REVIEW OF FIXED-MOBILE INTERCONNECTION REGIME

RESPONSE FROM STARHUB

1. **Introduction : What is CPP**

This paper considers the implications on inter-operator charges and end-users with the introduction of calling party pays (CPP) system.

The CPP principle applies for calls to mobile numbers in many of the European countries, the US; the majority of Latin American countries such as Peru, Columbia, Venezuela; and Asia including Malaysia and Hong Kong. Under CPP, mobile networks are treated just like any other telephone network where mobile subscribers pay to make calls but do not pay to receive calls. See Figure 1.

In order to assess the implications of CPP, the present interconnect regime between Fixed and Mobile networks has to be reviewed. Normally, the network where the call originates bills its customer and pays the terminating network a terminating charge. This is not the case in Singapore.

The interconnect payments relating to the overall traffic between fixed and mobile networks are not measured on a per-call basis. The terminating network offers a wholesale rate to the originating network which is the interconnect rate for call terminating on its network. See Figure 2 and 3.

Figure 1 - The Calling Party Pays Principle

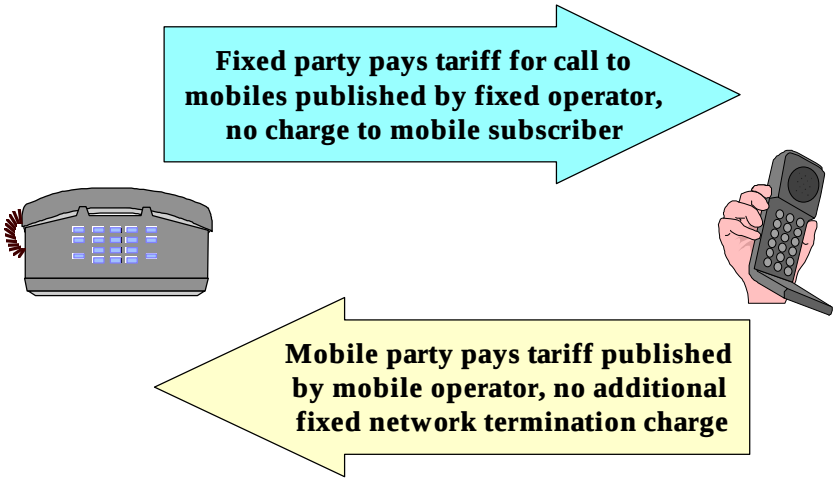


Figure 2 - Calling Party Pays Tariffing & Interconnect

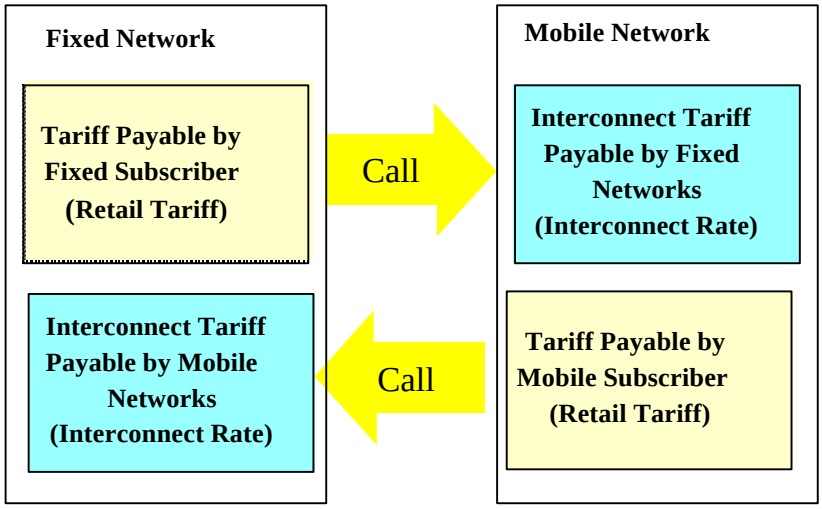
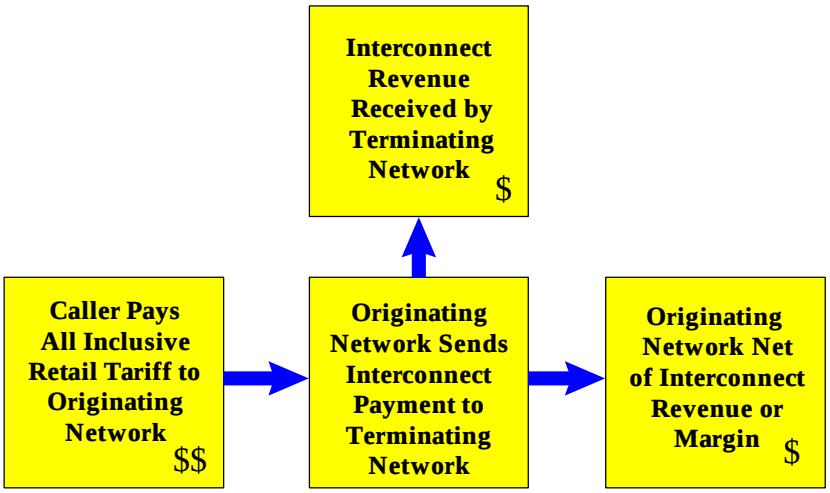


Figure 3 - Flow of Revenue for Internetwork Traffic



1.2 Numbering Arrangements for Mobile Networks

Under the CPP environment, there is a need to ensure that callers are aware that they are calling a mobile number as it would incur a different, usually a higher tariff. This is easily achieved in Singapore as mobile numbers are already prefixed with the number "9".

The fixed network operator publishes per minute tariffs for calling the mobile numbers. In most cases there are only one or two different mobile network charge levels. For example, in the UK, calls to traditional cellular networks (900 MHz) are more expensive than calls to PCS networks (1800 MHz). The difference is a reflection of the different interconnect rates levied by the cellular networks. Another example, in Malaysia, calls originating from fixed to any mobile operator in the country regardless of GSM 900 or 1800 are subjected to the same tariff depending on the destination of the call. (i.e. local mobile call is RM0.30/min at peak, adjacent peak call is RM0.80/min at peak and non-adjacent call is RM1.50/min at peak). In Singapore, there is only one cost-based interconnect termination rate on Mobile operators' networks regardless of technology as is our present regime.

There should be at the most two fixed to mobile tariffs in an industry. This will reduce confusion for users.

1.3 Tariff Structure and Setting of Tariffs

In a CPP environment, mobile operators will set the tariffs for all calls originating from their network. A mobile customer can clearly see, from the published tariffs, how much a call will cost. There is no charge for incoming calls. This is the same situation for the fixed network subscriber. Mobile operators bill and collect all outgoing charges incurred by their customers.

Fixed network operators set the tariffs for calls to mobile numbers. However, the tariffs should not be set arbitrarily but must be a reflection of the interconnect rate the fixed operator has to pay to the mobile operator for calls that originate in the fixed network and terminate on the mobile network. The interconnect cost is usually the single largest component in setting the fixed network retail price for calls to mobile phones. Fixed operators bill and collect all charges incurred by their customers, including calls to mobiles.

2. Some Implications of CPP

2.1 Consumers

Existing users know their average monthly bill and ration usage in accordance with their budget. New subscribers also assess affordability in terms of the average monthly bill.

Not having to pay for incoming calls means that existing mobile users can afford to spend more on making mobile calls. To potential new subscribers the average cost of subscribing to a mobile service decreases assuming that the number of outgoing calls he makes remains the same. A CPP regime can potentially boost mobile subscriber growth rate. Typically in the USA with mobile party pays tariffing, 26% of all minutes of usage are accounted for by incoming calls. The switch to CPP would mean that the mobile user can increase outbound calls by 35% and still receive the same total bill.

Having removed a cost barrier to receiving incoming calls, mobile users start to circulate their mobile number widely. This increases calls from the fixed network to mobiles.

It is expected that:

a) CPP will increase inbound call minutes.

b) CPP will increase revenue per subscriber.

c) CPP will expand the cellular market by making cellular more affordable to potential customers.

d) CPP will increase usage of marginal customers.

e) CPP will retain customers who are sensitive to the cost of cellular service.

f) CPP and voice mail will increase inbound and outbound usage.

A key benefit of CPP is that mobile subscribers gain predictability and control over their bills. They pay for calls they make, i.e. the choices they make. Mobile subscribers no longer pay for calls they receive, over which they have no control, unless they switch the phone off or do not give out their mobile number.

2.3 Mobile Tariff Plans

Tariff changes can be expected because the per minute interconnect revenue received for inbound calls only is likely to be lower than the airtime per minute charge. Average revenue per minute can also be expected to decline but this is usually offset by the increase in call volumes. With the introduction of bundled minutes tariff plans, the average revenue per minute has already declined and is set to decline further. Bundled minutes plans give mobile subscribers better value for money, whilst keeping up average monthly bills. The decline caused by the introduction of CPP fits well into this trend.

The effect of the introduction of CPP on tariff plans with bundled minutes is more dramatic. The reason for this is that with the introduction of CPP the bundled minutes will be applied only against outbound calls, whereas previously they were also applied against inbound minutes.

The introduction of CPP will likely lead to an imbalance between the retail price of calling mobile subscribers from fixed lines compared to calling fixed subscribers from mobile lines. Generally, CPP is likely to lead to lower costs for mobile subscribers and a lower average revenue per minute for mobile operators. The introduction of CPP could simply be viewed as a way of lowering mobile tariffs to the benefit of consumers.

2.4 Pricing of Mobile to Mobile Calls

With regards to calls between mobile subscribers, two cases have to be considered. First, there are on-network calls and secondly calls between mobile operators. As penetration increases, it is expected that mobile to mobile calls will also increase.

In Europe and the USA most mobile operators apply the same per minute charge for on-network calls and for mobile to fixed calls. In the US most mobile operators do not charge for receiving calls which originate in their own network. This means on-network calls are effectively CPP. For on-network calls an originating and a terminating cost in terms of airtime has been incurred. If instead a mobile subscriber made a call to the fixed network and a fixed network caller made a call to the mobile network, the mobile network would earn double the airtime and pay only a low termination charge. Therefore on-network calls are less profitable than the equivalent traffic between fixed and mobile subscribers.

Not charging more for on-network calls positions the mobile network as a true alternative to the fixed network within a community of interest whose members all have mobile phones from the same operator. The marketing advantages are clear. Some mobile operators in Europe have lower charges for on-network traffic to exploit the fact that it encourages existing customers to recommend that their family members, friends, and colleagues subscribe to the same mobile operator.

Calls between competing mobile operators present a different challenge. However, currently few mobile operators are directly interconnected. Traffic transits via the fixed network. Assuming that mobile termination charges will be higher than fixed termination charges, either the transit arrangement will have to be modified or the two mobile operators must interconnect directly.

Mobile operators could charge more for calls to other mobile subscribers than for calls to fixed network. This is the case with some mobile networks in Europe. In France the PCS operator, Bouygues Telecom, has a higher tariff for calls to the cellular networks operated by its rivals. This is a reflection of the higher interconnect cost.

Mobile operators may opt to keep tariffs simple and not distinguish between calls terminating on fixed and on mobile networks. This is fine if margins are big, but as margins become smaller, differences in termination costs may have to passed on to the customer.

2.5. Interconnect Regime in CPP Environment

In order for CCP to be implemented in Singapore, the current interconnect arrangement must be reviewed to be similar to the concept of current fixed-to-fixed interconnection regime (FFI) where call completion or termination charges are borne by the operator who originates the call and paid to the other operator to compensate for the use of the other operator's network resources. The interconnect rate for traffic passed from fixed to mobile networks and vice versa must be worked out.

2.6 Increased Teledensity and Fixed Mobile Convergence

Mobile telephone networks and wireless local loop networks can play a major role in increasing the teledensity in countries where fixed line penetration is low. This is the case in Mexico. The economic benefits associated with a higher teledensity are well documented. However, mobile services can only make a significant contribution to increasing the teledensity if they are used in a way which approaches fixed network use over time. Mobile party pays tariffing hinders this development, because mobile users do not give out their number widely in order to limit incoming call charges.

The distinction between mobile and wireless local loop services may become blurred over time. Depending on network design, wireless local loop service could offer some sort of local mobility. Mobile services could offer tariffs close to the fixed network for local calls with a low degree of mobility. However, mobile and wireless local loop services cannot realistically be treated as alternatives to the fixed networks if a mobile party pays principle applies.

2.7 Benefits to the Economy and Consumers

The evidence presented shows that minutes of use increase in a calling party pays environment. It is widely accepted that radio spectrum is a scarce resource from which the best economic benefit should be extracted. When more telephony traffic passes through a given amount of spectrum, this amount of spectrum is used more efficiently. Calling party pays delivers higher usage as mobile numbers are more widely circulated, users are more likely to leave their mobiles on and therefore the number of calls successfully terminating in a mobile network will increase. This will make the use of radio spectrum more efficient.

Calling party pays reduces the cost of mobile ownership. Research shows that consumers are particularly sensitive to costs and CPP will therefore help to accelerate mobile penetration amongst consumers.

The introduction of calling party pays is also beneficial to fixed network subscribers who want to make calls to mobiles. Although these subscribers will have to pay for calls to mobiles they will be able to contact mobile subscribers when they want. As discussed above in mobile party pays environments inbound calls are substantially restricted because mobile phones are frequently switched off or numbers not given out. In CPP environments mobile subscribers circulate their number widely, keep their phones switched on, and use voice mail extensively. This means fixed subscribers can contact mobile subscribers when they want to. Call completion rates therefore increase. At the same time fixed network subscribers can elect not to pay for calls to mobiles by not making the call.

3 More Countries are Moving to CPP

There are clear benefits to fixed and mobile operators, mobile subscribers, and the economy as a whole in a CPP systems compared to a mobile party pays system. Many regulators are now promoting the move to CPP where previously mobile party pays tariffing was used. Recent examples include the USA and Mexico.

Originally some European countries operated a mobile party pays system, e.g. France, but now all European countries operate CPP tariffing. There is a trend to move from mobile party pays to CPP. Brazil has recently moved to CPP and Argentina is in the process of moving to CPP. In the USA there are increasingly moves towards CPP, particularly on request from PCS operators, and also cellular operators.

On the basis of the benefits of CPP for the mobile market, StarHub's view is that CPP should be considered and it should be adopted industry-wide rather than by only some of the mobile operators as this will result in less confusion for consumers in Singapore. The move to CPP requires some effort to educate fixed and mobile subscribers. Cellular penetration in Singapore can be considered as moderate but with the introduction of CPP, mobile subscriber numbers can be expected to increase more dramatically.

Figure 5 - Benefits of CPP vs. Mobile Party Pays

Beneficiary	Benefit
The Economy	More efficient use of spectrum through higher mobile traffic Higher teledensity through faster growth in mobile lines
Fixed Network	Higher traffic volume fixed to mobile and mobile to fixed High margin earnings on fixed to mobile traffic
Mobile Network	Higher traffic volume mobile to fixed Better utilisation of voice mail Interconnect revenue earnings Customer retention of price sensitive mobile users Faster subscriber growth
Mobile Users	Lower costs, no payment for incoming calls Can publish mobile number widely, better contactability Choice of tariffs e.g. mobile toll-free (1-800) numbers
Fixed Users	Can reach mobile numbers, which were previously unavailable because phone was switched off or number not given out
Regulatory	Eases fixed mobile convergence Avoids problem in distinguishing between WLL and PCS Set interconnect framework and rates

4. StarHub's Views

StarHub supports that the FMI regime be changed to the Calling Party Pays system and that CPP be implemented industry-wide in Singapore. However, this would require regulatory direction and coordination between the various operators including consumers education for smooth implementation in Singapore.