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Agenda

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Voicing concerns: should voice-over-broadband services be regulated?

Voice over Internet protocol (VoIP) is the next big thing in telecoms, allowing telephone calls over the Internet anywhere in the world at virtually no cost. Faced with this threat, incumbent telephony providers have been launching their own voice-over-broadband services. This poses a challenge to telecoms regulators: should they set rules for the incumbents now, or stand back and see how competition develops? Regulators across the world have taken different approaches

Voice over Internet protocol (VoIP) has the potential to transform the traditional fixed telephony landscape. Skype and Vonage are rapidly becoming household names and have already acquired tens of millions of customers world-wide with a business model based on free PC-to-PC calls and cheap PC-to-all rates. Incumbent operators are responding to this threat by launching VoIP services of their own. In the UK, for example, BT's range of products include a Skype-style service (BT Communicator), a voice-over-broadband (VoB) service (BT Broadband Voice)—a telephony service delivered over an Internet broadband connection—and a mobile/VoB service (BT Fusion) in partnership with Vodafone which was launched commercially in December 2005.[1]

These developments have not gone unnoticed by national regulatory authorities (NRAs). VoB offers the same functionality and customer experience as fixed telephony (a handset and the ability to call with the traditional fixed and mobile networks). NRAs therefore face the question of whether they should impose ex ante regulatory measures on the VoB services of incumbent operators at this stage, or stand back for the time being to see how competition develops.

Thus far, only a few regulators have taken a formal decision. OPTA, the Dutch regulator, has imposed a price floor on KPN's VoB offering, requiring it to recover the costs of providing the service over a certain time period (thus still allowing KPN flexibility on the structure

The jargon explained

Local loop	The copper pair that connects the customer's premises with the network's exchange.
Local-loop unbundling (LLU)	Mandatory access to the incumbent's local loop at cost-oriented prices. LLU options available to entrants range from full unbundling to bit-stream wholesale access.
Long-run average incremental costs (LRIC)	The forward-looking incremental costs (both fixed and variable) of providing a good or service.
Short-run marginal costs (SRMC)	Traditionally, the marginal cost of producing an additional unit of a good or service. In the context of this article, the marginal costs of providing the service to an additional customer.
Significant market power (SMP)	The threshold for intervention under the new EU electronic communications framework; aligned with the concept of dominance in competition law.
Voice over broadband (VoB)	VoIP variant requiring the use of a broadband Internet connection. Typically comes with an IP phone and can make and receive calls to any network. Hence, in terms of customer experience, it is very similar to traditional telephone services.
Voice over Internet protocol (VoIP)	Voice services transporting traffic over the Internet protocol. These can be computer-to-computer (PC-to-PC) services requiring dedicated software, or services using an IP phone similar to traditional telephone handsets.

This article is based on Oxera's report for OPTA: Oxera (2005), 'Potential Competition Problems in Voice-over-broadband Services', November, available at www.oxera.com.

and time profile of pricing).[2] Similarly, CRTC, the Canadian regulator, ruled that the VoB service of the incumbent operator (Bell Canada) would be subject to the same tariff filing and price floor obligations as its local telephone service.[3] On the other hand, ARCEP, the French NRA, decided not to impose any ex ante regulatory remedies on France Telecom's VoB offering at this stage.[4] This article reviews the arguments for and against ex ante regulation of VoB services.

The case for regulation

In its report for OPTA, Oxera considered that, in order to argue that a competition problem in the provision of VoB services is likely to arise and that, therefore, some regulation would be warranted, the following three hypotheses need to hold:

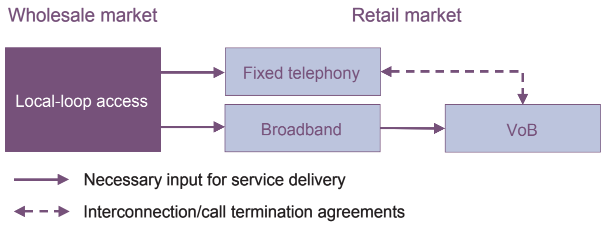
(a) there are links between fixed telephony, broadband and VoB which influence competition;
(b) due to the links, an incumbent operator has certain cost advantages which give it the ability to engage in excessively low pricing; and
(c) an incumbent has the incentives to use this ability to affect competition.

Links between services which can influence VoB competition

A policy principle underpinning the case for regulation is that competition in the early stages of development of a new service is likely to deliver better results for consumers if such competition is undistorted by the firms' starting positions or links to related markets. Figure 1 illustrates the nature of the links between fixed telephony, broadband and VoB services, which can potentially lead to competitive distortions.

Operators offering retail broadband and/or fixed telephony services require access to the local loop, which is (largely) controlled by the incumbent operator. VoB services, in turn, require a broadband Internet connection. Moreover, VoB users make and receive calls

Figure 1 Links between fixed telephony, broadband and VoB



Source: Oxera.

to and from the fixed telephony network, as well as mobile networks and other VoB users, and thus VoB providers require interconnection and call termination agreements with all other networks.

The incumbent's cost advantage

From Figure 1 it follows that an incumbent operator with significant market power (SMP) in the local-loop market—a necessary input for the provision of fixed telephony and DSL broadband—and with SMP in the downstream retail markets, may in theory have the ability to leverage its dominance into the VoB service, either through the aggressive pricing of on-net calls[5] or through the bundling of VoB and broadband services.

This ability to price low stems from a short-run cost advantage enjoyed by the incumbent relative to other VoB providers, both in VoB-to-fixed call termination and in local-loop access. All other VoB providers must face the regulated call termination charge in the fixed network, as well as the local-loop unbundling (LLU) charge if they are to provide a retail broadband service. These charges are typically based on a measure of the incumbent's long-run incremental costs plus a mark-up for common costs (LRIC+). The integrated incumbent, on the other hand, will face the short-run marginal cost (SRMC) of these inputs, which is lower than the regulated charge, since it does not include any mark-up for common costs.

VoB pricing options available to the incumbent

	Description	Regulatory concern
P > LRIC+	Retail VoB price above LRIC+ regulated charges (could be higher or lower than competitors' price)	None
SRMC < P < LRIC+	Retail VoB price lower than LRIC+ but above the SRMC it faces	Incumbent is leveraging a cost advantage in markets where it has SMP in the VoB market—cost advantage does not originate from a VoB efficiency
0 < P < SRMC	Retail VoB price below the SRMC	As above but now retail price is below cost—possible predatory pricing concern
P = 0	Free VoB service	As above

Note: The retail VoB price (P) should be interpreted as the average VoB revenue per customer, which includes revenues for fixed fees, on-net and off-net calls. The cost measures should also be interpreted as average VoB costs per customer.
Source: Oxera.

Importantly, the lower cost base of incumbents means that they would be able to offer free on-net calls more profitably than their competitors. Moreover, this low-price strategy can still be profit-making—ie, economic profits larger than zero—if other charges such as the broadband fixed fee and/or off-net calls are set sufficiently high to recover costs—ie, if the (average) retail price is set below LRIC+ but above the SRMC (see box above).

The Canadian regulator pointed to some other cost advantages stemming from the fact that incumbents already own an IP network to which customers can be seamlessly switched.[6] This implies that they might be able to offer VoIP services with higher quality of service relative to competing providers with no additional investment.

Incentives to engage in aggressive pricing

The links between fixed telephony, broadband and VoB services described above show that the incumbent may have the ability to price aggressively. However, the question that still needs to be answered is whether it will have the incentives to do so. In other words, is pricing the VoB service below LRIC+ (or even lower) the most profitable strategy available to the incumbent? This is a crucial question since, in theory, the regulated LRIC+ charges represent an opportunity cost to the incumbent—if the customer chose a competitor's VoB service, the incumbent would still receive revenues for call termination and/or local-loop charges from those competitors for using the incumbent's networks.

There are a series of market characteristics that, together or on their own, could create the incentives for the incumbent to price VoB services below LRIC+. First, even though this strategy can be less profitable (in per-customer terms) than charging at or above LRIC+ levels, total profits might be larger if demand is sufficiently elastic—ie, lowering the price below LRIC+ may capture a sufficiently large market share to enable the profit margin lost on existing customers to be outweighed by the profits gained on new customers.

Second, there are dynamic considerations that have the potential to strengthen the incumbent's incentives and ability to have an effect on VoB competition:

– first-mover advantages from being the first provider to gain market share in VoB services, particularly if subsequent switching between VoB providers (once VoB becomes an established service) requires a significant price improvement in the service offering;
– against a backdrop of falling fixed telephony revenues lost to competing VoB providers, a low-priced (ie, below LRIC+) VoB service can be a profitable defensive strategy. Over time, as an increasing number of fixed telephony users migrate to VoB, the incumbent's incentives to protect its fixed telephony business can be expected to decrease, and its incentives to price aggressively in VoB to increase;
– this defensive strategy may be even more attractive for the incumbent if VoB is typically purchased in a bundle with broadband, such that selling VoB to a customer can protect, and possibly increase, broadband revenues.

The case against regulation

The main argument against regulation is that intervening in the very early stages of development of competition in a nascent market is difficult to get right. At this stage, it is hard for anyone, including regulators, to predict what the market will look like in, say, three years' time: will VoIP really have taken a large bite out of the fixed telephony market? If so, who will be the leading players, the 'Skypes' and 'Vonages', or the incumbents?

Likewise, there is some uncertainty about whether regulation might affect the pricing flexibility and/or the investment incentives of market players without a material benefit in competition. In that sense, the non-intervention approach can be seen to have an 'option value': not intervening today leaves the door open for future intervention.

There are also more specific arguments against regulation. There may be some constraints on the incumbent operators' incentives to engage in excessively low pricing, or on their ability to monopolise the market successfully. This argument is based on one or both of the following hypotheses holding:

– a low-priced VoB service may cannibalise fixed telephony revenues; and/or
– a strategy of VoB prices below LRIC+ may not be profitable if recoupment of these short-term losses is not possible in the long run.

Both hypotheses have some intuitive appeal. As regards the former, an incumbent would not want to set a VoB price at such a low level that its own customers will migrate from the (relatively) 'high' margin fixed telephony service to the 'low' margin VoB service. This argument may be more relevant in the initial stages of the VoB market, when the incumbent's traditional telephony revenues are not yet under significant threat from VoB competitors.

As regards the second hypothesis, a 'pure' predatory pricing strategy requires the ability to 'recoup' the losses from predation once competitors have been driven out of the market. Recoupment may be hindered if entry barriers are low. In the case of VoB, the existence of cost-oriented wholesale access charges in most regulatory regimes means that, in principle, it should be feasible for other players to obtain the required access products and hence enter the VoB market under competitive conditions. Therefore, 'pure' predatory pricing may be less of a concern.

This was part of the reasoning behind the French regulator's decision not to intervene at this stage. When justifying its decision not to regulate VoB, ARCEP stated that:

> the wealth of underlying wholesale offers guaranteed that all players had the possibility of replicating France Telecom's (retail) offers.[7]

This approach was later agreed on by the European Commission, which considered that VoB is provided via wholesale access lines that are already regulated and that VoB can in principle be provided by any broadband access provider.[8] (Note, however, that the Commission also agreed with OPTA's decision to impose a price floor on KPN.)

Balancing the arguments

The arguments for and against the regulation of VoB services are summarised in the box below. The most interesting point to note is that there is no clear-cut case to make for one approach or the other. The relative merits of each case will very much depend on the characteristics of each national market (for example, the strength of the incumbent's market position, and the level of penetration of broadband and VoB services), and even then there is still a high degree of uncertainty. Both the French and Dutch NRAs' decisions seem to be valid responses to a complex situation, particularly at this early stage of VoB development, where the type of arguments developed above cannot yet be proved 'on the ground'. Indeed, the European Commission has stated its agreement with both these approaches.

In practice, the effect of the two approaches may not differ to any great extent. ARCEP has still retained the option of intervening in future while the market develops. In the case of OPTA's decision to impose a price floor on KPN's VoB offering, the Oxera report concludes that, on the scale of all possible remedies, this is a relatively light-touch intervention which does not interfere significantly with the incumbent's pricing structure. That is to say, KPN will still be able to set a flat-fee charge, to offer free on-net calls, and/or to sell a VoB-broadband bundle, as long as the costs of doing so are recovered over a certain time period. In that sense, OPTA's remedy can be regarded as a regulatory 'safety valve'. If KPN did engage in excessively low pricing, the price floor would kick in; otherwise, the price floor would not apply, and hence would be unlikely to have any significant effect on the development of competition.

Ultimately, whichever of these regulatory approaches is chosen, VoIP will in all likelihood shake up the competitive dynamics of telephony markets across the world: a change that has long been predicted, but one that now seems imminent.

Summary of arguments supporting the two approaches

Regulation	No regulation

– There are links between VoB and traditional services in which the incumbent is likely to be dominant (local-loop access and fixed telephony).
 	
– These links give the incumbent a cost advantage over its rivals due to a wedge between the SRMC and the regulated LRIC+ charges.
 	
– The incumbent may have incentives to use these cost advantages by setting a price below LRIC+ when:
  – VoB demand is sufficiently elastic;
  – first-mover advantages are important;
  – fixed telephony revenues are under threat from VoB services; and/or
  – customers tend to purchase VoB and broadband from the same provider.
	– Regulating new markets is difficult.
	
	– Even though incumbents have a short-term cost advantage relative to their competitors, they may not have the incentives to use it.
	
	– The lack of incentives to set a price below LRIC+ may be greater when:
	  – fixed telephony revenues are not under threat from VoB services (hence a low price would cannibalise fixed telephony revenues);
	  – the VoB market has low entry barriers (hence recoupment is not possible and 'pure' predation may not be of concern).

[1] BT Fusion works as a mobile phone outdoors and as a wireless VoB service indoors, using BT's broadband service to connect to the Internet.
[2] Oxera provided an independent assessment of the potential competition problems in VoB on behalf of OPTA. See Oxera (2005), op. cit.
[3] CRTC (2005), 'Telecom Decision CRTC 2005-28', May.
[4] ARCEP (2005), 'Analyse de Marchés Pertinents de la Téléphonie Fixe', July.
[5] Calls between the incumbent's VoB and/or fixed telephony customers.
[6] CRTC (2005), op. cit., paras 158 and 162.
[7] ARCEP (2005), 'Market Analysis for Fixed Telephony: ARCEP Launches a Public Consultation on its Draft Decisions until 15 July', press release, June 15th.
[8] European Commission (2005), 'Voice over Broadband in France: No Regulation on Internet Telephony Required', press release IP/05/1146, September.

If you have any questions regarding the issues raised in this article, please contact the editor, Derek Holt: tel +44 (0) 1865 253 000 or email d_holt@oxera.com

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