Association of Unified Telecom Service Providers of India

AUSPI/12/2011/008

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Dr J S Sarma,
Chairman,
Telecom Regulatory Authority of India
Mahanagar Door Sanchar Bhawan
Jawaharlal Nehru Marg
New Delhi – 110002

Sub: AUSPI's inputs to TRAI for Pre-consultation on Review of Interconnection Usage Charge

Dear Sir,

We congratulate the Authority for initiating pre consultation process for Review of Interconnection Usage Charge.

As you are aware, number of factors and components which are part of the IUC Regime need to be reviewed urgently. Competition, exponential growth subscribers, changes in the calling pattern along with cheaper cost of providing services have affected the IUC component which was first issued in the year 2003 and amended in 2006 & 2009.

We understand that mobile termination charges have been reviewed internationally **every two years or so and all countries have reduced MTC by approximately 50% or more.** Our response to the various issues raised in this pre-consultation paper is attached herewith. The

B-601, Gaur Sadan, 5 Hailey Road, New Delhi - 110 001
Tel 23358585, 23368989 Fax 23327397
E-mail auspi@auspi.in Web www.auspi.in

Authority to consider now a transition to a Bill And Keep (BAK) regime for mobile call termination in the current scenario being introduced.

We request the Authority to kindly take our inputs into consideration while coming out with the consultation process and we may be pleased to furnish more inputs as and when received from member service providers.

Thanking you,

Yours faithfully,

S.C.KHANNA
SECRETARY GENERAL

Encl: As above

Copy to:

1) Shri R K Arnold, Secretary, TRAI
2) Shri Lav Gupta, Pr Advisor (TDRA), TRAI
3) Shri Arvind Kumar, Advisor (I &FN), TRAI

AUSPI'S INPUTS TO TRAI FOR THE PRE-CONSULTATION ON REVIEW OF INTECONENCTION USAGE CHARGES

i) ***What should be the framework of Interconnection Usage Charges that meets the requirement of today as well as takes care of future developments like deployment of Wi-Max, High Speed Packet Access (HSPA), Fixed Mobile Convergence (FMC) and Next generation Network (NGN)?"***

The framework for IUC that may require today as well as considering the future development should include voice service and video call services. With the increasing technology convergence, it is becoming more important to consider voice services in the current frame work of IUC.

SMS is functioning different from voice and cost of carrying and terminating SMS for mobile operator is very low, due to the fact that no authentication needed, no checks, no incoming SMS airtime used and only signaling channel utilization for a very minimum period of time. The current system of SMS charging is Bill and Keep wherein operator who initiate SMS does the billing and retains the generated revenue. This regime should continue.

Internationally too, SMS termination charges have not been regulated in countries like USA and Lithuania. In Pakistan, Finland and Singapore SMS termination is not regulated and is based on mutual negotiation between operators. Hence, we may not consider SMS services for the determination of interconnection charges.

Services like Value Added Services and GPRS primarily are accessed by subscribers through their home termination points and hence may be kept out of the purview of Interconnection.

The growing and universal trend towards the adoption of IP-based technology in fixed and mobile networks and the growth of non-voice multi-media services on all networks means that the traditional distinction between fixed and mobile voice services, and between voice and data services, are likely to become less relevant in the future.

HSPA or High Speed Packet Access rides over a core IP based network. HSPA network primarily carries data. In the event that the network carries voice, the topology would be based on voice-over-IP framework and may be principally governed by the IP network connection rules. The IP internet world has no termination fees and is based on a P2P arrangement in which id Bill and Keep regime. Since HSPA networks have been deployed, the Authority might consider to adopt Bill and Keep Regime.

Further, developments like deployment of Wi-Max, High Speed Packet Access (HSPA) etc Next generation Network (NGN) are at a very nascent stage and there is a lack of adequate data points across years of the network elements used that is required to calculate the cost and revenue outlay for calculation of termination charges. Under these circumstances it would not be appropriate to specify termination charges and adoption of Bill and keep regime should be preferred IUC regime.

Fixed Mobile Convergence (FMC) is important for to improve quality of service and through puts on wireless networks. Cells phones/smart phones have wi-fi connectivity and now it is possible to use wifi connectivity to for IP based application. Fixed Mobile Convergence also requires that there should be bill and keep arrangement so that subscribers get seamless connectivity in terms of not only access but also tariffs. This is possible only under Bill and Keep regime.

Thus, keeping the above in consideration, the Authority adopts Bill and Keep regime. If for some reason it is not immediately possible, the Authority may consider only Voice Services (2G and 3G including Video Calling Services) in the framework of Interconnection Usage Charges (IUC).

ii) What components of IUC for voice, SMS and any other value added services should be reviewed? What should be the level of charge for each component that requires review? Please give detailed justification / reasons to support your viewpoint."

The Authority may consider reviewing each component of IUC to enhance competition in the current Industry scenario. Many developments of far reaching consequence have taken place since the current principal regulation was put in place in 2003 and amended in February 2006. Subscriber growth has been explosive, especially in the mobile segment. The mobile subscriber base (707 million as on October 2010) has overtaken fixed line subscriber base and is currently ~18 times that of fixed. The minutes of usage have also gone up drastically. Favorable policy and regulatory regimes have encouraged a number of new operators to come into the arena. Technology has evolved rapidly with increasing stress on Internet Protocol based networks. New streams of revenue are emerging for all sets of operators. The industry has also seen ~25% decline in price of electronic equipment year-on-year in addition to significant passive infrastructure sharing that has brought about a change in the cost structure of the service providers. Costs have also reduced significantly through allocation of spectrum beyond licensed 6.2MHz and on account of technology innovation driving more erlangs capacity per MHz.

As stated earlier, Voice services including 2G, 3G and Video call services may be considered in the framework. Under the above services, the Authority may consider, reviewing the following components:

1. **Transit charges**
2. **Carriage Charges**
3. **Port Charges**
4. **Termination Charges**

Transit Charges

The present transit carriage charge is 15 paise per minute and transit charge is less than 15 paise per minute which needs to be reviewed to reflect the actual cost incurred.

We suggest that carriage portion can be considered as part of the termination with no separate charge payable for termination of calls.

For the SDCA transiting, the distance involved is small and the charge for transiting is much lower in LDCA to SDCA carriage charge. Therefore, the Authority may consider reviewing the transit charges both from LDCA to SDCA and intra SDCA from the current level to the amount actually incurred by the operator. Taking a 50km point to point transit link and an 80% utilization, calculation shows that the effective transit charge may be reduced to 3 paise per minute to 4 paise per minute.

In the alternative, the Authority may also like to consider a scenario where it may like to consider and decide that henceforth all interconnection may be prescribed at a common level, viz. LDCA and that SDCA connectivity is done away with. In this context, it may be noted that LDCA connectivity is already applicable to UASL. Further, the license of NLDO also prescribes connectivity at LDCA level. With connectivity at LDCA level, it would be the responsibility of the terminating operator to carry the call between LDCA and SDCA at its own cost. The Authority, hence, might consider reviewing the national routing plan.

Carriage charge

Currently the ceiling for carriage charges is 65 paise per minute which was reduced in the year 2006 from the previous ceiling prescribed by TRAI.

Various cost elements have gone into consideration which are relevant in the carriage charges as shown and is remarkably declining over the years since last this item was reviewed by the Authority. With certain assumption, we have come to the figure of 55 paise per minute which would be lower than the present prescribed ceiling figure of 65 paise per month.

Port Charges

Ports are part of the equipment considered for completion of call and thus there should not be any separate charges for ports.

If port related costs are consider separate e even then the existing port charges regime is not based on the causation principle. The complete incremental cost is recovered from the interconnection seeker. The port charges like other components of interconnection should also be based on the usage by the respective interconnecting parties. The existing regime is highly in favour of the incumbent operator. The complete port related charges are borne by the new service provider, although the existing operator also uses the same facility.

TRAI had reviewed the port charges in February 2007. At that time, based on equipment cost reduction, the charges were rationalized. The private operators generally do not levy port charges on each other but BSNL levies such charges on all operators who are required to pay also for those ports which are used by BSNL for terminating its own traffic.

Termination charges

It is suggested, that the Authority may consider, moving to a Bill and Keep regime with zero termination charges to foster economic efficiency by reducing service providers administrative costs and releasing the capital held for inter-operator settlement of IUC. Incidentally, the payment of reciprocal compensation of termination charges requires that service providers incur significant administrative costs to measure, record, and bill for exchanged traffic.

Alternatively, as per weighted average cost calculation across operators indicates that the MTC should be between 7 paise per minute to 10 paise per minute. With this, operators and consumers would immensely benefit.

iii) What of the following approach/methodology should be used for estimating Interconnection Usage Charges:

- ***a) Existing Fully Allocated cost methodology used by TRAI or any variation in it;***
- ***b) FLLRIC or any other variant;***
- ***c) Bill And Keep;***
- ***d) Left to Forbearance all components of Interconnection Usage Charges;***
- ***e) Any Other methodology"***

Globally, different costing methodologies have been adopted for pricing of Interconnection Usage charges. While mobile termination rates are regulated in some countries (such as Austria, Portugal, Cuba), they are left to the market in others (such as Brazil, El Salvador, Guatemala). Some countries only regulate mobile termination charges for fixed-to-mobile calls (e.g. Jamaica). In other countries, mobile networks are required to apply a single regulated termination charge regardless of where the call originates, and again in others (such as Colombia), only the termination rates of the larger mobile operators (which enjoy significant market power) are regulated.

For a competitive and fast growing market like India soon to witness the advent of modern technologies like 3G, Wimax, HSPA, NGN etc it may be considered that the 'Bill And Keep' methodology is adopted. Bill And Keep is today considered the most popular IUC regime being implemented especially as it incentivizes efficiency, migration to NGN network models and reduces network costs.

Existing Fully Allocated Cost (FAC) methodology used by TRAI

TRAI used this approach when MTC was last reviewed in 2003. FAC works well in the early stages of growth in a country. Countries like Brazil, Hong Kong and Pakistan have used FAC and its variations in the regulation of their MTC.

TRAI has used FAC method based on relevant operating costs only. This is correct method for estimating termination charges as networks are setup for their own customers. Even European Union has recently decided that capital cost relating to coverage and spectrum should not be part of termination charges.

Forward Looking Long Run Incremental Cost Methodology (FLLRIC)

LRIC is the incremental costs that arise in the long run with a specific increment in volume of production. An increment is the unit of output over which costs are being measured. When costs are measures in the long run, all inputs including capital

equipment can vary in response to a change in demand resulting in LRIC. For an individual unit, LRIC are divided by the number of units in the increment to get Long Run Average Incremental Costs, LRAIC. Increment would mean addition of a whole group of services using core (or access) network. It implies that fixed costs specific to either core or access network are included. Focusing on the incremental cost of establishing interconnection is often seen as the most economically efficient means of determining the impact of an operator's interconnection on a competitor's costs of service.

Forward Looking LRIC is based on current costs as a proxy for forward looking costs. The analysis uses existing data on the costs of facilities and services as a starting point. The key, then, is to modify actual recorded costs to account for changing trends in underlying cost factors.

Limitations of FLRIC

- LRIC does not appear to be consistent with NTP'99 objective of affordability of telecom services, increased teledensity and promoting competition. The TRAI methodology considerers the OPEX relevant for Mobile Termination but the LRIC for Mobile networks is designed to transfer complete costs Capex and Opex to the competitors. This could increase costs for the competing network and make it difficult to compete effectively with the established large networks.

- The LRIC methodology has inherent drawbacks like costs are transferred on the basis of routing factor although tariffs are not decided on the same basis. For example retail price of SMS and voice call are similar but LRIC allocates negligible costs to SMS and other premium rate services. Since the rates are under forbearance, any costing methodology which does not allocate costs to the on the basis of revenue could be irrational guided only to transfer higher costs to the competitors. Therefore the LRIC if used may not:

  (i) Promote competition as higher costs are transferred to the competitors.
  (ii) Take into account that tariffs are under forbearance and costs should be allocated on the basis of revenue to the VAS and basic voice telecom services.

- Hybrid FLLRIC is difficult to implement**:** The LRIC assumptions are subjective and not easily verifiable. Even a small change in the assumption has significant impact of the end result. For example, assumption on the coverage by each cell has major impact on the final output. It has been noted in various papers, guidelines and

regulations that the LRIC is not easy to implement as cross verification of assumptions with actual results is difficult and time consuming.

- LRIC would require separate modeling for 900 MHz networks and 1800 MHz networks which have significant CAPEX differences. The LRIC model may also have to take into account that the networks were built at significantly different point of times

    - LRIC is a complex methodology that lacks transparency, is time consuming and resource intensive to implement.

    - Cost calculations in LRIC are based on optimized theoretical network rather than actual real world network.

    - For some services it may be difficult to see onset of competition in near future like access services in rural areas

    - Incremental cost analysis may not account for common or overhead costs and they also may tend to leave out fully distributed costs, such as for spare capacity. As a result, incremental cost studies of any carrier's services might result in a sum that is substantially less than the actual total costs the carrier really incurred.

    - Under LRIC based IUC, while some operators may subsidize call tariffs for their customers through revenue earned through call termination, for others interconnection costs may exceed the retail price it must offer to compete effectively.

Hybrid FLRIC Methodology

The hybrid FLRIC methodology is based on hypothetical efficient operator and depends on a number of assumptions i.e. likely cost of network going forward, traffic pattern, presence of service providers in a given service area, coverage areas, towers, capacity requirement, market share of critical operators, assumption of converting SMS and data to minute of usage, estimation of CAPEX, depreciation, cost of debt, beta estimation, effective corporate tax and various design parameters. It involves reconciliation of the results obtained by bottom up approach with the results of the top-down approach using accounting data.

Limitations of Hybrid FLRIC methodology

- The model has a number of assumptions and subjective decisions
- Arriving at an efficient model, collecting the network cost data and rationalizing it to reflect average element cost and then fitting it to all kinds of operators big and small, pan India and in a few circles, having CDMA 800 MHz and GSM 900 MHz or 1800 MHz spectrum could be difficult with low prospects of agreement among service providers.
- It allocates all types of incremental costs capex and opex for termination charge.
- It may not take into account the additional revenue generated by the service provider in the form of value added services, rentals etc. Transferring all costs to MTC makes MTC high.

Left to Forbearance Methodology

Forbearance means that the Authority has not, for the time being, notified any charge for a particular telecommunication service and the service provider is free to fix any charge for such service. The Authority, however, has a right to intervene at any stage after the introduction of the charge.

Left to forbearance methodology introduces considerable ambiguity in the interconnection usage charges regulation and may not be advisable.

Symmetric MTC Methodology

Symmetric MTC includes setting the MTC at the floor of the cost calculated for operators. A weighted average cost calculation across all operators using the FL-LRIC approach indicates that the weighted average cost is approximately the floor of the asymmetric number 7 paise per minute to 10 paise per minute.

Key Features

- MTC reduction through this methodology may lead to greater service innovation, lower tariffs thus increasing MoU, network utilization and industry profitability.

- Floor value of MTC at 7 paise per minute to 10 paise per minute is expected to promote sector growth and operator efficiency.

- **International Examples:** It may be considered that significant declines in MTC have spurred market growth in a number of countries e.g. Hong Kong, Pakistan, Indonesia etc. to name a few. A steep decline in MTC in Pakistan in the last five years has resulted in unprecedented growth in wireless subscribers and penetration for the Pakistan telecom market, which has today overtaken India in terms of penetration. Increase in penetration has been maximum in Pakistan during the time when the decline in MTC was steepest. These case studies establish a strong co-relation between declining MTC regime and increasing mobile penetration.

Bill And Keep Methodology

Bill And Keep is a wholesale billing regime under which each network bears the costs of terminating traffic coming from other carriers. Therefore, under BAK the terminating access network operator does not receive payments at the wholesale level for the termination provided. Instead, it recovers its net costs incurred for termination and any payments for upstream connectivity in other ways, e.g. by billing them to its end customers and hence preventing excessive pricing of termination rates by effectively setting a zero wholesale tariff for termination. In this way the cost recovery is moved from a market with SMP (termination), in which setting the right price depends on regulation, to a retail service that is generally offered in a competitive market. If a provider has to bill termination cost to its own end-users in a competitive market he has no incentive to charge excessive prices to his customers, because he may risk losing them.

Further, by forgoing payments, carriers avoid the administrative burden of billing one another for exchanged traffic. In case of co-existence of various technologies, Bill And Keep solves the problem of determining cost of termination for each technology and hence reduces the complexities involved.

The Bill And Keep methodology offers a number of advantages over cost based regime and we suggest this methodology should be adopted immediately. Implementation of Bill And Keep methodology in a competitive market like India may be considered on account of the following reasons:

- BAK may promote economic efficiency by reducing service providers' administrative costs and release the capital held for inter-operator settlement of IUC. The payment of reciprocal compensation of termination charges

requires that service providers incur significant administrative costs to measure, record, and bill for exchanged traffic.

- The whole scenario will become increasingly complex with soon to be launched innumerable technologies having its own costs. The service providers also reconcile discrepancies in their traffic measurements, generating additional administrative costs for settlement of IUC bills. . Bill And Keep may reduce and nearly remove these costs by eliminating the need for service providers to measure, record, and bill every minute of every call.

- The BAK is considered to be administratively easier from a regulatory perspective, because it would eliminate the need for the Authority to review among other things, cost studies, rates in interconnection agreements and also reduce the innumerable disputes between the operators. The frequent disconnection of POIs for settlement of compensations would also abate.

- Internationally, countries where Bill And Keep regime have been implemented have shown a higher MOU per capita implying higher usage levels in these countries. This is as depicted in the graph below illustrating RPM and MOU per capita for CPNP and BAK countries

- BAK may result in reduced retail price and would cause no threat to affordability.

iv) Explain the approach / costing methodology adopted, provide the model if any, developed for estimating the level of each component of IUC for voice, SMS and any other value added services with all calculation sheets. Give justification for adopting the proposed approach / methodology. Also provide details of revenue, minutes of usage (MOU) (off-net/on-net), CAPEX, OPEX, corresponding to each network element, cables, etc. separately for your network."

As explained in response to question 3.1, we feel that only voice services may be considered in the framework for Interconnection Usage Charges and hence have not described SMS or any other value added services under the purview of this pre-consultation paper.

TRAI may consider moving to the Bill And Keep methodology to promote level playing field and competition.

v) Provide cost and revenue corresponding to each service like voice service, SMS, GPRS, EDGE, roaming services and any other value added services. Also provide cost and revenue for interconnecting services like terminating call, originating call, terminating SMS and originating SMS. All cost and revenue data may be cross referenced with the accounting separation report submitted to TRAI."

Our member service providers will give the details as required

vi) Justification as to why the model proposed by you should be used for determination of Interconnection Usage Charges for voice calls, SMSs and any other value added services."

It is suggested to adopt Bill and Keep model primarily for the following reasons:

1. **Moves Cost recovery to Competitive Markets**
   In CPP regime cost of network is transferred to other networks for incoming calls. This method of charging benefits incumbent operators as they have very large subscriber base and generally they have more incoming calls compared to outgoing calls and as a result they transfer costs to the competing networks. CPP regimes are always supported by large incumbent operators as they are able to minimize competitive impact. However in BAK regimes cost recovery is not transferred to competing networks. All operators have to recover cost from their own subscribers. In Bill and Keep regime regulatory distortion in setting the price because of termination charges is not there.

2. **Reduces regulatory cost and uncertainty**
   Under the current regime there is uncertainty about the future level of termination charges or price caps. BAK could minimize this uncertainty; the price level of termination is always zero.

3. **Eliminates Data Ambiguity and Subjectivity**
   Cost based MTC is subject to criticism of data ambiguity and subjectivity. Cost subjectivity has lead to innumerable legal cases which are still pending in various courts of law. Bill and Keep eliminates cost subjectivity.

   Further operators have different levels of spectrum holding, different level of depreciated plant and machinery, using 2G or blended 2G and 3G networks. Soon

operators will launch services using many other technologies. In such case it would be almost impossible to work out costs of service/termination in various networks. Bill and Keep regime can eliminate the complex process of costing.

4. **Pro-Competition**
   The most competitive markets – e.g. data/ Internet/VAS work on Bill And Keep and have shown the fastest growth rates. Especially, IP based calls occur on a Bill And Keep Methodology in the form of peering. **The future state of long distance calls in India could create a scenario where telecom operators would directly compete with providers of internet based calls. Hence to create a level playing field, TRAI may eventually adopt Bill And Keep methodology for PSTN calls too.**

5. **Pro- Consumer**
   Bill And Keep offers flexibility on tariffs. As operators stop paying for termination, it helps reduce their costs and so reduce retail prices. It provides potential for increased retail price competition that leads to higher volumes per customer and yet lower costs (and prices) per minute.

6. **Boosts Network Utilization**
   While cost based MTC is the floor, Bill And Keep allows operators to sell off-peak at lowest marginal cost. Greater usage boosts network utilization and helps sector growth and profitability

7. **Eliminates discrimination between On net and Off net calls**
   BAK avoids an incentive to discriminate making on net calls cheaper than off net calls enabling operators to offer more bundles thus driving higher growth and MOU. It reduces the transfer of money from cheaper networks to more costly networks as seen by the greater payment made to mobiles than mobiles pay to fixed. Conversely, lower termination reduces the income from calls in the other direction.
8. **Demand Elasticity Benefits**
   Operators are likely to gain by the demand elasticity benefits due to a zero MTC. In this case, the additional net-adds gained by each operator due to the growth and penetration generated from a zero MTC might more than adequately compensate to make up for the MTC value being set below cost.

9. Future Ready

BAK is considered to be future ready. It can be used as technology evolves to include calls terminated on 3G, BWA, femtocells, WiFi, VoIP, NGN, fixed-mobile converged calls etc. A cost based regime will need to compute MTC for each of these cases and determine a weighted average. BAK might remove all controversies caused by data ambiguity and reduce the risk of subjectivity.

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