether other options to ensure continuity in the case of a power outage are appropriate?

Question 35: What other steps could be taken to provide reliable location to assist the emergency services in their work?

Question 36: What other steps could be taken to provide reliable location to assist the emergency services in their work in the case of nomadic users?

Question 37: In addition to participating in the NICC working group on providing location in IP networks and the 112 expert group, what other steps should Ofcom take?

Annex 4

September 2004 Consultation questions

Question 1: What types of new voice services do you envisage becoming available in the future and what characteristics will they have that distinguish them from traditional voice services?

Question 2: What are the main policy challenges raised by the introduction of new voice services for consumer protection and regulation?

Question 3: Do you agree with the initial top level aims identified by Ofcom?

Question 4: Are there other aims and criteria that Ofcom should consider?

Question 5: Are there other key policy questions that Ofcom should be considering?

Question 6: Do you agree with Ofcom's initial view that it is not necessary for all voice services to provide the same standard features as traditional telephone services, and that we should instead focus on enabling consumers to make informed decisions?

Question 7: Do you agree with Ofcom's initial view that it is not desirable to draw a distinction between the regulation of services that look like traditional services and those that do not?

Question 8: Do you agree with Ofcom's initial view that a distinction should not be drawn between the regulation of 'second line' services and 'primary' services?

Question 9: Do you think that a threshold should be set at which new voice services should be required offer the same features as traditional voice services? If so, how should the threshold be set?

Question 10: Do you agree that most providers would want to offer at least a basic form of access to 999?

Question 11: Do you agree with Ofcom's initial view that consumers sufficiently value having access to 999 in order for them to wish to retain at least one means of 'high quality' (very reliable) access to 999 at home?

Question 12: Do you agree with Ofcom's initial view that not all voice services should be required to offer access to 999 but that decisions about subscribing to and using such services must be properly informed?

Question 13: Do you agree with Ofcom's initial view that given some new services may not be able to offer the same degree of reliability for emergency calls as traditional voice services, it is better that these services are able to provide less reliable access to 999 rather than preventing them from offering any access at all?

Question 14: Do you agree with Ofcom's assessment of the costs and incentives for providers offering PATS?

Question 15: Do you agree with Ofcom's understanding of the implications of the definition of PATS contained in the Directives?

Question 16: Do you agree with Ofcom's understanding of the implications of this alternative approach?

Question 17: Are there policy initiatives in other areas related to new voice services that Ofcom should be considering?

Question 18: Although Ofcom is not consulting on its interim position, it would welcome your views on its interim policy to forbear from enforcing PATS obligations against new voice services which offer access to 999. Section 6

Question 19: Is it reasonable to have different network integrity requirements for nomadic services compared to services at a fixed location, and how should consumers be made aware of this difference?

Question 20: Do you think that it is better for Ofcom to: 1. Retain the Essential Requirements Guidelines in their current form; 2. Re-issue the Essential Requirements Guidelines, incorporating additional guidance in relation to Voice over Broadband and Next Generation Networks; or 3. Withdraw the Essential Requirements Guidelines, and apply the 'reasonably practical' test set out in General Condition 3

Question 21: Do you think that there are reasonably practical measures that providers at a fixed location can take even if they do not directly control the underlying network?

Question 22: What in practice should the roles of the network provider versus the service provider be for network integrity when the network provider has no control over the services offered over their network?

Question 23: Do you agree that it is likely to be reasonably practical for analogue telephone and ISDN2 services to provide line powering but not other services?

Question 24: What are your views on the technical feasibility of providing location information for nomadic services, both now and in the future?

Question 25: What approach for emergency location would take account of current technical limitations, whilst ensuring that technical advances bring benefits to emergency organisations in the long run?

Question 26: Do you agree that consumer information is required where services look and feel like a traditional telephone service but not where services are clearly different (e.g. PC based services)?

Question 27: Do you agree with a two stage approach to consumer information, first to ensure the purchaser is aware of the nature of the service at the point of purchase, and second to ensure all potential users are aware the service does not provide access to 999 at the point of use?

Question 28: If consumer information is required to ensure that consumer interests are protected, which of the above frameworks regulatory framework, if any, is appropriate to ensure it is successful?

Annex 5

Non-confidential respondents to the initial consultation

- AT&T
- BABT
- Intellect
- Cisco
- Connect (Union)
- Cable and Wireless
- Comptel Ascent
- Canadian Net
- BT
- CWU
- Easynet
- Eversheds
- Hearing Concern
- Hutchison 3G
- ISPA
- ITSPA
- Kingston Communications
- Level 3
- Marconi
- Microsoft
- National Consumer Council
- Nortel
- AOL
- Orange
- PhoneAbility
- RNIB
- RNID
- Skype
- TeliaSonera
- T-Mobile

- UK Broadband
- UKCTA
- TAG
- Telewest
- Video Networks Limited
- Viatel
- Vonage
- Wanadoo
- Wavecrest

Annex 6

Draft Guidelines on the application of PATS obligations to VoIP service providers

Introduction

Purpose

- A6.1 These guidelines set out Ofcom's approach to applying certain requirements or obligations, which may be applicable to VoIP service providers⁴² under either General Condition ("GC"⁴³) 3 or GC 4. In particular, these guidelines:
- seek to provide clarity on the meaning of some of the legal concepts used in relevant GCs applicable to providers of Publicly Available Telephone Services ("PATS"), so as to inform stakeholders of Ofcom's general view on them;
 - describe factors that Ofcom would consider in the application of said requirements or obligations in GCs 3 and 4.
- A6.2 These guidelines are primarily intended to illustrate how Ofcom would investigate potential contraventions of the requirements or obligations in GCs 3 and 4 when taking enforcement action. Normally, Ofcom would do so by giving a contravention notice under section 94 of the Communications Act 2003 (the "Act"). In such a notice, Ofcom would set out its determination that there are reasonable grounds for believing that a person is contravening, or has contravened, a condition set under section 45 of the Act, such as GCs 3 and 4.
- A6.3 Persons given a contravention notice would have the opportunity to make representations, to comply with the condition in question and to remedy any consequences of this breach, before any further action was taken in the event of non-compliance, such as the imposition of a penalty of up to 10% of the provider's relevant turnover⁴⁴. Further action that Ofcom could take, depending on the circumstances, include the giving of an enforcement notification under section 95 of the Act, the giving of directions suspending service provision and the giving of its consent to persons affected by the

⁴² The term 'VoIP provider' is used throughout these guidelines in a broad sense covering services provided in the UK using the Voice over Internet Protocol ("VoIP"), including (without limitation) here Voice over the public Internet, Voice over broadband (including managed and unmanaged services), Voice over Unlicensed Wireless Access, Voice over licensed wireless including pre WiMax based services; that term also includes voice services described as 'new voice services' (or 'NVS') in Ofcom's consultation document entitled *New Voice Services: A consultation and interim guidance* on 6 September 2004: see http://www.ofcom.org.uk/consult/condocs/new_voice/aneu_voice/?a=87101.

⁴³ The majority of the general conditions of entitlement (or "GCs") is, at present, set out in a Notification setting general conditions (taking effect from 25 July 2003) under section 48(1) of the Communications Act 2003, which Notification is dated 22 July 2003 by the Director General of Telecommunications, whose regulatory functions have since 29 December 2003 been transferred to Ofcom: see http://www.ofcom.org.uk/static/archive/oftel/publications/eu_directives/2003/cond_final0703.pdf. Certain GCs have been more recently amended by Ofcom, such as GC 14 on 13 April 2004.

⁴⁴ Further details on the criteria that Ofcom would take into account in setting the amount of any penalty can be found in Ofcom's *Penalty Guidelines*, see: <http://www.ofcom.org.uk/about/account/pg/penguid.pdf>

contravention in question for the bringing of civil proceedings under section 104 of the Act.

- A6.4 Ofcom may also take these guidelines into account when it is requested to resolve a dispute referred to it under and in accordance with section 185 of the Act. However, whether or not it would be appropriate (and, if so, the extent) for Ofcom to take them into account on a dispute reference in a particular case is a matter that Ofcom will consider on a case-by-case basis.

Role and Status

- A6.5 Guidelines have the benefit of contributing to effective regulation by improving transparency and understanding. In particular, they are aimed at encouraging compliance by explaining obligations imposed, thereby ensuring that relevant providers understand their obligations and enabling potential customers to identify contraventions. Guidelines also assist to frame an effective complaint, or an effective defence, in the event that a provider is suspected of contravening a condition.
- A6.6 One of Ofcom's regulatory principles is that Ofcom will regulate in a transparent manner⁴⁵. Guidelines are an important means to achieving this principle and to increasing understanding of Ofcom's policy objectives and approach to regulation.
- A6.7 Ofcom would normally expect to follow these guidelines should it investigate any potential contravention of a relevant GC discussed in these guidelines. If Ofcom decides to depart from these guidelines, we will set out our reasons for doing so. These guidelines may also be subject to revision from time to time.
- A6.8 That said, whether or not (and, if so, how) a particular matter is regulated will usually turn on the specific facts in each case. Stakeholders (and, in particular, those persons providing certain services) should seek their own independent advice on specific matters taking into account the facts in question to answer specific questions on their legal obligations. Ofcom cannot, as a matter of law, fetter its discretion as to any future decision. Accordingly, although these guidelines set out the approach Ofcom expects to take, they do not have binding legal effect. Ofcom will consider each case on its own merits.

Scope and Relevance

- A6.9 The key aspects of the scope and relevance of these guidelines are described below.
- These guidelines will be of interest mainly to providers of PATS that are (potentially) subject to requirements and obligations set out in relevant GCs. However, they may also be of interests to end-users, subscribers or consumers of PATS, or other stakeholders who are interested in the effectiveness of PATS regulation within communications markets.

⁴⁵ *Statutory duties and regulatory principles*, <http://www.ofcom.org.uk/about/sdrp/>.

- Certain aspects of GC 3 and GC 4 relate to the provision of a Public Telephone Network⁴⁶ (“PTN”). These guidelines are not intended to provide guidance on requirements or obligations relating to such provision.
- These guidelines do not cover Ofcom's approach to investigating potential contraventions of the consumer information requirements in respect of VoIP services which are the subject of a separate code.
- These guidelines should be read in the light of, and in conjunction with, the explanatory statement and further consultation entitled *Regulation of VoIP Services* accompanying the publication of these guidelines.

A6.10 The rest of these guidelines is divided into the following main sections:

- the regulatory framework relevant to these guidelines;
- the meaning of terms and legal concepts that are relevant to determining the application of the relevant requirements or obligations;
- requirements or obligations in respect of network integrity (GC 3) and guidance on issues related to network performance and reliability for VoIP service providers;
- requirements or obligations concerning the provision of location information to emergency services (GC 4) and their application to VoIP service providers.

Note for Consultation on these draft guidelines

A6.11 In these draft guidelines, Ofcom sets out a number of questions on the detailed substance. More generally, Ofcom would appreciate input on the following question.

Question 29: Do you have any other comments on the proposed approach to investigating the application of the GCs applicable to providers of PATS in the context of VoIP?

Relevant Regulatory Framework

A6.12 In 2002, a package of European Community directives was adopted to establish a harmonised framework for the regulation of electronic communications services (“ECSs”), electronic communications networks (“ECNs”), associated facilities and associated services. These directives entered into force on 24 April 2004 and member states were required to apply their domestic law transposing the directives from 25 July 2003.

A6.13 That harmonised framework also established certain rights of end-users and corresponding obligations on undertakings providing publicly available ECSs and ECNs. Such regulation derives mainly (but not exclusively) from certain provisions in the Universal Service Directive⁴⁷ (“USD”). In particular,

⁴⁶ See paragraph 1 in Part 1 of the Schedule to the Notification dated 22 July 2003 by the Director General of Telecommunications, referred to above, which defines PTN as meaning “an Electronic Communications Network which is used to provide (PATS) it supports the transfer between Network Termination Points of speech communications, and also other forms of communication, such as facsimile and data;”.

⁴⁷ Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002 on universal service and users’ rights relating to electronic communications networks and services.

the USD requires, in effect, that in the UK Ofcom ensures that certain matters (such as network integrity, emergency calls and planning, metering and billing, number portability) are regulated to protect the interests and rights of end-users (or, as the case may be, 'subscribers') of ECSs.

- A6.14 As a result of these Community obligations, Ofcom imposed domestic regulation in the form of the GCs which took effect from 25 July 2003. One of the effects of that harmonised framework is that the provision of all ECSs and ECNs is generally authorised and the system of explicit decisions or any other administrative acts (such as licences) by national regulatory authorities prior to being allowed to provide ECSs and ECNs has been abolished.
- A6.15 Therefore, in the UK, the (previous) licensing regime under the Telecommunications Act 1984 has been replaced by the so-called General Authorisation regime. Thus, everyone is 'generally authorised' to provide ECSs and ECNs in the UK. However, the General Authorisation is subject to the GCs⁴⁸. In other words, all providers of ECSs and ECNs can enter the market as they wish, although they have to comply with any obligations imposed on them.
- A6.16 Importantly, it is to be emphasised that the GCs apply to anyone who is *providing* an ECS or ECN, or a particular description of an ECN or ECS (such as PTN or PATS, respectively), specified in the GC in question. Therefore, it is the responsibility of each and every provider to ensure compliance with its GC obligations upon such provision as no individual notification will be given to it by Ofcom that certain obligations apply to it. Failure to comply with such obligations is subject to enforcement action by Ofcom under the procedures mentioned above. Accordingly, a provider must consider whether it falls within the definition of a "Communications Provider", which term is defined separately for each and every GC.
- A6.17 In very broad terms, the main types of network or service provider are illustrated in the figure below

⁴⁸ Individual providers may be subject to additional obligations, such as SMP conditions (imposed as a result of a finding of Significant Market Power), access related conditions or conditions imposed as a consequence of a provider being designated as a universal service provider. Any provider which is subject to these additional conditions will have been notified individually when the conditions were imposed. Such additional obligations are not relevant as such to matters covered by these guidelines.

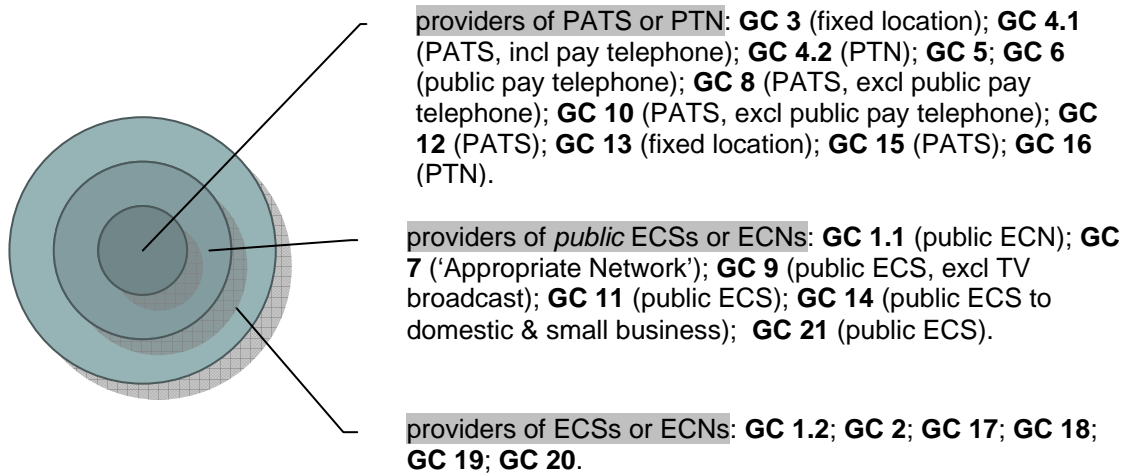


Figure 3: Types of Provider

Meaning of Terms and Legal Concepts

Publicly Available Telephone Service (PATS)

A6.18 As shown in figure 3 above, the majority of GCs are applicable to providers of PATS. That term is generally defined⁴⁹ for the purposes of the GCs as follows:

⁴⁹ See paragraph 1 in Part 1 of the Schedule to the Notification dated 22 July 2003 by the Director General of Telecommunications, referred to above.

“Publicly Available Telephone Service” means a service available to the public for originating and receiving national and international calls and access to Emergency Organisations 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 services, Directory Enquiry Facilities, Directories, provision of Public Pay Telephones, provision of service under special terms, provision of specific facilities for End-Users with disabilities or with special social needs and/or the provision of non-geographic services;

A6.19 This definition corresponds to same term as defined in the USD⁵⁰, which provides:

“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 enquiry services, directories, 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;

A6.20 This means that a service constitutes PATS if, and only if, it meets all of the following gating criteria:

- ‘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’

A6.21 In other words, Ofcom considers that:

where a VoIP service does not meet *all* of the above-mentioned gating criteria, it is not a PATS; and

where a VoIP service does meet *all* of these criteria, it automatically becomes a PATS.

Electronic Communications Service (ECS)

A6.22 As seen from the above gating criteria, it is necessary to consider what is meant by a publicly available service. The meaning of the public availability of a service is a matter considered below. As regards the term ‘service’ in

⁵⁰ See Article 2(c) of the USD.

the definition of PATS, Ofcom takes the view that it is to be taken as a reference to an electronic communication service (ECS). In support of such interpretation, Ofcom considers that it is relevant to take into account the harmonisation aims of the USD, which are set out in Article 1 of the USD. In particular, Article 1(1) provides that:

1. Within the framework of Directive 2002/21/EC (Framework Directive), this Directive concerns the provision of electronic communications networks and services to end-users. The aim is to ensure the availability throughout the Community of good quality publicly available services through effective competition and choice and to deal with circumstances in which the needs of end-users are not satisfactorily met by the market.

A6.23 In other words, that provision makes it clear that, whilst the USD concerns provision of ECSs, the harmonisation aim is to ensure the availability throughout the Community of good quality 'publicly available services'. Ofcom therefore takes that reference to (publicly available) services as a service, to start with, falling within the ECS definition. However, for such a service to constitute PATS (i.e. a publicly available service of a 'good quality'), it must not only be publicly available but also satisfy the remaining above-mentioned gating criteria.

A6.24 The term ECS is defined in Article 2(c) of the Framework Directive⁵¹ as follows:

(c) "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;

A6.25 That ECS definition has, in turn, been transposed in section 32(2) of the Act by the following definition⁵²:

(2) In this Act "electronic communications service" means a service consisting in, or having as its principal feature, the conveyance by means of an electronic communications network of signals, except in so far as it is a content service.

A6.26 Therefore, in considering whether a particular service (such as a VoIP service) is an ECS, Ofcom would normally consider the factual and

⁵¹ Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services

⁵² This definition is, in Ofcom's view, relevant in this context because of the 'interpretation clause' in paragraph 2 in Part 1 of the Schedule to the Notification dated 22 July 2003 by the Director General of Telecommunications, referred to above.

technical aspects of such a service in the light of a number of questions, including the ones set out below.

Is the service conveying a “signal”?

A6.27 To answer this question, section 32(8) of the Act provides that references to the conveyance of signals include references *to the transmission or routing of signals or of parts of signals* and to the broadcasting of signals for general reception.

A6.28 In turn, the term “signal” is defined in section 32(10) of the Act as including:

- (a) anything comprising speech, music, sounds, visual images or communications or data of any description; and
- (b) signals serving for the impartation of anything between persons, between a person and a thing or between things, or for the actuation or control of apparatus.

A6.29 If the answer to that question is answered in the affirmative, the next question would normally be:

Is that conveyance by means of an electronic communications network (ECN)?

A6.30 Section 32(1) of the Act defines ECN as meaning:

- (a) a transmission system for the conveyance, by the use of electrical, magnetic or electro-magnetic energy, of signals of any description; and
- (b) such of the following as are used, by the person providing the system and in association with it, for the conveyance of the signals—
 - (i) apparatus comprised in the system;
 - (ii) apparatus used for the switching or routing of the signals; and
 - (iii) software and stored data.

A6.31 Section 32(6) of the Act provides that the reference to a transmission system includes a reference to a transmission system consisting of no more than a transmitter used for the conveyance of signals. As regards software and stored data, section 32(9) provides that the cases in which software and stored data are to be taken as being used for a particular purpose include cases in which they (a) have been installed or stored in order to be used for that purpose; and (b) are available to be so used.

A6.32 Having established that the conveyance of signals in question is by means of an ECN, the next question is:

Does the service consist in, or have as its principal feature, such conveyance?

A6.33 The answer to this question is entirely dependant on the facts in each case.

Is the service (or part of it) a “content service”?

A6.34 Section 32(7) defines a “content service” as:

“means so much of any service as consists in one or both of the following—

(a) the provision of material with a view to its being comprised in signals conveyed by means of an electronic communications network;

(b) the exercise of editorial control over the contents of signals conveyed by means of a such a network.”

A6.35 To the extent to which the service in question is a ‘content service’⁵³ (or part of such a service), it is not an ECS and, as seen above, it cannot therefore constitute a PATS. On the other hand, if it (or part of it) is not a content service (and provided that all of the above-mentioned questions are answered in the affirmative), then it would constitute an ECS.

A6.36 However, for an ECS to constitute a PATS, one would still need to consider whether that service is provided so as to be available for use by members of the public. Even so, whilst such a service would be a *public ECS* for the purposes of the Act, one still needs to consider whether the remaining gating criteria apply to the service in question.

A6.37 However, before turning to the issue of public availability of a service, it is to be noted that, as seen from figure 3 above, a number of GCs apply to providers of either publicly available ECSs or ECNs or simply ECSs or ECNs. An example of the latter is GC 17 which deals with the allocation, adoption and use of telephone numbers. It is the case, at present, that only a provider of ECS or ECN can apply to Ofcom for an allocation or reservation of appropriate telephone numbers.

A6.38 In certain cases, questions may also arise as to which person is actually providing⁵⁴ the ECS in question for regulatory purposes. In this regard, section 32(4)(b) provides:

references, where one or more persons (*e.g. a sales agent*) are employed or engaged to provide the network or service under the direction or control of another person (*e.g. a telecommunications company, Telco X*), to the person (*e.g. a retail customer*) by whom an electronic communications network or an electronic communications service is

⁵³ As seen above, the definition of ECS in the Framework Directive makes it clear that *information society services* other than those that consist wholly or mainly in the conveyance of signals on electronic communications networks are not ECSs. It may therefore be appropriate to consider whether a service would fall within the meaning of an information society service defined in Article 1 of Directive 98/34/EC (as amended by Directive 98/48/EC) on a case-by-case basis to assist the interpretation of an ECS.

⁵⁴ That is to say, making available, supplying or furnishing for use.

provided are confined to references to that other person
(*here, Telco X*);

- A6.39 Taking this example, whether or not (say) a sales agent is ‘employed or engaged’ to provide the ECS in question to the retail customer ‘under the direction or control’ of Telco X is a matter that will turn on the factual circumstances of each case, taking into account the contractual relationships between the respective parties.

Public Availability

- A6.40 As discussed above, the public availability of a service is a prerequisite to constitute a PATS. However, the USD does not provide any clarification as to what it means by a service being available to members of the public. In most cases, Ofcom suspects that this issue will not be a difficult one to determine on the facts. However, Ofcom considers that it might be of assistance to set out, in broad terms, how it would approach this issue.
- A6.41 In Ofcom’s view, a publicly available service is one that is available to anyone who is both willing to pay for it and to abide by the applicable terms and conditions. The provider will not have imposed an upper limit on the class of potential customers other than those that arise from technical or capacity constraints. A publicly available service is distinguishable from a bespoke service restricted to a limited group of individual and identifiable customers.
- A6.42 The number of customers to whom the service in question is provided may not necessarily indicate on its own whether it is publicly available or not. For instance, a service with only one customer would be considered a service that is available to members of the public, if other customers would not be prevented from taking up the service but have not chosen to take the service up. This situation would exclude the case where a service is not being made available in good faith, for example by being deliberately over-priced or because the terms and conditions are framed so as to be generally unacceptable. In contrast, a service may not be available to members of the public even though it has several customers – say, in the case of a landlord providing services to tenants on a single set of served premises.
- A6.43 Services do not have to be nationally available to be available to members of the public. Indeed, there are a number of providers within the UK limited to a regional customer base and such services are considered to be available to the public. It is also to be understood that the term ‘members of the public’ requires a broad interpretation – it is not to be read as residential or small business customers. A service that because of its scale, such as a virtual private network service, is only likely to attract corporate customers is still considered to be available to members of the public.
- A6.44 The reason the example of the landlord-tenant service is not available to members of the public is not because it is geographically restricted. Rather, it is because admittance to the set of potential customers is not generally open to anyone. Instead, it depends on the existence of a prior relationship between provider and customer. A more extreme example of a service that is not available to members of the public while being provided for

remuneration is the provision of a payphone service within the confines of a prison.

- A6.45 Another example of a service not being made genuinely available to members of the public is where it is primarily targeted at members of the provider's Group (i.e. parent and subsidiary undertakings). Ofcom is minded to consider that, where a provider earns a substantial proportion of its revenue from members of its Group, the services it provides are not genuinely publicly available. A substantial proportion is likely to be in the order of 80 per cent. However, where it is possible, by means of a physical or logical separation, to partition a network into discrete units, one of which provides services to members of the provider's Group and one of which provides services to members of the public, the part that provides services to members of the public will be regarded as publicly available.
- A6.46 Ofcom recognises that there may be ambiguous cases where it will not be immediately apparent whether or not a given service is available to members of the public. In such cases, the way in which the service is marketed may be indicative.

Originating and Receiving Calls

- A6.47 As seen from the PATS definition above, a publicly available service must be one for originating and receiving national and international calls to constitute PATS. In other words, it must be a two-way service.

Numbers in a national or international telephone numbering plan

- A6.48 As stated above, the origination and receiving of national and international calls and access to emergency services must be through a number or numbers in a national or international telephone numbering plan.

Access to Emergency Services/Organisations

- A6.49 As mentioned above, a further gating criterion in the PATS definition is that it must be a service for 999 access (or, as the definition of PATS for the purposes of the GCs refers to the latter, Emergency Organisations⁵⁵).
- A6.50 In this context, it is to be noted that Ofcom takes the view that any type of 999 access would suffice to satisfy this gating criterion. In other words, such access does not need to meet any achieve any particular degree (or quality) of access in order to constitute 999 access for the purposes of being a PATS.
- A6.51 However, where a service does offer such access (and the remaining gating criteria is met) so that it constitutes a PATS, it is equally to be noted that a provider of such a service is required under GC 3 to take all reasonably practicable steps to maintain, to the greatest extent possible, *uninterrupted* access to emergency services as part of any PATS offered at a 'fixed location'. The meaning of the latter term is considered below.

⁵⁵ See paragraph 1 in Part 1 of the Schedule to the Notification dated 22 July 2003 by the Director General of Telecommunications, referred to above, which defines the term 'Emergency Organisation' as meaning "in respect of any locality: (a) the relevant public police, fire, ambulance and coastguard services for that locality; and (b) any other organisation, as directed from time to time by Ofcom as providing a vital service relating to the safety of life in emergencies;".

Fixed Location

A6.52 Certain requirements or obligations in GC 3 are limited to those persons providing PATS at a 'fixed locations'. This is because Article 23 of the USD provides:

Member States shall take all necessary steps to ensure the integrity of the public telephone network at fixed locations and, in the event of catastrophic network breakdown or in cases of force majeure, the availability of the public telephone network and publicly available telephone services at fixed locations. Member States shall ensure that undertakings providing publicly available telephone services at fixed locations take all reasonable steps to ensure uninterrupted access to emergency services.

A6.53 The package of directives adopted in 2002 makes a general distinction between services provided at fixed locations and those provided to non-fixed locations. A clear example of a fixed location would be the place where a provider has contracted to provide a service through the public switched telephone network (or PSTN) connection at an end-user's residence at a geographic address. This could be contrasted with the 'non-fixed location' case where a provider contracts with the end-user to provide services to a mobile phone (or other itinerant equipment), irrespective of the precise location where end-user normally accesses these services.

A6.54 In its consultation document of June 2004⁵⁶, the European Commission considers the 'nomadic' nature of certain VoIP services in the context of the network integrity requirements in the above-mentioned Article 23.

A6.55 In particular, the Commission recognises that certain users of VoIP services could connect their terminal at any suitable access point, such as a Wi-Fi hotspot or Internet café, and are not limited to a fixed location. Its view is that the term 'fixed location' refers to the location at which a connection is provided. The Commission then implies that, whilst a provider of PATS at a fixed location will normally provide the service at a contractually agreed location, nomadic use would not constitute the provision of PATS 'at a fixed location'. It concludes that the Article 23 requirements will apply only when the service is used at the fixed 'home' location.

A6.56 Ofcom recognises that a nomadic service poses particular issues since the PATS provider may have little or no visibility or control over the infrastructure when it is used away from the main location and may not therefore be able to provide consistent quality of service. For instance, if a VoIP service is used within an Internet café's Wi-Fi hotspot (Unlicensed Mobile Access), which use frequencies which are uncoordinated and, as such, it cannot be guaranteed to be free from interference from an adjacent access point.

⁵⁶ See the document entitled *Information and consultation paper on the regulatory treatment of Voice over Internet Protocol (VoIP) under the EU regulatory framework*; http://europa.eu.int/information_society/policy/ecomms/doc/info_centre/commiss_serv_doc/406_14_voip_consult_aper_v2_1.pdf

- A6.57 In the 2004 consultation⁵⁷, Ofcom proposed that it would interpret the meaning of a 'fixed location' consistently with the Commission's view. At this time, Ofcom remains of this view. However, as highlighted in 4.28 to 4.32, Ofcom believes that this approach may become less sustainable in the future and may consider changes.
- A6.58 That example shows that, whilst the term 'fixed location' is not defined in the directives as such, the legislative intention was that the term would be interpreted according to its natural and ordinary meaning. Generally understood dictionary meanings make it clear that the noun 'location' refers to the action or process of locating or a particular place or position, whereas the adjective 'fixed' means fastened securely in position or predetermined or inflexibly held.
- A6.59 In other words, if a service is provided at a contractually agreed location which is fixed in its nature (for example the end user's residential home or business), then this would, in Ofcom's view, constitute a service provided at a fixed location. There might be nothing to prevent a user technically from connecting to the service from another location (such as a Wi-Fi hotspot or Internet café). However, Ofcom considers that the network integrity requirements in Article 23 of the USD (as transposed in GC 3) would not be relevant when the service is used in these other locations. This would equally apply to other obligations which have been imposed on communications providers of a certain service at a fixed location, such as GC 13.

Question 30: Do you have any comments on Ofcom's views on the meaning of above-mentioned terms and legal concepts?

GC 3: Network integrity requirements

- A6.60 Ofcom provides below guidance on issues related to network integrity and reliability so that it is transparent to VoIP service providers what type of matters Ofcom is likely to take into account in investigating any potential breach of GC 3, such as certain steps that they could take in order to comply with the requirements in question.
- A6.61 GC 3 provides:

3. PROPER AND EFFECTIVE FUNCTIONING OF THE NETWORK

3.1 The Communications Provider shall take all reasonably practicable steps to maintain, to the greatest extent possible:

(a) the proper and effective functioning of the Public Telephone Network provided by it at fixed locations at all times, and

(b) in the event of catastrophic network breakdown or in cases of force majeure the availability of the Public

⁵⁷ See consultation document entitled *New Voice Services: A consultation and interim guidance*, published on 6 September 2004: http://www.ofcom.org.uk/consult/condocs/new_voice/new_voice/?a=87101

Telephone Network and Publicly Available Telephone Services provided by it at fixed locations, and

(c) uninterrupted access to Emergency Organisations as part of any Publicly Available Telephone Services offered at fixed locations.

3.2 The Communications Provider shall ensure that any restrictions imposed by it on access to and use of a Public Telephone Network provided by it at a fixed location on the grounds of ensuring compliance with paragraph 3.1 above are proportionate, non-discriminatory and based on objective criteria identified in advance.

3.3 For the purposes of this Condition, “Communications Provider” means a person who provides a Public Telephone Network at a fixed location and/or provides Publicly Available Telephone Services at a fixed location.

A6.62 It is clear on the face of this GC that it only applies to PTNs (parts GC 3.1(a) and 3.1(b)) and PATS (parts GC 3.1(b) and 3.1(c)) at fixed locations. These guidelines deal only with Ofcom’s views as regards to the application to PATS providers.

A6.63 As regards to the requirements relating to PATS, they are twofold. Namely, a person who provides PATS at a fixed location must take all reasonably practicable steps to maintain to the greatest extent possible:

- the availability of such PATS if there is catastrophic network breakdown or in cases of force majeure; and
- uninterrupted access to emergency organisations as part of such PATS.

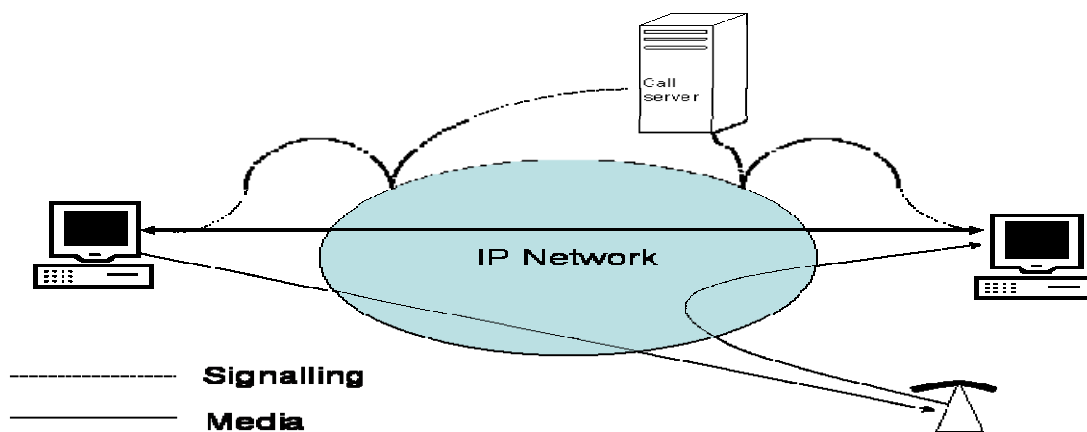


Figure 4: VoIP Applications and Signalling

A6.64 As shown in figure 4, the reliability and performance of a VoIP service is dependant potentially on a number of elements. Typically, VoIP traffic includes signalling and media data which may take diverse routes through an IP network.

A6.65 For a VoIP service running over an xDSL access network, the key elements that will affect reliability are likely to be:

- consumer premise equipment ('CPE') (e.g. PC/software and/or adaptor);
- local access (e.g. copper loop);
- broadband access network (e.g. DSLAM, ATM and IP network);
- core IP network and Internet peering arrangements - several models exist for this, including the use of direct peering, transit or inter exchange peering and the use of public Internet exchanges;
- service and application layers (e.g. home subscriber server, call server and media gateways);
- interconnection into other networks for the purposes of call termination (e.g. the extent of interconnect agreements with other providers including transit operators).

A6.66 For other broadband networks (such as cable modem, Wi-Fi or WiMax), different elements would be relevant in the local access and broadband access layers.

A6.67 A provider who does control all aspects of the network from end-to-end may be able to provide a high level of network integrity through controlling quality of service and prioritising traffic.

A6.68 In respect of the service/application and IP network layers, there are a number of steps that a VoIP service provider (including those offering nomadic services) could take in respect of the elements they do control. Possible measures include:

- engineering the VoIP service to minimise latency and specifying minimum requirements for use of the service such as bandwidth and contention ratios;
- marking the VoIP traffic for priority (QoS) in an IP network in accordance with an agreed DiffServ or IntServ class of service⁵⁸ scheme. This can then be used between interconnected IPv4 networks and may be maintained both in IP headers (precedence bits) and interconnected MPLS networks (EXP bits);
- designing their networks to minimise routing hops, providing sufficient redundancy including call servers, gateways and network capacity, to deal with any throughput issues during re-routing or congestion;
- proactively managing any customer premise equipment to dynamically alter the properties, such as packet and or window size, to maximize throughput for voice traffic in response to observed network performance;
- implementing deep packet inspection to identify and prioritise voice traffic in those parts of the network in which it has control;
- implementing home subscriber server, gateways and call servers close to significant sources and sinks of traffic to other networks;

⁵⁸ <http://www.inf.ufsc.br/~mario/QoSIBM>

- in the case of an xDSL service, using the associated PSTN line (which is provided with the DSL service) for 999 access. This would ensure that in the event of power cut/failure or broadband service outage, all 999 calls would be routed to the associated PSTN line, by use of software or control in the CPE/broadband adaptor

Question 31: Are there any other steps that a VoIP service provider could consider in respect of the IP network layer and service application layers to ensure network integrity?

A6.69 Ofcom is not suggesting that any of these specific measures should be regarded as mandatory in order to demonstrate compliance with GC 3. We do however believe that all communications providers providing 999 access can reasonably be expected to carry out a formal risk assessment for that service. Such a formal assessment would include:

- producing a model of the network elements used to provide that service;
- defining a set of performance parameters which characterise the end to end performance of that service (e.g.MTBF);
- identifying which of the elements are most likely to fail, or suffer from degraded performance, and what the consequence would be for the performance parameters;
- determining which elements are critical in relation to the end-to-end service performance, and what risk mitigation strategy might reasonably be adopted in relation to those elements; and
- determining and implementing a risk mitigation strategy that might reasonably be adopted in relation to those critical elements

A6.70 In some cases, there are likely to be elements of the end-to-end network that VoIP service providers do not directly control. For example, they may rely on a different broadband provider (xDSL, cable modem, licensed wireless or UMA) to provide access to their VoIP services. Since reliability of the service provided over the network depends on the integrity of the underlying access and interconnected networks, this could present problems for VoIP service providers in complying with their obligations under GC 3.

A6.71 In the 2004 consultation, Ofcom raised the issue of how a VoIP service provider who does not control the underlying network may ensure network integrity. Most respondents were of the opinion that service level agreements ("SLAs") between VoIP service providers and infrastructure providers were an effective way of ensuring network integrity and reliability. Ofcom is of the view that such agreements may help improve network integrity.

A6.72 Therefore, in investigating any potential breaches of GC 3 by VoIP service providers, Ofcom would consider what SLAs on quality and reliability VoIP service providers have entered into with their respective providers of underlying network services. For example, where a broadband access is

provided by a different provider, then it may be appropriate that the commercial agreements between the VoIP service provider and broadband access provider would include agreement on the priority mechanisms employed to ensure that any agreed marking or classification of traffic is maintained. Ofcom may expect that such SLAs make provision for service classes and characteristics for VoIP traffic.

Question 32: Are there any other steps that a VoIP service provider could consider in respect of parts of the underlying network that they do not control?

A6.73 Nomadic use presents particular challenges in respect of ensuring network integrity since the user may use a wide range of access networks and so putting in place SLAs may present greater difficulties.

Question 33: What additional steps could a VoIP service provider take to support nomadic users with regard to maintaining network integrity?

A6.74 Another consideration that Ofcom will examine in an investigation would be any provisions to ensure continuity of service in the case of a power outage at the customer premise. In the case of a PSTN service, continuity of service is ensured through line powering which provides power from the exchange.

A6.75 The provision of VoIP services (particularly when provided over existing xDSL, cable modem, licensed wireless and UMA) involves the use of Customer Premise Equipment ("CPE") which is not powered by the broadband service or network termination point or equipment. In the 2004 consultation, Ofcom asked whether line powering was appropriate for VoIP services (question 23). It was not considered a viable option by any respondent. Ofcom would not currently expect a VoIP service provider to provide line powering to VoIP CPE.

A6.76 In the absence of line powering, there are other options to ensure continuity of service in the case of a power outage at customer premises (such as the use of battery back-up or uninterrupted power supply ("UPS")). Ofcom's view is that the decision to provide battery backup for CPE should be left to the VoIP service provider, who may provide such a facility as part of a service offering.

A6.77 However, it is worth noting in respect to network termination equipment:

- in the US, at least one cable operator provides a cable modem with battery backup which ensures the service is still available as a result of local power outages;
- some VoIP service providers focussing on the business market carry out comprehensive audits when providing IP voice services (such as a review of power requirements including battery and UPS options when specifying solutions for business critical purposes);
- cable operators in the US advise customers on UPS options for their network terminating equipment.

Question 34: Do respondents consider whether other options to ensure continuity in the case of a power outage are appropriate?

GC 4: Emergency Calls

A6.78 GC 4 provides:

4. EMERGENCY CALL NUMBERS

4.1 The Communications Provider shall ensure that any End-User can access Emergency Organisations by using the emergency call numbers “112” and “999” at no charge and, in the case of a Pay Telephone, without having to use coins or cards.

4.2 The Communications Provider shall, to the extent technically feasible, make Caller Location Information for all calls to the emergency call numbers “112” and “999” available to the Emergency Organisations handling those calls.

4.3 For the purposes of this Condition,

(a) “Caller Location Information” means any data or information processed in an Electronic Communications Network indicating the geographic position of the terminal equipment of a person initiating a call;

(b) “Communications Provider” means:

(i) in paragraph 4.1, a person who provides Publicly Available Telephone Services, or provides access to such Publicly Available Telephone Services by means of a Pay Telephone;

(ii) in paragraph 4.2, a person who provides a Public Telephone Network;

(c) “Pay Telephone” means a telephone for the use of which the means of payment may include coins and/or credit/debit cards and/or pre-payment cards, including cards for use with dialling codes. For the avoidance of any doubt, references to a Pay Telephone include references to a Public Pay Telephone.

A6.79 As this GC makes it plain, only GC 4.1 applies to PATS providers (who, in the context of VoIP services, are the focus of these guidelines), whereas GC 4.2 applies to PTN providers. The former obligation is simply one requiring a PATS provider to ensure that any end-user can access the

emergency organisations by using the emergency call numbers “112” and “999” at no charge.

- A6.80 Ofcom consider that it might be helpful to indicate to providers of PATS VoIP services what they may need to agree with providers of PTNs to help them meet their GC 4.2 obligations, discussed further in A6.81 below.
- A6.81 General condition 4 implements the USD requirement that public telephone networks make caller location information available to emergency authorities, to the extent technically feasible, for all calls to 999/112. GC 4 defines this caller location information as indicating the geographic position of the terminal equipment of a person initiating an emergency call. Emergency location information is important to the emergency services. Location information is used to dispatch relevant emergency assistance and aids in crime prevention and detection.
- A6.82 In the PSTN a fixed network termination point is matched with a callers’ geographic location which can be identified from the CLI present in signalling system number 7, even when CLI is withheld by the caller. However, for a VoIP service providing location information is not as simple especially for nomadic services
- A6.83 It is possible for a VoIP service provided over a xDSL, cable modem or Wi-Fi broadband connection to provide its location or location of its associated broadband access network termination point in a number of ways, as outlined below. This information could then be passed directly to the emergency operator service. Some options on how this could be provided are discussed below.
- A6.84 The simplest approach is for the emergency operator (the operator who receives the 999/112 call in the first instance), to request location information when the call is received. They could be prompted to do this in the case of a 999 call by use of a flag that highlights that the call is from a VoIP service.
- A6.85 A second broad approach is for the user to input location details prior to using the VoIP service. This information could then be matched against the E.164 number when a call is received by the emergency operator. For this approach to be effective location information would need to be obtained from the VoIP user prior to calls being made and this information would need to be populated in the emergency operator database and matched against the E.164 number received. In addition the E.164 number could be flagged as being from a VoIP service which could prompt the emergency operator to confirm the location with the caller.
- A6.86 Where a service is used in a nomadic manner (i.e. there are multiple locations that the VoIP service is being used from) then the user would need to input location information at each new location they are at. This could be facilitated by the VoIP service provider requesting their customer to periodically update the location at which they are using the service, or for the VoIP service provider to monitor the customer’s IP address and request revised location information when the IP address changes.

- A6.87 A third approach is to use the IP network and IP addressing to provide location information. Location based solutions are used in the commercial world in particular with respect to control of TV content rights and e-commerce. The BBC uses software which locates an IP address down to city/country level in the UK. They use this to be able to restrict access to certain content rights (e.g. where the rights are for UK only) and users are only allowed to view the content if their source IP address matches part of the IP address range assigned to UK. In the US similar software and topology information is used to stop baseball matches being shown 'live' to internet subscribers living near baseball grounds with granularity achieved down to zip code level.
- A6.88 The granularity of such a solution could reach the targets required by emergency services but only if ISPs collaborate in providing IP address and topology information to a central database. It would be of interest to understand how granular can location be made based on IP v4 addressing. Ofcom understands that such a solution would be constrained by the use of private addressing and NAT. However, it is likely that that future NGN deployment will largely use IPv6 so that a higher level of granularity could be achieved. Standards work to provide location in IP network is ongoing, NICC has a working group looking at providing location in IP networks, as indeed has ETSI and the IETF, eCall proposals from the EC propose a minimum data set, including location, should be provided to support the emergency services across Europe.
- A6.89 Another approach could be to incorporate GPS/A-GPS or other GNSS (such as Galileo) receivers in the broadband adaptors which provide connectivity for the voice service. It is worth noting however, that GPS receivers suffer from the limitation that indoor coverage is problematic, not many users would attach an external antenna and CPE cost would increase.
- A6.90 Another alternative would be for all 999 calls to be made from a PSTN line in the case where a PSTN line remains in place. This could be done by using intelligence in a broadband adaptor (when using xDSL service) to force all 999 calls to PSTN line. This solution enables the continued provision of location to the emergency services based on the PSTN network termination point and associated service location.
- A6.91 Ofcom is not suggesting that any of these specific measures should be regarded as mandatory. We do however believe that all VoIP service providers providing 999 access should consider how they might assist in the provision of emergency location information.

Question 35: What other steps could be taken to provide reliable location to assist the emergency services in their work?

Question 36: What other steps could be taken to provide reliable location to assist the emergency services in their work in the case of nomadic users?

A6.92 As described in 2.14, Ofcom is participating in an NICC working group examining options for VoIP services to provide emergency location information and the European Commission DG information Society, Expert Group on 112.

Question 37: In addition to participating in the NICC working group on providing location in IP networks and 112 expert group,, what other steps should Ofcom take?

Annex 7

Notification of proposed modification to General Condition 18 of the General Conditions of Entitlement

Notification of a proposed modification under section 48(2) of the Communications Act 2003

Proposal for modification of General Condition 18 of Part 2 of the General Condition Notification regarding number portability, which is set out in the Schedule to that Notification under section 48(1) of the Communications Act 2003 published by the Director General of Telecommunications on 22 July 2003.

1. OFCOM, in accordance with section 48(2) of the Act, hereby make the following proposal for the modification of General Condition 18 of Part 2 of the General Condition Notification regarding number portability.
2. The draft modification is set out in the Schedule to this Notification.
3. The effect of, and Ofcom's reasons for making, the proposal referred to in paragraph 1 above is set out at Section 5 of the accompanying explanatory statement.
4. OFCOM consider that the proposed modification referred to in paragraph 1 above complies with the requirements of sections 45 to 50 of the Act, as appropriate and relevant to their proposal.
5. In making the proposal set out in this Notification, OFCOM have considered and acted in accordance with their general duties in section 3 of the Act and the six Community requirements in section 4 of the Act.
6. Representations may be made to OFCOM about their proposal set out in this Notification and the accompanying statement by 10 May 2006.
7. Copies of this Notification and the accompanying explanatory statement have been sent to the Secretary of State in accordance with section 50(1)(a) of the Act and to the European Commission in accordance with section 50(6) of the Act.
8. In this Notification:
 - (i) "the Act" means the Communications Act 2003;
 - (ii) "General Condition Notification" means as set out in the Schedule to the Notification under Section 48(1) of the Communications Act 2003 published by the Director General of Telecommunications on 22 July 2003; and

(ii) "OFCOM" means the Office of Communications.

9. Except insofar as the context otherwise requires, words or expressions shall have the meaning assigned to them in this Notification and otherwise any word or expression shall have the same meaning as it has in the General Condition Notification and, subject to such meanings, otherwise any word or expression shall have the same meaning as it has in the Act.

10. For the purpose of interpreting this Notification:

(i) headings and titles shall be disregarded; and

(ii) the Interpretation Act 1978 shall apply as if this Notification were an Act of Parliament.

11. The Schedule to this Notification shall form part of this Notification

A handwritten signature in dark ink, appearing to read 'A. Heaney', is positioned to the right of a vertical line.

Signed by Andrew Heaney

Title: Competition Policy Director, Broadband

A person authorised by Ofcom under paragraph 18 of the Schedule to the Office of Communications Act 2003

22 February 2006

Schedule

Proposal for modification to General Condition 18 of Part 2 of the General Condition Notification regarding number portability, which is set out in the Schedule to the Notification under Section 48(1) of the Communications Act 2003 published by the Director General of Telecommunications on 22 July 2003

1. The definition of “Publicly Available Telephone Service” under General Condition 18.5 of Part 2 of the General Condition Notification shall be substituted for the following new definition of “Publicly Available Telephone Service”—

Publicly Available Telephone Service”:

(a) in relation to a service to be used with a Telephone Number for receiving calls only under the contract between the person and the provider in question, means a Public Electronic Communications Service for only receiving national and international telephone calls through a number or numbers in a national or international telephone numbering plan.

(b) in relation to a service to be used with a Telephone Number for originating and receiving calls and access to Emergency Organisations under the contract between the person and the provider in question, has the meaning ascribed to it under paragraph 1 of Part 1 of this Schedule;

Annex 8

Notification of proposed modification to General Condition 14 of the General Conditions of Entitlement

Notification of a proposed modification under section 48(2) of the Communications Act 2003

Proposal for modification of General Condition 14 (as amended) of Part 2 of the General Condition Notification regarding Codes of Practice and Dispute Resolution under section 48(2) of the Communications Act 2003 for the purpose of imposing requirements upon all Service Providers to comply with an information code.

1. OFCOM in accordance with section 48(2) of the Act hereby make the following proposal for the modification of General Condition 14 (as amended) of Part 2 of the General Condition Notification, regarding Codes of Practice and Dispute Resolution.
2. On 13 April 2005, OFCOM published a notification under section 48(1) of the Act modifying General Condition 14, entitled '*Protecting citizens and consumers from mis-selling of fixed-line telecommunications services*'
3. On 28 September 2005, OFCOM published a notification under section 48 (2) of the Act proposing to modify General Condition 14, entitled '*Providing citizens and consumers with improved information about Number translation Services and premium rate Services*'.
4. The draft modification is set out in the Schedule to this Notification.
5. The effect of, and OFCOM's reasons for making, the proposals referred to in paragraph 1 above is set out at Sections 6 and 7 of the accompanying explanatory statement.
6. OFCOM consider that the proposed modification referred to in paragraph 1 above complies with the requirements of sections 45 to 50 of the Act, as appropriate and relevant to their proposal.
7. In making the proposal set out in this Notification, OFCOM has considered and acted in accordance with their general duties in section 3 of the Act and the six Community requirements in section 4 of the Act.
8. Representations may be made to OFCOM about their proposal set out in this Notification and the accompanying statement by 5pm on 10 May 2005.

9. Copies of this Notification and the accompanying statement have been sent to the Secretary of State in accordance with section 50(1)(a) of the Act, and to the European Commission in accordance with section 50(6) of the Act.

10. In this Notification:

- (i) 'the Act' means the Communications Act 2003;
- (ii) 'General Condition Notification' means as set out in the Schedule to the Notification under Section 48(1) of the Communications Act 2003 published by the Director General of Telecommunications on 22 July 2003; and
- (iii) 'OFCOM' means the Office of Communications; and

11. Except insofar as the context otherwise requires, words or expressions shall have the meaning assigned to them in this Notification (including the Schedule) and otherwise words or expression shall have the same meaning as it has in General Condition Notification and, subject to such meanings, otherwise any word or expression shall have the same meaning as it has in the Act.

12. For the purpose of interpreting this Notification:

- (i) headings and titles shall be disregarded; and
- (ii) the Interpretation Act 1978 shall apply as if this Notification were an Act of Parliament.

13. The Schedule to this Notification shall form part of this Notification

A handwritten signature in dark ink, appearing to read 'A. Heaney', with a stylized flourish at the end.

Signed by: Andrew Heaney
Title: Competition Policy Director, Broadband

A person authorised by Ofcom under paragraph 18 of the Schedule to the Office of Communications Act 2002

22 February 2006

Schedule

Proposal for modification to General Condition 14 of Part 2 of the General Condition Notification regarding Codes of Practice and Dispute Resolution, which is set out in the Schedule to the Notification under Section 48(1) of the Communications Act 2003 published by the Director General of Telecommunications on 22 July 2003

General Condition 14 on Codes of Practice and Dispute Resolution shall be modified as set out below:

1. The following wording is inserted in General Condition 14:

“Code on the provision by Service Providers of consumer protection information for the provision of Services

Condition 14.9 Within one month of Condition 14.9 entering into force, the Service Provider shall:

(a) comply with the requirements set out in the code at Annex 3”

2.Paragraph 14.9 is renumbered as Paragraph 14.10.

3. The following definitions are inserted in alphabetical order in Paragraph 14.10 (as renumbered):

“‘**Service**’ means a Publicly Available Electronic Communication Service, providing voice services.”

“‘**Service Provider**’ means a provider of Publicly Available Electronic Communication Services providing voice services.”

4. The following Code is inserted in General Condition 14, at Annex 3:

“Annex 3”**[Draft] Code on the provision by Service Providers of consumer information to Domestic and Small Business Customers for the provision of Services****Purpose**

- A8.1 This code (the ‘Code’) sets out the minimum requirements for all Service Providers to ensure that its Domestic and Small Business Customers are provided with information about any feature and/or limitation in that Service Provider’s Service that differs from a Publicly Available Telephony Service provided over the Public Switched Telephone Network, in the ways set out in A8.4 below.
- A8.2 Different sections of this code may be applicable to different Service Providers, depending on what Services the Service Provider is providing.
- A8.3 These requirements are in addition to the information required to be made available by the Service Provider under the General Conditions of Entitlement and any Codes of Practice set under the General Conditions of Entitlement.

Scope

- A8.4 The code requires the Service Provider to provide information to its Domestic and Small Business Customers on:
- service reliability;
 - Emergency Calls;
 - the ability to Port Numbers; and,
 - Other information for Domestic and Small Business Customers.

a. Service Reliability

- A8.5 Each Service Provider shall provide to its Domestic and Small Business Customers clear and readily accessible information regarding whether its Service may cease to function if there is a power cut or power failure, or a failure of the Data Network.
- A8.6 The information in A8.5 above shall be provided during the Sales Process, within the Terms and Conditions of Use, and in any User Guide issued by the Service Provider.
- A8.7 The following text is an indicative example of the information to be provided in A8.5 above, that can be adapted to the specific requirements of Service Providers:

“IMPORTANT INFORMATION: This is a Voice over Data Network service and, as such, service availability is not guaranteed. Therefore if your broadband connection fails, your voice service will also fail. Your service may cease to function if there is a power cut or failure. Power cuts or failures may be caused by reasons outside our control.”

b. Emergency Calls

- A8.8 Some Services may not offer any access to Emergency Calls or access to Emergency Calls may be offered by the Service Provider over its Service but the reliability of this access may be affected by a power cut or power failure, or by failure of the Data Network.
- A8.9 This section is intended to ensure that Service Providers provide their Domestic and Small Business Customers with relevant information about their ability to make Emergency Calls.

No Access to Emergency Calls

- A8.10 Where the Service provided by the Service Provider does not provide access to Emergency Calls, the Service Provider shall:
- a. provide the Domestic and Small Business Customers, clear and readily accessible information at the Point of Signature, in the Terms and Conditions of Use and in any User Guide; that its Service does not provide access to Emergency Calls. The same information must also be provided to prospective Domestic and Small Business Customers as part of the Sales Process;
 - b. take reasonable steps to ensure that Domestic and Small Business Customers acknowledge in the form of a signature (or online equivalent), at the Point of Signature, that they understand that the Service will not provide any access to Emergency Calls;
 - c. provide evidence to Ofcom of the acknowledgement in A8.10 (b) above, within five working days; following a written request from Ofcom;
 - d. as part of the Terms and Conditions of Use, supply its Domestic and Small Business Customer with a clear and readily accessible printed statement, or an on-screen statement that the Domestic and Small Business Customer is encouraged to print out, that Emergency Calls cannot be made using the Service;
 - e. provide Labels (at no charge, other than reasonable postage and packaging if applicable) which state that Emergency Calls cannot be made using the Service, and recommend that the Domestic and Small Business Customer use these Labels on or near the relevant Service Access Terminal;
 - f. where a screen or display is used with the Service, indicate on that screen or display using a clear and readily accessible graphic, words or icon that Emergency Calls cannot be made using the Service; and,
 - g. if Emergency Calls are made from the Service Access Terminal, provide a network announcement stating:

- “Calls to Emergency Services cannot be made from this handset; please hang up and redial from an alternative telephone service.”
- h. This announcement shall be interspersed with a Number Unavailable Tone for the benefit of hearing-impaired users.

Reliability of Access to Emergency Calls

A8.11 Where the Service Provider provides access to Emergency Calls but the Service may cease to function if there is a power cut or failure or a failure of the Data Network the Service Provider shall:

- a. provide its Domestic and Small Business Customers with clear and readily accessible information, during the Sales Process, in the Terms and Conditions of Use and in any User Guide; that, although access to Emergency Calls is provided, the Service may cease to function if there is a power cut or failure, or a failure of the Data Network; and,
- b. on request of the Domestic and Small Business Customer (at no charge other than reasonable postage and packaging if applicable), provide Labels which state that Emergency Calls may fail

Emergency Location Information

A8.12 In respect of Emergency Location Information:

- a. where the Service provided by the Service Provider does provide access to Emergency Calls and the Service is to be used principally at a single fixed location, the Service Provider shall ask its Domestic and Small Business Customers to register with it the address of the place where the Service is going to be used (the location information), so that up-to-date location information can be used for Emergency Location Information;
- b. where the Service Provider has reasonable expectation that, or has been informed that, the service is to be accessed from several locations, the Service Provider shall ask its Domestic and Small Business Customers to register and update the location information with it, whenever accessing the Service from a new location, so that up-to-date information can be used for Emergency Location Information;
- c. the Service Provider shall advise its Domestic and Small Business Customer at the Point of Signature, in any User Guide, and in any Terms and Conditions of Use of any limitations on the location information that will be provided to the Emergency Services as Emergency Location Information, if the location information they have provided is not up-to-date. This advice shall be clear and readily accessible;
- d. if a prospective or a Domestic and Small Business Customer chooses not to provide location information, they should be informed of the consequences as part of the Sales Process; and,

- e. where the Service Provider does not provide Emergency Location Information, provide clear and easily accessible information to this effect to all Domestic and Small Business Customers at the Point of Signature, in any User Guide, and in any Terms and Conditions of Use. The same information shall also be made available to prospective Domestic and Small Business Customers as part of the Sales Process.

Ability to Port Numbers

A8.13 Where the Service Provider does not offer Number Portability, the Service Provider shall provide clear and readily accessible information to its Domestic and Small Business Customers in the Basic Code of Practice, User Guide and the Terms and Conditions of Use to this effect. The same information shall also be provided to prospective Domestic and Small Business Customers as part of the Sales Process.

Other information for Customers

A8.14 In addition to the requirements set out above, the information describing the Service made available by a Service Provider to a prospective Domestic and Small Business Customer shall make it clear and readily accessible as part of the Sales Process if any of the following facilities or features are not available by means of the Service:

- access to a Directory Enquiry Facility;
- access to operator assistance services (as described in General Condition 8.1);
- Calling Line Identification Facilities;
- provision of a Directory on request;
- special measures for end users with disabilities (as described in General Condition 15); and
- the non-itemisation of calls which are made from a Subscriber's telephone which are free of charge.

A8.15 The Service Provider shall also make clear and readily accessible, any restrictions on the Number Ranges or Country Codes that may be called using the Service. Where such numbers cannot be dialled, it is recommended that dialling such numbers should produce the standard Network Unavailable Tone.

DEFINITIONS

For the purposes of the Code, the definition of the following terms is:

'Basic Code of Practice' means the Service Provider's Code of Practice as required under General Condition 14.1.

'Calling Line Identification Facilities' means facilities by which the Telephone Number of a calling party is presented to the called party prior to the call being established;

‘Country Codes’ means the international dialling code e.g. 44 for the UK

‘Data Network’ means any packet data network, including the public internet, which uses the Internet Protocol.

‘Emergency Calls’ means calls to 999 or 112.

‘Emergency Location Information’ means information concerning the location from where a call to the Emergency Organisations can be made, that is provided by Service Providers to Emergency Organisation’s Operators as part of the handling of such a call.

‘Internet Protocol’ means the method by which data is sent over the internet or intranet

‘Label’ means a mechanism for annotating a Service Access Terminal with a brief message. Where the Service is only accessed through a computer, a Label can consist of an electronic notice that is displayed whenever the Service is used. In all other circumstances a Label would normally be (at the Customer’s choice) either a piece of paper to be attached to the Service Access Terminal or software facilities for producing such labels (e.g. a PDF file).

‘Number Portability’ the facility by which a Domestic and Small Business Customer can transfer their Telephone Number when switching between service providers.

‘Number Ranges’ means a set of contiguous numbers of a specified or unspecified size

‘Number Unavailable Tone’ means a continuous tone which differs from dial tone and indicates a dialled number is unavailable or out of service.

‘Point of Signature’ means the point in the process of concluding a contract immediately before the Domestic and Small Business Customer indicates his/her agreement to enter into the contract.

‘Port Numbers’ means the process to transfer Telephone Numbers to a new service provider.

‘Sales Process’ means the process of providing information to the prospective Domestic and Small Business Customer about the Service and of establishing the Domestic and Small Business Customer’s requirements for the Service before the making of the contract to provide that Service.

‘Service Access Terminal’ means the equipment used to access the Service.

‘Terms and Conditions of Use’ means the contract agreed by the Domestic and Small Business Customer for the provision of the Service.

‘User Guide’ means the document giving the Domestic and Small Business Customer information about how to use the Service. This does not include any document concerned solely with the operation of a Service Access Terminal.

Annex 9

Market Research

A9.1 Ofcom's market research⁵⁹ suggests that nearly 50% of UK adults are aware that voice calls can be made over the Internet – rising to over 63% amongst broadband users.

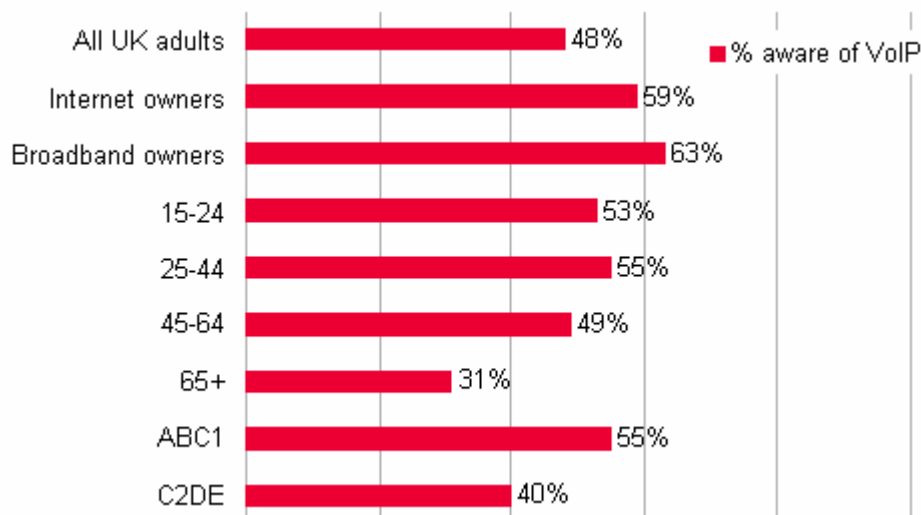


Figure 4: Current awareness of VoIP services

Q: Before now were you aware that you could make voice calls using the internet?

A9.2 14% of internet customers say they currently use VoIP services while 5% say they have stopped doing so. A further 14% of internet customers say that someone in their house is likely to start using VoIP services in the next 6 months. However, this result should be treated with caution as claimed intentions are rarely achieved in practice

A9.3 The service providers most commonly mentioned as the supplier of these voice services are 'MSN Messenger' (24% of current VoIP service users), 'Skype' (36%), 'BT Broadband Voice' (12%) and AOL (12%)

A9.4 In terms of future use of VoIP services 28% of non-VoIP users say they are likely to look for more information on these services in the next 6 months. Highest stated interest amongst AB social grades (36%) and 25-44 year olds (35%).

⁵⁹ Source: Ofcom's residential tracking study, Q3 2005, conducted by MOR, Base: 2220 UK adults aged 15+

Annex 10

Glossary

3G Smartphone: A cellular telephone with 3G data capabilities and an operating system such as Windows Mobie, Symbian or Palm OS.

21st Century Network, or 21CN: BT's 21st Century Network, its planned next generation core network

ADSL: Asymmetric Digital Subscriber Line. A digital technology that allows the use of a copper line to support high bandwidths in one direction and a lesser bandwidth in the other.

Altnet(s): Alternative fixed network operator.

ATM: Asynchronous Transfer Mode, a standard for high speed data communications.

Broadband: An service or connection generally defined as being 'always-on', and providing a bandwidth greater than 128kbit/s.

BT: British Telecommunications plc.

CLI: Calling Line Identity

Core network: The centralised part of a network, characterised by a high level of traffic aggregation, high capacity links and a relatively small number of nodes.

CP: Communications Provider

CPE: Customer Premises Equipment

CPS: Carrier Pre-selection. The facility offered to customers which allows them to opt for certain defined classes of call to be carried by a communications provider selected in advance (and having a contract with the customer) without having to dial a routing prefix, use a dialler box, or follow any other different procedure to invoke such routing.

CSR: Corporate Social Responsibility. A programme a company runs in order to demonstrate it acts in a responsible manner towards it's customers.

DECT: Digital European Cordless Telephony

DiffServ: Differentiated Services, a marking scheme for IP packets to support QoS using Differentiated Services Code Points in an IP header

DoS: Denial of Service, bombarding a computer with service requests so that legitimate service requests can no longer be executed

DSL: Digital Subscriber Line. A family of technologies generally referred to as DSL, or xDSL, capable of transforming ordinary phone lines (also known as 'twisted copper pairs') into highspeed digital lines, capable of supporting advanced services such as fast internet access and video-on-demand. ADSL, HDSL (High data rate

Digital Subscriber Line) and VHDSL(Very high data rate Digital Subscriber Line) are all variants of xDSL.

DSLAM: DSL Access Multiplexor

ECS: Electronic Communications Service,

E.164: A telephone number in accordance with the National Numbering Plan

Equivalence: The principle that BT's wholesale customers should have access to the same or a similar set of mandated wholesale products, at the same prices and using the same or similar transactional processes, as BT's own retail activities.

Ex ante: Before an event takes place.

Ex post: After an event takes place.

EC: European Commission

ERG: European Regulators Group

ETSI: European Telecommunications Standards Institute

EU: European Union

EXP bits: 3 bits in an MPLS label that can be used to indicate per hop behaviour, used for class of service mapping

FCC: Federal Communications Commission. The US regulatory body that regulates all interstate and foreign communications by wire, radio and television. Intra-state communications are regulated by state public utilities commissions.

GC: General Condition

IA: Indirect Access. The facility offered to customers which allows them to opt on a call by call basis for calls to be carried by an alternative communication provider.

IETF: Internet Engineering Task Force

IEEE: Institute of Electronic and Electronic Engineers Inc

Interconnection: The linking of one Public Electronic Communications Network to another for the purpose of enabling the people using one of them to be able (a) to communicate with users of the other one; (b) to make use of services provided by means of the other one (whether by the provider of that network or by another person).

Interoperability: The technical features of a group of interconnected systems which ensure end-to-end provision of a given service in a consistent and predictable way.

IP: Internet Protocol. The packet data protocol used for routing and carriage of messages across the internet and similar networks.

ISP: Internet Service Provider. A company that provides access to the internet.

ISPA: Internet Services Provider Association

ITSPA: Internet Telephony Services Provider Association

ITU: International Telecommunications Union.

LAN: Local area network. A network allowing the interconnection and intercommunication of a group of computers on a single site, primarily for the sharing of resources and exchange of information (e.g. email).

Licensed Wireless. GSM-GPRS, Edge, WCDMA-UMTS or wireless access solutions using licensed radio spectrum.

LLU: Local Loop Unbundling. A process by which BT's exchange lines are physically disconnected from BT's network and connected to other operators' networks. This enables operators other than BT to use the BT local loop to provide services to customers.

Malware: Software that compromises the working of a computer/device's operating system

MPLS: combines elements of layer 3 routing and forwarding with layer 2 connection oriented forwarding.

MSAN: Multi Service Access Node.

Narrowband: A service or connection providing data speeds up to 128kbit/s, such as via an analogue telephone line, or via ISDN.

Naked DSL: A DSL service provided without existing PSTN line voice services

NCC: National Consumer Council

NGN: Next generation network

NICC: Network Interoperability Consultative Committee

NP: Number Portability

NTE: Network Terminating Equipment

NVS: New Voice Services. A term used by Ofcom in a previous consultation, to describe new VoIP services.

Ofcom: Office of Communications. The regulator for the communications industries, created by the Communications Act.

Ofotel: Office of Telecommunications, whose functions transferred to Ofcom on 29 December 2003.

PATS: A category of ECS. Publicly Available Telephony Service

PC: Personal Computer

PECS: Public Electronic Communications Service

PSTN: Public Switched Telephony Network.

PTN: Public Telephone Network. A network over which PATS is provided

QoS: Quality of Service

Quark: Fundamental matter particle. Constituent of protons and neutrons.

SDH: Synchronous Digital Hierarchy. A transmission standard widely used for leased line services

Service provider: A provider of electronic communication services to third parties whether over its own network or otherwise.

SIP: Session Initiation Protocol. An IP telephony signalling protocol developed by the IETF.

SLA: Service Level Agreement

SMP: Significant Market Power. This test is set out in the EU Framework Directive, and is aligned with the competition law definition of 'dominance'. It is used by Ofcom to identify those communication providers who may be required to meet additional regulatory obligations.

SSL: Secure Sockets layer. Used to encrypt web (http) traffic

SPAM: Unsolicited Mail

SPIT: SPAM over Internet Telephony

TSR: Ofcom's Telecoms Strategic Review

UMA: Unlicensed Mobile Access.

UPS: Uninterrupted Power Supply

URI: Uniform Resource Identifier. The addressing technology for identifying resources on the Internet or a private intranet.

Vertical integration: Mergers, or co-ownership between, producers that are active in different stages in the value chain for a particular good or service.

VoIP: Voice over Internet Protocol. A technology that allows users to send calls using Internet Protocol, using either the public internet or private IP networks.

Voice over Broadband: A Voice over Internet Protocol service provided over a broadband Connection

VPN: Virtual Private Network. A technology allowing users to make inter-site connections over a public telecommunications network that is software-partitioned to emulate the service offered by a physically distinct private network.

WCDMA: WCDMA is based on Code Division Multiple Access on the air interface

and is used in 3G mobile networks in the UK. Otherwise known as UMTS and standardised by the ITU as IMT-2000 direct spread.

Wi-Fi: Wireless Fidelity based on IEEE 802.11x standards

WiMax: Worldwide Interoperability for Microwave Access-Broadband wireless based on IEEE 802.16 & ETSI HiperMAN standards

WLR: Wholesale Line Rental. A regulatory instrument requiring the operator of local access lines to make this service available to competing providers at a wholesale price.