



**Telephone number portability
for consumers switching suppliers**
Concluding Statement

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Section 1

Executive summary

- 1.1 This Statement sets out changes that Ofcom is making to the rules governing number portability in the UK. We are making those changes to protect consumers from problems arising from the way calls to ported fixed and mobile numbers are routed and to make the process of porting mobile numbers easier for consumers.

Background

- 1.2 Number portability is the facility that makes it possible for consumers to retain their telephone number(s) when they change provider. In Ofcom's view, consumers should not only have the ability to retain their phone number (as they have had for many years) but should also be aware of this ability and should be able to obtain number portability easily, reliably and conveniently. Ofcom considers that the UK arrangements no longer serve the interests of consumers in the most appropriate manner, as demonstrated by comparison with international best practice.
- 1.3 Ofcom has decided that it is time to make changes to the porting process in order to protect consumers from deficiencies in the way calls are routed and to ensure that the process of porting mobile numbers is as convenient as possible for consumers, which may promote competition in the sector.
- 1.4 The consultation entitled *Review of General Condition 18 – Number Portability*, published by Ofcom in November 2006 (the "November 2006 Consultation"), consulted on proposals to change the existing arrangements including the introduction of a Common Database ("CDB") for routing calls to ported numbers and a reduction in mobile porting lead times. After considering responses to that consultation exercise, Ofcom concluded in the statement *Arrangements for porting phone numbers when customers switch supplier*, published by Ofcom on 18 July 2007 (the "July 2007 Statement and Consultation"), that:
- a) industry should establish a CDB in order to allow direct routing of calls to fixed and mobile ported numbers, thereby resolving the problems caused by failed networks; and
 - b) mobile porting lead times should be reduced to a maximum period of two working days from 31 March 2008.
- 1.5 Whilst Ofcom had concluded that it was appropriate to require providers of fixed and/or mobile services to establish a CDB to deliver direct routing of calls to ported numbers, Ofcom set out for further consultation a number of options in relation to deadlines for deploying the CDB in the July 2007 Statement and Consultation. The July 2007 Statement and Consultation also set out proposals for further reducing mobile porting lead times from two working days to near-instant (less than two hours) and for making the process recipient-led.

Conclusions

Routing of calls to ported fixed and mobile numbers

- 1.6 At present, subscribers (mobile or fixed) who port their numbers to a new network rely indefinitely on their original network to forward incoming calls to them. If the

original network fails (commercially or technically), consumers will no longer be able to receive calls to their ported numbers. Ofcom considers that customers should not remain reliant on their former supplier in this way. As more suppliers enter the market using new technology and innovative business models, the risk of failure continues to grow.

1.7 Ofcom has, therefore, decided that calls to ported numbers must be routed directly to the consumer's new provider. This offers the following benefits:

- Customers who have ported their number to a new supplier (perhaps many years earlier) will be protected from the risk of losing incoming calls if their former provider should fail commercially or technically.
- Existing customers of failing providers will be able to port their number to a new viable provider.
- Quality of service (call quality/congestion) will no longer risk being degraded by the customer's former provider if that network is unable to match the quality standards achieved by the customer's new provider.
- Ported customers will be able to enjoy innovative new services even if these are not supported by the former provider, and there will no longer be a risk that launch of such services, to the generality of consumers, may have to be delayed until all providers from whom numbers have been ported can support the new services.
- Calls will be routed more efficiently, enabling substantial costs savings to be achieved, which can be expected to be passed onto customers in a competitive market. The efficiency savings will also enable the costs of implementing direct routing to be recovered by providers.

1.8 To achieve these outcomes, Ofcom is requiring UK industry to co-operate to develop a shared CDB which will hold details of all ported numbers and enable calls to ported numbers to be routed directly, without reliance on the customer's previous supplier. The CDB will hold both fixed and mobile numbers.

1.9 Ofcom has concluded that the costs of deploying this solution will be outweighed by the benefits if direct routing is implemented by fixed networks as and when they deploy Next Generation Networks ("NGNs"). Mobile networks are already capable of interrogating databases on a call by call basis to determine how calls to ported numbers should be routed. The implementation challenges faced by providers of fixed services and mobile services are, therefore, different and the timetable which Ofcom is mandating reflects this.

1.10 Having considered responses to the July 2007 Statement and Consultation, Ofcom has concluded that arrangements for directly routing calls to ported numbers must be implemented as follows:

- Communications providers to use all reasonable endeavours to establish a CDB ready to be populated with data, as soon as reasonably practicable and, in any event, no later than by 31 December 2008.
- CDB to be populated with all ported mobile numbers as soon as reasonably practicable and, in any event, no later than 1 September 2009, and with all ported

fixed numbers as soon as reasonably practicable and, in any event, no later than 31 December 2012.

- All mobile providers to be required to directly route all calls to ported mobile numbers as soon as reasonably practicable and, in any event, no later than 1 September 2009.
 - All other calls to ported numbers (fixed and mobile) to be directly routed as soon as reasonably practicable and, in any event, no later than 31 December 2012.
- 1.11 Ofcom has concluded that early implementation of the CDB is needed to provide clarity to communications providers, enabling individual planning of interfaces and applications. Ofcom considers it appropriate for fixed ported numbers to be populated on the CDB as and when the exchange serving each ported number is upgraded to NGN, and calls to ported numbers originating from such exchanges should be directly routed from the same time.
- 1.12 In Ofcom's view it could also prove reasonable that, from that time, calls terminating on lines connected to such exchanges and originating from mobile networks or from other upgraded exchanges of fixed networks should also be directly routed. In this way, the proportion of calls which are direct-routed to ported numbers originating from and/or terminating on fixed networks should increase progressively, and Ofcom's expectation is that this progressive increase should generally occur in step with the deployment of fixed NGNs.
- 1.13 Ofcom considers the 2012 deadline for implementing direct routing for fixed line numbers is a firm deadline. Ofcom would review this only if developments in the industry gave rise to a substantial case for doing so, for example if large-scale NGN investment plans were delayed materially. It is not, however, Ofcom's intention that timeframes for implementing NGNs should be driven by the obligation to deliver direct routing.
- 1.14 Ofcom has also concluded that General Condition 18 should be modified to give Ofcom the power to make directions in respect of the nature of the CDB in order to ensure that deadlock does not occur in negotiations over the establishment of the CDB.

Process for porting mobile numbers

- 1.15 Ofcom considers that the process of porting a telephone number should be consumer-friendly, quick and simple. Ofcom has concluded that the existing process of porting a mobile phone number relies too much on customers to co-ordinate the actions of their old and new suppliers. The process may also deter providers from recommending to new customers that they should bring their old number with them (which may explain the very low levels of consumer awareness of the right to port mobile phone numbers). Ofcom has concluded that consumers should not have to contact their existing supplier before the process of porting their number can start, and that gaining ("recipient") providers should be empowered to lead the process (i.e. the process should be "recipient-led").
- 1.16 Ofcom has also concluded that, even after lead times have been reduced to two working days from 31 March 2008 (as mandated by Ofcom in July 2007), the process for porting mobile phone numbers may be reduced still further as new recipient-led processes are developed. It should be made near-instant. Ofcom considers that

shorter port lead times will ensure that the process does not discourage consumers from exercising choice and thereby from promoting competition.

1.17 In Ofcom's view, a recipient-led process will offer the following benefits:

- It will provide greater convenience for customers who would have ported in any event, but who will no longer have to liaise between their old and new providers.
- It will remove the disincentive on recipient providers to promote porting (which arises from the threat that prospective new customers may be persuaded not to switch when they are required to re-contact the donor provider to arrange for their phone number to be ported). Greater consumer awareness of the option to port can be expected to lead to:
 - more customers electing to port their number; and
 - more customers switching who, absent awareness of the option to port, would have considered a switch involving a number change unacceptable.
- As a consequence of the process being simpler (as well as more widely known about), more switching customers will port their number when they switch. These customers would otherwise have incurred the inconvenience and possible expense of changing their number. For the same reason, it is also possible that more customers will switch.
- Convenience, ease and speed in porting mobile numbers will not only deliver a real consumer benefit but will also facilitate further switching in the retail mobile market. Competition may be strengthened as a consequence of consumers' increased propensity to switch.

1.18 Ofcom has concluded that the recipient-led process should also be completed near-instantly (in no more than 2 hours) because:

- A near-instant process further improves the customer experience, enabling recipient providers to offer customers the ability to go into a mobile phone shop, choose a new service provider and have their new SIM receiving calls to their old number potentially before they return home.
- Consumers want a fast porting service, and a recipient-led process using a CDB can be achieved near-instantly at very modest incremental cost - thus ensuring that the portability process does not act as a disincentive to switching.

1.19 Having considered responses in respect of proposed changes to the process for porting mobile numbers, Ofcom has concluded that mobile providers should implement a recipient-led, near-instant (no more than 2 hours) process for porting mobile numbers by 1 September 2009.

1.20 The obligation to offer mobile porting in less than two hours will rest with the donor provider (who may otherwise have incentives to delay the process). If for any reason the recipient provider, or the customer, wishes to operate to a slower timeframe, this will be permissible, and not in breach of General Condition 18.

Consumer protection

- 1.21 Slamming and mis-selling of telephone services are a significant problem for UK consumers, in both fixed and mobile services. When Ofcom began considering this issue, mis-selling in the mobile sector was not a significant issue but, during the first half of 2007, the incidence of mis-selling and slamming of mobile phone services increased sharply. Growing numbers of customers found that they had been switched between suppliers without their express knowledge and consent.
- 1.22 Ofcom does not consider that a near-instant recipient-led process for porting mobile numbers will necessarily give rise to more slamming and mis-selling. Ofcom notes that new technology, such as SMS, has been used in other international markets and offers scope for informing consumers, in an industry standard format, that a phone number is about to be ported, or that a new contract is being entered into. Ofcom also expects donor and recipient providers to devise standardised and appropriate processes for ensuring that customers' contracts with donor providers are terminated (where this is what the customer wishes) and that customers are made aware that the right to port a number does not release them from contractual liabilities arising during a minimum term.
- 1.23 Ofcom will monitor closely the adequacy of these arrangements as industry develops and rolls out the new process, and will take appropriate actions should these safeguards be insufficient. Ofcom will be consulting on the wider question of fixed and mobile migrations and switching and, separately, on the specific issues raised by the recent growth of mobile slamming.
- 1.24 On this occasion, Ofcom has not considered changes to processes for porting fixed numbers. The time which this process takes is generally driven by the time needed to make physical changes to network infrastructure, rather than the time taken to port the number. Ofcom notes, however, that the European Commission has proposed¹ that porting lead times for fixed as well as mobile numbers should be reduced to less than one day. Whilst Ofcom is not proposing to require a reduction in lead times for the porting of fixed numbers at this time, Ofcom observes that the existence of a CDB of ported numbers may facilitate improvements in the process for porting fixed-line numbers.
- 1.25 Ofcom has set out in Annex 2 the consequent changes to General Condition 18 to require Communications Providers to provide portability in accordance with the conclusions set out above.

¹ Draft revision to the Universal Service Directive published for consultation by the European Commission on 13 November 2007

Section 2

Introduction and background

- 2.1 Number portability enables subscribers to retain their telephone number(s) when they change provider. It is recognised as a key facilitator of consumer choice and effective competition and is a requirement of the regulatory framework established by the European framework of Directives for electronic communications. Number portability was introduced in the United Kingdom in 1997 and the regulatory framework for number portability in the United Kingdom has remained largely unchanged since that time.
- 2.2 Ofcom has conducted a review of the regulatory framework in place and has concluded that, in light of developments which have taken place since the introduction of number portability in this country, it is appropriate to amend the regulatory framework to improve the ability of consumers to retain their telephone number when switching provider. Ofcom considers that such changes are necessary at this time in order to ensure that consumers may derive the maximum benefits from number portability and, at the same time, are protected from the market failures which arise under the existing regime.

The Regulatory Framework for Number Portability

- 2.3 Number portability is recognised by Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services ("the Universal Service Directive") as "*a key facilitator of consumer choice and effective competition in a competitive environment such that end-users who so request should be able to retain their number(s) on the public telephone network independently of the organisation providing the service.*"²
- 2.4 To this extent, Article 30 of the Universal Service Directive provides that:
- "1. Member States shall ensure that all subscribers of publicly available telephone services, including mobile services, who so request can retain their number(s) independently of the undertaking providing the service:
- (a) in the case of geographic numbers, at a specific location; and
- (b) in the case of non-geographic numbers, at any location.
- This paragraph does not apply to the porting of numbers between networks providing services at a fixed location and mobile networks.
2. National regulatory authorities shall ensure that pricing for interconnection related to the provision of number portability is cost oriented and that direct charges to subscribers, if any, do not act as a disincentive for the use of these facilities.
3. National regulatory authorities shall not impose retail tariffs for the porting of numbers in a manner that would distort competition, such as by setting specific or common retail tariffs."

² Universal Service Directive at recital 40.

- 2.5 Ofcom has implemented the requirements of Article 30 of the Universal Service Directive in the United Kingdom by the setting of a General Condition pursuant to its powers under sections 45 and 48 of the Communications Act 2003 (“the Act”). Under General Condition 18³, Communications Providers are required to provide number portability “as soon as it is reasonably practicable and on reasonable terms, including charges, to any of its subscribers who so requests”.

Number portability – where we are now and why

- 2.6 The United Kingdom was one of the first countries to introduce rights to number portability. Portability was introduced for fixed-line operators from 1997⁴ and mobile operators from 1999.⁵ Many countries, both in Europe and elsewhere, have only recently introduced portability requirements, particularly in respect of mobile numbers. This has allowed UK consumers to have the advantage of being able to port before consumers elsewhere. It also means, however, that the process that was agreed uses systems and technology that are now around 10 years old. As a result, porting processes and systems used in the UK are now less robust and less efficient than processes and systems used in many other countries.

Routing of calls to ported fixed and mobile numbers

- 2.7 In the UK, when a subscriber makes a call to a ported number, that call is first directed to the provider which originally held that number (the “donor”), and that donor provider is relied on to route the call to the provider to whom the number has since been ported (the “recipient”). This process is termed “onward routing”. Although onward routing has been an effective mechanism in enabling porting thus far, Ofcom has identified a number of concerns with the use of onward routing as the basis for future porting. Specifically:

- Subscribers who port their number remain vulnerable to possible failure (commercial or technical) of their former provider.
- The double handling of such calls is inefficient as it generates additional network traffic and transmission costs which, ultimately, are passed on to consumers.

- 2.8 The UK is alone amongst Western European and North American countries in relying on the donor provider to onward route calls to ported numbers.⁶ In Ofcom’s view, it is not in the interests of UK consumers that those who choose to terminate services with a communications provider, and port their number to a new supplier of their choice, should remain reliant, indefinitely, on the former supplier to forward incoming calls.

The process for porting mobile numbers

- 2.9 The UK regime is also unusual in that customers are required to approach their existing supplier for authority to port their mobile phone number before the porting process can start. In the UK, porting requires customers to obtain a Porting Authorisation Code (PAC) from the donor provider before being able to start the

³ available at http://www.ofcom.org.uk/telecoms/loi/g_a_regime/gce/cvogc150807.pdf

⁴ http://www.ofcom.org.uk/static/archive/oftel/publications/1995_98/numbering/port.htm

⁵ http://www.ofcom.org.uk/static/archive/oftel/publications/1995_98/numbering/mobport.htm

⁶ In all North American and Western European countries, calls are routed directly to ported numbers without reliance on the donor network. A very small number of these countries operate a parallel system of onward routing for a small minority of calls.

process of porting their number. In almost all countries in Europe and North America, the recipient provider is enabled to act on behalf of the new customer to instruct the donor provider to make arrangements to port the customer's old number.⁷

- 2.10 The current process appears to deter some recipient providers from recommending the option of porting to new customers, because it requires the customer to contact his or her existing provider to obtain a PAC and will thereby provide the existing supplier with an additional opportunity to persuade the customer to change his or her mind.
- 2.11 This may explain, in large part, why so few customers who switch mobile phone provider also port their number and why awareness of the right to port is not more widespread. Market research conducted for Ofcom during February 2007⁸ indicated that of those who had switched mobile provider in the last 12 months, only one third (34%) had ported their number. When those who had accepted a new number were asked whether, had they known that they could keep their old number, they would have preferred to have kept it, 40% said this was likely if the process was expected to take 3 days (rising to nearly 50% if the process was expected to take just one day). Ofcom research conducted during September 2006 and set out in Annex 6 to the November 2006 consultation found that 40% of consumers were unaware of the right to port a mobile number.
- 2.12 Amongst small and medium-sized enterprises ("SMEs"), the proportion of those who switch provider who also port their number is somewhat higher. Ofcom market research conducted in February 2004 found that more than 70% of SMEs which had switched had also ported all or some of their mobile phone numbers (perhaps reflecting the relative importance of number continuity for business users). Nevertheless, nearly a quarter (23%) were unaware that it was possible to port mobile numbers.⁹
- 2.13 The February 2007 research indicates that around twice as many consumers switching mobile services would port their number if this option was more actively promoted by recipient providers. This implies that substantial numbers of consumers who accept a new number are not well served by present arrangements in that they incur unnecessary inconvenience and cost because they must change their number (for example, having to inform contacts of a change of number). It also follows that some of the many consumers who are unaware that mobile numbers can be ported (or who believe the process would be unacceptably slow or complex), and for whom a change of number would be unacceptable, may be deterred from switching altogether. This is a bad outcome for those consumers and may tend to weaken competition.
- 2.14 The speed with which the UK process for porting mobile numbers is completed compares unfavourably with international best practice, particularly in the USA, Canada, Australia and the Republic of Ireland, where the process takes two or three hours and does not require customers to co-ordinate activity between their old and new providers. In these countries, consumers can walk into a mobile phone shop,

⁷ In Australia, Canada, USA and almost all the EC, the process for porting mobile numbers is led by the gaining provider. In some new Member States, such as Latvia and Romania, number porting facilities are not yet complete.

http://ec.europa.eu/information_society/policy/ecom/doc/implementation_enforcement/annualreports/12threport/sec_2007_403_annex2.pdf

⁸ See Annex 6 to the July 2007 Statement and Consultation.

⁹ Ofcom survey of 829 SMEs conducted by Continental Research, August 2004

sign up to a new supplier and have their new SIM card and phone receiving calls to their original phone number by the time they get home.

- 2.15 As an initial response to those concerns, Ofcom notified UK providers of mobile services on 18 July 2007 that the time taken to port mobile numbers must be reduced from five working days to two working days by 31 March 2008. However, for the reasons set out in this Statement, Ofcom does not consider that the interests of UK consumers are best served by limiting improvements to the UK porting regime to this reduction in the mobile porting lead time, without addressing the issues associated with the process of porting and the way in which calls to ported numbers are handled thereafter. Ofcom also considers that, given likely technological developments, it is appropriate to have a single coherent and robust set of processes and principles that apply to porting between fixed operators, and between mobile operators.
- 2.16 Whereas switching between mobile networks involves a simple change of the mobile handset or SIM, switching between fixed networks requires engineering work to disconnect the customer's premises from one network and connect it to another. This could involve, for example, unbundling of the local loop. As a result, the speed of switching is determined by these factors, and the speed with which the number can be ported is usually less of a constraint. For this reason, this document is not reviewing the process for porting fixed numbers between providers (even though it is reviewing the means by which calls to ported fixed numbers are routed). As fixed-line switching processes are developed and improved, the changes mandated in this document provide, in Ofcom's view, opportunities for industry to improve fixed number porting processes. Ofcom acknowledges, nevertheless, that it may be appropriate to consider requiring changes to such processes in the future.
- 2.17 The European Commission is consulting on proposals that porting lead times for fixed as well as mobile numbers should be reduced to less than one day.¹⁰ Whilst Ofcom is not proposing to reduce port lead times for fixed numbers at this time, Ofcom observes that the existence of a central database of ported numbers may facilitate improvements in the process for porting fixed line numbers.

Ofcom's previous consultations

- 2.18 Ofcom has previously considered the issue of requiring further changes to the fixed and mobile porting processes and, in particular, whether direct routing should be required. Until the advent of NGNs, the costs of making changes to routing arrangements for calls to fixed ported numbers have been found to outweigh the benefits to consumers, and so Ofcom has previously decided against intervention.¹¹
- 2.19 In March 2006, Ofcom's Statement, *Next Generation Networks: Developing the Regulatory Framework* set out Ofcom's view that, as next-generation networks are deployed, there will be a better opportunity to support an improved approach to number portability, both in order to improve efficient use of networks and to protect consumers from the effects of failing providers.¹² The Statement also outlined Ofcom's preference for a co-regulatory approach to an improved solution, but that Ofcom would consider later that year whether this approach was sufficient, or

¹⁰ See footnote 1 above

¹¹ See document entitled *Proposals to change the framework for number portability* at <http://www.ofcom.org.uk/static/archive/oftel/publications/numbering/2002/nupo0602.htm> and the document entitled *An assessment of alternative solutions for UK number portability* at http://www.ofcom.org.uk/consult/condocs/uk_numb_port/uk_numb_port_cons/?a=87101

¹² <http://www.ofcom.org.uk/consult/condocs/nxgnfc/statement/ngnstatement.pdf>

whether regulatory intervention might be required, for example by modifying the General Conditions to require resilience against failure of a donor provider.

- 2.20 Also in March 2006, Ofcom published a Statement, *Number Portability and Technology Neutrality*, concluding a consultation which started in November 2005.¹³ In this Statement Ofcom changed General Condition 18 to remove the specific requirement to implement portability to the previously-defined 'functional specification' which required, amongst other things, that onward routing be used for calls to ported numbers. However, Ofcom did not make a decision at that point to prescribe an alternative approach.

The November 2006 Consultation

- 2.21 Following a review of the regulatory regime applicable to number portability and its implementation in the United Kingdom, Ofcom concluded that it was appropriate to further amend the regulatory regime in order to provide for improved number portability processes.
- 2.22 On 16 November 2006 Ofcom published the consultation *Review of General Condition 18 – Number Portability* (the November 2006 Consultation).¹⁴ This document proposed changes to General Condition 18 so that:
- providers of communications services would be required to establish a CDB for handling calls to ported numbers by 1 September 2008;
 - mobile providers would be required to achieve direct routing of calls to ported mobile numbers by 1 September 2009, and
 - all other calls to ported numbers would be directly routed by 31 December 2012.
- 2.23 The November 2006 Consultation also proposed that lead times for porting mobile numbers should be reduced to three days or one day (the final decision to be taken in the light of stakeholder responses).

The July 2007 Statement and Consultation

- 2.24 On 18 July 2007 Ofcom published a further document *Arrangements for porting phone numbers when customers switch supplier – a review of General Condition 18* (the July 2007 Statement and Consultation). In that document, Ofcom concluded that the porting lead time for mobile number portability should be reduced to two business days with effect from 31 March 2008 and an amendment to General Condition 18 was made. Ofcom further concluded that it was appropriate to require industry to establish a CDB which would enable direct routing. However, at that time, Ofcom did not amend General Condition 18. Ofcom did not consider it appropriate to make such an amendment at that time as it did not consider that the timescales for implementation were sufficiently clear.
- 2.25 Ofcom therefore issued a further consultation in the July 2007 Statement and Consultation which invited stakeholders to comment on specific questions relating to the timeframes for establishing the CDB and implementing direct routing. Following further consideration of the mobile number portability process, Ofcom also proposed that providers of mobile services should be required, by 1 September 2009, to further

¹³ http://www.ofcom.org.uk/consult/condocs/numport/mod/mod_statement.pdf

¹⁴ <http://www.ofcom.org.uk/consult/condocs/gc18/gc18r.pdf>

reduce the lead time for porting mobile numbers to 2 hours and that the process should be “recipient led”, i.e. it should no longer require the customer to contact his existing provider before the porting process can start, and the gaining (recipient) provider should be empowered to initiate the port request.

Routing of calls to ported numbers

- 2.26 With a view to addressing the deficiencies in respect of the routing of calls to ported numbers, summarised in paragraph 2.7 above, the July 2007 Statement and Consultation set out Ofcom’s conclusion that communications providers should be required to establish and populate a CDB holding sufficient information to enable providers which originate calls to ported numbers to route these without reliance on the donor provider. The document proposed that originating providers should be obliged to ensure that calls to ported numbers are routed in a manner which places no reliance on the donor provider.
- 2.27 The July 2007 Statement and Consultation set out Ofcom’s preferred, Option A, approach to setting deadlines, which was that the CDB should be established and populated with all ported numbers by 31 December 2008, so that any provider which wished to use it to route calls directly to ported numbers could do so from that date. This would be achieved by querying the CDB, each time a call is originated, to determine whether the called number has been ported and, if so, what route the call should take. The process is well established internationally, and is generally known as All Calls Querying (ACQ) of a CDB (ACQ/CDB). Under Option A, providers of mobile services would be required to directly route all calls to ported mobile numbers by 1 September 2009, and all other calls to ported numbers (fixed and mobile) would be directly routed no later than 31 December 2012. The date of 31 December 2012 was presented by Ofcom as an end date, before which all operators of fixed networks could be expected to have made the necessary changes to their networks.
- 2.28 The July 2007 Statement and Consultation also set out an alternative approach, Option B, under which Ofcom would set a 31 December 2008 deadline to establish and populate the CDB, but would not impose a deadline(s) for using the CDB to achieve direct routing of calls until after a further consultation in 2008. Ofcom had noted that some stakeholders, when responding to the November 2006 Consultation, had recommended that Ofcom should not set deadlines for deploying the CDB to deliver direct routing of calls until after further progress had been made in determining the technical specification of the CDB. However, Ofcom was sceptical that this approach would serve the best interests of consumers.
- 2.29 Ofcom noted that if, under either Option A or Option B, all providers co-operate from the start in populating the CDB with ported numbers, all consumers will benefit, to some extent, even where some providers have not yet started to interrogate the CDB when they originate calls. Networks which have not yet started to interrogate the CDB will be unable to route calls to numbers ported away from failed providers as they will not recognise that the number has been ported (unless they rely on transit via a third party which has implemented ACQ/CDB). However should those providers themselves fail, customers using number ranges originally allocated to them will be protected, to the extent that other networks use ACQ/CDB to determine how calls to numbers ported from those failed networks should be routed.
- 2.30 Ofcom proposed that the ACQ/CDB solution would meet its key objective of protecting consumers who have ported their number from the damage which would be caused should their former provider fail. The document also observed that ACQ/CDB would ensure that calls to ported numbers are routed efficiently, avoiding

conveyance through the donor provider, therefore releasing capacity reserved for such conveyance, and avoiding the need for further investment in donor conveyance capacity as more customers port their numbers. ACQ/CDB would also ensure that problems faced by a donor provider, such as capacity constraints, quality of service limitations and incompatibility with new services, would not affect the service of its former customers, since calls to those customers would no longer be routed through the donor provider. In Ofcom's view, the cost of implementing ACQ/CDB would be more than offset by the value of these benefits.

- 2.31 Ofcom asked three specific questions in relation to the proposed direct routing of calls to ported numbers;

Question 1.

Ofcom has decided to require fixed and mobile providers to implement and populate a CDB to enable direct routing of calls to ported numbers. Do you agree that providers should be required to achieve this by 31 December 2008?

Question 2

When setting the deadline for implementing and populating the CDB, should Ofcom simultaneously set deadlines for using the CDB to deliver direct routing of calls to ported numbers? If so, would it be appropriate to require mobile operators to achieve Direct Routing of calls to ported mobile numbers by 1 September 2009 and require mobile and fixed operators to ensure Direct Routing of all other calls to mobiles by 31 December 2012? Could this be done any earlier?

Question 3

If you believe Ofcom should not set a deadline for deploying the CDB to deliver direct routing at this stage but should, instead, consult again during 2008, how could Ofcom and industry ensure that appropriate momentum is maintained such that direct routing is achieved at the earliest practicable date?

Process for porting mobile numbers which is (a) recipient-led and (b) near-instant

- 2.32 With the objective of making the process of porting mobile numbers convenient, swift and simple, the July 2007 Statement and Consultation amended General Condition 18 to require mobile number portability to be achieved within 2 working days by 31 March 2008. The document also proposed that the mobile porting lead time should be further reduced to no more than two hours, and that the process should not require customers to seek authority to port from their existing supplier (i.e. the process should be recipient-led). Ofcom also stated that it would expect industry to take all reasonable steps to ensure that accelerated processes for porting mobile numbers protect consumers from the risk of mis-selling and slamming.
- 2.33 In making these proposals, Ofcom had noted that if ACQ/CDB were used to implement direct routing, the only change necessary to ensure correct routing when a number is newly ported from one provider to another is a single change to the relevant record in the CDB. By contrast, under current onward routing, porting a number requires changes to routing tables to be co-ordinated by at least two networks (donor and recipient) and sometimes three networks (donor, recipient and original range holder). The July 2007 Statement and Consultation set out the view that the simplicity of the routing change with ACQ/CDB could make near-instant mobile number porting more readily achievable.

- 2.34 Furthermore, the current process for porting a mobile number relies mostly on bilateral exchanges of data and messages between operators. A CDB, by contrast, could support common business rules for porting numbers such that operators need only transact with the CDB to implement mobile number portability. This would mean that only one set of systems interfaces need to be agreed, programmed and tested by each operator to implement a new process, thereby reducing the overall work required and consequently reducing the cost of change. Although Ofcom is not prescribing the business processes which communications providers should adopt, Ofcom observes that as the number of communications providers grows, the number of bilateral arrangements will grow exponentially. Ultimately, this approach is unlikely to remain efficient or practicable, and a system of centralised message hubbing may prove more appropriate.
- 2.35 The July 2007 Statement and Consultation also observed that even if industry were to move to ACQ/CDB (to enable direct routing) without further reducing mobile port lead times and without making that process recipient-led, changes to the processes within each operator's systems would nevertheless need to be made to allow the mobile number portability process to change the routing of calls using ACQ/CDB rather than using onward routing. Ofcom estimated that the difference in cost between this change to MNOs' mobile number portability systems and that change which would implement a new mobile number portability process can be expected to be modest, and capable of being offset by cost savings gained through simplification of the process and avoidance of manual handling, for example avoiding consumer calls to donors to obtain PAC codes and confirmatory letters.
- 2.36 Ofcom noted that it would expect industry to take all reasonable steps to ensure that accelerated processes for porting mobile numbers continue to protect consumers from the risk of mis-selling and slamming.
- 2.37 Ofcom asked a specific question in relation to the proposed change to a near-instant recipient-led process for porting mobile phone numbers;

Question 4

Do you agree that, where a CDB is in place and supporting direct routing of calls to ported numbers, changes could be implemented enabling (i) recipient-led and (ii) near-instant (not longer than two hours) porting of mobile numbers at modest incremental cost proportionate to the benefits? Ofcom would welcome detailed views on the additional costs involved, including whether any additional costs would be incurred in ensuring that the CDB itself can support near-instant (not longer than two hours) recipient-led mobile porting.

- 2.38 Ofcom has received a number of responses to its consultation and has considered these carefully. Ofcom is now setting out its conclusions in relation to the timescales for the implementation of the CDB and the routing of calls to ported numbers, and changes to the processes for mobile number portability (requiring it to be recipient – led and near-instant). Ofcom is also setting out in the following sections its consideration of responses to the July 2007 Statement and Consultation.

Section 3

Ofcom's reasoning and conclusions

- 3.1 Ofcom sets out in this section its reasoning and conclusions in respect of (a) the routing of calls to ported numbers and (b) the process for porting mobile numbers. In setting out those conclusions, Ofcom sets out its response to issues raised by respondents to the consultation.
- 3.2 Ofcom received 25 responses to the July Statement and Consultation. Responses were received from Orange PCS Ltd ("Orange"), O2 (UK) Ltd ("O2"), Vodafone Ltd ("Vodafone"), Hutchison 3G UK Limited ("H3G"), BT plc ("BT"), Cable and Wireless plc ("C&W"), Virgin Media Inc ("Virgin Media"), Thus plc ("Thus"), the Network Interoperability Consultative Committee ("NICC"), the Internet Telephony Services Providers Association ("ITSPA"), the Federation of Communication of Services ("FCS"), the Fixed Number Portability Working Group (the "FNP Working Group"¹⁵), OnePhone UK Ltd ("OnePhone"), Truphone Software Cellular Networks Ltd ("Truphone"), Mapesbury Communications Ltd ("Mapesbury Communications"), Scottish and Southern Energy plc ("Scottish and Southern Energy"), USwitch, Simply Switch, Syniverse Technologies Ltd ("Syniverse"), J Peters, F Jardine and M Parks. Confidential responses were received from [redacted]. Parts of the responses from O2, H3G and Vodafone were redacted for publication.

Routing of calls to ported numbers

Ofcom's objectives

- 3.3 As set out in the July 2007 Statement and Consultation¹⁶, in considering the method of routing calls (that is, the question of whether it is appropriate to require providers to move to the use of a central database), Ofcom's major objectives are to protect consumers as far as possible from the effects of network failure and to ensure the efficient use of networks. The key identified risk to consumers in the current method for routing calls to ported number was the loss of incoming calls where the Donor Provider ceases to be able to onward route calls to the Recipient Provider (whether due to financial or technical failure). Ofcom therefore concluded in the July 2007 Statement and Consultation that it was appropriate to require industry to establish a CDB which would enable direct routing. Ofcom's consultation concerned only the implementation timetable for the establishment and use of the CDB.

Protecting consumers from network failure

- 3.4 As noted above, customers who port their number in the UK remain vulnerable to possible failure of the donor provider, who is relied on to forward calls to the recipient provider. If a provider were to fail, its former customers who had ported their numbers to another provider would lose all their incoming calls. At the same time, existing customers of the failed provider would not be able to keep their numbers when they move to a new provider. This would result in significant inconvenience and cost to consumers who might have to invest in promoting their new number (for example advertising and stationery) and who might face loss of business as a result of having

¹⁵ The FNP Working Group represents the interests of provider of fixed telephony services in the context of number portability.

¹⁶ See paragraph 3.2

to change the number. This situation occurred in 2001, following the failure of Atlantic Telecom when 14,000 customers lost service.

- 3.5 Even where a donor provider does not suffer outright failure, the quality of service experienced by former customers who have ported out their number may suffer if the donor provider fails to provide sufficient conveyance capacity to avoid network congestion or call quality degradation. Also some new services offered by the recipient provider may not work satisfactorily if the donor provider is unable to support them when forwarding the call. Awareness of this factor may cause some providers of new services to delay implementation, harming the interests of all customers and not only those who have ported in their number. This problem arose when some mobile providers wished to launch video calling but transit providers were unable to support the relevant technology.

Efficient routing of calls

- 3.6 The double-handling (or “tromboning”) of calls to ported numbers generates additional network switching costs (as opposed to customer switching costs) which, ultimately, are passed on to consumers. These costs could be avoided if calls to ported numbers were routed directly from the originating or transit network to the recipient provider. The level of these cost savings is explored in Annex 1 to this statement. Direct routing would also free-up some network capacity.

Implications for the method of call routing

- 3.7 Considering these two objectives together in assessing the evidence for regulatory change, Ofcom’s aim is to ensure that all calls to ported numbers are routed without reliance on the donor network. Ofcom considers that, whether this is achieved by all originating operators interrogating a CDB, or whether some providers choose to rely on commercial arrangements with transit operators to determine call routing on their behalf (in effect, purchasing access and the functionality of a CDB from another operator) is a matter for individual providers to determine.

Market failure and rationale for intervention – routing of calls to ported numbers

- 3.8 Direct routing of calls to ported numbers replaces inefficient indirect routing via the donor network with more efficient direct routing, enabling industry to reduce the cost of conveying calls to ported numbers. However, as explained in the following paragraph, it is Ofcom’s view that individual operators would not be able to achieve savings if they moved unilaterally to direct routing. Since the incentives of different operators are not aligned, a collective decision by the industry is not likely to take place voluntarily (although this would benefit industry as a whole). Given this coordination failure, Ofcom’s concerns about the disadvantages of onward routing for consumers, in relation to exposure to network failure and inefficient conveyance costs, are unlikely to be addressed. This is explained further below.
- 3.9 Part of the additional cost of onward routing is recovered by donor networks from terminating recipient networks in proportion to the volume of incoming call minutes to ported numbers. Originating operators, which determine how calls are routed, face no financial incentives to directly route calls as they do not pay the additional cost. Although most providers both terminate and originate calls, it is not feasible for any one provider (perhaps responding to a relatively high proportion of inbound calls to ported numbers) to ensure unilaterally that all inbound calls to his network are directly routed, as the decision rests with each originating and transit operator of

those inbound calls. Therefore, no provider is in a position to harvest efficiency gains on a unilateral basis.

- 3.10 Furthermore, as noted by many stakeholders who responded to the November 2006 Consultation, a high degree of co-operation between competing providers would be required to deliver an industry-wide change to direct routing. The difficulty in reaching agreement is likely to be exacerbated by the fact that, depending on call patterns and volumes of ported-in numbers, some providers would lose competitive advantage from a change, while other would gain (even though, overall, costs will fall).
- 3.11 For these reasons Ofcom indicated in the July 2007 Statement and Consultation that it did not consider that the market could be relied on to deliver a transition to direct routing and therefore concluded that it should require industry to establish a CDB to enable direct routing.

Views of stakeholders and Ofcom 's response – routing of calls to ported numbers

Merits of a CDB

Respondents' views

- 3.12 Although the July 2007 Statement and Consultation did not explicitly invite comments on the merits of using a CDB to directly route calls to ported numbers (Ofcom having previously assessed views on this issue following the November 2006 Consultation and concluded that a CDB was necessary), many stakeholders commented once again on this question. BT, C&W, Thus, Virgin Media, Orange, H3G and ITSPA acknowledged the possible benefits and the rationale for implementing direct routing in conjunction with fixed network NGN deployment, although all except C&W and ITSPA had concerns about Ofcom's proposal that it should intervene to mandate change at this time. The FNP Working Group agreed, in principle, that a pan-industry database to enable direct routing, to be deployed in conjunction with NGNs, has merit, but warned that many implementation issues had not yet been considered properly. [X]
- 3.13 Vodafone and O2 argued that other lower cost arrangements could be put in place to address concern about the routing of calls to ported numbers, including financial compensation for affected customers or block transfer of numbers from failing networks. [X].
- 3.14 NICC argued that Ofcom should require all providers to populate the CDB with all numbers, and not just ported numbers, so that wider benefits can be realised. NICC warned that a decision by a few providers to opt out of an optional all-number approach would negate the benefits. This view was shared by C&W, Thus, Virgin Media, OnePhone and FCS. In contrast, BT, Vodafone, O2 and Orange each reserved final judgement and cited this as a further reason why Ofcom should delay mandating any changes until further consultation has taken place. [X]
- 3.15 Vodafone further claimed that a decision to limit the regulatory obligation to a requirement to populate the CDB with ported numbers may pre-empt commercial consideration of whether such a CDB should also include non ported numbers, and that Ofcom's cost benefit analysis should consider the possible detriment of implementing a sub-optimal decision.

- 3.16 T-Mobile, Vodafone and NICC warned that short message services (“SMS”) originated on non-UK handsets and sent to ported UK mobile numbers will have to be onward routed as foreign networks will have no means of accessing a UK numbering database. T-Mobile and NICC also noted that appropriate standards for routing SMS originated on UK handsets will need to be agreed. NICC reported that, although these issues are not without technical complexity, it should be possible to devise a solution. NICC recommended, however, that the solution should not attempt to make provision, at this stage, for SMS which is sent to fixed networks other than BT, as only BT currently offers SMS on a fixed network, and to accommodate other potential providers would add to the complexity of the solution. This view was shared by OnePhone. Vodafone also reported that the UK mobile industry is investigating mechanisms to facilitate routing of UK originated SMS to ported mobile numbers in the context of new entrants which do not have links to each other and to all established mobile networks. Vodafone expressed concern that Ofcom’s proposed changes to General Condition 18 would rule out one of the options being considered (the use of a central SMS hub). OnePhone also referred to this issue but took the view that the CDB presents an opportunity to solve this problem.
- 3.17 H3G presented confidential data showing the impact on H3G’s termination revenues of the present arrangements for routing calls to ported numbers. Under present industry-agreed arrangements for terminating calls on ported numbers, recipient providers receive the termination rate set by the donor for the relevant number range, less the donor conveyance charge which is the charge levied for onward routing on mobile networks.

Ofcom’s response

- 3.18 Ofcom has considered these submissions, weighing the points made in light of Ofcom’s two objectives to protect consumers from the effects of poor or failing donor networks, and to achieve efficient arrangements for call routing as the market develops.
- 3.19 Ofcom considers that the risks to consumers of failing networks are material and, given Ofcom’s statutory duties and powers, Ofcom should act to address these risks where it is consistent with its other duties to do so (for example, that this can be done at reasonable cost and in a way that reflects the need to act proportionately). Although it is not a primary consideration, Ofcom considers that it is useful to note that the UK is almost alone amongst European and North American countries in relying on onward routing.¹⁷
- 3.20 Although the Atlantic Telecom failure (which first triggered concern in the UK) happened 7 years ago, there has not been another downturn in the telecoms market since that time and, therefore, the fact that similar failures have not occurred does not provide sufficient comfort (in Ofcom’s view) that further failures are unlikely in future. This is particularly true given the prospect of new entrants offering services that will compete with or be delivered alongside conventional services. Many of these entrants are likely to use new technology and innovative business models – itself, of course, a positive for competition and, hence, consumers. Inevitably, however, this has an important corollary: the pool of potential failures (and hence, affected customers) is also growing. One specific problem that occurred during the Atlantic failure (and Ionica before it) was that no other operator wanted to buy or use its non-standard wireless infrastructure, and customers reliant on this were stranded without service. This risk is growing rather than diminishing as, for example, new spectrum

¹⁷ The footnote 7 above

releases enable a wider range of standards to be used when providing service. In such cases it is not prudent to simply assume (as O2 proposed) that there will be an ability to transfer services en masse to a provider of last resort.

- 3.21 O2 also suggested that alternative arrangements could be put in place other than changes to the way in which calls are routed – for example, an industry fund to compensate customers for losses arising where a network fails. Ofcom agrees that, if no other solution were available, this could be an important option to explore. However, the question in this context is whether that is preferable given the available alternative of using a CDB and adopting direct routing, which would prevent the risk of harm to consumers and deliver routing efficiencies. All other things being equal, a solution that prevents the risk of harm to consumers furthers the interests of consumers more effectively than steps to provide compensation for that harm when it occurs. Ultimately, Ofcom does not consider that a fund (or some variation on this theme) addresses the root cause of the problem, and therefore does not consider this would be a reasonable basis on which to change the proposed approach.
- 3.22 As noted in Section 1 above, Ofcom recognises that a CDB populated with all numbers (and not just ported numbers) would offer additional benefits to consumers and suppliers by improving numbering administration and facilitating development of new services offering sophisticated call routing options. Ofcom has no objection to the database being used for purposes in addition to number porting if communications providers wish to do so, in ways that are otherwise consistent with the wider regulatory framework and competition law. However, given the other submissions received, there does not yet appear to be a broad consensus within industry on whether the CDB should contain all numbers. Therefore, although Ofcom can see merit in the points the NICC makes, Ofcom has concluded that it would not be appropriate to impose an obligation to populate the CDB with all numbers at this time. This does not preclude future regulation to achieve this outcome, if that is appropriate. In Ofcom's view, the option to populate the CDB with all numbers will remain open for some time to come, and, for this reason, Ofcom does not accept Vodafone's assertion that early implementation of a CDB may result in a sub-optimal outcome with respect to non ported numbers.
- 3.23 The submissions received on the impact on SMS shed light on an important issue. For an increasing number of consumers, SMS forms an important part of their mobile communications needs.¹⁸ Although voice services remain the primary concern for number portability (given that the rules apply to the delivery of telephone services) it is sensible to consider the impact on SMS of Ofcom's proposals.
- 3.24 Ofcom accepts that it may prove impracticable for SMS messages from non-UK handsets to ported UK numbers to be directly routed. However, Ofcom understands that those SMS messages represent only a very small proportion of all SMS messages received by UK consumers. Therefore, if, following careful review by the industry, it proves impracticable to directly route such SMS messages, then, Ofcom does not consider that the small risk to consumers is sufficient reason to delay addressing the wider problem of voice calls (international or otherwise) and SMS originated on UK handsets and terminating on ported numbers. Ofcom does consider, however, that the interests of consumers would be best served if all traffic were directly routed. Ofcom notes that, in any event, non-UK providers of communications services are not subject to General Condition 18. Ofcom can also

¹⁸ Some 12 billion SMS and MMS were sent during the first quarter of 2007. See Ofcom Market Data tables http://www.ofcom.org.uk/research/cm/tables/q1_2007/q1_2007.pdf

confirm that NICC's proposal that no provision should currently be made for direct routing of SMS terminated by fixed networks other than BT, would not be in breach of the modified General Condition 18, as the obligation to route directly relates to current traffic.

- 3.25 Ofcom notes Vodafone's observations concerning possible changes to the way UK originated SMS is routed. Ofcom shares the view of OnePhone that the CDB presents an opportunity rather than a threat to those seeking to facilitate routing of SMS traffic to ported numbers. In Ofcom's view it does not follow that the use of a signalling hub should necessarily, as Vodafone suggests, avoid enquiry of a CDB by making a signalling enquiry to the range holder network via the hub. The CDB could still be used to determine the correct network to which the message should be routed, while a hub could still be used, if industry concluded that this was appropriate, to avoid the need for a large mesh of bilateral signalling interconnections between mobile network operators. The design of such a hub solution would need in any case to address the need to avoid introducing a new single point of failure, for example by providing two alternative and separate hubs.
- 3.26 Ofcom is aware of the current arrangements under which recipient networks receive the termination charge set by the donor network. As Ofcom set out in the July 2007 Statement and Consultation, Ofcom's objective in relation to the establishment of the CDB and the use of direct routing is to protect consumers against certain effects arising from failure of networks. Ofcom has not considered whether the current arrangements for the payment of termination charges should or should not be subject to change. However, Ofcom notes that, where direct routing is in place, the recipient network would receive its own termination charge.

Conclusion

- 3.27 In light of the above, Ofcom reiterates its conclusion set out in the July 2007 Statement and Consultation that fixed and mobile providers should implement and populate a CDB to enable Direct Routing of calls to ported numbers. Ofcom does not consider that the responses to the 2007 Statement and Consultation have raised any issues which would cause Ofcom to reconsider that conclusion.

Uncertainty about costs and timeframes

Respondents' views

- 3.28 All communications providers, except H3G, Truphone, Mapesbury Communications and Scottish and Southern, were concerned that costs and timescales for this extended project are difficult to forecast. Many worried that costs might escalate and regulatory deadlines might be missed through no fault of individual communications providers, as establishing a CDB necessarily depends on co-operation among communications providers. Most envisaged Ofcom being closely involved in project management during the early planning and implementation stages, and saw little chance of industry reaching agreement on technical, commercial or governance issues without firm leadership.
- 3.29 Only [redacted] presented any cost estimates for deploying a CDB to enable direct routing, or any estimates of the efficiency savings to be gained through direct routing. [redacted]. On 8 November O2 stated in an email that direct routing of voice calls using a central database would cost O2 [redacted]. O2 provided no information to explain or substantiate these assertions.

- 3.30 O2 and Vodafone expressed the view that Ofcom's justification for requiring implementation of direct routing using a CDB had undergone a change of emphasis since the November 2006 Consultation was published. In their view Ofcom was now giving less weight to the efficiency savings and more weight to protecting consumers from donor failure.
- 3.31 Vodafone, O2 and BT also observed that as Ofcom has now determined that the cost of donor conveyance is 0.2ppm, two of the scenarios previously modelled by Ofcom in its sensitivity analysis can now be dismissed.¹⁹ Vodafone further argued that the 0.2ppm cost of onward routing, assessed for Ofcom by Analysys in the context of Ofcom's assessment of the cost of donor conveyance, needs to be adjusted to reflect likely changes to these costs during the period to 2018.
- 3.32 Vodafone also questioned Ofcom's assumptions in respect of porting volumes, noting that Ofcom had relied on market research to estimate the current levels of porting rather than seeking data directly from operators. Vodafone did not, however, provide any alternative data as evidence supporting its assertion that Ofcom's market research could not be relied on as a reasonable estimate of porting volumes.
- 3.33 Vodafone and O2 also argued that, when estimating volumes of onward routed traffic, Ofcom had taken insufficient account of present, and possible future, use of 'Call Trap' to directly route some calls to ported numbers. Call Trap is a mechanism for ensuring that mobile on-net calls to ported numbers (i.e. to numbers ported in to the same network from which the call originates) are not routed off-net, and this mechanism, therefore, reduces the numbers of calls which are onward routed.
- 3.34 Vodafone argued that Ofcom's cost benefit analysis should be modified to take into account expenditure on direct routing by providers of fixed services before 2012.
- 3.35 In conclusion, Vodafone claimed that if Ofcom's own assumptions are reworked, reflecting the factors referred to in paragraphs 3.31 to 3.34 above, the net present value of Ofcom's proposals would be negative under a variety of cost and volume inputs. In the view of Vodafone, the analysis fails to provide a robust justification for intervention.
- 3.36 BT noted that, in the cost benefit analysis, Ofcom had chosen not to take into account the quantified benefit to consumers of security against donor failure and loss of incoming calls. Nevertheless, BT reported that, in its view, the benefit of £296 per affected customer, assessed for Ofcom by Sagentia based on earlier analysis by Masons, would no longer be valid, as modern technology has now provided cheaper ways to inform contacts of a change of number.
- 3.37 BT also argued that Ofcom's analysis did not address the unequal distribution of costs and benefits between fixed and mobile networks. BT noted that the capital costs faced by fixed networks were estimated to be much higher than those faced by mobile networks, whereas the benefits accruing to fixed networks would be lower than those accruing to mobile networks. BT observed that, as a result, fixed networks will experience no significant gross benefits and, potentially, negative net benefits. BT proposed that funding of the database should reflect this unequal distribution of costs and benefits.

¹⁹ *Determinations to resolve disputes between Hutchison 3G and each of O2, Orange and T-Mobile concerning donor conveyance charges*
http://www.ofcom.org.uk/bulletins/comp_bull_index/comp_bull_ccases/closed_all/cw_952/deter.pdf

Ofcom's response

- 3.38 Ofcom notes Vodafone's view that the figure of 0.2.ppm will not be representative of the cost of mobile onward routing during the period to 2018 if traffic is carried predominantly on 3G networks. Ofcom accepts Vodafone's view that it is plausible that the costs of onward routing may be lower. Ofcom has therefore modelled a scenario under which the cost of onward routing calls to ported mobile numbers is assumed to fall at a constant rate to 0.12ppm (Vodafone's figure) in the last two years of the model (2017/2018).
- 3.39 Ofcom recognises that it is no longer appropriate to consider a cost benefit scenario under which the cost of mobile donor conveyance is assumed to be 0.8ppm, as Ofcom has recently determined that this cost is of the order of 0.2ppm.²⁰ This scenario was included in the range of sensitivity tests set out in the July 2007 Statement and Consultation to provide continuity with the analysis set out in the November 2006 Consultation, although Ofcom explicitly noted that the figure was no longer relevant.
- 3.40 Any assessment of the efficiency savings to be gained from direct routing must take into account the extent to which providers of mobile services have already committed funds to deployment of Call Trap. Ofcom recognises that Call Trap is used to directly route on-net calls to ported mobile numbers (i.e. numbers which have been ported to the same network on which the call is originated). Ofcom had assumed that Call Trap reduces the volume of onward routed calls by 8%, on the basis that, if implemented by all mobile networks, Call Trap would reduce onward routing traffic by 20%. As only 2 providers have implemented Call Trap to date, Ofcom discounted that reduction by two fifths to 8%. However, Ofcom accepts that there may be some merit in Vodafone's view that the figure of 30% may more realistically represent the average proportion of on-net traffic over the period under consideration. This increases the proportion of traffic affected by Call Trap to 12% (from 8%), under the present case where only two mobile operators appear to have implemented Call Trap.
- 3.41 Ofcom has however also considered the more conservative case where, in the absence of any regulation to mandate the use of the CDB for direct routing on a particular timetable, all the mobile operators might have implemented Call Trap during the period of this model. If this were so, the benefits of Call Trap must be netted from the savings that can be achieved from direct routing. Although a conservative assumption, Ofcom has revised its Base Case on the assumption that the proportion of traffic affected by Call Trap would be 30% for the industry (on the basis that all mobile operators would see a 30% reduction in their ported in traffic). The less conservative figure of 12%, based on just two operators having implemented Call Trap is now considered as Sensitivity 1.
- 3.42 Future growth of mobile number porting (absent the changes proposed by the July 2007 Statement and Consultation) is also subject to a degree of uncertainty. The figure of 5% porting per year, assessed by Ofcom through the use of market research is consistent with data obtained by Ofcom showing changes in volumes of call minutes to ported mobile numbers. Information provided by the mobile operators in September 2006 showed that ported traffic between the first 2 quarters of 2005 and 2006 increased by 6%. Assuming that the mobile market remains competitive and an annual churn of 15% continues to hold, there is little reason to believe that growth in porting will reduce over time. Vodafone's responses on annual porting

²⁰ See footnote 19

volumes and the effects of Call Trap are discussed in greater detail in the cost benefit analysis set out in Ofcom's Regulatory Impact Assessment in Annex 1.

- 3.43 Ofcom has modified the cost benefit analysis in Annex 1 to reflect the expected expenditure on direct routing before 2012 by providers of fixed services. Ofcom agrees with Vodafone that it is appropriate that the timing of this expenditure (and the savings) should be reflected realistically in the analysis. Ofcom has relied on published assumptions about the rollout of BT's NGN during the period to 2012.
- 3.44 Ofcom's assessment of the costs and benefits is set out in more detail in Annex 1 to this statement. Under the core assumptions, the savings to industry outweigh the costs. This conclusion, as BT noted, does not take into account the savings to customers who might otherwise be affected by donor failure. As BT observed, the size of the savings per customer may be subject to a degree of uncertainty. However the uncertainty with respect to the number of customers affected is far greater as, clearly, this depends on the size of the undertaking(s) which may fail in the period under consideration. As Ofcom noted in the July 2007 Statement and Consultation, failure of only one small enterprise could affect many tens of thousands of customers, each of whom will suffer expense, inconvenience and, potentially, distress. Ofcom has concluded that it is proportionate to require industry to implement the solution to protect consumers from such failure. In addition, Ofcom notes that the costs to industry of implementing a solution are at least matched by the savings to industry under the core scenarios,
- 3.45 Ofcom notes BT's proposal that funding of the CDB should be proportionate to the costs and benefits felt by each provider. Ofcom intends that funding arrangements should be a matter for industry. Although Ofcom anticipates that communications providers should be able to agree cost-oriented funding of the common database, Ofcom may consider further intervention should these arrangements unfairly penalise particular groups of providers. Ofcom is also aware, however, that failure to agree funding principles could, potentially, jeopardise achievement of the project deadlines and will therefore expect industry to make particular efforts to avoid this eventuality.
- 3.46 Ofcom also recognises that there is a degree of uncertainty about how quickly industry can establish a CDB and deploy this to enable direct routing of calls to ported numbers. For this reason, Ofcom has decided to require communications providers to populate the CDB and use this to achieve direct routing "as soon as reasonably practicable" and, in any event, no later than a given end date. Ofcom considers the 2012 deadline for implementing fixed direct routing is a firm deadline. Ofcom would review this only if developments in the industry gave rise to a substantial case for doing so, for example if large-scale NGN investment plans were delayed materially.
- 3.47 In Ofcom's view, there is much less uncertainty about how soon providers of mobile services will be able to populate and use the CDB to achieve direct routing of calls to ported mobile numbers, as these actions are not dependent on achievement of fundamental changes in network technology.
- 3.48 Project management to ensure compliance with regulatory obligations to establish and populate a CDB will, clearly, be needed. Ofcom agrees that strong leadership will be required. Ofcom will initially appoint an independent project management team, trusted by all players, to drive progress and ensure that communications providers co-operate to establish a CDB and agree suitable governance arrangements for decision making and cost sharing.

- 3.49 Ofcom acknowledges, as Vodafone and O2 have noted, that the July 2007 Statement and Consultation set out its primary objective, in respect of direct routing, as protection of consumers from the impact of failing donor networks. As has been set out in the November 2006 Consultation and July 2007 Statement and Consultation, there are other benefits to be derived from direct routing, including more efficient use of networks, and fewer constraints on the ability of individual providers to launch new services which other providers may not be able to support. However, the risk of failure by a donor network has always been Ofcom's primary concern.

Conclusion

- 3.50 Ofcom recognises that there is uncertainty about the costs of establishing and deploying ACQ/CDB, particularly the costs faced by individual communications providers in interfacing with the CDB as these may vary between users. Provided that the CDB is deployed in conjunction with deployment of next-generation networks, it is Ofcom's view, informed by the feasibility study conducted for Ofcom by Sagentia²¹, that the costs are offset by savings to industry under a wide range of scenarios, including those where the capital costs are increased by 70% relative to the Base Case. Furthermore, this assessment of, at worst, a neutral NPV for industry is achieved before any account is taken of the benefits to consumers in terms of security of service in the event of donor failure, which is one of the objectives of this intervention.

Enforcement of regulatory obligations

Respondents' views

- 3.51 Vodafone, Orange and Virgin Media questioned Ofcom's ability to take fair and effective enforcement action to ensure that an obligation to establish and populate a CDB is met. While the changes to General Condition 18 will require each communications provider to use "all reasonable endeavours to establish and populate a CDB" by a given date, these companies have questioned how any one provider can be held not to have used reasonable endeavours where the effort must necessarily be common to many providers. These critics doubt that Ofcom could mount enforcement action and worry that any such action would be unfair where no one provider has the ability to meet this regulatory obligation without the co-operation of others.
- 3.52 H3G proposed that Ofcom should create commercial incentives for providers to move to direct routing, by setting the Donor Conveyance Charge ("DCC") at zero and by changing the charging arrangement so that recipient terminating operators determine the charge for termination on ported-in numbers. Thus, too, argued that Ofcom should create commercial incentives for efficient use of the CDB. Thus proposed that Ofcom should prohibit donor providers from charging for onward routing.
- 3.53 H3G also proposed that Ofcom should set out financial penalties for failure to directly route calls when a populated CDB is in place. H3G cited the example of fixed networks which choose not to use the CDB to directly route calls to mobile networks, and proposed that they should be obliged to pay the donor network a fee equivalent to the full the cost of onward routing (recently established by Ofcom as 0.2ppm).

²¹ Published by Ofcom as Annex 6 to the November 2006 Consultation

Ofcom's response

- 3.54 Ofcom recognises that where a degree of co-operation between competing providers is required to deliver compliance with a regulatory obligation, and some providers may believe it is in their commercial interest to delay progress of, for example, more consumer-friendly porting processes, then there is a risk that some providers may seek to obstruct delivery. In Ofcom's view this will, generally, be evident to other providers and any independent project management team. Ofcom acknowledges, however, that enforcement action in respect of failure to use reasonable endeavours may be difficult for Ofcom to support without specific evidence and difficult for communications providers to defend. For this reason, responding to the concerns voiced by industry, Ofcom has decided to include direction-making powers within modified General Condition 18.
- 3.55 As noted in paragraph 3.69 below, Ofcom has decided that the obligation to populate the CDB should be specified separately from the obligation to establish a CDB (and should be subject to a later deadline), and this is now an unqualified obligation rather than an obligation to use reasonable endeavours.
- 3.56 The obligation in respect of establishing a CDB remains an obligation to use reasonable endeavours as Ofcom recognises that no communications provider has the ability to establish a CDB without a degree of co-operation from others. To ensure that Ofcom and affected communications providers can have confidence that any enforcement action will be targeted and specific, Ofcom has decided to include within the modified General Condition 18 direction making powers which will enable Ofcom to direct:
- the nature of the CDB which is to be populated with ported numbers; and
 - specific actions, in addition to the general obligation, that a communications provider must take to establish a CDB.
- 3.57 Ofcom continues to maintain that industry is best placed to determine the nature of the CDB and the details of the implementation plan. Therefore, Ofcom does not intend to use these direction making powers unless there are reasonable grounds for believing that the delivery of a compliant CDB by 31 December 2008 may be at risk. One important factor in considering whether to do so will be the advice Ofcom receives from any independent project management team which is involved in facilitating implementation.
- 3.58 Ofcom agrees that, where practicable, it is helpful if commercial incentives are aligned to support regulatory obligations. In many circumstances, of course, this will not be possible or appropriate, and ultimately, compliance with regulatory obligations that are appropriately set by Ofcom to further the interests of consumers is a legal obligation, not a commercial decision. Ofcom will assess progress with populating the CDB and achieving direct routing, and in the light of this assessment will consider whether commercial incentives can be more usefully aligned. Ofcom notes that donor providers already face some commercial incentives to route calls to ported numbers more efficiently, as they currently receive only 50% of the cost from recipients²². At this stage it is not possible to determine where commercial incentives need strengthening, for example, whether incentives need to be applied to providers which are tardy populating the CDB with their ported numbers or whether it would be more productive to direct incentives towards those who are slow to use the CDB to route

²² See footnote 20 above

calls to ported numbers. Given these uncertainties, Ofcom is not intervening to change commercial incentives at this stage.

Conclusion

- 3.59 Ofcom recognises the difficulties which may be faced in establishing, populating and using the CDB given the need for multiple operators to co-operate in its establishment and use. Ofcom recognises that it is preferable in this regard to apply obligations which impose absolute requirements on individual providers rather than a general requirement to co-operate. Ofcom has therefore concluded that it is appropriate to require Communications Providers to establish the CDB using all reasonable endeavours and to comply with such obligations in relation to the establishment of the CDB as Ofcom may from time to time direct. Ofcom considers that such a measure is necessary to ensure that enforcement action may be targeted and specific.
- 3.60 As regards the population of the CDB following its establishment, Ofcom considers it appropriate to impose an absolute obligation on Communications Providers to populate the CDB with ported numbers.

Views on proposed deadlines for establishing and populating the CDB

Respondents' views

- 3.61 Before a central database can be used to enable direct routing of calls to ported numbers, it must be designed, procured and populated with details of ported numbers. There was broad agreement that early implementation should be driven by both fixed and mobile providers. Vodafone and Orange were against MNOs being used as 'guinea pigs', and BT was against the programme being unduly influenced by the mobile industry. Most stakeholders, however, were concerned that, as a technical specification for the CDB has not yet been finalised by NICC, it is difficult to be confident that the CDB can be established and populated by 31 December 2008. The need for industry to agree governance arrangements, for reaching decisions and sharing liabilities, before a contract could be awarded was cited by many as an even more serious potential obstacle.
- 3.62 In contrast, Syniverse expressed the view that the timescales proposed by Ofcom are achievable. Syniverse further proposed that a CDB could be established and populated more quickly than Ofcom had set out if it was restricted to ported mobile numbers only. H3G and Truphone, similarly, argued that a CDB for mobile-only use could be established well before 31 December 2008.
- 3.63 NICC, BT, C&W, Thus and Virgin Media all proposed that a staged approach should be taken, with fixed networks populating the CDB as and when they deploy NGNs for the applicable exchange (i.e. between 2008 and 2012). NICC warned that the task of populating the CDB is not straightforward and that, in any event, there are limitations on how such data can be used to route calls in a pre-NGN world. NICC advised that each ported number recorded on the CDB would need to be associated with information (typically a Destination Group code) to specify the location of the ported number in the recipient network. In contrast, H3G asserted that all ported numbers could be added to a proprietary CDB within one week. Orange, O2 and Vodafone considered that it would be discriminatory to require mobile networks to populate the CDB before fixed networks. [X] H3G and Syniverse asserted that the overall deadline could be met, but proposed that an interim mobile-only solution should be adopted (earlier than December 2008) as fixed networks face additional problems.

- 3.64 H3G argued that a commercial off the shelf solution for mobile networks only should be deployed on an interim basis, and should subsequently be upgraded to meet NICC standards suitable also for use by providers of fixed services. H3G proposed that such a solution could be established and populated by 30 September 2008 and used to route calls directly between mobile networks by 1 December 2008. (H3G also proposed that the same solution could be used to achieve near-instant recipient-led porting by the same date). H3G proposed, alternatively, that if Ofcom wished to proceed with a solution compliant with NICC standards, then this could be established and made ready for direct routing (and near-instant recipient-led porting) by 1 March 2009. This alternative solution, like H3G's preferred off-the-shelf solution, would initially apply only to providers of mobile services.
- 3.65 H3G supplied an assessment of its proposals by its Chief Technology Officer's team and a feasibility study by Accenture. Accenture observed that the deadline of 1 December 2008 proposed by H3G for achievement of an off-the-shelf solution to direct routing is "highly challenging". In noting that the solution would also need to enable near-instant recipient-led porting of mobile numbers, Accenture observed guardedly that "it is possible" that this would not affect the timing. Accenture advised, however, that this deadline, and the deadline of 1 March 2009 for the alternative NICC-based approach, was conditional on detailed design work being completed by 1 November 2007 and vendor selection being completed by 30 November 2007. Accenture also noted that achievement of the highly challenging deadline assumed that each provider of mobile communications services already has appropriate IT infrastructure already in place. Accenture confirmed that further work would be required to ensure subsequent compatibility with NICC standards suitable for application to providers of fixed services.
- 3.66 The conclusions of H3G's Chief Technology Officer's team were similar to those of Accenture in recommending the use of a mobile-only commercial off-the-shelf solution which does not meet NICC standards. The team also noted, as did NICC in its response to Ofcom (see above) that the task of populating the CDB with Destination Group codes was not inconsiderable and is open to data build errors. The team proposed instead that existing Intermediate Routing Numbers should be used on an interim basis, with Destination Group codes being deployed later to meet the deadlines for mobile to fixed direct routing. H3G's Chief Technology Officer's team also noted that achievement of the deadlines proposed by H3G was dependent on all providers of mobile services already having available a database suitable for holding a copy of the data on the CDB.
- 3.67 Several stakeholders chose to distinguish between (i) establishing the CDB and (ii) populating this with ported numbers. While some conceded that, with firm project management, the task of establishing the CDB might be completed by December 2008, few (including those who were broadly supportive of the objective) believed that it could be populated with all ported numbers by this time. Many stakeholders recommended that there should be separate deadlines for populating the CDB, and that these should be defined relative to the date when the CDB has actually been established and is ready to be populated.

Ofcom's response

- 3.68 Ofcom has concluded that it should adopt the preferred proposal set out in the July 2007 Statement and Consultation, that providers of fixed and/or mobile services should establish the CDB by 31 December 2008. In Ofcom's view there is merit in setting this date given that the evidence suggests it is a stretching but achievable deadline for this part of the project. Without a clear specific deadline set by Ofcom,

the policy goals sought by Ofcom would be vulnerable to delay as a consequence of failure to apply adequate resources and commitment to agreeing governance and commercial arrangements for procuring a CDB and managing its future use. If industry is unable to make swift progress agreeing governance principles, Ofcom may intervene to prescribe the arrangements, in addition to taking enforcement action for failure to use all reasonable endeavours to establish the CDB.

- 3.69 Having considered representations to the effect that the task of populating the CDB with ported fixed numbers may require considerable data processing, and having noted that it may be more efficient for providers of fixed services to conduct this processing in conjunction for preparations for deploying NGNs, Ofcom has concluded that it should set separate deadlines for (i) establishing the CDB and (ii) populating it with numbers, with the latter task being spread over a longer timeframe.
- 3.70 Ofcom has concluded that it would be reasonable that fixed ported numbers should be added to the CDB as and when the exchange serving that ported number is upgraded to NGN during the period to 2012. This will enable an orderly process for gathering and loading the data, minimising the risk of error and allowing the process to be managed as an integral part of the NGN migration.
- 3.71 Rather than attempt to define the process of NGN deployment in the modified General Condition 18, which could be problematic due to considerations of technology neutrality and the different plans made by different communications providers, Ofcom has decided that that deadline to populate fixed numbers should be defined as “as soon as reasonably practicable and, in any event, no later than 31 December 2012”. Ofcom will judge whether progress is “reasonable” with reference to, amongst other things, NGN deployment.
- 3.72 Ofcom maintains the view that the task of populating the CDB with mobile numbers is less onerous, as mobile providers are likely to operate with just one Destination Group code each. Also, while mobile communications providers will doubtless continue to upgrade and improve their networks, they do not have upgrade plans comparable in scale to fixed networks’ deployment of NGNs. Therefore, it is less likely that the process of populating the CDB could be achieved more efficiently if treated as an integral part of some other unavoidable work.
- 3.73 Ofcom acknowledges, however, that the December 2008 deadline for establishing the CDB is challenging, and slippage on this common effort would prevent providers of mobile services from meeting their individual obligations to populate the CDB by the same date. In practice, there would be no loss to consumers if the deadline for populating the CDB with mobile numbers was aligned with the deadline proposed for deploying direct routing of mobile to ported-mobile calls, i.e. 1 September 2009. This would give mobile providers more flexibility to decide when they should populate the CDB. Furthermore, Ofcom notes that NICC forecasts that by the end of 2009, some 20% of *fixed* ported numbers will be hosted on NGN nodes and, therefore, can reasonably be expected to be populated on the CDB. This means that timeframes for populating the CDB with fixed and mobile numbers would be aligned to a material extent, thus going some way to address the concerns of both mobile and fixed providers that mobile providers should neither be treated as “guinea pigs” nor allowed to dominate decision-making about the design and deployment of the CDB. To reflect the nature of the obligation imposed on providers of fixed services, Ofcom has concluded that the obligations on mobile operators should similarly be defined as “as soon as reasonably practicable and, in any event, no later than 1 September 2009”.

- 3.74 Ofcom acknowledges that a mobile-only solution, such as H3G has recommended, might, conceivably, be capable of being implemented more swiftly than a solution which would also enable direct routing of calls to ported fixed numbers. Such a solution would, of course, fail to protect millions of consumers from the risk of failing fixed networks. Given that direct routing of calls to and from some fixed numbers can be expected to start during 2009, Ofcom has concluded that resources should be focussed on a solution which will provide robust protection to consumers from failure of fixed as well as mobile networks. Deployment of an interim mobile-only solution followed shortly afterwards by a solution capable of addressing failure of fixed networks would be an inefficient use of resources which would be likely to delay implementation of the wider solution. This would be detrimental to consumers. Ofcom also notes that H3G's technical advisors warn that achievement of the deadlines proposed by H3G for an interim mobile-only solution is highly dependent on a number of specific conditions being met. A delay could swiftly erode any advantages to be derived from an initial mobile-only solution.

Conclusion

- 3.75 In light of the above, Ofcom considers it appropriate to require Communications Providers (both fixed and mobile) to establish a CDB as soon as reasonably practicable and, in any event, by 31 December 2008. Ofcom considers that it is not necessary to require the CDB to be populated at the same time and considers that population of the CDB should occur as soon as reasonably practicable and, in any event, by the date on which direct routing is required which, as set out below, is 1 September 2009 for mobile providers and 31 December 2012 for fixed providers.

Deadlines for fixed service providers to achieve direct routing

Respondents' views

- 3.76 It was generally agreed that, given a CDB is to be deployed, then fixed networks should be required to use it to directly route calls as and when they deploy NGNs.
- 3.77 Many stakeholders, however, including the FNP Working Group, expressed concern that the December 2012 deadline by which Ofcom has proposed fixed networks must use the CDB to achieve direct routing is too far off to allow its feasibility to be assessed. The date recognises that fixed networks which originate calls will need to establish NGNs before they can directly route calls. 2012 is the present forecast for widespread NGN deployment, but many stakeholders feared the NGN timeline will slip. Some stakeholders argued that a tight deadline for deploying direct routing will serve as a de facto deadline for NGN implementation, and argue that Ofcom should either commit to reviewing the deadline again in 2010 or that Ofcom should not set a deadline until nearer the time when NGNs are being established.

Ofcom's response

- 3.78 Ofcom considers the 2012 deadline for implementing direct routing is a firm deadline. Ofcom would review this only if developments in the industry give rise to a substantial case for doing so, for example if large-scale NGN investment plans are delayed materially. It is not Ofcom's intention, however, that timeframes for implementing NGNs should be driven by the obligation to deliver direct routing.
- 3.79 Ofcom's decision that the deadline should be defined as "as soon as reasonably practicable and, in any event, no later than 31 December 2012" (rather than imposing a simple fixed deadline) recognises that where a node supporting call origination has

been upgraded to NGN technology it will be feasible for the call originator to interrogate the CDB to determine the appropriate routing of calls to ported numbers. Where terminating networks have populated the CDB with some or all of the numbers which they have ported in (reflecting their own network upgrade plans), customers using those ported-in numbers will be protected to the extent that call originators use the CDB. This will be achievable in respect of many calls well before 2012.

- 3.80 Ofcom also intends to consider whether commercial incentives for efficient use of the CDB could be strengthened (ensuring that those slow to populate the CDB or slow to use it for call routing face the additional costs of onward routing). Any review would be conducted from 2010, in the light of actual population of the CDB and use of the CDB to achieve direct routing by providers of fixed and/or mobile services.

Conclusion

- 3.81 Ofcom considers, in light of the above that fixed network providers should be encouraged to implement direct routing at the earliest opportunity, in the course of the migration of their networks to NGNs. Ofcom is therefore requiring fixed networks to implement direct routing as soon as reasonably practicable and, in any event, by 31 December 2012.

Views on Ofcom's proposed deadlines for mobile networks to implement direct routing.

Respondents' views

- 3.82 Vodafone, O2, and Orange were against Ofcom's proposal that mobile networks should implement direct routing in September 2009 (ahead of fixed networks), arguing that this would be discriminatory. [3<] Ofcom had set out the view that mobile networks are inherently more capable of querying a CDB than fixed TDM networks, as they already query a Home Location Register ("HLR"). O2 challenged this view by claiming that the CDB envisaged by NICC is an IP-based solution. O2 stated, as a consequence of this belief, that providers of mobile services may need to migrate to IP-based networks sooner than they would otherwise seek to do. [3<] O2 claimed, as a consequence, that Ofcom's proposal to allow providers of fixed services to defer implementing direct routing until they have deployed NGNs, while requiring providers of mobile services to implement direct routing from 1 September 2009, was inconsistent, discriminatory, and not in accordance with the principle of technological neutrality. Vodafone also argued that early adoption of ACQ/CDB by providers of mobile services would fail to address concern about the routing of calls to ported fixed numbers.
- 3.83 [3<]. Orange too warned that there may be issues, as yet unidentified, which mobile providers will need to resolve before they can query a numbering CDB. Orange proposed that Ofcom should limit itself to setting review dates and an indicative roadmap rather than fixed deadlines. Vodafone questioned the value of mobile networks implementing direct routing before fixed networks, noting that this would not *completely* protect consumers from network failure.
- 3.84 In the view of Orange and Syniverse, when a CDB has been established, momentum for its use will by and large be self generating. Orange recommended, therefore, that Ofcom should focus its efforts on ensuring successful delivery of governance arrangements and the CDB itself.

- 3.85 In contrast, as noted in paragraph 3.65 to 3.66 above, H3G argued that Ofcom should require mobile networks to implement an interim mobile-only solution based on an existing proprietary system which, in H3G's view, could be implemented by 31 December 2008 rather than 1 September 2009. Alternatively H3G argued that, if the system was to be based on NICC bespoke standards, this should be implemented by 1 March 2009. H3G also challenged Ofcom's assumption that 9 months would be needed, after populating a fully functioning CDB, for the mobile industry to prepare itself to use the CDB to enable direct routing of calls to ported numbers.

Ofcom's response

- 3.86 One of Ofcom's objectives is to protect consumers from the impact of failing networks which would be unable to onward route calls to ported numbers. Ofcom believes action should be taken as swiftly as reasonably possible (taking into account costs). The proposal to require mobile providers to directly route calls to ported mobile numbers at a relatively early stage in the project reflects the fact that, while some changes to mobile networks will be required, mobile, unlike fixed, networks will not need to make fundamental changes to their networks before they can use a CDB. Ofcom recognises that it is perhaps unlikely that established mobile providers will fail in a manner which results in services on the provider's infrastructure ceasing without customers being offered alternative arrangements (as all mobile networks use common technology). This argument does not, however, hold strong in the case of new entrants using, for example, newly auctioned spectrum.
- 3.87 On the face of it, a 1 September 2009 deadline for mobile networks would be 3 years earlier than the 2012 deadline to apply to fixed networks. However, as noted in paragraph 1.11 and paragraph 3.70 above in the context of deadlines for populating the CDB, the decision that the 2012 deadline for fixed networks should merely be an end stop and that providers of fixed and mobile services should be obliged to directly route calls "as soon as reasonably practicable" means that there will be a considerable overlap in the timetables for deploying direct routing by providers of mobile and fixed services. Donor independence should therefore be achieved first for all mobile-to-mobile calls to ported numbers by 1 September 2009, and from then on for a progressively increasing proportion of all calls to ported numbers, culminating in complete independence of donor networks for all calls no later than December 2012.
- 3.88 Ofcom does not accept H3G's view that it would be reasonable to impose an obligation on providers of mobile services to implement direct routing within 3 months of establishing a CDB. Providers will need to ensure that the CDB is accurately and comprehensively populated with ported numbers and associated routing data, that robust internal systems for interrogating the CDB are in place, and that systems and processes deployed by individual providers are fully compatible. It is conceivable that the process may be completed in less than 3 months, and for that reason the obligation will be to achieve direct routing of mobile to ported mobile numbers "as soon as reasonably practicable and, in any event, no later than 1 September 2009". In Ofcom's view, however, prescribing an earlier deadline at this time would increase the likelihood of errors arising, resulting in call failure which would be detrimental to the interests of consumers.
- 3.89 Ofcom recognises that a proprietary mobile-only solution to number portability could perhaps be implemented more swiftly than a system which is required to be used by fixed and mobile providers. In Ofcom's view, however, the additional cost of implementing an interim solution, and the additional risk of call failure resulting from a two stage transition with parallel working, are not matched by the additional benefits to consumers of a slightly swifter transition to direct routing for a sub-set of calls to

ported numbers (i.e. calls from mobile networks to ported-mobile numbers). Ofcom's concerns about the viability of the timescales proposed were set out in paragraph 3.74 above in the context of proposed deadlines for establishing a CDB and populating this with ported numbers.

- 3.90 Ofcom notes O2's belief that the specification for the CDB, which is being developed by NICC, assumes that the networks using the CDB will be IP-based. Ofcom believes this concern arises from a misunderstanding about the nature of the CDB being specified by NICC. While some of those providers using the CDB may migrate to IP-based networks, this will not be a prerequisite for efficient use of the CDB. As such, Ofcom's approach does not require providers to deploy particular technologies or services. Neither is the approach discriminatory or inconsistent with its approach to providers of fixed services.

Conclusion

- 3.91 Ofcom has therefore concluded that it should implement the proposal consulted on, that providers of mobile services should be obliged to directly route calls to ported mobile numbers by 1 September 2009. To ensure that the approach is consistent with the approach being taken with providers of fixed services, Ofcom has concluded that this date should be an end stop and the obligation should be to achieve direct routing "as soon as reasonably practicable and, in any event, no later than 1 September 2009".

Near-instant, recipient-led porting of mobile numbers

Ofcom's objectives

- 3.92 In relation to arrangements for porting mobile numbers, Ofcom's objective is to make the process as convenient, swift and simple as possible for consumers, such that consumers can select a new supplier of mobile phone service, purchase a new SIM card and receive calls using a ported number within the shortest possible period. Ofcom also wishes to ensure that there are no impediments or disincentives to suppliers offering number portability to consumers.²³
- 3.93 Currently, where subscribers wish to port their mobile numbers to a new provider they must inform their existing providers that they wish to port their numbers and obtain a PAC. This requirement to call the former provider may act as a deterrent for some consumers to port. It may also deter providers from informing prospective customers that they have the option of porting, for fear that the existing provider will then have the chance to offer deals to retain the customer. Ofcom recognises that this activity, known within the industry as "Save" activity, can be beneficial to consumers as it may result in a better offer being made. However, Ofcom is concerned that recipient providers' fear of exposing a prospective new customer to Save activity is resulting in many consumers being left unaware that they can port their number. To achieve the objectives set out in paragraph 3.92 above, Ofcom considers it necessary to move to a process which is led by the recipient provider, and which does not require the customer to contact the donor provider to obtain authorisation. Save activity may continue at other times triggered by other events.

²³ Ofcom is not currently considering processes for bulk porting of more than 25 mobile numbers by business users, as these are subject to different processes which reflect the particular needs of business customers with multiple phones. Neither is this document currently considering changes to arrangements for porting fixed numbers; see paragraphs 2.16 and 2.17 above.

3.94 At present, the process, from the point at which the recipient provider uses the PAC to make a porting request to the moment when the port is completed, take five working days. This period is known as the porting lead-time, and during this time the subscriber continues to receive calls via his existing provider. In the July 2007 Statement and Consultation, Ofcom required mobile providers to reduce the porting lead time to 2 working days by 31 March 2008. To achieve the objectives set out in paragraph 3.92 above, Ofcom considers it necessary to further reduce the maximum time allowed for the donor provider to make arrangements to port the number, after he has been requested to do so by the recipient provider, to 2 hours. Ofcom recognises that some consumers and some recipient providers may not wish to operate to such a short timeframe (for example, because the chosen consumer apparatus is not yet available or because the retailer wishes to offer a simplified purchasing process). Ofcom does not intend to require consumers or recipient providers to operate to a 2 hour timeframe if they do not wish to. Ofcom does intend, however, that donor providers should be required to enable 2 hour porting where the consumer and the recipient provider do so wish.

Market failure and rationale for intervention – porting of mobile numbers

3.95 As with the direct routing of calls to ported numbers, Ofcom believes that the market cannot be relied on to deliver a simple and swift process for porting mobile numbers. As noted in paragraph 2.11 above, market research indicates that twice as many switching consumers would port their mobile number if they knew that this was an option and that the process would be swift. The lack of awareness is therefore causing many consumers unnecessary inconvenience and, potentially, cost in advising friends and other contacts of a change of number.

3.96 In a market where Significant Market Power (SMP) has not been found (such as the mobile retail market), one would expect that consumer preferences would be reflected in products and promotions. Low consumer awareness that mobile phone numbers can be ported, against a background of a clear consumer preference for porting, suggests a degree of market failure caused by lack of information. As noted in paragraph 2.10 above, it is Ofcom's view that the reluctance of recipient providers to promote the ability to port is due, in large part, to a perception that the current donor led process which requires the porting customer to re-contact the donor provider for a PAC provides the donor provider with a further opportunity to persuade the consumer not to switch. This view is re-enforced by evidence from Ofcom's February 2007 market research (and information volunteered informally by some MNOs) which indicates that very substantial proportions of PACs which are issued to consumers planning to port their number are not subsequently used (the customer having, presumably, decided not to port out his number and switch his service to another provider). The proportion varies between providers.

3.97 The extent to which lengthy or complex porting processes, or low awareness of the right to port, deter consumers from switching is less easy to quantify. Quantitative market research is not generally a reliable tool for gauging consumers' likely behaviour in a hypothetical situation. To the extent that porting processes (and awareness of the right to port) do deter switching, this will weaken competition, to the detriment of consumers, as well as disadvantaging individual consumers who may fail to take advantage of offers which are more attractive to them. Broadly speaking, consumer satisfaction with retail mobile services is high²⁴ and, reflecting this,

²⁴ 92% of mobile users are satisfied with the service overall, with 41% very satisfied. See table 81 of *The consumer experience* published by Ofcom on 16 November 2006
<http://www.ofcom.org.uk/research/tce/report/research.pdf>

Ofcom's February 2007 Market Research found that more than 60% of mobile phone users had never switched and that 90% of these had never even considered switching. Only a small minority of consumers, therefore, have considered switching mobile provider and been deterred from doing so. The volume of surveyed customers who fall into this base group, a proportion of whom might have been deterred by issues to do with number portability, is too small to support robust conclusions that current porting processes and awareness do or do not deter switching. Nevertheless, as set out in Annex 1, Ofcom considers it reasonable to conclude that the improvements to arrangements for porting mobile numbers may increase the propensity of some consumers to switch, which will tend to strengthen competition.

- 3.98 As with improvements to the routing of calls to ported numbers, improvements to processes for porting mobile numbers require the co-operation of all parties, some of whom may be net recipients of ported numbers (and, therefore, of switching customers) and some may be net losers of ported numbers (and switching customers). The incentives of all providers are unlikely, therefore, to be aligned, and common, market-driven solutions are unlikely to emerge. Furthermore, those providers which face a variable net balance between losing and winning switching customers may fear that improvements to facilitate switching (including improved number portability) will serve only to increase churn and its associated costs.
- 3.99 In Ofcom's view, there are also benefits to be gained from an improved porting process, in terms of consumer convenience, which it is unlikely that the market will deliver on its own.
- 3.100 Ofcom has therefore concluded that regulatory intervention is required to secure these objectives. Intervention only to increase information provision and hence consumer awareness is unlikely to be sufficient as consumers may still be unable to influence improvements in porting processes. Ofcom's view is that regulatory intervention is required to bring about a change in porting processes as it is not sufficient to rely on the market responding to increased information and awareness among consumers.

Views of stakeholders

Recipient Led Porting

Respondents' views

- 3.101 Both aspects of this proposal were opposed by Vodafone, O2 and Orange. Vodafone argued that Ofcom had failed to demonstrate that benefits would exceed costs or that there was significant consumer demand for a recipient-led process. All were concerned that costs appear to be uncertain and consumer demand for change unclear. The proposals for recipient led porting was broadly favoured by H3G, FCS, USwitch, Simply Switch, OnePhone, Truphone, Mapesbury Communications and Scottish and Southern. H3G proposed that, as an interim measure, the 2 day porting process, which providers of mobile services will be obliged to offer from 31 March 2008 should be made recipient led. H3G proposed that this could be achieved at an additional cost of [X] per provider.
- 3.102 The National Consumer Council broadly welcomed the proposal in a statement to the press, and told Ofcom in discussion that it strongly favoured a move to a recipient-led process.

- 3.103 Vodafone and Orange expressed concern that a recipient-led process would remove opportunities for losing providers to engage in retention activity by offering consumers better offers. In the view of these stakeholders, consumers are empowered by the losing and gaining provider having to compete for their business at the point when the consumer notifies the losing provider of his intention to port his number to a new provider. Both Orange and Vodafone expressed surprise that, in the July 2007 Statement and Consultation, Ofcom had explicitly declined to take a view on the merits or otherwise of such 'Save' activity. In contrast, H3G argued that reduced "discriminatory" retention activity through the MNP process would benefit consumers by putting them, rather than the losing provider, in control.
- 3.104 Scottish and Southern, similarly, took the view that there is a very different competitive dynamic where service providers are aware that customers are able to leave them relatively easily, compared with the situation where service providers have a routine opportunity to dissuade customers from leaving once they have begun that process. In Scottish and Southern's view the former situation represents a healthier state of competition.
- 3.105 Syniverse advised that a near-instant recipient-led process is achievable within the timeframe proposed, although Syniverse questioned whether change is warranted at this time, and warned that the move to direct routing before any change to recipient led porting would be advisable as this would be more likely to avoid network congestion. [3<]
- 3.106 In discussion with Ofcom a number of providers warned that the change to a recipient-led and near-instant process would necessitate major changes to retail operations.

Ofcom's response

- 3.107 The UK's current donor-led process for porting mobile numbers is very unusual. Almost all comparable countries use a recipient-led process which, as explained in the following paragraphs, tends to be more consumer friendly and less likely to act as a deterrent to recipient providers promoting the advantages of porting. The current donor-led process offers both benefits and disadvantages to consumers. The process is inconvenient for consumers in requiring them to make contact with their existing provider before the port can start. This makes the process time-consuming and, potentially, confusing for customers, most of whom will have little understanding of the purpose of the PAC or why they are being asked to obtain this. These factors are unlikely to inspire confidence that the process will be completed reliably and in a timely manner.
- 3.108 Furthermore, the risks to recipient providers presented by the current process are such that the process acts as a major disincentive to promoting porting. This is demonstrated by the fact that a large proportion of PACs requested by consumers (in the case of one provider, [3<] reportedly in the region of [3<]) are never activated to initiate a port as the consumer is persuaded not to switch. This in turn reduces consumer awareness of the option to port, resulting in consumers bearing the unnecessary inconvenience and administrative cost of a number change. It may reasonably be surmised that some consumers will also be deterred from switching altogether if they believe their number cannot be ported, or that the process may be onerous or unreliable (because recipient providers have been reluctant to promote the advantages of porting).

- 3.109 On the other hand, Ofcom recognises that in a competitive retail market, attempts to persuade a customer not to leave at the point when they request to port, enabled by the current donor-led process, can generate benefits for those consumers. However, it does allow donor providers to target competitive activity on this sub-set of consumers. As argued by Scottish and Southern, there is a very different competitive dynamic where service providers are aware that customers are able to leave them relatively easily and this may well sharpen competition to the greater gain of consumers overall. In any case, Ofcom does not have any compelling evidence to suggest that overall there will be a reduction in competition which would negate the benefits of improving consumers' experience of porting and removing obstacles to the promotion and take-up of porting.
- 3.110 Ofcom has set out in Annex 1 its views on the costs and benefits of recipient-led porting, where it has concluded that the savings to industry can be expected to offset the costs to industry in little over a year, and that there are additional savings to consumers.

Conclusion

- 3.111 Ofcom remains of the view that recipient-led porting for mobile numbers is appropriate. Ofcom considers that a requirement for recipient-led porting of mobile numbers will improve the customer experience, will incentivise providers to promote porting and should therefore be required. Ofcom considers that such a requirement may offer increased competition thus offering benefits to consumers. Ofcom considers that such a requirement may be introduced in the most efficient manner at the same time as the introduction of a CDB enabling direct routing, which is 1 September 2009.

Near Instant Porting

Respondents' views

- 3.112 Vodafone, O2 and Orange expressed concerns that Ofcom had failed to demonstrate that the benefits of such a move would exceed costs and considered the technical means to achieve the change to be unclear. BT and Virgin Media (both of whom have mobile interests) also saw little value in further change. BT agreed that shorter porting lead times can be expected to increase competition, but questioned the level of marginal benefit.
- 3.113 The National Consumer Council, whilst being supportive of Ofcom's proposals to introduce a recipient-led process, saw less benefit in a further reduction in lead times from 2 days to 2 hours. The National Consumer Council (and providers opposed to change generally) forecast little incremental value in making a change from 2 days to 2 hours. In the view of the National Consumer Council, the valuable step change was from 5 days to 2 days.

Ofcom's response

- 3.114 A two day porting time (such as UK mobile operators are required to implement from March 2008) is unremarkable by international standards; lead times of 2 to 5 days are common. Many countries, however, (including Ireland, the US, Canada and Australia) do operate a 2 or 3 hour process, and this can be considered best practice.
- 3.115 It should be understood that what Ofcom has proposed is that the donor provider must enable the port to take place within 2 hours of the recipient provider asking for

portability. Ofcom has not proposed to require recipient providers to offer near-instant porting from the point at which the customer asks to port his number. In the presence of a CDB used to route calls to ported numbers, and given an obligation to operate a recipient-led process, the process of effecting the port is likely to be automated to such an extent that it would be difficult for it to be other than near-instant. The incremental costs of a near-instant process (given that the process is to be recipient-led) are, therefore, very low. In these circumstances, it might be argued that it is not necessary to impose regulation requiring that the process is also near-instant, as the market will choose to deliver this.

- 3.116 Ofcom has considered the option of requiring only that the process is recipient-led (leaving a decision on lead times to industry to decide). However, Ofcom has concluded that this approach would create uncertainty which would be likely to translate into delay in implementing a new process. This would be detrimental to consumers. Some providers are also likely to have strong commercial incentives to build artificial delays into the process to provide time to persuade customers not to switch. On balance, Ofcom has concluded that it should require that the process is both recipient-led and near-instant (i.e. 2 hours).
- 3.117 Ofcom does not accept that it is appropriate to require that the 2 day process which will be implemented from 31 March 2008 should be modified, on an interim basis, to obviate the need for consumers to obtain a PAC, as proposed by H3G. This approach would be likely to divert resources away from the core task of devising an efficient automated recipient-led process which provides robust protection to consumers from mis-selling and slamming.
- 3.118 Ofcom has set out in Annex 1 its views on the costs and benefits of near-instant porting, where Ofcom has concluded that it would be inefficient to design a recipient-led process reliant on a CDB to take 2 working days when the process can be completed near-instantly. Ofcom therefore considers the costs to industry are proportionate to the benefits to consumers.

Conclusion

- 3.119 Ofcom considers, in light of the above, that the process for the porting of mobile numbers should be further shortened from 2 business days to 2 hours. Ofcom considers that such a requirement may be introduced in the most efficient manner at the same time as the introduction of a CDB enabling direct routing and a recipient-led process, being 1 September 2009.

Consumer Protection

Respondents' views

- 3.120 BT, Virgin Media, Orange, Vodafone, O2 and the FNP Working Group warned that customers would be made more vulnerable to mis-selling as a result of a recipient-led, near instant process. Virgin Media and O2 also warned that customers will not be adequately informed of their continuing liabilities under long term contracts. BT proposed that the improved process should either be recipient-led or near-instant, but not both, as a slower recipient-led process or faster donor-led process would better safeguard consumers. BT also expressed concern about increased scope for number theft. Virgin Media was concerned that rapid mobile porting could introduce a greater likelihood of errors arising, causing customers to suffer a break in service.

Ofcom's response

- 3.121 Ofcom recognises that providers of mobile services will need to ensure that porting consumers are aware that they may face continuing contractual liabilities towards their existing provider, and that robust systems are put in place to protect against mis-selling and slamming.
- 3.122 As noted in paragraph 1.22 above, Ofcom will expect donor and recipient providers to devise standardised and appropriate processes for ensuring that customers' contracts with donor providers are terminated (where this is what the customer wishes) and that customers are made aware that the right to port a number does not release them from contractual liabilities arising during a minimum term. Where it is feasible and reasonable for consumers to be advised near-instantly of the specific nature of any outstanding contractual liabilities, this should be done.
- 3.123 In practice, slamming and mis-selling have much more to do with switching than porting. The PAC process may provide opportunities for the donor provider to explain, to the minority of switching customers who also wish to port their number, the implications of switching provider, such as minimum term obligations. It may also provide an opportunity to advise the customer to consider all of the relevant factors when comparing the existing service with the proposed new service. These advantages are, however, incidental to the main purpose of the PAC process, which is to allow the donor to confirm or deny that that consumer which is seeking to port out the particular number is entitled to do so. The circumstances under which this right may be denied are now much reduced, and the process now serves mainly as an opportunity for the donor to try to persuade the customer not to switch.
- 3.124 On first consideration, it might be believed that a near-instant and/or recipient-led porting process will make it easier for slammers also to port the customer's number, and that this will make unauthorised switching seamless and invisible to the consumer. It is not clear, however, that rogue resellers have an incentive to port the consumer's number, even if this can be done near-instantly or without first obtaining consent from the donor. This is because it is unclear how, in practice, porting can make a slam less visible to the consumer. Evidence gathered by Ofcom's Contact Centre indicates that most slamming is initiated by resellers 'cold-calling' a customer. Consumers will generally become aware that they have been slammed when they subsequently receive a new SIM and welcome pack from the new mobile network provider (who is usually distinct from the reseller). Branding of the welcome pack and SIM usually causes the consumer to question the basis of what is happening. Whether his number has been ported makes no difference to this. Furthermore, any slammer which saw advantage in also covertly porting the number to the new slammed service would need to co-ordinate the port with receipt and use of the new SIM (otherwise the customer would lose service on his existing SIM). How this would be achieved without the customer becoming aware of the switch is unclear.
- 3.125 To the extent that number range holders (as opposed to resellers) may engage in slamming, it is conceivable that they may be able to delay the time when consumers become aware that they have been slammed, by porting the number and deliberately suppressing branding and other information which will indicate to the consumer that the service is now being provided by another supplier. How long this pretence can be sustained is not clear. Furthermore, Ofcom has no evidence that mobile number range holders (as distinct from resellers) have engaged in such practices to a material extent.

- 3.126 Ofcom recognises, however, that in some instances it is possible that the act of porting the number across to the new (slammed) service may persuade the customer, unwillingly, to accept the change of supplier. This risk and other, perhaps as yet unidentified, forms of slamming indicate to Ofcom that proactive steps should be taken to ensure that recipient-led near-instant porting does not offer additional scope for slamming and mis-selling, and the opportunity should be taken to improve on the present safeguards. To the extent that some customers may still be slammed, the new process will also need to enable swift reversal of ports associated with slamming.
- 3.127 Ofcom is not persuaded that the current PAC process provides material protection against either mis-selling or slamming. Ofcom is aware that mobile providers in other countries have addressed concerns about consumer information and proof of identity using a variety of different processes – for example:
- ARCEP (the French NRA) has imposed a new process which requires that porting customers are sent an automated SMS message providing the equivalent of a PAC, the identity of the contract holder, and the extent of any remaining contractual obligations toward the donor;
 - Reflecting concern expressed by the Australian Competition and Consumer Commission (the relevant regulator), Australian mobile communications providers have set out in a code of practice clear obligations on the recipient to inform porting customers of the possibility that they may face continuing contractual liabilities to the donor provider.
- 3.128 Ofcom is not prescribing any specific arrangements at this time, but considers that overseas experience suggests that new technology (such as SMS) presents opportunities to ensure that porting customers are made aware of what is happening to them, and may allow the consumer to respond positively (or otherwise) to such messages. Such processes are consistent with a recipient-led process, as the request to generate a warning message can be initiated by the recipient provider as an integral part of the process of requesting porting facilities on behalf of the consumer.
- 3.129 These issues are linked, in Ofcom's view, to its wider review of switching and migration, particularly given the shift in consumer behaviour towards buying some or all of their communications services in bundles.²⁵ For the reasons set out in this Statement, Ofcom has concluded that, in general, recipient-led switching processes are preferable to donor-led processes, as these tend to minimise “touch” points for consumers, simplifying and accelerating the process. Ofcom is also considering the impact on mis-selling and slamming of the voluntary industry code of practice on mobile mis-selling.²⁶ In Ofcom's view, a key part of the solution to mis-selling is ensuring that consumers are well informed about the switch, and its implications, before the switchover happens. This will be considered further as part of our review of mobile mis-selling.
- 3.130 In the meantime Ofcom recommends that industry should start to consider how technology such as SMS could be used to provide more effective protection against unauthorised switching (whether or not associated with the porting of a number). To the extent that recipient-led near-instant porting could facilitate slamming, Ofcom expects the new process to be designed to ensure that customers are made aware

²⁵ <http://www.ofcom.org.uk/consult/condocs/migrations/migrations.pdf>

²⁶ <http://www.ofcom.org.uk/consult/condocs/missellingprotection/statement/statement.pdf>

that their number is being ported to a new provider. If industry initiatives prove insufficient to ensure workable and practicable safeguards, then Ofcom will formally require changes.

- 3.131 Ofcom notes BT's reported concern that near-instant recipient-led porting may increase the scope for number theft. In Ofcom's view this practice, which is rare, should be countered by applying appropriate identity checks before accepting instructions from customers wishing to port a number.

Conclusion

- 3.132 Ofcom does not consider that it is necessary, at this stage to mandate specific measures which would address mis-selling and slamming. Ofcom does not consider that the requirement for the porting of mobile numbers which is near-instant and recipient-led would lead to an increase in the instances of mis-selling and slamming in the mobile sector beyond those which are currently of concern. Nevertheless, Ofcom considers that, in establishing the CDB and new porting processes for the porting of mobile numbers, Communications Providers should ensure that those processes do not facilitate mis-selling and slamming. Ofcom will consider this issue further in its wider review of switching and migration processes.

Costs

Respondents' views

- 3.133 H3G proposed that near-instant, recipient-led mobile porting (reliant on the use of an existing central database) could be achieved at a one-off cost of between [x] per operator, and that consequent savings would be "in the region of" [x]. H3G subsequently provided only limited information to support these figures. No other providers supplied any estimates in their responses to the July 2007 Statement and Consultation in respect of the incremental cost of moving from 2 day donor-led mobile number porting to near-instant, recipient-led porting. O2 indicated that it was preparing estimates, and subsequently, on 8 November 2007, provided an assertion that [x]. Orange reported that it is impracticable to estimate the incremental cost of deploying the database to enable near-instant recipient-led porting before the design of the database has been finalised.

Ofcom's view

- 3.134 In the July 2007 Statement and Consultation, Ofcom estimated these incremental costs at £5m for the industry as a whole, split evenly between the five existing mobile network operators, half relating to systems changes and half relating to changes to operating procedures. Ofcom estimated that savings would be in excess of £4.5m per year, assuming that in excess of 3m PAC requests (the current annual volume of completed ports) are replaced by automated systems and that savings per PAC, in terms of customer service handling and postal confirmation, are of the order of £1.50 per transaction. In Ofcom's view, the headline estimate provided by O2 may be higher than the average cost which each mobile provider will incur [x]. Nevertheless, Ofcom notes that even this estimated cost would be recovered by efficiency savings within a relatively short timeframe. Ofcom issued statutory information requests requiring BT and the 5 mobile operators to disclose any documentation relating to cost estimates for near-instant, recipient-led porting. Responses to these requests [x]. As noted above, it is Ofcom's view that, in the presence of a CDB and given the obligation to implement a recipient-led porting

process, it is difficult to see how the process could be completed other than near-instantly unless providers choose actively to build in a delay for commercial reasons.

- 3.135 Ofcom's assessment of the costs of implementing a recipient-led and near-instant process (and the consequent savings) is set out in Annex 1.

Conclusion

- 3.136 As set out in more detail in Annex 1, Ofcom estimates that the costs of implementing a recipient-led process for the porting of mobile numbers, when implemented in conjunction with the establishment of a CDB for directing routing of calls to ported numbers will be approximately £5 million. Ofcom considers that the incremental costs of also requiring the process to be near instant would be close to zero. As regards the savings to industry which such a change would offer, Ofcom estimates these to amount to approximately £4.5 million per year. Ofcom considers that the benefits of a requirement for recipient-led, near-instant porting of mobile numbers would therefore outweigh the costs of such a requirement (even before taking into account the benefits to consumers) and therefore the measure is cost justified.

End to bi-lateral negotiations

Respondents' views

- 3.137 Smaller resellers noted that a further possible advantage of mobile number porting reliant on a CDB is that it may obviate the need for new entrants to engage in bi-lateral negotiation with incumbents to establish porting facilities. As ITSPA, FCS and Truphone observed, the CDB and associated management could be used as a central clearing house for those seeking porting rights. ITSPA warned, however, that care would need to be taken to prevent mis-use of porting data for, for example, direct marketing.

Ofcom's response

- 3.138 Any new process for porting phone numbers must be able to accommodate a wide range of different users and must not impose unreasonable barriers to new entrants obtaining access to portability. The delays experienced in recent months by some communications providers seeking portability have been unacceptable. Ofcom agrees that simplified technical arrangements for porting numbers and delivering calls to ported numbers should translate to relatively simple commercial arrangements between providers.

Conclusion

- 3.139 Ofcom recognises that the use of a CDB for the porting of mobile numbers may also offer benefits to new entrants in establishing porting facilities with other providers. Whilst this is a benefit of the new process, Ofcom has not sought to quantify those benefits since its aims in mandating a new process for the porting of mobile numbers is to ensure the maximum benefit for consumers from the porting process. Nevertheless, to the extent that such benefits exist, they are additional to those identified by Ofcom.

Governance arrangements

Respondents' views

- 3.140 Stakeholders were broadly in agreement that progress (whether in meeting a regulatory obligation or in identifying options for voluntary change) will require close co-operation and co-ordination among communications providers. Many stakeholders, including Virgin Media, Vodafone, C&W, Thus, BT, ITSPA, Scottish and Southern Energy, the FNP Working Group, Mapesbury Communications, Truphone and Orange also argued that Ofcom, or another independent body, would be needed to ensure this co-operation. As BT and Virgin Media both observed, the creation of a governing body and the commercial framework will be critical to the success of the project. Smaller providers, including those represented by FCS and ITSPA, were concerned to ensure that the interests of smaller providers are properly represented. Virgin Media argued that the project should be managed by a new body established for the purpose; in the view of Virgin Media, NGNuk is not the appropriate structure. Virgin Media also noted that there are many different models around the world and claimed that none of these can be considered to be the proven best practice.
- 3.141 Scottish and Southern Energy argued that the group which is set up to manage implementation of the central database should include resellers and representatives of consumers. Orange envisaged that the governing group, which might have a finite life, would consist of a board and a number of working groups. In Orange's view almost all providers would want a seat on the Board, and warned that this would not be compatible with streamlined decision making. In Orange's view, some form of representative Board might be required instead, with seats allocated on some form of objective basis, such as on the basis of porting volumes. Orange noted that the basis of which funding is apportioned must be equitable and not based on revenue or turnover, which Orange considered would be arbitrary. Orange considered that the arrangements for funding the present mobile number porting process would not be appropriate to a new structure where there are far more players. BT argued that funding shares should be proportionate to the benefits gained (including cost savings).

Ofcom's view

- 3.142 Ofcom set out in paragraphs 4.74 to 4.78 of the July 2007 Statement and Consultation its view that governance and commercial arrangements for establishing and using a CDB should be matters for communications providers to agree. Ofcom acknowledges, however, that the task is considerable. Ofcom will initially appoint an independent project management team to drive progress. Ofcom notes that although communications providers around the world have adopted a variety of different arrangements for procuring use of a common number porting facility, there are close similarities in the principles adopted. Although Ofcom anticipates that communications providers should be able to agree cost-oriented commercial arrangements, Ofcom may intervene should these arrangements penalise unfairly particular groups of providers.

Conclusion

- 3.143 Ofcom remains of the view that communications providers should reach agreement on the appropriate governance structures for the establishment and use of the CDB. However, Ofcom intends to keep the process of agreeing governance standards under review in order to ensure that all communications providers are fairly treated.

The scope and drafting of the revised General Condition 18

Respondent's views

- 3.144 BT asked for clarification about the types of numbers to which the revised portability obligations will apply. BT stated that it assumed that the obligations apply to all numbers including those commencing 03, 05 08 and 09. BT also asked for clarification whether Personal Numbers should also be treated as mobile numbers.
- 3.145 Thus asked for clarification that the obligation to ensure that calls to ported numbers (fixed or mobile) are routed in a manner independent of the donor provider, was not intended to prevent use of a transit operator who also happens to be the donor provider in that instance.

Ofcom's view

- 3.146 Ofcom can confirm that the portability obligations apply to any number which continues to be provided with a publicly available telephone service. Obligations specific to mobile portability apply to numbers allocated for use with Mobile Communications Services. The term "Mobile Communications Service" is defined in General Condition 18. That definition would not include calls to personal numbers (070) to the extent that they do not consist of signal conveyed by wireless telegraphy.
- 3.147 Ofcom did not intend to exclude, or dissuade, transit arrangements as a result of its proposed changes to General Condition 18. The obligation to ensure that calls are routed in a manner independent of the donor provider seeks to ensure that calls are directly routed to the recipient operator. Where a transit operator is used, whether or not that operator is a donor operator should not affect compliance with the obligation. For the avoidance of doubt, Ofcom has amended General Condition 18.5 to include the words "Where an Originating Communications provider purchases transit services to route Electronic Communications, the provider of those transit services is not to be considered as a donor provider for the purposes of this paragraph."

Conclusion

- 3.148 Ofcom has amended the proposals set out in the 2007 July Statement and Consultation to reflect the concern that the drafting may have excluded transit arrangements where a transit operator is a former provider of the customer to whom a call is made.

Use of the CDB to serve a wider range of objectives.

Respondents' views

- 3.149 Several stakeholders also commented that the definition of "CDB" in the draft General Condition 18 attached at Annex 8 to the July 2007 Statement and Consultation appeared to envisage that the CDB would be populated with all numbers, rather than only ported numbers.
- 3.150 Many providers also argued that, if industry was to be required to establish a CDB to support direct routing, then the CDB should contain all numbers (and not just ported numbers). This would allow industry to implement additional efficiency measures and possible service enhancements, including improving numbering administration and facilitating development of new services offering sophisticated call routing options.

Ofcom's response

- 3.151 Ofcom recognises the additional benefits of a CDB containing all numbers and is content that the CDB may be used for purposes in addition to number porting, if that is the wish of communications providers. As noted in the July 2007 Statement and Consultation, it was not Ofcom's intention to impose regulation requiring that the CDB be populated with all numbers. Ofcom has received representations from many sides of industry that if there is no obligation on all providers to populate the CDB with all numbers and a small minority chooses not to so populate the CDB, then the additional advantages to industry as a whole (and, consequently, to consumers) will be lost, as no providers will be able to rely on data held on the CDB being comprehensive. However, some major providers with substantial volumes of phone numbers have not yet taken a view on whether the CDB should be populated with all numbers. In view of this Ofcom does not feel it would be appropriate to impose an obligation to populate the CDB with all numbers at this time. However, Ofcom would expect any CDB architecture chosen by Industry to accommodate future extension to additional and new types of porting requirements. If at some time industry does reach a broad consensus and wishes Ofcom to provide certainty by imposing an obligation on all providers to populate the CDB with all numbers, Ofcom would be willing to consider such a request.

Conclusion

- 3.152 Ofcom has amended its proposals to make clear that the CDB which is to be used to provide direct routing is to be a database of ported numbers only. Whilst there may be additional benefits associated with the CDB including all numbers, Ofcom is not proposing to impose such a requirement at this stage. Ofcom will consider any subsequent request to expand the scope of the CDB but notes that Communications Providers are not prevented from expanding the scope of the CDB to include all numbers at this time.

Section 4

Summary of conclusions

Routing of calls to ported numbers

- 4.1 Having considered responses to the July 2007 Statement and Consultation, Ofcom has concluded that arrangements for directly routing calls to ported numbers must be implemented as follows;
- Communications providers to use all reasonable endeavours to establish a CDB, ready to be populated with data, by 31 December 2008
 - CDB to be populated with all ported mobile numbers as soon as reasonably practicable and, in any event, no later than 1 September 2009, and with all ported fixed numbers as soon as reasonably practicable and, in any event, no later than 31 December 2012.
 - All mobile providers to directly route all calls to ported mobile numbers as soon as reasonably practicable and, in any event, no later than by 1 September 2009.
 - All other calls to ported numbers (fixed and mobile) to be directly routed as soon as reasonably practicable and, in any event, no later than 31 December 2012.
- 4.2 This conclusion is broadly in accordance with Option A as set out in the July 2007 Statement and Consultation. However, responding to concerns expressed by many stakeholders about the proposed obligation to populate the CDB with fixed and mobile ported numbers by 31 December 2008, Ofcom has changed the deadlines for populating the CDB with ported numbers to align with the deadlines for using the CDB to achieve direct routing, instead of being aligned with the deadlines for establishing the CDB. This will provide more flexibility for communications providers to determine at what point they should populate the CDB with numbers which they have ported into their network. This approach will also allow providers of fixed communications services to plan the task of populating the CDB as an integral part of their plans to deploy next-generation networks.
- 4.3 The deadlines for populating the CDB with ported numbers and using this to directly route calls to ported numbers are now specified as end dates by which a progressive programme must be completed. In Ofcom's view, the design of the CDB and the contractual commitment will have been made well before the 31 December 2008 regulatory deadline for establishing the CDB. From that point onwards, it should be possible for individual communications providers to plan their own internal development and implementation programmes with certainty. They, and Ofcom, should then be able to judge how swiftly it is "reasonably practicable" to deploy the CDB to achieve direct routing (and near-instant recipient-led porting).

Ensuring project delivery

- 4.4 The obligation to populate the CDB is now unqualified (rather than an obligation to use reasonable endeavours). However, the obligation in respect of establishing a CDB remains an obligation to use "reasonable endeavours" as Ofcom recognises that no communications provider has the ability to establish a CDB without a degree of co-operation from others. To ensure that Ofcom and affected communications providers can have confidence that any enforcement action will be targeted and

specific, Ofcom has decided to include within the modified General Condition 18 direction making powers to allow Ofcom to direct (i) the nature of the CDB which is to be populated with ported numbers and (ii) the actions, amongst others, which one or more communications provider must take to establish a CDB.

- 4.5 In Ofcom's view the Option B approach set out in the July 2007 Statement and Consultation, under which Ofcom would set a deadline for establishing and populating the CDB but would not set deadlines for implementing direct routing, would only serve to delay implementation, to the detriment of consumers. As a number of stakeholders noted in their responses to the November 2006 Consultation, the complexity of the project and the large number of participants, is such that Ofcom needs to provide clear guidance on the approach to be taken.
- 4.6 Ofcom remains concerned that the timetable defined by modified General Condition 18 may not be adhered to. Ofcom is therefore setting out below an indicative timetable of intermediate deadlines dates which Ofcom intends to use to monitor progress towards meeting mandated deadlines.
- Agree technical standards – 31 January 2008
 - Agree governance arrangements to oversee implementation start-up – 1 February 2008
 - Agree new routing solution; agree new mobile number portability process; agree requirements specification of CDB; issue RFP – 1 April 2008
 - Agree governance and commercial arrangements for ongoing industry operating entity in sufficient time to award CDB contract
 - Award contract for establishing a CDB – 30 June 2008
 - CDB ready to be populated with phone numbers – 31 December 2008
 - CDB populated with all mobile numbers – 1 September 2009
 - Commence end-to-end testing of full solution: ACQ/CDB routing and new mobile number portability process - 1 June 2009
 - Completion of adoption of ACQ/CDB routing & new mobile number portability by MNOs - 1 September 2009
 - CDB populated with all fixed numbers – 31 December 2012
 - Completion of adoption of ACQ/CDB routing by Fixed Network Operators – 31 December 2012
- 4.7 Ofcom also intends to consider whether commercial incentives for efficient use of the CDB could be strengthened, ensuring that those slow to populate the CDB or slow to use it for call routing face the additional costs of onward routing.

Processes for porting mobile numbers

- 4.8 Ofcom believes consumers in the UK should be made aware of their right to port and be able to port in the most simple, convenient and speedy manner possible. Convenience, ease and speed in porting mobile numbers will not only deliver a real

consumer benefit but may also facilitate further switching and competition in the retail mobile market. In the light of these objectives, Ofcom has concluded that the process for porting mobile phone numbers should no longer require the consumer to contact the donor network before the porting process can start (i.e. the process should be recipient-led). Ofcom has also concluded that the mobile porting lead times should be further reduced to no more than two hours, Ofcom has concluded that these changes must be made as soon as reasonably practicable and, in any event, no later than 1 September 2009.

4.9 Ofcom does not intend, at this stage, to prescribe the form of the process for porting mobile numbers. Ofcom is aware, however, that a number of issues will need to be agreed between the various industry players. Ofcom currently envisages that, from a consumer's perspective, any process which fails to meet the following minimum standards is unlikely to be satisfactory:

- Recipient providers should ensure that there are simple but effective mechanisms for verifying that a porting request is from the legitimate holder of the current contract, sufficient to protect consumers against identity or number theft.
- The information which donors require recipients to provide when requesting that a number should be ported must be easy for legitimate consumers to provide and easy for recipients to enter accurately on electronic requests, and must have a very high acceptance rate for legitimate transactions.
- There should be a strictly limited set of legitimate reasons for rejecting porting requests, which should be no broader than those which currently apply.
- The donor should respond to port requests in real time to enable acceptance/rejection to be provided to consumers at the point where they make their request. This should be available 24/7 to meet the increasing expectations for flexible hours by consumers.
- There should be no loss of Emergency Calls availability during porting

Consumer protection

4.10 Ofcom intends to work closely with industry to ensure that the way in which near instant, recipient-led porting is implemented meets the best interests of consumers.

Slamming and mis-selling

4.11 Ofcom will expect providers of mobile services to take all reasonable steps to protect consumers against slamming and mis-selling, to the extent that the new process for porting mobile numbers might pose additional risks to consumers. Where some risk of slamming remains, the new process will also need to enable swift reversal of any number port associated with slamming. As noted in paragraph 1.22 above, Ofcom notes that new technology, such as SMS, offers scope for informing consumers, in an industry standard format, that a phone number is about to be ported, or that a new contract is being entered into, and setting out the implications and seeking consumer consent. Such technology is used in this way elsewhere in the world, and Ofcom will expect UK industry to take all reasonable steps to ensure that the new process for porting mobile numbers protects consumers against mis-selling. Ofcom is currently reviewing the issue of mobile mis-selling separately, and intends to issue a consultation document on this issue early in 2008.

- 4.12 As noted in section 3 above, Ofcom recommends strongly that industry should start to consider how technology such as SMS could be used to provide effective protection against unauthorised mobile switching, whether or not associated with porting. Ofcom will be considering these issues in the context of its wider project reviewing switching on a variety of different platforms, including mobile phones. If necessary, Ofcom will impose further requirements on operators to protect consumers if the opportunity for industry to develop customer-friendly and effective mechanisms to achieve this is not taken up.

Contract termination

- 4.13 In addition to ensuring that consumers are adequately protected against slamming and mis-selling, Ofcom will expect donor and recipient providers to devise standardised and appropriate processes for ensuring that customers' contracts with donor providers are terminated (where this is what the consumer wishes) and that consumers are made aware that the right to port a number does not release them from contractual liabilities arising during a minimum term. Providers of mobile services will need to determine whether a request to port a number should be taken as an implied request to terminate the contract to which the number had attached. Where it is feasible and cost effective for consumers to be advised near-instantly of the specific nature of any outstanding contractual liabilities, this must be done.

Obstacles to porting

- 4.14 Under the Universal Service Directive²⁷, National Regulatory Authorities such as Ofcom are obliged to ensure that pricing for number portability is cost oriented and that direct charges to subscribers, if any, do not act as a disincentive for subscribers to use porting services. In Ofcom's preliminary view retail charges levied by a donor provider are likely to act as a disincentive for subscribers to port their number.
- 4.15 Ofcom will also expect industry to ensure that no other contractual impediments to porting are imposed, and that any continuing liabilities, or early termination fees, are proportionate to the losses which the donor can reasonably be expected to incur. At this time, Ofcom has no plans to intervene to prescribe these arrangements, but would welcome an industry driven code of practice to ensure that processes are standardised and fair.

Next steps

- 4.16 The Notification modifying General Condition 18 is at Annex 2.
- 4.17 Ofcom is of the view that, to achieve these deadlines, it is necessary for Ofcom to appoint an independent project management team, funded by communications providers, to ensure co-operation among the relevant parties, and to help reach agreement on a wide range of technical, commercial and governance issues. In addition, Ofcom will continue to work with industry working groups and individual communications providers to ensure that this is achieved.
- 4.18 Delivery of the outcomes specified in modified General Condition 18 will require the full and active support of all communications providers, including the timely allocation of commercial, technical and operational resources of communications providers and an efficient and effective internal decision-making process to enable Industry Agreements to be reached within the necessary timescales. Communications

²⁷ http://eur-lex.europa.eu/LexUriServ/site/en/oj/2002/l_108/l_10820020424en00510077.pdf

providers will be expected to appoint a Senior Business Executive to represent their company who is empowered to deliver their obligations under this Statement. Communications providers' appointees will be required to join an Executive Forum chaired by the independent project management team which will be responsible for end to end delivery of the number porting programme deliverables.

Annex 1

Impact Assessment

Introduction

A1.1 The analysis presented in this annex represents an impact assessment, as defined in section 7 of the Act. The assessment relates to the following decisions made in this document:

- The decision to require providers of fixed and/or mobile communications services to establish and populate a CDB, by specified dates, to enable calls to ported numbers to be routed to the terminating provider in a manner independent of the donor provider.
- The decision to require providers of mobile communications services to implement a process for porting mobile numbers under which the donor takes no longer than 2 hours to enable the port and which does not require the subscriber to make contact with the donor provider before mobile portability is provided

A1.2 Impact assessments provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policy-making. This is reflected in section 7 of the Act, which means that generally Ofcom has to carry out impact assessments where its proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in Ofcom's activities. However, as a matter of policy Ofcom is committed to carrying out and publishing impact assessments in relation to the great majority of its policy decisions. For further information about Ofcom's approach to impact assessments, see the guidelines, Better policy-making: Ofcom's approach to impact assessment, which are on the Ofcom website:

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

A1.3 Annex 4 to the July 2007 Statement and Consultation set out an Impact Assessment and invited stakeholders to comment. Having considered these responses, as set out in Section 3 above, Ofcom is setting out in this Annex 1 its final Impact Assessment.

The citizen and/or consumer interest

A1.4 The decisions implemented by this Statement directly affect consumers. The decision to require a change to Direct Routing of calls to ported numbers is intended to further the interests of consumers by making the routing of calls to ported numbers more robust to failure and more efficient. The decision to require mobile providers to implement a two hour recipient-led process for porting mobile numbers (ie one in which the customer does not have to make contact with the donor provider to initiate the port request) is intended to make the process more convenient for consumers and to increase the likelihood that suppliers will promote porting to new customers; both outcomes will enable more consumers to enjoy the benefits of porting, and may also increase consumers' propensity to switch, which would be good for those additional customers who switch to more advantageous tariffs and good for competition more broadly. These consumer interests are explored in more detail in the paragraphs which follow.

Routing of calls to ported numbers

- A1.5 Under the current system for routing calls to ported numbers (onward routing), all calls to ported numbers (except a small proportion of mobile to mobile calls which rely on Call Trap) are conveyed via the donor network (ie the network that the consumer has ported from). If the donor network were to fail, consumers who had ported their numbers to another provider would lose all their incoming calls. At the same time, existing customers of the failed network would not be able to keep their numbers when they move to a new provider. Such a case occurred in 2001 with the failure of Atlantic Telecom when about 14,000 customers lost service. The risk of failure is growing rather than diminishing with the advent of new entrants relying on new technologies and new business models.
- A1.6 The donor network also incurs a cost in conveying calls to the recipient network, and this additional cost, which reflects the inefficient routing deployed, is ultimately borne by consumers.
- A1.7 Onward routing can also allow problems in the donor network to have an impact on service quality experienced by customers who no longer have a relationship with that network. For example, if a network's investment in capacity fails to keep pace with traffic demand, the resulting congestion can affect the service quality experienced by its former customers and by those calling them.
- A1.8 A further problem can arise when new services are introduced. Where such services require new technical features to be supported by interconnecting networks they may fail to work as intended for calls to ported numbers if the donor network does not support the new features. This risk may also mean that the launch of such services for the generality of customers has to be delayed.

Mobile porting processes

- A1.9 Complex porting processes and excessively long porting lead times deny consumers the convenience of a simple and swift porting process, and some consumers may choose instead to take a new number even if they would prefer the convenience of retaining their old number. Other customers may be dissuaded from switching provider altogether, which would tend to reduce competition to the detriment of all consumers.
- A1.10 The current porting process requires the consumer to request a PAC from the donor network and supply this to the recipient network before the porting process can start, which is inconvenient for consumers and may dissuade some from porting. In addition, the fact that this process can lead to "Save" activity by the existing supplier can deter gaining suppliers from informing new customers of their right to port. Ofcom believes that this is one of the reasons why such a high proportion of consumers remain unaware of the option to port their number (see paragraph 2.11 above).
- A1.11 Current porting lead times in the UK are 5 working days (although Ofcom has published a Notification requiring that this should be reduced to two working days by 31 March 2008). Ofcom's latest research (attached at Annex 6 to the July 2007 Statement and Consultation) shows that around 42% of those who have switched provider and have ported their telephone number, when asked how they would like their porting service to be improved, have spontaneously answered that they would have liked shorter porting lead times. Among those who have switched in the last twelve months and have changed their telephone number, around 48% said it was

likely that they would have ported their number if they had been aware that this was possible and the time which this would take would be one day.

Ofcom's policy objective

Routing of calls to ported numbers

A1.12 As set out in Section 3 above Ofcom's key objectives in relation to the method of routing calls to ported numbers are to protect consumers as far as possible from the effects of network failure and to ensure the efficient use of networks.

Mobile porting processes

A1.13 As set out in Section 3 above, in relation to arrangements for porting mobile numbers, Ofcom's objective is to make the process as convenient, swift and simple as possible for consumers. Ofcom also wishes to ensure that there are no impediments or disincentives to suppliers offering number portability to consumers.

Background to Ofcom's conclusions

Routing of calls to ported numbers

A1.14 When assessing what action should be taken to address concerns about the routing of calls to ported numbers, Ofcom considered whether the actions should apply to only fixed networks, only mobile networks or both. The capital costs and operating costs of each approach, and the benefits for consumers, were assessed and the Net Present Value (NPV) calculated.

A1.15 In the November 2006 Consultation Ofcom proposed, as had Oftel before it, that the option of requiring fixed networks to directly route calls to ported numbers while still operating Time Division Multiplex (TDM) networks would not be cost effective. Conversely, Ofcom took the view that direct routing by fixed networks would be cost effective if implemented in conjunction with the deployment of NGNs, as such networks are designed to interrogate a central routing database each time a call attempt is made. Ofcom noted, however, that this approach would inevitably delay delivery of benefits to consumers.

A1.16 Ofcom noted that mobile networks are inherently more capable of interrogating a CDB than are TDM fixed networks, as the switches employed in a mobile network already process on-net calls by looking up the location of the called phone in the Home Location Register. Therefore, unlike a typical fixed TDM network, a mobile network must be capable of querying its own database of numbers on every call. Ofcom recognises, as NICC noted, that some modifications would be required to enable mobile networks to interrogate a CDB on every outbound call attempt. Nevertheless, Ofcom shares the views of Syniverse that mobile networks can be more readily modified than fixed TDM networks to operate with a centralised numbering database. Ofcom therefore considered the option of requiring only mobile networks to implement direct routing. Two different approaches were considered.

A1.17 The first approach envisaged for mobile networks to use a central database for direct routing was to operate using an existing technical standard (NICC Service Description 8), which two of the mobile operators had already partly implemented to improve the efficiency of on-net calls to numbers which the originating mobile network has ported in to its own network (a process known as Call Trap). Ofcom initially proposed (in November 2006) that this standard could be used to deliver

more efficient routing of mobile originated calls to all ported mobile numbers within one year. Ofcom noted, however, that this solution would not remove reliance on the donor network for calls other than on-net calls and, therefore, consumers who port their number would remain exposed to the risk that they will lose incoming calls if a former provider should fail. Ofcom observed that this approach might have merit as an interim measure, but noted that it might also be inefficient to implement a standard which was expected to be superseded within a few years.

- A1.18 The second approach envisaged was a new technical standard to be developed by NICC which would remove reliance on the donor network to onward route calls. Ofcom initially proposed (in November 2006) that this option could be implemented by September 2009.
- A1.19 Ofcom noted that both of these approaches (being limited to mobile networks) would leave customers of fixed networks exposed to the risk that they would lose incoming calls if their former provider was to fail. The option to do nothing in respect of both fixed and mobile networks would, to a greater extent, fail to protect consumers. Ofcom, therefore, set out a preferred option under which fixed and mobile networks would implement a common solution, with fixed networks implementing direct routing in conjunction with their deployment of NGNs and mobile networks implementing direct routing by September 2009.
- A1.20 The subsequent July 2007 Statement and Consultation set out Ofcom's decision that a common solution should be implemented by fixed and mobile networks. That document also proposed for consultation that mobile networks should achieve direct routing of calls to ported mobile numbers by 1 September 2009, and that fixed networks should achieve this during their deployment of NGNs (and no later than 31 December 2012). The document confirmed Ofcom's view that it would be inefficient to require mobile networks to implement an interim solution based on NICC Service Description 8.
- A1.21 Noting stakeholders' concerns that costs and timescales for implementing direct routing may be uncertain, the July 2007 Statement and Consultation also set out an alternative approach under which Ofcom would set deadlines for implementing and populating a CDB but would forebear from setting deadlines for implementing direct routing until after a further consultation conducted when technical standards are better understood. Having held that consultation, this Statement sets out Ofcom's conclusions on the timetable for mobile and fixed providers to establish the CDB and to using the CDB to implement direct routing.

Processes for porting mobile numbers

- A1.22 In the November 2006 Consultation, Ofcom set out three different options in respect of possible improvements to processes for porting mobile numbers; a reduction in the porting lead time to three working days, a reduction to less than one working day and no immediate change. After considering representations from stakeholders, Ofcom required mobile providers to reduce mobile porting lead times to two working days by 31 March 2008, as Ofcom had concluded that the improvement could be achieved with few changes to existing systems and processes, and costs would be proportionate to the consumer benefits. This requirement was formalised in a Notification attached to the July 2007 Statement and Consultation.
- A1.23 At the same time, Ofcom proposed a further reduction to 2 hours to take effect by 1 September 2009, and proposed for consultation that the 2 hour process should be recipient-led. In making this proposal, Ofcom considered that a two hour, recipient-

led process could be implemented in a cost effective manner if achieved by using the CDB deployed to deliver direct routing. Ofcom observed that, in any event, even if Ofcom was to require no further changes to the 2 working day process, mobile providers which implement direct routing using a CDB will need to adapt the 2 day process to operate with the CDB. Ofcom proposed that, under these circumstances, the incremental cost of achieving a 2 hour recipient-led process would not be substantial and would be proportionate to the benefits. Ofcom proposed (in the July 2007 Statement and Consultation) that this option could be implemented by 1 September 2009. Following that consultation, this Statement sets out Ofcom's conclusions on whether to require mobile operators to provide a near-instant, recipient led porting process.

Background and approach to assessment of costs and benefits

A1.24 For the reasons set out below, Ofcom's conclusion in this Statement is that

- Both fixed and mobile providers should establish a CDB as soon as reasonably practicable and, in any event, by 31 December 2008.
- Direct routing should be provided as soon as reasonably practicable and, in any event, no later than 1 September 2009 in the case of mobile providers and no later than 31 December 2012 in the case of fixed providers.
- Ofcom considers that it is not necessary to require the CDB to be populated at the same time that it is established and concludes that population of the CDB should occur as soon as reasonably practicable and, in any event, by the date on which direct routing is required.

Impact assessment of requiring that both fixed and mobile providers establish a CDB as soon as reasonably practicable

A1.25 This impact assessment considers the appropriateness of the conclusion that both fixed and mobile providers should establish a CDB as soon as reasonably practicable and, in any event, by 31 December 2008, against the option of not establishing a database by this time.

Costs of establishing the CDB

A1.26 By requiring the operators to establish a CDB by the given date, costs of less than £1m²⁸ would be imposed on the industry.

Benefits of establishing the CDB

A1.27 Establishing the database would enable direct routing which can provide benefits to both industry and consumers as discussed below. Industry will benefit from avoiding the costs of inefficient routing and customers will benefit from being protected against network failure. The size of these benefits to industry and to consumers will depend on the extent to which fixed and mobile operators use the database to deliver direct routing (absent a regulatory obligation to do so). These benefits are substantial and are discussed below.

²⁸ See Sagentia's report at Annex 6 to the November 2006 Consultation.

A1.28 If no deadlines are set for establishing a central database, consumers may remain at risk of network failure and industry will continue to route ported calls inefficiently, as there is little incentive for a coordinated effort to build a CDB.

Conclusions on the impact assessment of establishing the CDB

A1.29 On the basis of the discussion above, Ofcom considers that the benefits of establishing a CDB far outweigh the costs of doing so. On balance, therefore, Ofcom considers that a requirement to use reasonable endeavours to establish a CDB as soon as soon as reasonably practicable and, in any event no later than by 31 December 2008, is capable of generating net benefits.

Impact assessment of setting timelines for populating the database and using it for direct routing

A1.30 This impact assessment also considers the appropriateness of the conclusion that mobile networks should be required to directly route calls to ported mobile numbers as soon as a reasonably practicable and, in any event, no later than 1 September 2009, and that all other calls to ported numbers, including those originated and/or terminated by fixed networks, should be directly routed as soon as reasonably practicable and, in any event, no later than 31 December 2012. This is compared with the counterfactual scenario where no such deadlines or later deadlines are set for direct routing using a CDB.

A1.31 This impact assessment draws upon and extends the impact assessment undertaken for the July 2007 Consultation and Statement which illustrated the benefits of implementing a direct routing solution by all fixed and mobile networks (in terms of the cost savings from avoiding onward routing), against the costs of such an implementation. Setting no deadlines for the implementation of direct routing would not be likely to deliver any cost savings to industry in this time frame and would additionally, provide no protection to customers from network failure.

A1.32 As explained in the November 2006 Consultation and the July 2007 Statement and Consultation, Ofcom has used a discounted cash flow model developed for Ofcom by Sagentia to assess the costs and the cost savings of moving to direct routing using a CDB. This model compares the one-off fixed and recurring annual operating costs of direct routing using a new CDB with the savings (benefits) that fixed and mobile operators would achieve by avoiding inefficient onward routing, over a period from 2007 to 2018. To assess the savings, the model applies forecast volumes of call minutes to ported numbers to the pence per minute cost of onward routing. Under the original model published with the November 2006 Consultation, when assessing the cost of onward routing Sagentia took as a starting point the rates that donor networks were charging recipient networks for onward routing. Sagentia made some adjustments to these rates to better reflect the costs as it saw them, and then applied these to the forecast volumes of call minutes terminated on ported numbers. This saving was compared with the cost of the new CDB over the period to 2018, and an NPV of the net benefits of the direct routing solution was calculated.

A1.33 In summary, the estimated costs in the Base Case of moving to direct routing using the populated CDB within the timeframes specified are:

- £61.5m capital cost for the fixed operators and £12m for mobile operators
- £2.7m recurring annual operating costs for the whole industry.

A1.34 There are two types of benefit considered in this impact assessment:

- Cost savings achieved by avoiding inefficient onward routing; and
- Benefits to consumers of avoiding the loss of service arising from network failure. This type of benefit is difficult to quantify precisely and is not included in the discounted cash flow model. Instead, an indicative figure is provided.

A1.35 The July 2007 Statement and Consultation considered 6 possible sensitivities on the November 2006 results. In the light of the fact that Ofcom has now concluded that the donor conveyance cost on mobile networks is now 0.2ppm, Ofcom now considers that Sensitivities 1,2,3 and 4 in the July 2007 Statement and Consultation, which were based on values of 0.8ppm and 0.1ppm (keeping many of the other variables unchanged), are no longer relevant. Ofcom considers that the most plausible case from the July 2007 Statement and Consultation was Sensitivity 5 which was based on the assumptions referred to in paragraph A1.32 above. This had generated an NPV of £66m and could be regarded as Ofcom's July 2007 Base Case. Sensitivity 6 was used only to test the extent to which forecast capital costs could be increased while keeping the NPV neutral; this is now replaced by two additional sensitivities on the new Base Case.

A1.36 Having considered responses to the July 2007 Statement and Consultation, Ofcom has further refined the Base Case represented by Sensitivity 5. In particular, as discussed in greater detail below, Ofcom has reconsidered the forecast volume of onward routed traffic to ported mobile numbers and the cost of donor conveyance as mobile traffic migrates to 3G networks over time.

Assessment of cost of implementing direct routing of calls to ported numbers

A1.37 In the November 2006 Consultation, Ofcom set out Sagentia's view that the capital cost to providers of fixed services, of implementing direct routing using a CDB was £61.5m if direct routing was implemented when NGNs had been deployed. The cost of operating the CDB (distinct from the costs to communications providers of interfacing with this) was assessed as £625k per annum and included in the overall operating costs of £2.7m per annum. Sagentia also identified £12m of capital costs (in aggregate) for the five mobile operators. These assessments were based on costing by Mason Associates who had undertaken a costing exercise for Ofcom in 2004. Sagentia concluded, on the basis of interviews with some operators that these figures continued to be robust

A1.38 Many stakeholders have argued that, given the uncertainty about the nature of ACQ/CDB, it is difficult to estimate with any precision the costs of establishing and running the CDB or the costs that operators will incur in modifying their systems and processes to be able to populate the database and use it to directly route the traffic within the timetable specified by Ofcom. In its response, O2 has argued that since NGN is unlikely to be in operation before 2012, any requirement for the mobile networks to implement direct routing for mobile to mobile ported traffic before 2012 will mean that they would have to rely on legacy technology and not IP based technology. O2 argued that this is likely to be costly and limited to a short transitional period. Vodafone has also made a similar point saying that the costs of implementation of direct routing are not understood because of the present lack of clarity on the nature of ACQ/CDB.

A1.39 Neither O2 nor Vodafone, no any other respondent has supplied Ofcom with estimates of the more costly implementation costs that they allege would be incurred

under the timescale set by Ofcom. Ofcom is of the view that the costs estimated by Sagentia and considered in the cost benefit analysis remain the best estimates currently available and they are used in the revised Base Case.

A1.40 However, Ofcom has taken into account the potential for higher costs. This is analysed in the form of a sensitivity on the costs to examine the extent to which costs could be higher than in the Base Case whilst still maintaining a positive net benefit in the model. However the results of this sensitivity are to be considered conservative, since Ofcom has made the assumption that the costs of all operators (and not only mobile operators) are increased. Indeed, if a cost increase were to apply only to mobile networks as per O2's point above, the model could sustain a positive NPV for a much higher cost increase.

Assessment of benefits: cost savings to industry of implementing direct routing of calls to ported numbers

Reductions in call costs

A1.41 A key benefit to industry of direct routing is the reduction in call costs due to the increased efficiency of direct routing compared with onward routing. In assessing the value of this benefit, it is necessary to assess the likely volume of call minutes terminated on ported numbers using onward routing during the period under review, and the unit costs of that onward routing. In the paragraphs which follow, Ofcom first considers the evidence in relation to the volume of inefficient onward routing (first in relation to calls to fixed ported numbers and then in relation to calls to mobile ported numbers). Ofcom then considers the unit cost of onward routing (first in relation to fixed ported numbers and then in relation to mobile ported numbers).

A1.42 The proportion of all call minutes which are terminated on ported numbers can be expected to grow as more consumers port a number for the first time. How strong this growth will be, and how sustained, will be a key determinant of the cost savings which direct routing may enable.

Fixed numbers - Volumes of call minutes onward routed to ported numbers, and the growth over time

A1.43 Sagentia assumed that in 2003, 5% of fixed numbers in use had been ported. Sagentia's model assumed that the growth in porting each year would be about 1.4% on average. This was based on an EU average rate in 2003. Sagentia used these assumptions to provide a forecast of cumulative ports using the volume of ports as a proxy for the volume of call minutes to ported fixed numbers. Ofcom considers that this is a very conservative estimate which understates the true benefits, but since it has received no responses to these estimates used, it has not changed these assumptions for the purposes of this analysis.

Mobile numbers - Volumes of call minutes onward routed to ported numbers, and the growth over time

A1.44 In the July 2007 Statement and Consultation, under the Base Case, Ofcom used the assumptions made by Sagentia that call minutes terminated on ported mobile numbers equated to 8.3% of all call minutes terminated on mobile numbers in 2005 and that this was likely to increase each year at a rate of 2%. Given these assumptions, the percentage of call minutes terminated on ported mobile numbers would increase to 12.3% by 2007, which is the starting year of the model. Ofcom now considers that three factors should be further considered, as follows;

- Sagentia had assumed for the purposes of the model, that the total volume of inbound traffic to mobile numbers (of which 8.3% was assumed to be terminated on ported numbers) would be a constant 35 billion minutes from 2007 through to 2016. It is now apparent that this assumption materially understates the actual volume of call minutes to mobiles; Ofcom's review²⁹ of mobile call termination charges forecast that the total volume of call minutes terminated on mobile numbers in 2007 would be 49 billion. Ofcom considers that it is no longer appropriate to apply Sagentia's figures now that more up-to-date information is available on volumes of inbound traffic. Ofcom has, therefore, updated Sagentia's model using the traffic forecasts assumed in the mobile call termination model for the period 2007 to 2018.
- Recent data on actual volumes of call minutes terminated on ported mobile numbers is now available. Therefore, rather than use Sagentia's assumption that 8.3% of call minutes to mobiles was terminated on ported numbers in 2005 and then apply a 2% annual growth to obtain a starting figure for 2007, Ofcom considers that more recent data on porting volumes should be used. In September 2006 Ofcom obtained from the mobile operators information on ported out and ported in traffic on their networks. This information was provided for the four quarters of 2005 and the first two quarters of 2006. This indicated that the total volume of call minutes to ported mobile numbers in 2005 was 5.8 billion. Ofcom has adopted this figure as the 2007 starting volume in the model for the volume of call minutes to ported mobile numbers. Ofcom considers that this is a very conservative assumption given that total inbound traffic has increased between 2005 and 2007 and hence it is very likely that the volume of traffic to ported mobile numbers would have increased at least proportionately. The figure of 5.8 billion is 12% of the total forecast mobile terminated minutes for 2007. Ofcom notes that this percentage is close to Sagentia's original forecast of the proportion of traffic to mobiles which would be terminated on ported numbers in 2007.
- Sagentia considered that the annual growth in traffic to ported mobile numbers would be 2% each year for all years until 2016. Ofcom noted in the July 2007 Statement and Consultation that an annual growth assumption of 2% was not borne out by evidence from market research (attached at Annex 6 to the July 2007 Statement and Consultation), which indicated that 5% of all mobile subscribers had ported their number in the most recent 12 months. On the assumption that consumers who have ported their number have a similar traffic profile as other mobile users³⁰, a 5% increase in mobile users with ported numbers will translate to a 5% increase in call minutes to ported numbers. In addition, the data provided by mobile operators for 2005 and the two quarters of 2006 shows that the growth in the volume of ported out minutes for all the mobile operators, between the first two quarters of 2005 and 2006 is above 8%. Taking a conservative approach, Ofcom has adjusted the model to assume that call minutes to ported mobile numbers will increase by 5% each year.

A1.45 Ofcom has also taken into account comments from stakeholders in relation to (a) how soon savings due to direct routing of calls from fixed to mobile numbers will be

²⁹ See footnote 19 above.

³⁰ In practice this assumption may understate the increase in call minutes to ported numbers. Customers who most value continuity in their mobile number, and therefore take care to port their number with them, may tend to receive more call minutes than customers who do not port their number. As H3G noted in its response to the 2007 Statement and Consultation[&<].

seen and (b) the impact of Call Trap on volumes of onward routed traffic to ported mobile numbers.

Adjustment for fixed to mobile ported minutes

A1.46 Vodafone has argued that if providers of fixed services do not implement direct routing until 2012, fixed originated calls to ported mobile numbers would not benefit from direct routing until 2012, and this delay should be reflected in the model. Ofcom agrees with this logic. However, in the proposal assessed here, providers of fixed services should implement direct routing as soon as reasonably practicable and in any event no later than December 2012. As noted in paragraph 3.73 above, where a node supporting call origination has been upgraded to NGN technology it will be feasible for the call originator to interrogate the CDB to determine the appropriate routing of calls to ported numbers and this will be achievable in respect of many calls well before 2012. Ofcom notes that NICC forecasts that by the end of 2009, some 20% of fixed ported numbers will be hosted on NGN nodes and therefore can reasonably be expected to be populated on the CDB and that this proportion will rise to 60% by the end of 2010 and 100% by the end of 2011. In forecasting the volume of call minutes terminated on ported mobile numbers which will no longer be onward routed (and which will, therefore, generate cost savings) Ofcom has taken the NICC forecasts into account while determining the cost savings, but used these conservatively.

A1.47 Ofcom has assumed that only 10% of fixed ported numbers will be hosted on NGN nodes by 2011, 60% by 2012, and 100% by 2013. Sagentia had assumed that 30% of mobile terminated traffic is likely to be originated on fixed numbers. Ofcom notes that this is a reasonable assumption to use; according to Ofcom's latest published Communications Market Update (Telecommunications Market Tables for Q1 2007), around 15.59million minutes of calls to mobiles were originated on fixed numbers. Assuming the same figure for 2007, and applying this figure to the forecast mobile terminated traffic for 2007 results in a figure of 31%. For reasons of continuity Ofcom has assumed that 30% of all mobile ported traffic would be originated on fixed numbers and has reduced the volume of mobile ported minutes that would experience savings from direct routing by 30% until 2012. However, to take into account the fact that some fixed numbers could be hosted on NGN nodes ahead of 2013, Ofcom has adjusted this percentage for 2011 and 2012 to 27% (10% of fixed numbers likely to be hosted on NGN nodes) and 12% (60% of fixed numbers likely to be hosted on NGN nodes) respectively. By 2013, the proportion falls to zero, because it is assumed that all calls from fixed networks would benefit from direct routing.

On-net call volumes and the impact of Call Trap

A1.48 In the July 2007 Statement and Consultation, Ofcom had assumed, for the purposes of the model, that 20% of all call minutes terminated on ported mobile numbers are on-net calls which, where the mobile operator has implemented Call Trap, should be excluded from the assessment of savings gained by ACQ/CDB. Vodafone has reported that, having implemented Call Trap, it has seen a reduction of 30% in the volumes of inbound calls onward routed from other networks. Ofcom accepts that this figure may more realistically represent the average proportion of on-net traffic on mobile networks. Ofcom has therefore altered the model so that it now assumes that 30% (rather than 20%) of all call minutes terminated on ported mobile numbers is on-net traffic (and, therefore, will not be onward routing where Call Trap has been implemented). On the basis (advised by Sagentia) that two out of the five mobile operators have implemented Call Trap (and on the assumption that between them

they have a two fifths share of call minutes to ported mobile numbers), the total proportion of all call minutes to ported mobile numbers which should be excluded from the assessment of cost savings due to ACQ/CDB would be 30% of two fifths ie 12%.

A1.49 Vodafone has suggested that more operators are likely to implement Call Trap and that account should be taken of this future development in the cost/benefit model. Since this impact assessment is comparing the benefits and costs of implementing direct routing according to the timescales specified by Ofcom versus potentially a much later implementation of direct routing (the likely result of not specifying timescales), Ofcom considers that in the absence of timescales for direct routing, further operators may implement Call Trap, although it is by no means certain that all of them would do so. If that were the case, the costs of implementing Call Trap should be considered against the benefits of Call Trap. However, Ofcom has no such cost estimates. Nevertheless, in order to take a conservative approach, in the Base Case Ofcom has taken into account the benefits of Call Trap when implemented by all operators by 2007 with the same level of costs as that assumed for direct routing.

A1.50 The assumption in the Base Case, therefore, is that, rather than 12% of overall mobile ported traffic being unaffected by onward routing due to Call Trap in 2007 (see paragraph A1.48), the revised percentage under all mobile operators having implemented Call Trap in 2007 is 30% (assuming each sees a reduction of 30% in inbound ported traffic due to Call Trap). Ofcom considers that this would be a very conservative estimate for two reasons. First it is looking at the reduced benefits, but is not adjusting for the fact that Call Trap would involve costs as well which must be netted out. Second, it makes the assumption that all operators would have implemented Call Trap in 2007 when there is no evidence that this is actually the case. To illuminate the effect of such a conservative approach in the Base Case, Ofcom has also considered a scenario (Sensitivity 1), in which Call Trap is not assumed to be implemented except by the two operators who have already done so. It is further assumed that each of the two operators would see a 30% reduction in ported in traffic due to Call Trap.

Forecast of call minutes onward routed to ported mobile numbers:

A1.51 Ofcom recognises that consumers who port for a second (or subsequent) time will not increase the volume of call minutes to ported numbers, and Ofcom has taken this into account in its assessment of the growth of call minutes to ported numbers. Ofcom also recognises that some ported numbers which are ported for a second time may revert back to the original number range holder. Given that there are five mobile operators, (and assuming that previous choices do not consistently influence future choices) there is a one in four chance that such second and subsequent ports will revert back to the original range holder and so reduce the volume of call minutes to ported numbers. These factors have been taken into account in the following formula. Starting with a 2007 figure for the percentage of mobile ported traffic in total mobile terminating traffic the following formula is used to calculate the cumulative percentage over time.

If p_n is the percentage of ported out traffic in year n , and a is the annual growth in p_n , then $p_{n+1} = p_n + a \times (1 - p_n) - r \times a \times p_n$

Where r is the probability that those who have ported out the first time will revert back to the original number range holder, thereby avoiding the need for a onward routing. $(1 - p_n)$ is the percentage of

the population that did not port in the previous year and might do so in year n.

A1.52 The above obtained percentages are then applied to the volume of forecast termination traffic to obtain porting volumes for each subsequent year. Based on this projection, the cumulative percentage of traffic to ported mobile numbers that benefits from direct routing rises to 33% by 2018 under the Base Case, where all mobile operators are assumed to have implemented Call Trap and to 42% under the less conservative scenario (Sensitivity 1). Ofcom considers this outcome consistent with the operation of a competitive market over a ten year period where penetration is already above 100%. Ofcom sees no reason to believe the proportion will stabilise at a markedly lower level, eg. 20% as suggested by Vodafone. Even absent the present regulatory intervention to require a change to a recipient-led near-instant porting process, awareness of the option to port is likely to grow as more consumers come into contact with acquaintances who have ported their number. The fact that less than one third of switchers currently port their old number indicates that there is significant further scope for porting.

The cost of onward routing

A1.53 Costs of onward routing to fixed ported numbers. BT for many years had charged an average of 0.0163ppm to onward route calls to ported fixed numbers, and Sagentia had assumed, for the purposes of its model, that these charges represented a reasonable proxy for costs. Reflecting representations from industry that these costs may fall when fixed networks migrate to NGNs, Ofcom set out in the July 2007 Statement and Consultation a modified view that the average cost of onward routing of calls to ported fixed numbers in the period to 2018 will be approximately 0.013ppm. Given that no responses have been received to this assumed figure, this remains Ofcom's core assumption.

A1.54 Costs of onward routing to mobile ported numbers. The July 2007 Statement and Consultation noted that Ofcom had recently determined a dispute³¹ in respect of charges for onward routing of calls to ported mobile numbers and had concluded that the cost was approximately 0.2ppm. This assumption was, therefore, included in the Base Case set out in the July 2007 Statement and Consultation.

A1.55 In its response to the July 2007 Statement and Consultation, Vodafone noted that the analysis relied on in determining the dispute had assumed that onward routing on 3G networks would be less costly than onward routing on 2G networks (and the figure of 0.2ppm is therefore a blend based on current proportions of 2G and 3G traffic). Vodafone argued that, as the proportion of traffic carried on 3G networks is likely to increase during the period to 2018, the assumed cost of onward routing to ported mobile numbers will fall during the period to 2018. Vodafone proposed that, also taking into account likely reductions across the board in relevant equipment costs (for 2G and well as 3G networks), the cost could fall to 0.12ppm by 2018. In the context of resolving the disputes, Ofcom was not required to take a view on what would be a reasonable charge for onward conveyance in the period to 2018. Nevertheless, Ofcom accepts that there may be some merit in Vodafone's assessment that costs of onward routing to mobile ported numbers may fall. It is not clear, however, how quickly or how far costs will fall. For the purpose of this cost benefit analysis, in the Base Case, Ofcom has made assumptions of falling unit costs consistent with Vodafone's point, as shown in Table 1.

³¹ See footnote 19 above.

Table 1

Year	Assumed costs of donor conveyance
2007-2010	0.2ppm
2011-2012	0.18ppm
2013-2014	0.16ppm
2015-2016	0.14ppm
2017-2018	0.12ppm

Conclusions on reductions in call costs due to direct routing

A1.56 In the light of the discussion in paragraphs A1.37 to A1.55 above, Ofcom has reformulated the Base Case set out in the July 2007 Statement and Consultation taking into account the following changed assumptions;

- The total volume of call minutes terminated on mobile number in 2007 (the starting point for the model) is assumed to be 49 billion (an increase from the 35 billion assumed in the July 2007 Statement and Consultation). Termination minutes beyond 2007 are those assumed by the mobile call termination model.
- When assessing the reduction in onward routing of calls to ported mobile numbers, account is taken of the later deployment of ACQ/CDB by providers of fixed services which will continue to onward route a proportion of such calls until 2012.
- Actual ported volumes for 2005, rather than forecasts by Sagentia have now been used for the starting year.
- Call Trap is now assumed to reduce the overall volume of onward routed call minutes to ported mobile numbers by 30% under the conservative Base Case and 12% under Sensitivity 1 (rather than by 8% as set out in the July 2007 Statement and Consultation)
- The total volume of call minutes terminated on ported mobile networks uses an annual increase of 5% in porting rates.
- The cost of onward routing calls to ported mobile numbers is assumed to fall from 0.2ppm to 0.12ppm over the period to 2018 (rather than remaining at a constant 0.2ppm as set out in the July 2007 Statement and Consultation).

A1.57 The results of the revised Base Case and the sensitivities are shown in the table below.

Table 2

Summary of results (2007-2018)			
	downward adjustment of starting year volumes to account for Call-Trap	Comments	Cumulative NPV (£m)
July 07 Base Case			66
Nov 07 Base Case	30%	Changed termination volumes, changed porting volumes, changed DCC and adjustment for fixed originated calls, and assuming that all mobile operators have implemented Call Trap	40
Sensitivity 1 Nov 07 Base Case	12%	As above but assume only 2 MNOs have implemented Call Trap	63
Sensitivity 2 Nov 07 Base Case		As Nov 07 Base Case above, but increase capex by 70%	2

A1.58 As illustrated by the table above, Ofcom is of the view that under reasonable assumptions about future volumes of onward routed traffic and the unit costs of such onward routing, there would be a net saving to industry. In the light of potential uncertainty about the costs of implementing ACQ/CDB, Sensitivity 2 tests the extent to which forecast capital costs could increase compared to the Base Case without the costs to industry exceeding the savings to industry. As illustrated, those costs could increase by 70% while maintaining an, at worst, neutral NPV. It should be noted that, as set out above, the assumptions made by Ofcom are in a number of respects conservative, in that they tend to understate the benefits. Furthermore, none of the NPVs tabulated take into account the benefits to consumers arising from avoiding the loss of service due to network failure, which are one of the objectives of this intervention; those benefits are discussed in the paragraphs which immediately follow.

Benefits to consumers from direct routing; avoiding loss of service

A1.59 Ofcom set out in the November 2006 Consultation an assessment of the financial impact on consumers of the loss of service arising from a network failure and set this at £296 per person in 2005 prices. Ofcom noted in the July 2007 Statement and Consultation that, although the figure derives from a 1994 model (and should, therefore, be treated with caution), it not only includes the cost of notifying others of a change in number but also the cost of temporary loss of service, costs associated with changing the number, and the cost of contracting with a new supplier. Ofcom noted, therefore, that the figure still represents a reasonable estimate of the average financial impact per customer affected. Applying this figure to the example of the failure of Atlantic Telecom, in which 14,000 customers were affected, results in an estimated impact of £4.2M in today's prices. Ofcom also notes that business users who lose incoming service may well risk losing business. Clearly, the size of that loss will depend on the nature of that business and its reliance on incoming calls³².

A1.60 Ofcom also considers that the non-financial impact of a network failure should be considered. Former customers of the failed provider who lose incoming calls may be distressed by the loss of service, for example some elderly people who rely wholly or principally on one telephone service for their communications.

A1.61 The biggest determinant of the total value of the benefits to consumers arising from direct routing is the number of consumers who are likely to be affected by donor failure in the period under review. As donor failure is an infrequent event, and the numbers of consumers which may be affected by one such event may vary markedly

³² Assuming that consumers can still choose other businesses, this loss would be a transfer gain for the other businesses. If this is not the case however, there would likely be welfare losses.

from event to event, it is not practicable to make a robust assessment of the value of the benefit. As the number of networks grow, the probability of some of them failing is likely to rise, particularly if they adopt innovative and potentially risky commercial approaches. On the other hand, if subscribers are spread quite thinly over these new networks, the number of affected ported customers per network failure is likely to be smaller than if a bigger network were to fail.

- A1.62 For purposes of illustration, if a provider with 200,000 customers should fail, and if some 15% of former customers had ported out their number to a new provider, 30,000 former customers would lose all incoming calls despite no longer having any contractual relationship with that provider (equivalent to the failure of two networks such as Atlantic Telecom), and a further 170,000 would be unable to port their number to a new viable provider. The 1994 cost estimate of £296 per affected customer would suggest that the cost to consumers of this one single failure would be £9m.

Conclusions on the net benefits of direct routing

- A1.63 The above subsection discussed two types of benefits from adopting direct routing according to the timescales set by Ofcom in this statement. One benefit is the net cost savings that industry can achieve through implementation within the timetable set by Ofcom rather than to delay implementation or not to implement at all. Under reasonable assumptions, the cost savings to industry are likely to exceed the costs of implementation. The other benefit is that customers are protected from the loss of service that might arise from the failure of networks.

Impact assessment of the decision to deploy a two hour recipient-led process for porting mobile numbers

- A1.64 This subsection first discusses the impact assessment of moving to a recipient led porting process from the current donor led porting process once a CDB is in place.
- A1.65 It then subsequently discusses the impact assessment of moving to a near instant porting process from the current process involving two day port lead times. This is discussed later because a near instant process is only likely to be feasible under a recipient led porting process.

Impact assessment of the decision to deploy a recipient led process

Quantification of the costs of a change to a recipient-led process (without also making this near-instant)

- A1.66 The main task of deploying a recipient led process for porting numbers relates to the automation of systems to allow easy communication between the providers, and modification of call routing tables. To a large extent, the CDB itself will offer this functionality. Some customer-facing staff of recipient providers will also need to be trained and enabled to initiate port requests.
- A1.67 While it is difficult to determine precise estimates of the costs, in part because the responses of different providers will vary, Ofcom sees no compelling argument to suggest that, in the presence of a CDB to enable direct routing of calls to ported numbers, the incremental costs of a recipient-led mobile number porting process are significantly higher than those for a donor led process. Even if mobile providers were not required by regulation to change their processes for porting mobile numbers, they would need to make changes to systems and process under the donor led process to

enable these to inter-work with the CDB which will deliver direct routing. These costs would not be incurred under a recipient-led process, although there would be other systems related costs as discussed below.

A1.68 Ofcom has estimated that the incremental one-off total industry cost of moving to a recipient-led process is about £5 million (approximately £2.5 million in changes to network operator systems, £0.5 million in changes to network operator processes, £1 million in retailer processes and systems and £1.0 million contingency).

Quantification of the benefits of a change to a recipient-led process (without also making this near-instant)

A1.69 On the benefits side Ofcom is of the view that this cost, even if it exceeds the systems costs of retaining donor-led porting, is likely to be offset by the on-going annual cost savings. These are achieved through consequent automation (including savings gained by donors which no longer have to generate and confirm PACs) and are likely to be at least £4.5 million per year. This figure is based on the results of the February 2007 survey which indicated that 5% of mobile subscribers ported their numbers in the last 12 months. On the basis that there are approximately 60 million subscribers, this would amount to 3 million subscribers who had ported in the last 12 months. A recipient-led porting process would have avoided the generation of at least 3 million PACs, and based on the assumption that the customer service administration and postage costs of each is of the order of £1.50, could potentially save around £4.5million each year.

A1.70 Ofcom considers that there are further cost savings for consumers arising from a recipient-led process, which fall into two main groups;

- Savings, in time and general inconvenience, to those consumers who would have ported in any event but can now do so without having first to contact their existing provider.
- Savings to those consumers who would have switched without porting but who will now also port their number because this option is now more convenient and more likely to be promoted by recipient providers (including savings realised through not having to notify contacts of a number change and not having to manage the consequences of failing to notify some contacts).

A1.71 Other savings to consumers, related to increased switching and competition, are considered below.

Savings to consumers who would in any event have ported their number.

A1.72 Approximately 3 million consumers currently port their mobile number each year. A proportion of these will be unaware of the need to obtain a PAC before selecting and contacting an alternative provider and may, therefore, waste time and money in having to make a repeat visit to the chosen new supplier before and after obtaining a PAC. Ofcom has been unable to determine precisely how many of the consumers who port each year are affected in this way and what costs each incurs as a consequence. A very small sum (for example a £1 bus fare) incurred by say about 30% of porting customers (90,000 customers) would, however, offset in just one year around a fifth of the cost of implementing a recipient-led process (which is around £5million) even without taking into account the time wasted and the general inconvenience suffered.

Savings to consumers who would have switched but who will now also port their number.

A1.73 Savings are to be gained by switching consumers being made aware of the option to port (consequent on the recipient provider no longer facing disincentives to offer porting), and thereby avoiding the costs of managing the consequences of a number change. The July 2007 Statement and Consultation observed that a saving of just £5 for each additional switching customer which ports his number would equate to an annual saving of about £2.5 million if applied to 500k³³ customers per year. For the reason given above, a transition to a recipient-led process (as distinct from a faster donor led process) can be expected to lead to greater promotion of the advantages of porting.

A1.74 In Ofcom's view, the analysis in the preceding paragraph should be taken as an indication of the lower bound of probable outcomes, in respect of changes to the behaviour of switching consumers. The February 2007 Survey indicated that 31% of those who switched provider and took a new number in the previous year were unaware that they could have kept their number. The February 2007 Survey also indicated that the same proportion (31%) of those who had switched and changed number would have preferred to have kept their old number. This equates to 3% of all mobile users in a 12 month period.³⁴ If that 3% of all mobile users were able to avoid a modest cost of £5 per year (modest in terms of the savings they expect to make annually from switching provider, which is likely to be significantly higher than £5 per year), the overall welfare gain would be of the order of £8 million per year.

Savings to consumers who will switch (because they are now aware of the option to port their numbers and the process is simple)

A1.75 The July 2007 Statement and Consultation also observed that wider awareness of the right to port (and of the ease with which this can be achieved), consequent on a recipient-led process, can be expected to lead to some further increase in switching. That document noted that a modest saving of just £7 per year in terms of more advantageous service charges for each additional consumer which switches to a different provider (as a consequence of being made aware that he can port his number without having first to contact his existing provider), would generate annual savings of around £1 million³⁵ if just 0.23%³⁶ of mobile users ceased to be deterred from switching by the introduction of a more convenient and more widely promoted porting process.

³³ The figure of 500k was adopted on the basis that the February 2007 Survey indicated around 13% of those who had switched without porting in the previous 12 months had explicitly stated that their reason for changing their number was that they did not know that they could keep it. 13% of mobile users would equate to some 700k, and Ofcom discounted this to 500k on the hypothetical basis that not all would in practice port their number.

³⁴ The February 2007 indicated that 15% of mobile users had switched in the previous year, of which 66% had changed their mobile number. 31% of these were unaware that they could have kept their number.

³⁵ Consumers switching providers to take account of competitive offers implies a transfer from suppliers to consumers. There is an overall gain in welfare to the extent that such switching leads to increased demand for services.

³⁶ The hypothetical figure of 0.23% was chosen by noting that 0.23% of customers surveyed in the February 2007 Survey who had not switched in the last year reported, unprompted, that they had taken steps to switch in the past year but had been deterred from doing so by the inconvenience of changing codes and numbers. The sample size was too small to allow much statistical weight to be placed on the figure and, therefore, the very small percentage was used merely as a hypothetical example.

- A1.76 The hypothetical saving of £7 per year may understate the savings available to mobile consumers who switch. £7 is only about 3.0%³⁷ of the average annual expenditure of about £229. Ofcom notes that uSwitch reports that customers who switch estimate that they have saved on average £113 per year. This estimate by surveyed consumers is not inconsistent with Ofcom survey data from 2005³⁸ which indicated that the average savings which consumers who switch supplier of mobile telephony expect to make is £14 per month, and that 90% of those consumers report achieving their expected level of saving or better. While these estimates based on consumer perceptions appear to be over-optimistic (indicating, as they do, that the average annual bill can be cut by around 50%), these consumer perceptions suggest, nevertheless, that material reductions are made in annual expenditure on mobile services.
- A1.77 The illustrative figure of 0.23% of customers who did not switch because they were deterred by the porting process, may also be considered a very conservative illustration. The preference for retaining one's mobile number (reported by 66% of those who had taken a new number when they switched), and the widespread belief that this is either not possible or would be too complex or slow, is not inconsistent with the view that a significant proportion (materially greater than 0.23%) of mobile users may be deterred from switching by current porting processes and/or by lack of awareness of the arrangements for porting.

Effects on competition

- A1.78 As a number of stakeholders have noted, a recipient-led process may reduce the opportunity for donor providers to engage in Save activity when customers decide to switch to another provider and also port their number. Ofcom notes however that, currently, less than one third of customers who switch also port their number and, therefore, any reduction in opportunities for Save activity will be limited. However, as argued by Scottish and Southern, the competitive dynamic is different when providers are aware that customers can leave easily and this may well sharpen competition in the market more generally. If under a recipient led process, providers are no longer able to target customers intending to port, they may face an incentive to increase the total value of discounts or other price reductions offered to all of their customers more generally. It is likely that more customers, and not just porting customers would benefit³⁹.
- A1.79 Ofcom recognises that such customer retention need not only mean discounts and lower prices, but may also require a proactive customer retention strategy because customers are able to leave easily. If that is the case, such a retention strategy can be more expensive to operate than a reactive strategy, often requiring more sophisticated data analysis and, potentially, more skilled staff. It is difficult to quantify the overall cost of any change of strategy, as the nature of that change and its impact will vary between providers according to their response to the changed competitive dynamics.

³⁷ The July 2007 Statement and Consultation stated that £7 was 5% of the average annual bill, which was inaccurate. A saving of £7 would represent just 3% of the average annual expenditure by mobile consumers (currently about £229 per year).

³⁸ MORI survey conducted for Ofcom 2005

³⁹ There is some literature to support the case that decline in 'switching costs' can cause operators to drop prices for both existing and new customers. "Do switching costs make markets more or less competitive? The case of 800-number portability" – V.Brian Viard, RAND Journal of Economics, Vol.38, No.1, Spring 2007.

A1.80 However if such increased costs were to be incurred, they would be part of the increase in competitive activity more generally. In the absence of compelling evidence to the contrary, Ofcom considers that it is reasonable to expect that there would be net welfare gains from such increased competition (since increased competition usually enhances welfare).

Conclusions on the net benefit of moving to a recipient led porting process (that is not near-instant)

A1.81 Ofcom's objective is to make the process convenient and simple as possible for consumers, such that consumers can select a new supplier of mobile phone service, purchase a new SIM card and receive calls using a ported number with little impediments to porting. Under the current donor led process, the process of requiring a PAC from the donor provider can act as a deterrent to porting. A recipient led process on the other hand can remove the inconvenience associated with porting, providing benefits to customers without significant costs being imposed. Further, the removal of inconvenience may encourage other customers to switch, and if providers were to reduce prices and offer discounts to retain customers who find it easy to switch, this may provide benefits of increased competition.

Impact assessment of the decision to deploy a recipient led process that is also near-instant

Costs of a change to make the process near-instant (as well as recipient-led)

A1.82 The CDB will enable near-instant changes to call routing tables and will fundamentally alter the way ported numbers are managed. In Ofcom's view, in these circumstances, it would be inefficient to design the new process to extend across 2 working days when it can be completed near-instantly. Ofcom recognises that some incremental costs, for example in training staff to operate near-instant processes, may be incurred, although these are likely to be minimal under an automated process.

Benefits of a near-instant process (which is also recipient-led)

A1.83 It is not easy to quantify with a reasonable level of confidence the level of benefits to be derived from a mobile porting process which is near-instant as well as recipient-led (over and above a process which is recipient-led but may take up to 2 working days).

A1.84 Ofcom notes that the February 2007 Survey found that 48% of those who had switched in the last 12 months and had not ported their old number would have ported their number had they been made aware of the option and had been told that the process would take one day. This compared with a figure of 41% who reported that they would have ported their old number had they been aware of the option and been told that the process would take 3 days. While awareness of the right to port may have been a key factor, it is notable that the timeframe for effecting the port does influence the response.

A1.85 Ofcom also notes, in the same survey, that amongst those who have ported their number, a majority (57%) reported that the process could be improved, with 28% arguing that the process should be immediate and 26% saying it could be faster. This finding, and that cited in the preceding paragraph, indicate that consumers value a swift process.

Other costs and benefits of a recipient led process that is also near instant

A1.86 A move to near-instant porting will enable swifter porting and may lead to an increase in competition. As for recipient-led porting, costs may be incurred by providers in achieving such an increase in competition. Recipient providers may respond to the opportunity to gain competitive advantage from a near-instant (and recipient-led) mobile porting process, and incur additional costs to do so. For example, where a provider chooses to offer this facility in all retail outlets, or chooses to offer new facilities to enable near-instant porting (such as a web-based or phone-based facility), development costs may be incurred. Ofcom considers that, in the absence of compelling evidence to the contrary, it is reasonable to expect that there would be net welfare gains from such increased competition.

Conclusion on the net benefit of moving to a near instant process (as well as recipient led)

A1.87 Ofcom considers that since the CDB will ensure near instant changes to routing tables, it would be inefficient to design a porting process that was not near instant, especially when the incremental cost of doing so under a recipient led process was minimal. Where a near instant process can be implemented at minimal incremental cost, it is reasonable that consumers' appetite for a swifter process should be met when the overall process is redesigned. A near instant process may lead to swifter porting and encourage those who might have been deterred by the speed of porting to switch. If more switching were to occur, it may provide benefits from competition that far exceed the costs of moving to a near instant process.

Annex 2

Notification of modifications to General Condition 18

Notification of modifications of Part 1 and General Condition 18 of Part 2 of the General Conditions regarding number portability, which is set out in the Schedule to the Notification under Section 48(1) of the Communications Act 2003 published by the Director General on 22 July 2003 as amended by the notification made by Ofcom on 30 March 2006 and further amended by the notification made by Ofcom on 17 July 2007.

1. OFCOM in accordance with section 48(2) of the Act hereby makes the following modification of General Condition 18 of Part 2 of the General Conditions regarding number portability.
2. The modification is set out in the Schedule to this Notification.
3. The effect of, and OFCOM's reasons for making, the modifications referred to in paragraph 1 above is set out at sections 2 and 4 of the accompanying explanatory statement.
4. OFCOM consider that the modifications referred to in paragraph 1 above complies with the requirements of sections 45 to 50 of the Act, as appropriate and relevant to each of the proposals.
5. In making the modifications set out in this Notification, OFCOM has considered and acted in accordance with their general duties in section 3 of the Act and the six Community requirements in section 4 of the Act.
7. Copies of this Notification and the accompanying statement have been sent to the Secretary of State in accordance with section 50(1)(a) of the Act and to the European Commission in accordance with section 50(6) of the Act.
8. In this Notification:
 - (i) "the Act" means the Communications Act 2003;
 - (ii) "General Conditions" means as set out in the Schedule to the Notification under Section 48(1) of the Communications Act 2003 published by the Director General on 22 July 2003 as amended from time to time; and
 - (ii) "OFCOM" means the Office of Communications.
9. Except insofar as the context otherwise requires, words or expressions shall have the meaning assigned to them in this Notification and otherwise any word or expression shall have the same meaning as it has in the Act.
10. For the purpose of interpreting this Notification:
 - (i) headings and titles shall be disregarded; and

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

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

Signed by Marina Gibbs

Competition Policy Director

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

29 November 2007

Schedule

Modification to General Condition 18 of Part 2 of the General Conditions regarding number portability, which is set out in the Schedule to the Notification under Section 48(1) of the Communications Act 2003 published by the Director General on 22 July 2003 as amended by the notification made by Ofcom on 30 March 2006 and further amended by the notification made by Ofcom on 17 July 2006.

General Condition 18 on Number Portability shall be modified as set out below:

- 1 As from 1 September 2009, the words “two business days” in Condition 18.2 shall be deleted and replaced with the words “two hours”.
- 2 The following wording is inserted as a new Condition 18.4:

“18.4 The Communications Provider shall

 - (i) use all reasonable endeavours to establish a Common Database as soon as reasonably practicable and, in any event, by 31 December 2008 and to maintain it thereafter. In establishing a Common Database, Communications Providers shall take full account of the obligations contained in Conditions 18.2 and 18.6 insofar as those obligations relate to Mobile Portability and shall comply with such obligations in relation to the establishment of the Common Database as Ofcom may from time to time direct;
 - (ii) as soon as reasonably practicable and, in any event, by 1 September 2009, Communications providing Mobile Communications Services shall populate the Common Database referred to at (i) above; and
 - (iii) as soon as reasonably practicable and, in any event, by 1 September 2012 all Communications Provides shall populate the Common Database referred to at (i) above.”
- 3 The following wording is inserted as a new Condition 18.5:

“18.5 As from the Relevant Date, all Originating Communications Providers shall ensure, to the greatest extent possible, that all Electronic Communications originated by them are routed to the Terminating Communications Provider in a manner independent of the donor Provider. Where an Originating Communication Provider purchases transit services to route Electronic Communications, the provider of those transit services is not to be considered as a Donor Provider for the purposes of this paragraph”
- 4 The following wording is inserted as a new Condition 18.6:

“18.6 As soon as reasonably practicable and, in any event, by 1 September 2009, where a Communications Provider receives a request for Mobile Portability from another Communications Provider in accordance with Condition 18.2, it shall not require the Subscriber to make contact with the Donor Provider before providing Mobile Portability.”
- 5 Conditions 18.4 and 18.5 shall be renumbered as Conditions 18.7 and 18.8 respectively.

6 The following definitions shall be added to Condition 18.8:

- (q) “Common Database” means information storage system(s) that can be interrogated electronically by each Communications Provider and containing, in relation to Telephone Numbers which have been the subject of Portability, up to date and complete information required to route any Electronic Communication originating from a Communications Provider in the United Kingdom to such Telephone Number in a manner not dependent on the intervention in real-time of the Donor Provider, and capable of allowing the Provision of Mobile Portability within a period of two hours in such a manner that a Subscriber is not required to make contact with the donor Provider before Mobile Portability is provided;
- (r) “Originating Communications Provider” means a Communications Provider on whose network an Electronic Communication originates;
- (s) “Relevant Date” means:
 - (i) in the case of Electronic Communications originated by a Mobile Communications Service and terminated by a Mobile Communications Service, as soon as reasonably practicable and, in any event, by 1 September 2009; and
 - (ii) in the case of all other Electronic Communications, as soon as reasonably practicable and, in any event, by 31 December 2012.
- (t) “Terminating Communications Provider” means a Communications Provider on whose network an Electronic Communication terminates.”