

Interconnection and Related Competition Issues
Statement No. 7 (Second Revision)
“Carrier-to-Carrier Charging Principles”

Statement of the Telecommunications Authority

18 March 2002

Introduction

This Statement provides guidance on carrier-to-carrier charging principles that the Telecommunications Authority (TA) will rely on in making a determination under section 36A of the Telecommunications Ordinance (Cap. 106). The TA may make a determination under that section for interconnection between fixed telecommunications networks in Hong Kong.

2. This Statement is an update of the TA’s Statement No. 7 (Revised) issued on 18 November 1997 on the same subject. On 11 September 2001, the TA commenced a review, in consultation with the industry, on whether and how the interconnection framework and the charging principles set out in the TA’s Statements No. 4, 5, 6, 7 (Revised) and 8 should be revised to reflect the evolving competition environment in Hong Kong, and to address new and related interconnection issues that have arisen since the issue of Fixed Telecommunications Network Services (FTNS) licences in 1995. The results of this review have been incorporated into this Statement and the detailed considerations and conclusions of the TA during the review are given in the TA’s Statement entitled “Review of the Telecommunications Authority’s Statements No. 4, 5, 6, 7 (Revised) and 8 on Interconnection and Related Competition Issues” issued on 18 March 2002.

3. In this Statement, unless the context otherwise requires, “FTNS licence” includes “fixed carrier licence”. “PMRS/PCS” includes third-generation mobile services insofar as the services are used for the origination or termination of circuit-switched voice services.

4. From 1 January 1999, the external services market has been opened to competition. The charging arrangement between the external gateway operated by Reach Networks Hong Kong Limited (previously called Cable & Wireless HKT International Limited) and local networks have been determined by the TA under section 36A on 30 December 1998. Accordingly the paragraphs related to the interconnection between FTNS and the previous exclusive external gateway in Statement No. 7 (Revised) of 18 November 1997 have been omitted.

Policy Objectives

5. In setting carrier-to-carrier charging principles, the TA is conscious of the Government's telecommunications policy objectives set out in the Policy Objective booklet issued by the Information Technology and Broadcasting Bureau to accompany the Policy Address of the Chief Executive in October 2000. These are as follows -

- *“to enable Hong Kong to be recognized as a world-class telecommunications centre for doing business”;*
- *“to ensure that Hong Kong has high quality services available at competitive prices”; and*
- *“to ensure that Hong Kong has high performance in telecommunications as measured against the Organisation for Economic Co-operation and Development (OECD) economies”.*

The thrust of these policy imperatives for carrier-to-carrier charging principles is that such principles should be economically efficient and conducive to effective competition, which would in turn maximise consumer benefits and sustain a high performance in the telecommunications sector. Further, a more competitive telecommunications market will encourage private sector investment and innovation necessary for Hong Kong to maintain its position as a world-class telecommunications centre.

Scope of the Charging Principles

6. As the telecommunications industry is a network-based industry founded on the principle that any customer of a network can communicate with, or gain access to, the customers or services connected to other networks, competing FTNS carriers must establish commercial arrangements among themselves covering a wide range of matters, for example, acquisition of leased circuits, shared infrastructure, directory services, operator services and, of course, interconnection issues. The FTNS licence conditions recognise this fact and there is a role for the TA to establish terms and conditions, including charges, for these arrangements particularly when carriers cannot agree on them. The TA has decided to establish some charging principles for his intervention on these matters. The charging principles fall into two classes :

- (i) Interconnection charging principles - covering matters which are subject to section 36A of the Telecommunications Ordinance and General Condition (GC) 13 of the FTNS licences and the corresponding licence condition of the fixed carrier licences. These charging principles are applicable to issues such as points of interconnection, interconnection transmission links, calling line identification, interconnection of basic services, access to value-added services and personal number services, etc.
- (ii) Charging principles for non-interconnection matters - these cover all other carrier-to-carrier arrangements such as facilities and infrastructure sharing not directly associated with interconnection, i.e. directory and operator services, etc.

7. The TA is mindful of the appropriateness of the charging principles in relation to the status of the market development. At present, the local fixed network market is still dominated by PCCW-HKT Telephone Limited (PCCW-HKTC). As such, the charging principles in this Statement are set against a local fixed network market where the new entrants are still establishing their foothold in the industry. However, when the market becomes more mature, the competitive landscape is likely to be significantly different in terms of the relative bargaining power and the relationships among carriers. The dynamic and evolutionary nature of the development of a competitive regime would thus justify that the charging principles be

kept under review and developed in concert with the evolution of the industry and the establishment of competition.

Interconnection Charging Principles

General Principles

8. The TA has decided that carrier-to-carrier interconnection would be determined by him in accordance with the general principles set out below:

- *Carriers must pay for the costs that they cause other carriers to incur when interconnecting.* That is, where network interconnection is established and the use of that interconnection by one carrier causes a second interconnected carrier to incur costs, that second carrier is entitled to recover those costs from the interconnecting carrier. Cost causality dictates that each category of costs be analysed to determine the nature of the cost being incurred and why it was incurred. For example, if the cost is incurred as a result of another operator's request or as a result of another operator's use of the service, the responsibility to bear such cost would fall on the interconnecting carrier making the request or benefiting from the use of the service.
- *In an interconnection of the Type I configuration between two fixed telecommunications networks, the operators of both networks are required by their licence conditions (GC13 of the FTNS licence and the corresponding condition under the fixed carrier licence) to interconnect with each other. They therefore have equal responsibility in ensuring that the two networks are interconnected promptly and efficiently.* Therefore this principle, in application, suggests that where operators have an equal responsibility to interconnect their networks, they should share equally in the cost of meeting those obligations.
- *Where interconnecting carriers receive benefits from interconnection arrangements, the interconnecting carriers should bear a proportionate share of the responsibility for interconnection costs from such arrangements.* Examples of such benefits include an ability to terminate

calls originating from their own networks or to indirectly access another carriers' customers.

- *Responsibilities for charges would be assigned to carriers in a manner that encourages and motivates them to use facilities efficiently and to minimize duplicated or wasteful facilities.* The assignment of responsibilities should motivate operators to establish optimal points of interconnection, install appropriate levels of capacity for physical facilities and use each others' facilities judiciously.
- *Retail tariff arrangements would determine the direction of the payment flows between carriers.* As a result of the flat-rate retail tariff arrangements, direct access customers only pay for an average number of outgoing calls. In the apportionment of the costs of a conveyance network, the average number of outgoing calls covered by the flat-rate access line rental does not include calls made to/from value-added services and public mobile services for which customers pay for the services. Therefore, where a carrier receives a revenue for providing a specific service, or for providing a direct connection to a specific service, it is that carrier's responsibility to pay the interconnecting carriers who have provided conveyance services to enable delivery of the service to the customers.
- *Charges for interconnection and other related transactions will be based on relevant costs.* That is, costs incurred as a result of interconnection and the use of related services and facilities *or* costs which could be avoided if such services and facilities were not provided. Consistent with the policy objectives of economic efficiency and the promotion of consumer interests, interconnection charges must ensure that the charges are fair and compensatory for the carrier providing interconnection and that the carrier procuring interconnection is not subsidised. Cost based charges, including a cost of capital for the assets used in provision of interconnection services, will assist the carriers make the appropriate "build-versus-buy" decisions and provide a sound basis on which carriers can make their commercial decisions on infrastructure development. The approach is designed to be fair to all carriers: it is pro-competitive and fairly compensates any carrier providing interconnection services to other carriers.

- The relevant costs of interconnection and other related transactions will be measured as the long run average incremental costs (LRAIC), including a cost of capital for assets used.* LRAIC is defined as the difference in the carrier's total costs with and without the services or facilities supplied, divided by the total output of the services or facilities. The LRAIC standard is supported by precepts of economic efficiency and established regulatory practice elsewhere as the appropriate starting position for carrier-to-carrier interconnection charges in this industry. The TA considers that the LRAIC should be based on the incremental cost of the "entire conveyance service", i.e. the conveyance service for the calls of the carrier's own customers (including service providers) and the interconnecting service for the other carriers interconnected with the carrier in question. Since the "entire conveyance service" is to be considered in assessing whether a cost is incremental, the incremental costs will include the shared costs which are common to all the service elements of the "entire conveyance service", but no other services. The incremental costs will exclude shared costs that are common to the conveyance service and other services (e.g. access services) provided by the carrier - for example, the indirect fixed costs at the corporate level are not causally related to the provision of the conveyance service and should not be included in the LRAIC calculations.
- At the current stage of development of the market, no mark-up would be applied to the LRAIC for the recovery of any of the shared costs common to all services.* As the market becomes more developed and mature, it would be justified to allow the LRAIC to include a mark-up for the recovery of the incumbent's indirect fixed costs.
- Relevant costs should be determined with reference to the current cost measurement of assets.* The current cost of assets represents the most economical replacement cost of the remaining service potential of the existing assets. In calculating the LRAIC for Type I interconnection charges, the TA will take the existing network configuration of the incumbent carrier as given, but will modify it to eliminate any network inefficiency. At the same time, the TA will use the current or

replacement cost standard, but will consider applying a cap based on the historical cost standard on all or part of the cost components in the LRAIC, particularly those cost components related to land and buildings. This is to balance considerations from different angles - economic efficiency and fair compensation¹ when determining the interconnection charges.

- *Costs for carrier-to-carrier transactions should reflect cause and effect relationships to the maximum extent possible.* These costs should be based on the concepts and approaches set out in the Accounting Manual. In particular, LRAIC should be developed from a detailed analysis of the activities that cause costs to be incurred. In all instances, costs should reflect an efficient provisioning standard, that is, costs that would be incurred by deploying the most productive technologies and business processes.
- *Interconnection and related services and facilities will be provided on a desegregated basis.* An elemental service or facility is one that is readily separable within the context of the network's architecture or business process design and its cost can be determined with reasonable accuracy. This will enable carriers to only purchase those components that they need. The desegregation should be to the extent that is justifiable by the cost-benefit of the desegregation. Geographic desegregation should also be provided where appropriate.
- *The structure of interconnection charges must reflect the behaviour of the underlying costs.* Relevant interconnection costs may have different relationships with interconnection activity, i.e., some costs may be fixed while others may vary. To the maximum extent possible, fixed costs should be recovered through fixed charges while variable costs should be recovered through a per unit charge related to the underlying activity. On this basis, where the cost is one-off (i.e. non-recurrent), the costs should be recovered as one-off (lump sum) charges. Where the cost is recurrent, but traffic independent, the cost should be recovered by fixed

¹ See the TA's Statement entitled "Review of the Telecommunications Authority's Statements No. 4, 5, 6, 7 (Revised) and 8 on Interconnection and Related Competition Issues" issued on 18 March 2002.

recurrent rentals. Where the costs of network component are traffic sensitive, they are best recovered through usage charges. Moreover, the current use of a two-tiered charging structure, namely cost per call attempt and cost per call occupancy minute, should further help reflect differences in the behaviour of the underlying costs.

- *All FTNS operators must develop and administer cost based charges for transactions between carriers.* In certain cases, the TA may waive the need for the implementation of a charging regime. This may happen, for instance, where an agreement between operators to set aside charges does not undermine competition or compromise consumer interest, or where the administrative burden associated with charging for certain small value and low volume transactions exceeds the benefits.
- *If the TA makes a determination for the charges, he will base the charges on the cost of PCCW-HKTC and the charges will be symmetrically applied to both interconnecting carriers.* The issue would be reviewed in the longer term as the development of the networks of the new FTNS operators and fixed carriers becomes more mature.

9. In another Statement², the TA set out the basic types of interconnection configurations that he would consider in an interconnection determination. In the context of the above general interconnection principles, specific principles in relation to each type of interconnection are discussed below.

Type I Interconnection

10. Type I interconnection is defined as interconnection between network gateways. Gateways may be toll exchanges, tandem exchanges, local exchanges or dedicated interconnection gateways. A point of interconnection (POI) is a notional mid-point of the link interconnecting network gateways. Type I interconnection charging principles are discussed in relation to initial establishment charges and usage charges.

² Interconnection and Related Competition Issues Statement No. 6 (Revised) - 18 March 2002 "Interconnection Configurations and Basic Underlying Principles".

Establishment Charges

11. Interconnection establishment costs relate to the costs incurred by carriers in order to operationalise network interconnection, i.e. the costs of network interconnection provisioning. Such costs may be considered in two categories, i.e., costs incurred in establishing the physical link between networks and network conditioning costs to prepare and maintain each carrier's own network for interconnection.

12. **Physical Link.** Set up costs associated with establishing and maintaining interconnection facilities will be based on the LRAIC standard and will be shared equally among the parties establishing the interconnection link. All asset related and operating costs actually incurred in establishing physical linkages between FTNS networks will be included in the pool of costs shared equally by the carriers. The set up costs of the physical links will include the costs of the ports and datafill activities associated with the links. The set up costs of the physical links (if identifiable, causally related and attributable to the provision of the interconnection service) may be regarded as part of the incremental costs for the provision of the interconnection service and recovered through the usage charge of interconnection. Where one party (or parties) requests functionality in excess of that required for establishing and maintaining basic interconnection, the costs will be borne by the party (or parties) requesting the extra functionality. Such costs will be determined by the TA if required.

13. In a determination made in March 2001/November 2001, the TA has established a model for achieving a fair sharing of the risk in the investment in the network equipment for the provision of interconnection capacity which exceeds the capacity that could be agreed by both parties³. In particular, the model institutes some form of discipline – a commitment on minimum traffic volume over a definite period - on the operator requesting interconnection capacity so that it would bear the cost consequence of making excessive forecast. The objective is to ensure that the requesting operator could have all the capacity that it needs for its development but at the same time the model provides a safeguard to the providing operator in the event

³ See the Determination made by the TA in March 2001/November 2001 in respect of interconnection capacity between PCCW-HKTC and Wharf New T&T Limited.

that it is proved that the order of the requesting operator is not justified in terms of demand for service.

14. Where the use of separate links for different types of calls is based on sound engineering grounds, the principle of sharing the costs for the links remains valid. The TA does not see the need to set out what he considers to be provisioning practices based on sound engineering grounds as this is somewhat outside the scope of this Statement which is on the subject of “carrier-to-carrier charging principles”. However, the TA invites operators to lodge their complaints on provisioning practices with him so that he can perform a comprehensive technical assessment and arrive at a fair and equitable decision concerning responsibility for charges in specific cases.

15. **Network Conditioning.** Conditioning costs incurred by an FTNS carrier to prepare and maintain its own network for interconnection will be borne solely by that carrier itself. Such costs include, but are not limited to, costs for ensuring network security and integrity, standardisation, equal access, changes in the numbering system, provision of calling line identification, etc. Each carrier is responsible for the development, provision and maintenance of its own network to meet its licence conditions under the FTNS licence. One clear obligation is to operate as part of an integrated, interconnected infrastructure environment in Hong Kong. Therefore each carrier will be required to meet these obligations and bear the relevant network conditioning costs on its own account. The costs of network conditioning (if identifiable, causally related and attributable to the provision of the interconnection service) may be regarded as part of the incremental costs for the provision of the interconnection service and recovered through the usage charge of interconnection.

16. This principle should be applied to the interconnection between the conventional public switched telephone network (PSTN) as well as ISDN. The costs of upgrading the PCCW-HKTC’s network to allow ISDN interconnection should be part of the investment to prepare the ISDN for interconnection. The costs for such upgrading should be treated as part of the “network conditioning” costs.

17. If, however, a carrier is requested to condition its network beyond its licence obligations, then the carrier should be entitled to recover those costs from other interconnecting carriers. An example of such work is when one carrier is requested by another interconnecting carrier to implement sub-levels of a numbering

plan within the block allocated by the TA. If the implementation of the sub-levels is solely for the convenience and benefits of the requesting carrier, and the work is beyond the licence obligations of the carrier which has to perform the extra work, the cost should be borne by the requesting carrier.

Usage Charges

18. Interconnection usage costs relate to the recurrent costs incurred by carriers in passing traffic from one network to another via an established interconnection link and terminating or originating that traffic within their networks. The principles for determining interconnection usage charges under Type I interconnection are discussed in relation to direct and indirect forms of interconnection. These forms of interconnection were discussed in an earlier TA Statement⁴.

Direct Interconnection

19. Under this form of interconnection, an access customer of one FTNS network may obtain access to the customers of other networks to enable calls to be completed through the *direct* connection of the relevant networks. That is, calls are passed directly from one FTNS network to another network.

20. In this section, the interconnection charging principles are discussed in relation to the carrier-to-carrier interconnection scenarios that involve FTNS carriers. Two different types of FTNS interconnection scenarios are discussed under the direct access form of interconnection. In all cases the calls illustrated are basic telephonic calls without special call features.

21. **FTNS-FTNS.** In general, when an access customer of an FTNS carrier places a call that terminates with another FTNS carrier, an interconnection charge will be paid by the originating FTNS carrier to the terminating FTNS carrier. This is illustrated in Figure 1.

⁴ Interconnection and Related Competition Issues Statement No 1 - 28 March 1995.

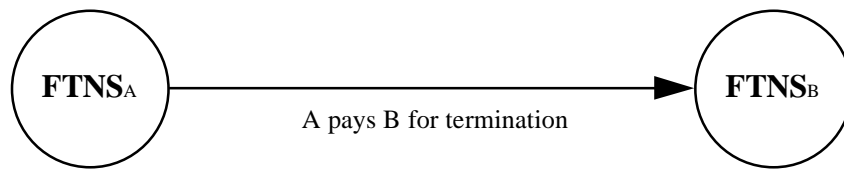


Figure 1

22. The charge will be based on LRAIC, reflecting the use of the traffic dependent portion of the terminating carrier’s network.

23. **FTNS-PMRS/PCS and PMRS/PCS-FTNS.** The current practice will remain in place governing direct interconnection between FTNS and public mobile radiotelephone service (PMRS) and personal communications service (PCS) carriers. That is, PMRS/PCS carriers will pay FTNS carriers for originating calls which terminate on PMRS/PCS networks. PMRS/PCS carriers will also pay FTNS carriers for terminating calls which originate on PMRS/PCS networks.

Indirect Interconnection

24. Under this form of interconnection, an access customer of one FTNS network may *elect* to obtain access to the services offered by another network or may access customers of another network via a third network. In the first case, the access customer is *indirectly* accessing the services of another network. In the second case, an access customer is *indirectly* accessing a customer of another network. This situation will arise where there is no established direct link between the network originating the call and the network terminating the call. Of necessity, the call must transit a third network to enable the call to be completed. Interconnection charging principles are discussed in relation to the two types of indirect interconnection. This Statement considers different interconnection scenarios involving FTNS carriers.

Indirect Interconnection - Service Access

25. **FTNS - FTNS - VAS** When an access customer of an FTNS carrier *elects* to use a value added service offered by, or connected to, another FTNS carrier, an interconnection charge will be paid to the originating FTNS carrier by the FTNS carrier providing the service or access to the service (Figure 2). The approach

recognises that the originating FTNS carrier incurs costs and is entitled to compensation.

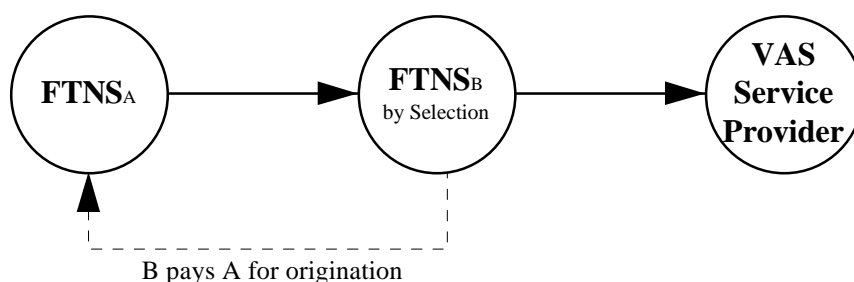


Figure 2

Indirect Interconnection - Customer Access

26. **FTNS - FTNS - FTNS.** An access customer of an FTNS carrier may place a call to another FTNS carrier which transits through a third FTNS carrier because the originating FTNS carrier chose not to establish a direct link to the terminating FTNS carrier. In such a case, interconnection charges will be paid by the originating FTNS carrier to the transiting and terminating FTNS carriers (Figure 3).

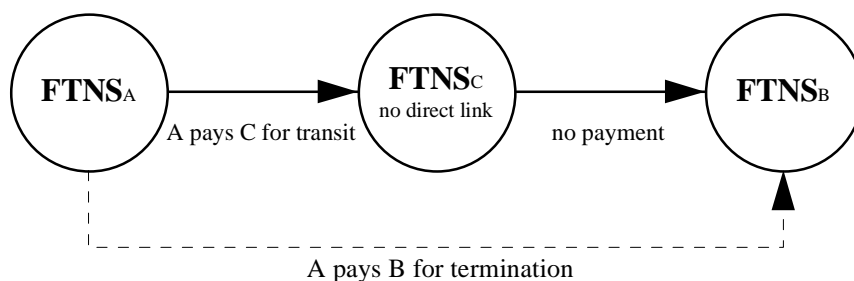


Figure 3

27. **PMRS/PCS - FTNS - FTNS.** When an access customer of an FTNS carrier receives a call from a PMRS/PCS carrier that transits through another FTNS carrier's network because the PMRS/PCS operator did not establish a direct link, interconnection charges will be paid by the PMRS/PCS carrier to both FTNS carriers involved in processing such calls (Figure 4). That is, the PMRS/PCS carrier pays terminating interconnection to the terminating FTNS carrier and also pays interconnection to the transiting FTNS carrier. This approach accords with current practice as described in paragraph 23.

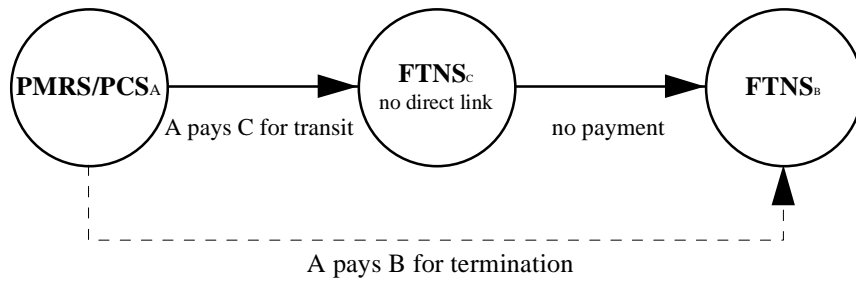


Figure 4

28. **FTNS - FTNS - PMRS/PCS.** In the reverse situation to the above, where an access customer of an FTNS carrier places a call to a PMRS/PCS carrier that transits through another FTNS carrier’s network because the PMRS/PCS operator did not establish a direct link, interconnection charges will be paid by the PMRS/PCS carrier to the originating FTNS carrier for origination (Figure 5). The PMRS/PCS carrier pays interconnection to the transiting FTNS carrier as compensation for the costs that it causes the transiting carrier to incur.

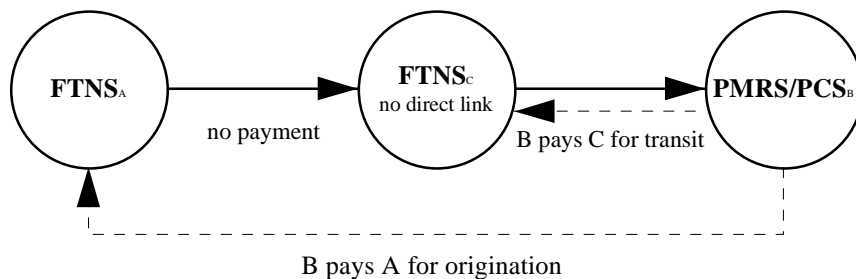


Figure 5

29. **PMRS/PCS - FTNS - PMRS/PCS.** Where two PMRS/PCS carriers use an FTNS carrier for transit, the originating PMRS/PCS carrier and the terminating carrier both pay the FTNS carrier for the transit (Figure 6). The sum of the two transit charges should cover the cost of the FTNS carrier for the routing of the call in transit. The transit charge arrangement has been introduced by the TA Statement on “Review of Methodologies for the Calculation of Interconnection Charges for Value-Added Services and Public Mobile Radiotelephone Services and Local Access Charges” dated 25 October 2000.

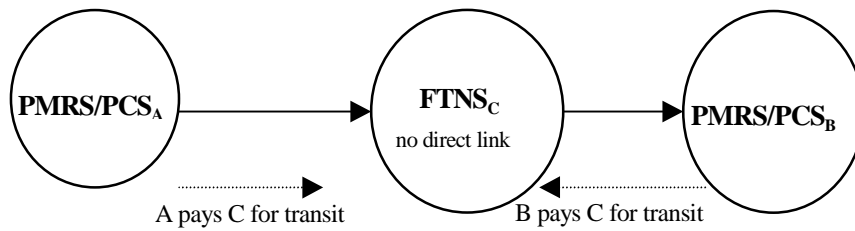


Figure 6

30. **PMRS/PCS - FTNS - FTNS - PMRS/PCS** Where two PMRS/PCS carriers use two FTNS carriers for transit (Figure 7), consistent with the principles described above in the preceding scenarios, it would be reasonable for FTNS B to be paid by the originating PMRS/PCS A and FTNS C to be paid by the terminating PMRS/PCS D and no payment needs to be passed between B and C. However, such multiple transit arrangement is inefficient and should be discouraged through the setting of interconnection charges.

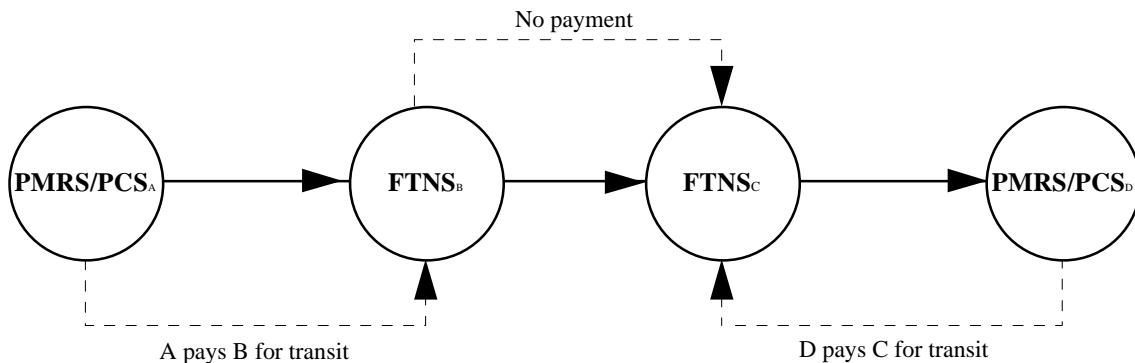


Figure 7

Type II Interconnection

31. Type II interconnection is defined as interconnection at points in the local loop. An access customer of one FTNS network may choose to become an access customer of a second FTNS network. This would involve the second FTNS carrier interconnecting to the local loop of the first FTNS carrier.⁵

32. Under this type of interconnection, a customer that changes from one FTNS carrier to a second FTNS carrier becomes a direct access customer of that

⁵ Interconnection and Related Competition Issues Statement No. 6 (Revised) - 18 March 2002

second FTNS carrier. The interconnection charging principles for interconnection usage under this scenario are therefore the same as those discussed for direct access under Type I interconnection in paragraphs 19 to 23 above. The interconnection charging principles for determining charges for establishing Type II interconnection are discussed below.

Establishment Charges

33. Under Type II interconnection a second FTNS carrier may lease or acquire existing customer access facilities from another FTNS carrier which already owns such facilities. Because, by definition, the access facilities already exist, no new construction is required as is the case under Type I interconnection. The charging principles for Type II interconnection are therefore concerned with determining an appropriate charge for existing facilities rather than sharing costs of new construction.

34. In deciding interconnection charging principles, the TA is mindful of the requirement to ensure that charges determined under such principles are economically efficient. An economically efficient outcome would be consistent with that reached by two parties acting in good faith and seeking to minimise costs and avoid duplication of access facilities. Setting a charge that is too low would subsidise new FTNS carrier entrants by giving them a “free ride”. Setting the charge too high would over compensate the carrier owning the access facilities and would encourage wasteful duplication of common access facilities. Accordingly, it is essential that the interconnection charging principles provide the correct signals for FTNS carriers considering “build versus buy” decisions for customer access facilities.

35. As consistent with the general interconnection charging principles discussed in the first part of this Statement, the LRAIC approach should be used for determining the charges for Type II interconnection access facilities. The interconnection charges will be based on the current capital and operating costs of the incumbent’s customer access networks (copper-based local loop systems). The TA, however, considers that for the local loops constructed (and probably fully depreciated) under the protection of the monopoly for local fixed telephone services, an interconnection charge based on current or replacement cost would be over-compensatory to the incumbent. Furthermore, the incumbent may price its telephone line service to cover the depreciation cost based on book value of the local loops. A

Type II interconnection charge based on the current or replacement cost of the local loops might be at a level which prevents competition to develop using Type II interconnection. In such a situation, the TA will consider using the historical cost standard in determining the Type II interconnection charges.

36. LRAIC would include both the line dependent and fixed costs of the local loop. Line dependent costs would include the costs of installing and maintaining all cable plant and associated loop equipment which vary with the number of lines. The costs of long lived assets which are invariant with the number of lines provided would also be included in the LRAIC cost pool. Total costs would be divided by the total number of lines in the particular configuration to yield the LRAIC per line.

37. LRAIC charges need to be desegregated into the different components of the local loop, i.e. local exchange MDF, distribution point, and in-building MDF as described in TA's Statement No 6 (Revised). In addition, charges should also be desegregated into geographic areas to reflect differences in local loop configurations and cost structures.

Specific Call Types

38. In this section, the interconnection charging principles are discussed in relation to specific call types which overlay the interconnection charging principles discussed in the previous section.

Personal Numbers

39. Where an FTNS carrier receives a call for one of its personal number customers from another FTNS carrier, a terminating charge is paid to the terminating FTNS carrier (Figure 8). This situation is entirely consistent with the basic principle that the originating carrier pays for call termination. Should the FTNS operator providing the personal number service forward a call to another network, that call will be treated according to the relevant call type.

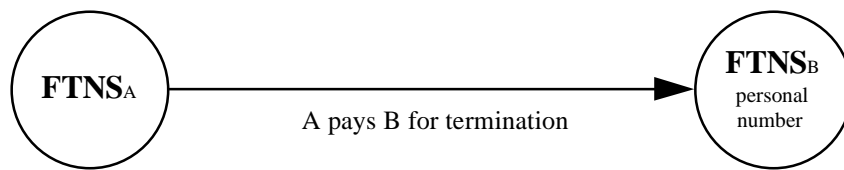


Figure 8

40. Although there are recent cases of the abuse of personal numbers for access to the international call services, abuses are best dealt with by means other than through interconnection charging principles.

41. At the time of issue of this Statement, the TA is conducting a separate consultation exercise on the charging arrangements related to the use of personal numbers for “international call forwarding services” - see Industry Consultation Paper issued on 9 February 2002. The TA will publish the conclusion of this consultation separately and where appropriate, make further amendments to this Statement.

Ported Numbers

42. For the interconnection of calls to an end-user customer whose number has been ported, the originating FTNS carrier will pay terminating charge to the terminating FTNS carrier (Figure 9). This situation is entirely consistent with the basic principle that the originating carrier pays for call termination. For other call types, the charging methodology should depend on the underlying all types.

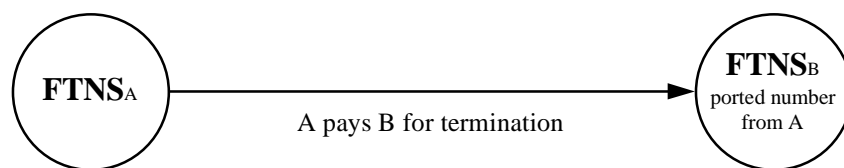


Figure 9

Calls to Another FTNS Carrier’s Business

43. Calls to another FTNS carrier’s business, including *customer service calls*, would be considered as normal calls. It is appropriate that the originating carrier pays a terminating charge to the receiving FTNS carrier since it requires the receiving FTNS carrier to complete the call (and therefore incur the cost for call termination.)

The final destination of such a call should not be a relevant factor since the receiving FTNS carrier has incurred costs to enable termination of calls and, should, accordingly recover these costs from the originating carrier.

Volatile Calls

44. *Volatile calls* should be classified as normal calls, unless the calls are made to a VAS. The fact that the originating carrier may have to make special arrangements to handle these calls does not alter the nature of the calls. The calls are made to ordinary destinations which simply have special traffic patterns. The originating carrier has the operational need to make special arrangement to achieve the required quality of service and protect the other services from degradation.

Calls to Carrier Selection Codes

45. Calls to carrier selection codes (15x) would need to be considered individually based on the classification of the underlying call being made.

FTNS Freephone calls, Information Service Calls and Calling Card Calls

46. The customer using the service would likely be paying an additional amount for the call over and above the local service line rental. Therefore calls to these services would constitute indirect access to VAS.

Paging Calls

47. The current policy is to classify only calls to *auto paging services* to be VAS calls. Calls to *operator-assisted paging services* are regarded as ordinary calls. This is a policy decision to do so given a long standing precedent in the industry and the current stage of the paging industry. The TA sees no reason why the long-standing arrangement should be changed at this time.

ISDN Calls

48. An ISDN call is not a separate call type, because an ISDN call can theoretically be a call involving any of the call types for PSTN. However, for PCCW-

HKTC, there is currently a fundamental difference between the tariff structure in PSTN and that in ISDN. There is no usage charge for local PSTN calls between end users, whereas there are usage charges for ISDN calls. Since PCCW-HKTC had adopted an ISDN overlay network to provide ISDN service, it is necessary to establish two types of interconnect trunk groups between operators, the “ISDN trunk group” for which the terminating operator will support the ISDN capability and the “PSTN trunk group” for which the terminating operator will provide either Telephone User Part (TUP) or Integrated Service User Part (ISUP) signalling for succeeding circuit path. For an ISDN originating data call, the originating operator will route the call to the terminating operator via the ISDN trunk group. For an ISDN originating non-data call, the originating operator will route the call to the terminating operator via the ISDN trunk group or the PSTN trunk group. For a PSTN originating call, the originating operator will route the call to the terminating operator via the PSTN trunk group.

49. The following charging rules should apply:

<i>ISDN / PSTN POI Type⁶</i>	<i>Called Party⁷</i>	<i>Charging Rule</i>
ISDN	Normal telephone user	ISDN terminating access charge (TAC)
	Value-added service (VAS) provider	ISDN TAC
	Personal number	ISDN TAC
	Non-automatic paging number	ISDN TAC
PSTN	All	Refer to the relevant charging principles for PSTN calls

⁶ ISDN / PSTN POI type is distinguished by the POI trunk group selected by the call originating party for conveying the call.

⁷ This table only shows types of local calls between FTNS operators.

For ISDN transit calls (via ISDN POI type),

<i>End-to-End Charging Rule</i>	<i>Transit Charging Rule</i>
Originating access charge (OAC)	Terminating Operator Pays
TAC	Originating Operator Pays

Charging Principles for Non-interconnection Matters

50. In addition to interconnection services and facilities that fall into the Type I and Type II interconnection scenarios, or are supplementary to interconnection, FTNS carriers may also acquire other facilities and services that fall under other licence conditions. The TA may be required to determine these charges when carriers are in dispute. Supplementary facilities may include ducts, risers, space in equipment rooms, etc; supplementary services may include directory assistance, fault reporting, customer inquiries, network maintenance, inter-carrier billing, and operator services.

51. Cost considerations aside, the non-interconnection services that new FTNS carriers may require of another FTNS carrier are difficult to specify. Such requirements are dependent on a number of factors including the technical specifications of the new entrants' networks, the functionalities incorporated in their networks, the pace of network rollout and the availability of services and facilities from sources other than FTNS carriers.

52. In setting appropriate charging principles for non-interconnection services, the TA is minded to ensure that charges determined under such principles are economically efficient. Consistent with the discussion in paragraph 34 an economically efficient outcome would be consistent with that reached by two parties acting in good faith and seeking to minimise costs and to avoid duplication of services and facilities.

53. In this context, the TA does not wish to set rigid principles at this time for determining charges for non-interconnection services. In particular, this relates to the establishment and the strict adherence to a particular cost standard when different cost standards may be relevant under different circumstances. The TA does not wish to stand in the way of negotiated outcomes between parties acting in good faith provided that no anti-competitive or anti-consumer interest element is present. There

is evidence to suggest that FTNS licensees have been achieving satisfactory outcomes on some of these matters - in particular new network co-ordination on the reclaimed land projects.

54. The TA would of course, set charges should he be required to do so. Should this need arise the TA would abide by the principles of cost-based charging and cost causality.

Application of the Charging Principles

55. An FTNS licensee may request a determination by the TA pursuant to section 36A of the Telecommunication Ordinance or the TA may make a determination in the public interest. Also the TA may be required to set charges for inter-carrier arrangements pursuant to a number of FTNS licence conditions. This Statement has set out the principles the TA would take into account in the current Type I interconnection determination. The TA is considering the various issues and commencing an analysis of the required costing information. The timing of determinations will be dependent on the extent of the matters to be handled and the speed with which cost data may be assembled. Nevertheless, The TA is mindful of the length of time required to make determinations. The TA already issued a Statement entitled “Revision of Procedures for Making Determinations on the Terms and Conditions of Interconnection Agreement” on 27 September 2001. The Statement specifies the time required for each step required in the processing of determination request. This will allow the transparency and certainty to the industry of the time required for the determination proceedings.

56. The TA would take into account the charging principles set out in this Statement in the determination of charges for Type I interconnection between circuit-switched narrowband fixed networks⁸ and Type II interconnection to copper-based local loops for narrowband and broadband services because it was with these types of interconnection in mind that the principles in this Statement were developed. The TA has in other statements or documents set out the charging principles for other types of interconnection and associated services, e.g. “Local Access Charges”, charging principles for implementing operator number portability and mobile number

⁸ Public switched telephone network (PSTN) and integrated services digital network (ISDN)

portability, “open network access” to third-generation mobile networks, etc. Charging principles for other types of interconnection (e.g. Type I interconnection between broadband networks) will be developed where necessary.

57. This Statement is issued as a Guideline pursuant to section 6D of the Telecommunication Ordinance.

Office of the Telecommunications Authority
18 March 2002