

13 February 2009

MTAS - Applicability of Bill
and Keep
Telecom New Zealand Limited

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1. Introduction and Executive Summary

As part of its Undertaking in relation to the Commerce Commission’s investigation into Mobile Termination Access Services (“MTAS”), New Zealand Communications (“NZC”) filed a report by Concept Economics (“the Concept Report”). The Concept Report argues that bill and keep (“BAK”) is the “mobile termination option most in the long-term interests of end users”.

We have been asked by Telecom New Zealand to evaluate the arguments put forward by Concept Economics to support BAK in the New Zealand context.

We agree with the Concept Report that there are certain desirable properties of BAK. However, there are also certain difficulties with BAK. We outline these in this report, so that a balanced view can be taken by the Commission.

It is correct that BAK is very simple and would incur low transactions costs.¹ Furthermore, it may assist entry² and would likely lower off-net calling prices.

However, it must be recognised that BAK would involve setting a price below cost, which risks resulting in inefficiencies. The Concept Report’s own argument about the difficulty of calculating the “optimal MTR” implies that it is difficult to know just how far away from the theoretically optimal MTR a price of zero is, and therefore how great the distortions may be.

BAK would certainly change the nature of mobile competition, and may in fact soften elements of it, particularly for subscriber connections.

The welfare implications of BAK are likely to be quite different to those arising from positive MTRs. While the Concept Report argues that welfare is likely to be higher under BAK, this is not so clear to us. BAK would likely result in higher subscription prices and reduced handset subsidies, but lower off-net calling prices.

Finally, if BAK is to be introduced, it would need to be for all forms of mobile termination, not just mobile-to-mobile – otherwise, regulatory arbitrage problems would arise.

2. Competitive Implications of BAK

The Concept Report argues very strongly for BAK, making the case that it will raise consumer welfare in New Zealand. We think that this is a possible outcome. However, we also think that the case for BAK is not as clear cut as the Concept Report suggests, and that there are potential downsides that need to be considered in order to allow a balanced appraisal of BAK.

¹ Although we understand that there may be tax complexities with BAK.

² A counterargument is that BAK, if applied to all forms of mobile termination, would eliminate a potential source of rents for a mobile entrant, being any excess of the fixed-to-mobile termination rate over marginal cost.

The Concept Report argues that low usage prices and high volumes in the US³ imply that BAK would reduce calling prices and increase volumes in New Zealand. It is correct that BAK would reduce the effective marginal cost of an off-net call, and theory would suggest that this would likely feed through to lower off-net retail calling prices and therefore higher calling volumes. However, it is important to note that BAK implies that call terminations are priced below private marginal cost; something that could only be efficient in the presence of material, positive, non-internalised call externalities.^{4, 5}

Indeed, even in the presence of un-internalised call externalities, the efficient MTR could still be positive, for the following reasons:

- The downwards adjustment to account for the call externality may not exceed the marginal cost, depending on the strength of the externality;
- It may be efficient for the MTR to recover at least some of the fixed costs of the mobile platform; and
- Relatedly, the mobile platform is two-sided. Depending on assumptions about market participation, the literature finds that in the presence of network externalities it may be efficient for the MTR to exceed cost (see, e.g., Dessein, 2003 and Armstrong and Wright, 2007).

Accordingly, there is a high probability that setting the MTR equal to zero would result in calls being priced below the efficient level. This might result in inefficient outcomes, and would alter the incentives on operators, changing the type of customers they compete for, particularly towards those who are net originators. Similar points were made by the UK Competition Commission in its recent determination on MTRs.⁶

The Concept Report states at page 7 that under balanced traffic:

“... the revenue flows between carriers generated by a theoretically optimal and zero MTR will be effectively the same...”

If traffic was exactly and permanently balanced, revenue flows would be the same. However, as we have just discussed, traffic flows would likely be quite different. This is an illustration of what Laffont and Tirole (2000, p190) term the *bill-and-keep fallacy*:

“This “bill-and-keep” arrangement amounts to setting an access charge equal to zero. It is correct that a change in the access charge need not affect the

³ See section 4.2 of the Concept Report.

⁴ A call externality is the benefit to the receiver of a call that she is not charged for under a caller party pays (CPP) system. This can be internalised when parties (implicitly or explicitly) agree to reciprocity in call origination. In some instances the call externality can also be negative when receivers receive unwanted calls.

⁵ The articles cited in the Concept Report in support of BAK are generally papers that incorporate a call externality into models of the theoretical MTR.

⁶ See section 14.78 of Competition Commission (2009).

*(absence of) net payment between the operators, but the access charge affects each network's perceived marginal cost and therefore retail prices. It is, therefore **not** neutral even if traffic is balanced"*

The Concept Report also argues that BAK is "... *pro-competitive, being unlikely to distort efficient entry or competitive expansion.*" The academic support for this point stems from models of mobile interconnection with a threat of entry (see, e.g., Laffont et al (1998b), Calzada and Valletti (2007) and Gabrielson and Vagstad (2005, 2008)). These theoretical models produce a result that the incumbents have an incentive to set MTRs above cost in order to deter entry. However, the fact remains that BAK implies a price being set below marginal cost, resulting in an effective subsidy to the entrant, and therefore the possibility of inefficient entry (and more generally inefficient competition).

Furthermore, the Concept Report does not mention the literature finding that below cost MTRs can be anticompetitive. To see why, note that a high MTR incentivises a mobile operator to attract customers, and it does this by offering relatively low subscription and handset prices, and in the presence of on-net/off-net pricing, relatively low on-net prices (see, e.g, Laffont et al (1998b) and Laffont and Tirole (2000)). As Armstrong and Wright (2007, p16) note:

"... a high MTM termination charge acts as a means by which to transfer surplus from mobile networks to their subscribers"

The flip side of this is that below cost MTRs actually soften competition.⁷ Indeed, in these models the collusive outcome would be a below cost MTR (Gans and King (2001)).

At section 4.1, the Concept report argues:

"It is unlikely that, on a mature network, such as that for mobile telecommunications in New Zealand, the subscriber externality requires a subsidy."

This is addressing the argument that above cost MTRs are beneficial because they allow mobile operators to reduce handset and subscription prices, thus increasing penetration. This is socially beneficial because the network is more valuable when it has more subscribers.

In a static sense, it may be correct that in a mature market subscriber externalities are not as important. However, from a more dynamic perspective, markets will be subject to a variety of demand- and supply-side shocks, and (two-sided) mobile networks may require a mechanism to adjust relative prices in response to such shocks. The ability to set a positive MTR may be important in this respect.

At a more simplistic level, even if the market is currently saturated, if subscription prices are raised and/or handset subsidies are lowered, over time as the population grows and

⁷ The "waterbed effect" has been empirically confirmed by Genakos and Valletti (2008), who find that it is empirically significant but not complete.

consumers eventually need to replace their phones, penetration may fall, at least against the counterfactual. An interesting question is also raised by Genakos and Valletti (2008) as to whether marginal users will simply give up their phones if subscription fees are raised.

Similarly if the retail pricing model is changed so that operators recover costs from their own customers rather than competitors, as NZC advocates, then it may result in a material reduction in the number of pre-paid customers in particular. According to a 2007 study, in the US only 11% of mobile customers purchased service through a pre-paid plan. This compares to over 70% in New Zealand.⁸ Moving to a US model for mobile charging would likely decrease the percentage of customers on pre-paid plans, and there is a risk that some of these would not take up post-paid plans. Without further analysis, it is not possible to conclude that they would represent only a “very narrow group” as the Concept Report argues.⁹

Another relevant point is the interplay between network and call externalities, as Armstrong and Wright (2007, p19) note:

“... the presence of call externalities will amplify the impact of network externalities, since users will receive more calls when there are more mobile subscribers.”

So it can be seen that there is a potential trade off between BAK and positive MTRs. Relative to positive MTRs, BAK would likely result in lower penetration but higher off-net calling volumes per subscriber. The Concept Report does not provide a compelling case that overall welfare is higher under BAK than under positive MTRs. It points out various examples and correlations, particularly that BAK is used in the US and that the US may have relatively low prices and high usage. However, correlation is different to causation, and there may be other drivers of these US outcomes.

We note that the NZC Undertaking advocates the prohibition of on-net/off-net pricing in combination with BAK, a factor not mentioned in the Concept Report. This adds a further complication to the analysis and any predictions about competitive dynamics and consumer welfare. In addition, if we are correct in our understanding that on-net/off-net pricing is permitted in the US, then less weight can be placed on US outcomes when attempting to analyse the implications of the combination.

In addition, there is a distributional issue in that the “marginal consumers” who may drop off the network under BAK may generally be in a lower income bracket.¹⁰ The Competition Commission’s analysis of BAK lends further support to this point:¹¹

⁸ OECD Communications Outlook 2007 at <http://dx.doi.org/10.1787/011464167352>. The current US figure is now around 15%.

⁹ Footnote 13 of the Concept Report.

¹⁰ This is effectively acknowledged at footnote 13 of the Concept Report where it is noted that “...if any subsidy is called for, it is likely one targeted at a very narrow group of low income individuals...”

¹¹ Section 14.79 (a) of Competition Commission (2009).

“MNOs may become less willing to serve customers who receive more calls than they make because a CPP system combined with NPZ¹² would make them less valuable. The impact on the pre-pay sector could be significant”

In summary, we agree with the Concept Report that BAK has desirable properties. However, the Concept Report’s own argument about the difficulty of calculating the optimal MTR (Littlechild (2006) refers to this as a “Sisyphian” task) also implies that it is very difficult to know just how far away from the theoretically optimal MTR a price of zero is, and therefore how great the distortions may be. In particular, a price of zero may well be further away from the theoretically optimal price than the current price is.

3. Transitional Issues

As we have discussed, BAK has some desirable and some undesirable properties, and whether on balance it is preferable to positive MTRs is not at this stage clear. This is perhaps why, at least to our knowledge, no regulator has yet mandated a shift from positive MTRs to BAK.

Furthermore, even if it was clear that BAK is the optimal interconnection policy, then there is still a risk in implementing it in a piecemeal fashion. The NZC Undertaking applies only to mobile-to-mobile (“MTM”). However, if BAK were to be implemented, it should also be for fixed-to-mobile (“FTM”) (and indeed any other interconnecting platform), in order to avoid or at least minimise regulatory arbitrage.

The potential for arbitrage to undermine the regulatory regime is illustrated by the French experience, where BAK was implemented for MTM only until 2005. By 2004, up to 80-90% of FTM calls of alternative fixed operators were routed through mobile gateways. This ultimately led to ARCEP introducing cost based MTM rates. As Benoit Loutrel of ARCEP noted:¹³

“Bill and keep is an attractive scheme but is not sustainable if implemented partially in the industry”

The recent determination by the UK Competition Commission with respect to Hutchison 3G’s (“H3G”) appeal is also relevant. The Competition Commission only had jurisdiction to consider BAK for MTM and thus was required to assume that MTRs for FTM remained positive. All parties (including H3G) agreed that a differential between the FTM and MTM prices had the potential to create arbitrage.¹⁴

H3G argued that the practical problems of implementing BAK solely for MTM were not “insuperable”. However, it accepted that addressing these issues would require time and

¹² NPZ is the acronym for “net payment zero” which is in effect BAK.

¹³ http://www.wik.org/content/bill_keep/konf_bill_and_keep_2006/Session%20V/french%20buk%20-%20loutrel%20-%20wik%20conference%20april%204-5.ppt

¹⁴ See 14.74 of Competition Commission (2009).

investment.¹⁵ In light of the implementation issues posed by a FTM/MTM differential, the Competition Commission considered that BAK was not currently appropriate:

“...we do not consider that it would be appropriate to mandate a move to NPZ at this point when all parties agree, whether insuperable or not, significant practical problems exist.”

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¹⁵ See 14.75 of Competition Commission (2009).