ERG Consultation on Next Generation Networks Future Charging Mechanisms/Long Term Termination Issues

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BT Response

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Executive Summary

(i) We support the move to lower LRMC/pure LRIC symmetric termination rates recommended by the EC 7.5.2009 in the short to medium term to allow new commercial models to evolve while migration to NGNs takes place. In the long run, when migration to NGNs is complete, the desirability of introducing BaK can be reassessed

(ii) The UK already has the lowest fixed termination rates in Europe and the EC recommendations to move to Long Run Marginal Cost/pure LRIC will address the issue of higher rates elsewhere in Europe and high mobile termination rates. The evidence suggests that lower prices at the retail level will drive higher utilisation and improvements in consumer welfare, rather than replacing CPNP with BaK at the earliest opportunity.

(iii) Any change will require some modification of the existing commercial models where the fully allocated cost is recovered from call termination. All efficiently incurred costs must be recovered, and at the wholesale level there may be a shift to recovering more costs from call origination. This will not necessarily be reflected in retail packages where in many cases the increase in call origination costs will be mirrored by a reduction in call termination costs. Recovery of any legitimate shortfall would naturally be of greatest concern where a high level of costs is currently being recovered from termination charges. In taking account of any such concern, it will be important that significant changes to the existing commercial model are phased in over a period of time to minimise any disruption for the end user.

(iv) BaK is the most extreme manifestation of low termination rates and should only be considered once the adjustment to low termination rates is complete to avoid unnecessary disruption to the commercial model which may adversely affect the welfare of some consumers. For both BaK and CPNP one of the most critical issues is the boundary at which the rate, or zero rate applies. BaK does not solve these problems and we are not aware that a business case has been made which proves that it is a superior charging model.

(v) The boundary issue is difficult in the legacy world, and more difficult during migration to NGNs. BaK is predicated on a much smaller number of larger points of interconnect where as in the TDM world the wholesale commercial model is based on infrastructure competition much deeper into the network. This situation is inimical to BaK during migration to NGNs because there are no logical boundaries that could fairly and reasonably span TDM and NGN interconnect. It would be totally unacceptable to have different charging regimes for TDM and NGN interconnect because of the potential for arbitrage. Therefore it would be more appropriate for the NGN commercial model to evolve during migration and only consider the merits of BaK when that migration is complete

Consultation questions

Question 1 *(Section 1)*: **Do you agree that in a multi-service NGN environment, in which different services use a shared transport layer, different interconnection regimes for different services could create arbitrage problems? If yes, could you describe the problems that you foresee or that have already occurred. If no, what prevents these arbitrage problems in your view?**

1. There is no reason why there should be arbitrage problems in relation to voice when different services use a common transport layer. If voice is simply a best endeavours service provided over broadband which commands no premium, there is no issue – as yet there is no technology that enables quality assured end to end sessions over best endeavours broadband. If voice over NGN is provided as a quality assured service in the same way as the PSTN, then the way quality is assured will provide the means for differential charging. The ERG 2008 NGN consultation suggested marking different services and therefore allocating them to different Quality of Service Classes. In BT, our experience suggests that this is too expensive, and we have adopted the alternative approach of transporting quality assured voice in dedicated capacity over separate VLANs. In these circumstances the broadband charging mechanism can exist side by side with session based charging or charging packages for quality assured voice calls

Question 2 *(Section 1 & 2.2)*: **What is the influence of the separation of transport and service for the interconnection regime and in particular the charging mechanism and in what way are NGNs and BaK related?**

2. CPNP and BaK can both be used in the legacy PSTN and NGN worlds for quality assured voice, although we are strongly of the view that it has to be one charging mechanism or the other to avoid creating opportunities for arbitrage. The separation of transport and service does not necessarily make any difference at all. In the NGN world it would be perfectly possible to have a greater or lesser degree of granularity of charging. In the UK one communication provider has proposed that the call set up charge should vary according to whether the signalling was sent to the parent call server or another call server. There is no particular aspect of NGNs which necessitates less granularity or the adoption of BaK as the charging mechanism.

Question 3 *(Section 3.2)*: **How would you define the boundary for the application of BaK and where should it be located (i.e. points of interconnection where BaK is applicable)?**

3.1 Setting termination rates is recognised as a complex and time consuming process. Superficially, BaK offers a much simpler solution in that all rates are the same and set to zero. In reality the complexity transfers to setting the boundaries for BaK and developing new commercial models and charging mechanisms for Premium Rate Services, Number Translation Services, Carrier Pre Select, Indirect Access and calls to and from non-BaK zones.

3.2 In the broadband world, traffic is exchanged at telehouses and other agreed points of interconnect between operators. In the voice world in the UK, interconnect takes place at over 600 local exchanges and around 70 tandem layer switches. In the proposals for NGN voice interconnect in the UK, Industry agreed that there would be 27 interconnect locations for voice with all lines parented on one of the 27, with 2 alternative locations for lines parented on Aberdeen and Belfast. Until migration to NGNs is complete it is not obvious where the boundaries of BaK would be across legacy and NGN networks.

3.3 Call termination is defined as from the point nearest to the end user where signals can be exchanged. ERG say 'the lower limit on the BaK boundary should thus be set at a level at which the SMP termination bottleneck is removed' – in the legacy network for BT this is at the 665 DLEs (248 locations) – Local to Tandem Conveyance is fully competitive. Anything other than the 665 DLEs would not comply with these definitions and be disruptive to the existing commercial model that has fostered infrastructure competition.

3.4 If the BaK boundary were set at the 600+ local exchanges in the UK, it would only take account of BT's topology as the incumbent. In contrast, in the network of one of BT's major competitors in the UK, all lines are parented on just 3 locations, so presumably a different boundary would apply for them based on their 3 locations. Logically, this means that a different boundary would apply for each Communications Provider. This would then need to apply to the boundaries between Communications Providers other than the incumbent.

3.5 The alternative would be to have a fixed number of locations where lines were parented and which constituted the boundary of BaK. BaK is predicated on the economics of NGNs which suggest more aggregation to a much smaller number of larger points of interconnect, which is reflected in the proposed 27+2 locations. Clearly the mismatch in Communication Providers topologies is likely to be much less in the NGN world, but as noted in the document, migrations to NGNs are now likely to take place over a much longer period of time. Ovum, in their 14 March 2008 paper 'Voice: a vision of the future – Europe update', suggest that the tipping point from TDM to IP will not be before 2015 in Western Europe. Therefore it would not be appropriate even to consider migrating to BaK before this tipping point is reached.

3.6 Clearly, the operation of CPNP in the legacy world and BaK in the NGN world would be unacceptable because of the scope for arbitrage. The topological differences between NGNs and legacy networks appear to be irreconcilable when setting boundaries for BaK, which suggests it should only be considered when migration to NGNs is complete. The EC has already addressed the issue of excessive mobile termination rates with its proposed use of Long Run Marginal Cost. This offers all the benefits of lower termination rates and potentially higher utilisation whilst preserving the tried and tested CPNP commercial model until migration to NGNs is complete

Question 4 *(Section 4.2)*: **What is your conclusion on the relationship between the charging mechanism and penetration, usage and price level?**

4.1 The inter-relationships between these factors are complex and international comparisons are necessarily somewhat inconclusive given the range of regulatory systems in operation and the wide variety of factors at play. It is certainly not axiomatic that BaK would lead to optimal levels of penetration, usage and price: in the USA (commonly regarded as operating a BaK regime, but in practice this is a simplification) relatively low mobile termination charges are coupled with large bundles of minutes and these together achieve high mobile usage levels; in South Korea (which does not have BaK) , it is low prices that appear to drive high utilisation levels; and in European countries that operate the CPNP system, high MTRs have been observed to drive high levels of SIM ownership, but not necessarily high actual mobile usage. The problems in assessing these key relationships have been acknowledged in recent studies carried out for Ofcom in the context of mobile termination *see Annex 7 "Wholesale Termination Regime, Termination Charge Levels and Mobile Industry Performance" by CEG*
http://www.ofcom.org.uk/consult/condocs/mobilecallterm/annex7.pdf
 and Annex 8 "Case Studies of Mobile Termination Regimes in Canada, Hong Kong, Singapore and the USA" by Analysys Mason
http://www.ofcom.org.uk/consult/condocs/mobilecallterm/annex8_1.pdf in Ofcom's preliminary consultation on wholesale mobile voice call termination, Ofcom, 20 May 2009. The absence of a clear conclusion that one charging mechanism provides superior results overall lead us to doubt that Ofcom will recommend the adoption of a BaK system in its next mobile termination control period that runs from April 2011. As BT has said to Ofcom, it is high mobile termination rates and the imbalance with fixed termination rates that are the short-to-medium term urgent issues that need to be addressed by regulators.

4.3 BaK is not a prerequisite for low prices, but low prices are a prerequisite for high utilisation. Within the EC, measures are already in hand for the use of Long Run Marginal Cost/pure LRIC to reduce the excessive mobile termination rates and address the asymmetry with fixed termination rates. Both of these are prerequisites to drive higher utilisation, whereas BaK is not.

4.4 Charging mechanisms that are neither balanced nor proportionate have a significant impact on usage and price levels. In the case of fixed to mobile calls, mobile termination rates have consistently and stubbornly remained at a multiple of some ten times the fixed rates. The result is that, given that mobile rates remain significantly higher than costs, fixed customers are subsidising mobile operators (and possibly mobile consumers), and economic efficiency is being compromised.

4.5 Fixed termination rates are low in the UK (approximately 0.3ppm). Moving to a BaK regime would create little difference to consumers making fixed-to-fixed national calls. Calls beyond the BaK boundary would have to be charged as at present. The real change would take place for consumers of fixed networks in the lower charges that they would see for calling mobiles and we would regard that as a positive thing for consumers of fixed networks and for economic efficiency overall.

4.6 Given that, in the UK at least, fixed and mobile services are now fully competitive at the retail level, we would expect competition to ensure that penetration, usage and prices would not be adversely affected by any change to the charging mechanism –

and indeed, given the retail flexibility that low/zero termination rates would facilitate, we would expect a positive effect on these measures.

4.7 This imbalance between fixed and mobile rates is the short-to-medium term urgent issue to be addressed by regulators. When balance and proportionality have been introduced, further analysis of BaK might be undertaken.

Question 5 *(Section 5.1.3)*: **How does BaK affect regulatory certainty and the risk of legal disputes?**

5.1 BaK only increases regulatory certainty to the extent that all call termination rates are set at zero. The boundary issue of where they should apply and what is fair and reasonable will ensure that the scope for legal dispute is far from diminished especially in the set up stage.

5.2 Greater clarity is required on what exactly is proposed by ERG in terms of boundaries. It is hardly sufficient to say that it will be for NRAs to determine, when this is the most likely area for disputes

5.3 Consider the proposal that there should be a minimum number of locations where a communications provider must interconnect to benefit from BaK. Logically all numbers, whether allocated to the incumbent or other Communications Providers should be parented on one of the minimum number of locations. Call termination from the parent location is then zero in all cases. CPs who do not interconnect at the minimum number of locations will have to pay the incumbent or another CP to reach the locations where they do not interconnect. No-one will ever go to more than the minimum on the hot potato principle. There is considerable scope for disputes over which locations are included.

5.4 There would also be issues for call origination. Under CPNP far end hand over prevails and the calling party pays to get to the point of interconnect. However, under BaK it can be argued that where the receiving CP does not interconnect at the minimum number of interconnect points, they should have to pay to receive calls from the parent locations, where they do not interconnect, to their smaller number of locations. There is considerable scope for disputes over who pays for what.

5.5 Whilst it is conceivably possible to devise BaK boundaries in the NGN world where the economics drive greater aggregation and a much smaller number of large points of interconnect, there would be major issues where some CPs have NGNs, some do not, with migration taking place piecemeal over a protracted period, with country variations. Commercial models in each country are driven by building out to existing locations. If BaK boundaries were superimposed on these models it would cause major disruption, distortion and arbitrage, until NGN migration is complete with corresponding scope for disputes and litigation.

5.6 We considered the problem of charging rates during migration in depth in the UK. Whilst it was possible to devise compromises that would work in the short run if NGN migration took place across the industry in a relatively short time frame, where migration is more protracted, and across many countries, the commercial models will

need to evolve at the same pace as the migration. Evolution rather than revolution will be key. Hence, moves to lower, more symmetric termination rates in the short to medium term, with the possibility of evolution to BaK in the longer term, when migration to NGNs is complete across the EC, is likely to produce the best outcomes for the consumer and the industry and constrain the scope for disputes to those which already exist.

Question 6 *(Section 5.2.1.3):* **How do different wholesale charging mechanisms impact on the number of unwanted calls? Do you expect (other) effects on consumers/consumer groups? Where possible, provide a quantitative assessment of the expected effects.**

6 It seems inevitable that any move to BaK (if it led to lower retail charges) would encourage rather than discourage SPIT. Whilst we agree that the costs of calls, irrespective of the interconnect charging mechanism, is low (especially with the increasingly large or even unlimited bundles of voice minutes in both fixed and mobile sectors) compared with the cost of labour, incurring a charge is probably the best deterrent to SPIT. This is especially so in relation to automated machine calling from outside the EC where the use of such machines is allowed. The issue of SPIT needs to be examined more closely as the available evidence is inconclusive.

Question 7 *(Section 5.2)*: **How do you assess the quantitative relevance of call and network externalities?**

7.1 One view of what would be the most appropriate charging structure for the NGN world was produced by NGNuk - see NGN Interconnection: Charging Principles and Economic Efficiency Richard Cadman 12th July 2007 at

http://www.ngnuk.org.uk/index.php?id=75&type=0&jumpurl=uploads%2Fmedia%2F NGNuk_Charging_Principles__12072007.pdf&juSecure=1&mimeType=application %2Fpdf&locationData=75%3Att_content%3A533&juHash=0382d4f270

This concluded *'that efficient investment, an objective of both EU and UK law, is most likely to be supported by continuing with a system whereby the network of the party most likely to benefit from the transfer of a call or message continues to pay for the call. In this way networks are most likely to recover investments from calling or called parties who gain most. This basic economic principle is equally applicable to NGNs as it is to the current generation of networks.'*

7.2 The analysis and conclusions in the Draft Common Position are correct in that it is far from clear that termination rates are a good tool to increase or maintain the number of subscribers to telephone networks. This was a view effectively endorsed by the UK Competition Commission when it reduced the Ofcom-calculated network externality allowance on MTRs from 0.3ppm to zero in a recent appeal case.

7.3 The issue of quantification is very difficult as it requires econometric investigation to isolate the impact of prices and price structures on both usage and access (network membership). To the extent that termination charges allow for greater participation (inclusion), then any treatment should be reciprocal between fixed and mobile

networks, most especially as network disexternalities from fixed line customers will arise from an increasing number of households being wireless only and dropping fixed connections.

Question 8 *(Section 5.3.5)*: **How would your business be affected by a move from CPNP to BaK? Please explain the expected impact on prices, volume of supplied services and profit.**

8.1 BT has been, and continues to be, concerned about the level of charges that it must make to its customers for calling mobiles. As mentioned above, the mobile sector is being subsidised by the fixed sector - that on any level of consideration seems unfair. A move to low reciprocal termination rates would potentially resolve this long-standing anachronism as demonstrated by the international comparisons.

8.2 With low/zero mobile termination rates, BT would be able to offer its customers better value products, promotions, deals and bundles, including 'all-you-can-eat' packages where customers pay a set price and have the peace of mind that all calls will be covered, including those to mobiles. Current mobile termination rates make that unviable.

8.3 Whilst BaK is a way of achieving low termination rates, in the short to medium term this outcome can best be achieved by manipulating the existing CPNP model, with BaK a possible long run progression once migration to NGNs is complete.

Question 9 *(Section 6.1)*: **Do you agree with the conclusion that operators/users in the BaK domain will subsidise traffic coming from outside the domain (regardless of the legal aspect)? Are there any mechanisms to prevent this and how will they work in your view, in particular to avoid arbitrage?**

9. The evidence provided by ERG on the likely outcome if a BaK zone tries to levy termination charges on a non-BaK zone is compelling. Arbitrage will be inevitable and undesirable. This makes it highly desirable that any move to BaK in the EC should happen at the same time in all member countries. Logically this should only be considered when migration to NGNs is complete and BaK boundaries could be set

Question 10 *(Section 6.3)*: **Do you see any implementation problems for a migration period towards BaK? How could such problems be addressed?**

10. Whilst BaK solves the problem of setting termination rates at a stroke, it disrupts the whole of the existing commercial model and payment flows. Efficiently incurred costs to and from the newly defined boundary for BaK would have to be recovered with a rate of return from the end user. Inevitably, there would be imbalances in costs attributable to end users under CPNP and BaK, and this suggests that a glidepath via lower termination rates would be required before BaK could be implemented, to allow for adjustments to be made without detriment to the consumer. The EC proposals for rates based on Long Run Marginal Cost/pure LRIC will result in lower termination

rates, and it would be appropriate for this to work through the industry to the consumer first before any move to BaK is considered.

Question 11 *(Section 7)*: **Does the draft CP miss any other relevant issues?**

Carrier Pre Select

11.1 A new commercial model would be required for CPS under a BaK regime. Currently the CPS supplier receives call origination fees from the CPS customer and Call termination fees from the originator of calls to CPS customers. Under the BaK regime the call termination revenue stream would cease, and therefore a new charging regime for CPS customers would be required. The boundary issue is especially relevant here in the legacy network where the economic opportunity is largely between Local Exchanges and tandem switches. In the NGN world, the economic opportunity will be significantly different because the tandem layer of switching will effectively be removed with aggregation to a higher level in the network. Any migration to BaK would be more appropriate when migration to NGN has taken place and the CPS model changes anyway.

Number Translation Service

11.2 The payments stream for Number Translation Services are largely based around termination payments. This commercial model would need to be reworked to take account of BaK and include some measurement capability to enable charging to take place

Premium Rate Services

11.3 Some measurement capability would still be required to enable the charging of duration based PRS

Traffic Measurement and Call Records

11.4 There appears to be an assumption that BaK would simplify the charging mechanisms. In practice, BaK is no more or less susceptible to simplification or additional complexity than the existing CPNP. When the major benefits for the consumer can be realised by addressing the high asymmetric mobile termination rates, which will largely be dealt with by the LRMC/pure LRIC methodology, there is much to be said for maintaining the existing charging methodology. BaK offers no additional benefits to the consumer but requires the entire commercial model for calls to be reworked. Calls would still need to be measured to enable charging for CPS, NTS and PRS. Traffic would still need to be measured to enable charging packages to be devised and traffic managed. Call records would still be required for security purposes. Costing models will still be required for making and receiving calls, and for regulating call origination where there is still significant market power. The extent to which this is less onerous than the existing modelling requirement is unclear.

END