OMNITELE

HALF-CALL INTERCONNECT PRICING

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For OMNITELE Ltd

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1. INTRODUCTION

This paper describes an alternative method of setting interconnect charges for use as an interim solution until a cost-related method can be applied.

The four main options for setting interconnect charges are:

- Pricing based on administrative decisions;
- Pricing based on retail tariffs;
- Cost-related pricing; and
- Pricing based on international comparisons (i.e. benchmarking).

There are pro and cons relating to each method.

Administrative decisions means that interconnect charges are set without any systematic method being used. This method is used in several developing countries. The outcome is arbitrary and essentially depends on the bargaining power of the participants in the process. This method can be used when no other applicable method is available.

Pricing based on **retail tariffs** can be made in different ways. An administrative decision on sharing retail tariffs is one possibility, even if the outcome is arbitrary. The half-call model provides another, more systematic approach that is relatively easy to comprehend, and that can be applied and amended as necessary.

Cost related pricing methods are based either on accounting (backward looking methods), or on cost calculations (forward looking methods). Cost-related pricing methods seem to be the most popular methods in industrialised countries, even though they have taken many years to develop and are not yet fully implemented e.g. in the EU. Critics of the model argue that cost models can be developed and geared to meet desired results, and that, in practice, calculations are seldom sufficiently exact to yield a neutral outcome.

Cost-related pricing methods require accurate and reliable cost accounting and/or the information and skills to allow the calculation of future costs. Both operators and the regulator must possess such information and skills, but in developing countries they are not usually readily available. Appropriate skills need to be developed, as cost-related methods seem to be the prevailing global trend.

International **benchmarking** can be used to set prices. Interconnect charges are set based either upon average tariffs or, for example, on the lowest tariffs in a group of similar countries. In the EU, benchmarking is used as an interim method until reliable cost-related methods are developed. This may be interpreted as an indication that cost-related models are not so easy to apply.

In the long run the aim is to achieve a competitive market in which competition becomes the main means of controlling the level of interconnect charges. This situation has not yet been achieved in any known market.

2. BASIC FEATURES OF THE HALF-CALL PRICING MODEL

This paper presents a pricing system based upon retail tariffs. The model is basically one that was used in Finland from 1957 and includes an amendment made in 1992. It is sufficiently systematic to provide a possible interim solution until the necessary financial expertise is built up to apply cost-related pricing.

The half-call model includes payments for incoming traffic. This means that all traffic generates revenue and that there is a corresponding incentive to build sufficient interconnection capacity to carry the required traffic.

The model described assumes that there are separate operators for local, trunk and international services / networks. The current situation in most developing countries is that of an integrated operator. The various operators in the model could be understood as profit centres within an integrated operator.

The model is based upon local call areas which are usually rather large, e.g. the size of a city and its surroundings. The regulator defines the local call areas. Calls between such areas are considered trunk calls (Subscriber Trunk Dialling, STD). One interconnect point in each local call area is a mandatory requirement.

Interconnect call charges are based upon the concept that a local call consists of an originating segment and a terminating segment. Together, the two segments make a complete call. (Figure 1).

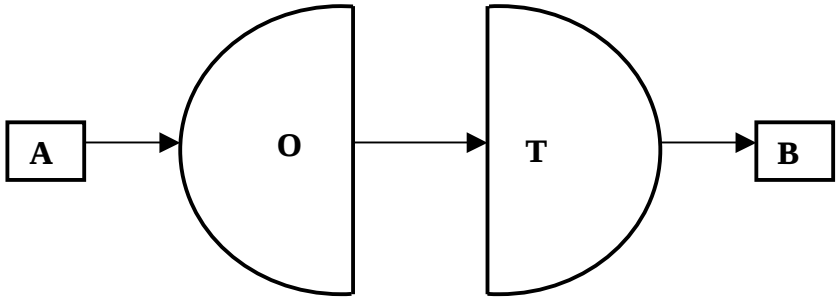

Figure 1 Basic principle for half-call pricing. A = calling line, B = called line, O = originating local operator, T = terminating local operator.

In the case of trunk or international calls, the corresponding segment in inserted between the two segments of the local call. For details see below.

The model is based upon the principle that interconnect charges are independent of the origin or destination of a call. Each call segment is charged at the same rate independent of its origin or destination.

The main features of this model are

- It applies a quite strong competition-like pressure to rebalance tariffs before the introduction of competition;
- If retail prices are not high enough to correspond to costs, the operator must cover the difference;
- If retail prices are well above costs, the operator benefits from the difference, but competition is encouraged as competitors see profitable business; and
- Each segment is treated as an independent business.

A disadvantage is that the regulator, rather than the market, establishes the segmentation. Furthermore, the selection of interconnect points is not as large as is often desirable.

The model assumes that no subsidies are included in the interconnection charges. Should subsidies be required, it is preferable that they be defined as separate sums to be added to the interconnect charges. It is then simpler to separately amend any necessary subsidies at a later date.

3. LOCAL CALLS

The simplest application is a local call. The principle is shown in Figure 2.

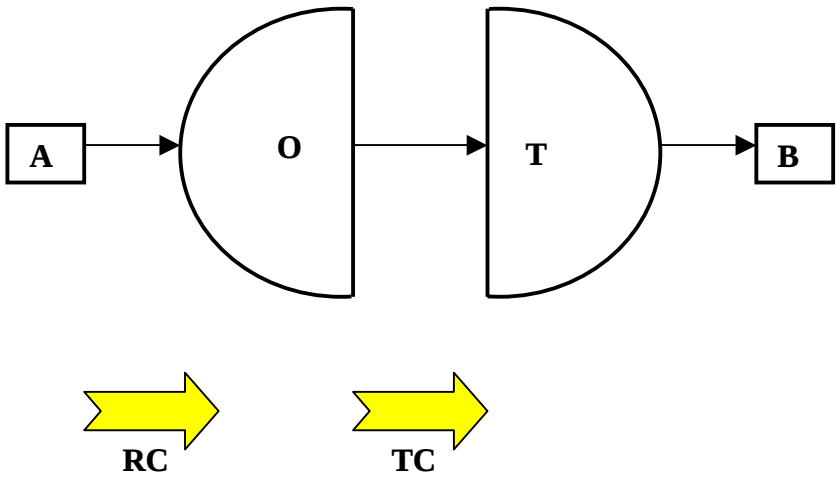

Figure 2 Basic principle for half-call pricing. White figures show connections, shaded figures show money flows. A = calling line, B = called line, O = originating local operator, T = terminating local operator, RC = retail charge, TC = termination charge.

In the case where a single operator provides both segments, it retains the full local call charge. In the case of two operators, the originating operator pays the terminating operator for termination of the call.

The originating operator charges its normal local call retail charge to the calling customer A. The local call charge to the customer should be the same regardless of whether the call terminates in the same network or in another (parallel or competing) network in the same local call area. The originating operator O pays the terminating operator T half the retail price of T as a termination charge.

4. TRUNK CALLS

In the case of a trunk call, a trunk segment is inserted between the two segments of a local call. The trunk segment is the portion of the call between the interconnect points of the two local operators (regardless of whether the local operators are the same but operating in two local call areas, or different operators). (Figure 3).

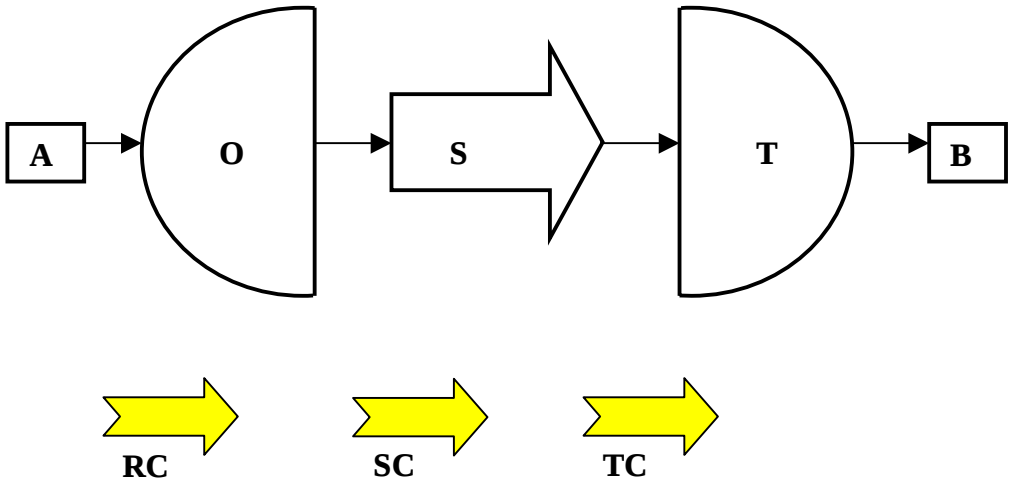

Figure 3 Half-call pricing applied to a STD (trunk) call.
(White figures show connections, shaded figures show money flows. A = calling line, B = called line, O = originating local operator, T = terminating local operator, S = STD (trunk) operator, RC = retail charge, SC = STD segment charge (includes termination charge), TC = local termination charge.)

The charges for the two local call segments are set as for a local call. The charge for the STD segment is the total charge for an end to end trunk call less the charge for the originating local call segment.

Often the originating local operator bills the customer for the entire call. It then forwards the STD segment charge to the STD operator, and the STD operator forwards the terminating charge to the terminating local operator.

In some cases the STD operator bills the customer. In this case the STD operator pays both local operators, for the originating segment and for the terminating segment. This alternative is not shown separately in Figure 3.

5. INTERNATIONAL CALLS

For outgoing international calls similar principles apply. Figure 4 shows the case when the originating local operator charges the customer. Figure 5 shows the case when the international operator charges the customer.

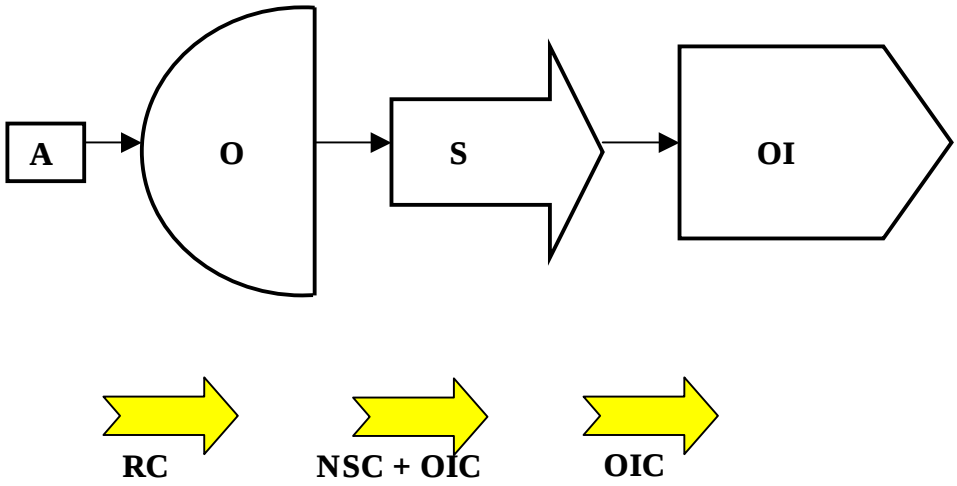

Figure 4 Half-call pricing applied to an outgoing international call when the originating local operator bills the customer.
(White figures show connections, shaded figures show money flows. A = calling line, O = originating local operator, S = STD (trunk) operator, OI = outgoing international operator, RC = retail charge, NSC = net STD segment charge (other charges included), OIC = outgoing international charge (includes charges for international segment and termination in destination country).)

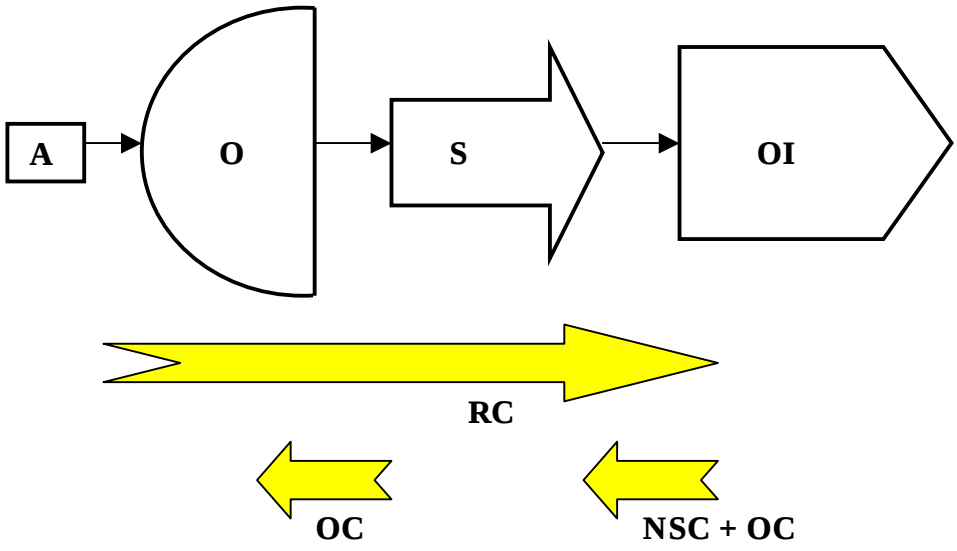

Figure 5 Half-call pricing applied to an outgoing international call when the international operator bills the customer.
(For legend see Figure 4. OC = originating local call charge.)

Either the originating local operator or the international operator can charge the customer. In the first of these two cases the local operator pays the STD operator for the STD (trunk) segment to the outgoing international operator, as well as for the international segment including possible international transit and termination in the destination country.

In the second case the international operator charges the customer, and pays the STD operator for the entire connection from the subscriber to the international exchange. The STD operator pays the originating local operator for its part of the connection.

In the case where there is more than a single international operator, customers may have the right to select an international operator. The international operator then has the right to select the trunk operator for connecting from the local operator to the international operator. Customers cannot select the national trunk operator who provides connection to their selected international operator.

A similar procedure is applied to incoming international traffic.

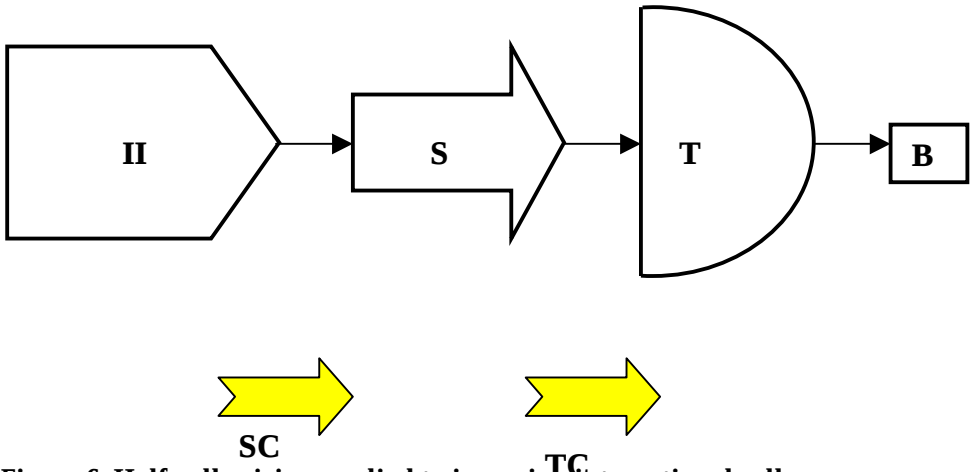

Figure 6 Half-call pricing applied to incoming international call.
(White figures show connections, shaded figures show money flows. II = incoming international operator, S = STD (trunk) operator, T = terminating local operator, B = called line, SC = STD segment charge (including local termination charge), TC = local termination charge. The interconnect charges are the same as for national long distance traffic in Figure 3.)

The incoming international operator receives the international settlement rate from abroad, and pays the STD segment charge (including the terminating local segment charge) to the trunk operator. The trunk operator pays the terminating local segment charge to the local operator who terminates the call.

The trunk segment charge and the terminating local segment charge are the same as for national trunk traffic.

6. MOBILE CALLS

Similar principles as those applying to local calls in a wired network apply to calls to and from mobile subscribers. A mobile call within a mobile network can also be considered to consist of an originating and a terminating segment. Both segments include use of a base station. A call from one mobile network to another mobile network is shown in Figure 7.

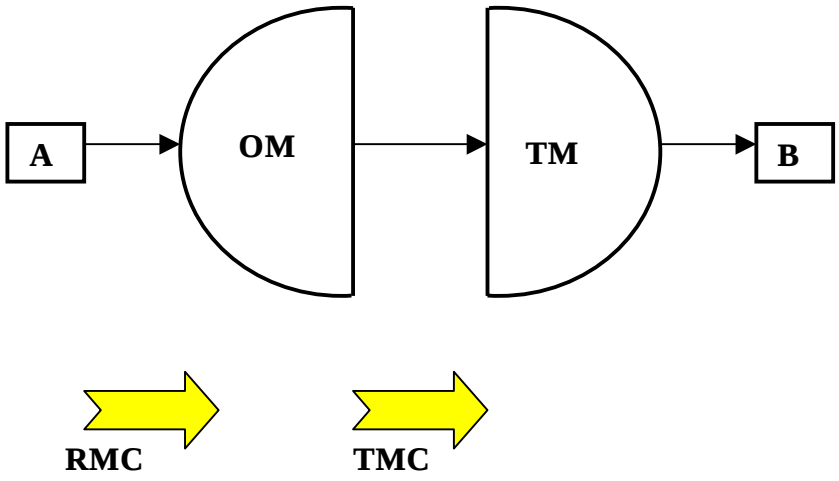

Figure 7 Half-call pricing in calls between two mobile networks.
(White figures show connections, shaded figures show money flows. A = calling mobile handset, B = called mobile handset, OM = originating mobile operator, TM = terminating mobile operator, RMC = retail mobile charge, TMC = termination charge in mobile network. The figure requires a direct interconnection between the two mobile networks.)

A mobile network by its nature also includes a trunk network and thus in many cases the mobile operator is also a trunk operator. With respect to interconnection, the mobile operator can, however, terminate calls using either:

- wired operator trunk services (Figure 8 and Figure 9), or
- its own trunk network on the PSTN side of the switch extended to local call areas. The mobile operator thus terminates calls using local termination charges (as shown in Figure 8 and Figure 9 with figures S and charges SC and SMC deleted).

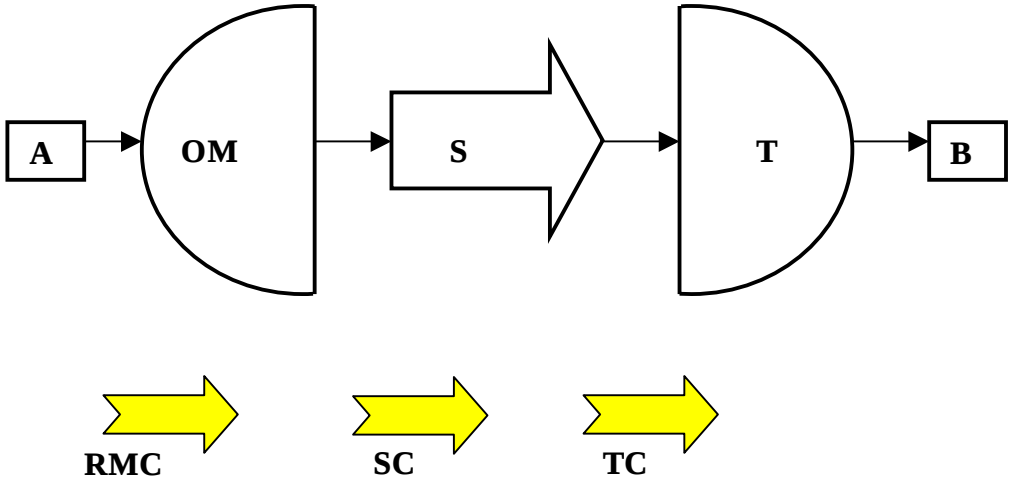

Figure 8 Half-call pricing applied to a call from a mobile handset to a fixed network line using fixed STD segment.
(White figures show connections, shaded figures show money flows. A = calling mobile handset, B = called fixed line, OM = originating mobile operator, T = terminating local operator, S = STD (trunk) operator, RMC = retail mobile charge, SC = STD segment charge (includes termination charge), TC = termination charge.)

The corresponding situation for a call to a mobile handset:

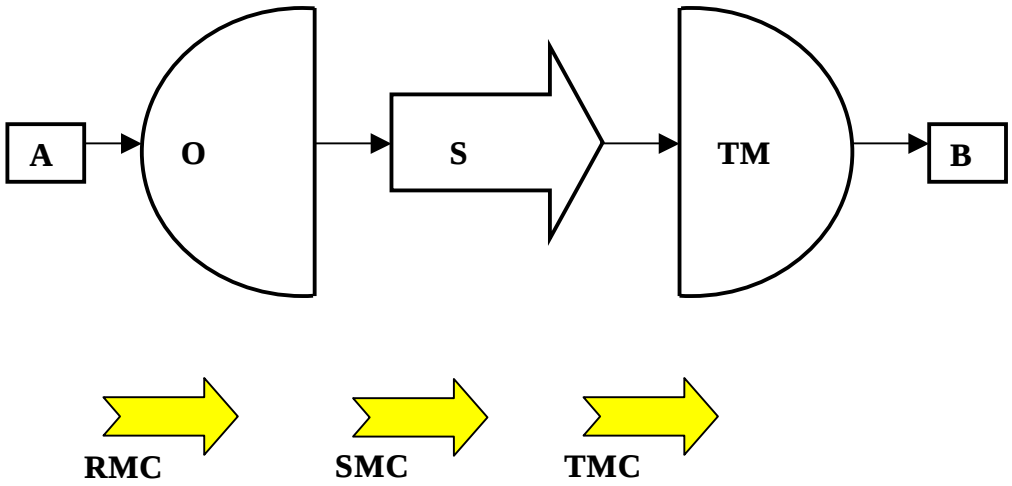

Figure 9 Half-call pricing applied to call from a fixed network line to a mobile handset using fixed STD segment.
(White figures show connections, shaded figures show money flows. A = calling fixed line, B = called mobile handset, O = originating local fixed operator, TM = terminating mobile operator, S = STD (trunk) operator, RMC = retail mobile charge, SMC = STD segment charge (includes termination charge in mobile network), TMC = termination charge in mobile network.)

For calls originating in a mobile network and terminating in a fixed network the mobile operator pays the local termination charge to the local operator if the call is terminated locally, or pays both the trunk

charge and the local termination charge to the trunk operator. In the latter case the trunk operator forwards the local termination charge to the local operator.

The current situation in many countries appears to be that mobile operators have only one point of interconnection, at a trunk level exchange in the capital. Application of local interconnection would require that the mobile operator extends its trunk network on the PSTN side of the mobile exchange to some or all of the local call areas.

For calls originating in the fixed network and terminating in the mobile network the fixed network operator pays the mobile termination charge to the mobile operator. In the case where the mobile network operator has a local termination point in the relevant local call area, the originating local operator does not use a fixed trunk segment and does not therefore pay for it. In the case where the mobile network operator does not have a local termination point in the local call area of the originating local operator, the originating local fixed network operator has to use a fixed trunk segment to the point of interconnection with the mobile operator, and also has to pay for that segment.

7. FREEPHONE CALLS, PREMIUM RATE CALLS

Freephone calls and premium rate calls are often, but not always, implemented using an Intelligent Network platform.

Often freephone numbers start with 800 or 0800. Calls can be either local or long-distance. Such calls are basically charged as show in the previous sections, but customer charging is reversed and the receiver pays either the originating operator or the STD operator. If a special fixed monthly charge applies to the Freephone number itself, this is charged to the receiver.

Premium rate calls are charged to the calling subscriber at a higher rate than normal calls. The content of such calls can be entertainment, or perhaps professional advice (legal, medical, etc.). Users pay for content in their normal telephone bills. Premium income is usually divided between the telephone network operator and the content provider.