IRG / ERG Response to the Commission's Public Consultation on Review of the Functioning of Regulation (EC) No 717/2007 and of its possible extension to SMS and data roaming services

Submitted: 28 July 2008

Contents

Introduction

This document contains the response of the European Regulators Group (ERG) and the Independent Regulators Group (IRG) (hereafter "I/ERG") to the 7 May 2008 consultation of the European Commission on the functioning and possible extension of regulation of international roaming services.[1]

I/ERG looks forward to assisting the Commission further during the coming months on developing a Regulatory Impact Assessment and the detail of any regulatory proposals.

In developing the recommendations in this response, I/ERG has had regard to six high level criteria, which it originally set out in its response to the Commission Consultation of 3 April 2006 on the current Regulation[2]. The criteria are based on the principles of regulatory best practice, which I/ERG believes should be used to assess possible forms of regulation for any extension of the Regulation. I/ERG considers that any regulation should be:

(a) Coordinated: implemented at the same time and in a consistent way across the EU

(b) Effective: in reducing retail roaming prices substantially and quickly

(c) Avoid distortion: in other, potentially competitive, mobile markets

(d) Simple to implement: to avoid lengthy delays and provide legal certainty

(e) Flexible: to protect incentives for continued investment and innovation and

(f) Subject to review: in line with good regulatory practice, to allow for an exit from regulation when appropriate

[1] The European Regulators' Group comprises the National Regulatory Authorities (NRAs) of the 27 Member States of the European Union: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom. The Independent Regulators' Group comprises the ERG and NRAs from Iceland, Liechtenstein, Norway, Switzerland, Croatia, the Former Yugoslav Republic of Macedonia and Turkey.

[2] I/ERG response to the European Commission's second phase public consultation on a proposal for a Regulation (EC) of the European Parliament and of the Council on mobile roaming services in the single market, 11 May 2006. The Spanish member of the ERG, CMT, could not subscribe to this response.

Section 1

Overview

This section contains an overview of the response of I/ERG to the 7 May 2008 consultation of the European Commission on the functioning and possible extension of regulation of international roaming services.

I/ERG is committed to the achievement of well-functioning markets. In 2005, when I/ERG first studied the provision of international voice roaming services, it was clear that the market for those services was not functioning well. Subject to further analysis, we suspected that wholesale and retail charges for roaming calls within Europe were significantly higher than costs.

At the time, public concern was growing. Consumer understanding of roaming tariffs seemed low (in particular, concerning the large mark-up over typical domestic charges). The combination of low tariff visibility and perceived high charges compared to domestic rates meant that "bill shock" was common when consumers returned home after a business or leisure trip abroad. At the same time, there was concern that many customers had heard stories of large roaming bills and might simply chose not to use their mobile abroad.

It was also apparent to I/ERG that the 2002 regulatory framework for electronic communications[3] did not provide regulators with suitable tools to address the issue. According to the provisions of the framework, it was difficult for the necessary threshold to be crossed for regulatory intervention in the form of ex ante charge controls[4].

Accordingly, in December 2005, ERG wrote to the Director General of the Commission's DG Information Society, Mr Fabio Colasanti, expressing concern that national regulators did not have the tools to fully address any consumer detriment and calling on the Commission to address the matter with I/ERG. I/ERG provided its advice on possible regulatory methods at the European level. The Commission subsequently proposed a Regulation, in particular to control wholesale and retail voice roaming charges and improve transparency within Europe.

As a result of public consultations and the legislative process, modifications were introduced with the aim of ensuring the Regulation was practical, reduced any risk of adverse effects on the charges for other mobile services and provided for tariff flexibility, while retaining a high degree of roaming consumer protection. I/ERG, collectively and via individual members, in responses to Commission consultations[5] and through briefings of national governments and MEPs, proposed several changes to the Regulation. Some of those proposals were adopted in the final version.

[3] Directive 2002/19/EC, Directive 2002/20/EC, Directive 2002/21/EC, Directive 2002/22/EC and Directive 2002/58/EC. See also the Commission Recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC.
[4] Under the Framework, these could be applied only to operators found to have significant market power in a relevant market. Moreover, NRAs would not be able to enforce a reduction of retail charges where these resulted from high wholesale charges imposed by foreign operators.
[5] I/ERG response to the European Commission's call for input on its proposed EC Regulation in the international roaming market, 22 March 2006; and ERG response to the European Commission's second phase public consultation on a proposal for a Regulation (EC) of the European Parliament and of the Council on mobile roaming services in the single market, 11 May 2006. The Spanish member of the ERG, CMT, could not subscribe to these responses.

Once the Regulation was in place, I/ERG issued Guidelines to promote consistency of application throughout Europe[6].

The case for regulation

It is worth reflecting on why the issue of very high roaming prices has not been addressed by market forces. In the wholesale roaming market, there are certainly incentives to compete for the wholesale roaming business of foreign networks. But in practice, those incentives may be rather muted for wholesale roaming, where there are a limited number of players compared to other markets, by the fact that companies will nearly always give their business to sister companies, if there is one. Moreover, there appears to be a tendency towards a similar outcome for companies within the same alliance.

The principles underlying the 2002 framework suggest that retail regulation should be imposed only to the effect that wholesale remedies are ineffective. It is generally considered that, in most markets, effective wholesale regulation is sufficient to enable market forces to lower retail prices, thereby achieving a good outcome for end-users. However, there are reasons to believe this consideration does not generally apply to roaming services at the present time. Consumer surveys indicate that consumers pay little attention to roaming tariffs when making their initial choice of network operator. Nor are they likely to switch network in response to a roaming tariff change. There is some competition provided by service providers, for example companies marketing host country SIMs for use while abroad. But these offers have so far made relatively small inroads into the market, perhaps because the user is not prepared to accept the inconvenience of having to change mobile number temporarily. As noted by the current Regulation, therefore, lower wholesale prices may not be reflected in lower retail prices. This conclusion may be applied particularly to voice and SMS roaming but, as argued below, may be less true of data roaming where there seems to be the potential for additional competitive forces to work at the retail level.

On those arguments, the conclusion may be drawn that pass-through of wholesale roaming price reductions to the retail level, in whole or at least to a significant extent, cannot be guaranteed. That leads to the conclusion set out in the current Regulation that regulation should be imposed at both retail and wholesale level to protect the interests of roaming customers. Equally, retail regulation in the absence of effective competition in the wholesale market risks squeezing operators' margins to the point where they cannot offer a retail roaming service profitably, particularly smaller, newer and independent players, to the detriment of consumers.

A further conclusion is that where the competitive forces at the retail level are weak or non-existent, it is hard to see the justification for removing retail price regulation once imposed. I/ERG would strongly wish to avoid near-permanent price regulation of the roaming market. For that reason, while it recognises, in its analysis below, the case for price regulation at the moment, it believes that alternative possibilities for opening up the retail market to competition should be explored, in order to underpin the removal of price regulation as soon as possible.

[6] International Roaming Regulation, ERG Guidelines, amended June 2008, http://erg.ec.europa.eu.

The effect of the Regulation so far

The main objectives of the Regulation are to: introduce a common approach; ensure that consumers travelling within the EU do not pay excessive prices to make or receive calls; thereby contribute to the smooth functioning of the internal market; achieve a high level of consumer protection; safeguard competition between mobile operators; preserve incentives for innovation and consumer choice (Art. 1(1)).

To meet those objectives, the Regulation imposes measures to:

- Bring down the wholesale voice roaming charges
- Protect consumers using retail voice roaming services, by ensuring that any benefits at the wholesale level are passed through the retail level
- Increase the transparency of roaming tariffs to consumers and improve the provision of information, both by "push" messages when the user goes abroad and by various "pull" services which allow the user to seek personalised tariff information, free of charge

In conducting the present review, the Commission will in particular assess the Regulation against the above objectives (Art. 11(1)). I/ERG's response seeks to provide expert advice to the Commission in this context.

Overall, the measures imposed are being met. The two ERG Data Reports on international roaming show that average European wholesale and voice roaming retail prices fell significantly between the second quarter of 2007 and the first quarter of 2008. Moreover, this understates the real effect of the regulation since some prices had already been reduced in anticipation of the Regulation. Further, the design of the charge controls, at both wholesale and retail levels, is such that all wholesale and retail customers have benefited from price reductions in a relatively even manner.

In terms of competition, the second ERG Benchmark Data Report, which covers the first six months of full implementation of the Roaming Regulation, found Eurotariff offers and other EU/EEA voice roaming tariffs below the maximum caps in several Member States. I/ERG welcomes these tariffs but considers that, in general, they do not yet vary sufficiently from the Eurotariff cap to provide evidence of healthy innovation and competition. Moreover, the Report found that retail voice roaming services are being charged at or near the Eurotariff cap in the majority of countries. Given the "hidden charge" as a consequence of the difference between actual and billed minutes (see from paragraph 1.33), effective Eurotariff prices may even be above the headline rate of the cap in some cases.

Undoubtedly, consumers have benefited directly and promptly from significantly reduced prices under the Regulation. Nevertheless, if we consider the arguments set out above, operators may have low incentives to reduce the charges further, especially at the retail level, despite the fact that their unit input costs will continue to fall. On that basis it seems unlikely that a sustainable level of prices may be attained by price regulation alone. In this sense, it is of high importance, looking forward, to investigate different regulatory solutions that are not based on a direct intervention on charges, which may bring long-term competition to the roaming field.

Regarding transparency, a minority of retail roaming providers were unable to resolve technical problems in upgrading systems to permit the transparency provisions of the Regulation to function as expected within the specified timescale. But the majority complied on time. NRAs have closely monitored the progress of those who were late and I/ERG believes that this is no longer an issue. Accordingly, customers should now benefit universally from the Regulation's transparency provisions.

During the period of negotiations of the Regulation, some expressed concern about possible adverse effects on the charges for other mobile services. For example, it was suggested providers might raise domestic prices to compensate for loss of roaming revenue. I/ERG does not collect information on domestic tariffs. It would be all but impossible in any case to demonstrate a causal link between any changes to domestic prices and the introduction of the Regulation. Tariff offers change all the time. Certainly, domestic mobile prices seem unlikely to rise because they are the main focus of competition for consumers. While individual instances may be found where customers are offered less favourable terms for certain types of call than pre-Regulation, the observation of national regulators is that such instances are fairly exceptional. It has since been suggested that roaming tariffs for the rest of the world may have been increased to compensate for loss of European roaming revenue. The second ERG Benchmark Data Report suggests this may be the case in a minority of countries only. The next Report will provide a full year's figures and enable I/ERG to assess the effects of seasonality on the figures, among other factors. In any case, I/ERG notes that, when analysing any increases in charges for other mobile services, it is necessary to consider the extent to which they fund other elements that benefit consumers, like investment in new services and handset subsidies.

I/ERG believes that the ongoing administrative burden arising from the Regulation is relatively light as the Regulation is largely self-enforcing, as a consequence of its design. At the outset, many market players need to make systems changes to ensure compliance. But going forward, the main regulatory activity is that arising from the regular ERG Benchmark Data Reports on international roaming, together with any further ERG requests for information made by the Commission. Some of this information would undoubtedly be collected in the absence of a Regulation, in order to monitor development of the market.

The case for further regulation

In conducting its present review of the Regulation, the Commission is also required to consider the case for extending the Regulation in duration, scope or both (Art.11). In the light of the information collected in its two Benchmark Data Reports and of the other information available to NRAs, I/ERG has considered the case for further regulation.

First, I/ERG observes that it is early to fully assess the impact of the current Regulation given factors like seasonality that cannot be fully measured yet, or to be making decisions about the regime that might be applied from mid-2010, given the likelihood of changing market conditions and costs. Consideration of the impact on smaller, newer and independent operators is important. Although the Commission is required to formulate its review of the current Regulation and any legislative proposals on its extension before further ERG Benchmark Data Reports are available, presumably Council and the European Parliament will take any subsequent information into account when making a final decision on the appropriate regulation for the future.

The current regulation of voice roaming tariffs is an internal market measure, especially motivated by consumer protection. This meant taking a view about what charges are reasonable.

In considering the case for extension of regulation in duration and/or scope, I/ERG notes that the arguments advanced for adopting the current Regulation provide a benchmark.

Voice roaming

In adopting the current Regulation, Council and the European Parliament considered market forces were not sufficiently strong in the retail voice roaming sector to ensure that lower wholesale tariffs would be passed through to consumers and a regulated retail rate was necessary from the outset. I/ERG finds the strength of the case for regulation to be broadly the same as it was in 2006/7.

The current wholesale and retail voice roaming caps were set so as to allow all market players to recover efficiently incurred costs (with a contribution to the costs that are common to a number of services, including termination) together with a reasonably generous allowance for profit. Accordingly, there is a prospect of observing market forces at work, in the form of competition below the cap for Eurotariff rates and/or the introduction of competitive and innovative alternative roaming tariffs. In some Member States, a degree of differentiation in prices has been observed in both wholesale and retail segments. I/ERG notes, however, that further reductions in the caps are due this August (by 2€c, 3€c and 2€c respectively), which may have affected the year's wholesale negotiations in particular. So far, I/ERG has not observed sufficient evidence of competition to justify lifting regulation; at the retail level, many operators offer the Eurotariff at or near the maximum Eurotariff caps while alternative tariffs account for a relatively small share of total traffic.

Termination rates, the most significant input cost faced by market players, are continuously decreasing and I/ERG considers this trend is likely to continue. Access and origination costs are also likely to fall over time, given technical progress and increases in volumes, although to what quantitative extent this is the case is very difficult to assess. Overall, falling input costs give scope for lower wholesale and retail charges.

If we apply the reasoning used by Council and the European Parliament when adopting the current Regulation, it leads I/ERG to consider that that the wholesale and retail price regulation of voice roaming should be continued after 2010, and falling input costs mean that there should be downward adjustment of the wholesale and retail caps.

I/ERG has assumed that any extension of the Regulation would be for a further period of 3 years. I/ERG has previously recommended that the caps should reflect normal profit levels. On the basis of the I/ERG's original analysis or the independent work of Copenhagen Economics (which was broadly similar), the starting point would have been several cents lower than the current price caps. As noted above, wholesale costs depend to a large extent on regulated termination rates. The European average has for some years been on a steady downward trend; I/ERG considers a further reduction in this average of at least 1€c per year can be expected over the next few years.

During the period up to 2013, starting from the charge caps already set for 2009/10, the fall in input costs is therefore likely to justify a 2€c reduction each year at the wholesale level (that is, 24€c, 22€c and 20€c respectively for the 3 years) and a 2 – 3€c reduction at the retail level on the basis of current cost trends. A higher reduction might be justified for incoming retail calls. However, initial I/ERG analysis on the basis of its own earlier work (or the work of Copenhagen Economics) suggests much lower figures. On this basis, a conservative estimate of wholesale costs would be 16€c/min, 14€c/min and 12€c/min for 2010, 2011 and 2012 respectively. If the caps were set on the basis of this work, the starting point would therefore be around 8€c/min lower, at both wholesale and retail levels, than the limits set out in the Regulation. There are two reasons for this difference. First, the charge caps set by Council and the European Parliament in the Regulation were higher than the levels implied by the independent cost analysis. Second, termination rates fell further than had been expected at the time the independent analysis was carried out.

Further details on the extension in duration of voice roaming regulation are in Section 3.

Transparency provisions

As noted above, I/ERG believes that the transparency provisions of the Regulation are in place, and are working as expected. Considering the Regulation's objective of consumer protection, and to facilitate informed consumer choice and encourage innovation and competition, I/ERG considers the provisions should be retained. I/ERG also recommends the extension of transparency measures to cover SMS and data roaming, as explored below. A further issue that may be considered to represent a lack of transparency and might have unintended effects on the cost of roaming voice calls is the unitisation of billing for voice roaming.

Further details on the current transparency measures are in Section 2 of this document.

Unitisation of billing for voice roaming

I/ERG has previously drawn attention to the issue of billing units. The unit of billing is not specified in the Regulation and a range of practices is observed at the wholesale and retail levels.

At the retail level, for domestic voice calls, per second billing is the most common practice but a minimum or set-up charge, irrespective of the length of the call, is often imposed. A set-up charge is usually a fixed amount that is additional to the per-second charge, while a minimum charge typically subsumes the per-second charge for a minimum call length (e.g. per second billing after the first minute). For roaming voice calls, per second billing with or without a set-up or minimum charge is relatively uncommon. Per minute billing is observed in the majority of Member States, although I/ERG notes a variety of other practices exists, typically a minimum or set-up charge followed by units of ten or thirty seconds.

In its Benchmark Data Report for October 2007 – March 2008, ERG estimates that on average, these billing practices add around 24% to a typical retail bill for calls made and 19% for calls received using the Eurotariff[7]. These increases represent a sort of "hidden charge" since they are not transparent to most consumers.

During the legislative process that led to the current Regulation, some proposals were made for mandatory per second billing. However, this was not adopted. To a large extent this was because of concern that it would be an over-intrusive to define the structure of retail tariffs, and might create a risk of regulatory spillover into more competitive markets. The effect of billing practices on the prices paid by consumers was not however generally appreciated until the publication of the first ERG Benchmark Data Report.

In a well-functioning competitive market, some variation in billing units can be expected and enables consumers to choose the tariff that best suits them. Indeed, Recital 19 of the current Regulation provides that the Eurotariff should "… allow operators the freedom to compete by differentiating their offerings and adapting their tariff structures".

On the other hand, the Eurotariff is a maximum cap and is intended to provide consumers assurance about what they will pay. At present, if two providers offer a service at the headline cap, the cap will have a more severe impact on the revenue of the provider that

[7] It should be noted that several providers were unable to provide accurate information on the difference between actual minutes and billed minutes. For the purposes of the ERG Benchmark Data Report, where data for actual or billed minutes has not been provided, the ERG has sought estimates.

chooses to offer per second billing than on the other provider offering (say) per minute billing. This provides a perverse incentive for providers to increase the length of their billing unit. Indeed, a few instances of such behaviour have been observed, although to date it is not common across Europe. However, I/ERG notes that at least one large group has recently announced a move in the opposite direction to per second billing, after the first minute.

I/ERG believes urgent action is needed to deal with the "hidden charge" issue.

Retail billing units of 1 second would undoubtedly provide the most transparency and consumer protection; no effective prices would be above the headline rates of the Eurotariff caps. It would mean that operators could differentiate the price level but no longer the structure of their Eurotariff offer, although they could do both on other EU/EEA voice roaming tariffs offered alongside the Eurotariff. There is a risk of spillover into domestic retail price structures, which may be more competitive. I/ERG also notes that, in general, a two-part tariff is not an unreasonable structure if cost causality is taken into account, given that fixed costs are incurred in setting up a call.

A minimum charge equivalent to the charge for a call of 1 minute is common commercial practice for domestic voice services and other electronic communication services. Moreover, in some countries, it is common to adopt charging units of more than 1 second for calls longer than 1 minute. Nevertheless, I/ERG sees relatively little economic justification for a roaming call minimum or set-up charge as high as 49€c (the current Eurotariff cap per minute for any call made, excluding VAT), or for the adoption of billing units of more than 1 second for longer calls where the charge exceeds the minimum.

Wholesale roaming charges are normally charged with a minimum charge of one minute; subsequent intervals are commonly between one and fifteen seconds. This is likely to affect the unitisation applied at the retail level. By contrast, I/ERG notes that other wholesale interconnection charges are normally charged per second. On that basis, it is hard to see any justification for anything other than billing for the actual volume of wholesale roaming services used, i.e. per second. It would be necessary for the benefits of lower unitisation at the wholesale level to be passed through to consumers.

Market players have the power to address this situation by voluntarily moving to per second billing at the retail level (with or without a reasonable call set-up charge or minimum length of chargeable call) and at the wholesale level by billing for actual volumes. I/ERG hopes that they will do so during the coming months. If not, it would be straightforward to introduce amendments to the Regulation to address this issue. In this event, I/ERG has considered various regulatory options at the retail and wholesale levels, which are discussed in Section 2 of this paper.

SMS roaming

On the basis of the two ERG Benchmark Data Reports, I/ERG notes that there appears to have been little movement in SMS retail roaming prices to April 2008, despite strong calls from NRAs and politicians for sharp reductions. Generally National Regulatory Authorities have not attempted to build robust cost models for SMS although a small number have done so. Nevertheless, while the average retail price for a roaming SMS is around 30€c, I/ERG believes, on analysis of the available evidence, that the underlying costs of provision of the wholesale service are significantly lower. It is not realistic at present to contemplate a reduction of prices to near average cost levels as the input costs of providers of the retail roaming service vary significantly, not only for the origination of a wholesale roaming SMS but also for acquiring SMS termination from third party operators. The latter service is mostly unregulated in Europe today.

In absolute terms, consumer detriment from high SMS roaming prices is less than was the case for voice roaming before the Regulation was introduced. While the level of transparency over tariffs – and in particular the difference between domestic and roaming tariffs – appears no better than for voice, the likelihood of bill-shock is less. This is because texts are normally consumed in single units. Moreover the absolute charge for a roaming SMS is relatively modest – albeit that it does not seem likely to be justifiable in relation to the estimated costs. These factors might suggest restraint from regulation.

However, the apparent size of the mark-ups (over both cost and domestic prices) and lack of significant price movement despite calls for industry action point firmly in the opposite direction.

If we apply the reasoning used when adopting the current Regulation of voice roaming services, I/ERG considers that regulation of SMS roaming is necessary, at both wholesale and retail levels, in order to bring prices more into line with costs and more into line with domestic prices. It believes that arrangements analogous to those for voice roaming would be suitable. More specifically, I/ERG recommends the introduction of a cap on the average wholesale rate charged by any one operator to any other operator for SMS roaming, and the amendment of the Eurotariff obligation to include an offer of SMS roaming at a rate not greater than a specified maximum cap.

I/ERG has considered various means of calculating wholesale and retail caps for SMS, explored in Section 5 of this paper. A cost-based model may be considered to give the most accurate estimate of actual operator costs. As mentioned above, few National Regulatory Authorities have developed cost models, however. Also, differences in methodology can make it difficult to compare models; cost differences among Member State operators need to be allowed for.

In view of the scarcity of detailed models of SMS costs at present, I/ERG has attempted a cautious, initial analysis of SMS costs. I/ERG understands that host operators normally levy a wholesale charge on the home operator for SMS origination but not normally for SMS termination. Therefore, any retail charge cap would need to include an allowance for the unrecovered costs of terminating SMS traffic sent by the same home operator. I/ERG notes that NITA has recently published the results of a cost modelling exercise in respect of the Danish operators[8]. Taking a conservative view of cost differences across Europe, the Danish work suggests that wholesale costs including origination, international transit, interconnect costs and billing costs plus a reasonable return should not exceed 2€c per SMS for any European operator. This might suggest that wholesale costs including an allowance for the unrecovered cost of termination should not exceed 4€c per SMS. Earlier I/ERG work suggested a higher figure, but not more than 8€c per SMS. I/ERG plans to carry out further investigations into costs during the coming months.

At the retail level (sending SMS), in addition to the wholesale costs mentioned above, it is necessary to allow for the wholesale charge for SMS terminated off-net, home network costs, commercial costs and a reasonable return. Initial analysis suggests that the retail costs, of which much the biggest element is the generally unregulated charge for termination (European average is currently 4.40€c), are unlikely to exceed 7€c on average. This suggests that an "SMS Eurotariff" set at a maximum level of around 11€c (on the basis of the Danish work on wholesale costs) or 15€c (on the basis of the earlier work) would be sufficient to allow full recovery of costs together with a reasonable return. (When considering the maximum price consumers would actually pay, VAT needs to be allowed for). Again, I/ERG plans to carry out further investigations into costs during the coming months.

---

[8] http://en.itst.dk/news/analysis-of-prices-and-costs-for-mobile-data-services-abroad

I/ERG notes that these levels are below some tariffs for domestic SMS services offered in Europe. In setting any retail cap, the possible disruption to national markets should be fully taken into account.

Further details are set out in Section 5 of this paper.

Data roaming

Regarding prices, in many ways the situation for data roaming is similar to that for SMS. Although NRAs have not generally attempted to build robust models of the costs of packet data transmission, on available evidence, I/ERG considers that the costs of provision of data roaming (including a reasonable allowance for common costs and returns) are likely to represent a fairly small percentage of typical current charges. The second ERG Benchmark Data Report estimates an average retail price of around 3.50€ per MB for quarter one 2008. It should be noted that the spread of retail prices is wide, however. In eight countries, it averaged between 8€ and 11€ per MB in Q1 2008.

Nevertheless, I/ERG is more cautious about the regulation of data roaming than of voice and SMS. At the wholesale level, it recognises some signs of competition, as a number of operators have been able to negotiate wholesale rates at much lower levels than have prevailed in the past. This has to some extent been reflected in the results from the second ERG Benchmark Data Report, where reduced wholesale prices have been observed in almost all Member States. I/ERG expects further progress to be apparent from the next ERG Report.

At the retail level, however, the latest ERG data paints a heterogeneous picture of the evolution of rates per MB. Whereas some countries show average decreases in retail charges, in other countries these charges seem to have remained unchanged or even to have increased (this is a particular concern regarding countries where rates are currently at the upper end of the European distribution).

For the first group of countries, I/ERG notes the possibility that the average price may appear lower because total volumes have increased for data roaming (ERG divides total data revenue by total volume to generate the average price). The second ERG Benchmark Data Report suggests a significant increase in the volume of all data roaming services in Member States from around 25.7 million MB in quarter two 2007 to 61 million MB in quarter one 2008. This may be linked to new marketing strategies, new tariff levels and structures or increased consumer access to related technology, in terms of equipment price and functionality, and improving network speeds. Moreover, this trend may apply to certain types of data roaming over others – I/ERG notes the increasing use of data roaming via a laptop and dongle (Mobile Broadband) in some Member States, which is suited to higher volume data sessions and is more commonly offered on an "unlimited" tariff than other data services. Therefore, it is unclear to what extent the unit price reductions observed derive from a change in the balance of use of the different roaming data services, as opposed to an overall reduction in prices, although I/ERG would expect lower volume data activities to attract a higher per unit price to a reasonable extent so that they are commercially viable.

Nevertheless, I/ERG notes that a number of announcements have recently been made of significant retail tariff reductions and new tariff structures (e.g. daily offers) in many Member States. The effect of these developments should be apparent in the next ERG Benchmark Data Report, which will cover the peak summer travel season.

For the second group of countries, on the evidence of the available data, the benefits obtained by operators - through the observed reductions in wholesale charges - have not been passed onto consumers, which suggests there is a competition problem at the retail level. The differences between the two groups of countries may reflect the different stages of evolution of national markets, and may be addressed over the coming months. Or they may reflect the different status of the mobile markets, for example they may suggest oligopolistic features that mean lower wholesale charges are less likely to be fed through to the retail level.

Overall, there is evidence that in most Member States the market has responded, to some extent, to the calls from political authorities and NRAs for cuts in data roaming rates and the average EU/EEA rate for wholesale and retail data services is falling.

Moreover, in contrast to SMS and voice, there appear to be some real commercial incentives to cut rates, irrespective of regulatory pressure. Domestic mobile data services are now growing fast, probably driven to a significant extent by recent price cuts in domestic tariffs and increased consumer access to related technology, as mentioned above. Data networks themselves are constantly improving and new technologies that would foster innovation and increase capacity are being rolled out or are under planning, such as HSPA, GSM re-farming, LTE. The same considerations do not apply to voice and SMS, which are largely mature markets. Further, there is a degree of competitive constraint on retail prices, at least part of the time, as customers travelling abroad may have other routes to use data services on their own mobile handset, PDA or laptop. For example, they may take advantage of Wi-Fi hot-spots or fixed line access in hotels.

I/ERG also notes that product marketing strategies and tariff structures are evolving. There seems to be a tendency towards non-linear and session-based tariffs. These may well be economically efficient, given the wide variety of mobile data services. For example, under a linear tariff structure (uniform price per Kb), bandwidth-light applications (e.g. scanning of emails on a PDA) may prove commercially unviable while at the same time bandwidth-hungry applications (e.g. downloading of large files) may prove prohibitively expensive. Under such circumstances, application of a well-designed price control that avoids regulatory harm would be extremely difficult, even if the underlying costs were better understood. The pros and cons of different approaches to charge regulation are considered in Section 4 of this paper.

Nonetheless, prices are likely to still exceed costs by far, even allowing for price cuts recently implemented or announced. Therefore, this does not seem to be the right moment to make a final decision as to whether price regulation should be ruled in or ruled out. I/ERG hopes that further reductions will be apparent by the time of its next data collection (covering the peak travel period April – September 2008) so that price regulation proves unnecessary. This information will be available to inform the main stages of negotiation of any proposed revised Regulation.

Over and above a general reduction in tariffs, there are two special concerns that need to be investigated further when considering price regulation.

First, I/ERG is concerned that lower wholesale charges should be available to smaller, newer and more independent operators. Lower wholesale charges are a prerequisite of lower retail rates (although they are not a guarantee).

In some Member States, a smaller MNO that is not part of a larger group or alliance might have difficulty negotiating lower wholesale tariffs from foreign MNOs, which would affect its ability to compete in the market and offer lower retail rates to consumers. For data roaming, there is the risk that the user might move to an area where their operator does not have a specially negotiated IOT rate with the available network, and so might incur a higher wholesale charge. This would increase the average wholesale payments made by the customer's home provider, which might impact on the retail rate they are able to offer to consumers.

On the last point, it is possible that group and alliance MNOs might seek to keep their roaming traffic 'on-net' through attractive retail offers, reducing intra-group or intra-alliance wholesale prices internally towards cost levels while, to an extent at least, maintaining the level of prices to MNOs outside their group or alliance.

Second, while ERG notes progress made by certain operators in reducing their wholesale and retail roaming costs, on the evidence available to date, this is not the case in all Member States, as discussed in paragraph 1.57. This is a particular concern regarding countries where rates are currently at the upper end of the European distribution.

Looking further ahead, in line with the arguments presented above, I/ERG notes the risk of near-permanent price regulation in the roaming market. For that reason, it believes that alternative and longer-term possibilities for opening up the data roaming market to competition should be explored.

For example, a possible alternative in order to induce more competition in data roaming services might be for the roaming user to use a domestic mobile data service in the visited country, with or without changing their SIM card. This could require technological and regulatory adjustments, and requires consideration and market analysis.

Data roaming and bill shock

There is one area of roaming data services where I/ERG believes that immediate, formal regulatory action must be recommended now. Many customers may experience unexpectedly high bills following experimentation with mobile data services while abroad. But for some customers, performing relatively simple tasks that would not prove expensive at home, can lead to extremely high bills compared to domestic rates. Individual instances of bills for several thousand euros, incurred during short trips abroad for activities that would have been affordable at home, have been reported.

Such bills are no doubt consistent with the published tariffs. But they cannot be regarded as reasonable. While being satisfied that some companies are introducing practical voluntary measures to control the transparency and bill control problem, I/ERG believes that the market players have, as a whole, been slow to address this issue.

There is a double problem of transparency in this area. Customers are very often unaware of the unit charge. But, more than that, they have little appreciation of the meaning of the unit. Knowing that a download costs 6€ per MB is of little value if the consumer has no concept of the MB. While a general reduction in charges will alleviate the problem, it will not necessarily solve it completely.

I/ERG believes that general principles should be formulated requiring companies to introduce effective measures to control bill shock. To allow for competition and innovation as companies seek to differentiate their consumer offering, I/ERG would not wish to be prescriptive about the choice of measure. Current examples include:

(a) a requirement for customers to confirm that they wish to continue with a session once a specified bill threshold has been passed

(b) a software application that shows consumption (in monetary units) in near-real time

(c) automatic transfer of customers from a volume-related tariff onto a fixed price tariff once a particular threshold has been passed

I/ERG recognises that systems development will be necessary to make such measures effective. Given that a mandatory measure would presumably not be introduced before 2010, it believes that there is adequate time for such systems to be developed.

Section 2

The Functioning of the Regulation

Question 1: To what extent do you consider that the Regulation has achieved its objectives (as described above) in relation to the following core elements of the Regulation:
(i) reduction of retail prices to acceptable levels (the Eurotariff and its opt-out provisions) (Article 4);
(ii) transparency of retail prices (Article 6);
(iii) reduction of wholesale prices (Article 3); and
(iv) supervision and enforcement of compliance, including dispute resolution (Articles 7, 8 and 9)?

General Experience

Overall, the measures imposed are being met. The two ERG Benchmark Data Reports on international roaming show that average European wholesale and voice roaming retail prices fell significantly between the second quarter of 2007, before introduction of the Eurotariff, and the first quarter of 2008. Moreover, this understates the real effect of the regulation since some prices had already been reduced in anticipation of the Regulation. Further, the design of the charge controls, at both wholesale and retail levels, is such that all wholesale and retail customers have benefited from price reductions in a relatively even manner.

In terms of competition, the second ERG Benchmark Data Report, which covers the first six months of full implementation of the Roaming Regulation, found Eurotariff offers and other EU/EEA voice roaming tariffs below the maximum caps in around two thirds of Member States. I/ERG welcomes these tariffs but considers that, in general, they do not yet vary sufficiently from the Eurotariff cap to provide evidence of healthy innovation and competition. Moreover, the Report found that retail voice roaming services are being charged at or near the Eurotariff cap in around two thirds of countries. Given the "hidden charge" as a consequence of the difference between actual and billed minutes, effective retail prices may even be above the headline rate of the cap in some cases (see question 17).

Regarding transparency, a minority of retail roaming providers were unable to resolve technical problems in upgrading systems to permit the transparency provisions of the Regulation to function as expected within the specified timescale. But the majority complied on time. NRAs have closely monitored the progress of those who were late and I/ERG believes that this is no longer an issue. Accordingly, customers should now benefit universally from the Regulation's transparency provisions.

I/ERG believes that the ongoing administrative burden arising from the Regulation is relatively light as the Regulation is largely self-enforcing, as a consequence of its design. At the outset, many market players need to make systems changes to ensure compliance. But going forward, the main regulatory activity is that arising from the regular ERG Benchmark Data Reports on international roaming, together with any further ERG requests for information made by the Commission. Some of this information would undoubtedly be collected in the absence of a Regulation, in order to monitor development of the market. I/ERG is not aware of any significant compliance problems to date.

In conclusion, consumers have benefited directly and promptly from significantly reduced prices under the Regulation. Nevertheless, if we consider the arguments set out above, there is a risk that even if wholesale and retail charges were sticky, operators may have low incentives to pass further falls in unit input costs through to consumers in the absence of regulation, especially at the retail level. On that basis it seems unlikely that a sustainable level of prices may be attained by price regulation alone. In this sense, it is highly important, looking forward, to investigate different regulatory solutions that are not based on a direct intervention on charges (as mentioned in response to questions 19 and 29), and which may bring long-term competition to the roaming field.

Question 2: To what extent has the Regulation produced unintended consequences for mobile customers, whether in terms of the availability or quality of retail roaming services and/or the amount of information provided to end-users by their mobile operators?

I/ERG is not aware of significant unintended consequences for consumers in terms of the availability or quality of roaming services. It does, however, highlight the unexpected "hidden charge" for regulated voice roaming services as a result of operators billing practices. See question 17.

Question 3: How have tariffs for making and receiving voice roaming calls on the basis of tariffs other than the Eurotariff evolved since the entry into force of the Regulation? Are these tariffs more advantageous for customers than the Eurotariff offered by their mobile operator? Please supply data which illustrate your reply.

In the second ERG Benchmark Data Report for October 2007 – March 2008, around one third of relevant countries reported average alternative EU/EEA voice roaming prices below the regulated Eurotariff caps. Of those, all national averages for making calls and two thirds for receiving calls were at least 5€c below the relevant caps.
Various operators have announced new alternative EU/EEA voice roaming tariffs for summer 2008.

For making calls, alternative tariffs consist, for example, of a set-up charge then domestic rates; a monthly subscription charge then reduced rates; a bundle of roaming minutes; discounted calls to the home country for SMEs. Some operators offer a variety of alternative roaming tariffs aimed at different consumers.

Offers to use a partner mobile VoIP service or WiFi hotspots (for VoIP) at domestic rates may be taken up as an "add-on" to the Eurotariff or to alternative EU/EEA voice roaming tariffs.

Whether an operator's alternative EU/EEA voice roaming tariff is more advantageous for consumers than their Eurotariff is likely to vary on a case-by-case basis, depending on variables like the average length of call and roaming destination. That's because some alternative tariffs attract a subscription or set-up charge per call that is fairly high compared to a typical Eurotariff minute, followed by a per minute charge that is lower than a typical Eurotariff minute (e.g. domestic call rate). The consumer may pay a lower average price than a typical Eurotariff for longer calls only, e.g. of 3 or more minutes. Also, some alternative tariffs are only available on partner networks, which may be limited to certain EU/EEA countries.

See question 20 for further information on alternative EU/EEA voice roaming tariffs.

Question 4: What has been the impact of the Regulation on mobile operators, in terms of revenues, volumes, profits, innovation etc.?

I/ERG considers this question is best answered by the market players.

Question 5: Since the adoption of the Regulation have there been any instances of the termination or threat of termination of wholesale roaming agreements or the refusal to negotiate new ones?

I/ERG is not aware of any such instances.

Question 6: What measures could be taken to avoid the adverse effects of inadvertent roaming, whether by means of voluntary co-operation between operators or by means of regulatory or legislative action?

Specific Issues

Some technical measures can contribute to reducing the geographical extent of inadvertent roaming. Several Administrations have signed special bilateral or multilateral radio-frequency coordination agreements with their neighbours with a view to minimising harmful interference on border areas and the coverage of neighbouring territory, while ensuring the technical feasibility of a good national coverage at a reasonable cost, and ensuring equitable access to radio spectrum.

These bilateral or multilateral agreements are based on technical prescriptions: a wireless land mobile base station can be "switched on" without the explicit consent of the neighbouring Administration(s) if the predicted mean field strength of each carrier produced by the base station does not exceed a certain level. Operators are obliged to conform to these bilateral or multilateral agreements.

Furthermore, Administrations may refer to Article 18.2 of the ITU Radio Regulations, which provides that, subject to the signature of an additional special bilateral agreement between Administrations, a wireless land mobile base station of a neighbouring operator can be settled on the national territory. The possibility to have recourse to that measure can be very helpful in certain situations, where a neighbouring operator can benefit from better transmission conditions thanks to a better geographic location. This can help to minimise harmful interference, to reduce the coverage of the neighbouring territory, and at the same time, to improve national coverage.

Moreover, when a situation of inadvertent roaming is detected, additional technical measures can be envisaged on a case-by-case basis to reduce its extent. For example, after careful investigations involving both Administrations and operators, technical measures - such as power limitations or antenna tilting - can be required.

In any case, because of the physical characteristics of radio frequencies, zero neighbouring coverage does not exist. Other technical "solutions" to limit inadvertent roaming may be investigated at the technology-design level in standardisation bodies such as ETSI.

Question 7: If you are an operator, what measures (technical or otherwise) have you taken to deal with the issue of inadvertent roaming, both to prevent it happening and to compensate for the adverse effects once it has been shown to have occurred? How do you raise awareness of the problem and the potential remedies on the part of your customers?

This question is not applicable to I/ERG.

Question 8: What has been the impact on mobile users and service providers of the implementation of the Regulation as far as roaming within, from or between the outermost regions is concerned?

This question is particularly relevant to ARCEP, the French member of I/ERG, because mobile telephony licences issued in the outermost regions are distinct from those issued in respect of the rest of the national territory and in-country roaming applies.

To ARCEP's knowledge, no particular implementation issues have been raised, with the current price levels. Further decreases in the voice roaming caps should, however, take into account the fact that local termination rates are much higher in the outermost regions than on the European continent (between 10€c and 23€c) and that calls to and from mainland require higher transit costs (3-4€c compared to 1€c for operators based on the mainland).

When implementing the current Regulation, MNOs in the outermost regions skipped the opt-in phase (no bespoke roaming plans) and provided all users with an opt-out Eurotariff by 30 August (ahead of schedule).

Question 9: What additional measures (if any) have been taken by the Member States or their NRAs to address roaming between the outermost regions and other parts of the EU?

This question is particularly relevant to ARCEP, the French member of I/ERG, because mobile telephony licences issued in the outermost regions are distinct from those issued in respect of the rest of the national territory and in-country roaming applies.

From September 2007, French Metropolitan and outermost region operators were asked to extend the voice roaming caps to intra-national roaming on a *voluntary* basis. All agreed to do so.

The French Government issued a draft law in September 2007, which was adopted on 17 December 2007. This Regulation extends the voice roaming caps and termination date to intra-national roaming; ARCEP's powers are extended to allow for the application of these provisions:

> ***LOI n° 2007-1774 du 17 décembre 2007 portant diverses dispositions d'adaptation au droit communautaire dans les domaines économique et financier***
>
> *« Art.L. 34-10.-Tout opérateur de radiocommunications mobiles autorisé sur le territoire de la France métropolitaine, d'un département d'outre-mer, de Mayotte, de Saint-Barthélemy, de Saint-Martin ou de Saint-Pierre-et-Miquelon et accueillant sur son réseau le client d'un opérateur de radiocommunications mobiles autorisé dans un autre de ces territoires respecte les dispositions tarifaires de l'article 3 du règlement (CE) n° 717 / 2007 du Parlement européen et du Conseil, du 27 juin 2007, concernant l'itinérance sur les réseaux publics de téléphonie mobile à l'intérieur de la Communauté et modifiant la directive 2002 / 21 / CE dans sa rédaction applicable à la date d'entrée en vigueur de la loi n° 2007-1774 du 17 décembre 2007 portant diverses dispositions d'adaptation au droit communautaire dans les domaines économique et financier, pour la rémunération de la prestation fournie au titre des communications téléphoniques.*
>
> *« Les tarifs des appels téléphoniques reçus ou émis à destination du territoire d'un Etat membre de la Communauté européenne, de Mayotte ou de Saint-Pierre-et-Miquelon par un client d'un opérateur de radiocommunications mobiles autorisé sur le territoire de la France métropolitaine, d'un département d'outre-mer, de Mayotte, de Saint-Barthélemy, de Saint-Martin ou de Saint-Pierre-et-Miquelon accueilli sur le*

réseau d'un opérateur de radiocommunications mobiles autorisé dans un autre de ces territoires respectent les dispositions tarifaires de l'article 4 du règlement (CE) n° 717 / 2007 du Parlement européen et du Conseil, du 27 juin 2007, précité dans sa rédaction applicable à la date d'entrée en vigueur de la loi n° 2007-1774 du 17 décembre 2007 précitée.
« Le présent article cesse d'être applicable le 1er juillet 2010. »

« Le code des postes et des communications électroniques est ainsi modifié :
1° Dans le 3° de l'article L. 36-7, après les mots : « du présent code », sont insérés les mots : «, du règlement (CE) n° 717 / 2007 du Parlement européen et du Conseil, du 27 juin 2007, concernant l'itinérance sur les réseaux publics de téléphonie mobile à l'intérieur de la Communauté et modifiant la directive 2002 / 21 / CE» ;
2° Dans la première phrase du 1° de l'article L. 36-11, après les mots : « pris pour son application », sont insérés les mots : « ou du règlement (CE) n° 717 / 2007 du Parlement européen et du Conseil, du 27 juin 2007, concernant l'itinérance sur les réseaux publics de téléphonie mobile à l'intérieur de la Communauté et modifiant la directive 2002 / 21 / CE ».

Question 10: What has been the financial impact (revenues, costs, profits, volumes etc.) on smaller mobile telephony providers of the application of the Regulation since its entry into force on 30 June 2007? Please provide financial data and any other information in this respect wherever possible (which will be treated as confidential if so requested).

I/ERG considers this question is best answered by the market players.

Question 11: Has any operator encountered problems when seeking to agree a wholesale roaming agreement with an operator in another Member State? What kind of problems were these (e.g. for SMS interworking)? Were they resolved in the end? Was the issue referred to an NRA? If so, what action has been taken or is in train to address those problems?

A number of members of I/ERG have reported that national operators, in particular new entrants and other small operators, have experienced difficulty in negotiating roaming and/or SMS interworking agreements in some Member States. Typically, the problem experienced is of delay in negotiating the agreement rather than refusal to put an agreement in place. However, a severe delay in negotiations has a strong negative effect on new entrants' business plans and constitutes a serious obstacle for new entrants to promote their activities on the market.

It appears that this is a consequence of the prioritisation applied by the commercial negotiating teams in the operators with which such an agreement is sought. Larger operators report that they typically receive requests for tens of such agreements per year. Their commercial incentive is to prioritise agreements with other large operators, because they are likely to be responsible for the main portion of the incoming and outgoing traffic. Moreover, such agreements cannot be implemented without a suitable testing programme. This may take longer for smaller and newer entrants that do not already have commercial roaming arrangements with large operators.

I/ERG recognises that failure for a new entrant to negotiate an agreement can have a significant impact on the level of service it is able to offer its customers and, therefore, potentially on competition in the national retail market. For this reason, excessive or repeated delays should be avoided. I/ERG is aware that some cases, where there had been delay in finalising an agreement, have been referred to the relevant NRA, which was able to achieve a resolution of the matter. There is a balance to be struck between the need of the new entrant to achieve speedy interconnection and the interests of the established operator to give priority to implementing agreements with operators with which they expect to exchange significant volumes of traffic. ERG is considering whether the existing powers available to NRAs are sufficient to allow intervention to ensure that balance is struck appropriately or whether new regulatory powers are needed.

Question 12: To what extent is the use of traffic steering accompanied by a lower retail price for the roaming customer? Where lower roaming prices are conditional upon the use of a preferred visited network, how effective is the traffic steering in practice in ensuring that the preferred network is used? Please provide detailed data where possible.

I/ERG understands that operators use different methods of traffic steering managed through mobile terminals or by the network itself.

Traffic technique is, as general rule, used to combine the best options, both at wholesale and retail level, of quality of service and lower roaming prices.

Question 13: What techniques are applied to implement traffic steering in practice? Is the roaming customer informed in advance about the steering and does he have the possibility to override it?

I/ERG considers this question is best answered by the market players.

Question 14: Have you identified any significant effects on domestic prices or changes in an operator's tariff structure for domestic voice calls or other mobile services introduced after or shortly before the entry into force of the Regulation? If so, please explain providing details of the changes in terms of timing, scope and prices.

During the period of negotiations of the Regulation, some expressed concern about possible adverse effects on the charges for other mobile services. For example, it was suggested providers might raise domestic prices to compensate for loss of roaming revenue.

I/ERG does not collect information on domestic tariffs. It would be all but impossible in any case to demonstrate a causal link between any changes to domestic prices and the introduction of the Regulation or lowering of other roaming prices. Tariff offers change all the time. For example, some operators in one country have recently introduced higher minimum charges for pre-pay users. Generally, domestic mobile prices seem unlikely to rise because they are the main focus of competition for consumers. While individual instances may be found where some customers are offered less favourable terms for certain types of call than pre-Regulation, the observation of national regulators is that such instances are fairly exceptional.

It has since been suggested that roaming tariffs for the rest of the world may have been increased to compensate for loss of European roaming revenue. The second ERG Benchmark Data Report suggests this may be the case in a minority of countries only. The next Report will provide a full year's figures and enable I/ERG to assess the effects of seasonality on the figures, among other factors.

In any case, I/ERG notes that, when analysing any increases in charges for other mobile services, it is necessary to consider the extent to which they fund other elements that benefit consumers, like investment in new services and handset subsidies.

Question 15: What, if any, has been the impact of the Regulation on reciprocal roaming arrangements between EU/EEA mobile operators and their counterparts in other third countries?

I/ERG considers this question is best answered by the market players.

Question 16: Have any Community-based providers of mobile roaming services negotiated agreements with third country operators concerning a reduction of wholesale roaming tariffs comparable to those set up in the Regulation?

I/ERG considers this question is best answered by the market players.

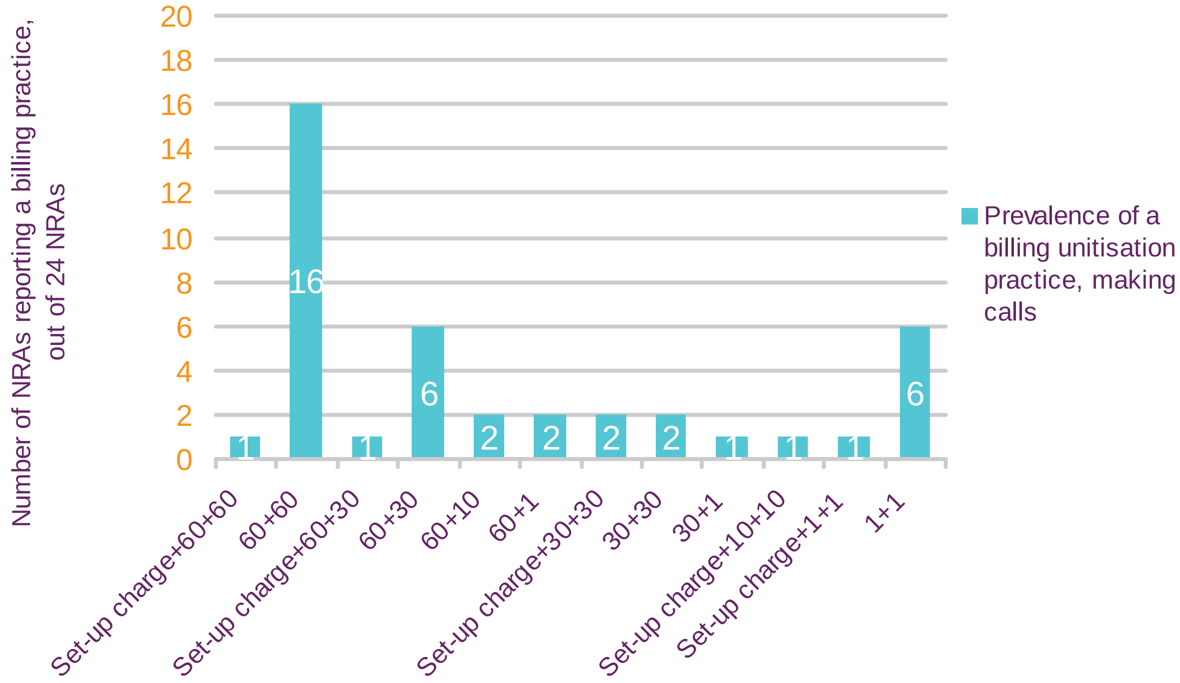
Question 17: Please provide details of changes from per second to per minute billing for voice roaming services which have occurred since or shortly before the entry into force of the Regulation. Were customers informed of those changes in advance? Have practices for new customers changed? What are the common billing practices for domestic and roaming calls?

At the retail level, for domestic voice calls, per second billing is the most common practice but a minimum or set-up charge, irrespective of the length of the call, is often imposed. A set-up charge is usually a fixed amount that is additional to the per-second charge, while a minimum charge typically subsumes the per-second charge for a minimum call length (e.g. per second billing after the first minute, or "60+1"). For roaming voice calls, per second billing with or without a set-up or minimum charge is relatively uncommon. Per minute billing is observed in the majority of Member States, although I/ERG notes a variety of other practices exists, typically a minimum first minute charge or set-up charge followed by units of thirty or ten seconds. Billing practices are usually the same for calls made and received. Where they are different, calls received are billed in lower units.

In response to a recent I/ERG questionnaire to National Regulatory Authorities on international roaming (April 2008), 6 out of the 24 NRAs that responded said billing unitisation for all EU/EEA voice roaming services had changed since the introduction of the Regulation. Of those 6 NRAs, 4 reported an increase in intervals to per minute billing, one of which also reported a decrease in intervals from a set-up charge then per minute billing to a minimum charge of sixty seconds then billing in 30 second intervals ("60-30"). On the other hand, 2 NRAs reported a decrease in billing intervals: one reported a decrease to per second billing and one reported the abolition of set-up charges.

It should be noted that the questionnaire was not operator-specific, meaning that some EU/EEA voice roaming billing practices may be more prevalent than others among operators within Member States. The following chart shows the variety and prevalence of different billing practices for calls made, by NRA (from a total of 24 NRAs)[9].

[9] Note that "set-up charge+60+60", for example, means a fixed set-up charge, then billing in 60 second intervals. "60+30", for example, means a minimum charge of 60 seconds then billing in 30 second intervals.



Question 18: Do you consider that steps should be taken to ensure that the billing methodology applied to regulated roaming calls guarantees per second rather than per minute billing? If so, what action would be required (i.e. should this be left to the industry to tackle via self-regulation; should the Member States or NRAs intervene under existing powers and responsibilities; or is legislative action at Community level necessary)?

In its Benchmark Data Report for October 2007 – March 2008, the ERG estimates that on average, the billing practices described in question 17 add around 24% to a typical retail bill for calls made and 19% for calls received, using the Eurotariff[10]. These increases can be regarded as a "hidden charge" since they are not transparent to most consumers.

During the legislative process that led to the current Regulation, some proposals were made for mandatory per second billing, but not adopted. To a large extent, there were concerns that it would be over-intrusive to define the structure of retail tariffs, and that defining retail structures for roaming might create a risk of regulatory spillover into the more competitive, domestic market. On the other hand, the effect of billing practices on the prices paid by consumers was not generally appreciated until the publication of the first ERG Benchmark Data Report.

In a well-functioning competitive market, some variation in billing units can be expected and enables consumers to choose the tariff that best suits them. Indeed, Recital 19 of the current Regulation provides that the Eurotariff should "… allow operators the freedom to compete by differentiating their offerings and adapting their tariff structures".

[10] It should be noted that several providers were unable to provide accurate information on the difference between actual minutes and billed minutes. For the purposes of the ERG Benchmark Data Report, where data for actual or billed minutes has not been provided, the ERG has sought estimates.

On the other hand, the Eurotariff is a maximum cap and is intended to provide consumers with assurance about what they will pay. At present, if two providers offer a service at the headline cap, the cap will have a more severe impact on the revenue of the provider that chooses to offer per second billing than on the other provider offering (say) per minute billing. This provides a perverse incentive for providers to increase the length of their billing unit. As mentioned above, a few instances of such behaviour have been observed, although to date it is not common across Europe. However, I/ERG notes that at least one large group has recently announced a move in the opposite direction to per second billing, after the first minute.

I/ERG believes urgent action is needed to deal with the "hidden charge" issue. Market players have the power to address this situation by voluntarily moving to per second billing at the retail level (with or without a reasonable call set-up charge or minimum length of chargeable call) and at the wholesale level by billing for actual volumes. I/ERG hopes that they will do so during the coming months. If not, it would be straightforward to introduce amendments to the Regulation to address this issue. In this context, I/ERG has evaluated various regulatory options at the wholesale and retail levels:

Wholesale level

As identified by ERG in its letter to the Commission of December 2005[11], NRAs lack the tools under the current regulatory framework to impose effective regulation of roaming charges. Since nothing has changed in that respect in the meantime and the Commission's plans for amending the Framework do not address the matter, the only vehicle for regulation of wholesale billing practices would be an amendment to the Regulation.

Charging for actual minutes at the wholesale level

Wholesale roaming charges are normally charged with a minimum charge of one minute; subsequent intervals are commonly between one and fifteen seconds. By contrast, I/ERG notes that other wholesale interconnection charges are normally charged per second. Furthermore, it seems that the fixed costs of setting up a call at the wholesale level are already taken account of in regulated termination charges. On that basis, it is hard to see any justification for anything other than billing for the actual volume of wholesale roaming services used.

Voice roaming regulation at the wholesale level applies an average cap on charges between any two operators; it would be in keeping with this form of regulation to require operators to ensure that revenue divided by the *actual* volume of wholesale roaming services used in a year falls within the cap.

I/ERG notes that current wholesale billing practices might be contributing to higher billing units at the retail level. If regulation is applied at the wholesale level, I/ERG considers it is necessary that any benefits are passed through to consumers at the retail level.

Retail level (originating and terminating calls)

In adopting the current Regulation establishing the Eurotariff caps, Council and the European Parliament took the view that market forces were not sufficiently strong in the retail voice roaming sector to ensure that lower wholesale tariffs would be passed through to consumers and that a regulated retail rate was necessary from the outset.

[11] ERG letter to the Director General of the Commission's DG Information Society, Mr Fabio Colasanti, December 2005

If there is evidence that reduced units at the wholesale level are unlikely to be passed through to consumers, that reasoning leads I/ERG to consider regulation would be necessary at the wholesale and retail levels. Certainly, the two ERG Benchmark Data Reports indicate that per minute billing is more prevalent, and the discrepancy between actual and billed minutes is greater, at the retail than the wholesale level. As mentioned above, I/ERG's preferred outcome is per second billing, with or without a reasonable call set-up charge or minimum length of chargeable call, as explored below.

Per second billing

Requiring per second billing at the retail level is a simple and effective solution. It would prohibit operators from billing more than actual use and also offer maximum transparency and consumer protection since consumers would know exactly what they would pay and no effective prices would be above the headline rates of the Eurotariff caps.

As mentioned above, the current Regulation provides that the Eurotariff should "… allow operators the freedom to compete by differentiating their offerings and adapting their tariff structures" (Recital 19), which this measure would partly remove – operators would be able to differentiate the price level but not the structure of their Eurotariff, perhaps limiting the scope for innovation and consumer choice (Art.1(1)). On the other hand, operators would still have that freedom through the other roaming tariffs that they may offer alongside the Eurotariff.

This is, of course, a rather intrusive solution. There is also risk of spill over into domestic retail price structures, which may be more competitive. I/ERG also notes that, in general, a two-part tariff of a set-up or minimum charge then regular billing intervals of one second is not an unreasonable structure if cost causality is taken into account, given that fixed costs are incurred in setting up a call.

Minimum charge interval/set-up charge plus per second billing

This solution involves mandatory per second billing as described above, with the addition of a minimum or set-up charge. For instance, operators could be allowed to apply a minimum charge of *up to* 60 seconds (lower figures could be adopted at their discretion) with subsequent per second billing; that would be in accordance with billing practices for domestic voice calls in many countries. Therefore it could provide an improvement in consumer protection and transparency and less intrusion into retail tariff structures.

An important benefit of a two-part tariff is that it can allow operators to recoup the fixed costs of setting up a roaming call. I/ERG notes, however, that in this context a minimum billing interval of 60 seconds would be likely to significantly exceed the actual fixed costs of setting up a roaming call, considering that average prices in around two-thirds of Member States are currently at or near the Eurotariff cap. As above, at wholesale level it seems that the fixed costs of setting up a call are already included in the MTR-based regulation. At retail level it is, however, less clear whether the costs of setting up the call are included in the current regulated price cap. On that basis, an actual set-up charge could be allowed for instead, which could be more accurately defined to reflect the fixed costs of setting up a call, allowing for any national variations.

In addition to the above solutions, I/ERG has considered the following ways forward, but does not recommend their adoption:

Transparency measures

A very non-intrusive approach would be to require additional transparency measures. For example, operators could be required to publish information regarding the cost of a call of X, Y and Z seconds and/or give customers a yearly overview of what they have been billed and for what volumes. These measures would enable consumers to see the real cost of a roaming call and to compare different operators; the information could be used by comparison websites.

On the other hand, on the available evidence, I/ERG considers it is unlikely that improved transparency alone will lead operators to adopt lower charging intervals. So far, the current transparency provisions in the Regulation have not led to a significant level of price competition: in the majority of countries, the average retail prices for Eurotariff and other EU/EEA roaming tariffs are at or near the price cap. Furthermore, it has so far been considered unlikely that consumers take roaming rates into account when choosing their operators and tariff plans, although new consumer research may be appropriate to assess the impact of the current Regulation.

Average retail charge control

This solution would require the average retail price for the following consumer groups to comply with the Eurotariff caps (revenue divided by *actual* minutes for each of the groups in a specified period): post-paid, pre-paid and business.

This solution would ensure that average prices for each consumer group comply with the Eurotariff cap, and would "… allow operators the freedom to compete by differentiating their offerings and adapting their tariff structures" (Recital 19), "preserving incentives for innovation and consumer choice" (Art. 1(1)).

However, the effective price paid by individual consumers could exceed the headline rate of the Eurotariff cap, meaning limited price guarantees for individual consumers. I/ERG also notes that an average cap at the retail level was rejected during negotiations on the current Regulation partly on the grounds of reduced transparency for consumers.

Adjusting the price caps

Adjusting the Eurotariff price caps by the apparent discrepancy between actual and billed minutes (around 20%) would remove the current average uplift in the effective price paid by consumers.

However, this solution would create a perverse incentive for operators to increase billing units, limiting its effectiveness, and would punish operators that apply low charging intervals. In that respect, it should be noted that operators in Spain are required by national law to use per second billing at the retail level, possibly with a regulated set-up and first minute charge, billed per second.

Section 3

Extension of the Duration of the Regulation: Voice Roaming Services

Question 19: Do you think it necessary to maintain the provisions of the Regulation dealing with retail prices for roaming services – in particular the mandatory Eurotariff - beyond the current expiry date of the Regulation in June 2010? If yes, why; and if not, why not?

Question 20: What evidence is there of competition between providers of intra-Community mobile voice roaming services in the provision of such services other than by means of the Eurotariff? To what extent do these alternative offerings satisfy the needs of roaming customers?

Question 21: In the event that the Regulation were left to expire on 30 June 2010, do you expect that providers of intra-Community mobile roaming services would maintain their Eurotariff or other retail offerings below the price ceilings applicable under the Regulation? What is the basis for your opinion in this regard?

Retail Pricing Obligations

I/ERG considers the reasons for adopting the current Regulation set an initial benchmark for the possible extension in duration of retail price regulation for voice roaming: retail regulation may be withdrawn where there is evidence of competition and innovation in the retail market, meaning that operators have incentives to pass lower input costs through to the consumer in the form of lower retail prices for voice roaming services.

The principles underlying the 2002 framework for electronic communications[12] suggest that retail regulation should only be imposed where regulators consider relevant wholesale measures would fail to ensure effective competition.[13] It is generally considered that, in most markets, wholesale regulation is sufficient to enable market forces to lower retail prices, thereby achieving a good outcome for consumers. The Roaming Regulation was introduced because there were reasons to believe this consideration did not generally apply to roaming services at that time.

Firstly, in its 22 March 2006 response to the Commission's Call for Input on its proposed EC Regulation in the International Roaming Market, I/ERG highlighted that retail mark-ups appeared high for both making and receiving calls. Moreover, operators had significantly lower wholesale costs for roaming calls received compared to those made (no Inter-Operator Tariff is payable to the host operator), which was not reflected in the retail price for that service. See question 22 for further details.

[12] Directive 2002/19/EC, Directive 2002/20/EC, Directive 2002/21/EC, Directive 2002/22/EC and Directive 2002/58/EC.
[13] The Commission's explanatory memorandum to its Recommendation on relevant product and service markets susceptible to ex-ante regulation in accordance with framework Directive (2002/21/EC) states "NRAs have powers as a last resort and after due consideration to impose retail regulation on an undertaking with significant market power. However, regulatory controls on retail services should only be imposed where NRAs consider that relevant wholesale or related measures would fail to achieve the objective of ensuring effective competition".

Secondly, pressure from consumers and alternative service providers was likely to be limited. Consumer surveys indicated that consumers paid little attention to roaming tariffs when making their initial choice of network operator and were unlikely to switch network in response to a roaming tariff change. Although there was some competition provided by alternative service providers, for example companies marketing host country SIMs for use while abroad, these offers had made relatively small inroads into the market, perhaps because the user was not prepared to accept the inconvenience of having to change mobile number temporarily.

When assessing the level of competition and innovation under the current Regulation, I/ERG notes that only data for the first six months of implementation can be drawn on at this stage. I/ERG observes that it is too early to fully assess the impact of the current measures given factors like seasonality that cannot be fully measured yet, or to be making decisions about the regime that might be applied from mid-2010, given the likelihood of changing market conditions and costs. Certainly, some operators have announced lower and more innovative voice roaming tariffs for summer 2008, which will be reflected in the next ERG Benchmark Data Report covering the period April – September 2008. That report will also complete a full year's data on implementation of retail price Regulation.

I/ERG understands that the Commission is planning to propose draft legislation to modify or replace the current Regulation before further ERG Benchmark Data Reports are available. I/ERG would anticipate Council and the European Parliament would take any subsequent information into account when making a final decision on the appropriate regulation for the future.

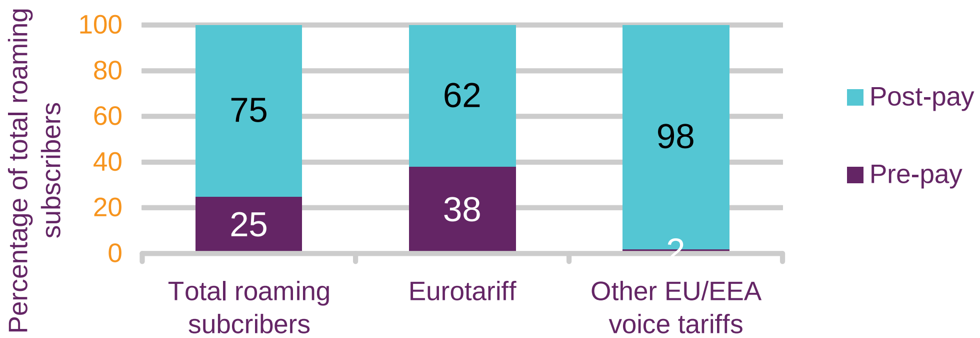
The second ERG Benchmark Data Report for October 2007 – March 2008, found Eurotariff offers for making and receiving calls below the maximum Eurotariff caps in around one third of the relevant countries. Of those, three countries reported an average price at least 5€c below the 49€c cap for making calls, and another three at least 5€c below the 24€c cap for receiving calls.

Innovative offers included domestic prices when roaming on partner networks and use of inclusive minutes to call home country numbers when roaming on a partner network.
The ERG Report also indicated that there are other EU/EEA offers below the maximum Eurotariff cap in around one third of the relevant countries; of those, all the national averages for making calls and two thirds of the national averages for receiving calls were at least 5€c below the relevant Eurotariff caps.

For making calls, alternative EU/EEA retail tariffs consist, for example, of a set-up charge then domestic rates; a monthly subscription charge then reduced rates; a bundle of roaming minutes; discounted calls to the home country for SMEs. Some operators offer a variety of alternative roaming tariffs aimed at different consumers.

Offers to use a partner mobile VoIP service or WiFi hotspots (for VoIP) at domestic rates may be taken up as an "add-on" to the Eurotariff or to alternative voice roaming tariffs.
I/ERG considers a variety of roaming offers enables consumers to choose a tariff that best suits their needs. As mentioned above, consumer surveys suggest that a consumer's decision to use a particular operator is mainly influenced by domestic offers. Where an operator offers more that one roaming tariff, consumers can exercise greater choice independently of their choice of domestic service, according to the frequency, length and purpose of any travel. For consumers to fully benefit from roaming offers, it is essential that they are well informed.

If we consider take-up of alternative EU/EEA tariffs compared to the Eurotariff, the second ERG Benchmark Data Report indicates that around 60% of all roaming subscribers are on the Eurotariff, and around 40% are on an alternative EU/EEA tariff. If we split the figures by tariff type, 38% of Eurotariff subscribers are pre-pay users and 62% post-pay, compared with only 2% of other EU/EEA tariff subscribers that are pre-pay and 98% that are post-pay users. Distinguishing by user type also brings this to the fore: nearly all of pre-pay users are on the Eurotariff (97%), but post-pay subscribers are quite evenly shared between the Eurotariff (48%) and other EU/EEA tariffs (52%). Moreover, 13 out of 29 NRAs indicated that no pre-pay roaming subscribers used an alternative EU/EEA tariff, which suggests that post-pay users are commonly offered more choice of voice roaming tariff.



In conclusion, I/ERG welcomes these lower and more roaming tariffs but considers that, in general, average prices by country do not yet vary sufficiently from the Eurotariff cap to provide evidence of healthy innovation and competition. The ERG Report found average Eurotariff and alternative EU/EEA voice roaming prices at or very near the Eurotariff cap in about two-thirds of countries. For the Eurotariff, the "hidden charge" as a consequence of billing unitisation practices (see question 18), has also led to an uplift of 19% - 24% of billed minutes over actual minutes.

On the question of consumer awareness and propensity to change tariff or operator on the basis of roaming charges, I/ERG is not aware of evidence showing this situation has changed. Once it has been in place for a sufficient period, it may be appropriate to conduct further research to assess the effects of the Regulation, including the transparency measures, and the increased public discussion of roaming tariffs, on consumer awareness and behaviour (I/ERG notes that summer 2008 will be the first full peak travel season when the Eurotariff and associated transparency measures are required).

Regarding competition from other service providers, I/ERG notes the potential for competition from mobile VoIP via 3G networks or WiFi hotspots (which should be borne in mind if regulation of packet data is considered necessary, because that would affect price of VoIP services). The growth of VoIP for roaming calls is likely to depend on: availability of consumer equipment with VoIP capabilities; quality, linked to infrastructure; commercial incentives for MNOs to allow access to VoIP services; data costs and prices. I/ERG observes the recent increased consumer uptake of smart phones[14] and laptop dongles and USB modems in many countries. But currently some operators block VoIP applications from being used on their network or with any "unlimited" data tariffs, or require payment of a supplement. On quality and commercial incentives, I/ERG understands that widespread use of mobile VoIP may be linked to 3G LTE deployment, when carrying voice over an IP

[14] For example, see www.symbian.com (Strategy Analysis and Yankee Group) and Gartner, "Key Issues for Mobile Devices 2008", 2 April 2008

network may release capacity for innovative services. But this means it is likely to occur after any period of extension of the current Regulation (e.g. around 2013 – 2015)[15].

I/ERG notes that it is typically quite difficult for mobile providers to significantly increase prices once they have reduced them and consumers have become accustomed to the lower prices. This may be weaker for voice roaming services considering the rather low level of competition and innovation in identified to date. Moreover, there is a risk that even if wholesale and retail charges are sticky, further cost reductions would not be passed through to consumers in the absence of regulation. On that basis, I/ERG considers it would be reasonable to extend the Eurotariff in duration.

Nevertheless, if we consider the arguments set out above, even with extended price regulation, operators may have low incentives to reduce charges further, especially at the retail level, despite the fact that their unit input costs will continue to fall (see question 24): where competitive forces at the retail level are weak, it is hard to see the justification for removing retail price regulation once imposed. I/ERG would strongly wish to avoid near-permanent price regulation of the roaming market. In this sense, while I/ERG recognises the case for price regulation at the moment, it is of high importance, looking forward, to explore alternative possibilities for opening up the retail voice roaming market to competition, in order to bring medium to long-term competition and underpin the removal of price regulation as soon as possible.

Question 22: Should wholesale regulation be maintained and, if so, for how long? If not, why not?
What is your estimate of the share of total wholesale roaming capacity that is captive, i.e. produced on an intra-firm basis rather than purchased as an external input factor?

Wholesale Pricing Obligations

As for retail regulation, when considering whether price regulation of wholesale voice roaming services should be maintained after expiry of the Regulation in June 2010, I/ERG notes that the arguments advanced for adopting the current measures provide an initial benchmark.

In its 22 March 2006 response to the Commission's Call for Input on its proposed EC Regulation in the International Roaming Market, I/ERG considered competition concerns existed primarily at the wholesale level. Initial analysis of data collected in early 2005 to inform ERG's Common Position on wholesale international roaming[16] suggested that wholesale rates were several times above cost and appeared to be holding up retail roaming prices. Furthermore, based on trends, there was no reasonable expectation that a reduction of wholesale charges would take place quickly.

This was particularly an issue for retail roaming services for making calls. A wholesale charge (Inter-Operator Tariff, IOT) is payable to the host network for calls made and represents a significant input. The apparently high wholesale prices were clearly underpinning retail prices. An IOT is not payable for calls received, however, where incremental costs are lower. For these calls, the underlying wholesale input is call

[15] See Analysys Research, "Forecasting the Commercial Impact of Wireless VoIP in the USA and Western Europe", 2006. But by 2015 Analysys predicted that 33% of mobile voice traffic in Western Europe will be carried using VoIP. 'Western Europe' is not defined in the report.
[16] ERG document ERG(05)20Rev1 - available at: www.erg.eu.int/doc/publications/consult_wholesale_intl_roaming/erg_05_20_rev1_wir_common_position.pdf

termination on a foreign MNO's network (typically regulated across the EU), plus international transit (typically competitive) although this is not always incurred, and some additional other costs such as call origination on the MNO's core network. It may be argued that, even where operators had lower wholesale costs, this was not reflected in the relatively high retail price for receiving roaming calls.

In adopting the current Regulation, it was considered that price regulation at the wholesale level was necessary to ensure that all operators were able to access lower wholesale rates, and the benefits could be passed through to consumers in the form of lower retail roaming prices. If wholesale roaming services are not competitively supplied, this may hinder development of competition in downstream services. Furthermore, if retail price regulation is to be imposed, in the absence of effective competition in the wholesale market, it risks squeezing operators' margins to the point where, particularly for smaller, newer and independent players, it is not commercially viable to offer a retail roaming service to certain types of consumers, e.g. pre-pay subscribers.

The basis for removing wholesale regulation would be evidence that charges are not significantly above costs and that competition exists in order to maintain that. In particular, it would be necessary to have evidence that smaller, newer and independent operators are able to access reasonable wholesale rates.

The average wholesale cap for 30 August 2007 – 30 August 2008 is 30€c per minute for the provision of a regulated roaming call. It applies to the average of the charges between any two operators over a twelve-month period. ERG Benchmark Data Reports indicate that average wholesale charges (between non-group companies) have been decreasing steadily and markedly from 46€c pre-Regulation (Q2 2007), to 39€c (Q3 2007), 27€c (Q4 2007) and 25€c (Q1 2008), an overall reduction of around 46% (the charges negotiated for 2008 are likely to take into account to some extent the August 2008 reduction in the wholesale cap to 28€c per minute). Eight countries reported an average charge that is 5€c or less than the upcoming 28€c cap. The distribution of average charges by country is narrower since the Regulation has come into effect.

I/ERG welcomes these lower charges. Based on available evidence, however, it considers wholesale regulation should be maintained to ensure that all operators are able to access lower rates, comply with the regulated Eurotariff and make more attractive retail offers to consumers, without risking margin squeeze. This is especially important for smaller, newer and more independent operators.

As above, I/ERG notes that only data for the first six months of implementation of the Regulation can be drawn on at this stage, however. Therefore, I/ERG recommends that, as far as possible, subsequent ERG Benchmark Data reports should be taken into account before a final decision is made on whether to extend wholesale price regulation beyond 2010.

Captive wholesale roaming capacity

As a proxy for captive wholesale roaming capacity, I/ERG has calculated group-only wholesale minutes as a percentage of total of wholesale minutes, using information from the ERG Benchmark Data Report. This suggests that around one third of wholesale roaming capacity was group-only in quarter four 2007 and quarter one 2008.

Question 23: What would be the effect if the retail pricing provisions of the Regulation were to expire, while the wholesale price obligations in Article 3 (adjusted as appropriate) were maintained? If so, for how long should the wholesale price obligations be maintained?

The basis for maintaining wholesale regulation and lifting retail regulation would be to ensure that all operators are able to access lower wholesale rates, and to rely on market forces to play a strong role in ensuring they are passed through to consumers in the form of lower retail roaming prices. We may refer to the principles underlying the Framework, which provide that retail regulation should only be imposed to the extent that wholesale remedies are ineffective.

Indeed, in response to the Commission's Consultation of 3 April 2006 on the current Regulation, I/ERG[17] recommended that this principle should be respected in framing the Regulation on roaming. It noted that wholesale roaming markets are very similar throughout Europe and are susceptible to a uniform approach. We considered this was not true of retail markets, however; consistency with principles of best regulatory practice required flexibility to take account of national circumstances.

I/ERG proposed a robust and authoritative index of retail international roaming charges so that movements in average charges could be monitored over time. In particular, this was intended to give transparency about whether wholesale price reductions were being passed through to reductions in retail roaming prices. I/ERG has put this into action in the form of the biannual ERG Benchmark Data Reports on International Roaming.

I/ERG recognised that if market forces proved insufficient to guarantee substantial pass through of wholesale reductions to the retail level within a relatively short period, retail price control might be needed.

In adopting the current Regulation, Council and the European Parliament considered experience had shown that reductions in wholesale prices may not be reflected in lower retail prices because there was a lack of incentives for this to happen. Retail price regulation was introduced from the outset.

On the available evidence since introduction of the Regulation, the level of competition and innovation in retail roaming tariffs does not seem sufficient to justify lifting retail regulation. See the response to question 20 for more detail.

Question 24: In the event that you consider that the duration of the Regulation should be extended beyond 30 June 2010, do you think the Regulation's price caps should be adjusted to reflect market and regulatory developments in the mobile sector? If not, why not?

Question 25: If yes, what would you consider to be the right level and periodicity of those price ceilings over the extended duration of the Regulation?

Setting wholesale and retail caps

The current regulation of voice roaming tariffs is an internal market measure, especially motivated by consumer protection. This means taking a view about what charges are reasonable.

[17] I/ERG response to the European Commission's second phase public consultation on a proposal for a Regulation (EC) of the European Parliament and of the Council on mobile roaming services in the single market, 11 May 2006. The Spanish member of the ERG, CMT, could not subscribe to this response.

The current average wholesale caps were set to take account of the different cost elements involved, in particular origination and termination costs, and including overheads, signalling and transit (Recital 21).

The maximum Eurotariff cap should "reflect a reasonable margin over the wholesale cost of providing a roaming service, whilst allowing operators the freedom to compete by differentiating their offerings and adapting their pricing structures to market conditions and consumer preferences" (Recital 19). "A reasonable margin between wholesale costs and retail prices should ensure that operators cover all their specific roaming costs at retail level including appropriate shares of marketing costs and handset subsidies and are left with an adequate residual to yield a reasonable return" (Recital 23).

The average wholesale cap should decrease each year to account for falls in termination rates, and the maximum Eurotariff cap should decrease correspondingly (Recitals 21 and 23).

The available evidence since implementation of the current Regulation and an initial exercise to estimate the costs over the period 2010 - 2013, leads I/ERG to consider that that the wholesale and retail price regulation of voice roaming should be continued after 2010. Falling input costs mean that there should be downward adjustment of the wholesale and retail caps.

For the purposes of illustration, I/ERG has assumed that any extension of the Regulation would be for a further period of 3 years.

Wholesale caps

As stated in its response to the Commission's consultation of 3 April 2006[18], I/ERG considers the MTR benchmark is an expedient proxy for the cost of provision of wholesale voice roaming services. I/ERG analysis, or the independent work of Copenhagen Economics (which was broadly similar), proposes applying one MTR to account for the termination rate, and one to account for access and origination costs. Other, mostly small, costs have so far been assumed to be covered by inbuilt conservatism in the formula since a proportion of calls terminate on fixed networks; consequently, the average cost of terminating a roaming call in a particular country is materially less than the relevant national average MTR. The 75th percentile of the distribution of European national MTRs should be applied to acknowledge the fact that some MNOs face country-specific higher costs. Because the actual costs of an efficient MNO should be below this benchmark, this formula should prevent any MNOs from being required to offer services below cost. If so, this provides an additional degree of conservatism in the formula. I/ERG notes however that the miscellaneous costs would not be expected to fall in line with falls in termination rate. The degree of conservatism in the formula would therefore be expected to reduce over time and could ultimately be exhausted. I/ERG will be looking further into this although it does not expect the analysis to have a major effect on its initial conclusions.

[18] I/ERG response to the European Commission's second phase public consultation on a proposal for a Regulation (EC) of the European Parliament and of the Council on mobile roaming services in the single market, 11 May 2006. The Spanish member of the ERG, CMT, could not subscribe to this response.

As at January 2008, the average domestic MTR for the EU and relevant EEA countries was about 9€c per minute[19]. The 75th percentile was at 10.1€c per minute. I/ERG notes that the average domestic MTR is falling each year as the National Regulatory Authorities continue their current MTR regulation. Based on trends indicated by the ERG MTR Benchmark[20], I/ERG expects average decreases of 1€c per year from 2008 onwards. The distribution of rates has also progressively become narrower. On this basis, the 75th percentile ought to decrease at least as quickly as the average. Therefore, in an initial analysis on the basis of these trends, I/ERG considers that the 75th percentile should not exceed 8€c, 7€c and 6€c respectively at 1 January 2010, 2011 and 2012. I/ERG recognises that some cost components are fixed. This places a limit on the validity of the I/ERG formula and therefore on how far the wholesale caps may ultimately be reduced. At these levels of termination rate, I/ERG believes that there is no material inaccuracy in the formula, however.

Access and origination costs are also likely to fall over time, given technical progress and increases in volumes. I/ERG would expect broadly the same trends to apply as for termination.

During the period up to 2013, the fall in input costs is therefore likely to justify a 2€c reduction each year in the wholesale average charge cap: 1€c for the fall in MTRs and 1€c for the fall in access and origination costs, provided MTRs are set to cover efficiently incurred termination costs and remain an expedient proxy for efficiently incurred access and origination costs.

Starting from the charge caps already set for 2009/10, that would lead to caps of 24€c, 22€c and 20€c per minute respectively for the 3 years. The initial work on the basis of I/ERG's original formula (or the work of Copenhagen Economics) would suggest a materially lower estimate of wholesale costs of around 16€c/min, 14€c/min and 12€c/min for the periods starting 30 August 2010, 2011 and 2012 respectively.

There are two reasons for the difference between the continuation of the glide path established in the Regulation and a cost-based cap. First, at the time the caps were adopted, termination rates had fallen further than expected in comparison to when the I/ERG and independent analysis was carried out. Second (and more significantly), Council and the European Parliament chose to adopt figures that were known at the time to provide an additional margin above costs.

The European Commission has recently published a draft Recommendation on methodology for setting regulated termination charges. If these proposals are confirmed and acted upon by NRAs, the expectation is that the European average termination rates will fall more steeply than recent trends. However, under these circumstances, the I/ERG methodology (and the Copenhagen Economics methodology) would no longer necessarily remain valid. Therefore, direct read across from the forthcoming Commission Recommendation to costs of provision of roaming cannot be assumed.

As under the present Regulation, I/ERG considers the wholesale cap should continue to be the maximum average charged per-minute between any pair of operators within the Community over a specified period. This provides MNOs with flexibility in the sale and purchase of wholesale roaming between each other, allowing them to set rates below the level of the cap for specific routes that are lower cost or more competitive, for example. Implementation of this system has been generally smooth.

[19] See the ERG Benchmark MTR Report, "ERG (08) 17 MTR update snapshot final 080604" at http://erg.ec.europa.eu
[20] ERG publishes its MTR Benchmark Report in January and July of each year at http://erg.ec.europa.eu

Retail caps

Outgoing calls

For outgoing calls, the retail mark-up covers retail-specific costs (i.e. a contribution towards commercial costs[21], e.g. advertising, contribution to acquisition costs). The approach taken by Council and Parliament was broadly in line with the recommendations of Copenhagen Economics. I/ERG considers it should reflect variations in costs across Europe, noting that some providers face higher country-specific costs, and allow a reasonable contribution to the operators' returns on investment. In particular it should ensure that any costs that might have been picked up in a detailed cost-modelling exercise are covered. Lastly, it is important that it leaves operators room to compete below the cap on the Eurotariff itself, and scope and an incentive to compete on alternative roaming tariffs (i.e. if the Eurotariff cap was set very low, operators would have no scope to compete by offering a Eurotariff or alternative EU/EEA tariff below the cap).

If the average wholesale cap from June 2010 – June 2013 were to be reduced by 2€c per year, in line with the analysis above, I/ERG's initial analysis suggests it would be consistent to reduce the Eurotariff cap for outgoing calls by 2€c – 3€c each year. Starting from the Eurotariff caps already set for 2009/10 and assuming a 2€c annual reduction, that would give 41€c, 39€c and 37€c per minute respectively, if the Regulation were to be extended for 3 years.

Alternatively, if the wholesale caps were to be based on the original I/ERG formula (or the work of Copenhagen Economics), allowance of the same retail mark-up would lead to maximum Eurotariff caps on outgoing calls of 33€c, 31€c and 29€c per minute for 2010, 2011 and 2012 respectively.

Incoming calls

No wholesale roaming charge or IOT is payable by the home network to the host network of an incoming call. There are additional costs involved in terminating a roaming call compared to a domestic call, which are incurred by the recipient's home operator and justify a charge for receiving roaming voice calls. As I/ERG observed in its 22 March 2006 response to the Commission's call for input, the objective of any regulation should be to ensure that services are priced taking into account underlying costs and any justifiable costs should be recovered from those who cause the costs to be incurred[22]. For received roaming calls, the home operator effectively terminates the call on its own network (for which it receives an MTR), and then originates a new call destined for the host network on which its subscriber is roaming (for which it pays an MTR). The additional costs include, in particular, origination and international transit costs, net of any difference between the overseas termination rate and the actual termination costs. They are not generally covered by the mobile termination rate set for the subscriber's home network. I/ERG has so far considered that the net costs should not exceed one MTR (assuming again that the 75 percentile of the European distribution is chosen).

[21] Impact assessment p.23

[22] If roaming customers did not have to pay to receive calls at all, it is likely that demand for such services would grow; subscribers may substitute making calls for receiving calls, by using either formal, or informal, 'call-back' arrangements. Operators may cease to provide an international roaming service, at least to some subscribers. Or the recovery of the inherent of offering such a service may be sought through an increase in other charges.

Again, ERG will be re-analysing whether this assumption remains valid as European MTRs decrease.

Retail costs, almost all of which represent a contribution to common costs, should also be allowed for. A common approach to cost recovery is an equal proportionate mark-up, which would result in a lower mark-up for calls received. This approach was not taken in setting the Eurotariff caps in 2007, the implied retail mark-ups being roughly the same for roaming calls received and made. There is, therefore, scope for lowering the caps for receiving calls further than those for making calls. However, if the same approach to retail mark-up were to be taken as in 2007, the annual cost reduction suggested by I/ERG's initial analysis would nevertheless justify a reduction in the Eurotariff caps for receiving calls of around 1€c – 2€c per year, that is 17€c, 15€c and 13€c for the years 2010-11, 2011-12 and 2012-13 respectively (taking 2€c per year).

Question 26: Taking into account the interests of mobile users and operators and the principle of proportionality, should the obligations regarding transparency contained in Article 6 of the Regulation be maintained in place (suitably adjusted), even if the price obligations themselves are allowed to expire? If so, what adjustments to those transparency obligations would need to be made?

Question 27: Do you consider that the transparency requirements of the Regulation should be improved and, if so, how?

Transparency Provisions

As I/ERG noted in its response to the Commission's consultation of 3 April 2006[23], before the current Regulation was in place, consumer surveys indicated that a high proportion of mobile subscribers were unaware of retail roaming prices. I/ERG is not aware of evidence that this has changed. As mentioned elsewhere, once it has been in place for a sufficient period, it may be appropriate to conduct further research to assess the effects of the Regulation, including the transparency measures on consumer awareness and behaviour (I/ERG notes that summer 2008 will be the first full peak travel season when the Eurotariff and associated transparency measures are required).

I/ERG considers that it is vital to enable consumers to make informed choices about roaming services, and that increased consumer awareness may place pressure on operators to increase competition and innovation and lower roaming charges. I/ERG recommends, therefore, that the current transparency provisions should be maintained, even in the event that charge regulation is removed. The ERG's Benchmark Data Report on international roaming monitors application of the transparency provisions by operators in the Member States. A few operators had technical difficulties introducing the transparency measures by the deadline, but I/ERG understands these have been resolved and the provisions are working well. We consider no adjustments are required, therefore.

I/ERG also recommends the extension of transparency measures to cover SMS and data roaming, as explored in the scope of other questions in this consultation (e.g. the push SMS message could also provide basic information on prices for SMS and data roaming).

[23] I/ERG response to the European Commission's second phase public consultation on a proposal for a Regulation (EC) of the European Parliament and of the Council on mobile roaming services in the single market, 11 May 2006. The Spanish member of the ERG, CMT, could not subscribe to this response.

Section 4[24]

Extension of the Scope of the Regulation: Data Roaming Services

Question 28: It appears that there are still very significant differences between data roaming prices and those applying at national level. Respondents are invited to explain (preferably using data based on their latest standard and special domestic and roaming offers) how such significant differences can be justified.

Comparison of roaming prices and domestic prices

Average EU/EEA retail prices

For average roaming data prices, this section draws on the results of the two ERG Benchmark Data Reports conducted to date (for quarters two and three 2007, and for quarter four 2007 and quarter one 2008 respectively), to give an indication of trends for a 12-month period. Because the prices for data roaming services are not subject to the current Regulation, the information for the first ERG Report was collected on a "best efforts" basis, and should not be considered as comprehensive. In particular, average wholesale data roaming prices for Q2 2007 and Q3 2007 were not included in the Report; the average EU/EEA results are used in this response as indicative only. The second ERG Report can be seen as establishing the benchmark from which to measure future trends.

The two ERG Benchmark Data Reports show an overall trend of decreasing average European retail prices (average of group and non-group prices), with averages of 5.81€/MB (Q2 2007), 4.62€/MB (Q3 2007), 4.35€/MB (Q4 2007), and 3.50€/MB (Q1 2008) ERG does not consider that too much weight should be placed on the earlier figures because of data accuracy problems described in its first Benchmark Report. Nevertheless, it is clear that average prices per MB have fallen significantly over the year.

Group and non-group retail prices are available separately for Q4 2007 and Q1 2008, and show an average decrease from 2.73€ to 2.06€, and from 6.12€ to 5.41€ per MB, respectively.

Overall, this provides evidence that the market has responded to some extent, at least in most countries, to the calls from political authorities and NRAs for cuts in data roaming rates. I/ERG notes that significant retail price reductions and changes to tariff structures have been announced recently and many will take effect as of the peak summer travel season 2008. The effect on average prices should be apparent from the next ERG Benchmark Data Report for April – September 2008.

The situation varies across Europe, however; I/ERG notes that behind the EU/EEA average prices is a wide distribution of average retail prices by country.

If we look at the most recent figures of average group prices for quarter one 2008, they show highs of 6-10€ per MB in 8 countries. On the other hand they show lows of under 3€ per MB in 10 countries. Prices seem to have fallen between Q4 2007 and Q1 2008 in around 16 countries, and increased in 4 countries. Considering average non-group prices, there are

[24] UKE, Polish NRA, does not endorse the data roaming part

highs of 6-14€ in 16 countries, and lows of under 3€ in only 3 countries. Prices appear to have decreased between Q4 2007 and Q1 2008 in around 10 countries, and increased in 1. The higher level of non-group prices highlights the fact that more attractive retail data roaming offers are often limited to partner networks, which may only be available in some Member States.

Finally, if we look at the trends in average group and non-group prices over the four quarters of Q2 2007 to Q1 2008, we may distinguish two groups of countries:

(1) 17 countries where retail data roaming charges clearly decrease over the year (prices in a couple of countries remain especially high, however)

(2) 12 countries where retail data roaming charges are fairly static, or follow an unclear trend over the year

For countries where average prices are low or seem to be falling, I/ERG notes the possible effect of increases in total volumes for data roaming on the apparent average price (ERG divides total data revenue by total volume to generate the average price). The second ERG Benchmark Data Report suggests a significant increase in the volume of all data roaming services in Member States from around 25.7 million MB in quarter two 2007 to 61 million MB in quarter one 2008. This may be linked to new marketing strategies, new tariff levels and structures or increased consumer access to related technology, in terms of equipment price and functionality, and improving network speeds. Moreover, this trend may apply to certain types of data roaming over others – I/ERG notes the increasing use of data roaming via a laptop and dongle (Mobile Broadband) in some Member States, which is suited to higher volume data sessions and is more commonly offered on an “unlimited” tariff than other data services. Therefore, it is unclear to what extent the unit price reductions observed derive from a change in the balance of use of the different roaming data services, as opposed to an overall reduction in prices, as I/ERG would expect lower volume data activities to attract a higher per unit price to a reasonable extent so that they are commercially viable.

For countries where average prices remain high or are not being reduced, on the evidence of the available data, the benefits obtained by operators through the observed reductions in wholesale charges (see part ii) have not been passed onto consumers, which suggests a competition problem at the retail level. The differences between the two groups of countries may reflect the different stages of evolution of national markets, and may be addressed over the coming months. Or they may reflect the different status of the mobile markets, for example they may suggest oligopolistic features that mean lower wholesale charges are less likely to be fed through to the retail level. Accordingly, whereas there are some signs that the problem of apparently high retail prices will be resolved or reduced in some countries in the absence of price regulation, in other countries, so far there is little evidence to support this.

If we compare average domestic and roaming retail data prices, in many countries, average roaming prices are around 4-6 times higher[25], and in some countries higher still. I/ERG notes, however, that close comparison between domestic and roaming retail rates presents serious difficulties due to the many different tariffs (e.g. levels and structures of bundles and “unlimited” tariffs, prevalence of linear rates per MB) and service types (e.g. MB speed differences) available for domestic and roaming services.

[25] Data presented by Commissioner Reding at the Mobile World Congress, Barcelona, 11 February 2008

Average EU/EEA wholesale prices

In 2002-2003, wholesale rates were not subject to discounting, so that visiting networks bought roaming data services at, on average, 9€ per MB[26]. Since then, widespread discounting seems to have occurred. Arguably, this is due to the development of traffic direction techniques, which may have introduced a certain amount of competition into the market.

The results of the ERG Benchmark Data Reports covering quarter two 2007 to quarter one 2008, suggest a trend of decreasing average European non-group wholesale charges with averages of 3.22€/MB (Q2 2007), 2.92€/MB (Q3 2007), 2.55€/MB (Q4 2007), and 2.00€/MB (Q1 2008).

If we compare the figures for Q2 2007 and Q1 2008, there has been a significant decrease of around 38% in average wholesale charges across Europe. Moreover, average wholesale prices have decreased in all countries covered by the Reports. Wholesale charges have also become more homogenous. Although 9 countries reported average charges of over 6€ per MB in Q2 2007, no country indicated an average above 6€ per MB in Q1 2008.

Whereas the trends of average prices in different EU/EEA countries differ significantly in the case of retail charges, for wholesale charges, the trend is much more uniform (i.e., an overall decrease). This may reflect more widespread competition at the wholesale level, although it is a little too early to draw this conclusion. Retail reductions can be expected to lag wholesale reductions to some extent; pass-through is unlikely to be instantaneous. A stronger conclusion may be available after the next ERG Benchmark Data Report. If lower wholesale rates and pass through of those to the retail level are not apparent in the coming months, I/ERG considers the case for price regulation will be stronger (at present it is finely balanced).

The comparison of roaming and domestic wholesale data rates is problematic as no domestic services are entirely equivalent. Nevertheless, based on evidence from a few Member States, I/ERG expects that the difference between the wholesale charges for data roaming services and the corresponding domestic wholesale charges cannot be justified by the additional costs associated with roaming.

Special roaming and domestic offers

Operators in many EU/EEA countries have announced new retail and wholesale data roaming tariffs since quarter two 2007, especially during quarter one 2008. Some of the most significant changes apply at the retail level as from the peak summer travel period 2008; I/ERG expects those to be apparent in the third ERG Benchmark Data Report for April 2008 – September 2008. I/ERG welcomes these changes but notes that, at the retail level in particular, they have not been made across the EU/EEA: as described above, the ERG Benchmark Data Reports suggest that several countries still have high average prices, increasing average prices, or both. As noted above, they are often limited to partner networks, which may only be available in some Member States.

The new retail roaming offers involve reduced prices and new tariff structures, for example, a reduction in retail price per MB for linear tariffs; daily or monthly bundles; daily or monthly "unlimited" offers (subject to "fair use"); use of domestic allowance on partner networks; lower charging increments, i.e. in KB. An alternative offer is roaming on partner WiFi hotspots at domestic prices.

[26] ERG data collection exercise, December 2004.

New wholesale roaming offers include reduced per MB linear charges; stepped structures with declining rates per charging level; lower charging increments, i.e. in KB. Offers are reciprocal.

The level and structure of new domestic retail offers, especially the increasing availability of "unlimited" tariffs in many countries to support more frequent, higher volume use, can be seen to have influenced developments in roaming retail and wholesale tariffs. Roaming retail charges for "unlimited" offers are usually lower and usage limits higher than at the domestic level; whether the size of the differences in price may be justified by the costs involved in data roaming compared to domestic services is explored below.

Possible justifications for the differences

I/ERG's response to question 32 discusses the costs involved in providing domestic and roaming data services.

Although NRAs have not generally attempted to build robust models of the costs of packet data transmission, on available evidence, I/ERG considers that the costs of provision of data roaming (including a reasonable allowance for common costs and returns) are unlikely to explain the differences between domestic and roaming prices observed to date.

On the basis of the first and second ERG Benchmark Reports, I/ERG suggests the following factors may contribute to the current level of roaming prices and the difference with domestic prices.

Firstly, like for voice and SMS roaming, the higher prices for data roaming may derive from the generally incidental and low use of roaming services compared to domestic services. Consumer surveys indicate that consumers pay little attention to roaming tariffs when making their initial choice of network operator, and are unlikely to switch network in response to a roaming tariff change. Also, roaming users may perceive roaming data services as value-added services in comparison to domestic data services, which allows operators to charge higher tariffs. On the other hand, the two ERG Benchmark Data Reports show steadily increasing volumes for data roaming services in most countries. Whereas voice and SMS markets seem mature, arguably data is an emerging service with potential for growth; operators may have commercial incentives to reduce prices at wholesale and retail levels to increase revenue through increased volumes. This may be observed for domestic data services. Data networks themselves are improving and new technologies that could foster innovation are being rolled out or are under planning. As explored above, however, there is a group of countries where to date average retail roaming prices are particularly high, increasing, or both.

Secondly, a lack of transparency and consumer awareness of roaming tariffs may also explain the price differences between roaming and domestic tariffs and demand behaviour/performance. In fact, there is a double problem of transparency in this area. Consumers are often unaware of the unit charge for roaming services. But, more than that, they may have little appreciation of the meaning of the unit for data (MB), compared to units of SMS or minutes of voice. Users may not be used to checking the size of files before opening or downloading them (perhaps due to fixed broadband use) and the amount of data involved in browsing websites or checking e-mails may not be clear to them.

Even for consumers who are aware of file size and their tariff, another transparency issue may arise. Data charges are imposed on the basis of the gross amount of data transferred, which includes transfer protocol overheads in addition to the net size of requested files. Depending on the type of application and the characteristics of the mobile network, among other variables, this may have a noticeable effect on the total amount charged. This is unlikely to be appreciated by most consumers when calculating the expected charge.

Finally, there is also the risk of automatic downloads like software updates, which may take place without the user being aware.
.

Transparency issues are most likely to affect occasional users and those used to "unlimited" domestic tariffs. Although bundles and "unlimited" tariffs are quite common for domestic data services, for roaming data services charges per MB have been the most common retail tariff structure to date. I/ERG notes there have been several recent announcements of bundles and "unlimited" offers for roaming, however, although they may involve lower allowances than domestic tariffs and may be limited to roaming on partner networks.

Due to technical limitations, at this time most operators do not have effective means in place to enable the user to monitor the amount of data consumed or control their choice of tariff in real-time. Some operators are developing and introducing the relevant systems, and I/ERG considers it is feasible for them to be widespread by 2010. See I/ERG's response to question 33 for further detail.

In any case, individual NRAs or the Commission may wish to monitor the differences in prices between domestic and roaming data services and how they evolve (again, the comparison is not easily made).

Conclusion

Prices for roaming data services appear to be many times above prices for domestic data services at both retail and wholesale levels. These price differences are unlikely to be justified by differences in costs. However, it seems there are some competitive forces for data roaming that do not exist for voice and SMS roaming, as explored further in question 29. I/ERG notes that these are not evident in all countries at this stage.

Question 29: To what extent is regulation of data roaming services necessary to tackle the problem of high charges? To what extent does competition exist for such retail and/or wholesale services and to what extent can traffic steering be utilised for data services to the benefit of consumers?

Any regulation of data roaming should have the principle aims of ensuring consumer protection, safeguarding competition and preserving incentives for innovation and consumer choice.

As explored in the analysis below, these policy objectives and regulatory principles have an important impact on the analysis of the case for regulation of data roaming.

Considerations when debating price regulation

In this context, given the latest price developments observed in the data roaming segment, which show a general trend of decreasing average wholesale prices and, in many countries, positive moves to lower prices at the retail level, plus the ongoing technology and market developments, there are some arguments to suggest that the imposition of tariff regulation at this stage may be premature.

On the other hand, the level of prices observed in some countries in particular remains of significant concern. It would be equally premature to conclude that price regulation will be unnecessary. Much more progress needs to be evident across the EU/EEA as a whole (and, in particular, in those countries where prices are highest) before price regulation should be ruled out. Prices still seem very high considering the available evidence on costs and in several countries the lower prices at the wholesale level have not been passed through to the retail level.

I/ERG notes that final decisions by Council and the European Parliament on any future legislation are not expected to be made before March 2009. Further evidence, in particular from another ERG Benchmark Data Report, will be available in time to inform those decisions.

(i) Signs of an emerging or innovative market

It is important to assess the extent to which this is an emerging or innovative market.

In contrast to SMS and voice, there appear to be some real commercial incentives for industry to cut data roaming rates, aside from regulatory pressure:

- Operators are still testing different business models and packages. The innovation in charging structures may suggest that operators still have not established the optimum retail pricing level and structure.

- Domestic mobile data services are now growing fast in many countries, probably driven to a significant extent by recent price cuts and increased consumer access to related technology, like smart phones, laptops, dongles and USB modems. This may be linked to increasing roaming volumes.

- Data networks themselves are constantly improving. Wider 3G coverage enabling a faster and more reliable data service is a recent event, and coverage is still being increased in many countries. Moreover, the data segment can be considered to require further, significant investment, taking into account that new infrastructure for high-speed data services that can foster innovation and increased uptake is being rolled out or is under planning, such as HSPA, GSM re-farming, and eventually LTE.

From a regulatory perspective, it may be argued that price regulation could hinder innovation, or investment before the market for high-speed data services has matured.

In that context, it is necessary to assess the extent to which growth and innovation in data services leads to lower prices for roaming data services, especially in those countries where prices are currently very high. The question of infrastructure investment should also be researched in more detail, to understand to what extent the investments are genuinely new and risky. . In this context, the contribution of data roaming revenues to investment and the likely impact of any price regulation should be considered: for most operators, revenue from roaming data services appears relatively low compared to revenue from domestic data services (or many other services).

(ii) Evidence of competition

Unlike SMS roaming and voice roaming pre-Regulation, some signs of competitive behaviour may be observed in the provision of data roaming services, in most EU/EEA countries.

As discussed in question 28, although most prices remain high considering the available evidence on costs levels, recent wholesale prices are progressively being lowered across the EU/EEA, which is reflected in lower retail tariffs in most countries. This suggests a degree of competition is widespread at the wholesale level, and to date is present in some countries at the retail level. However, it is difficult to assess to what extent threats of regulatory intervention have influenced the recent price cuts. In that respect, I/ERG notes that there has been no significant change to market structure in the last year, which would be an indication of increased competition.

There is a degree of competitive constraint on retail data roaming prices, at least part of the time, which does not apply for voice or SMS roaming. Customers travelling abroad may have other routes to use data services on their own mobile handset, PDA or laptop. For example, consumers may take advantage of Wi-Fi hotspots or fixed line access in hotels. Using a local SIM card for mobile broadband is more attractive than for voice or SMS services, because the issue of call back does not arise: for voice and SMS, the consumer changes phone number if they change SIM. These factors indicate that the data roaming market may evolve to be more competitive in the medium to long term.

(iii) Availability of lower retail prices across Europe

According to the second ERG Benchmark Data Report, average wholesale and retail charges seem high compared to available evidence on costs. On the other hand, average prices per MB are falling in almost all Member States at the wholesale level, and in most countries at the retail level.

However, I/ERG is concerned that, despite wholesale reductions, average retail prices in a number of countries are at an especially high level and have remained fairly static, follow no clear trend, or have even increased (see question 28).

This is in line with the Commission's observation in the present Consultation that, *"over the past months, operators have also introduced different wholesale offers which may be considered as offering a prospect of lower charges. However, one still has to assess whether such offers can be translated into attractive retail tariffs (…)".*

The apparently high level of wholesale and retail charges compared to available evidence on costs, and any failures to pass lower wholesale charges through to retail prices in some countries, suggest competition failures may exist for data roaming services at the retail level. This makes the case for price regulation stronger in order to secure lower retail prices for all consumers. Nonetheless, considering a Europe-wide solution, price levels and trends, and market and technology developments across Europe should be taken into account to ensure that any regulation is targeted and proportionate.

(iv) Availability of lower wholesale charges to small, non-aligned operators

At the wholesale level, according to the second ERG Benchmark Data Report, average wholesale charges per MB seem high compared to available evidence on costs, but are falling in almost all Member States.

However, I/ERG is concerned that lower wholesale charges should be available to smaller, newer and more independent operators. Lower wholesale charges are a prerequisite of lower retail rates (although they are not a guarantee). If this is not the case, it could make the case for price regulation stronger at the wholesale level.

In some Member States, a smaller MNO that is not part of a larger group or alliance might have difficulty negotiating lower wholesale tariffs from foreign MNOs, which would affect its ability to compete in the market and offer lower retail rates to consumers. For data roaming, there is the risk that the user might move to an area where their operator does not have a specially negotiated IOT rate with the available network, and so might incur a higher wholesale charge. This would increase the average wholesale payments made by the customer's home provider, which might impact on the retail rate they are able to offer to consumers.

On the last point, it is possible that group and alliance MNOs might seek to keep their roaming traffic 'on-net' through attractive retail offers, reducing intra-group or intra-alliance wholesale prices internally towards cost levels while, to an extent at least, maintaining the level of prices to MNOs outside their group or alliance. Arguably, this may be evidence of competition, however: it is more efficient for a group or alliance to keep traffic on-net where marginal costs are lower.

(v) Design of price regulation

If we consider the experience of voice roaming price regulation so far, it has brought direct and prompt benefits to consumers in the form of lower prices. In relation to the data roaming segment, however, I/ERG considers it important to note that the design of price regulation could be confronted with extra difficulties compared to voice and SMS, the most significant being the different types of service at the retail level (mobile Internet, mobile e-mail, and mobile Broadband), high heterogeneity in consumer and usage profiles and, at this stage, the fact that product marketing strategies and tariff structures are still evolving.

Currently, there seems to be a tendency towards non-linear and session-based tariffs. These may well be economically efficient, given the wide variety of retail data services. For example, under a linear tariff structure (uniform price per MB), bandwidth-light applications (e.g. scanning of emails on a PDA) may prove commercially unviable while at the same time bandwidth-hungry applications (e.g. downloading of large files) may prove prohibitively expensive.

Under such circumstances, application of a well-designed price control that avoids regulatory harm would be difficult, even if the underlying costs were better understood. In this respect, it should be noted that packet data services are not regulated at domestic level in any of the EU/EEA countries, rendering the process for designing a specific solution for price regulation more complex and prone to inaccuracies and, therefore, creating a higher risk of ineffective regulation than for SMS and voice. Some forms of price regulation carry fewer risks than others, as analysed in the answers to questions 31 and 32.

I/ERG considers that thorough analysis is required to support any eventual price regulation. Initial views on possible methods of wholesale and retail regulation are described in questions 31 and 32.

(vi) Regulation should ensure sustainable competition

As noted above, so far voice roaming price regulation has brought direct and prompt benefits to consumers in the form of lower prices. I/ERG considers price regulation can be necessary for a limited time period if competition and lower wholesale and retail prices are not otherwise achievable.

However, available evidence also indicates there are unsolved competition failures in the voice roaming market, as around two thirds of operators have set their charges at or near the maximum wholesale and retail caps. This may be a question of time. One possible conclusion is that price regulation does not necessarily create incentives for operators to compete and innovate below the caps. In that case, a regulatory model based on tariff caps may be insufficient to bring effective, sustainable competition, and it is worth exploring different regulatory solutions at both wholesale and retail levels for the medium to long term.

A possible alternative to induce more competition in data roaming services might be to enable roaming users to choose to use the domestic data services of the visited country, with or without changing their SIM card (which could be a data-only card). A broker could have the primary role of authenticating users. This may require technological and regulatory adjustments, and requires significant further consideration and market analysis.

In fact, as mentioned in the I/ERG response of 22 March 2006 to the Commission's previous consultation, there is merit in considering structural solutions with a longer-term perspective. Today, with the Regulation in force for voice and with data services emerging as those with the biggest development potential and yet with the highest concern as to end user prices, it seems that new approaches could be explored firstly with reference to the data segment, in parallel to any other form of regulation.

Conclusion

In conclusion, the specific features of the packet data market must be assessed when considering the case for price regulation in order to ensure the aims of safeguarding competition and ensuring consumer protection are met. It is necessary to avoid the risk of regulatory harm in terms of hampering investments and innovation, especially given the observed signs of competition and innovation at the wholesale level, and for many (not all) countries at the retail level.

Regardless of the specific form that any price regulation might take, any intervention should ensure that all operators are able to access lower wholesale charges, as a prerequisite of lower retail prices, and that reductions in wholesale charges are passed on to consumers.

Overall, I/ERG considers the question of price regulation is finely balanced and this is not the right time to make a final decision to rule it in or out. I/ERG hopes that further reductions in prices will be apparent by the time of the next ERG Benchmark Data Report (covering the peak travel period April – September 2008). This Report will be available to inform the main stages of negotiation of any proposal to extend the Regulation.

Whether price regulation is ultimately deemed necessary or not, I/ERG recommends strong regulatory action on price transparency (see question 33). In this case, regulation can provide extra consumer protection with low regulatory intervention. In particular, this would address the problem of the "bill shock", through measures intended to provide consumers with real-time consumption information and billing control. This action will also increase consumer awareness, facilitating tariff comparisons and increasing the scope for competition.

In any case, alternatively or complementarily to the measures considered, it is of high importance, from a medium to long term perspective, to explore different regulatory solutions not based on a direct intervention on charges, to foster sustainable and effective competition.

Question 30: To what extent do potential substitute services impose competitive constraints on data roaming services? To what extent might future market or technical developments tackle the problem? Are regulatory solutions other than price regulation possible? If so, please explain.

(i) Potential substitute services

As mentioned in question 29, unlike voice and SMS roaming, data roaming faces potential competition from other forms of access, such as wireless access (WiFi) and broadband access from fixed locations (e.g. in hotels). Indeed, it appears that this kind of access is generally developing and spreading, although no exact figures on this are available at this stage. Another option is a local domestic mobile Broadband SIM card.

For the purpose of analysing to what extent such services impose competitive pressure on data roaming services, different factors should be assessed such as their coverage and availability to different types of user (e.g. consumer versus SMEs); technical characteristics like speed and reliability; users' perception of their specific value compared to mobile data roaming, for example, consumer trust in their usual provider and service; and relative prices.

In particular, one of the main features and advantages of data roaming is mobility and this feature is more limited or does not exist for the WiFi and fixed broadband alternatives mentioned. For example, there are differences in WiFi coverage between countries and between urban and rural areas within countries. Fixed services are less common and may be located in places that are less accessible to consumers, like business hotels.

It may also be argued that consumers need to be aware of the availability, characteristics and price of substitutes for competitive pressure to be applied.

(ii) Future market or technical developments

Ongoing market and technical developments make it difficult to predict how the data market will be shaped when mature. However, I/ERG notes that this is likely to be a long-term issue due to ongoing network evolution.

As discussed in question 29, developments affect all aspects of data services: experimentation with charging levels and structures and marketing strategies; recent widespread availability of consumer technology like smartphones and dongles, network improvements including the rollout of 3G and HSPA and testing of LTE, which imply significant investment.

At the retail level, an interesting recent market development is a mobile broadband roaming SIM card that can be used in mobile handsets and laptops for around 1€ per MB, wherever the user is in Europe. This kind of product works better for packet data than for voice services, as there is no need for a number for call back.

Finally, it should be noted that flat rate offers for data roaming are developing – although they are often limited to partner networks, which may be available in some Member States only – and may help prevent the problem of "bill shock".

Therefore, regulation, if any, should be careful not to hinder further development to meet the needs of the future market structure and enable consumers to benefit from well-developed services.

(iii) Regulatory solutions other than price regulation

Prior to any decision on the case for regulation, it is necessary to consider whether price regulation is an effective measure in order to bring sustainable competition to the data roaming market.

As mentioned in question 29, if we look at the impact of regulation in the roaming voice market, which unquestionably has produced a direct lowering of charges, the problem of real competition remains unsolved to date, meaning that if regulation was lifted, it's not clear that any further reductions in cost would be passed through to the retail level.

This suggests that a regulatory model based on tariffs may be insufficient to bring sustainable, effective competition to roaming markets.

Therefore, in order to foster real and medium/long-term competition and remove regulatory intervention as soon as possible, I/ERG sees value in considering other solutions, and proposes working together with the Commission to explore the specific form these alternative solutions could take. I/ERG considers competition based on market forces should be encouraged and promoted and is the best (and possibly the only) alternative to permanent ex ante regulation.

Question 31: Can the problem of high charges for data roaming services be tackled by wholesale regulation alone? If wholesale regulation is to be considered, how should it be constructed? For example, should it be based on linear pricing (i.e. a fixed charge per MB or other charging interval) or should it be non-linear, i.e. with declining rates per MB or other charging interval? What charging intervals should it incorporate (e.g. per 100kb, per MB or other)?

In line with the I/ERG response to Question 29, if price regulation is imposed in the data roaming market, I/ERG considers it is necessary to ensure that reductions in costs and lower wholesale charges are passed through to the retail level.

The main considerations here are: (i) there may be signs of competition at wholesale level[27] but average charges still appear high compared to costs and (ii) in the data roaming segment, similarly to the case of voice, operators in general[28] may have low incentives to pass the benefits of wholesale reductions on to consumers in the form of reduced retail prices.

If we consider voice roaming price regulation to date, around two thirds of countries report average Eurotariff and other EU/EEA roaming tariffs at or near the maximum Eurotariff cap. The same situation could occur in the segment of data transmission. In contrast to voice and SMS roaming, there is the potential for commercial incentives to lower retail data roaming prices, as explored above, but this might vary according to the market characteristics of each country. In particular, MNOs with comparably high market shares operating in oligopolistic markets or MNOs concentrated within inter-operator groups may be reluctant to transfer low wholesale rates to the retail level and provide significant benefits for customers. The less frequent usage of roaming services compared to domestic services and the consequently limited competitive pressure posed by consumers on their home operators may, to some extent, explain this behaviour.

[27] See Question 28.
[28] This is especially true for those countries where retail tariffs have remained particularly high or are increasing despite the reduction in wholesale tariffs. For the rest, we could in any case question the influence of the current pressure put on operators by the regulatory threat.

Wholesale regulation might be an appropriate solution if high retail charges are due to high underlying wholesale charges. In that respect, it seems that wholesale charges are set significantly above costs, although they are falling across Europe.
A further argument for applying wholesale remedies is the possible effect of high wholesale prices on smaller MNOs. A smaller MNO that is not part of a larger group or alliance may have difficulty negotiating lower wholesale tariffs from foreign MNOs, which would affect its ability to compete in the market. For data roaming, there is the risk of the user moving onto another network with which their operator has not yet negotiated a reduced IOT rate (for example because the "preferred" host network does not have good network coverage for high speed data). This would make it difficult for the home operator to make attractive retail offers.
On the last point, it is possible that group and alliance MNOs may seek to keep their roaming traffic 'on-net' through attractive retail offers, reducing wholesale prices internally towards cost levels while, to an extent at least, maintaining the level of prices to MNOs outside the group or alliance.

In case wholesale regulation is deemed necessary, I/ERG has given initial consideration to these possible remedies, and the advantages and disadvantages of each:

A maximum price per MB:

- This solution is likely to push charges down for short/ low volume sessions and leave them high for high volume/ long sessions, which are the cause of bill shock. Conversely, if the cap is set at a low level to reduce the threat of bill shock, it would make the charge for low volume/ short sessions too low to be commercially viable

- It would be difficult to set the level of the cap effectively given that it is still unclear how the market and technology will develop, and most regulators have not built detailed cost models, creating a risk of intervening too early and thereby undermining competitive forces

Stepped cap (e.g. X€ for 0 – 0.5MB, Y€ for 0.6 – 1 MB, Z€ for 1.1 – 20MB …)

- This solution could allow retail tariffs to be structured so that services that use low and high volumes of data are both attractively priced.

- As above, it would also be difficult to effectively design the size of any bands, and the level of each cap

- Moreover, charging more per MB for short/low volume sessions, on the basis that it suits services like e-mail and instant messaging, might have the effect of applying a kind of minimum or set-up charge to every data session. If a connection failed, the user might go back to a higher tariff per volume. Some set-up costs are incurred for a roaming data session (user authentification, involving signalling and search costs) but these are likely to be very low and are not incurred every time a user connects to the roaming service

- Defining a structure at the wholesale level also risks limiting retailers to a certain structure at the retail level, potentially restricting competition and innovation

Average charge control:

- Under this remedy, the average wholesale charge (revenue divided by volume over a year) must be below the charge control price per MB

- This remedy is more flexible than a simple or stepped cap, giving operators some freedom to structure their retail tariffs to differentiate themselves in the market and to support different types of data service. It mirrors the wholesale price regulation set for voice roaming, which has been implemented fairly smoothly. There is still the question of at what level the charge control should be set

On what basis should the level of any charge regulation be set?

Cost-oriented charges (benchmarking):

Given that no aspect of data services is regulated at the roaming or domestic level, an option for setting the level of any wholesale charge regulation is to use the domestic retail tariff as a benchmark and then allow for any roaming-specific costs. Domestic mobile markets can be an appropriate benchmark because they are considered to be generally competitive.

Nonetheless, data may be considered an emerging service and domestic wholesale rates have fallen significantly over recent years, so it may be that they remain farther above costs than other domestic mobile charges, which might be taken into account if calculating caps. As set out in Annex 1, wholesale data roaming services constitute: origination cost of host MNO, delivery cost to the home/destination MNO, inter-operator billing costs including costs for handling roaming CDRs, DCH costs, costs for fraud prevention and common costs derived from the International Roaming Agreement. I/ERG is aware that the Commission has obtained independent advice on the level of these costs. According to I/ERG's understanding, they seem likely to be low.

Choosing the appropriate domestic rate to benchmark could be challenging because national and international tariff structures do not correspond one to one. A possible solution is to take the average European domestic rate. But, because the average rate is not regulated and domestic rates vary considerably from one country to another, an average would be meaningless in this case. Also, it would lead to losses for some operators given that cost structures for data vary considerably from one operator to another. Another risk is, if the link with domestic charges is maintained, that could create a perverse incentive for MNOs to maintain or increase domestic rates, although roaming is a small proportion of total data volume.

Question 32: What additional costs, apart from the wholesale charges, are incurred by operators when providing data roaming services?

The following table describes the main wholesale and retail costs incurred by an operator when providing data roaming and domestic services. Annex 1 presents diagrams that explain the different elements included in the chart. It should be noted that NRAs have not generally attempted to build strong cost models of the provision of data transmission services.

The major costs incurred by an operator when providing data roaming services are at the wholesale level, the retail costs considered to be of low impact in relative terms.

		Domestic services	Roaming services
Wholesale costs	Origination cost on host MNO	X	X
	Interconnect cost to the GRX and between multiple GRXs		X
	Other signalling costs, e.g. to the RAN/CN elements or specialist mobile e-mail servers	X	X
	Clearing house cost for handling roaming CRDs		X
Retail costs	Common costs	X	X
	Other infrastructure costs (e.g. prepay billing check, retail billing)	X	X
	Interconnect cost to the external IP network	X	X

Question 33: Would transparency obligations on mobile operators be enough to tackle the problem of high charges? What sort of transparency mechanism can work effectively to stop the "bill shock"?

From available evidence, I/ERG considers that wholesale and retail prices are likely to be far above costs, even allowing for price cuts recently implemented or announced. Therefore, much more progress needs to be evident before price regulation could be ruled out. I/ERG hopes that such progress will be apparent by the time of its next data collection (covering the peak travel period April – September 2008) so that price regulation proves unnecessary.

There is one area of roaming data services where I/ERG believes that immediate, formal regulatory action must be recommended now. Many customers may experience unexpectedly high bills following experimentation with mobile data services while abroad. But for some customers, performing relatively simple tasks that would not prove expensive at home, can lead to extremely high bills compared to domestic rates. Individual instances of bills for several thousand euros, incurred during short trips abroad for activities that would have been affordable at home, have been reported.

Such bills are no doubt consistent with the published tariffs. But they cannot be regarded as reasonable. While being satisfied that some companies are introducing practical voluntary measures to control the transparency and bill control problem, I/ERG believes that the market players have, as a whole, been slow to address this issue.

There is a double problem of transparency in this area. As discussed in question 28, customers are likely to be unaware of the unit charge per MB. But, more than that, they have little appreciation of the meaning of the MB unit. While a general reduction in charges will alleviate the problem, it will not necessarily solve it completely.

In view of the limited transparency of data roaming services (see questions 28 and 29), I/ERG advocates the establishment of regulatory measures to address transparency and consumer awareness, facilitating tariff choice. This may also help encourage competition, although available evidence from voice regulation indicates that transparency measures are unlikely to address high charges alone.

Above all, I/ERG considers general principles should be formulated requiring companies to introduce effective measures to control bill shock. To allow for competition and innovation as companies seek to differentiate their consumer offering, I/ERG would not wish to be prescriptive about the choice of measure. Current examples, which could be prescribed alone or jointly, include:

Consumer awareness measures:

Certain transparency measures are already provided for in the current Regulation, especially free of charge data tariff information on request. It may be appropriate to mandate basic, automatic "push" information on data roaming tariffs.

Real-time consumption:

This may take the form of a software application that shows consumption (in monetary units) in near-real time

Billing control:

A requirement for customers to confirm that they wish to use a certain tariff at the start of a session and that they wish to continue the session once a specified bill threshold has been passed, with the option to change tariff (re-authorisation)

Automatic transfer from a volume related tariff into a fixed price tariff once a particular threshold has been passed

I/ERG recognises that systems development will be necessary to make such measures effective. Given that a mandatory measure would presumably not be introduced before 2010, it believes that there is adequate time for such systems to be developed.

Question 34: If retail price regulation is to be considered, how should this be designed and what parameters should be used (e.g. fixed rate per MB or another interval, declining rate or daily/monthly charge)?

The principles underlying the 2002 framework for electronic communications[29] suggest that retail regulation should only be imposed where regulators consider relevant wholesale measures would fail to ensure effective competition.[30] It is generally considered that, in most markets, wholesale regulation is sufficient to enable market forces to lower retail prices, thereby achieving a good outcome for consumers. Retail price regulation, as more intrusive in nature, is often attributed with the following undesirable effects:

- it could be premature

---

[29] Directive 2002/19/EC, Directive 2002/20/EC, Directive 2002/21/EC, Directive 2002/22/EC and Directive 2002/58/EC.

[30] The Commission's explanatory memorandum to its Recommendation on relevant product and service markets susceptible to ex-ante regulation in accordance with framework Directive (2002/21/EC) state "NRAs have powers as a last resort and after due consideration to impose retail regulation on an undertaking with significant market power. However, regulatory controls on retail services should only be imposed where NRAs consider that relevant wholesale or related measures would fail to achieve the objective of ensuring effective competition".

- retail prices of roaming packet data transmission may differ among Member States because of national circumstances and consumer preferences and thus the introduction of harmonised retail prices could distort domestic retail markets

- it is difficult to establish common mechanisms of retail regulation for highly differentiated markets, taking into account specific national circumstances and economies of scale of small, medium and large mobile operators

- there is a risk of spill over of regulated roaming retail charges into the competitive domestic market

However, I/ERG considers the implementation of retail regulation could produce several positive effects if in the future it is considered to be necessary due to evidence of a lack of competition and innovation in retail roaming tariffs:

- retail regulation could ensure that customers benefit from lower wholesale charges, particularly in countries where consumers have enjoyed little pass through of savings from the wholesale level;

- price reductions for customers could be put into place relatively quickly and have a substantial impact on the Community and Information Society of the EU by ensuring the smooth functioning of the internal market in this segment; and

- price reductions could be introduced in a coherent way avoiding the current, significant variation of retail prices

Maximum cap, stepped cap, average cap

Retail price regulation in the form of a maximum cap per MB, a stepped cap or an average charge control may be considered. These techniques are discussed in relation to wholesale price regulation in response to question 30. The same considerations would apply at the retail level also.

Safeguard cap

In order to ensure retail price regulation is targeted at those countries where retail prices are especially high and lower wholesale charges are not being passed through to the retail level, a safeguard cap per MB may be considered, preventing exorbitant rates per MB. This is a form of maximum cap, set at a suitable level so that the great majority of prices would be expected to be below it already. It is most suitable for the situation where most rates are already at "reasonable" levels but some are not. This approach is not entirely straightforward and does carry some risks however. First, there may not be a consensus about what is reasonable and what is not, particularly in a fast-moving market. Second, prices may still remain relatively high for high volume /long sessions, meaning the impact on "bill shock" problems could be muted. Third, the level of the cap might come to be seen as a target – for voice roaming regulation, around two thirds of retail prices are at or near the maximum cap.

<u>Linkage between wholesale and retail markets</u>

Another option may be to link any drops in the wholesale market to the retail market, in order to ensure pass-through to the end-user. Specifically, when an operator secured a lower wholesale charge for the provision of data roaming to its customers, it would be required to mirror that reduction in its retail data roaming prices. The pass-through would be calculated by each operator. It is important that the pass-through is expressed as an absolute amount of money (i.e. 1€/MB) in order to maintain the retail mark-up.

The advantage of this kind of regulation is that it does not require defining a maximum cap, as we have for retail voice roaming. This would be complex for data roaming because of the wide variation in use of data services (i.e. low volume activities like e-mail, and high volume activities like downloading audiovisual content).

It could be argued that this measure is no longer necessary for those countries where recent substantial decreases have been announced, but in those cases we may still wish to account for any historic lack of pass-through since quarter two 2007. This could be done by applying a "windfall regulation" that requires a higher initial drop in retail prices. Another objection might be that this could create an incentive for operators to freeze reductions in wholesale charges in order to maintain levels of retail prices.

Mandatory daily "unlimited" offer

Another remedy that may be considered is an extension of the Eurotariff, consisting of a mandatory daily "unlimited" offer, with operators free to offer other tariffs alongside. This could address the problem of bill shock also, especially if it is opt-out, while allowing operators to compete and innovate in its design and on other tariffs offered alongside.
If the aim of this measure is simply to encourage all operators to introduce an "unlimited" daily tariff for roaming, the market could be left to define the level of the tariff and the "fair use" data limit, subject to monitoring. But that might allow operators to price the daily offer unattractively, either in terms of the daily charge or the level of any "fair use" limits. As discussed in question 29, it might be difficult to set the level of a cap on the daily charge or fair use limit effectively, which might create a risk of regulatory harm to an emerging service.

Section 5[31]

Extension of the Scope of the Regulation: SMS Roaming Services

Question 35: Do you think that wholesale charges ('inter-operator tariffs' or 'IOTs') for the provision of SMS services for roaming customers are subject to competitive pressure? Has this competitive pressure resulted in a declining trend in wholesale prices? If so please explain using data where possible.

For average roaming SMS prices, this section draws on the results of the two ERG Benchmark Data Reports conducted to date (for quarters two and three 2007, and for quarter four 2007 and quarter one 2008 respectively), to give an indication of trends for a 12-month period. Because the prices for SMS roaming services are not subject to the current Regulation, the information for the first ERG Report was collected on a "best efforts" basis, and should not be considered as comprehensive. In particular, wholesale SMS prices for Q2 2007 and Q3 2007 were not included in the Report; the ERG average is used in this response as indicative only. The second ERG Report can be seen as establishing the benchmark from which to measure future trends.

Considering trends in wholesale SMS roaming prices, the two ERG Benchmark Data Reports covering quarter two 2007 to quarter one 2008, show little movement in charges over the year. As indicated in the table below, the average ERG wholesale charge was around 16€c per SMS in quarter two 2007 and 15€c per SMS in quarter one 2008.

It is also worth commenting on retail SMS roaming prices in this section. Again, according to the ERG Benchmark Data Reports, there has been little change in average prices from quarter two 2007 to quarter one 2008 (see the table below).

Development of SMS prices (EU/EEA average)

	Wholesale SMS	Retail SMS
Quarter 2 2007	0.16€	0.29€
Quarter 3 2007	0.17€	0.30€
Quarter 4 2007	0.16€	0.30€
Quarter 1 2008	0.15€	0.29€

I/ERG notes the very small drop identified at the wholesale and retail levels for quarter one 2008. To the extent that it is a real effect, rather than a statistical variation, it considers this is likely to be due to regulatory pressure, rather than commercial forces. In quarter one 2008, National Regulatory Authorities and politicians called on operators to make sharp reductions in SMS roaming charges by 1 July 2008. Some operators have announced new retail prices and structures in response. Most changes should be picked up by the next ERG Benchmark Data Report for April – September 2008.

[31] CMT, the Spanish member of I/ERG, does not endorse this response and, in particular, the cost analysis and caps regarding SMS (see questions 37 and 39)

On available evidence, I/ERG believes that average wholesale and retail roaming charges remain significantly higher that the likely levels of costs, and that the price differences with domestic SMS services are unlikely to be justified on the basis of roaming-specific costs.

On this basis, I/ERG considers that wholesale charges for the provision of SMS services have not been subject to competitive pressure.

Question 36: Wholesale SMS roaming charges (IOTs) appear to be higher than many retail domestic SMS prices. Are wholesale charges at current levels justified in light of the costs to the host operator for the provision of wholesale SMS roaming services?
Please explain using data where possible.

Generally, National Regulatory Authorities have not attempted to build robust cost models for SMS although a small number have done so.

Based on available evidence and its initial analysis of future costs, it is I/ERG’s view that the average level of wholesale SMS roaming charges are not justified by costs to the host operator. The wholesale costs of a roaming SMS consist of SMS origination; plus some additional costs, such as signalling, international transit.

<table>
<tr><th></th><th></th><th>Domestic services</th><th>Roaming services</th></tr>
<tr><td rowspan="7">Wholesale costs</td><td>Origination cost on host MNO</td><td>X</td><td>X</td></tr>
<tr><td>Termination cost on destination MNO (only for termination on networks)</td><td>X</td><td></td></tr>
<tr><td>Cost of termination of incoming roaming SMS, recovered via the origination charge</td><td></td><td>X</td></tr>
<tr><td>Interconnection cost</td><td>X</td><td>X</td></tr>
<tr><td>International transit</td><td></td><td>X</td></tr>
<tr><td>Other signalling costs</td><td>X</td><td>X</td></tr>
<tr><td>Clearing house costs</td><td></td><td>X</td></tr>
<tr><td rowspan="2">Retail costs</td><td>Common costs</td><td>X</td><td>X</td></tr>
<tr><td>Infrastructure costs</td><td>X</td><td>X</td></tr>
</table>

The network costs for roaming SMS origination is less than the network costs for national SMS origination, since the host operator SMSC is not used. The additional costs highlighted above are relatively small, and do not seem to justify the high wholesale price level.[32]

Question 37: Do you believe that wholesale SMS roaming charges (IOTs) should be regulated? If yes, what should be the level and parameters of any wholesale charge limit?

In absolute terms, consumer detriment from high SMS roaming prices is less than that caused by voice roaming prices before the Regulation was introduced. While the level of transparency over tariffs – and in particular the difference between domestic and roaming

[32] The cost of international transit of an SMS is very low given that the capacity consumption of a SMS is very small. Similarly, the cost of signalling for national SMS is, according to NITA’s LRAIC-model, insignificant.

tariffs – appears no better than for voice, the likelihood of "bill shock" is less. This is because texts are normally consumed in single units. Moreover the absolute charge for a roaming SMS is relatively modest – albeit that it does not seem likely to be justifiable in relation to the estimated costs. These factors might suggest restraint from regulation.

However, as described in question 35, the two ERG Benchmark Data Reports indicate that there has been little movement in SMS retail roaming prices to April 2008, despite strong calls from NRAs and politicians for sharp reductions. Generally National Regulatory Authorities have not attempted to build robust cost models for SMS although a small number have done so. On available evidence, prices appear to be very high in comparison with costs.

If we apply the reasoning used when adopting the current Regulation of voice roaming services, I/ERG considers that regulation of SMS roaming is necessary, at both wholesale and retail levels, in order to bring prices more into line with costs and more into line with domestic prices. It believes that arrangements analogous to those for voice roaming would be suitable. More specifically, I/ERG recommends the introduction of a cap on the average wholesale rate charged by any one operator to any other operator for SMS roaming, and the amendment of the Eurotariff obligation to include an offer of SMS roaming at a rate not greater than a specified maximum cap.

Wholesale costs

In view of the scarcity of detailed models of SMS costs at present, I/ERG has attempted a cautious, initial analysis of SMS costs. The difference in outcomes demonstrates the need for further, thorough analysis before any price regulation is set. I/ERG plans to carry out further investigations into costs during the coming months.

I/ERG notes that only outgoing SMS are charged for at the wholesale level. At the moment, most MNOs in EU/EEA do not charge for incoming SMS[33], and it can be assumed that the cost of this service is currently covered by the wholesale charge for outgoing SMS. In the event that wholesale charges for outgoing SMS are regulated, the wholesale cost of incoming SMS should be taken into account.

This wholesale regime may be beneficial in its retail manifestation. That is, customers are used to the practice that they do not pay to receive a roaming SMS and are likely to continue to prefer this arrangement. For regulation to be effective, double recovery of costs needs to be avoided. Therefore, the approach described below applies only to the situation where no wholesale charge is levied for termination of a roaming SMS. If practices change, then it would appear necessary to regulate wholesale charges for both originating and terminating SMS. For simplicity, I/ERG does not consider this scenario further.

Cost-based regulation

I/ERG has given initial consideration to various means of calculating wholesale and retail caps for SMS. A cost-based model may give the most accurate estimate of actual operator costs.

As mentioned above, few National Regulatory Authorities have developed cost models, however. Also, differences in methodology can make it difficult to compare models; cost differences among Member State operators need to be allowed for. As mentioned above, I/ERG plans to carry out further investigations into costs during the coming months.

[33] It is unclear to ERG to what extent operators charge for incoming roaming SMS, although a spokesman for GSMA recently announced that no fee was being charged.

It is not realistic at present to contemplate a reduction of prices to near average cost levels as the input costs of providers of the retail roaming service vary significantly, not only for the origination of a roaming SMS but also for SMS termination. The latter service is mostly unregulated in Europe today.

I/ERG notes that NITA has recently published the results of a cost modelling exercise in respect of the Danish operators[34]. According to this work, the cost of an originated SMS, for Danish operators, is below 0.5€c. On this basis, taking a conservative view of cost differences across Europe, wholesale costs including origination, international transit, interconnect costs and billing costs plus a reasonable return would not exceed 2€c per SMS for European operators.

If operators are compensated for the wholesale cost of terminating an incoming roaming SMS through the regulated price for an outgoing SMS, NITA's cost model indicates that wholesale costs including an allowance for the unrecovered cost of termination would be up to 4€c, on the basis that the costs of origination and termination would be very similar and assuming that the ratio of incoming and outgoing SMS is equal.

SMS termination rates as a proxy

A second method for regulating wholesale SMS roaming charges to which I/ERG has given initial consideration is to set the wholesale price cap on the basis of national SMS termination rates. This could be done by taking the average or a figure higher than middle of the distribution (for instance the 75th percentile) of European domestic SMS termination rates. The advantage of this approach is that it is simple and in line with the method used for setting the current voice caps. However, SMS termination rates are generally unregulated and set at a high level compared to costs. Furthermore, at the moment there is no complete SMS termination Benchmark that can be used for this purpose. The ERG Benchmark Report on SMS termination rates does however contain data from most Member States.

According to the latest ERG Benchmark Report on SMS termination rates, the average is 4.40€c, and the 75th percentile is 4.99€c.

Based on the regulated termination rate set by ARCEP in 2006[35] and the analysis of costs by NITA, this average rate would be expected to decline as charges are brought more into line with costs. The extent of the reduction is somewhat speculative but it would be reasonable to expect that the 75th percentile would not exceed 4€c at 1 January 2010.

On this basis, the average cost of a terminating SMS would be assessed at 4€c.

The cost of originating an SMS also needs to be covered, together with the other roaming-specific costs mentioned in the answer to question 37. The latter are very small. I/ERG believes that they do not exceed 0.5€c per SMS. Origination costs may be larger but, on the basis of the NITA and ARCEP work, significantly lower than the 75th percentile of the current distribution of national SMS termination rates. Therefore, on this basis, the average cost of originating an SMS could also be assessed at 4€c.

Both these figures include an allowance for a reasonable return. On this basis, the wholesale costs of provision of a roaming SMS (including reasonable return) could be assessed at 8€c per SMS. As noted above, this assumes that no wholesale charge is levied for termination of

[34] http://en.itst.dk/news/analysis-of-prices-and-costs-for-mobile-data-services-abroad
[35] ARCEP has regulated SMS termination rates since 2006 at 3-3.5€c.

a roaming SMS and that the wholesale charge for originating a roaming SMS additionally covers the cost of terminating incoming SMS.

Conclusion

The initial work by I/ERG indicates that an average wholesale cap of between 4€c (on the basis of NITA's cost model) and 8€c (on the basis of SMS termination rates) would be sufficient to allow full recovery of costs and a reasonable return. I/ERG recognises that those two figures are significantly different. It plans to carry out further investigations into costs in the coming months.

Question 38: If wholesale regulation is necessary, will operators pass on the benefits of lower wholesale charges to consumers or could this only be achieved by retail regulation?

I/ERG believes that the operators' incentive to compete at retail level is dampened, since it is likely that consumers mainly choose their supplier on the basis of prices for national services and not on the basis of prices of international roaming services. Furthermore, the retail margin for roaming SMS is currently rather high, which in I/ERG's view is an indication of lack of retail competition.[36] On this basis ERG believes that there is a case for retail regulation.

Question 39: If you believe retail regulation is necessary then what should be the level and parameters of any retail charge limit?

In I/ERG's view, the main costs faced by retail operators are[37]:

- Wholesale charge,
- Termination payment,
- Retail costs; plus a
- Reasonable return

Evaluating these cost elements individually, I/ERG notes that the wholesale charge is not entirely under the retail operator's control and not relevant to discuss in this section.

The termination payment is also out of the retail operator's control. The termination payment the retail operator faces is on average 4.40€c per SMS according to the latest ERG Benchmark on SMS termination rates. Assuming an average operator's market share is 25 per cent, this operator will terminate 25 per cent of its SMS traffic on-net. In this case, the operator faces an internal network cost of around 0.5€c per SMS. On this basis, the average termination payment can be estimated as 3.4€c per SMS.

I/ERG is currently looking at different methods for estimating retail costs. Based on an initial analysis, one method could be to apply the same percentage mark-up as applied for regulated voice roaming services. This would imply a mark-up of around 160 per cent. The advantages of this is that it is simple and in line with the voice regulation.

---

[36] The average retail price is around 28€c while the average wholesale price is around 15€c in first quarter of 2008 according to the latest ERG data.
[37] Since the SMS is routed back to the home network cost are incurred for the usages of MSC and SMSC. These costs are according to cost models insignificant.

However, the drawback of this method is that the relationship between retail costs and wholesale costs is unlikely to be the same between services, or constant in relative terms. This point needs further examination.

Overall, it does not seem necessary to allow more than 7€c at the retail level (over and above the wholesale charge) for the recovery of costs plus a reasonable return. In any case, I/ERG believes that all the above-mentioned methods would give rise to a significant reduction in end-user prices.

Conclusion

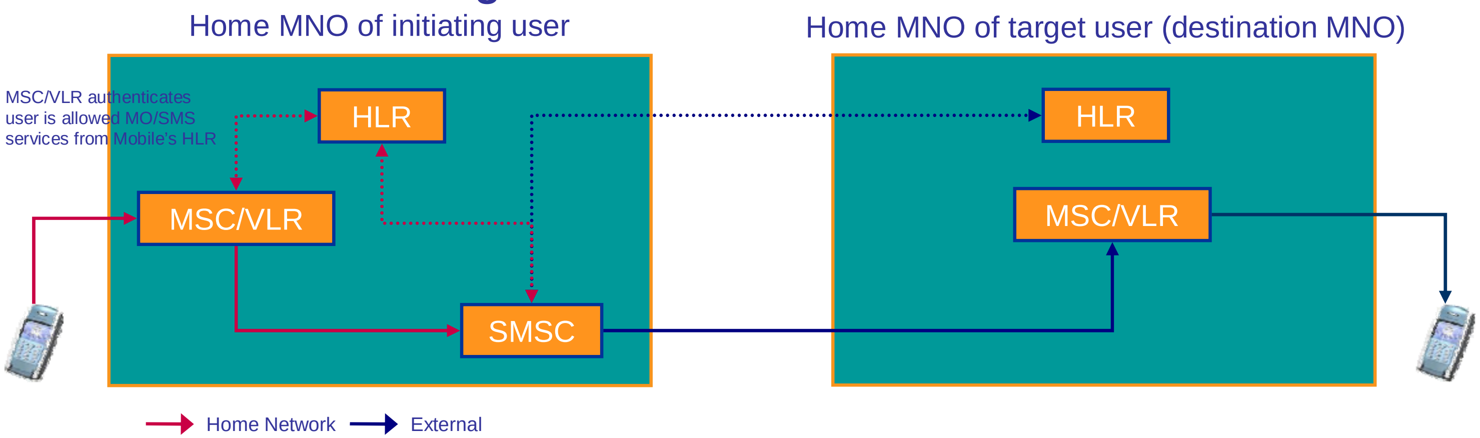
This initial work suggests that an "SMS Eurotariff" set at a maximum level of around 11€c (on the basis of the Danish work on wholesale costs) or 15€c (on the basis of the earlier work) would be sufficient to allow full recovery of costs together with a reasonable return (when considering the maximum price consumers would actually pay, VAT needs to be allowed for). I/ERG notes that these levels are below some tariffs for domestic SMS services offered in Europe. In setting any retail cap, the possible disruption to national markets should be fully taken into account.

Again, I/ERG plans to carry out further investigations into costs during the coming months.

Annex 1

Technical Process & Associated Costs: SMS and Data Services

MO SMS – Non-roaming User



Method

SMS is forwarded to the SMSC of the home MNO after authentication by the HLR

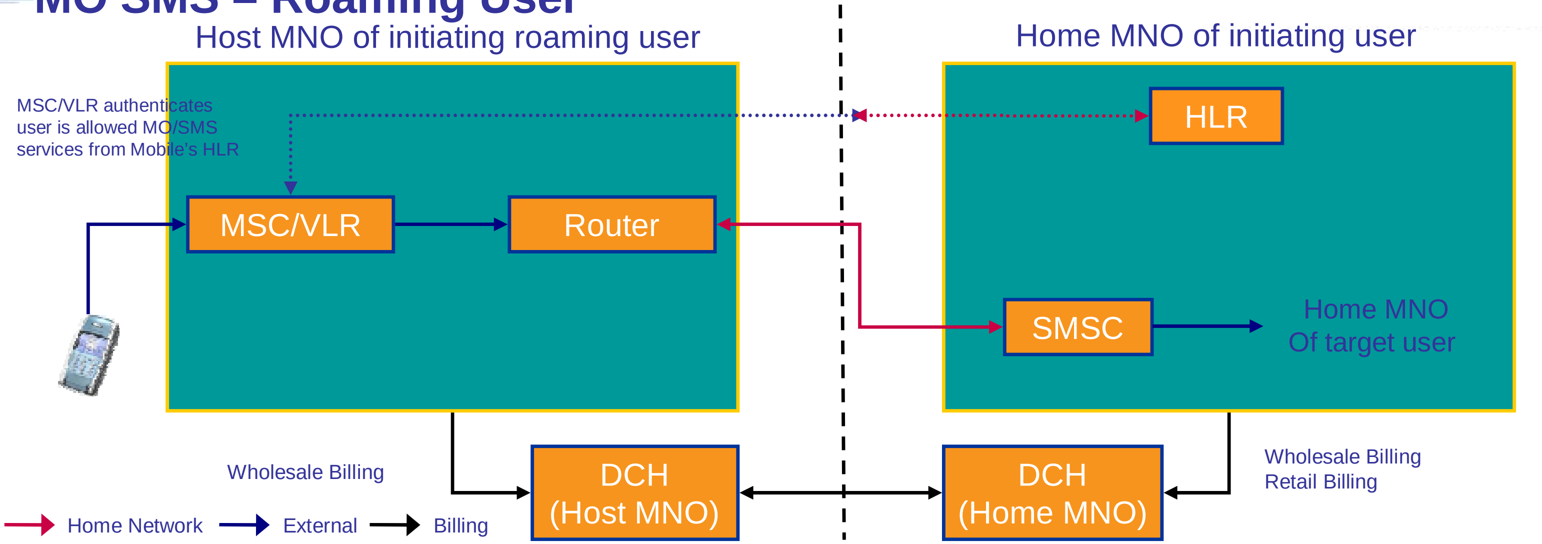
- SMS may be routed via intermediate routers

- SMSC interrogates HLR of destination MNO and forwards SMS to MSC/VLR of destination MNO and onwards to the target user
- If destination is a fixed network, SMSC forwards SMS to the PSTN network

Costs

- Interconnect costs between the MNOs
  - Leased lines are generally used as interconnect
- Other signalling costs, e.g. to the RAN and other CN elements
- Origination cost on home MNO and termination cost on destination MNO (or FNO)
- Inter-operator billing costs
- Other infrastructure costs (e.g., prepay billing check, retail billing)
- Common costs
- Other costs - Network nodes, database costs and allocation of MSC gateway costs. There is additional network load due to the retries needed for MT/SMS and the fact that the MT/SMS may not be delivered

MO SMS – Roaming User



Method

- SMS is forwarded to the SMSC of the home MNO of the initiating user by the MSC after authentication by the HLR of the initiating user
  - SMS may be routed via intermediate routers
- SMSC interrogates HLR of destination MNO and forwards SMS to MSC/VLR of destination MNO and onwards to the target user
- If destination is a FNO, SMSC forwards SMS to the PSTN network
- Host MNO's Billing system creates billing record (CDR) for inter-operator accounting
- CDR is sent via the Data Clearing House of the host MNO and the Data Clearing House of the home MNO to the Billing system of the home MNO
  - Each DCH processes the CDR according to arrangements agreed with the MNO

3 routing variations in case the receiving user is also roaming-

- MO SMS – Roaming user on Host MNO to a user roaming on another network ("direct routing")
  - Routed directly to host MNO of recipient user after authentication by the home MNO of the recipient
- MO SMS – Roaming user on Host MNO to a user roaming on another network ("home routing")
  - Routed via home MNO of target user
- SMS Inter-working & Roaming using "SMS Hubs"
  - Routed via intermediate hubs which store and forward SMSs between MNOs

2

MO SMS – Roaming user

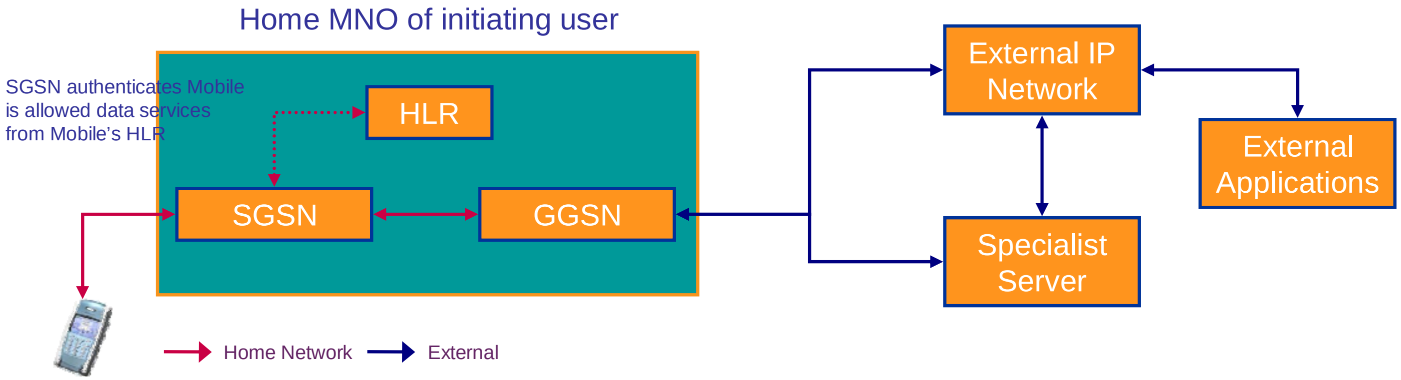
Costs

- Interconnect costs between the MNOs
  - Leased lines are generally used as interconnect
- Other signalling costs, e.g. to/from the RAN and other CN elements
  - includes those network elements not explicitly mentioned (e.g., STP nodes, data bases)
- Origination cost of host MNO and termination cost on home/destination MNO
- Inter-operator billing costs include. costs for handling roaming CDRs
- Costs associated with Data Clearing Houses
- Other infrastructure costs (e.g., prepay billing check, retail billing)
- Common costs
- Additional costs as per domestic slide

Note: The host MNO's IOT covers the origination cost of host MNO, delivery cost to the home/destination MNO. Inter-operator billing costs include costs for handling roaming CDRs, DCH costs, costs for fraud prevention and common costs derived from the International Roaming Agreement

Note – important: The MO SMS costs must compensate for all MT SMS traffic due to the fact that Mobile Terminated SMS traffic is free of charge for the receiving user – in the domestic as well as in the roaming scenario

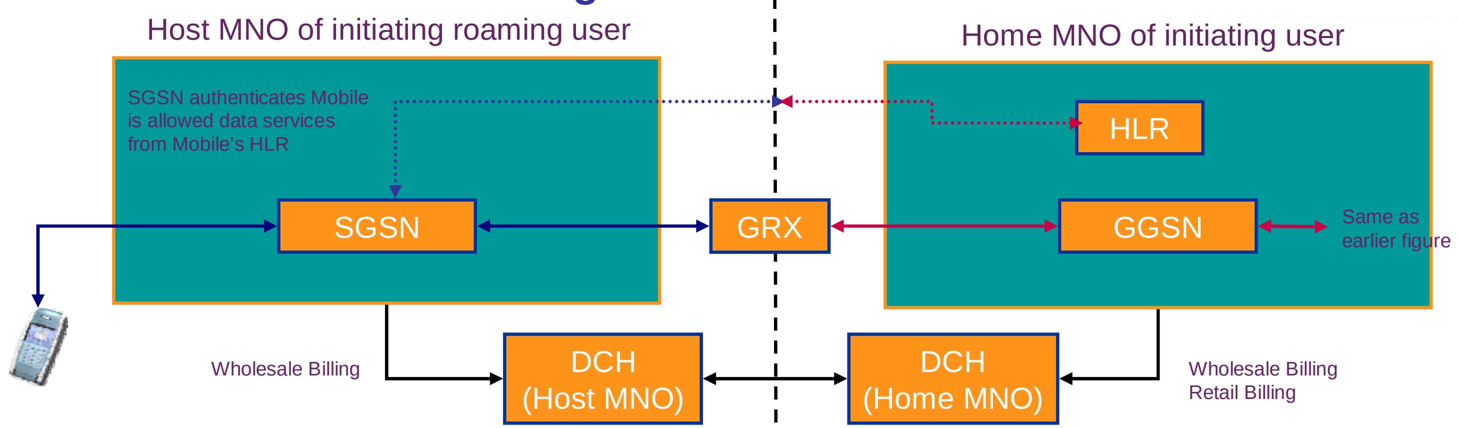
MO Data Access – Non-roaming User



Method
- All data traffic will be routed from the home SGSN to the home GGSN
- GGSN is connected to external networks through a firewall
  - For some mobile e-mail applications, data is routed via special servers

Costs
- Origination cost of initiating user on home MNO
- Other signalling costs to RAN/CN and specialist servers
- Interconnect cost to the external IP network
  - Purchased from wholesale providers
- Common costs
- Other infrastructure costs (e.g., prepay billing check, retail billing)

MO Data Access – Roaming User



Method

Home Network External Billing

- SGSN authenticates user with HLR on home MNO
- Data request is routed to the GGSN of the home MNO via the GRX network
- Data request is routed from GGSN of home MNO to external IP network
  - Variations apply for specialist mobile e-mail servers (see earlier slide)
- Host MNO’s Billing system creates billing record(s) (CDRs) for inter-operator accounting
- CDRs are sent via the Data Clearing House (DCH) of the host MNO and the Data Clearing House of the home MNO to the Billing system of the home MNO

Costs

- Origination cost on host MNO
- Interconnect cost to the GRX and between multiple GRXs
- Other signalling costs, e.g. to the RAN/CN elements and specialist servers
- Interconnect cost to the external IP network
- Clearing house cost for handling roaming CDRs
- Common costs
- Other infrastructure costs (e.g., prepay billing check, retail billing)

Note: The host MNO’s IOT covers the origination cost of host MNO, delivery cost to the home/destination MNO, inter-operator billing costs including costs for handling roaming CDRs, DCH costs, costs for fraud prevention and common costs derived from the International Roaming Agreement