Telecom Regulatory Authority Of India

Consultation Paper

On

Issues relating to the introduction of CPP

For

Cellular Mobile services

23rd May 2001, New Delhi

Preface

The growth of Cellular Mobile Telephone Service (CMTS) during the last decade has been phenomenal in a large number of countries. In some of the countries, the significant growth rate has been attributed to the introduction of so called 'Calling Party Pays' (CPP) regime.

The mode of payment for the mobile leg of a call originating in fixed network and terminating in a mobile network can be either the Mobile Party Pays (MPP), or Calling Party Pays (CPP). The latter mode of payment for mobile termination is called "CPP" in which the fixed operator levies a supplementary charge to the caller and passes on the same to the mobile operator. Countries worldwide had initially adopted MPP in 1980s. A number of countries have subsequently migrated from 'MPP' to 'CPP' regime in 1990s. Some of the countries that have decided to change over are Argentina, Cambodia, Chile and Mexico. However, some of them such as Chile and Mexico have kept both the options i.e., CPP and MPP for the mobile subscribers. Whereas, some countries like China, and Singapore, have decided to retain MPP after a careful consideration of the 'CPP' option. Some countries such as USA, offer both CPP and MPP options to the mobile operators. Both the modes of charging for the mobile leg of an inter-network call have advantages and disadvantages. These have been brought out in the consultation paper.

The erstwhile TRAI had taken steps to introduce CPP in India in 1999. After conducting open house discussions the erstwhile Authority had notified in September 1999 an Order and a Regulation to implement CPP for cellular mobile services in India. The Order and Regulation, however, were challenged in Honourable High Court of Delhi, inter alia, on the grounds that TRAI did not have the legal authority to implement CPP in a framework where the DOT (now "BSNL") would have to pay cellular mobile service providers for calls originating in DOT network and terminating in the cellular mobile network. Subsequently, suitable amendments have been made in the TRAI Act, as well as in the License Agreements of Cellular Mobile Service Providers, and there is now a basis to reconsider

the introduction of CPP, in the new telecommunications environment.

The consultation process initiated by the TRAI through this consultation paper seeks to invite stakeholders' to give their valuable opinion on issues such as whether a CPP regime should be implemented in India and if the regime is to be implemented, should it be made optional or mandatory. The paper also discusses relevant issues relating to Tariff and Technical modifications in the network required to implement a CPP regime.

I am sure that this Consultation paper will lead to fruitful discussions with the participation of all the stakeholders, which will help the Authority in formulating its policy in regard to CPP. I request that written comments on this paper may be furnished to Secretary, TRAI by 12th June 2001. For any further clarifications, Adviser (Mobile Networks) or Adviser (Economic) may be contacted on telephone nos. 3357815 and 3719381 respectively. The fax nos. are 3738708 and 3356083, and email is: trai@del2.vsnl.net.in.

M.S. Verma

CHAIRPERSON

New Delhi

May 23, 2001

TABLE OF CONTENTS

Page No.

Chapter 1

Background

1.1 In the last decade, i.e, since 1990s, Public Land Mobile Networks (PLMN)) have experienced explosive growth rates in most of the developing & developed countries. Our country has also experienced similar trends in recent years. In countries like Cambodia, Finland, Italy, Korea,

Portugal, Venezuela the number of mobile telephones have already surpassed that of fixed telephones. This growth has also been accompanied by a sharp reduction in tariffs making the mobile services more affordable. Although initially, the cost of installing a PLMN was much higher than that of a PSTN, & mobile telephony was considered to be a premium service with much higher tariffs compared to basic fixed telephony, this tariff profile is no more valid, because of the sharp fall in the costs of the network elements constituting a PLMN. In many countries, regulators and policy makers are creating conditions so as to make the mobile services even more popular and affordable and to increase teledensity. One such endeavor is to bring the mobile network under a tariff regime similar to that of a Public Switched Telephone Network (PSTN) where, while making a call to another fixed phone, only the calling party pays (CPP).

What is CPP?

1.2 At present, a subscriber who originates a call from the fixed network pays the same charges whether the call terminates on the fixed network itself, or on the mobile network, i.e., in both cases he pays for carriage only on the fixed leg, the mobile subscriber is charged an airtime for receiving the call on the mobile network, i.e., he pays for the resources used on the mobile network. This system was introduced in North America ever since the first mobile cellular network was introduced there in the early 1980s. In a large number of countries where GSM mobile networks have been deployed since mid 1990s, a different system has been adopted, i.e., the billing system of PLMN does not charge the called subscriber, an incoming airtime for receiving a call from the fixed network. Rather, the PSTN billing system charges a supplementary amount called 'Mobile Termination Charge' (MTC) and passes on the same to the PLMN. This mode of charging a fixed-mobile call is called Calling Party Pays or 'CPP'.

1.3 In India, the present tariff structure for an inter network call involving conveyance on both PLMN & PSTN consists of two components i.e., an airtime charge and a charge for the fixed leg of

the PSTN. The airtime charge is levied on the mobile subscriber, for both originating and terminating a call on the mobile network. This method of charging or billing a call is called Mobile Party Pays (MPP) or Receiving Party Pays (RPP). In contrast, under a CPP regime for cellular mobile, the mobile subscriber of PLMN makes no payment while receiving a call from a fixed network. In the CPP method of charging (or billing) an inter network Fixed-Mobile call, the cost of conveyance on both the fixed leg as well as the mobile leg of the call, is borne by the calling party i.e., a billing system similar to that for fixed to fixed call on the PSTN, involving the facilities of both the operators. A large number of countries have implemented CPP for cellular mobile from the very beginning, particularly in Europe and Latin America Some countries in Latin America have introduced CPP as an alternative to MPP recently. Both Canada and USA constituting North America have by and large retained the existing MPP system. The global scenario in the context of CPP is discussed in the next chapter.

1.4 Points in favour of CPP

i) CPP transfers the responsibility to pay for both the fixed leg as well as the mobile leg to the fixed subscriber who makes the call. It could be argued with some force that the caller should pay for the call, being the party that needs to communicate with a mobile subscriber, so as to transact his business.

ii) It may be easier to contact a mobile subscriber as he is less likely to switch off his phone for fear of receiving unwanted calls, and paying for incoming airtime.

iii) The mobile subscriber can control his expenditure on telephone bills as he is no longer required to pay for his incoming calls, over which he has no control.

iv) Under MPP also called RPP (receiving party pays), the mobile subscribers are generally reluctant to give their mobile phone numbers, so as to avoid payment of airtime charge for incoming calls. This is cited as one of the reasons for directory not being published by the cellular operators, which is required as per License Agreement.

v) In order to avoid costly airtime (incoming), mobile phone subscribers have a tendency to use the phone as a pager to get incoming message / caller identity, prompting him to make

a 'call back' from a fixed line, which he owns in addition to a mobile number. CPP will hopefully make it possible to avoid the 'call back' phenomenon thus creating more symmetric traffic flows between PSTN & PLMN, resulting in better dimensioning and improved QoS.

vi) An important objective of a telecom tariff regime is to encourage usage, thus ensuring better utilization of the costly network infrastructure. In some countries increased call volumes were observed after CPP was introduced in lieu of MPP or as an alternative. However, for a developing country like India, whether such a growth in total call volumes will actually materialize is not quite certain and needs to be debated.

1.5 Points in favour of MPP

i) Mobile network can be regulated independent of the fixed network

ii) The existing interconnection and pricing regime can be more easily adopted for cellular mobile, under a MPP regime, than under a CPP regime.

iii) Considerable upgradation of the fixed network (PSTN) infrastructure involving a large number of local exchanges may be required for implementing CPP and its corresponding settlement regime.

iv) If CPP is made an option for the subscriber in addition to MPP, then it becomes necessary to install a sub system to inform a caller making a call to cellular mobile, that he would have to pay an additional charge for such a call. This is generally done through an IN node, which involves considerable investment to be made by the network operator.

v) Many mobile subscribers, particularly those in business, would not want their calling clientele to pay for calls to their mobile numbers out of concern that it may have adverse effect on their potential business as some calling subscribers may feel aggrieved that they have to bear the higher cost for contacting the mobile subscriber. This is particularly true if the mobile subscriber belongs to the customer service category.

vi) CPP may discourage fixed line subscribers from making calls to mobile phone subscribers, as they may have to pay a supplementary charge. They may find it too costly to make a call to PLMN.

vii) CPP may cause confusion amongst fixed line users, in case different mobile operators have different termination rates to complete calls in their respective mobile networks.

Initiatives taken by the Regulator in India to introduce CPP, till date

1.6 Erstwhile TRAI's second Consultation Paper on tariffs, which was issued in 1998 had proposed a CPP regime with a revenue sharing arrangement under which calls from PSTN to cellular mobile were to be charged at Rs. 3.90 per minute to the caller. 85 per cent of this collection amount was required to be passed on to the cellular operator, by the fixed operator. Based on an extensive consultation held in 1998, the Authority issued a Telecom Tariff Order 1999 (TTO'99) on 9th March 1999. TTO'99 stipulated a change over from the existing MPP to the CPP regime with effect from 1st August '99. The tariffs for CPP were to be notified separately. Thus, a CPP regime was to be implemented for cellular mobile from 1st August, 1999 as per the decision taken by the erstwhile TRAI, after consulting all stake-holders, including the Department of Telecommunications (DOT).

1.7 Preparatory to the introduction of the CPP regime, the Authority prepared a consultation paper (Consultation paper No. 99/4, dated 31 August, 1999) entitled "Review of Cellular Mobile Service tariffs following migration to an interim revenue share of 15% as license fee and introduction of CPP regime for cellular Mobile". In this Consultation Paper the Authority proposed that CPP be implemented from 1st November 99, along with reduction in tariff, on account of introduction of a revenue sharing regime in lieu of a fixed licence fee regime. The proposal for CPP envisaged an increase in tariffs for calls from basic (fixed) service provider to cellular mobile network chargeable to the caller. The basic service provider was required to pay a mobile termination charge (MTC) from the enhanced tariff collected by him from the caller i.e his subscriber.

1.8 After conducting an open house discussion, and taking into account the comments received, the erstwhile TRAI notified in September 1999 an Order and a Regulation to implement CPP for cellular mobile services in India. The Order and Regulation, however, were challenged in

Honourable High Court of Delhi, inter alia, on the grounds that TRAI did not have the legal authority to implement CPP in a framework where the DOT (now "BSNL") would have to pay cellular mobile service providers for calls originating in DOT network but terminating in the cellular mobile network. The Honourable Court ruled in favour of the petitioners that in view of Clause 5.7 of Schedule A of the License for Cellular Mobile service, the erstwhile TRAI had exceeded their authority. Clause 5.7 of the licence reads as follows:

"For calls originating from the fixed network to mobile, the mobile subscriber will be charged for the air time and DOT will not have to pay any access fee to the Cellular Operator. The air time charges will be collected by the Cellular Operator"

1.9 On account of Hon'ble High Court decision, the CPP regime could not be implemented in accordance with TTO of September 1999. In January 2000, the TRAI Act was amended to inter-alia include the following:

"notwithstanding anything contained in the terms and conditions of the license granted before the commencement of the Telecom Regulatory Authority (Amendment) Act,2000, fix the terms and conditions of inter-connectivity between the service providers;"

1.10 Following the amendment to the TRAI Act, the Authority considered it desirable to revisit the CPP issue and accordingly requested the Licensor (DOT) to consider amending clause 5.7 of Schedule A suitably so as to facilitate the implementation of CPP regime.

1.11 DOT vide their letter dated 27th April 2001 have informed the Authority that "an amendment in respect of only those licenses, under the process of migration to NTP-99 regime of revenue sharing, have been issued on 29th January 2001. Para 1(x) of the said amendment enables introduction of CPP regime. The same is quoted below:

(a) " For calls originating in a fixed network and terminating in a mobile network, the Mobile subscriber may be charged by the mobile operator an `airtime' for use of his network resources. Alternatively, a mobile terminating charge (MTC) may be collected over and above the normal PSTN call charge by the fixed service operator from subscribers for calls originating in fixed network and terminating in mobile network, as part of a mutually agreed revenue sharing arrangement between the two operators within the overall framework of Interconnection regulations issued by the TRAI from time to time."

1.12 With the above amendment to Clause 5.7 of the Licence Agreement, a legal framework for introduction of CPP has been provided by the Licensor i.e. DOT. This Consultation Paper has been prepared to discuss the relevant issues that arise in the context of CPP, and to help the TRAI in arriving at a conclusion regarding introduction or otherwise of CPP.

Chapter 2

Global Scenario

2.1 Cellular Mobile Services were introduced in USA and Canada in the early 1980s with a receiving party pays for the airtime or 'MPP' regime. In these countries MPP has been retained with some minor modifications till date, i.e., in USA it has been made an optional service as far as the receiving mobile subscriber is concerned. In 1990s, European countries jointly developed a digital mobile system based on 'GSM' or Global System for Mobile Standards. They introduced 'CPP' from the very beginning. Other parts of the world followed one of the two charging methodologies, i.e. CPP or MPP. A survey of the countries where mobile systems are operating indicates that there is a growing trend for adoption of CPP. A number of countries with MPP are taking energetic steps to changeover to CPP. Since 1995, several countries including Austria, Cambodia, Chile, Costa Rica, Mexico and Romania,

where mobile systems were launched with MPP have changed over to the CPP regime. Experience in some of these countries has shown that CPP contributes to the growth of Cellular services, both in terms of subscriber base as well as minutes of use, particularly for low paying subscribers, as well as pre paid card holders.

2.2 Though the implementation of CPP mode of charging has been a common phenomenon, its applicability to different types of calls is not the same in various countries surveyed. In some cases, it is applicable to all types of calls while in others, it is limited to local, or local and long distance calls only. In addition to deciding the types of calls to which CPP may apply, important policy considerations include determination of the PSTN charges applicable to calls terminating on mobile, revenue sharing between PSTN and Mobile networks, the agency that should decide the retail tariffs, and subscriber education for proper implementation of CPP. The practices adopted in regard to these policy issues vary from country to country, and are discussed in some detail in the following sections.

Status of CPP

2.3 The status of CPP in a number of countries has been tabulated below (table 2.1). The table is divided into three main categories viz., countries where CPP was introduced right from the beginning, where CPP was introduced after a few years of the launch of service, and where CPP has not been introduced as yet, although under active consideration.

Table 2.1: STATUS OF CALLING PARTY PAYS (CPP) IN DIFFERENT COUNTRIES*

A. Countries in which CPP is Available since the introduction of mobile services	
Belgium	
Belize	
Cyprus	
Denmark	
Estonia	
Finland	
Germany	
Hungary	
Ireland	

Italy	
Korea(Rep.)	
Madagascar	
Malaysia	
Malta	
Moldova	
Norway	
Philippines	
Spain	
Sweden	
United Kingdom	
Zimbabwe	
B. Countries in which CPP was introduced subsequent to launch of service based on MPP	
Antigua & Barbuda	Introduced on 25.1.2000
Argentina	Introduced in 1997
Austria	Introduced later
Cambodia	Introduced in 1997
Chile	Introduced in 1999
Costa Rica	Introduced in 1996
Czech Republic	Introduced in 1996
Dominican Rep.	Introduced in 1995
Ecuador	Introduced in 1998
Guatemala	Introduced in 1999
Lithuania	Introduced later
Mexico	Introduced in 1999
Mongolia	Introduced in 1996
Romania	Introduced in 1998
C. Countries in which CPP is yet to be introduced (Although under consideration)	
China	Has not implemented its decision to change over to CPP
Singapore	Has taken a decision against implementation after due deliberation and public consultation
Sri Lanka	Implementation of CPP has been deferred by the Govt, although the same was recommended by the Regulator

- Based on ITU survey

2.4 In Canada, which has one of the longest history of mobile telephones, MPP regime is still in place. One of the reasons for this is the numbering scheme adopted there. The fixed and mobile telephones in Canada have identical numbering scheme, and with a CPP regime the customers making a call would not know whether they are calling a fixed number or a mobile number. It is very difficult for carriers to change the numbering scheme of such a large existing mobile customer base,

and that too in a situation of open competition. Another important reason could be the fact that in Canada local calls on fixed networks are not metered.

2.5 A similar example in terms of the numbering scheme and free local calls, is USA. However, in USA, the option of introducing CPP has been left to the market forces. In a Notice of Inquiry (NOI) issued in 1997, FCC sought information about calling party pays or 'CPP' regime and whether regulatory action was necessary to facilitate more widespread implementation of this new regime in the United States. Subsequently, On June 10, 1999, FCC adopted a Declaratory Ruling and Notice of Proposed Rulemaking (NPRM) that clarified that the CPP offerings qualify as Commercial Mobile Radio Service (CMRS) under the Communications Act, and thus would fall under the regulatory structure set out in Section 332(c)(3) of the Act. The NPRM raised a number of issues for consultation. Some of these are indicated below:

i) Technical standards to control leakage;

ii) Calling party notification to protect consumers; and

iii) Arrangements for reasonably priced billing and collection services.

After a prolonged consultation process, FCC decided as follows last month i.e., on 13th April.

> "We decline to adopt any specific rules to govern calling party pays at this juncture. We note that our existing rules do not prevent a carrier that wishes to offer calling party pays from doing so. Also, the market now offers commercial mobile radio service subscribers pricing options generally unavailable when we started this proceeding, such as flat-rate pricing plans and service plans under which the first minute of an incoming call is free. Along with the continued reduction of commercial mobile radio service prices, these plans appear to offer consumers many of the same benefits we identified as potential benefits of calling party pays. We also see no need to adopt rules to govern the manner in which a carrier may offer a calling party pays service, but can deal in an enforcement context with any individual carrier offerings that result in charges that may violate the Communications Act."

2.6 It is noteworthy that Australia, a country, which has unmetered local PSTN - PSTN calls

(PSTN - PLMN calls were metered), has introduced CPP for Cellular Mobile. In Australia, the cellular mobile service was introduced from the very beginning with a CPP regime. The only exception from CPP method of charging is in regard to international roaming, where the calling party may not know that the called mobile subscriber is overseas. In this case the called party pays the differential.

2.7 Another country whose status needs to be discussed is China, where the policy to introduce CPP was announced, but subsequently it was decided to defer its implementation. In a case study published by the ITU, the reasons for China not introducing CPP at this point in time are indicated below:

1. Likely shrinkage of the paging branch of China Unicom, in which the government had invested heavily in the past years (currently carrying a mobile phone and a pager is a common phenomenon in China);
2. Introduction of CPP would increase the overhead budget of the government departments and state owned enterprises still dominating the Chinese economy.

The case study also states that China's Ministry of Information Industry is seriously reviewing its policy regarding the payment scheme for mobile phone service.

2.8 In Singapore, the regulator i.e, Infocomm Development Authority (IDA) issued a consultation paper on "Review of fixed - Mobile interconnection" on October 25 1999. In the paper, views were sought from stakeholders on the following:

"possible scenarios and implications on inter-operator charges and implications on end-users as well as implementation issues arising should ….. the Calling Party pays (CPP) system be adopted industry wide or if each individual mobile service provider should make its own commercial decision"

Mixed views were received during consultation on the subject. After due consideration of the issues involved, the regulator decided against implementing CPP at the present. The reasons for this include:

(a) The IDA assessed that CPP is neither necessary nor sufficient to boost the take up of mobile

phone and paging services. In one of the comments by Singtel, the operator remarked that the growth experienced in countries which implemented CPP was not only due to the change but also due to the other factors like prepaid cards etc;

(b) consumer of fixed line could get confused as in the CPP regime, the charges he will have to pay vary depending upon the cellular operator;

(c) high costs involved in bringing about changes in the networks and systems.

In the final decision of the IDA, given on May 3 2000, it is stated:

"The IDA's assessment is that the costs of any change would likely outweigh any potential benefits for both consumers and industry for now. As such, the present FMI regime and MPP retail charge system will continue for the time being."

Effect of CPP on market growth

2.9 The experience of countries where CPP has been introduced, has perhaps given credence to a view that the CPP regime generally provides greater stimulus to market growth than the MPP regime. This view has found some support in OECD studies, as well as in studies by the International Telecommunications Union ("ITU"). For example "World Telecommunication Development Report 1998" published by ITU stated that:

"*For instance, in some countries, both the calling and the receiving party pay for mobile cellular calls. Nations that have abolished this system in favour of the traditional calling party paying, such as Argentina and Peru, have witnessed large increases in subscribers and usage. The launching of the calling party pays system in April 1997 in Argentina led to its highest annual growth ever in mobile cellular subscribers. In Peru, mobile cellular calls increased over two hundred per cent following the introduction of calling party pays*."

2.10 There is also anecdotal evidence that subsequent to transition from MPP to CPP regime, countries have experienced very rapid subscriber and network traffic growth. A brief illustration

of this is given in Table 2.3

Table 2.3 Growth of cellular industry consequent upon introduction of CPP in Latin America

Country	CPP Calling rate	Subscriber growth	Average Monthly Usage growth
Argentina	US $ 0.35 (PSTN US$ 0.02 Cellular US$ 0.33)	233% growth i.e., from 600,000 in 1996 to 2 Million in 1997.	Not available
Chile	US $ 0.21 peak (PSTN US$ 0.04 Cellular US$ 0.17) US $ 0.13 off peak (PSTN US$ 0.01 Cellular US$ 0.12)	36 % growth in the quarter following introduction of CPP	45% average growth per month for prepaid incoming from Jan 99 to June 99
Mexico	US $ 0.27 (PSTN US$ 0.06 Cellular US$ 0.21)	16% growth from April 99 to June 99	10% growth from April 99 to May 99

2.11 In Mexico, the Mobile terminating traffic, which the incumbent in Mexico predicted to fall, actually increased by 28.7% despite the fact that the price of a PSTN - Mobile call went up from $0.115 to $ 0.403 per minute. One major development in European countries was that the introduction of CPP, specially in prepaid cards, increased the penetration of the Cellular Mobile Service in the lower usage segments.

Whether CPP is optional

2.12 Countries like Argentina, Chile and Mexico, switched from an MPP to a CPP regime in April '97, February '99 and May '99, respectively. In these countries, the subscriber had the option of switching back to MPP by calling the operators to change his number to one without CPP area code.

Whether CPP has been introduced for all types of terminating calls.

2.13 While Argentina and Chile introduced CPP only for PSTN - PLMN and not for either PLMN - PLMN or incoming PSTN - PLMN long distance calls, Mexico introduced it for PLMN - PLMN

calls also.

The importance of customer education for CPP and additional cost and technical changes involved: Sri Lankan experience

2.14 In Sri Lanka, the Telecommunication Regulatory Commission recognized CPP as a policy goal in 1998, and drew a roadmap to implement CPP in a phased manner. The existing PSTN & WLL operators have argued against the implementation of CPP on the grounds that it would "unfairly burden fixed access customers and also dampen the demand for the fixed access telecommunications service". They have argued that CPP regime is complex to implement and would require large lead-time to implement technically. The Commission, however, found merit in the case for CPP and in principle accepted the changeover to CPP regime. However it, has not implemented it so far reportedly due to the following reasons:

1. Requirement to have itemized bills for the customers at all originating networks;
2. The need to create consumer awareness about CPP before it is introduced
3. The commission was concerned about the adverse impact on the affordability of the basic telephone customers.

2.15 The concerned parties in Sri Lanka also identified two main categories of costs to be incurred by an operator on account of CPP implementation i.e., costs related to implementing network changes such as billing systems and those related to publicity to educate customers. The Commission opined that the costs related to the network changes be borne by the operator who owns the network, while the incremental cost to educate the customers about CPP be borne by the Mobile operators in proportion to their subscriber base. The CPP regime has not yet been implemented in Sri Lanka.

Who sets the retail tariffs

2.16 An important issue that arises in respect of CPP is who should fix the retail prices for PSTN to PLMN calls? Should it be set by the Mobile operators as in case of France and Portugal, or the fixed

operator as in case of Australia, Denmark, Italy, Sweden, or should such charges be fixed through mutual negotiations as in case of the Netherlands, or should they be fixed by the regulator. The tariff issue is discussed in greater detail in the next chapter.

2.17 In the light of the background (discussed in Chapter 1) and the experience of other countries (discussed above), the following emerge as the key issues which need to be examined during the consultation process.

Issues brought out for public consultation:

(a) Is CPP desirable in our context? If it is considered desirable, what should be the main objective(s) behind its introduction?

(b) What benefits will accrue to the subscribers of PSTN/PLMN and to the Telecommunications industry in the country as a whole, consequent upon the introduction of CPP?

(c) Should CPP be introduced for fixed to mobile calls, by regulatory intervention or should it be left to market forces?

(d) If CPP is introduced for PSTN - PLMN calls, what is the best way of balancing the interests of various stake holders e.g. subscribers & operators of Basic and Cellular Mobile Services?

(e) Would the introduction of CPP in India result in an accelerated growth of mobile subscribers, including prepaid customers, as witnessed in some countries of Latin America? Would there be any preconditions / pre-requisites for it to happen.

(f) Should CPP be introduced for all calls terminated on mobile networks or should calls like international, calls from PCOs, roaming etc. be excluded from its scope as is done in a number of countries due to technical difficulties, encountered in including such calls in the CPP arrangement?

(g) Should CPP be made optional as in USA? Is it technically possible to implement in our network, a system which gives an option to the subscriber to choose either CPP or MPP, as in USA?

(h) What is the type of customer education & its cost that will be required to be incurred for implementing CPP?

Chapter 3

Tariff issues

3.1 As explained in previous Chapters, the CPP regime for cellular mobile allows mobile subscribers to receive free incoming calls as the calling party, connected to a fixed network, pays a termination charge for conveyance of the call on the mobile network. The calling subscriber pays for the entire call, i.e. for both the fixed and the mobile legs. The fixed operator pays a Mobile Termination Charge (MTC) to the mobile operator, from the tariff paid to him by the fixed subscriber.

In this section we will discuss the principles employed to determine :

- The charge to be paid by the calling party to his fixed operator, when he makes a call to a cellular mobile subscriber.
- Termination charge paid by the originating fixed operator to the mobile operator.

3.2 In the above context, one needs to address the following issues:

i) Whether the mobile termination charge (MTC) could be mutually negotiated and determined by the operators under the broad framework of the Telecommunication Interconnection (Charges and Revenue Sharing) Regulation, 1999 (hereinafter "Interconnect Regulation of May 1999")

ii) If the answer to the above is in the affirmative, then who determines the tariffs taking into account a mutually determined termination charge, namely, the regulator or the service providers themselves.

iii) Also, if the termination charge is determined by the service providers, how to ensure that the charge is not fixed at such a high level that it imposes a substantial burden on the customer. Such a burden may mean a reduced call volume due to the negative effect of price on call

volumes.

iv) Is it feasible to determine the quantum of MTC by the regulator, based on the unbundled network elemental cost data furnished by the operators.

These issues are examined in the following sections:

Mobile Termination charge(MTC) under the CPP regime

3.3 During the discussions held by the erstwhile TRAI in 1999, a number of consumer groups and NGOs stated that the basic subscribers were economically more deprived than mobile subscribers and, therefore, they should not be burdened with any increase in call charges due to CPP regime. Instead, free incoming calls may be allowed for cellular mobile, without any termination charge paid to the cellular mobile network. In support of this argument, it was pointed out that a number of cellular mobile operators have on their own started offering free incoming calls without expecting a termination charge, from the originating fixed network.

3.4 A diametrically opposite view was that calls to cellular mobile are premium calls, as they provide the caller means to contact a mobile subscriber on the move. This value addition justifies charging an additional amount for these calls. A portion of this additional amount could be paid to the cellular mobile network as termination charge under the CPP regime. On economic and equity considerations also, since resources of the mobile network have been used in putting through the call, cellular operators are entitled to a MTC. Further if free incoming calls are allowed and no additional amount is charged to the caller, the likelihood of a surge in calls to mobile (including call-back), leading to avoidable congestion and stress on resource is not entirely ruled out.

Who should fix the mobile termination charge and the corresponding change in tariff?

3.5 The mobile termination charge (MTC) could be fixed by the service providers through mutual agreement, or by the regulator within the general framework of Interconnect Regulation. In some countries where CPP has been introduced, the service providers are allowed to decide the termination

charge mutually. In European countries also, the cellular operators were allowed to fix their termination charge, which was realized by the fixed operator from the calling subscriber, as additional charge and then added to the charge of the fixed leg to determine the collection (or tariff) from the subscribers. In U.K., the MTC was much higher than the charge for the fixed to fixed line call, thus imposing a substantial burden on the consumer. The Regulator (i.e. Oftel) referred the matter to the Monopolies and Mergers Commission (MMC), which found the charge to be too high, and has recently ordered a 25% reduction in MTC.

3.6 One view is that if the operators are allowed total freedom to decide the termination charge, it is possible that a situation may arise in which one of the operators may drag his feet, and delay the process of CPP indefinitely. Therefore, some time frame for completion of this exercise may have to be stipulated.

Economic issues relevant to a determination of Mobile Termination Charge (MTC)

3.7 In this section, we consider certain aspects regarding fixation of tariff paid by the calling party from a fixed network and also the MTC to be paid by the fixed operator to the mobile operator.

3.8 In a situation of perfect competition, both the elements, i.e. collection charge (or tariff to be paid by fixed subscriber) and the MTC should be such that their pricing follows the marginal rule, i.e., the price to the calling party should be the marginal cost of facilitating the access to the mobile network. However, in such an idealistic scenario, it is possible that the operator is able to recover only the variable costs, and would thus make a loss to the extent of the fixed cost, or the overhead. To guard against this, if the tariff/MTC contains an element of fixed costs also, it would make his business case attractive and provide him due incentive to operate and expand the service.

3.9 A key issue determining the amount of termination charge is the cost structure of the operator's network and his service. This, of course, will depend upon the nature of the operator's business and

his market presence. If, for example, the terminating network is that of the operator with dominant market presence, then the cost of resources in use would be different from that of the cost of resources used in the case of a new operator whose fixed, non recoverable costs (set up costs) will be different. An essential consideration, therefore, is how to determine a benchmark for termination charges. Thus, it is important to consider which costing methodology would help achieve the twin objectives of efficiency of operation i.e., optimally least cost to the consumer and a reasonable return to the operator. While trying to arrive at reasonable termination charges, the Authority in its Regulation on interconnection had recommended that Directly Attributable Incremental Cost (DAIC) of the elements involved in termination of the call should be used as the basis of calculations. Can the same principle be adopted while considering CPP also?

3.10 Linked to termination charge is the issue of determining the call charge to be paid by the fixed subscriber making a call to cellular mobile. Should it be based on the costing of the two legs of the call and the elements involved in call completion or should a value based approach be adopted? The latter approach is based on the consideration that a subscriber would be willing to pay an additional amount to ensure that his call is completed anytime, anywhere while the called subscriber is on the move.

3.11 Another relevant feature in the cost structure of a telecom network is that a significant portion of its costs are common costs or joint costs i.e., costs common to more than one service in the same network and in some cases even to more than one network. In determining the relevant costs attributable to access or termination, these common or joint costs have to be allocated to these network operations. This requires a determination of the methodology for allocating these costs to the various types of calls and unbundling of network elements of a mobile network to arrive at the costs of these elements in terms of minutes of use (MOU).

3.12 As mentioned above, with the introduction of a CPP regime, tariffs for outgoing calls from PSTN to mobile networks may require a significant enhancement. It is important to determine the

extent to which these tariffs may be enhanced so as to account for the pass through termination charge without imposing an undue burden on the customer. In case the tariff (Fixed to Mobile) is too high, it will be counterproductive, as due to high prices, the fixed subscriber may be inhibited to make a call to a mobile subscriber.

3.13 Yet another issue to consider is whether the termination charge and the airtime charge for outgoing calls from cellular mobile should be the same, or whether the termination charge should be lower than the airtime charge for outgoing calls from cellular mobile. This implies a consideration of whether the termination charge should in any way be cross-subsidized by other tariff components of cellular mobile.

3.14 In the light of the discussions in previous sections, the following tariff issues are brought out for public consultation:

(a) What should be the basis for fixation of tariffs for CPP? Whether Directly Attributable Incremental Cost (DAIC) or Fully Allocated Cost should be adopted as the methodology for fixation of tariff? Or, any other methodology will be most suited for the purpose, which could be considered for adoption.

(b) Whether the above costs should be historical costs or forward looking costs?

(c) Which cost elements of PLMN should be taken into account for fixing the mobile termination charge?

(d) What should be the method to derive the directly attributable incremental costs (DAIC) of terminating a call in the mobile network, from joint and common costs?

(e) What should be the principle followed in determining the termination charge for incoming calls to cellular mobile, vis-à-vis for outgoing calls from a cellular network? Should originating carriage (i.e. airtime) be the same as terminating carriage (MTC), because both use the same mobile leg?

(f) Should the termination charge be such that it fully covers the network elements involved in call termination or does it merit a lower pricing as compared to outgoing calls. Such distinction in pricing could be seen as a kind of subsidization of this (incoming) leg of mobile operators provided from rental and/or outgoing calls of cellular mobile? Would such an approach be justified?

(g) Should MTC be differentiated between peak and off peak hours? If so, how?

Chapter 4

Technical issues

Introduction

4.1 This chapter deals with the various technical issues relating to the introduction of a CPP regime. As explained in the previous chapter, introduction of CPP generally involves an increase in the tariff applicable to the subscriber making a call from fixed network to the mobile network to account for the MTC. The technical issues mainly relate to charging a supplementary amount , when a call is made by the PSTN subscriber to a mobile subscriber (prefix "98") and passing on the MTC to the mobile operator. In addition, there are other technical issues like numbering scheme, metering of local calls, providing subscribers with the option of CPP-barring (similar to STD barring) etc. Fairly complex technical issues will have to be tackled in case it is decided to make CPP an optional service for the called subscriber. Other issues relate to proper reconciliation of MTC payable by the fixed operator to the mobile operator, by means of an inter-carrier charge billing system.

Numbering Scheme and revised pulse rate

4.2 Since in India the numbering scheme for PLMN is different from PSTN, and local calls are metered, our country may have an easier migration path to CPP regime, unlike countries like USA and Canada, where these are reported to have made CPP-implementation more complex.

Issue relating to charging and Billing

4.3 Since CPP regime involves additional Mobile Termination Charge (MTC), to be collected from the fixed subscriber as a tariff, and passing on the same to the mobile operator, a substantial modification in the existing charge billing system is required. At present, the PSTN local exchange bills a fixed subscriber, either as a local call in case "98" is dialed, or "098" as a STD call upto the point of interconnect (POI). In case of CPP, an additional amount to account for MTC will have to be collected, by modifying the pulse rate for "98" or "098" calls. The modus operandi to do this is indicated below:

i) Lower Pulse interval: For PSTN- PSTN local calls, the existing pulse interval is 3 minutes. In case CPP regime is implemented, then pulse rate may have to be lower than 3 minutes. In this case the local exchange will be required to generate different pulse rates for PSTN-PSTN and PSTN-PLMN calls, based on the analysis of service code i.e. '98'. Generation of a different pulse rate may not pose a problem because of the use of a separate service code '98'. However, the technical feasibility of metering '98' differently than other codes in all local exchanges needs to be examined. At present, such functions are performed at a higher level i.e. in the TAXs, where such capabilities are available. BSNL has introduced "95" level of service for local calling within 200 Kms and the pulse rates are different depending upon the distance slabs (0-50 Kms and 50-200 Kms). It is to be examined whether the different pulse rates linked to the distance slab are generated by the ILT or local exchange in this case.

ii) Multiple pulses: Second option could be that the pulse interval is kept at the existing level of three minutes but instead of one pulse, multiple pulses, say 2 pulses are generated on answer back. The operational and technical feasibility of such a scheme needs to be further examined, by the operators.

iii) Combination of above: A third alternative could be mixture of option (i) and (ii) above, i.e., multiple pulses (say 2 pulses) are generated on answer and subsequently a single pulse is generated every 2 or 3 minutes, as required.

iv) Adding a surcharge: Another option could be to use the current charging system and then to add a proportionate surcharge in the off-line billing system. This option will need changes in both charging and billing system. Metered calls for mobile terminated calls will need to be separated and the billing system will have to add a surcharge on these calls.

Charging of long distance calls made from PSTN to PLMN

4.4 The charging issues are more complex in a scenario where the system has to levy a MTC on a long distance call originating in the PSTN and terminating in the PLMN. In case of local calls from PSTN to PLMN, the CPP regime could be implemented through a variation in the pulse rate. However this method is difficult to implement in case of long distance calls, because such calls already have a variable pulse rate linked to the distance traveled on the fixed network i.e. upto POI. Implementing CPP will imply an additional variation to these pulse rates. In addition to determining which of the four methods discussed in previous section could be applicable in the case of NLD calls, we also need to consider whether to have different methods of charging for local and NLD calls under a CPP regime. However, the consultation process may throw up new methodologies of implementing CPP through methods other than those suggested in this paper.

Technical issues in implementing CPP as an optional regime i.e., option to consumers as well as options to operators.

4.5 A CPP regime may involve an option to be given to mobile subscribers to either subscribe to CPP or MPP. In DOT's letter to TRAI dated 27th April 2001, CPP's introduction has been mentioned as an alternative to existing MPP regime wherein the mobile subscribers may be charged by the mobile operator an 'airtime' for use of his network resources. In such a regime, the PSTN subscriber will have to be charged based on the option exercised by the mobile subscriber and one way of doing it is by inserting a code in the mobile subscriber numbering scheme that would distinguish the two

types of mobile subscribers i.e., one under CPP regime and another under the MPP regime. Operators and other stakeholders may give their views on the technical feasibility of this option. It is noteworthy that some countries like Argentina, Chile and Mexico introduced CPP as an option for mobile subscribers.

4.6 Another regime could be that the option of CPP be left to the operators & their subscribers. USA has adopted this mode of CPP for operators as discussed in detail in Para 2.5 of this paper. It is learnt that it has been done through an Intelligent Network Platform. More details will have to be collected by operators about the system and its feasibility in the Indian environment studied.

Applicability of CPP to different types of calls

4.7 Another issue to be discussed is whether CPP should be applicable to all calls or whether some categories of calls such as international calls or calls from PCOs may be excluded from the scope of this regime because of technical complexity. In case all calls from PSTN - PLMN are to be covered under the CPP regime, we need to determine how to charge for international calls, or calls made from local PCOs. In case international calls are to be covered under this regime, it is also important to determine how to implement the settlement between the international carrier and Cellular operators?

4.8 If CPP is not applicable to PCOs and international calls, then cellular operators have to charge airtime for such incoming calls. This would require transmitting CLI information to the Gateway MSC (GMSC), so that the customer can be billed accordingly. The technical feasibility of these issues needs to be examined by both fixed and mobile operators and a solution evolved through mutual consultations.

Feasibility of Dynamic '98' level lock similar to STD / ISD lock for PSTN subscriber

4.9 In the current PSTN system, there is a facility of dynamic locking, under which the customer can bar unwanted access to STD / ISD / Local. In the event of calls to mobile becoming significantly more expensive, there would be a demand for a dynamic locking facility for calls made to mobile subscribers also. The service providers will need to implement necessary software changes to provide this facility to the customer. This may again require mutual discussions between the operators with a view to finding a solution.

Mobile Termination Charge (MTC)

4.10 As explained in the foregoing paragraphs, implementation of CPP regime involves issues pertaining to levying of an additional charge to the calling party, and passing on a MTC by the fixed operator to the mobile operator. Suitable modifications will need to be carried out in the existing billing systems of the operators to implement such settlements and their reconciliation. There may be scenarios where Mobile Termination Charge may not be applicable to all types of calls. In such a case, CLI is necessary at PLMN end. The PSTN and PLMN operators should finalise the technical arrangement to implement the necessary sharing arrangement.

Reconciliation of Settlement Amounts (i.e., MTC or Passthrough payment)

4.11 Periodic reconciliation of payments to be made among the networks termination charges collected and paid is an important issue. For proper intercarrier settlements, both PLMN & PSTN service providers would require in their network elements detailed billing and reconciliation systems. An arrangement for inter-carrier settlement and reconciliation will have to be arrived at through mutual discussions by the concerned operators i.e., fixed / mobile.

Customer awareness and education

4.12 PSTN subscribers have traditionally been used to calling up their mobile counterparts at local rates. With the introduction of CPP, there may be a premium over and above the prevalent charge, which the customer will not come to know if not properly informed. Although a clear demarcation in the numbering scheme for cellular exists, there is a possibility of the customer being caught unawares as he is used to the existing system in which he does not have to pay any MTC. It is, therefore, essential to carry out a widespread customer education campaign through advertisements, print & other media as well as to implement recorded announcements etc. in exchanges to make the customer aware of the new scheme before being charged. This would be even more important in case an optional regime is implemented or if the regime is not implemented for all type of calls.

Roaming between networks, and call forwarding

4.13 In the existing MPP regime, in case of a roaming call, the calling party pays for the long distance charges from his PSTN location to the home location in the network of the called party, while the call charges from the home location to the visiting location (on account of roaming) are borne by the called mobile party. In event of CPP being implemented for roaming calls as well, the PSTN caller may have to be charged in a different manner depending upon the place where the mobile subscriber is roaming. Apart from this being technically complex, the PSTN caller would not know the amount that he is going to be charged in this situation as he would not know the roaming location of the mobile called party. Important issues of confidentiality are also involved, as the mobile subscriber may not like the caller to know his roaming location.

4.14 It may perhaps be advisable that in such a scenario, the PSTN caller be charged the same tariff in a CPP regime as for a call to cellular subscriber who is not roaming. The charges on account of roaming may be borne by the mobile subscriber. For example, let us take a scenario where a PSTN subscriber ‘A’ in Delhi is calling a mobile subscriber ‘B’ in Mumbai, who is actually roaming. PSTN subscriber ‘A’ would be charged for making a call to ‘B’ in Mumbai under a CPP regime (long distance PSTN charges + charges on account of CPP had the call been terminated at home location) irrespective of where ‘B’ is roaming. To clarify it further, if the ‘B’ is roaming in Chennai, the

charges from Mumbai to Chennai whether on the mobile network of his own operator or that of another PSTN operator will be paid by the mobile subscriber himself because he has the advantage of protecting the privacy of his location. The same principle may also be applied to call forwarding.

4.15 In the light of the discussions in this chapter, the following issues come up for public consultation and for seeking inputs from stakeholders.

Issues brought out for public consultation

a) Which charging methodology be adopted for implementation of CPP regime in India so that minimum changes are required to be carried out by the service providers in their existing network infrastructure? Whether there is a possibility of implementing CPP through methods other than the four mentioned in this chapter namely, lower pulse interval, multiple pulses, combination of the two, and adding a surcharge to Mobile terminated calls through an off-line billing.

b) Whether the provision of CCS 7 and CLI in all the exchanges are an essential pre-requisite for implementation of CPP regime or can some interim solution be found for accurate billing, settlement and reconciliation?

c) Whether implementation of CPP as an alternative to MPP is technically feasible in the existing network? Can both MPP and CPP co-exist in the same network, so that subscribers have a choice of either CPP or MPP, as in the USA?

d) Whether CPP should be implemented for all types of calls or should there be certain exceptions like international calls and calls from PCOs? If there have to be exceptions, then whether it is technically feasible to forewarn the calling subscriber through a recorded announcement?

e) Is it feasible to have a separate interconnect billing system based on CLI for carrying out accurate revenue sharing between the PSTN and PLMN operators? Whether a system based on bulk billing can be implemented as an interim measure, till CCS 7 is available throughout the network, to enable a more sophisticated off line billing system for accurate reconciliation and settlement between operators.

f) What should be a reasonable time frame for implementation of the CPP regime in the existing networks? Who should bear the cost of network changes?