

Economic Regulation of Voice over IP Services: A Cross-Jurisdictional Survey

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Despite the progress towards competition in the provision of telecommunications services that has occurred over the past few decades, in most jurisdictions incumbent telephone companies continue to dominate the provision of fixed access to the public telephone network and the provision of fixed public voice telephone services. Incumbents are, as a consequence, subject to varying degrees of economic regulation (eg, price controls) in respect of these services. As incumbents introduce Internet Protocol ('IP') technology into their networks, a question arises about whether the new wave of voice services, which this technology enables ('voice over IP' or 'VoIP'), should be regulated on the same restrictive basis as the incumbent's conventional circuit-switched services.¹

National regulatory authorities (NRAs) in several jurisdictions have recently addressed this issue. In this paper, I examine the policies adopted by the NRAs in 11 of these jurisdictions: France, the United Kingdom, Ireland,

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1 The longer-term implications arising from the introduction of IP technology and the introduction of VoIP services may render extensive economic regulation of PSTN services redundant. As the FCC has observed:

'[t]he rise of IP ... challenges the key assumptions on which communications networks, and regulation of those networks, are predicated: Packets routed across a global network with multiple access points defy jurisdictional boundaries. Networks capable of facilitating any sort of application that programmers can devise have empowered consumers to choose services they desire rather than merely accepting a provider's one-size-fits-all offering.'

IP Enabled Services, Notice of Proposed Rulemaking, 19 FCC Rcd 4863 (2004), para 4.

This observation has led the FCC to ask 'whether the proliferation of services and applications utilizing a common protocol may permit competitive developments in the marketplace to play the key role once played by regulation:', *ibid*.

Germany, the Netherlands, Italy, Spain, Denmark, Sweden, the United States and Canada (which I will refer to as 'the Survey Group'). These jurisdictions have one important feature in common: they typically decide which markets to regulate (or in the case of the United States and Canada, to forbear from regulating) using a similar 'market analysis' process. This process involves definition of the relevant market, a determination as to the existence of market power and, where market power is found to exist, a decision as to the particular regulatory requirements that should be applied (or disappplied). Although there are some significant differences in the legislative framework within which members of the Survey Group operate and local market conditions, this common analytical approach allows us to make some interesting cross-jurisdictional comparisons concerning approaches to the regulation of VoIP.

In this paper, I describe the regulatory treatment of VoIP services in the jurisdictions comprising the Survey Group (Part 2), focusing on regulation at the retail level. I then go on, in Part 3, to discuss the various approaches to regulation and to compare them. I note that the Survey reveals near-consensus on one point - that VoIP services should not be regulated on the same basis as PSTN services, and that the regulation applied should be minimal. (The only jurisdiction that has decided otherwise is Canada.) This near-consensus has been achieved despite some notable differences between jurisdictions on the matter of market definition, which I identify and discuss.

Part 1 - Definitions

I use the term 'VoIP' to refer to 'phone-to-phone VoIP'; that is, a voice communication service using internet protocol that uses E.164 telephone numbers that provide universal access to and/or from the Public Switch Telephone Network (PSTN). VoIP so defined can be provided in two different configurations:

- (1) *Voice over broadband or VoB*: A voice service that uses broadband to access the service provider's network. Such services are typically available from the incumbent and from ISPs as part of 'triple-play' offers. As the communication is transmitted through the service provider's network, the service provider has quality control. VoB so defined is referred to in some jurisdictions (eg, the Netherlands, Germany) as 'managed VoB' [in contradistinction to 'unmanaged VoB' - see (2)].
- (2) *Voice over the Internet or VoI*: A voice service provided over the Internet. A distinguishing feature is that the access provider cannot control the end-to-end quality. An example of such a service is Skype. (In some jurisdictions, this service type is referred to as 'unmanaged VoB'.)

When I refer to ‘economic regulation’, I have in mind ex-ante measures of the following types: price controls (which may take the form of direct constraints on pricing, such as price caps; or prohibitions against predatory or excessive pricing; or requirements that prices are ‘cost-oriented’); ‘transparency’ requirements (tariff filing and publication); requirements for pre-approval of tariffs; prohibitions on discrimination; and access requirements (notably, carrier selection/carrier pre-selection (CS/CPS) or ‘equal access’).

An ex-ante measure is a sector-specific measure imposed to constrain behaviour through a set of rules that forbid specific acts (eg, lowering prices below a pre-defined floor). By contrast, ex-post measures are typically general rules applicable across multiple sectors that seek to constrain behaviour through the promise that violations will be penalised (eg, competition law prohibition on predatory pricing). The former measures are intended to prevent harm happening, but at the risk that legitimate forms of competition are inhibited. The latter avoid this risk but in doing so create the possibility that irreparable harm may occur which punishment after the fact cannot rectify.

Part 2 - Survey results

European Union

The EU’s 2002 regulatory framework is built on the premise that regulatory obligations should be imposed on an operator only if it has ‘significant market power’ (SMP) in a market, and that any obligations imposed should be ‘proportionate’; ie, limited to the minimum necessary to achieve the aim.²

The market analysis process begins with definition of the relevant markets. In defining markets, NRAs are required to have regard to the European Commission’s *Recommendation on relevant product markets and services*.³ The *Recommendation* in effect serves as a starting point for market analysis, departures from which are permitted to reflect national circumstances.

The *Recommendation* identifies, in accordance with competition law principles, those product and service markets in which ex-ante regulation may be warranted. In identifying markets, the *Recommendation* specifies that regard should be had to three considerations: (1) the presence of high and

² *Guidelines on Market Analysis and the Assessment of Significant Market Power*, OJ C 165, 11.07.2002, p 6 (‘*Guidelines*’), para 118. An NRA may impose ex-ante regulatory obligations at the retail level only if obligations imposed at the wholesale level are not sufficient to achieve the objectives of the framework: Directive 2002/22/EC, OJ L 108, 24.4.2002, p 51 (‘*Universal Services Directive*’), article 17.

³ C(2003) 497.

non-transitory entry barriers, whether of a structural, legal or regulatory nature; (2) the state of competition behind the barriers of entry; (3) whether the application of competition law alone would adequately address the market failure(s) concerned. This third factor merits highlighting: where competition law alone is likely to provide an adequate remedy to potential abuses of market power, the *Recommendation* indicates that it is not appropriate to identify the market as one where ex-ante regulation is justified.⁴

The *Recommendation* identifies seven retail and 11 wholesale markets potentially justifying ex-ante regulation, including the following retail markets which are potentially relevant where provision of VoIP is concerned:

- fixed access to the PSTN;
- local/national fixed calls; and
- international fixed calls.

In each case, the *Recommendation* identifies the residential and business segments as separate markets.

The Commission has issued *Guidelines on Market Analysis and the Assessment of Significant Market Power*,⁵ which set out the principles for use by NRAs in the analysis of markets. Consistent with the *Recommendation*, the *Guidelines* adopt a conventional competition-law approach to the matter of market definition. Under this approach, the extent to which any particular service, such as VoIP, constitutes part of a 'relevant market' in a given geographical area 'depends on the existence of competitive constraints on the price-setting behaviour of the producer(s) or service provider(s) concerned.' The *Guidelines* say that:

'There are two main competitive constraints to consider in assessing the behaviour of undertakings on the market, (i) demand-side; and (ii) supply-side substitution. ...

...

Demand-side substitutability is used to measure the extent to which consumers are prepared to substitute other services or products for the service or product in question, whereas supply-side substitutability indicates whether suppliers other than those offering the product or services in question would switch in the immediate to short term their line of production or offer the relevant products or services without incurring significant additional costs.'⁶

'One possible way of assessing the existence of any demand and supply-side substitution', according to the *Guidelines*, 'is to apply the so-called "hypothetical monopolist test". Under this test, an NRA should ask what

⁴ *ibid*, Recitals 2, 9 and 15.

⁵ *Supra*.

⁶ *ibid*, para 39.

would happen if there were a small but significant, lasting increase in the price of a given product or service, assuming that the prices of all other products or services remain constant.’⁷ If the NRA’s judgment is that an increase of, say, 5-10% in the price of a service would lead to a significant switch to another service, the two services can be considered substitutes and therefore within the same market.

Once a market has been defined, the next step is to consider whether any operators have SMP in that market. An operator shall be deemed to have SMP if (either individually or jointly with others) it enjoys a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and, ultimately, consumers.⁸

Finally, where SMP exists, the NRA is required to consider what ex-ante remedies should be imposed to counter the potential adverse effects of that SMP. The prescribed remedies include such measures as the imposition of obligations of transparency (ie, publication of prices), non-discrimination, price controls, accounting separation and cost accounting.

EU law requires that the market analysis process is carried out in collaboration with national competition authorities.⁹

The role of the European Commission in the market analysis process is important. Not only do its *Recommendation* and *Guidelines* provide a framework for the analysis, the Commission is required to review NRA decisions before they are put into effect (referred to as the ‘Article 7 process’). NRAs are required to take ‘the utmost account’ of comments of the Commission.¹⁰ In certain cases, the Commission can veto a market definition that differs from those of the *Recommendation* (and has done so).¹¹

⁷ *ibid*, para 40.

⁸ Directive 2002/21/EC, OJ L 108, 24.4.2002, p 33 (*‘Framework Directive’*), article 14,2; *Guidelines*, para 70.

⁹ *Framework Directive*, article 16(1).

¹⁰ *Framework Directive*, article 7(5).

¹¹ Where an NRA defines markets in a way that does not conform to Commission guidelines on market definition, and (i) the NRA decision affects trade between member states, and (ii) the Commission considers that giving effect to the proposal would create a barrier in relation to the single European market or has ‘serious doubts’ as to whether the proposal would be compatible with the requirements of any Community obligations, the Commission may require the NRA to withdraw the proposal: *Framework Directive*, article 7(4). For an example of such a case, see Commission Decision C(2004)4070 Final of 20 October 2004 (Case AT/2004/0900; transit services in the fixed public telephone network in Austria), in which the Commission concluded that the evidence provided by the Austrian NRA was insufficient to support its conclusion that there is a single market for transit services in Austria which includes ‘self provision’ of transit services through direct interconnection as a demand-side substitute for third-party transit services, and that the proposed measure was therefore incompatible with Community law. The Commission said that ‘a thorough and complete analysis of the economic characteristics of the relevant market’ was necessary.

The European Regulators Group, which is a forum for NRAs established under EU law, has published 'common positions' on many matters related to the implementation of the 2002 framework, including the *ERG Common Statement for VoIP regulatory approaches*.¹² Where the matter of economic regulation of VoIP is concerned, however, the Common Statement simply refers the matter to NRAs for decision. The Common Statement states that 'Harmonisation is an ongoing process; not only dependent on the implementation of the European regulatory framework but also on national circumstances and the scope of interpretation of the European regulatory framework. The consequences in the market of the application of the European regulatory framework may therefore vary between member states.'

Synopses of the outcomes of completed market analyses for eight EU NRAs appear in the list below.

France

In July 2004, the French NRA, the Autorité de regulation de télécommunications (ART) [later the Autorité de regulation de communications électroniques et des postes (ARCEP)], released a consultation document on the analysis of the relevant markets for fixed telephony. The ART suggested that all fixed narrowband communications to and from the PSTN belong to the same market, whether they are made via narrowband or broadband access services, because the use to which the PSTN is put is in both cases the same from the standpoint of the user. The ART went on to propose that, in view of the emergence of narrowband services using VoIP technology, it might be appropriate to define separate submarkets for different access technologies (with the implication that these might be regulated differently). It invited comment on these ideas.¹³

As required by EU law, the competition authority, the Conseil de la concurrence, was consulted on the issue. The Conseil noted that the availability on the market of a stand-alone ADSL connection ('naked DSL'; ie, a broadband connection unbundled from the telephone subscription) made the offering of *ADSL+VOB* possible as an alternative to a telephone subscription + a classic voice service. This, it suggested, made VoB an alternative to classic phone service.¹⁴

¹² ERG (05) 12.

¹³ ART, *Analyse des marchés pertinents*, July 2004, pp 15-16.

¹⁴ Conseil de la concurrence, *Avis no° 05-A-05 relatif à une demande d'avis de l'Autorité de régulation des télécommunications en application de l'article L. 37-1 du code des postes et communications électroniques, portant sur l'analyse des marchés de détail et de gros de la téléphonie fixe*, 16 February 2005, paras 28-41 (www.conseil-concurrence.fr/pdf/avis/05a03.pdf).

The Conseil questioned ART's suggestion that submarkets might be defined for VoIP and conventional fixed telephony offerings. It noted the capacity of the regulator to impose differentiated remedies on services within the same market and expressed the view that VoB and conventional fixed telephone services could be placed in the same market and that different obligations could be imposed on each (with due regard for the need to avoid adding to distortions in the market in doing so).¹⁵

In its subsequent decision, delivered in September 2005, ARCEP defined the following retail markets for the purposes of ex-ante regulation¹⁶:

- fixed access to the PSTN;
- national calls;
- international calls.

(In each case, ARCEP defined separate markets for residential and business segments.)

Consistent with the Conseil's opinion, ARCEP concluded that the provision of VoB¹⁷ is part of the two retail call markets along with conventional fixed line services.¹⁸ ARCEP found that France Télécom (FT) has SMP in relation to these markets. It then turned to the question of the appropriate remedies. ARCEP decided that:

- It is appropriate to impose a range of regulatory obligations on FT in relation to the provision of its fixed access and fixed calling services, including an obligation not to discriminate, a prohibition on abusive bundling of access and calls, a prohibition on excessive or predatory pricing, and an obligation to file tariffs in advance.¹⁹
- It is not required, however, to impose such obligations on FT services that are not associated with fixed line access to the PSTN, such as VoB.

ARCEP identified the significant competition that exists for the access portion of the service as a critical factor in that decision. ARCEP said the following:

‘En revanche, s’agissant des deux marchés des communications, il n’est pas nécessaire à ce jour d’imposer des obligations sur les prestations de communications fournies par France Télécom qui ne sont pas associées

¹⁵ *Avis n° 05-A-05*, paras 73-4.

¹⁶ ARCEP, *Décision n° 05-0571 portant sur la définition des marchés pertinents de la téléphonie fixe, la désignation d’opérateurs exerçant une influence significative sur ces marchés et les obligations imposées à ce titre*, 27 September 2005.

¹⁷ Defined as ‘les services de téléphonie fixe utilisant la technologie de la voix sur IP sur un réseau d’accès à Internet dont le débit dépasse 128 kbit/s, et dont la qualité est maîtrisée par l’opérateur qui les fournit.’

¹⁸ *Décision n° 05-0571*, p 41.

¹⁹ Under the *Code des communications électroniques et des postes*, articles L. 38-1 2° et D. 315, proposed tariffs must be filed three weeks in advance of their proposed effective date and come into effect unless ARCEP intervenes within that timeframe and opposes the proposed tariffs.

à un accès inclus dans le marché pertinent de l'accès. En effet, ce segment de marché est associé au marché de l'accès haut débit à Internet, marché en pleine croissance qui présente donc moins d'obstacles au développement de la concurrence, contrairement au marché de l'accès au réseau téléphonique, marché complètement mature sur lequel on observe une décroissance des volumes. Par ailleurs, la situation concurrentielle sur ces deux marchés de l'accès est des plus contrastées. Dans le cas des accès haut débit à Internet, il existe une large gamme d'offres de gros qui permet l'entrée sur le marché de détail d'opérateurs concurrents de France Télécom : offre de dégroupage, de « bitstream » et d'interconnexion.²⁰

ARCEP also decided that VoI services²¹ do not fall within the scope of the markets under review. Because VoI requires the installation of software on a computer and is therefore available only to a limited customer base, and VoI service providers are not able to guarantee a quality of services comparable to traditional telephony since they do not control the underlying broadband infrastructure,²² VoI service is not a close substitute for conventional calling. The practical result of excluding VoI from the scope of the relevant markets is that VoI service is unregulated.

In 'Comments' delivered in the context of the Article 7 process relating to the proposed measure, the European Commission endorsed the reasoning that led to the conclusions relating to the appropriate regulatory treatment of VoB.²³ The Commission said that, 'given that VoB is provided by regulated

20 *Décision n° 05-0571*, p 128 (The passage cited refers specifically to the residential segment. A similar conclusion is reached with respect to the business segment: p 129).

ARCEP also observed that appropriate regulation is already and/or will shortly be imposed at wholesale level to remedy any potential market failure downstream, mainly through appropriate pricing of full local loop unbundling full replicability (in terms of price and technical functionalities) at bitstream level of FT's retail 'bundled' offers, and the provision of Wholesale Line Rental. ARCEP said that it would, however, monitor market developments and might propose modifications to the present set of obligations, if and when appropriate.

21 Defined as 'les services de communications vocals utilisant le réseau public Internet, et dont la qualité de service n'est pas maîtrisée par son fournisseur'.

22 The same difference in quality of service was not found to exist in the case of VoB. ARCEP says, at p 17, that

'Les communications VLB [Voix sur large bande, or "VoB"], dont la qualité de service est maîtrisée par l'opérateur, sont devenues début 2005 d'une qualité très proche de celle des communications classiques. En revanche, il n'en est pas de même pour la « Voix sur Internet » (ci-après dénommée « VOI ») dont le fournisseur de service n'est en général pas le FAI [= fournisseur d'accès à l'Internet] et qui nécessite de disposer d'un ordinateur personnel allumé pour émettre ou recevoir des appels'.

23 Letter from European Commission to ARCEP, *Cases FR/2005/221 to FR/2005/0226: Retail fixed narrowband, Access and Calls markets in France, Comments pursuant to Article 7(3) of Directive 2002/21/EC*, 15 September 2005, p 5.

wholesale access lines and that VoB as an alternative service to PSTN can, in principle, be provided by any provider of broadband connection, the Commission considers that the decision not to extend PSTN obligations to VoB is justified'. The Commission also observed that access obligations imposed on FT in the market for *wholesale* broadband access to fixed-line network may solve any problem at the corresponding *retail* level; and that general competition law is sufficient to deal with any future abuses by FT of its dominant position in the retail markets for voice telephony, should they occur.

The Commission did not comment on the ARCEP's proposed treatment of VoI.

Summary: ARCEP has decided that a distinction should be drawn between VoB and VoI for regulatory purposes. VoB has been found to be part of the same market as narrowband retail calls. While it has been decided that narrowband retail calls provided by the incumbent must be regulated, it has also been decided that regulation of VoB is not required. VoI has been found not to be part of same market as narrowband retail calls and for that reason also remains unregulated.

United Kingdom

In its 2003 analysis of fixed narrowband retail services markets, Oftel rejected the view that there is a single market for unmetered internet access including both narrowband and broadband. Oftel said that, while it 'recognises that customers have moved from narrowband to broadband and that this is likely to continue to some extent in the future, it is not clear that this is substitution in response to a relative price change as such, as opposed to customers upgrading to a higher quality product that was not previously available'. Oftel's consumer survey evidence indicates that customers value the added functionality of broadband, in particular, the always on element, the ability to make simultaneous voice calls while accessing the Internet, as well as the additional speed.²⁴

In 2004, Oftel's successor, Ofcom, formally defined a retail market for 'asymmetric broadband internet access' including 'services that are always on, allow both voice and data services to be used simultaneously and provide data at speeds greater than a dial up connection'. This market includes both business and residential customers.²⁵ Ofcom noted 'the potential for

24 Ofcom, *Fixed Narrowband Retail Services Markets, Final Explanatory Statement and Notification*, 28 November 2003, para 2.6.

25 Ofcom, *Review of the Wholesale Broadband Access Markets, Final Explanatory Statement and Notification*, 13 May 2004, para 2.140.

voice services to be provided over broadband (VOB) in unison with internet access using an ADSL based service', but it added that

'for this potential situation to be relevant, VOB must be considered as an effective demand side substitute by retail customers to PSTN voice services. Ofcom does not consider that it is likely that this will happen during the time period of this market review such that this potential issue is not relevant to the current analysis. VOB services have, as yet, insignificant take up such that they are not likely to constitute an effective retail substitute to PSTN voice calls over the next two years.'²⁶

In February 2006, Ofcom initiated a new consultation process on the regulatory treatment of 'new voice services'.²⁷ The process is aimed at fixing the general regulatory requirements applicable to all operators offering VoIP and similar services and does not address how VoIP might be treated within the market analysis process or the special regulatory obligations that may be imposed on BT or any other entity which might be found to have SMP in the relevant market. These matters are left to the relevant market reviews.²⁸

Summary: Ofcom has decided that VoB is not an effective demand-side retail substitute for PSTN calls and is therefore not in the same market as PSTN calls. VoB is not as a consequence regulated. OFCOM has not yet considered the position of VoI.

Ireland

In its analyses of the Irish market for retail access²⁹ and calls,³⁰ ComReg found that eircom had SMP in the relevant markets and imposed the following obligations: continuation of the pre-existing price controls in the form of a price cap of CPI-0% on access and domestic calls (considered together) and a subcap of CPI-CPI on PSTN line rentals; cost-orientation in relation to retail access and domestic and international calls; transparency (publication and notification of terms and conditions); non-discrimination; a prohibition on unreasonable bundling; and cost accounting and separation.³¹ At the

26 Ofcom, *Review of the Wholesale Broadband Access Markets, Final Explanatory Statement and Notification*, 13 May 2004, para 2.89.

27 *Regulation of VoIP Services, Statement and further consultation*, 22 February 2006.

28 See *ibid*, para 9.3.

29 ComReg, *Market Analysis: Retail Fixed Narrowband Access Markets (Response to Consultation Document 04/94 & Draft Decision)*, Doc No 05/25, 22 March 2005 (www.comreg.ie/_fileupload/publications/ComReg0525.pdf).

30 ComReg, *Market Analysis: Retail Fixed Calls Markets (Response to Consultation Document 04/95 & Draft Decision)*, Doc No 05/26, 22 March 2005 (www.comreg.ie/_fileupload/publications/ComReg0526.pdf).

31 Doc No 05/25, Appendix C and Doc No 05/26, Appendix C.

wholesale level, it also imposed an obligation to continue to provide CS/CPS.³²

ComReg considered that VoIP is, when provided over the PSTN, part of the market for domestic calls. (ComReg noted that a VoIP call may be of a lower quality than a PSTN call, but said that this was reflected in the price and it therefore did not view this factor as sufficient to exclude VoIP calls from the same market as PSTN calls.) Given the current 'negligible' take-up of VoIP in Ireland, and that this was unlikely to change significantly during the timeframe of the review, ComReg concluded that the matter did not at present merit further analysis and it imposed none of the preceding requirements on VoIP services.³³

ComReg specifically ruled out including VoIP within the scope of the price cap it proposed to impose on domestic retails calls and other services. Although, ComReg said, calls to Internet and non-geographic calls are within the scope of the relevant calls market, the incumbent eircom 'would appear to be sufficiently constrained by competitors and consumers in the provision of Internet and non-geographic calls'. Therefore, '[i]t would not be justified or proportionate ... to apply an additional price limit such as the current Price Cap Order to such call types'.³⁴

Summary: ComReg has said that VoIP is, when provided over the PSTN, part of the market for retail calls, but has decided that it is not necessary to regulate VoIP.

Germany

The German NRA, BnetzA, has initiated but not completed an analysis of the markets relevant to the provision of VoIP services. In a draft measure, it proposes to find that: (i) VoIP services are in the same market as retail PSTN calls, and (ii) Deutsche Telekom has SMP in those markets.³⁵ BnetzA has not yet published any proposals concerning the nature of the regulatory requirements that should be imposed.

The European Commission made the following Comment in the Article 7 process relating to the proposed measure:

'When assessing IP-telephony services, national regulators should examine in the light of national circumstances objective product characteristics, prices and intended use of VoIP services, as well as their

³² Doc No 05/26, para C.125.

³³ *ibid*, paras 3.54-3.55.

³⁴ *ibid*, para 6.86.

³⁵ BnetzA, *Zugang zum öffentlichen Telefonnetz an festen Standorten, etc., Märkte Nr. 1-6 der Märkte-Empfehlung der EU-Kommission, Notifizierungsentwurf*, 21 November 2005.

demand- and supply-side substitutability. Indicators such as broadband penetration rates, price elasticities, VoIP penetration, VoIP connection costs or the incumbent's position should be taken into account when performing such analysis.

The Commission takes the view that the technology for VoIP services is progressing dynamically and the large majority of those services will ultimately emerge as substitutes for traditional fixed telephony services. At present, unmanaged VoIP-services do however seem to have different product characteristics, which may call for special analytical diligence whenever they are proposed to be included in a market definition.

Since the exclusion of unmanaged VoIP from the relevant markets in the present case would not have any impact on the SMP-finding, the issue might, however, be left open.³⁶

Summary: BnetzA has concluded that VoIP calls are substitutes for PSTN calls and therefore part of the same retail market as the latter, but has yet to consider whether VoIP services should be subject to economic regulation on the same basis as PSTN services.

Netherlands

OPTA has defined retail access markets on the basis of the number of connections (a low-capacity access market for establishments with one to two voice channels; and a high-capacity access market for establishments with more than two voice channels), and makes no distinction between residential and business segments. In addition to defining a local/national and an international calls market, OPTA has also defined separate markets for fixed-mobile calls, calls to information services, calls to personal assistant numbers and narrowband data services. These markets include voice telephony access provided over a broadband connection by broadband access providers (referred to as 'managed VoB') but exclude Voice over the Internet provided by third parties ('unmanaged VoB') on the basis that the latter requires installation of software on a computer and does not provide the same quality of service as traditional fixed telephony.

OPTA has found that KPN and others have SMP in relation to one or more of these markets and, as a consequence, proposes to impose transparency and non-discrimination obligations. Price controls will also apply in the form of prohibitions on excessive and predatory pricing and imposition of retail price floors (except in the low-capacity access market) and price caps. Regulated prices will not have to be individually approved provided

³⁶ See Letter from European Commission to BnetzA, *Cases DE/2005/0306 - 0311, etc.*, 21 December 2005.

that they fall within the range permitted by these measures. However, these price controls will apply in only modified form to VoB services. First, there will be a different price floor to reflect the more efficient cost structure of VoB services, and secondly, VoB will not be subject to the price cap.³⁷

The European Commission has commented that 'in the light of the market characteristics of the access and voice calls market in the Netherlands, the inclusion of managed VoB-telephone in the relevant retail access and calls markets is not inconsistent with the *Recommendation*'.³⁸

Summary: OPTA has concluded that managed VoB is part of the same market for retail calls as PSTN calls but, for quality of service reasons, unmanaged VoB is not. It has decided that it is not necessary to apply the price cap applicable to PSTN calls to managed VoB.

Italy

AGCOM has concluded that the market for *retail access* to the PSTN does not include access to VoIP services.³⁹ AGCOM has, however, said that call origination via VoIP and the PSTN are 'equivalent' for the purposes of defining the corresponding wholesale market,⁴⁰ and has accordingly proposed to impose an obligation on Telecom Italia, as a provider with SMP in that market, and to supply CS and CPS in a manner that can be used by customers that use VoIP for PSTN calls.⁴¹

AGCOM has proposed imposing the following requirements on *retail calls* (local, national and fixed to mobile): continuation of the pre-existing price controls in the form of a price cap of CPI-CPI; non-discrimination and cost-

37 Proposed Decision, 4 November 2005. See the summary provided by OPTA (http://forum.europa.eu.int/irc/Download/kheqAKJAmcG9pm6IRO4-Ev_VvAKd0qYMqvJGRishJ0u3TRBbJY6ukRfQc0wuQE0YlJ3GORIUyGqBI2P1q6z3I_hR9Zw20J/Notification_Form_Market_01-06_Retail.pdf) and the European Commission's Article 7 Comments, *infra*.

38 Letter from European Commission to OPTA, *Cases NL/2005/0287- 0292, etc*, 2 December 2005.

39 AGCOM expressly rejected a proposal by some operators to expand the definition of the relevant access market to include 'all fixed access services used for the provision of voice services' on the ground that services providing access to the PSTN and services providing access to VoIP are not fully substitutable in light of the fact that the same guaranteed service quality standards that apply to PSTN and ISDN do not apply to VoIP and, from the demand-side, additional equipment is required to access VoIP. AGCOM also noted that the growth in subscriptions to broadband had not been accompanied by a reduction in narrowband lines, suggesting that VoIP was seen as a complement not a substitute for PSTN calls: Decision No 33/06/CONS, 16 January 2006, Attachment A, paras 59-68.

The documents referred to in this section are generally available (www.agcom.it/operatori/operatori_AMC.htm).

40 Proposed Decision No 30/05/CONS, 10 January 2005, Attachment B, para 53.

41 *ibid*, para 469.

orientation through the imposition of a price floor based on cost; transparency (publication and notification of terms and conditions); and prior review of service bundles.⁴² AGCOM made no mention at all of VoIP in its analysis of retail call markets,⁴³ and VoIP is by implication excluded from these measures.

Summary: AGCOM has concluded that the market for *retail access* to the PSTN does not include access to VoIP services. It has also said, however, that call origination via VoIP and the PSTN are 'equivalent' for the purposes of defining the corresponding wholesale market. AGCOM made no mention of VoIP in its analysis of retail call markets, and VoIP is excluded by implication.

Spain

The Spanish NRA, the Comisión del Mercado de las Telecomunicaciones ('CMT'), recently released a proposed decision on analysis of retail call markets which adopts the same proposed market definitions as ARCEP; ie, separate markets for national calls and international calls, defining, in each case, separate markets for residential and business segments.⁴⁴

CMT designated Telefónica as an operator with SMP in these markets and proposed imposing regulatory requirements aimed at addressing potential abusive practices such as inappropriate bundling; contractual and non-contractual market foreclosure; discriminatory pricing; as well as predatory pricing and margin squeeze (but not price controls). CMT proposed to exclude VoIP services from the definition of the relevant market, reasoning that Telefónica's VoIP service is complementary rather than a substitute to traditional PSTN telephony services because:

- Since VoIP is broadband supported, the end-user has to maintain a PSTN line.
- VoIP does not have the same functionalities as publicly available telephone services (provided over PSTN and/or ISDN). In particular, according to CMT, Telefónica's VoIP service does not allow for services such as access to emergency numbers or short numbers, pre-selection or selection of other operators, data services transfer, and number portability, which are provided through traditional PSTN telephony.

⁴² Proposed Decision No 410/04/CONS, 24 November 2004 and Proposed Decision No 414/04/CONS, 30 November 2004.

⁴³ Some operators commenting on Proposed Decision No 410/04/CONS have asked, citing the principle of 'technological neutrality', that VoIP be expressly included within the same retail calls markets as PSTN calls; or that AGCOM extend the requirements relating to transparency and price controls to VoIP: see the comments of Associazione Italiana Internet Providers, undated, p 4, and Albacom et al, undated, p 3, respectively.

⁴⁴ Proposed Resolution AEM 2005/1411, 22 December 2005 (www.cmt.es/cmt/document/decisiones/2005/RE-05-12-21-01.pdf).

CMT indicated that it considered VoIP to be a source of 'potential competition'.

No distinction is made between managed VOB and unmanaged VOB in the CMT analysis.

When the proposed decisions came before the European Commission under the Article 7 process, the Commission took issue with CMT's analysis of the VoIP issue, deeming it 'insufficient', though it did not find grounds for vetoing the proposed decisions.⁴⁵ The Commission noted that CMT's analysis was based on its view that IP-telephony currently does not have the same functionalities as publicly available telephone services provided over PSTN and ISDN. It said that CMT ought, when assessing whether or not IP-telephony should be included in any of the retail markets for fixed telephony services, to examine prices and the intended use of IP-telephony services, as well as their demand-side and supply-side substitution with other fixed telephony services. The Commission stated that:

'Such competition law-based, economic analysis is lacking from the notification. The Commission notes that the broadband penetration rate in Spain is below EU average; and understands that there are currently only few VoIP offers on the market, which moreover can be distinguished from the retail telephony services covered by the notification in that they do not provide for guaranteed call quality and service levels. Also, the Commission notes that currently applicable wholesale regulation requires [Telefónica] not to apply discriminatory conditions as between its own ADSL lines and its competitors' ADSL lines, and that by default, this wholesale obligation applies to VoIP. Overall, the CMT's position that IP-telephony services have not yet had a considerable impact on the market is plausible. In any event, the Commission notes that the inclusion of IP-telephony in the notified markets, at this stage, would not have led to a different result as regards the SMP analysis.'⁴⁶

The Commission concluded by stating that CMT should closely monitor the development of VoIP services to gather the relevant data which will allow CMT to carry out an accurate substitution analysis, and to re-evaluate its impact on the relevant markets within one year at the latest. Should such analysis affect its conclusion, the Commission said, CMT has to intervene accordingly and review its market analysis.

45 Letters from European Commission to CMT, *Cases ES/2006/326 - 329, etc*, 27 January 2006.

46 *ibid*, at pp 5-6.

Summary: CMT has concluded that VoIP calls are not substitutes for PSTN calls and therefore not part of the same retail market as the latter. VoIP services are not subject to economic regulation.

Denmark

The Danish NRA, the National IT and Telecom Agency (NITA), has concluded that TDC has SMP in the markets for local/national and international retail calling but has nevertheless decided that it is not necessary to impose any regulatory obligations in relation to retail calls because the obligations imposed in the retail access market (CS/CPS) and wholesale markets will solve any competition problems.

NITA decided that IP-telephony services should not be included in the markets for retail calls since the former is not, from the end-user's standpoint, substitutable for PSTN calls because it does not have the same functionality as PSTN telephony and there is still considerable uncertainty as to the future development of IP-telephony in Denmark. No distinction is made between managed VOB and unmanaged VOB in the NITA analysis.

In its Article 7 Comments, the Commission considered that the justifications given by NITA for its decision to exclude IP-telephony from the notified markets were insufficient. 'NITA states that IP-telephony currently does not have the same functionalities as PSTN and ISDN, without describing these differences in functionality. When assessing whether or not IP-telephony should be included in any of the retail markets for fixed telephony services, NRAs must examine - taking national circumstances into account - the objective characteristics, prices and intended use of IP-telephony services, as well as their demand-side and supply-side substitution with other fixed telephony services.' However, the Commission did not require NITA to take any follow-up action in light of this conclusion since it was evident that the possible inclusion of IP-telephony in the notified markets would neither change NITA's assessment of SMP nor its decision not to impose regulatory obligations in these markets.⁴⁷

Summary: NITA has concluded that VoIP calls are not substitutes for PSTN calls and therefore not part of the same retail market as the latter. VoIP services are not subject to economic regulation.

⁴⁷ Letter from European Commission to NITA, *Cases DK/2005/0268 - 0269, etc*, 30 November 2005.

Sweden

Swedish NRA Post & Telestyrelsen (PTS) has concluded that the retail markets for local/national and international calls include all telephony services through a fixed connection point, irrespective of the technical solution applied. The markets therefore include telephony services through, in particular, a PSTN connection, an ISDN connection and a broadband connection supporting telephony (IP-telephony). No distinction is made between managed VOB and unmanaged VOB in the PTS analysis.

PTS found that there was no SMP in any retail call markets and therefore imposed no regulatory obligations on any operator.

In its Article 7 Comments, the Commission said that PTS has included IP-telephony in the notified markets without supporting this conclusion with a substitutability analysis, but that, since IP-telephony does not have an impact on the SMP assessment, the matter of market definition can be left open.⁴⁸

Summary: PTS has concluded that VoIP calls are substitutes for PSTN calls and therefore part of the same retail market as the latter. PTS has also found that there is no operator with SMP in any retail call markets. VoIP services are accordingly not subject to economic regulation.

United States

The US Communications Act draws a distinction between 'telecommunications services'⁴⁹ and 'information services'.⁵⁰ While 'telecommunications services' are subject to common carrier regulation under Title II (including the requirement that rates shall be just and reasonable and a prohibition against unjust discrimination), 'information services' are not. ('Information services' are subject to regulation only under the Commission's ancillary jurisdiction under Title I.) The FCC has exercised its powers under Title II to impose specific regulatory requirements on telephone services provided by dominant common carriers (such as tariffing

48 Letter from European Commission to PTS, *Cases SE/2005/0195-0198, etc*, 24 June 2005.

49 'Telecommunications service' means 'the offering of a telecommunications for a fee directly to the public, or such classes of users as to be effectively available directly to the public regardless of the facilities used.' 47 U.S.C. § 151(46). 'Telecommunications' means 'the transmission, between or among points specified by the use, of information of the user's choosing, without change in the form or content of the information as sent and received.' *ibid*, § 151(43).

50 'Information service' means 'the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications, and includes electronic publishing, but does not include any use of any such capability for the management, control, or operation of a telecommunications system or the management of a telecommunications service.' 47 U.S.C. § 151(20).

requirements), but it has a 'long-standing national policy of nonregulation of information services'.⁵¹

Because VoIP services use internet technology to process and transmit information, they are similar in certain respects to services such as e-mail and websurfing, which have traditionally been classified as 'information services'. But because some VoIP services can function as traditional telephony service, they arguably could fall within the definition of 'telecommunications service'.⁵²

To date, the FCC has only made piecemeal rulings about the regulatory classification of VoIP services.⁵³ The FCC has determined that a cable modem service that involves the transmission of data between the internet and users' computers via the network of television cable lines owned by cable companies is an 'information service' not a 'telecommunications service' and therefore not subject to Title II.⁵⁴ The FCC has likewise found that DSL-based internet access supplied by a telephone company is an 'information service'.⁵⁵ It is not clear, however, whether these rulings extend to combined offerings of VoIP and cable or DSL.⁵⁶

In *Vonage Holdings Corp. Petition for Declaratory Ruling Concerning an Order of the Minnesota Public Utilities Commission*, the FCC held that the interstate and intrastate elements of Vonage's VoIP service, DigitalVoice, are inseparable

51 *Vonage Holdings Corp.*, supra, para 21.

52 See the FCC's Brief dated 1 December 2005 filed in *Minnesota PUC v FCC*, supra, at pp 3-4.

53 In a 1998 report to Congress, *Federal-State Joint Board on Universal Service*, Report to Congress, 13 FCC Rcd. 11501 (1998) (the '*Stevens Report*'), the FCC tentatively concluded that internet telephone service providers relying on dial-up or dedicated circuits, using North American Numbering Plan numbers to originate or terminate phone-to-phone service, and which did not require specialised CPE, would fall within the scope of 'telecommunications services', and therefore, be subject to Title II common carrier obligations. In the *Stevens Report*, the Commission declined to make any definitive pronouncements in the absence of a more complete record focused on individual service offerings: paras 83-93. The Commission said that if it reaches a definitive conclusion that phone-to-phone IP telephony constitutes 'telecommunications,' it would also consider whether to forbear from imposing Title II obligations on such providers: *ibid*, para 92.

54 *Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities*, et al., Declaratory Ruling and Notice of Proposed Rulemaking, 17 FCC Rcd 4798 (para 7) (2002), rev'd in pertinent part, *Brand X Internet Services v FCC*, 345 F.3d 1120 (9th Cir. 2003), rev'd, *NCTA v Brand X Internet Services*, 125 S. Ct. 2688.

55 *Appropriate Framework for Broadband Access to the Internet Over Wireline Facilities*, 20 FCC Rcd 14853, para 5 (2005) ('the Broadband Access Decision'), petition for review pending, *Time Warner Telecom Inc. v FCC*, 3rd Circuit, No 05-4769.

56 The FCC has been asked to rule on the status of combined DSL and VoIP offerings in a pending Petition for reconsideration of the Broadband Access Decision: see Opposition of UPLC dated 19 December 2005 filed in *Petition of the Arizona Corporation Commission for Clarification and/or Reconsideration in CC Docket No. 02-33 et al.* (filed 16 November 2005).

from a regulatory standpoint and that the role of the Minnesota state regulatory authorities was therefore pre-empted, with the consequence that regulation of VoIP is a matter for the FCC alone.⁵⁷ Noting that Minnesota required the filing of tariffs for VoIP, as well as imposing other elements of economic regulation which conflicted with FCC policy, the FCC said that such measures 'directly conflict with our pro-competitive deregulatory rules and policies governing entry regulations, tariffing, and other requirements arising from these regulations for services such as DigitalVoice'.⁵⁸ It suggested that, while it has not yet resolved whether VoIP services should fall within the 'information service' or 'telecommunications' categories,⁵⁹ in either case a requirement for tariffs or rate retail regulation would run afoul of established federal policies that preclude such forms of regulation.⁶⁰

Although carriers are not generally subject to tariff filing requirements, they remain subject to the statutory obligations to charge just and reasonable rates and not to unduly discriminate. In *Petition of SBC Communications Inc. for Forbearance from the Application of Title II Common Carrier Regulation to IP Platform Services*,⁶¹ the FCC denied a petition by SBC Communications Inc. asking the FCC to forbear from applying such requirements to VoIP and other 'IP platform' services. (The FCC has more recently since allowed a Verizon petition for forbearance of broadband services to go into effect.⁶²)

In 2004, the FCC commenced a proceeding to examine more broadly the regulatory issues relating to services and applications that make use of IP.⁶³

57 19 FCC Rcd 22404 (2004) ('*Vonage Preemption Order*'), petition for review pending, *Minnesota Public Utilities Commission v FCC*, 8th Circuit, No 05-1069. (Except in the limited situations where the FCC can pre-empt state jurisdiction, as has occurred in the case of VoIP, state authorities have jurisdiction over intrastate services and the FCC has jurisdiction over interstate and international services.)

58 *Vonage Preemption Order*, para 20.

59 In *Vonage Holding Corp v Minnesota PUC*, 290 F. Supp. 2d 993 (D. Minn. 2003), a decision which pre-dated the FCC ruling, it was held that Vonage's VoIP service was an 'information service'. That decision was affirmed on appeal, 394 F.3d 568 (8th Cir. 2004), on the basis that the FCC's subsequent ruling in *Vonage Holding Corp*, supra, was dispositive of the issue of state jurisdiction.

60 *Vonage Preemption Order*, paras 20-22 and 33-35 (noting that economic regulation of VoIP services would be inconsistent with deregulatory provisions of the Communications Act of 1934).

61 20 FCC Rcd 9361 (2005), application for review pending, DC Circuit, No 05-1186.

62 See 'FCC lifts rules for Verizon broadband,' ZDNet News, 20 March 2006, http://news.zdnet.com/2100-1035_22-6051733.html.

63 *IP Enabled Services*, Notice of Proposed Rulemaking, supra. Thus far, the Commission has issued one Report and Order in this proceeding adopting rules requiring interconnected VoIP service to supply enhanced 911 capabilities. This decision did not touch on the broader issues raised in the *NPRM*. See *IP Enabled Services*, First Report and Order and Notice of Proposed Rulemaking, 20 FCC Rcd 10245 (2005).

In its Notice of Proposed Rulemaking in that proceeding, the FCC states that most services employing IP 'have arisen in an environment largely free of government regulation',⁶⁴ and that it expects that 'the great majority' of such services 'should remain unregulated'.⁶⁵ At the same time, the FCC acknowledged that the 'IP-enabled services' category – defined to include all 'services and applications relying on the Internet Protocol family'⁶⁶ – might well be too broad to permit all such services to be treated alike for regulatory purposes. The FCC sought comment on 'whether it would be useful to divide IP-enabled services into discrete categories and, if so, how we should define these categories'.⁶⁷

The Commission identified a number of functional and economic factors that potentially distinguish services that could be viewed as replacements for traditional voice service from PSTN services.⁶⁸ These factors include:

- functional equivalence to traditional phone service, ie, the extent to which IP-enabled services resemble traditional wireline telephony;
- substitutability of the IP-enabled service for traditional phone service, ie, IP-enabled services that are used in lieu of, rather than simply in addition to, traditional telephony;
- interconnection with the PSTN and use of the North American Numbering Plan;
- peer-to-peer communications versus services relying on a provider's centralised servers.

The Commission asked whether IP-enabled services providers should be subject to various regulatory requirements, including economic regulation; specifically, whether economic regulation is appropriate in the context of IP-enabled services 'given that customers often can obtain these services from multiple, intermodal, facilities- and non-facilities-based service providers'; what regulations, if any, should apply to particular classes of IP-enabled services; whether, for services classified as 'telecommunications services', it should use its forbearance authority to remove a particular obligation or entitlement; and whether, for services classified as 'information services', it should exercise its Title I ancillary jurisdiction to impose a particular obligation or entitlement. Commenters were asked to address the market conditions that form the rationale for economic regulation in the context of the legacy network, and the extent, if any, to which the market for

64 *IP Enabled Services*, 19 FCC Rcd. 4863, para 1.

65 *ibid*, para 35.

66 *ibid*, para 1, n 1.

67 *ibid*, para 35.

68 *ibid*, para 36.

IP-enabled services calls for application of similar regulation.⁶⁹ A decision in that proceeding remains pending.

Summary: In the United States, a distinction is drawn between 'telecommunications services', which are subject to common carrier regulation, and 'information services', which are not. How VoIP services should be classified and whether IP-based services should be regulated are currently under consideration by the FCC. At present, no VoIP services are subject to economic regulation and, in light of recent FCC policy statements, it seems unlikely that VoIP services will become subject to economic regulation.

Canada

In *Regulatory framework for voice communication services using Internet Protocol*, Decision 2005-28, the Canadian Radio-television and Telecommunications Commission considered the appropriate regulatory treatment of VoIP services. One of the issues addressed by the Commission was whether it should forbear from regulating VoIP services. (Under the Canadian regulatory regime, there is a presumption that a telecommunications service is subject to regulatory requirements, such as pre-approval of tariffs, unless and until there is a decision to forbear.) The Commission decided that forbearance decisions made in relation to circuit-switched services would apply to VoIP services, with the result that ILECs would not be required to file tariffs in relation to, for example, their long distance VoIP services. But since the Commission had not forbore from the regulation of local exchange services, one of the questions that arose was whether 'local VoIP services' - that is, VoIP services providing subscribers with access to and/or from the PSTN along with the ability to make or receive local calls - should also be 'forborne'.

In addressing that issue, the Commission undertook a market analysis. The type of market analysis typically undertaken for such purposes follows the same basic principles as the EU market analysis procedures. It begins with definition of the relevant market and a determination of competitive conditions within that market (that is, the presence of market power), having regard to factors which include the market share of the participants, demand conditions (the availability of substitutes), and supply conditions.

The CRTC therefore asked itself whether local VoIP services and circuit-switched local exchange services are close substitutes. The CRTC identified four factors that it said were indicative of whether or not local VoIP services meet the same general user requirements as circuit-switched local exchange

⁶⁹ *ibid.*, para 73.

services: 'the fundamental purpose of the services; the manner in which local VoIP services are marketed and offered; whether or not consumers perceive, or can be expected to perceive, local VoIP services as close substitutes for circuit-switched local exchange services; and whether or not local VoIP services and circuit-switched local exchange services are, or will be, purchased as replacements for one another'. On that basis, the Commission found that local VoIP services are close substitutes for circuit-switched local exchange services, and therefore part of the same relevant market as circuit-switched local exchange services.

The Commission went on to say that it was 'clear' that the incumbent local exchange carriers remain the dominant providers of local exchange services in Canada. From there it followed that ILECs' local VoIP services should be subject to the same regulatory requirements as their circuit-switched local exchange services. The CRTC therefore imposed the following obligations on the provision of local VoIP services by Canadian ILECs: an obligation to treat VoIP services as subject to the same price cap as other local exchange services; to observe a price floor based on cost; to obtain pre-approval of proposed rates and to file and publish tariffs⁷⁰; to provide 'equal access'⁷¹; not to unjustly discriminate⁷²; and to comply with the bundling rules applicable to other local services.

Since releasing Decision 2005-28, the Commission has eased its approach to economic regulation of local VoIP services in two significant respects. First, the CRTC has relieved Bell Canada, one of the ILECs found to be dominant, of the requirement to obtain pre-approval for price changes for its local VoIP services, and agreed to authorise instead a minimum and maximum approved rate. Price changes within the authorised range must be notified to the Commission two business days in advance. These services remain subject to the overall price constraint applicable to Bell Canada's local exchange services.⁷³

Secondly, the CRTC has permitted, on an interim basis, a limited de-averaging of prices for local VoIP services. Bell Canada will be allowed to price its offering differently in the two provinces in which it operates as a local exchange carrier, Ontario and Quebec.⁷⁴

⁷⁰ Decision 2005-28, para 326.

⁷¹ Ibid, para 242.

⁷² Telecommunications Act, S.C. 1993, c 38, as amended, s. 27(2).

⁷³ *Bell Digital Voice Service*, Decision 2006-11. The CRTC has decided that Bell's Digital Voice Lite service will be placed in the optional services basket rather than in the basic services basket.

⁷⁴ *Bell Canada proposal for VoIP service pricing in Ontario and Quebec*, Decision 2005-62.

Summary: The CRTC has concluded that there is only a single market for retail public voice telephony services, which embraces both IP and circuit-switched technologies, and has decided that VoIP should be subject to economic regulation on the same basis as PSTN services. However, some tariff flexibility is allowed for VoIP services. Price changes within a pre-established range do not need to be approved and de-averaging between (but not within) provinces is permitted.

Part 3 - Conclusions

Table 1 presents a summary of the regulatory requirements imposed on retail PSTN calls versus VoIP calls for each jurisdiction within the Survey Group. It reveals very clearly that there is a near-consensus among NRAs that VoIP services should not be regulated on the same basis as PSTN services (the only jurisdiction having decided otherwise being Canada), and that the regulation imposed should be minimal.

With one exception, NRAs that have determined that VoIP is in whole or in part in the same market as retail PSTN calls acknowledge, implicitly or explicitly, that the nature of the regulatory obligations imposed on the two types of service should differ. These NRAs include ARCEP, ComReg, OPTA and the FCC. The exception is the CRTC, which has decided that a dominant supplier of services in the local exchange market should be subject to the same requirements in respect of all services it provides in that market.⁷⁵

As Table 2 shows, this near-consensus is achieved despite a wide disparity of views on the appropriate market definition. For example:

- Six jurisdictions have found that VoB is part of the same market as narrowband retail calls, while three have decided the opposite.
- France, Germany and the Netherlands draw a distinction between VoB and VoI (unmanaged VOB) for regulatory purposes, while Spain, Denmark, Sweden and Canada do not.

⁷⁵ See Decision 2005-28, para 193. (Two exceptions, relating to geographic price averaging and rate flexibility, where local VoIP services are treated more liberally than corresponding PSTN services, are noted in the discussion above. In interexchange markets, both services are essentially 'deregulated'.)

TABLE 1 – TYPES OF ECONOMIC REGULATION IMPOSED ON RETAIL PSTN CALLS VERSUS VOIP CALLS PROVIDED BY SMP (DOMINANT) OPERATORS, BY JURISDICTION

Jurisdiction	Call type	Price controls				Transparency		Non-discrimination	No unreasonable bundling
		No predatory pricing	Price cap	Other price control	Tariff approval	Tariff publication	Tariff filing		
France	PSTN	✓		✓ ⁷⁶	✓ ⁷⁷		✓	✓	✓
	VOIP								
United Kingdom	PSTN		✓ ⁷⁸			✓		✓	
	VOIP								
Ireland	PSTN	✓	✓ ⁷⁹	✓ ⁸⁰		✓	✓	✓	✓
	VOIP								
The Netherlands	PSTN	✓	✓	✓ ⁸¹		✓	✓	✓	
	VOIP	✓		✓ ⁸²		✓	✓	✓	
Italy	PSTN	✓	✓	✓ ⁸³			✓	⁸⁴	✓
	VOIP								

76 Prohibition on charging of 'excessive prices'.

77 Proposed changes must be notified to NRA prior to effective date and may go into effect unless challenged.

78 Residential calls only.

79 Domestic calls only.

80 Requirement to charge 'cost-oriented prices'.

81 Price floor requirement. Prohibition on charging of 'excessive prices'.

82 Price floor requirement; floor set independently of the floor applicable to PSTN services. Prohibition on charging of 'excessive prices'.

83 A price floor based on cost imposed to address discrimination between the SMP operator and other operators.

84 A price floor based on cost imposed to address discrimination between the SMP operator and other operators.

Jurisdiction	Call type	Price controls				Transparency		Non-discrimination	No unreasonable bundling
		No predatory pricing	Price cap	Other price control	Tariff approval	Tariff publication	Tariff filing		
Spain	PSTN	✓			✓ ⁸⁵		✓	✓	✓
	VOIP								
Denmark	PSTN								
	VOIP								
Sweden	PSTN								
	VOIP								
United States	PSTN ⁸⁶			✓ ⁸⁷				✓ ⁸⁸	
	VOIP								
Canada	PSTN ⁸⁹	✓ ⁹⁰	✓		✓	✓	✓	✓	✓
	VOIP ⁹¹	✓ ⁹²	✓		✓ ⁹³	✓	✓	✓	✓

85 Proposed changes must be notified to NRA prior to effective date and may go into effect unless challenged.

86 Interstate calls only.

87 Rates must be just and reasonable.

88 Undue discrimination prohibited.

89 Data for local PSTN services only.

90 Price floor requirement.

91 Data for local VoIP services only.

92 Price floor requirement.

93 A minimum and maximum rate must be approved.

**TABLE 2 – ASSIGNMENT OF VoIP SERVICES
FOR MARKET DEFINITION PURPOSES**

Jurisdiction	Are VoB calls in the same market as PSTN calls?		Is Vol in the same market as VoB?	
	Same	Different	Included	Excluded
France	✓			✓
United Kingdom		✓		
Ireland	✓			
Germany	✓			✓
The Netherlands	✓			✓
Italy				
Spain		✓	No distinction drawn between VoB and Vol	
Denmark		✓	No distinction drawn between VoB and Vol	
Sweden	✓		No distinction drawn between VoB and Vol	
United States				
Canada	✓		✓	