

# Comments on Some Aspects of Mobile Competition

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Aaron Schiff ([aaron.schiff@covec.co.nz](mailto:aaron.schiff@covec.co.nz)) & John Small ([john.small@covec.co.nz](mailto:john.small@covec.co.nz))

## 1 Introduction

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1. Vodafone has asked us to comment on some issues raised in the submission made by 2degrees in the mobile termination access services (MTAS) investigation reconsideration process.<sup>1</sup> Specifically, we discuss two claims made by 2degrees regarding on-net price discounts:
  1. That on-net pricing generates “harm” that is “greater than the Reconsideration Report contemplates.” (page 2)
  2. That on-net pricing means “new entrants will remain severely limited in their ability to compete as their customers suffer from severely restricted inbound call utility.” (page 3)
2. To be clear, on-net discounting refers to the practice of pricing on-net usage (e.g. calls or texts) below the price of off-net usage. In New Zealand, this frequently takes the form of closed-group flat-rate pricing for on-net usage, such as Vodafone’s Bestmate add-on. Provided usage is sufficiently high, such plans can result in lower average per-unit prices for on-net usage. Vodafone, Telecom, 2degrees and MVNOs CallPlus and Slingshot all currently offer on-net pricing in some form.
3. Below we discuss each of these two issues in turn. We have prepared this note independently, following the High Court’s code of conduct for expert witnesses.

## 2 On-net Pricing and Competition

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4. A full discussion of the economics of on-net pricing is not possible in the time available for cross submissions. Therefore, we limit ourselves to two key points:
  1. On-net pricing can intensify competition between mobile operators, everything else equal.
  2. On-net pricing may be an outcome of competition rather than an anti-competitive strategy.

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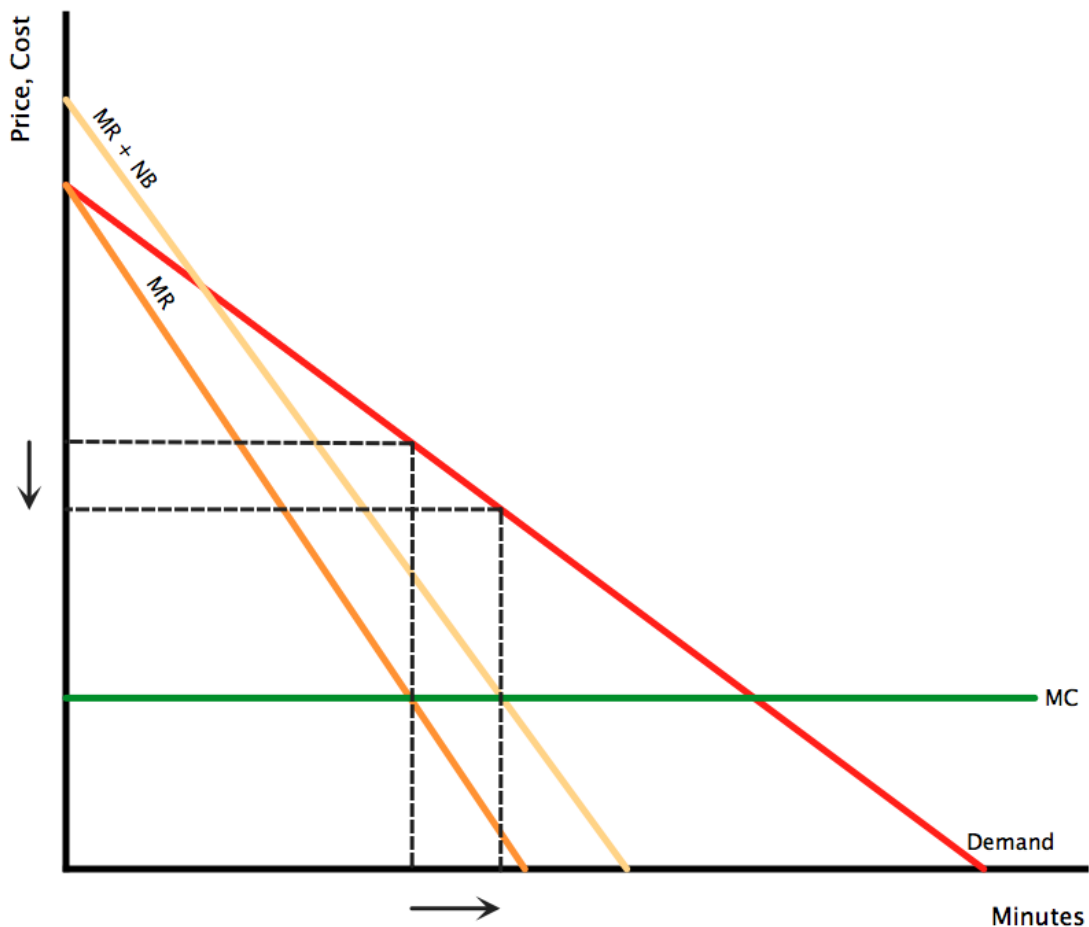
<sup>1</sup> 2degrees Mobile, *Submission on Draft Reconsideration Report*, 19 May 2010.

## On-net pricing can intensify competition

5. First let us consider the effect of on-net pricing on the intensity of competition between two mobile networks. Mobile networks primarily compete for subscribers. This is because until someone has registered on a mobile network, they cannot pay that network for calls or other services: getting the customer connected is therefore the first objective of mobile networks. The key to understanding the effect of on-net pricing on mobile competition is therefore to understand how it affects the value of a subscriber to a mobile operator, i.e. the marginal profit an operator receives from an additional subscriber.
6. With on-net pricing, the value to a mobile operator of an additional subscriber is higher, everything else equal, than when there is no on-net pricing. This is because when a network adds a subscriber, it becomes fractionally more attractive to *other* subscribers. In other words, the value of an additional subscriber is a little more than just the revenue generated directly from the subscriber less the cost of serving them, and so the marginal profit contribution of an additional subscriber is greater with on-net pricing than otherwise, everything else equal. This effect is common to all networks that compete with on-net offers, however in practice the size of the effect depends on calling patterns; see below.
7. This is illustrated in Figure 1, for a simple case. The demand curve shows an individual subscriber's demand for minutes and the associated marginal revenue curve. Assuming a constant marginal cost, the network maximises profit where marginal revenue from the subscriber equals the marginal cost of serving the subscriber. With on-net pricing, however, a subscriber generates some additional 'network benefits' to the operator due to the marginally greater attractiveness of the network to other users. Thus the marginal revenue associated with this subscriber effectively increases slightly, to  $MR + NB$ . The profit-maximising response is to reduce price, as shown in Figure 1.
8. In simple terms, on-net pricing makes subscribers more valuable to mobile networks and causes them to compete more intensely for subscribers. This more intense competition leads to greater consumer welfare.
9. The effect (illustrated in the simple example above) that on-net pricing can intensify competition between mobile operators is well documented in the economic literature on interconnection and competition in telecommunications markets. This effect was first demonstrated by Gans and King (2000), who showed that, considering mobile-to-mobile termination in isolation, the profit-maximising termination charge under on-net pricing would be bill and keep, as this would lead networks to price off-net calls below on-net calls, thus making consumers actually prefer to belong to a smaller network and softening competition between operators. More recently, Armstrong and Wright (2009) confirmed this effect in a combined model of mobile-to-mobile and fixed-to-mobile termination, and explained why operators do not in fact choose bill and keep if the mobile-to-mobile and fixed-to-mobile termination rates must be the same. This is an example of a general result that network effects can increase the intensity of competition, provided that these effects are not so strong as to 'tip' the whole market to a monopoly (see Farrell and Klemperer, 2007).

10. We note, however, that the extent of these effects in practice depend on consumers' calling patterns. The papers cited above make the simple assumption that consumers make calls in a random fashion, and every additional subscriber who joins the same network is equally valuable in terms of being someone who can be called at the on-net price. In reality, calling circles are typically small (particularly for prepay customers), and people get the most benefit when members of their frequent calling circle are on the same network. Therefore, it is likely that on-net discounts intensify competition for *groups* of subscribers, and this seems to be corroborated by the fact that most on-net pricing in New Zealand is targeted at small closed consumer groups.

Figure 1 Effect of 'network benefits' on pricing.



### On-net pricing may be an outcome of competition

11. The above discussion demonstrates that on-net pricing can intensify competition for mobile subscribers or groups of subscribers. The question then arises as to why mobile operators would want to offer on-net pricing in the first place, if it causes them to compete more aggressively and reduces their profits.
12. The answer is that on-net pricing can arise as an outcome of the competitive process between mobile operators. Consider a situation with only two operators. Since on-net pricing causes them to compete more intensely, both operators would prefer a situation where neither implements on-net pricing. However, given that its rival does not use on-

net pricing, each operator has an incentive to do so, to make itself more attractive to consumers, and to small calling circles in particular. Thus competition induces both operators to offer on-net pricing, even though both would prefer this not to occur. This is the same mechanism by which competition induces firms to cut prices towards costs and to improve service levels. Indeed, one of the best features of competition is that it forces firms to do things they would rather not.

13. This incentive exists to some degree for any termination rate equal to or greater than marginal cost, and so a move to lower termination rates is unlikely to lead to the disappearance of on-net pricing. As noted above, setting termination rates below cost (or bill and keep) gives incentives to price off-net calls below on-net calls and this leads to a softening of competition.
14. It is important not to forget that on-net pricing gives consumers low prices for some fraction of their usage, depending on their usage patterns. Flat-rate closed-group plans in particular can offer very low prices for people to communicate with the group that they interact with most frequently. Lower prices make consumers better off, and at the high levels of usage observed by users of Bestmate, for example, these consumer benefits can be substantial.
15. Therefore, in our view on-net pricing can easily be a competitive outcome, which is the antithesis of an anti-competitive practice. Similarly, we believe the Commission should be very cautious about suggestions to ban on-net pricing, or indeed any retail market regulations requested by an operator. Such interventions may result in a reduction of competitive pressure on mobile operators rather than an increase in competition.
16. In markets where operators have asymmetric market shares, another question arises as to whether larger operators will use on-net pricing for anti-competitive purposes against small operators. There is some literature that shows that it is possible for a large network to prefer to deter entry by a smaller network through establishing a high access price for the purpose of generating significant differentials between on- and off-net calls (Hoernig 2007, and Calzada and Valletti 2008). However, this is not guaranteed to happen as entry deterrence is a costly strategy and this literature shows that it only occurs in some cases. Elliot (2008) showed that, if an incumbent wishes to deter entry, it is generally less costly to do so through low retail pricing rather than maintaining a high access charge. These studies also only consider competition between a single large incumbent and a small new entrant, which is intrinsically less competitive than the actual configuration of the New Zealand mobile market, and in general it is difficult for competing incumbents to coordinate on a strategy of entry deterrence against a single entrant.
17. Furthermore, as noted above, the economic literature on this topic assumes that any additional subscriber to a mobile network is equally valuable to all existing users of that network, in terms of being someone who can be called at the on-net price. In practice this assumption is generally not correct, and so the network effects induced by on-net pricing are not as widespread or significant as assumed in the literature, making it even less likely that on-net pricing will be a profitable entry deterrence strategy.

### 3 Competition and Inbound Utility

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18. In their submission on the Draft Reconsideration Report, 2degrees make the following claim (page 3):

“... if incumbent operators are able to penalise their own customers with excessive off-net retail prices that choke off cross-network calls and SMS, new entrants will remain severely limited in their ability to compete as their customers suffer from severely restricted inbound call utility.”
19. The argument that 2degrees appears to be putting forward here is that customers of 2degrees will *receive* fewer calls than they would if the off-net prices of other networks were lower, and this will make 2degrees less attractive compared to Vodafone and Telecom.
20. It is true that, aside from nuisance and unwanted calls, both parties to a call benefit from the call. However, either party is free to initiate the call in the first instance, and we would expect the party who derives the greatest benefit from the call to do so, at any given price. If a 2degrees customer wishes to talk to a Vodafone customer but has not received an incoming call from that person, the 2degrees customer can initiate the call herself.
21. To facilitate this behaviour, 2degrees offers pricing plans with relatively low off-net call prices (as do Telecom and Vodafone), and consumers who have relatively dispersed calling patterns will likely choose such a plan. Alternatively, groups of consumers who frequently call each other will have an incentive to coordinate their network choice to take advantage of the on-net pricing offered by all three mobile networks.
22. It therefore seems quite artificial to separate “inbound” call utility out from total call utility. Instead of sitting around waiting for their friends to call, 2degrees’ customers are perfectly willing and able to take the initiative. More importantly, the “solution” envisaged (retail price constraints) would require a very significant change to the scope of telecommunications regulation in New Zealand. We think that consideration of such a move should be motivated by a much stronger factual base than the 2degrees claim.

### 4 References

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