Cover sheet for response to an Ofcom consultation

BASIC DETAILS

Consultation title: Review of General Condition 18 – Number Portability

To (Ofcom contact): Gideon Senensieb

Name of respondent: Howard Erdunast, BT Group Regulatory Affairs Department

Representing (self or organisation/s): BT

Address (if not received by email):

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26 January 2007

BT'S RESPONSE TO OFCOM'S CONSULTATION "REVIEW OF GENERAL CONDITION 18 – NUMBER PORTABILITY"

BT would welcome any comments on the contents of this document which is also available electronically at http://www.btplc.com/responses

Comments should be addressed to Howard Erdunast, BT Group Regulatory Affairs Department, pp C81, BT Centre, 81 Newgate Street, London EC1A 7AJ, or by e-mail to howard.erdunast@bt.com.

EXECUTIVE SUMMARY

As industry and BT in particular start to roll out advanced next generation networks (NGNs), Ofcom is taking the opportunity to review whether the onward routing (OR) implementation of Number Portability (NP) should be replaced by a common database (CDB) solution, for mobile NP (MNP) by September 2009 and for fixed NP by December 2012.

BT agrees with Ofcom that a CDB solution would be technically superior to OR, and is desirable in principle but that it comes at a cost. Separately, since the administration by the larger mobile network operators (MNOs) of the existing MNP solution is proving problematic, with new entrants effectively being blocked from using the system, Ofcom's consultation is extremely timely.

In terms of the timescales of moving to a CDB solution, BT's initial view is that a September 2009 date for MNP is likely to be achievable and, given the cost benefit analysis (CBA) that has been carried out on behalf of Ofcom, justifiable. However, if Ofcom mandates such a move, it is important that at the same time it ensures that this requirement and its implementation are not successfully used as an excuse by any industry players to continue to deny customers their rights to port their mobile numbers to and from new entrants under the current arrangements.

Given the priority of addressing the problems with the existing MNP solution, and assuming a rapid move towards full implementation of a CDB solution by September 2009 (or as determined following this consultation), BT would question whether the introduction of an interim direct routing solution based on NICC Service Description 8 is realistic. For example, the need for agreed standards by mid 2007 seems particularly optimistic.

The commercial case presented by the CBA for moving to a CDB solution for fixed NP is far less clear. It is heavily dependent on certain key assumptions. BT is not even certain that the CBA justifies a transition to a CDB solution at all, let alone by the prescribed date. Whilst BT supports a CDB solution for fixed NP in principle, setting a date for full implementation six years out appears to be premature. BT would prefer to see Ofcom agree with industry rather more realistic shorter term and intermediate commercial and technical milestones, linked to NGN roll out, standards development, agreement of CDB governance arrangements, etc rather than today setting December 2012 as the date for full implementation of a CDB solution for fixed NP (even if this ends up being "the right answer"). BT would like to see Ofcom setting a date for a further review, following which it may be appropriate to amend the General Condition setting a date for full implementation.

Whilst BT believes that the case for a CDB solution for MNP is far clearer than for fixed NP, and that it is likely to be achievable sooner, it is important that a coherent approach be adopted for fixed and mobile NP, given the wide recognition of fixed/mobile convergence. This principle is important, and can be applied sensibly without implementation dates being set simultaneously for fixed and mobile NP.

Regarding the proposed shortening of the MNP lead time, in BT's view, the MNP lead time could be fairly readily reduced to two working days but a further reduction may only be practicable once a CDB solution was in place. Whilst BT believes intuitively that the shorter the lead time the better, so long as there are sufficient safeguards against slamming and other practices that run counter to customers' interests, the evidence presented by Ofcom does not show the five day lead time to be a significant disincentive to porting for customers and therefore seems to BT an issue of lesser significance.

BT agrees with Ofcom that possible changes to fixed NP processes and lead times are best dealt with in its forthcoming consultation on inter-working and transfers between all fixed, transferable products.

Introduction

1. As industry develops next generation networks (NGNs), Ofcom is re-considering whether a common database (CDB) solution for Number Portability (NP) should be introduced. This consultation proposes time scales by which a CDB should be fully implemented, with an earlier end point for mobile NP (MNP) than for fixed NP.

2. The current onward routing (OR) system is inefficient in routing terms, and, absent other interventionist arrangements, fails when the number range-holder no longer functions, such as when that company goes out of business. This leaves customers with numbers from its ranges without incoming service even if they had exported their number before the failure.

3. However, the set-up costs and ongoing running and management costs of a CDB solution can be high. In terms of the legacy fixed network, the costs were of such a magnitude that Oftel recognised following its 2002 consultation that transition to a CDB solution could not be cost justified, and in fact it was almost certainly not technically achievable. BT agrees with Ofcom that introducing a CDB solution is technically feasible and considerably more viable on NGNs than on the legacy network. BT is pleased that Ofcom continues to monitor the situation and is grateful for the opportunity to offer its views.

4. Ofcom is also considering whether and by how much to shorten the lead times for MNP, from the existing maximum of five working days, on the basis that longer lead times could be a disincentive to porting.

Background to the CDB solution

5. There are different ways of implementing a CDB solution, depending on the degree of independence, resilience and data accuracy (i.e. frequency of updates) required. The CDB could also be dimensioned in different ways, depending on how it might be used by NGN operators moving forward. For example, it could hold records of ported numbers only, or all numbers, whether or not ported. There may be other sub-sets of numbers that could be held. The essence of the CDB solution is that calls to ported numbers are directly routed to the network of the company serving the customer. With the current OR solution, originating networks recognise from the initial digits of the dialled number which company holds the range and route all calls to that network, regardless of whether the individual customer number has been ported. Where a customer has ported his or her number, the range holder, rather than delivering calls as it would if it still served the customer, sends the calls out of its network again, with a routing prefix, to direct the calls to the network serving the individual number. There are costs associated with the

additional transit. However, in a NGN environment, such additional transit costs may be significantly different from today, and any cost benefit analysis (CBA) should model a range of different cost levels.

6. In theory, a CDB could be interrogated in real time during call setup, or downloaded so that only a network operator's own database would need interrogating during call setup. BT would be very much opposed to a requirement to interrogate calls in real time on a third party database for very much the reasons that Ofcom anticipates in its consultation (para 3.5). For a large CP such as BT, it is essential that real time queries should be internal to the CP's own network. This puts the responsibility for key aspects of network performance in the hands of the CP, where it belongs. It follows therefore that the CDB should be an administrative database which can be downloaded to real time databases in individual CPs' networks.

7. Either way, this eliminates the additional transit costs associated with the OR system, however there are direct and consequential costs associated with the number look up, and the establishment and maintenance of the independent database.

End-user benefits of a CDB solution

8. BT recognises that a CDB solution is likely to deliver a number of end user benefits, some more significant than others. The main one is that customers would be able to retain their telephone numbers if their range-holder folds. Sagentia calculated the benefits of this at £296 per customer, at 2005 prices. However, this was based on a methodology used by NERA that was over 10 years old. For most customers, whilst number changes remain highly unwelcome, often for non-financial reasons, with widespread use of the internet, e-mail, mobile phones and SMS, the cost of notifying a number change will be far lower than it was. BT notes, of course, that for some customers, generally business customers, the costs will remain significant. Given these technological developments, BT would strongly recommend a re-calculation of the net benefit before concluding whether an early move to a CDB solution in fact delivers a net benefit in relation to fixed numbers.

9. With OR, service might be degraded by problems in the donor network, such as congestion. Indeed, network problems might lie behind a customer's desire to port. A CDB solution would eliminate the potential for this problem to affect service (assuming that the gaining provider has sufficient capacity).

10. Technically, a move from OR could deliver additional benefits. With OR, on occasions, there can be call set-up delay and speech delay. These would be avoided by a CDB and direct routing solution.

11. A move to a CDB solution once all providers have changed over could allow shortened porting lead times. That said, there would remain a product

provision lead time and a continuing need for a robust validation process. It should be recognised that these might dictate the critical path, negating the benefit of a shortened porting lead time.

Industry benefits of a CDB solution

12. Of course, some benefits would be common to end-users and industry. For example, BT would not want its own customers with imported numbers to have to change numbers if the company from which it had exported failed, as could be the case today. This could lead to additional costs to BT and leave the customer with a negative impression of BT.

13. However, there are other benefits to industry that would not impact end-users. For example, additional transit resulting from OR would be obviated, leading to improved network efficiency.

14. There is more than one way in which a CDB solution could be implemented. The database could include all ported numbers or all numbers, whether ported or not. If implemented for all numbers rather than just ported ones, a CDB solution could allow allocation and routing of numbers at a much finer granularity than at present. This would permit much better matching of allocations to CPs' needs than is possible at present, where allocations of blocks of 1000 or 10000 numbers are the norm, dependent on the range. This has the potential, once CPs' networks have been upgraded, to support finer routing granularity, thereby reducing the risk of forced number changes, which are anathema to both end users and CPs. However, such an increase in database size would come at a price, and it may not cost in.

15. A move to a CDB solution could potentially lead to improvements to the administrative side of number porting. However in the absence of agreed requirements, design and a completed feasibility study, at this stage there is no guarantee that this will be a consequence of a CDB solution.

Governance

16. BT believes that establishment of a clear set of rules on governance of the CDB is a critical aspect of the transition and that its relation to the porting process overall needs to be explored. BT believes that this should be done either via the experts in the standing industry commercial fora on porting or, perhaps, via NGNuk. Thus, governance arrangements could be established in a manner analogous to NICC's role on the technical aspects. Key issues that need addressing include the basis on which a CDB would be procured, who would operate it, relationship management between the CDB provider and those using it, the establishment, monitoring, compliance and

enforcement of Service Level Agreements and the basis on which the CDB would be funded. There would need to be ongoing management, probably via an industry group, so that the commercial and technical arrangements were responsive to any need for change or updating.

Timing and time scales

17. As mentioned elsewhere in this response, BT believes based on what it knows of NGN roll out plans across industry and its analysis of Sagentia's CBA that it is too early to commit to a 2012 cut-over date for total reliance on a CDB solution for fixed NP. This position is illustrated by concerns regarding the achievability of the first two milestones (related to availability of stable standards and CDB governance) which seem particularly optimistic. BT has expanded on these concerns in Annex A in answer to Ofcom's question 7.

18. BT believes that rather than embed a December 2012 target date in the General Condition, which has other disadvantages too, BT believes that the first stages of a move towards a CDB solution should follow more of a co-regulatory approach with industry, perhaps with a date embedded for when an implementation date could more realistically be set (assuming that a cost benefit analysis stacked up), say at the end of 2009. By this time, the roll-out of NGNs would be further progressed, the commercials better understood, and the merits of the alternative approaches of an "all numbers" or a "ported numbers" database (and therefore the underlying technical requirements and potential commercial arrangements) should be clearer.

19. Notwithstanding our reservations about setting a specific date at this stage for the full roll out of a CDB solution, BT would not wish to see an unduly extended period of parallel running of OR and CDB solutions and should the latter be introduced, a date at which parallel running of OR and CDB solutions should cease should be set.

20. BT believes that for MNP, the target date of September 2009 for full transition to a CDB solution appears achievable, although we would be concerned that this could be jeopardised by the requirement to implement an interim solution based on NICC Service Description 8.

Technical issues regarding a CDB for fixed NP

21. There are a number of key technical issues involved in deployment of a CDB solution for NP, indicated below. These are being addressed by NICC, within which BT is playing an active role.

22. While the current Consultation concentrates on the possible provision of a CDB for ported numbers only, there are a number of advantages in including **all** numbers in the CDB. In particular it could allow numbers to be allocated

and routed at much finer granularity than at present. However this approach would require a very substantial rework of OSS, billing systems and associated processes (both pan industry and intra-CP) since number management, allocation, provisioning and billing have hitherto been designed around and managed on the basis of 10k or 1k block allocations. Considerable further work is required to establish the viability of such an approach. A specific issue with this approach is the need to design into the CDB extremely stringent security arrangements, to safeguard the integrity of the entire UK network.

23. Technically and commercially, changes to inter-CP billing arrangements would be required if a change to the framework for Portability were to be required. For example, under the present OR arrangements, the recipient operator bills the donor operator (ie. the range-holder) for terminating a call. In a CDB regime, provided that the originating operator has routed the call based on information contained in the CDB, the call would not have traversed the donor network, and thus the donor network would be billed for traffic it had not handled. Wholesale billing would need to mirror the new arrangements. The impact of this on charges to end users would also need considering, in particular how or to what extent tariff transparency could be achieved.

24. As a porting transaction is progressed, there would be a need for the end to end cycle time (from changing over of a ported customer's access network to the appearance of the appropriate routing information in CPs' real time databases) to be predictable, controllable and very short so that downtime through being out of synchronisation during the porting process is minimised. How this cut-over is achieved without a negative impact on customers would be critical.

25. It would be necessary for OR data to be built in the donor CP's network until such time as there can be certainty that the originating CP (or a CP acting on its behalf) has routed the call based on data held in the CDB. If this is not done, calls could fail. It follows from the above that enhancement of CPs' NP support systems would be required to enable parallel feed of porting data to the CDB and donor networks. BT would expect NICC to consider how this and other requirements could be achieved consistently across the industry, fixed, VoIP and mobile.

26. As explained earlier, it is crucial to BT that there is no requirement to interrogate calls in real time on a third party database for very much the reasons that Ofcom anticipates in its consultation (para 3.5).

Technical issues regarding a CDB for mobile NP

27. All mobile networks currently support number database lookup (against the Home Location Register (HLR) when terminating calls. Most mobile networks also support number database lookup (against the HLR) for originating calls. This facility is used for call trapping (local routing of calls and

messages to on-net subscribers with an imported number). While some development is required to these HLRs to integrate with a CDB solution, BT believes that mobile operators should not need to change their switches to interface with a CDB.

28. Hence, BT believes that a CDB solution can and should be put in place by September 2008 (subject to timely agreement on standards and governance) to support MNP and direct routing. In our view, a deadline of September 2009 for a change over to this CDB solution for MNP should not present significant implementation risk for any UK mobile network operator.

NICC Service Description 8

29. Any need to implement an interim solution for direct routing based on NICC Service Description 8 may ultimately delay migration to a fully fledged CDB solution and could distract MNOs from progressing current requests for MNP using the existing system. BT has already suffered a delay of 17 months in gaining support for MNP and any further delay to providing access to the prevailing MNP systems would be wholly unacceptable. BT therefore suggests that this "halfway house" is not sufficiently advantageous to be pursued.

30. That said, this interim solution appears feasible but requires some development to HLRs and signalling processors - STPs - by all mobile network operators though currently this is not expected to be problematic for BT. Nevertheless, BT recognises that 12 months may be a challenge for some MNOs that have conflicting developments planned for these network elements.

MNP lead times

31. BT agrees with Ofcom that excessively long port lead times seem likely to discourage consumers from switching. However, the international bench-marking data does not seem to demonstrate a clear link between the number of customers porting and the porting lead time. In addition to the international telecoms comparators presented by Ofcom being in BT's view inconclusive, it is worth noting that a recent Ofgem Press Release states that over 4 million customers had changed gas and electricity providers in the first 10 months of 2006, and this is with a 4-6 week transfer lead time. In the absence of firm evidence to the contrary, it is difficult to see even the current five days as excessive. It seems that what is needed is only a straightforward process that is low-effort for customers.

32. Nonetheless, although we do not believe that the evidence supports the view that the existing time scale is excessively long from a customer perspective, BT is, in principle, in favour of shorter lead times so long as the

process remains robust and simple. Any decrease in the porting lead time needs to be achieved such that there is no likelihood of an increased risk of Porting Authorisation Code (PAC) fraud or slamming. BT believes that the current procedures can be amended to support a shorter lead time (see Annex A, answer to Q8, for more detail).

Proposed modifications to GC 18

33. Following Ofcom's amendment to its original consultation, BT has only a few comments on the detail of the changes proposed.

34. Currently clause 18.4 requires that "The Communication Provider shall use all reasonable endeavours to establish a Common Database by 1 September 2008 and to maintain it thereafter." The obligation in Condition 18.4 is not limited to Mobile Communications Providers. There seems a slight inconsistency in approach between this requirement and Ofcom's proposal that fixed operators should not be required to introduce direct routing before 2012. BT suggests that if Ofcom pursues the policy set out and retains conditions 18.5 and/or 18.6 in their current form (ie it continues with the idea of setting the dates for mobile and fixed operators in the one condition) then it would be appropriate to reword Condition 18.4 along the following lines:

> "The Communication Provider shall use reasonable endeavours to ensure that there is a Common Database in place twelve months before the Relevant Date applicable to the Electronic Communications Service and that the Common Database is maintained thereafter."

35. If however as BT suggests Ofcom does not in its Final Statement set a Relevant Date for fixed numbers, Condition 18.4 will also require amendment to ensure that it sits appropriately with the revised condition.

36. BT notes that although in the consultation document itself Ofcom suggests that it would be mandatory only for all ported numbers to be hosted on the database, the draft amendments to the general condition seem to go further than this. The reference to "each Telephone Number in active use in the UK" would capture all active numbers and not just those that are ported. BT believes that while there may be advantages to having all numbers in the CDB, a decision to go down this road should not be mandated by Ofcom and certainly not without further industry-wide exploration. Ofcom should ensure that the obligations that it imposes are proportionate, equitable and are no more onerous than is necessary. Therefore BT would suggest that the definition of the Common Database should be amended by inserting the word "ported" before Telephone Number.

ANNEX A – ANSWERS TO OFCOM'S SPECIFIC CONSULTATION QUESTIONS

Question 1: Do you agree that an ACQ/CDB solution is required to achieve independence of Donor Networks?

BT agrees that a CDB solution provides independence of donor networks. However, in the context of the underlying issue of mitigating problems under an OR solution in the very rare situation when a failing range-holding network is switched off, BT believes that there are other ways of dealing with the problem, potentially more proportionate than a CDB solution, especially in the shorter term. For example, competing network providers could collaborate to share and build the blocks of a failed network in order to ensure a degree of continuity, the principles of which have been agreed in the fixed industry commercial forum.

Question 2: Do you agree that an ACQ/CDB solution common to both fixed and mobile networks is the preferred option?

BT believes that the case for a CDB solution for MNP in the shorter term is far stronger than for fixed NP. It follows that should it be implemented first as would seem appropriate that it is designed such that two separate solutions could be avoided if a need for a CDB solution for fixed NP in the future were needed.

It does not follow that a CDB for fixed and mobile numbers needs to be introduced at the same time, nor the date set at the same time but in building the mobile solution first, it requires a degree of future proofing, and buy-in from the fixed and VoIP industries.

Further analysis may be worthwhile to see whether certain parts of the fixed numbering space could be supported by a CDB earlier, for example, with non-geographic numbering preceding geographic numbering.

Question 3: Do you agree that any transition to ACQ/CDB should occur in the course of migration of fixed networks to NGN architectures?

In the event of a decision to move to a CDB solution for fixed NP, BT agrees that it should be introduced during the course of NGN migration. BT believes that as NP would need to be supported cost effectively in effect in a mixed NGN / legacy environment – that is "in the course of migration", OR will continue to be required for the foreseeable future. Therefore, although Sagentia suggests that the costs of an OR solution could be avoided by an early introduction of a CDB solution, BT does not believe that this would be the case.

It should be noted that following modest enhancements to their HLRs, mobile networks should already be able to support a CDB solution. These networks do not need to evolve to NGNs.

Question 4: Do you agree that it would be beneficial to require the mobile industry to complete its transition to an ACQ/CDB solution by September 2009?

Yes.

Question 5: Ofcom would welcome respondents' analyses of the costs and benefits of a comprehensive transition of the mobile industry to direct routing using NICC Service Description 8 or other suitable standard within one year, ahead of a further transition to ACQ/CDB.

BT believes that the key benefits of direct routing include:

- **More reliable service for customers with ported numbers. In the past, BT has found that inbound calls to BT Mobile customers with imported mobile numbers are a little less reliable both in terms of the reliability of call set-up and the maintenance of calls once established than for BT Mobile customers with native numbers.**

- **Avoidance of the Donor Conveyance Charge which is higher than most transit charges.**

These benefits apply to any means of implementing direct routing.

BT estimates a cost of around £200k to change our existing implementation of NICC Service Description 8 to support direct routing.

Question 6: Ofcom welcomes views from stakeholders as to the appropriate approach to be adopted in achieving the implementation of ACQ/CDB whilst ensuring that such co-operation is limited to technical matters directly related to the ACQ/CDB solution.

BT wishes to ensure that any CDB solution is managed, operated and funded in an equitable fashion. As such, its development in an open industry forum with a closely defined remit across the widest range of interests should help ensure that such an aspiration is met.

Question 7: Do you have any comments on the transition milestones and their corresponding dates? Could the dates be achieved earlier? Alternatively, could any of the dates be at known significant risk of being missed?

It is not until after the publication of the Ofcom Statement following this consultation that enough certainty will exist to permit the drawing up of a firm statement of requirements for the CDB (and associated network changes) to be produced. This would be a necessary precursor to an industry agreed solution design, which in turn would lead to agreement of an appropriate suite of standards. This will be a challenging task involving complex pan-industry activities requiring agreement by a large number of parties.

Given that Ofcom's Statement is unlikely to be published before March 2007, BT feels that agreement of stable standards by June 2007 is highly optimistic and must be at serious risk of being missed. Nonetheless, BT has been actively supporting NICC preparatory work and will continue to do so, with the objective of hitting the proposed date if at all possible.

Similarly, given the likely publication date of the Statement following this consultation, and that issues surrounding governance arrangements of a CDB solution are liable to be sensitive, the July 2007 date is unlikely to be achievable. Again, BT will work with the industry with the aim of achieving the proposed date.

Deployment of NGNs in the UK is very much in its infancy. BT feels that it is too early to embed the final proposed milestone for a CDB for fixed numbers of December 2012 date into the General Conditions. Instead BT proposes that timescales should be reviewed in, say, 2009.

BT believes that, subject to timely agreement of standards and arrangements for governance, it is possible for a CDB with mobile numbers to be available for voluntary use by September 2008 and operational for parallel running by May 2009. The ability to take advantage of such a capability may be limited, however, by the need to upgrade billing systems.

Question 8: Do you agree that Ofcom should require port lead times to be reduced to less than one working day? If you do not agree, please provide evidence that shows otherwise.

BT believes that the mobile port lead time could be reduced as follows. It assumes that the customer has ordered a new mobile service and has obtained a valid PAC code to port their mobile number:

- **Day 0: Recipient SP validates the presented PAC code and enters this port onto the MNP web system.**
- **Day 1: Donor SP polls the MNP web to obtain details of requested ports. This should happen within 1 working day of the MNP web system update.**

- **Day 2: Porting day: this is the day on which the porting actions are performed.**

Question 9: Alternatively, do you agree that Ofcom should require port lead times to be reduced to three working days?

Whilst BT believes that it is possible to port in less than three working days (for mobile numbers), as above, BT would not be opposed to a three working day lead time. Indeed, whilst a shorter lead time is desirable, BT does not believe that the existing five day lead time is a barrier to porting (this is supported by Ofcom's own research). BT believes a far bigger issue in the shorter term is ensuring the availability of the current MNP system to new entrants on fair terms.

Question 10: What is a reasonable timeframe for the implementation of a one working day process?

BT believes that this subject should be revisited following the implementation of a CDB solution.

Question 11: Do you consider that a three working days port lead time process could be implemented within 6 months?

Yes.

ANNEX B – ASSESSMENT OF COST BENEFIT ANALYSIS

Introduction

BT agrees with Ofcom that, from a technical perspective, a central number database makes considerable sense, particularly given increasing fixed-mobile convergence and the emerging transition to NGNs. However, this technical perspective must be seen within a wider context. This is not of the development of technically perfect telecommunications architecture from scratch, but of its evolution through progressive replacement of successive generations of legacy network, processes, systems and equipment. Such replacement investment is not free: resources are scarce and therefore choices have to be made, in terms of prioritising some investments and excluding others altogether. This is usually done by considering their net benefit.

The CDB proposed by Ofcom (Option 5) is all calls query (ACQ) in mobile and fixed networks by 2012 and is forecast to have an overall net efficiency benefit (ie capex and opex minus savings from costs of OR) of circa £300m. However, this figure and the commercial case it is being used to validate, is based on investment appraisal that contains quite aggressive assumptions for levels of costs and benefits. BT believes the much lower net benefit from a more realistic view of future cashflows forms a case for Ofcom to adopt a more cautious approach to mandating establishment and use of a CDB by all operators by 2012, particularly in relation to non-mobile numbers.

Risks to Costs

Costs May Be Higher Than Expected

First, £200m of costs[1] that were specifically attributable to the CDB under TDM on the legacy PSTN network are now assumed to be within the NGN envelope. This is even though there has been "little feedback on NGN costs from operators in our interviews". BT believes significant additional costs will arise from adopting Ofcom's proposals, because not all of those previously identified by Masons will be specifically attributable to NGNs. We expect such costs to include those for enhancement incurred at pan industry level, and those incurred by BT for OSS, network enhancement, and for augmentation of our routing database and call servers. These investments will be necessary to support a larger quantity of numbers and a much higher query transaction rate (as it will be necessary to query all number blocks and not just BT ones).

Second, Sagentia assumes the costs of onward routing under TDM will not be incurred under NGNs (para 3.30). One reason this is unlikely to be the case is that it will be necessary to parallel run OR and CDB solutions until it is certain that all calls have already interrogated the CDB. This is certainly going

[1] For IN platform, signal switching and switch processors

to be the case before 2012, and potentially for some time thereafter. Another reason is that international inbound calls to the UK may require some form of OR to reach their destination.

Third, the investment appraisal assumes a fixed and industry-agreed set of detailed requirements, standards and timescales for implementing a CDB under NGNs. In practice, none exists. This means Sagentia has produced an investment appraisal for a CDB that in all likelihood will probably be quite different to the one for which the appraisal has been made.

Whilst Sagentia's investment appraisal reports that the positive net efficiency benefit is robust to a cost overrun of £30m, we feel variations in these three assumptions are likely to increase costs by much more than this figure.

Risks to Benefits

Benefits May Be Lower Than Expected

No attempt has been made to update the 1993 NERA study of the benefit of protecting customers from having to change their numbers following a network failure. Since that date, there have been substantial changes in the communications market and to business models. Then, adoption of mobiles was negligible; now, about 1/3rd of voice calls are made from a mobile phone. Then, regulatory solutions like WLR and unbundling did not exist; now, customers can use different suppliers for voice and data services, so that losing their voice service does not affect their ability to continue to communicate using the supplier of their data service. Then, the Internet had virtually no penetration; now circa 2/3rd of households are connected to the Internet. Then, business models depended on the telephone / fax for remote communication with their customers; now, many e-businesses are telephone-independent and limit remote customer contact to e-mail only.

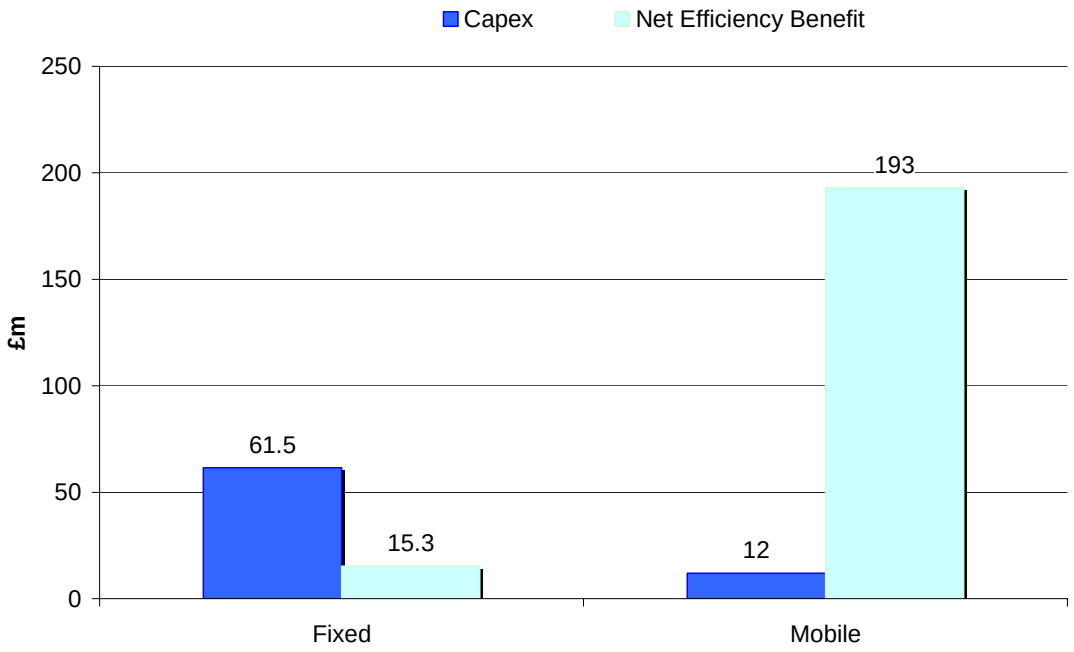
Because there are so many low cost, low effort ways of notifying a number change, it is unlikely that the benefits of protecting against network failure are as great as the £296 per ported customer calculated by Sagentia.

Another reason for supposing that the net efficiency benefit will be lower than forecast is that the ACQ/CDB solution assumes that all operators roll-out their NGNs within a finite (to 2012) timescale. Given the large number of operators involved and the inevitable variations in their willingness and ability to make the necessary investments, this is unlikely to be the case.

Distribution of Costs and Benefits

Whilst the overall net efficiency benefit of Option 5 may be high, the stand alone results of Option 3 (fixed) and Option 4 (mobile) suggest the payoff to investment in a CDB for fixed operators will be considerably less than for

mobile operators. Based on Sagentia's figures, fixed operators will incur the majority of the circa £74m capex cost and receive very little of the expected net efficiency benefits.



Funding

Two factors in particular suggest that funding the CDB may be problematic.

First, the Sagentia figures indicate that fixed operators will contribute most of the capital cost of a CDB but receive least of its net efficiency benefit. BT believes a fairer approach to funding a CDB would be that those who receive higher benefits make a proportionally higher contribution toward costs.

Second, according to Sagentia, mobile operators are "much less supportive" of a CDB than fixed operators, even though they are by far the biggest beneficiaries. This unwillingness may make them more resistant to calls to fund a higher share of CDB costs.

Strategic Issues

Ofcom argues that an investment in a CDB is justified because it will facilitate easy and swift consumer switching and enable the costs of operator failure to be avoided. Neither of these claims have particularly strong empirical support.

On switching, the consumer research indicates that only 10% of those who have switched fixed calls providers are dissatisfied with the associated porting time. Also, only 3% of mobile subscribers who have not switched supplier have given time taken to switch as their reason for not doing so.

In the event of network operator failure, the circa £75m capital investment in a CDB will create only static benefits (eg enabling firms to avoid the cost of changing stationery). These benefits compare to the far more tangible, widespread and profound benefits, including supporting service innovation, associated with investing an equal sum in NGNs. As UK telecommunications companies' resources to invest are scarce, this fact suggests that it would be much more valuable to society to secure early investment in NGNs rather than prioritise investment in a CDB, many of the benefits of which Sagentia shows will only arise from the remote probability of operator failure.

Therefore, at present, the CDB option does not appear to be an economically proportionate response to the switching and operator failure issues.

Conclusion from the assessment of CBA

Whilst BT supports a transition to a CDB solution for NP for many of the technical reasons Ofcom sets out, we believe it is too early to enshrine 2012 in regulation as the date for the completion of a move away from OR and to a CDB solution. Commercially, there is still too much uncertainty relating to costs and benefits for non-mobile portability, and fixed operators will see very little of the overall expected net benefit. We would prefer Ofcom to stop short of requiring completion of the CDB by 2012 and instead simply help facilitate moves towards this solution. A date in 2009/2010 to review progress would seem reasonable.