

Comments of Deutsche Telekom Group on the ERG Draft Common Position on Next Generation Networks Future Charging Mechanisms/ Long Term Termination Issues

10th December 2009

1

Executive Summary

- The consultation document lacks a precise and complete analysis. Some issues are analysed only briefly. The issue "other long term forms of regulation" is missing completely in the document. Market aspects, technical specifications and transaction costs of network operators are not taken into account.
- The consultation document is extremely focused on BaK without sufficient assessment. The negative effects which had been identified in past consultations and scheduled for further analyses are now being trivialised.
- Alleged low termination costs do not justify BaK. The alleged decrease in termination costs due to the transition to NGN can only be approximated today. Even if the costs are expected to decrease, the assessment that the difference between CPNP and BaK would be negligible cannot be confirmed. Low costs are not zero costs and still have to be recovered.
- The proposed BaK regime imposed by regulation would lead to even higher regulatory costs and uncertainty than today's CPNP. Besides the regulation of the BaK-boundary, the proposed mark-up for origination as well as the termination rates which would be applied in case the conditions of the BaK boundary regulation are not fulfilled will have to be determined in the same process as today. The net effect is more regulation, not less.
- The proposed concept of BaK boundary regulation has shortcomings and is not analysed in depth. Crucial questions remain unanswered by the ERG. Particularly, if a network operator that is not connecting at all Points of Interconnection (Pols) of the BaK boundary would have to pay termination rates.
- The database used is too limited and inappropriate for international comparison. ERG's conclusion that BaK would be the optimum charging mechanism is based on a comparison with one territorial state (USA) and two densely populated city states which are significantly different from European countries. Additionally, the US mobile market is not under a regulatorily imposed BaK regime, instead commercially negotiated low termination rates are in place. Hence, the chosen sample is not appropriate for an international comparison of regulatory regimes and cannot justify the promotion of BaK.
- Separation of service and transport layers would undermine NGN advantages. With an imposed separation of service and transport layers the regulatory objective that customers should derive maximum benefits in terms of choice, price and particularly quality is unattainable.
- The ERG's proposal to solve the hot-potato-routing problem would stimulate inefficient investments. There is an inevitable trade-off between solving the hot-potato-routing problem and determining the optimum number of Pols. A large number of Pols is required to solve the hot-potato-routing problem. On the other hand, Next Generation Networks will be characterised by a smaller number of Pols compared to today's PSTN.

- The conclusions with regard to the internalisation of externalities are incomprehensible. The negative effects are completely ignored, and the SPIT problem (SPIT = Spam over Internet Telephony) is trivialised. ERG's proposed BaK regime would not fulfil the necessary conditions for internalising call externalities better than CPNP. Concerning network externalities the statements of ERG are contradictory. The SPIT problem is underestimated.
- **BaK imposed by regulation would destroy investment incentives.** The assessment of the effects BaK would have on investment incentives is very poor and insufficient. The consultation document does not recognize the existing direct negative effects on investment incentives.
- Demand for quality of service is not compatible with supporting BaK. BaK would lead to an adverse selection problem. Due to free-riding problems BaK would give disincentives to invest in quality of service and infrastructure.
- The proposal of a mark-up on origination service for CPS operators is one-sided and would lead to market distortions. In contrast to the assessment of the ERG the traffic flows between the incumbent and alternative operators are not balanced. Thus, the proposed mark-up on the origination service would lead to market distortions.
- Call back schemes as source for arbitrage under BaK: The ERG proposes to strengthen consumer protection to solve the arbitrage problem. However, assuring the enforcement of the consumer protection rules would incur additional regulatory costs. This contradicts the ERG's assessment that regulatory costs would be lower after the implementation of BaK.
- The subsidisation of CPNP countries and the resulting market distortion and negative welfare effects are underestimated. Even if BaK were simultaneously implemented in all European countries, the arbitrage problem with all the CPNP countries in the world would remain.
- The aspects of the migration period are not sufficiently analysed. ERG raises two crucial issues in the context of the migration to NGN: The synchronisation/harmonisation of the migration by different operators or countries towards BaK as well as the issue of the glide path itself. Unfortunately, ERG has made a first step only by identifying the challenges of the migration period in general. But the ERG has yet to undertake the second step and deliver a detailed assessment.

Deutsche Telekom welcomes the opportunity to comment on the ERG Draft Common Position on Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues. With the development and implementation of IP-based Next Generation Networks (NGNs), NGN-interconnection becomes an important issue.

Basically, Deutsche Telekom is of the opinion that the migration towards NGNs will significantly reduce barriers to entry and thus will further enhance competitive pressure, particularly on core network in already competitive markets. Therefore, in our view the future charging mechanisms should be market-driven and not imposed by regulation. Particularly, a BaK regime imposed by regulation would induce serious market distortions and would risk hampering innovation and investment in new technologies.

Our comments refer to the current Draft Common Position and also take into account the previous discussion on the future charging mechanism for NGN-interconnection. The questions asked by the ERG are not explicitly addressed but have been taken into account within our comments.

1. The consultation document lacks a precise and complete analysis

In the last ERG common statement a list of issues with the planned scope for deeper analysis was mentioned.¹ The current ERG consultation document also mentions these issues², particularly, the implications of different business models and practical implementation issues like the migration period for more precise investigation, but they are outlined only very briefly in the document. The analysis of "other long term forms of regulation" which is also referred to on p. 11 is missing completely.

It is mentioned in chapter 2.2 that the consultation document will look at IP interconnection in general, and that it is not confined to voice interconnection.³ But the document concentrates on voice only. Therefore, there is no basis in the document for the ERG statement that "a converged multi-service NGN seems to benefit from a *single* terminating charging mechanism"⁴. Particularly, to determine the optimum charging mechanism specific characteristics of the different services have to be kept in mind. Depending on the specific service, different charging mechanisms could be optimum. Thus, further study is indispensable before ERG could draw the conclusion that a single charging mechanism for terminating is optimum for <u>all</u> services.

Moreover, the ERG draft common position does not take market aspects as well as detailed technical specifications into account. The special characteristics of today's different network types are not considered, e.g. fixed vs. mobile networks. However,

¹ See ERG (2008), Common Statement on Regulatory Principles of IP-IC/NGN-Core – A work program towards a Common Position, p. 25ff.

 ² See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 11.

³ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 15ff.

⁴ ERG (2009), Next Generation Network's Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 11.

Comments of Deutsche Telekom Group on the ERG Draft Common Position on NGNs Future Charging Mechanisms / Long Term Termination Issues, 10th December 2009

this is particularly necessary in the context of costing aspects, because different network technologies lead to different network costs which have to be considered.

Unfortunately, the transaction costs of network operators are not considered in this ERG draft common position either. The consultation document thus disregards the fact that the provision of the termination service and the operation of the underlying network cause more costs than pure of network technology costs, e.g. software maintenance and marketing costs (wholesale service provisioning, customer relationship and contract management).

2. Consultation document is extremely focused on BaK without sufficient assessment

Compared to previous ERG consultation documents, the current one is extremely focused on BaK. In contrast to the announcement that "the relative merits in the long run of BaK and current CPNP need to be assessed"⁵, today's CPNP regime is not mentioned or analysed anymore in the current document.

Furthermore, most aspects of BaK which were identified as negative in the former consultation documents and scheduled for further analysis (e.g. hot-potato-routing problem, increase of SPIT problem, risk of inefficient investments, destruction of incentives to invest in infrastructure or quality of service, arbitrage problem between CPNP and BaK areas) are now trivialized and considered as not too serious any longer. Instead of attempting to properly quantify the effects the ERG speculates that the alleged positive aspects of BaK would outweigh the remaining negative issues.⁶ In our view this statement is not justified by an objective and complete analyses.

3. Alleged low termination costs do not justify BaK

ERG mentions an alleged decrease in termination costs as the main reason for the implementation of BaK.⁷ The convergence of networks, the transition to NGNs and the growth of data services would allegedly cause the cost of voice per minute to fall according to the consultation document.

The conclusion that an alleged small difference between CPNP and BaK and the alleged higher regulatory costs with CPNP regime would justify BaK as optimum charging mechanism is too short-sighted and lacks detailed assessment.

First of all, low costs are not zero and still have to be recovered irrespective of their actual level. There also is no legal basis for determination of termination costs at a zero level as is the case with BaK, even if their actual levels may be very low. Fur-

⁵ ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 11.

⁶ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 9, 55.

⁷ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 6, 52.

Comments of Deutsche Telekom Group on the ERG Draft Common Position on NGNs Future Charging Mechanisms / Long Term Termination Issues, 10th December 2009

thermore, BaK cannot reflect the cost asymmetry between fixed and mobile networks.

Second, the reasons for the cost decrease mentioned are not convincing and also cannot be confirmed today. To the contrary, the convergence of networks as well as the transition to NGNs requires huge investments in infrastructure which have to be recovered. Additionally, the growth of data services also implies continuous investments in higher bandwidth and network management facilities to assure the service-specific quality and features.

4. The proposed BaK regime imposed by regulation would lead to even higher regulatory costs and uncertainty than today's CPNP.

The assertion that BaK "will significantly reduce regulatory cost and uncertainty"⁸ and that under the CPNP regime the regulatory costs would be higher is not justified either. The proposed BaK regime also leads to costs resulting from regulatory and judicial proceedings. In particular, the idea mentioned in the ERG document that regulators could determine the number of Points of Interconnection (Pols) (="BaK boundary") as well as setting the origination rates⁹ to be charged from Call-by-Call and Preselection operators incurs regulatory costs and uncertainty. Moreover, the ERG's proposal of applying a mark-up on origination rates to solve the problem of competitive distortion resulting from the fact that under BaK regime Call-by-Call- and Preselection operators would save the costs of termination just shifts the alleged termination monopoly problem to the origination service.

Furthermore, the argument that BaK is the better regime because under CPNP the future levels of (fixed and mobile) termination rates are uncertain is not convincing. In essence, it means that it is better to have certainty about a zero price level of termination instead of uncertainty concerning regulated prices. That is not convincing from a commercial point of view, as a zero margin implies that investment incentives are also zero. The argument used elsewhere that operators have other reasons to invest, namely to provide more quality to their end users is equally unconvincing because revenues from end users are also uncertain in the long-run under continued price competition.

ERG also mentions that its concept of BaK envisages that "BaK only applies if an operator connects to <u>all</u> Pol"¹⁰ of the regulatory boundary. If so, the regulatory costs increase because termination rates for the so-called "local termination" would still have to be determined by the regulator for those operators who would not comply with the condition of interconnecting at all Pols. Therefore, the regulatory costs would not decrease under BaK as alleged by the ERG.

⁸ ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 29.

⁹ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 19, 29, 46f.

¹⁰ ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 18.

Comments of Deutsche Telekom Group on the ERG Draft Common Position on NGNs Future Charging Mechanisms / Long Term Termination Issues, 10th December 2009

Thus, it is not comprehensible how ERG could come to the result that BaK would reduce regulatory costs and uncertainty. Due to the fact that the prices for origination and termination still have to be regulated <u>and</u> a mark-up for origination has to be determined as well as the number of Pols, the regulatory costs and uncertainty are even higher than today. Furthermore, this is inconsistent with the ERG's statement "that sector-specific regulation should be temporary"¹¹. With a BaK regime imposed by regulation, ERG would not reduce regulatory intervention. Far from it, regulatory intervention would even be extended. Deregulation would only come true if the interconnection approach is market driven and set solely by negotiations between market players. In this perspective, it is obvious that the saving of regulatory costs and increase in certainty cannot seriously be used as a valid and major argument in favour of BaK when the real issue at stake is to find a regime that satisfies the needs of all market players.

5. Proposed concept of BaK boundary has shortcomings and is not analysed in depth

ERG proposes to set a so-called BaK boundary which is defined "as the set of Pols at which BaK only applies if an operator connects to <u>all</u> Pols."¹² But what does this mean in detail? What about the case that an operator would not connect to all Pols? Would it mean that the operator thus always has to pay termination rates independent of the number of Pols he is connected to the BaK boundary? Or would this mean that the operator could apply BaK to all his traffic at the Pols of the BaK boundary he is connected to, and for his traffic exchanged at other Pols he would have to pay termination rates? Unfortunately, ERG does not give precise answers to these serious questions.

It remains unclear what conditions have to apply to an operator with fewer Pols. The paper mentions the possibility that BaK could also apply for traffic to the local geographic area attributed to the considered Pol but the ERG does not address how to restrict the operators from using the arrangement for traffic beyond this area or as transit carrier for others. But without safeguarding against such misuse there would be no incentive to acquire all Pols.

Moreover, mapping of geographic numbering areas to certain Pols is a relict of the PSTN-system and e.g. no longer present in mobile networks. NGN-technology also is not tied to geographic numbering areas so this idea already would mean artificial implementation effort. Additionally, the exclusion of transit traffic would force the differentiation of the source-carrier which is not a current practice and open to manipulation.

If interconnection at all Pols of the BaK boundary is a prerequisite for participating in the BaK regime, this would mean that otherwise termination rates have to be paid. But thus, two kinds of interconnection regimes have to be implemented: BaK <u>and</u>

ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 12.

¹² ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 18.

Comments of Deutsche Telekom Group on the ERG Draft Common Position on NGNs Future Charging Mechanisms / Long Term Termination Issues, 10th December 2009

CPNP. As result, the interconnection charging scheme would become more complex than today and inconsistent, and the alleged merits of BaK – solving the termination monopoly problem and decreasing regulatory costs – would be lost. In consequence, it has to be challenged whether it is really wise to impose BaK particularly since BaK has a lot of disadvantages and negative effects.

Under the aspect of misuse mentioned above, another phenomenon should not be neglected. Under the current EBC regime, operators interconnected with the incumbent at the maximum number of Pols and thus profiting from the lowest price level ("local" price) offer arbitrage models to smaller operators that have invested less in infrastructure and are interconnected with the incumbent at only a few Pols. The latter use their few Pols for termination in their own networks and terminate their traffic in the incumbent's network via operators offering transit for termination. This leads to an imbalance of termination costs in the bilateral interconnection relationship between the incumbent and the operator with few Pols. The inconsistencies of the proposed BaK boundary concept could provide scope for similar undesirable arbitrage models.

6. The data base used is too limited and inappropriate for international comparison

In chapter 4.2 the document analyses only data for mobile termination. Furthermore, the data used only comes from three "BaK" countries, whereof only one is a territorial state (USA) and two are densely populated city states (Hong Kong and Singapore).¹³ Because of high economies of density which result in low unit costs supplying mobile services the latter two are not comparable to the 15 European CPNP countries chosen in the data set which are typically not densely populated on the whole. Thus the unit costs in an average European country with a typical population density are significantly higher.

Moreover, ERG mentions itself that the US regime is in fact no real BaK regime¹⁴, particularly not in the sense it is suggested by ERG. ERG itself states that there are termination rates in the US mobile market.¹⁵ So even if they are low they are not zero as in the ERG's proposed BaK regime. In footnote 38, ERG describes additional important issues which explicitly shows that the US interconnection regime for the mobile market, which is used by ERG as a data base to promote BaK, is neither the same nor comparable to the ERG's suggested BaK model.¹⁶

It is mentioned in footnote 38, that "(1) it is not sure that mobile operators are all within BaK agreements [...]; (2) the BaK regime in the US is not a regulatorily imposed BaK, but negotiated commercially between mobile operators; (3) these

¹³ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 22ff.

¹⁴ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 22.

¹⁵ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 22.

¹⁶ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 22, footnote 38.

Comments of Deutsche Telekom Group on the ERG Draft Common Position on NGNs Future Charging Mechanisms / Long Term Termination Issues, 10th December 2009

agreements are likely to have clauses in which mobile operators keep the possibility to opt out from these agreements if they want."¹⁷ Therefore, the interconnection charging regime in the US mobile market seems to be more like a market driven peering arrangement. As we explained in our earlier comments, today's peering and transit arrangements differ from the ERG's proposed BaK regime and cannot be compared with the latter.¹⁸

So, the data base used in the ERG document is too limited to be appropriate for international comparison and the conclusion, that BaK would be the optimum charging mechanism for interconnection.

Additionally, the quality of the empirical data used and the assumptions on which the empirical data is based upon has an impact on the conclusions drawn. As ERG states itself the data used has known flaws such as double-counting of on-net calls in the so-called "BaK" countries (for calls made and received) with the consequence of overestimating the amount of traffic.¹⁹ The revenue figures also have flaws and are not really comparable. Therefore, the empirical data used by the ERG to compare the impacts of BaK or CPNP on usage and penetration provides no sound basis for the conclusion that BaK is the better charging mechanism compared with CPNP.

7. Separation of service and transport layers would undermine NGN advantages

In the current consultation document ERG takes the view that the separation of transport and service levels is a core feature of NGN architecture. Therefore, service interconnection and transport interconnection would have to be differentiated.²⁰

But with the strict separation of the service and the transport layers and the differentiation between service and transport interconnection, respectively, the advantages of a managed NGN would be destroyed. Moreover, it seems that the technological aspects of NGNs are sometimes mixed up with those of the public Internet. Accordingly the ERG holds the opinion that pure transport interconnection does not assure service-specific QoS and security requirements.²¹

¹⁷ ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 22, footnote 38.

¹⁸ In so-called peering arrangements it is the efficient result of the free negotiations of two network operators which regard each others traffic as symmetric that they do not pay each other for network usage. Hence, this is more akin to a barter arrangement under equal partners. To the contrary, unequal or non-symmetric networks typically lead to a transit arrangement. Hence, these interconnection arrangements do not automatically imply free BaK interconnections. Only between two symmetric or equal networks BaK as a barter arrangement can be the voluntarily negotiated result. See Deutsche Telekom AG (2008), Comments of Deutsche Telekom AG on ERG consultation on Regulatory principles of IP-IC/NGN-Core, p. 17f.

¹⁹ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 21f.

²⁰ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 16.

²¹ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 16.

Comments of Deutsche Telekom Group on the ERG Draft Common Position on NGNs Future Charging Mechanisms / Long Term Termination Issues, 10th December 2009

But, the ERG itself claims that the objectives included in Art. 8 of the Framework Directive (Para 2 - 4) (encouraging efficient investment in infrastructure, ensuring that users derive maximum benefits in terms of choice, price and quality as well as promoting the internal market) should be met.²² (See also Art. 22 UD).

However, a precondition for the assurance of a specific quality of service level is the existence of a linkage between the service and the transport layers to meet the service requirements. This requires technical mechanisms to coordinate the service and the transport layer. The public Internet cannot assure guaranteed and differentiated qualities of service, because the service and the transport layer are independent of each other. Therefore the public Internet can only provide quality of service in a best-effort-manner.

The same problem of insufficient analysis of NGN-specific characteristics holds true for security and integrity aspects of networks and services which have been introduced as Art. 13a and 13b of the Framework Directive. Only a managed NGN could assure specific security and integrity of networks and services. In contrast, the unmanaged public Internet could not fulfil these requirements.

As the ERG mentions itself, it is crucial for the future charging mechanism how the multi-service character of NGNs is realized.²³ If it is the objective, as mentioned, that users should derive maximum benefits in terms of choice, price and quality (see Art. 8 of the Framework Directive) then the proposed separation of transport and service levels would not fulfil this objective and has to be rejected. Furthermore, the future charging mechanism also has to support the fulfilment of the objectives mentioned. Because it destroys the incentives to invest in infrastructure and quality of service, BaK has to be rejected as optimum future charging mechanism. Nowadays customers are used to a high quality of service in PSTN telephony. If this high level of quality decreased as a result of BaK, this would not be compatible with the declared prime objective of guaranteeing optimum consumer welfare.

8. The ERG's proposal to solve the hot-potato-routing problem would stimulate inefficient investments

BaK provides incentives for network operators to hand over the traffic to another network (off-net traffic) as soon as possible (so-called hot-potato-routing) because usage of the other network is for free and transport over distance is not compensated. This leads to a classical free riding problem.

As mentioned in the current as well as in the previous ERG consultation document, it is assumed that this problem could be solved by network enlargement of smaller network operators and the determination of a so-called BaK boundary.²⁴ But as also mentioned in the last consultation document, the network enlargement of smaller

²² See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, S. 12.

²³ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, S. 15.

²⁴ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 44 and chapter 3.2.

Comments of Deutsche Telekom Group on the ERG Draft Common Position on NGNs Future Charging Mechanisms / Long Term Termination Issues, 10th December 2009

networks would create incentives for inefficient investments.²⁵ This induces economic inefficiencies due to the fact that the level of (network) costs is artificially raised. These higher costs would directly manifest in higher retail prices. The ERG states in the past consultation documents that there is a trade-off between solving the hotpotato-routing problem and setting the efficient number of Pols.

Besides the fact that today there is no country where the final NGN network architecture is known today, regulatorily imposed number and location of the Pols would lead to an artificial network structure which – especially in the context of NGN – would definitely not represent a technologically or economically efficient network structure. Rather this would lead to higher costs and thus to higher retail prices.

Additionally, the examples of setting the boundary mentioned in the current consultation document²⁶ shows that the idea of setting a BaK boundary is driven by the PSTN network structure where the number of Pols is higher than in future NGNs, and where the BaK area could be limited to a small local area. But as mentioned, the NGN is not as hierarchical as the PSTN. As is also known, the number of Pols would be smaller than in the PSTN, thus the BaK area for termination would be larger in an NGN than in the PSTN.

Furthermore, the incentive to drop off off-net traffic as soon as possible will continue to exist. Particularly, the examples of PSTN-nomadic and VoIP services mentioned in the current ERG document ²⁷manifest this. As mentioned by ERG, the traffic is dropped off at the PoI most convenient for the originating operator. This would be the nearest PoI to the origin in a BaK regime because the originating network operator could not save costs by routing the traffic further through his own network to a PoI which is closer to the called party as it is the case for the CPNP regime. So, the ERG's statement in the VoIP scenario that the way in which routing of IP packets and the exact PoI that is used will be determined "does not depend on the voice billing regime and thus is neutral to whether this is BaK or CPNP"²⁸ is not valid.

9. The conclusions in the context of internalisation of externalities are not comprehensible, and negative effects are completely ignored. The SPIT-problem (SPIT = Spam over Internet Telephony) is trivialised.

In the consultation document call and network externalities are differentiated. ERG states that "it is relevant how efficient (in terms of increasing welfare) zero pricing is relating to these externalities".²⁹

²⁵ See ERG (2008), Consultation Document on Regulatory Principles of IP-IC/NGN Core, p. 91, footnote 189.

²⁶ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 45.

²⁷ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 45.

²⁸ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 45.

²⁹ ERG (2009), Next Generation Network's Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 30.

Comments of Deutsche Telekom Group on the ERG Draft Common Position on NGNs Future Charging Mechanisms / Long Term Termination Issues, 10th December 2009

ERG asserts that "CPNP does not internalise the utility externality since none of the call costs is recovered from the called user."³⁰ They also mention that CPNP would be most efficient if the caller has all the utility and the called has none, but also the called party would have a positive utility.³¹

First of all, the ERG has acknowledged, that the utility distribution between calling and called party is uncertain and even impossible to estimate³². It is not comprehensible why this should be any different with BaK. It maybe that BaK with RPP at retail level takes the called party into account. But it is not assured that the retail price which the called party would have to pay for incoming calls really meets its utility. The utility of the called party varies from call to call. Particularly, in case of unwanted calls the called party would have a negative utility and should not have to pay anything. Rather the called party should be compensated for the negative utility he/she incurs in this case. Unfortunately, this issue is not taken into account in the ERG's assessment. Moreover, BaK with RPP on the retail market is not sufficiently flexible to react to the changing utilities with every call.

Furthermore, the considerations about a shift from the CPP principle to RPP as the appropriate charging principle at retail level corresponding to BaK at wholesale level appear to be quite unrealistic and not feasible. Since the beginning of telephony in Europe in the late 19th century end users have been accustomed to the principle that the calling party pays (with few exceptions like freephone numbers).

The change to RPP would be a paradigm shift that would not be accepted by consumers and would lead to a public outcry. Thus it would violate the prime objective of telecommunications regulation as proposed by the EU Commission and the ERG in this document which is to increase consumer welfare. In addition, RPP could lead to a dramatic drop in traffic volume as many people called would decide against answering when their phone is ringing.

In this context, the ERG trivialises the problem of unwanted calls in general with the remark that "receiving customers can hang up [...]. This will restrict unwanted calls."³³ In footnote 59 ERG then suggests not to charge the first minute of a call and acknowledges itself that this would not solve the SPIT-problem and that SPIT "may become more acute than today." ³⁴ But the proposal of the first minute for free could only help solving the problem that the called party has to pay for unwanted calls. However, this is no solution for the more serious problem of SPIT: the annoyance of customers. As ERG mentions in footnote 59, the SPIT problem will increase in future and the reference to consumer protection and the prohibition of automatic calling sys-

³⁰ ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 31.

³¹ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 31.

³² See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 31, 33.

³³ ERG (2009), Next Generation Network's Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 34.

³⁴ ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 34, footnote 59.

Comments of Deutsche Telekom Group on the ERG Draft Common Position on NGNs Future Charging Mechanisms / Long Term Termination Issues, 10th December 2009

tems could only be a limited remedy of the problem, particularly, when the offenders are located in countries outside Europe. 35

Therefore, due to the impossibility to estimate the utility of the called party and to internalise eventually negative externalities caused, e.g., by unwanted calls, the CPNP regime with CPP at retail level internalises the call externalities respective to the economically efficient Ramsey-Pricing model more efficiently than BaK. The only truth known for sure is that the caller has a greater utility than the called party has. So, it is economically efficient to allocate all the costs to the caller, particularly in case of unwanted calls. Furthermore, with CPNP/CPP the spread of SPIT would get more expensive, and this would be the most effective way to diminish this problem.

ERG quotes the study of CRA (2007) for its conclusion that "considerations of call externalities would lead to the conclusion that BaK is likely to internalise call and network externalities better than CPNP".³⁶

But first of all, network externalities are not taken into account in this section 5.2.1.1 of the ERG document. They are only mentioned in the conclusion on page 33. Additionally, ERG concludes in chapter 5.2.2, that "under BaK it is <u>unclear</u> if the network externality can be internalised"³⁷ and on p. 35 ERG adds that "with BaK the possibility to internalise network externalities would get lost." So, it is not comprehensible how ERG derives the result that it is unclear if BaK could internalise network externalities. The same holds true for the ERG conclusion that BaK is likely to internalise call and network externalities better than CPNP.

In case of call externalities, it has to be pointed out that according to CRA study quoted the ERG's conclusion that "BaK would internalise call externalities better than CPNP" only holds true under the following strict conditions:³⁸

- Condition 1: Traffic is balanced and this balance cannot be changed by network operators
- Condition 2: Payments of each retail party to its network operator exactly match the costs of the network that receives the payment.

Because condition 1 is violated by ERG's BaK concept itself (ERG's BaK concept is by definition independent of symmetry (e.g of traffic flow).³⁹), the conclusion that BaK would internalise call externalities better than CPNP cannot be drawn. It cannot be confirmed either that condition 2 always holds true. There will be cases where the prices for retail customers are higher as well as cases where they are lower than the network costs. This depends strongly on the competitive situation in specific markets.

³⁵ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 34, footnote 59.

 ³⁶ ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 28 and CRA (2007), Economic study on IP interworking, White Paper.

³⁷ ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, S. 35.

³⁸ See CRA (2007), Economic study on IP interworking, p. 67ff.

³⁹ See ERG (2008), Common Statement on Regulatory Principles of IP-IC/NGN Core – A work program towards a Common Position, p. 23, 89.

Comments of Deutsche Telekom Group on the ERG Draft Common Position on NGNs Future Charging Mechanisms / Long Term Termination Issues, 10th December 2009



Finally, the CRA study quoted by ERG comes to the result that "outside the conditions 1 and 2, BaK leads to market distortions and damages efficiency".⁴⁰ This is exactly the opposite of the results in the ERG's consultation document.

10. Effect on fixed and mobile high-usage offers

ERG states that BaK would reduce the cost uncertainty and therefore would enable more attractive flat fee offers as well as contribute to higher usage.⁴¹ ERG asserts that with BaK the net costs of outgoing traffic is eliminated, so the net costs of these offers are reduced and therefore BaK would lead to a higher average usage per user under a BaK regime.⁴²

If so, BaK could lead to an extensive utilisation with the effect that the flat rates could be no longer cost-covering. On the one hand, the internal network costs of the originating network operators could be exceeded and on the other hand, the costs of the terminating network could increase. But the terminating network operator could have the problem that the increased number of calls terminated in his network would not be internalised in his own retail tariffs. Maybe this could be the case, if the structure of customers of a network operator is determined mostly by low-usage customers, who normally would get more calls than they would make themselves and, as mentioned by ERG itself, these network operators would experience a loss of revenue due to a move from CPNP to BaK.⁴³

Therefore, the terminating network operator would have the problem, that he could not recover his costs, except he would raise his retail tariffs with the risk that his customers would change their network provider or actually dispense their telephone (e.g. a mobile prepaid tariff).⁴⁴ If so, BaK would lead to market distortions, particularly, if network operators have heterogeneous network costs or a majority of customers which receive more calls than they make or customers who make more off-net calls (this is normally the case for smaller networks)⁴⁵. So, the ERG's statement that the impact of changing from CPNP at current levels to BaK for low usage fixed offers would probably be negligible cannot be substantiated. The ERG admits itself on p. 43 that new entrants or small operators would possibly be negatively affected.

Moreover, actual market outcomes demonstrate that flat rate offers at the retail level under a CPNP regime at wholesale level do exist. But with CPNP the terminating net-

⁴⁰ CRA (2007), Economic study on IP interworking, p. 70, 63. BaK would only be efficient, if traffic is balanced.

⁴¹ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 37f.

See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 37.
Another State Stat

⁴³ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 40.

⁴⁴ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 40.

⁴⁵ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 43.

Comments of Deutsche Telekom Group on the ERG Draft Common Position on NGNs Future Charging Mechanisms / Long Term Termination Issues, 10th December 2009

work operator would not be negatively affected by high usage on the part of the originating network operator's customers or the structure of its own customer base.

11.A BaK regime imposed by regulation would destroy investment incentives

ERG identifies the promotion of efficient investments in infrastructure as an important objective in the context of a future charging mechanism for interconnection.⁴⁶ Therefore it is not comprehensible why and how the ERG comes to the result that "there does not seem to be a direct effect of BaK on investment incentives".⁴⁷ Furthermore, the effects of hot-potato-routing, arbitrage or call back schemes are trivialised as indirect effects on investment incentives.⁴⁸

Nor is the ERG's statement comprehensible that revenue from termination rates would not be collected directly from end-users but collected from other operators in a zero-sum game on the level of the total fixed and mobile voice services and therefore no net revenue collection from end users would take place.⁴⁹ First of all, under a CPNP regime with termination rates the end customer also has to pay for the incurred costs of the call. With CPNP, as mentioned, only the calling party pays for it (CPP). Second, due to asymmetries in traffic exchange between the network operators which are partly caused by regulation, there is no zero-sum game on the level of total fixed and mobile voice services. Particularly, the NRAs could easily verify this situation with the data the network operators have to deliver in the iterative market analysis process. Therefore it is surprising that the ERG comes to such an uninformed assessment.

In addition, the reference to the study of Analysys Mason adds to the scepticism as to whether the observations in the BaK countries are really comparable and significant. As mentioned before, the data of just two very densely populated city states and the USA, where according to the ERG some kind of BaK is only voluntarily implemented between some mobile operators, but not between all, cannot provide a solid basis for conclusions in regard to European countries which differ significantly regarding the relevant socio-economic and demographic factors.

Altogether, the assessment of ERG with respect to investment incentives is very poor and insufficient. Therefore we repeat our analysis concerning of investment incentives as stated in our comments on the last ERG consultation document which unfortunately has not been taken into account for the current document:

BaK as defined in the consultation document would be equivalent to introducing "free" network usage. This would lead to a massive free-riding problem in the context of utilising other networks. Under such circumstances no network operator has an in-

⁴⁶ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 12, 43.

 ⁴⁷ ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 43.

⁴⁸ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 43.

⁴⁹ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 43f.

Comments of Deutsche Telekom Group on the ERG Draft Common Position on NGNs Future Charging Mechanisms / Long Term Termination Issues, 10th December 2009

centive to invest in infrastructure, particularly when symmetry between interconnected partners and their traffic plays no role as stated in the former consultation document.⁵⁰ As correctly mentioned in the former consultation document, insufficient investment has not occurred when transit or peering agreements are applied. The reason is that transit and peering agreements are basically paid interconnection regimes which will give an incentive to invest in infrastructure to fulfil the peering conditions.

But, BaK as defined in the consultation document with no payment at wholesale level irrespective of symmetry of the interconnection relationship (and traffic) would destroy investment incentives. The argument that operators may cover their costs from their own customers is not valid. As a result of fierce competition in the retail market, retail prices are going down to a low level. Furthermore, no network operator will have an incentive to increase his costs through investments in his own network if he could use the networks of the other operators' network under BaK for free (see also the hot-potato-routing and free-riding problem mentioned above).

To solve this free-riding problem the consultation document proposes to establish a maximum number of Pol.⁵¹ However as mentioned, this proposal would lead to an inefficient network structure and consequently to inefficient investments in Pols.

12. Demand for quality of service is not compatible with supporting BaK. BaK would lead to an adverse selection problem.

The coherence of the consultation document suffers from an inherent conflict in regard to the regulatory objectives: On the one hand, quality of service is to be assured.⁵² On the other hand, BaK is described as the optimum long-term charging model, which should be aspired. However, BaK destroys incentives to invest in quality of service. When the higher costs for higher quality cannot be covered and even free-riding incentives are given, no network operator will have an incentive to invest in higher quality of service. ERG itself mentions that "the direct impact of BaK is that the operator that offers termination cannot collect revenue for extra QoS".⁵³

But, ERG also states that receiving operators would have a non-financial reason to deliver the requested QoS because this would also serve their own customers that receive the traffic.⁵⁴ The problem with voice traffic is that the quality of voice is a sum of the technical voice parameters for the whole call. Maybe the terminating operator has an incentive to provide good QoS. But if the other operators involved in the call provided a poor level of QoS parameters, the terminating network operator would also suffer in two dimensions: first by providing a bad customer experience and second by not getting any revenue for the higher QoS he provides. Therefore, BaK leads

⁵⁰ See ERG (2008), Consultation Document on Regulatory Principles of IP-IC/NGN Core, p. 84.

⁵¹ See ERG (2008), Consultation Document on Regulatory Principles of IP-IC/NGN Core, p. 91.

⁵² See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 12.

⁵³ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 46.

⁵⁴ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 46.

Comments of Deutsche Telekom Group on the ERG Draft Common Position on NGNs Future Charging Mechanisms / Long Term Termination Issues, 10th December 2009

to a free-riding problem in the context of QoS with the tendency to an adverse selection problem.

Moreover, the provision of different quality of service levels is one of the characteristics of an NGN as also mentioned in the last consultation document⁵⁵. Different quality of service levels again mean different products with different pricing levels which enhance economic welfare.⁵⁶ Unfortunately, the current consultation document fails to consider this.

Because of the strong bias towards the application of BaK one could conclude that the ERG does not want to promote the development of NGNs but rather of the public Internet. The ERG and the individual NRAs should carefully consider the consequences of promoting BaK and decide whether they want to support the roll-out of managed Next Generation Networks or limit themselves to preserving the status quo by opting for best-effort-only networks like today's public Internet.

13. Proposal of mark-up on origination service for CPS operators is one-sided and would lead to market distortions

Under a BaK regime, the business model of Call by Call and Preselection operators (CPS operator) would break down because CPS operators cannot offer a termination service. However, in the proposed ERG concept transit service of CPS operators should be paid for whereas termination rates are zero. As the ERG notes itself, this would lead to one-sided competition advantages. Therefore, the ERG proposes a mark-up on the origination rate the CPS operator should have to pay to the incumbent.⁵⁷

But this mark-up definitely has negative effects. First of all, as mentioned, this would incur regulatory costs for determining origination rates.⁵⁸ These processes will likely lead to similar lengthy litigation as today's setting of termination rates. Therefore the ERG's assertion that the regulatory costs will decrease with BaK cannot be confirmed.

Second, this proposed mark-up should be paid to the originating incumbent. In fact, the mark up should compensate for the circumstance that CPS operators could participate in a BaK regime with <u>termination fees</u> equal to zero. From an incumbents point of view it is an inviting proposal. But, the origination service is different from the termination service and origination service as well as termination service can be provided by different operators.

⁵⁵ See ERG (2008), Consultation Document on Regulatory Principles of IP-IC/NGN Core, p. 33.

See e.g. for this purpose the presentation of Ingo Vogelsang, Boston University, on the topic "The economic Issues of Network Neutrality: overview", held on the WIK conference on Net Neutrality – Implications for Europe, Bonn, December 3/4, 2007.

⁵⁷ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 8, 46f. 54.

⁵⁸ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 47.

Comments of Deutsche Telekom Group on the ERG Draft Common Position on NGNs Future Charging Mechanisms / Long Term Termination Issues, 10th December 2009

The ERG's statement that the mark-up on the origination rate for the participation in a BaK regime for termination would only lead to an unchanged net cash flow between all types of operators if the traffic flow between the incumbent and alternative operators is balanced, cannot be confirmed.⁵⁹ Due to optimisation potential by the various network operators, traffic flows actually are not always symmetric between incumbent and alternative network operators/mobile operators. Only the incumbent has the duty to interconnect directly with all other network operators. Therefore, in practice, the proposed mark-up would lead to market distortions to the disadvantage of alternative network operators.

In view of constantly decreasing originating traffic volumes and hence decreasing revenues of CPS operators it is questionable whether these operators would accept this surcharge payable to the incumbent (the level of the mark-up compared with the savings in termination rates would be crucial). In addition, alternative access network providers deprived of termination rate revenues by BaK might regard the mark-up paid to the incumbent as a competitive distortion to the benefit of the incumbent. This provides sufficient food for regulatory and legal disputes.

14. Call back schemes as source for arbitrage under BaK

In the section on call back schemes ERG demonstrates again the weakness of BaK as future charging mechanism for interconnection. Indeed, ERG points out the arbitrage problem with call back schemes under BaK and proposes consumer protection rules to solve the problem. However, effectively enforcing the consumer protection rules would incur additional regulatory costs. Again, this is conflicting with the assessment that regulator costs would be lower under a BaK regime.⁶⁰

15. The subsidisation of CPNP countries and the resulting market distortion and negative welfare effects are underestimated

We welcome that ERG has devoted a separate chapter to the arbitrage problem of BaK with regard to traffic from CPNP countries to BaK countries.⁶¹ Because CPNP is the well-established interconnection regime in <u>most</u> countries <u>in the world</u> (maybe except Hong Kong, Singapore and the USA), the arbitrage problem is very serious, even if BaK were introduced in all European countries simultaneously.

As ERG describes in the consultation document, BaK countries would be at a disadvantage compared to CPNP countries because customers of BaK countries would subsidise the customers in CPNP countries in a one-sided way. Hence, this would lead to further market distortions to the detriment of BaK countries.

⁵⁹ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 47.

⁶⁰ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 50.

⁶¹ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 48f.

Comments of Deutsche Telekom Group on the ERG Draft Common Position on NGNs Future Charging Mechanisms / Long Term Termination Issues, 10th December 2009

Apart from the other shortcomings of BaK this problem alone is so serious that it would be a sufficient reason to refuse BaK as a charging mechanism. Unfortunately, ERG also trivializes this problem and concludes that with low termination rates the problem will become less important.⁶² But independent of how low termination rates could be, the problem of subsidising other countries – in the extreme, nearly the whole world – by own customers remains the same and would minimize the welfare of the European consumers as well as lead to competitive disadvantages of the European network operators. First of all, this would violate the objectives of ERG itself⁶³ and second, the question is, whether the European countries really could afford this compared to the rest of the world.

The general question remains, if the alleged advantages of BaK mentioned by ERG could really outweigh all the additional problems, costs and market distortions BaK would incur. Especially when considering that the non-marginal subsidies to the "rest of the world" (e.g. the CPNP-countries) alone used to be a conclusive argument to dismiss BaK as a viable option in the past.

16. Aspects of the migration period are not sufficiently analysed

The migration period towards an all-IP world raises a lot of questions in the context of interconnection for telecommunication companies. But unfortunately, the consultation document fails to shed sufficient light on this important topic.

Particularly, the ERG's statement, that "a new long term regime might be introduced <u>before</u> the migration to NGN takes place" is a clear evidence of the absolute ambition of the regulators to install a BaK regime, no matter what happens in the migration period and afterwards.

However the migration process is only about to start and it is uncertain when it will be completed. Particularly during the migration period unpredictable developments might lead to unexpected circumstances which in turn might conflict with the premature obligation for a regulatorily imposed BaK regime. Therefore a regulatory determination of BaK as the future charging mechanisms would be absolutely premature and bears the risk of disadvantaging Europe economically compared to the rest of the world.

The two issues raised by ERG in the context of migration are very crucial questions but unfortunately, they are not sufficiently analysed. The issue of synchronisation of migration by different operators or countries to BaK as well as the issue of a glide path and its length imply the necessity of detailed assessment. As mentioned above, arbitrage problems would arise if there is no synchronised migration. But both, the various operators in one country and the various countries themselves have different technological plans to migrate to a NGN. Therefore, the harmonisation of the migration plans even of the particular network operators in one country would be a great

⁶² See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 49.

⁶³ See for the objectives ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 12.

Comments of Deutsche Telekom Group on the ERG Draft Common Position on NGNs Future Charging Mechanisms / Long Term Termination Issues, 10th December 2009



challenge to prevent arbitrage and market distortions. The harmonisation between all countries would be a mission impossible.

Therefore, ERG has made a first step by identifying the challenges at hand. But the ERG has yet to complete the second step of delivering a convincing impact assessment. This second step needs to be completed before proceeding to the next step: developing a vision of the practical implementation of any kind of reform to the established interconnection regime.

17. Conclusions

It is unacceptable that the ERG derives the conclusion that BaK is a more promising interconnection regime than CPNP⁶⁴. This conclusion is based on the fact that the ERG has trivialised the shortcomings and negative effects of the proposed BaK regime and emphasised the alleged advantages. The delivered reasoning is not convincing at all. Moreover, certain parts of the consultation document are inconsistent and contradictory and the alleged advantages e.g. lower regulatory costs cannot be confirmed.

The ERG points out twice in the consultation document that many problems would arise with BaK and that their negative effects justify the continuation of the CPNP regime.⁶⁵ Thus, the conclusion that BaK could be the optimum long term interconnection approach is not comprehensible.

Our analysis demonstrates that the introduction of BaK would create a whole set of new problems. Therefore, the paramount question remains whether the alleged advantages of BaK could effectively outweigh all the problems, costs and market distortions that BaK would incur.

20

⁶⁴ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 9, 55.

⁶⁵ See ERG (2009), Next Generation Networks Future Charging Mechanisms / Long Term Termination Issues, Consultation document, p. 9, 55.

Comments of Deutsche Telekom Group on the ERG Draft Common Position on NGNs Future Charging Mechanisms / Long Term Termination Issues, 10th December 2009