

Implementation Issues on the Charging Arrangements of International Call Forwarding Services

Statement of the Telecommunications Authority

25 January 2003

BACKGROUND

On 11 June 2002, the Telecommunications Authority (“TA”) issued a Statement entitled *Charging Arrangements for International Call Forwarding Services* (“11 June Statement”) setting out his views on the interconnection charging arrangements for International Call Forwarding Services (“ICFS”). According to the 11 June Statement, an access charge should be paid by the external telecommunications service (“ETS”) operator to the mobile network operator (“MNO”) for a call forwarded to the ICFS by the MNO. Likewise, an origination charge should be paid by the fixed telecommunications network service (“FTNS”) operator to the MNO for a call forwarded to a personal number for ICFS by the MNO.

2. On 12 July 2002, the TA issued a Notice stating his intention to initiate a determination pursuant to section 36A(2) of the Telecommunications Ordinance to determine the level of charges and other relevant terms and conditions in providing interconnection services necessary for the provision of ICFS. Having considered the comments received from responses to the Notice, the TA issued a Statement¹ on 8 August 2002 (“8 August Statement”) and allowed two more months for commercial negotiations starting from the issue date of the Statement. The TA stated that he might consider re-activating the determination process if there is insufficient progress in the commercial negotiations after this period of time.

3. After a lapse of two months since the issue of the 8 August Statement, the TA requested the MNOs, FTNS operators and ICFS providers to report the progress of commercial negotiations on ICFS. 20 submissions have been received, 6 from the MNOs, 5 from the FTNS operators and 9 from the ICFS providers.

¹ The TA Statement entitled “Charging Arrangements for International Call Forwarding Services – Intention to Proceed with a Determination Pursuant to Section 36A(2) of the Telecommunications Ordinance”

4. To date, the TA notes that no commercial agreement has been concluded yet. In the submissions, some issues in relation to the implementation of the charging arrangements have been raised. The following gives a summary of the implementation issues that have been raised by operators.

Issue (i): How to identify the ICFS providers and the number ranges used for ICFS?

The MNO argued that the identities of the ICFS providers and the number ranges used for ICFS could change on a daily basis. Because MNOs do not have a direct commercial relationship with the ICFS providers, MNOs do not have updated information about the identities of the ICFS providers and the number ranges used for ICFS.

Issue (ii): How to distinguish between the traffic of ICFS and international calling card?

As the numbering ranges “305 - 309” may be deployed for ICFS or international calling card services, the MNOs do not have updated information on the deployment to distinguish between traffic of ICFS and international calling card services.

Issue (iii): How to reconcile the billing records maintained by MNOs and ICFS providers?

ICFS providers would receive invoices from MNOs for the access charge. As the ICFS providers do not have information on the originating MNOs of individual calls forwarded to the ICFS platform by the MNOs, the ICFS providers are not in a position to determine if the individual invoices from the MNOs are correct and to reconcile the amount claimed by each MNO with the total ICFS traffic of the individual ICFS providers.

Issue (iv): How to collect the access charges from the ICFS providers?

As the MNOs may not have direct commercial relationship with every ICFS provider, there would be difficulty in collecting the access charges from all ICFS providers.

Issue (v): What if the numbers used for ICFS are ported among the networks of

FTNS operators?

Due to the difficulty in collecting the access charge from ICFS providers, MNOs proposed to bill the FTNS operators at which the ICFS providers are hosted for the access charge. However, since “305-309” numbers are portable across FTNS networks and MNOs do not have access to the operator number portability (“ONP”) database, MNOs would have difficulty in billing the FTNS operators correctly.

5. Many operators submitted that they would not be able to conclude any commercial agreements until these implementation issues are resolved. In light of the large number of concerned parties, some operators foresaw that it might not be possible to resolve these implementation issues through individual bilateral negotiations. In order to resolve these issues as soon as possible, the TA has sent a technical proposal on 22 November 2002 to the concerned parties to propose solutions. The purpose of the technical proposal is to facilitate commercial negotiations. The technical proposal is attached in the **Annex**. The concerned parties were invited to submit comments on the proposal by 20 December 2002. A total of 14 submissions as follows have been received by the TA before the deadline:

- ♦ PCCW-HKT Telephone Limited (“PCCW-HKTC”)
- ♦ Hutchison Global Communications Limited (“HGC”)
- ♦ Wharf T&T Limited (“Wharf T&T”) (previously Wharf New T & T Limited)
- ♦ New World Telecommunications Limited (“NWT”)
- ♦ Hong Kong Broadband Network Limited (“HKBN”)
- ♦ Hong Kong CSL Limited (“HKCSL”)
- ♦ Hutchison Telephone Company Limited (“Hutchison”)
- ♦ SmarTone Mobile Communications Limited (“SmarTone”)
- ♦ New World Mobility (“NWM”)
- ♦ SUNDAY Communications Limited (“Sunday”)
- ♦ Peoples Telephone Company Limited (“Peoples”)
- ♦ City Telecom (HK) Limited (“CTI”)
- ♦ iCare.com Limited (“iCare”)
- ♦ The Society of Hong Kong External Telecommunications Service Providers (ETS Society)

6. Having considered the submissions, the TA sets out in this Statement his

views on resolving the implementation issues of the charging arrangements of ICFS. Alternative proposals suggested by other operators have been considered by the TA and are also described in this Statement.

ICFS PROVIDED BY ETS OPERATORS VIA “305-309” NUMBERS

Solutions Raised in the TA’s Technical Proposal

Indirect Interconnection between MNOs and ICFS providers

7. The TA considers that both direct and indirect interconnections between the MNOs and ICFS providers are feasible. If MNOs and ICFS providers choose to interconnect indirectly via FTNS operators (as shown in Figure 4 of the 11 June Statement and its modification in the Annex), the aforesaid implementation issues could be resolved efficiently if FTNS operators are involved in the billing and settlement process for the access charge applicable to ICFS traffic since they have direct interconnection with both the MNOs and ICFS providers.

8. Under the proposed solution, when the FTNS operators assign “305-309” numbers to the ETS operators, the ETS operators are required to report to the FTNS operators, under the terms of the contracts between the ETS operators and the hosting FTNS operators, the type of IDD services they would operate (e.g. ICFS, international calling card services, etc.) and the number ranges to be used for the said services. ETS operators are required to update the FTNS operators whenever there are any changes. The FTNS operators will provide the up-to-date list to the MNOs. As such, the issue of identifying the ICFS providers as well as the number ranges can also be solved. Furthermore, the ETS operator will have to pay the hosting FTNS operator an interconnection charge, which includes the component of access charge for ICFS. The FTNS operator will then pay the MNO the access charge for ICFS. Such arrangement, similar to the mechanism adopted in Local Access Charge (LAC), can resolve the billing, settlement and traffic reconciliation issues. Since the FTNS operators have access to the ONP database, the porting issue can also be resolved.

9. Details of this proposed solution have been given in the paragraphs 6-18 of the technical proposal in the Annex.

10. Generally speaking, the MNOs supported the TA’s technical proposal, while

the FTNS operators argued that it is not fair to shift the responsibilities of negotiation, billing and settlement from the MNOs to them. The ETS operators submitted that the proposed arrangements would increase the operating costs of the ICFS providers. The following paragraphs give details of their submissions and the views of the TA. It should be noted that the views given by the TA now are intended to facilitate commercial negotiations. If there is a determination to be made under Section 36A of the Telecommunications Ordinance, the TA will need to consider the representations on the case from the parties concerned.

Obligation of the Transiting FTNS Operator

11. The FTNS operators argued that it is not fair to shift the responsibilities of negotiation, billing, settlement, IT development and bad debt burden from the MNOs to them. PCCW-HKTC suggested that whether FTNS operators would choose to act as a billing agent for the MNOs is purely a commercial decision of the FTNS operators.

12. As explained in paragraph 7 of the TA's technical proposal, the billing reconciliation including payment settlement is considered as part of the interconnection service provided by FTNS operators to their customers, i.e. ICFS providers. When FTNS operators provide an interconnection service for the ICFS traffic between the ICFS providers and MNOs, through their interconnection links with ICFS providers and MNOs, they should have an obligation to settle the interconnection charges related to ICFS traffic with their interconnecting parties. Therefore, it is not correct to say that "*FTNS operators will act as the billing agent for MNOs*", or the technical proposal will "*shift the responsibilities of negotiation, billing, settlement, IT development and bad debt burden from the MNOs to FTNS operators*". On the other hand, FTNS operators will bill and settle relevant interconnection charges with their interconnecting parties. Thus, it is necessary for FTNS operators to condition their networks and systems for the billing and settlement purposes. Furthermore, it is not unreasonable to request FTNS operators to bill and settle the charges for ICFS traffic with their interconnecting parties when the ICFS traffic is transmitted over their interconnection links.

13. Wharf T&T said that it is not fair for the FTNS operators to bear the risk of the difference between the level of access charge for ICFS they negotiate with MNOs and that they negotiate with ICFS providers, given the fact that the 6 MNOs have different cost structures.

14. The TA considers that the level of access charge payable by ICFS providers to the hosting FTNS operators should be set having regard to the level of access charge payable by the FTNS operators to MNOs for ICFS traffic. Therefore he does not agree with the concerns identified by Wharf T & T. Furthermore, he clarifies that if FTNS operators cannot reach commercial agreements on the level of access charge for ICFS with MNOs and ICFS providers within a reasonable period of time, any concerned party may seek TA determination under section 36A of the Telecommunications Ordinance. In making a determination, the TA is likely to ensure that the difference between the access charge payable by ICFS providers to the hosting FTNS operators and the access charge payable by the FTNS operators to MNOs would be sufficient to fairly compensate the FTNS operators for the interconnection services.

Guidelines on Charging Principles

15. Wharf T&T said that the TA has not given any concrete guidelines on the charging principles to be applied by the FTNS operators in setting the interconnection charge and the access charge as mentioned in paragraph 7. HKBN also stated that the TA has not suggested any cost recovery solution for the provision of ONP information by the FTNS operators.

16. The TA indicated in the 11 June Statement that the access charge and the origination charge should be cost-based. To date, no specific charging principles have been mandated by the TA as charging principles are considered as terms and conditions of commercial arrangements which should be negotiated among the concerned operators. The TA has been encouraging the parties to commercially agree on the charges with a view to avoiding any unnecessary or premature intervention. However, appropriate charging principles will be specified and applied by the TA in a determination either sought by any concerned party or initiated by him if no commercial agreement can be reached within a reasonable period of time. As part of the determination process, fair opportunity will be given to the parties to comment on the charging principles to be applied by the TA. Regarding the cost recovery issue of ONP raised by HKBN, since the database interrogation service of ONP is a necessary step to ensure that the call to an ICFS provider would be delivered to the correct network, the cost for providing ONP information by FTNS operators should be included as a cost element in the provision of the interconnection services. Operators should initially negotiate among themselves the level of the interconnection

charges which should cover the cost for the provision of ONP information by FTNS operators.

Ability of FTNS Operators to Identify the Origin of the Traffic

17. PCCW-HKTC submitted that the TA's technical proposal has oversimplified the network configuration by assuming that there is only one FTNS operator between the MNO and the ICFS provider. They have submitted a diagram which shows the situation when calls are routed via two or more transiting FTNS operators and they claimed that there is no way for the transiting FTNS operators to identify the originating MNO. Wharf T&T, NWT and HKBN also expressed difficulties in distinguishing among (i) ICFS traffic forwarded from a mobile network, (ii) IDD traffic originated directly from a FTNS network and (iii) IDD traffic originated directly from a mobile network.

18. The TA does not consider that the problem raised by PCCW-HKTC to be a new problem created by the technical proposal. It is not uncommon for calls to ETS providers are conveyed over two or more transit networks. To illustrate the situation when calls are routed via two or more transiting FTNS operators, Figure 4 of the 11 June Statement is modified as follows according to the diagram submitted by PCCW-HKTC. The ICFS is provided by ETS(B) operator by using "305-309" numbers. The direct subscribers of FTNS(A) operator, FTNS(C) operator, FTNS(D) operator and mobile subscribers of MNO(X) can also make IDD calls using the international calling card service of ETS(B) operator. The ICFS traffic forwarded by MNO(X) could originate from subscribers of FTNS(A) operator or another mobile network operator MNO(Y). "305-309" numbers are also deployed for international calling card service. In the following figure, as an example for illustration, there are altogether 300 minutes of traffic of "305-309" numbers delivered from FTNS(D) operator to ETS(B) operator, of which 15 minutes are ICFS traffic forwarded from MNO(X), 35 minutes are IDD traffic originated directly from MNO(X), 50 minutes are IDD traffic originated directly from FTNS(A) operator, 100 minutes are IDD traffic originated directly from FTNS(C) operator, and 100 minutes are IDD traffic originated directly from FTNS(D) operator. Paragraphs 19 - 21 show that the problem raised by PCCW-HKTC can be resolved. There may well be other solutions besides those discussed in paragraphs 19 - 21. As for the billing and settlement of LAC, OFTA is prepared to convene an industry working group to coordinate solutions among the operators involved.

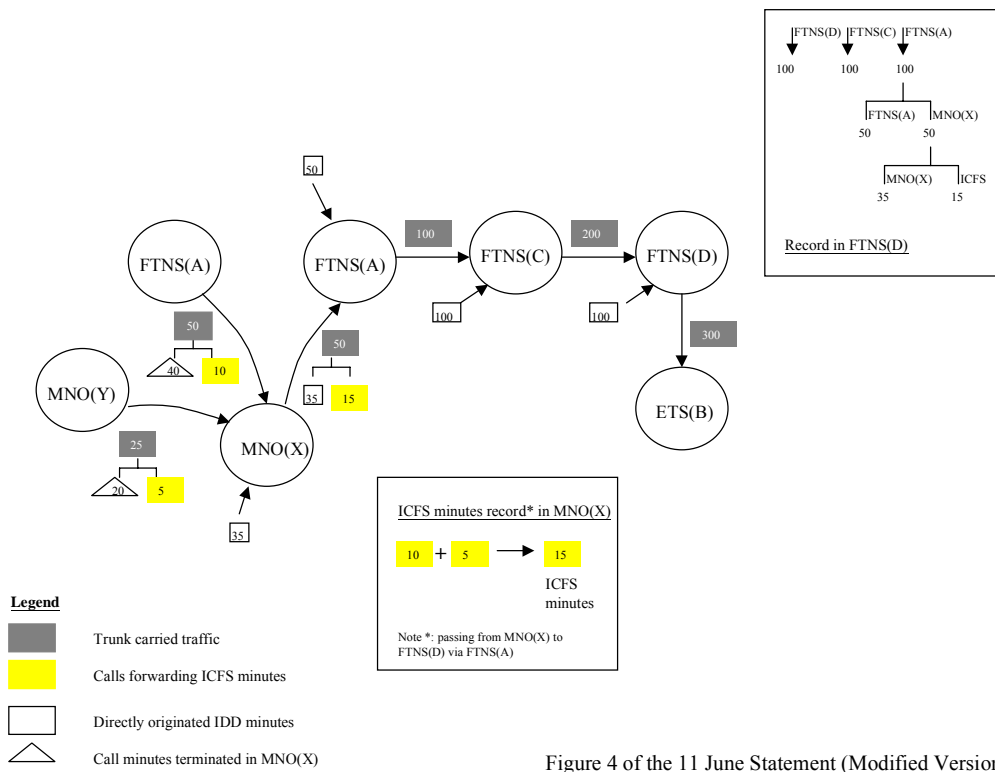


Figure 4 of the 11 June Statement (Modified Version)

19. As from 1 April 2003, the FTNS(A) operator, the FTNS(C) operator and FTNS(D) operator will be able to identify the routing history of the call with the implementation of HKTA 2204 which is a C7 signaling standard. As such, the FTNS(D) operator will be able to identify the originating MNO(X) of the call and be able to distinguish among the three types of traffic as mentioned in the above paragraph.

20. Before 1 April 2003, the FTNS(A) operator, FTNS(C) operator, FTNS(D) operator and the MNO(X) should reconcile among themselves the ICFS traffic and IDD traffic. In order for these 4 parties to identify the ICFS traffic, the list of deployment of “305-309” numbers should be notified to all FTNS operators and MNOs. Therefore, paragraph 9 of the TA’s technical proposal should be amended such that the hosting FTNS operators are required to maintain an up-to-date record of the deployment of “305-309” numbers for different types of services, and provide the said record to **all the other FTNS operators** and the MNOs. Accordingly, FTNS(A) operator, FTNS(C) operator, FTNS(D) operator and MNO(X) in the above diagram would be able to identify the 15 minutes of ICFS traffic.

21. With the help of the established LAC framework in HKTA3103, FTNS(D) should be able to identify the amount of IDD/ICFS traffic originated from/transited through FTNS(A), FTNS(C) and FTNS(D) itself to ETS(B). FTNS(A) should be able to identify the IDD traffic directly originated from its own network and those IDD/ICFS traffic passed from MNO(X). MNO(X) should be able to identify the IDD traffic directly originated from its own network and the ICFS traffic call forwarded from its own network. MNO(X) should pass those ICFS traffic information to FTNS(D) operator via FTNS(A) operator, so that FTNS(D) operator might recover the charge from ETS(B) operator and rebate MNO(X). This system relies on the accuracy of MNO(X)’s ICFS traffic information. MNO(X) should keep the detailed CDR records on all these transactions which might be useful for resolving any possible disputes. As mentioned above, there will be a permanent solution to this issue after the implementation of HKTA2204. Therefore, it will not be worthwhile to implement another system for reconciling the traffic just for a few months. Since this is a trustworthy system, MNO(X) should keep all records for resolving any possible disputes or for the TA determination if sought by either party or initiated by the TA himself.

22. HKBN further submitted that new FTNS operators might not possess MNP-GN database in the initial stage of their business and therefore might not be able to

identify the originating MNO of the ICFS traffic. The TA encourages new FTNS operators to have such capability if they wish to offer services to ETS operators.

Risk of Bad Debt Encountered by FTNS Operators

23. NWT requested that there should not be any retrospective effect requiring the FTNS operators to collect the charges from ICFS providers due to MNOs since 11 June 2002, otherwise, the FTNS operators would be exposed to enormous bad debt risks. HGC submitted that the FTNS operators should be required to settle the access charges for ICFS with the MNOs only after they have actually received such charges from the ICFS providers.

24. The charging arrangements for ICFS as described in the 11 June Statement are effective from 11 June 2002. As the FTNS operators have so far not made any arrangements to collect the charges from ICFS providers due to the MNOs, the FTNS operators' liability to make payments to the MNOs for the access charge should commence from the conclusion of commercial agreements among the operators or determination made by the TA, whichever is the earlier. For the settlement of payments between 11 June 2002 and the date when the arrangements described in the Annex commence, operators should initially try to work out some commercially acceptable arrangements, failing which the TA will make a determination on reasonable arrangements having regard to views expressed by parties involved in the determination.

Increase in Operating Costs of ICFS Providers

25. PCCW-HKTC, Wharf T&T, CTI, iCare and the ETS Society have submitted that the proposed arrangements would increase the operating costs of ICFS providers which will ultimately be passed on to the consumers. PCCW-HKTC suggested to recover its IT development costs and other relevant preparation costs by charging the MNOs a one-off set-up charge. The charge cannot be collected as usage charge from the ICFS providers because once all the ICFS providers residing behind PCCW-HKTC migrate to other FTNS operators, PCCW-HKTC would not be able to recoup its set-up costs. HKBN and CTI expressed a similar view that the set-up costs and recurrent charges should be recovered from the MNOs. Wharf T&T suggested that the one-off set-up costs should be recovered from the MNOs and ICFS providers.

26. The TA clarifies that for indirect interconnection, since FTNS operators will be involved for billing and reconciling the ICFS traffic, they should be fairly compensated for the costs incurred. These costs would be avoided if the interconnection service for ICFS traffic were not provided. As such, these costs should be considered as a cost component of the provision of the interconnection service for ICFS, and thus should be recovered through the interconnection charges for ICFS. Alternatively, ICFS providers and mobile operators can interconnect directly without going through the FTNS networks. In that case, FTNS operators networks will not be involved. Some operators have proposed other alternatives which do not involve FTNS operators for billing and traffic reconciliation.

27. The charging structure for recovering the costs incurred by FTNS operators in billing, settling and reconciling the ICFS traffic, i.e. whether through an one-off charge and/or recurrent charges, is considered as terms and conditions of commercial arrangements which should be negotiated among the concerned operators. The TA will consider and, if appropriate, cover these terms and conditions in a determination either sought by any concerned party or initiated by him if no commercial agreement can be reached within a reasonable period of time.

Services which Require Mobile Call Forwarding to Numbers Outside the Range of “305-309”

28. For services which require mobile call forwarding to numbers outside the range of “305-309”, the MNOs suggested that the service providers should make request to the MNOs for opening up the access to specific number blocks subject to provision of proof that such number blocks are not used in connection with ICFS.

29. The TA is of the view that MNOs should not bar the calls forwarded to numbers outside the range of “305-309”. The TA understands MNOs’ concerns that numbers outside the range of “305-309” might be misused for ICFS so as to circumvent the access charge for ICFS. However, the use of non-“305-309” numbers for ICFS is a breach of the Numbering Plan for telecommunications services in Hong Kong. As such, the MNOs’ concerns should be addressed by OFTA enforcing the Numbering Plan, instead of MNOs barring the calls to non-“305-309” numbers.

Assignment of “305-309” Number Blocks

30. In paragraph 13 of the TA's technical proposal, MNOs are required to read the call number up to 6 digits in order to distinguish between ICFS traffic and other types of traffic, e.g. international calling card services. However, MNOs responded that such measurement requirement is not technically and economically efficient and would result in heavy process loading in the MNOs' systems.

31. The TA does not subscribe to the MNOs' argument. In accordance with the CoP², FTNS operators assign "305-309" number blocks to ETS operators in multiples of 300. In other words, MNOs are technically able to read the call number up to 6 digits. The TA does not notice that the current practice has created any heavy process loading in the MNOs' systems. Furthermore, assigning number blocks in multiples of 300, instead of 1,000, can help to reserve limited number resources.

Lack of Traffic Record Kept by FTNS Operators

32. The MNOs stated that if the FTNS operators did not keep any record of the ICFS traffic as from the issue of 11 June Statement, the MNOs' records shall be used and shall prevail in the billing of access charges.

33. How to deal with the billing and settlement issues if FTNS operators did not keep any record of ICFS traffic is considered as terms and conditions of commercial arrangements which should be negotiated among the concerned operators. The TA will consider and, if appropriate, cover these terms and conditions in a determination either sought by any concerned party or initiated by him if no commercial agreement can be reached within a reasonable period of time.

Direct Interconnection between MNOs and ICFS Providers/Member Hub

34. ETS operators can choose to interconnect with the MNOs directly. In direct interconnection, the above implementation issues would not exist anymore. However, some ETS operators may find direct interconnection not economical due to their small amount of ICFS traffic. One possible solution is direct interconnection between the MNO and a member hub co-established by the ICFS providers. Details of this proposed solution have been given in the paragraphs 19-23 of the TA's technical proposal.

² "Code of Practice Relating to the Use of Numbers and Codes in the Hong Kong Numbering Plan" dated 26 February 2002

35. MNOs submitted that the problem of number portability remains unresolved in case of direct interconnection. Without further elaboration from the MNOs on the number portability issue, the TA does not see the reason why the MNOs claimed that the said issue remains unresolved in the case of direct interconnection. As such, direct interconnection is considered as technically feasible and the parties are encouraged to take this option into consideration during their commercial negotiations.

36. MNOs also commented that the direct interconnection with the ICFS member hub would result in numerous negotiations between individual MNOs and individual members in the hub, since MNOs would have to establish separate commercial and legal relationship with each member in the hub. The TA does not subscribe to this view. It is expected that a single party representing the hub members will negotiate with the MNOs. In other words, each MNO will need to negotiate, establish commercial and legal relationship with this hub representative only. No negotiations have to be conducted with individual hub members.

Alternative Solutions Proposed by Operators

37. Some operators have submitted alternative proposals for the TA's considerations. Details of the alternative proposals are given below.

Option (a)

38. PCCW-HKTC, iCare and the ETS Society have suggested that MNOs should charge their mobile customers a per-minute rate for call forwarding to ICFS service, while the MNOs can still charge a flat rate for call forwarding to other non-ICFS numbers. PCCW-HKTC submitted that *“this ‘non-across-the-board’ charge will settle the whole pile of ICFS problems. There is no need for the ICFS providers to enter [into] commercial contract with the MNOs. There is no need for the ICFS providers to check the traffic minutes with the MNOs. There is no need to involve the FTNS operators [...] There are no bad debt issues. [...] More importantly, it is the mobile customer who uses ICFS service to bear his own cost.”* The ETS Society also explained that since the MNOs will be notified of all ICFS number ranges, *“it would be very practical and without involving additional costs for the MNO to charge its own customers reasonable access charge (based on their net costs) for calls made to the ICFS number ranges.”*

39. The TA agrees with PCCW-HKTC and the ETS Society that option (a) could resolve his concerns on the introduction of “across-the-board” charges for mobile call forwarding services, which has been explained in paragraph 13 of the 11 June Statement. However, the TA considers that option (a) is viable only if the charges levied by the MNOs on their customers are considered as interconnection charges between the mobile networks and the ICFS services which are subject to commercial negotiation or determination by the TA under section 36A of the Telecommunications Ordinance. If the charge were simply left as a customer tariff of the MNO, the TA does not have any power under the Telecommunications Ordinance or the licence conditions to regulate customer tariffs of mobile services. It is therefore possible that relatively high charges could be levied which could prejudice the viability of the ICFS. Under section 36A of the Telecommunications Ordinance, the TA has power to determine the terms and conditions of interconnection agreements between the interconnecting parties. To bring the charges within the jurisdiction of section 36A, the charges levied upon the customers must be, in substance, “interconnection charges” payable by the ICFS providers to the MNOs under interconnection agreements between the MNOs and the ICFS providers but collected from the customers on behalf of the ICFS providers under commercial agreements between the MNOs and the ICFS providers.

40. Therefore if option (a) is adopted, the assumptions of PCCW-HKTC supporting the merits of option (a) (i.e. no need for the ICFS providers to enter into commercial contract with the MNOs, no need for the ICFS providers to check the traffic minutes with the MNOs, no bad debt issues, etc.) may no longer be valid. Such assumptions are valid only if the charges levied upon the customers are tariffs of the services provided by MNOs and the FTNS operators and ICFS providers are not involved. If the charges are interconnection charges (referred to as the “access charge” in the 11 June Statement) collected on behalf of the ICFS providers by the MNOs, there must still be commercial agreements between the MNOs and the ICFS providers on the level of charges and the billing and collection arrangements. If the customers are in default, the ICFS providers remain to be liable for the interconnection charges. Thus the ICFS providers will need to be aware of the amount of access charges that they are liable to pay to individual MNOs. Before the TA should intervene under section 36A, the MNOs and ICFS providers would still need to attempt to come to some commercial agreements first on the level of the access charge and related terms and conditions for interconnection. In other words, many of the implementation issues raised in the industry and summarised in

paragraph 4 remain.

41. Based on the analysis in paragraphs 39 and 40, the TA considers that option (a) has its benefits as well as limitations. However, if the MNOs and ICFS providers commercially agree to adopt option (a), the TA has no objection to the adoption of this option (a) as a billing and collection arrangement for the access charge. If the parties fail to agree on the level of the access charge, this access charge can be determined by the TA under section 36A as part of the terms and conditions under the interconnection agreement between the parties. However, it should be noted that whether to adopt the billing arrangement of the MNOs collecting from the customers on behalf of the ICFS providers as envisaged in option (a) is a commercial decision of the operators and the TA would not mandate such billing arrangement in the determination under section 36A.

Option (b)

42. Wharf T&T suggested that the MNOs or OFTA should appoint an external agent through a bidding process, similar to the appointment of Citibank for Universal Service Contribution (“USC”) collection, to negotiate with the ICFS providers on behalf of MNOs, collect the charges and perform reconciliation with the ICFS providers directly.

43. The TA does not consider option (b) as a viable proposal. An intermediary was appointed for the collection of USC because there is a need to prevent PCCW-HKTC from accessing the traffic information of other external telecommunications service providers in the market. However, the TA does not see any such need in this case to appoint an intermediary to settle the interconnection charges for ICFS traffic. Furthermore, if the MNO and the ICFS provider are interconnected via FTNS operator(s), the external agent is still unable to reconcile the ICFS traffic in the absence of the involvement of the FTNS operator(s). Last but not least, the external agent will incur costs during the process of negotiation, charge collection and traffic reconciliation and these cost components would, most probably, be shifted to the ICFS providers.

Option (c)

44. HKBN suggested that after the implementation of call forwarding parameters as stipulated in HKTA 2204 as from 1 April 2003, the TA should allow the

mobile customers to directly forward their mobile calls to overseas numbers. The international call forwarding function can be done directly by the mobile customers with their handsets by inputting the following call forward number sequence: *IDD Access Code (e.g. 15XX/16XX/00X) + Country Code + Overseas Numbers*.

45. The TA considers that option (c) is *technically* feasible at this moment if the external telecommunications services (ETS) providers interconnect with the MNOs directly. For indirect interconnection between ETS providers and MNOs, option (c) would also be *technically* feasible after the implementation of HKTA 2204 as from 1 April 2003. As such, the TA would not have any objection if the MNOs and ETS providers can agree on the *commercial* terms to adopt option (c).

46. A call directly forwarded from the mobile network to the access code of ETS (e.g. 15XX/16XX/00X) will still consume the resources of mobile network as for calls forwarded to access numbers for ICFS. As such, there is still a need to fairly compensate the MNOs for the costs incurred for forwarding the call from the mobile network to the access codes of ETS. Therefore the commercial agreement between the MNOs and ETS providers would need to address the issue of “access charge”. The concerned parties can settle the charges by the arrangements mentioned in the TA’s technical proposal in the Annex, the arrangement proposed in option (a), or any other arrangements commercially agreed among the parties.

ICFS PROVIDED BY FTNS OPERATORS VIA LEVEL “8” PNs

47. Paragraph 24 of the TA’s technical proposal suggested that the transiting FTNS operator, as indicated as FTNS(A) operator in Figure 3 of the 11 June Statement, could be involved in the billing and settlement of the origination charge.

48. In response to the TA’s proposal, the MNOs submitted that they have difficulties in billing the FTNS operators correctly for the origination charge since PNs are portable among FTNS operators and they do not have access to ONP database.

49. The TA is of the view that the concerned parties have the responsibility to exchange sufficient information for the billing and settlement purposes. Therefore, FTNS operator should provide the data on ONP to MNO and the two parties should negotiate the commercial terms and arrangements for the provision of such

information. The TA will cover these terms and conditions, if applicable, in a determination either sought by any concerned party or initiated by him if no commercial agreement can be reached within a reasonable period of time.

CONCLUSIONS

50. Based on the submissions from operators and the considerations given in this Statement, the TA affirms the technical proposals given in the Annex to resolve the implementation issues, namely:

- Indirect interconnection between MNOs and ICFS providers (paragraphs 7 – 33);
- Direct Interconnection between MNOs and ICFS providers or member hub (paragraphs 34 – 36).

51. The TA also evaluates the alternative arrangements submitted by operators and considers that the issues of “access charge” cannot be avoided in the implementation of these options, but has no objection to these two options if commercial agreements can be reached between the MNOs and the ICFS/ETS providers:

- Option (a) – MNOs to collect from their mobile customers the access charge on behalf of ICFS providers for call forwarding to ICFS service (paragraphs 38-41);
- Option (c) – Direct call forwarding to IDD access code of ETS providers (paragraphs 44-46).

52. The TA expects that the resolution of implementation issues would facilitate the commercial negotiations among the concerned operators. Operators are encouraged to continue their commercial negotiations taking into account the possible ways to resolve the implementation issues and explore ways to conclude agreements. Any concerned party may seek a determination by the TA if there is still no commercial agreement. Separately the TA will monitor the progress of negotiations after the issue of this Statement. If there is no commercial agreement after four weeks from the issue of this Statement, the TA will consider initiating a determination under section 36A of the Telecommunications Ordinance.

Office of the Telecommunications Authority
25 January 2003

Technical Proposal for Implementation Issues on the Charging Arrangements of International Call Forwarding Services

Background

1. On 11 June 2002, the Telecommunications Authority (“TA”) issued a Statement entitled *Charging Arrangements for International Call Forwarding Services* (“11 June Statement”) setting out his views on the interconnection charging arrangements for International Call Forwarding Services (“ICFS”). According to the 11 June Statement, an access charge should be paid by the external telecommunications service (“ETS”) operator to the mobile network operator (“MNO”) for a call forwarded to the ICFS by the MNO. Likewise, an origination charge should be paid by the fixed telecommunications network service (“FTNS”) operator to the MNO for a call forwarded to a personal number for ICFS by the MNO.
2. On 12 July 2002, the TA issued a Notice stating his intention to initiate a determination pursuant to section 36A(2) of the Telecommunications Ordinance to determine the level of charges and other relevant terms and conditions in providing interconnection services necessary for the provision of ICFS. After public consultation, the TA issued a Statement¹ on 8 August 2002 (“8 August Statement”) and allowed two more months for commercial negotiations starting from the issue date of the Statement. The TA may consider re-activating the determination process should there be insufficient progress in the commercial negotiations after this period of time.
3. After a lapse of two months since the issue of the 8 August Statement, the TA requested the MNOs, FTNS operators and ICFS providers to report the progress of commercial negotiations on ICFS. A total of 20 submissions have been received. Among the submissions, 6 and 5 are from the MNOs and the FTNS operators respectively, while the remaining 9 are from the ICFS providers.
4. To date, no commercial agreement has been concluded yet. In the submissions, some issues in relation to the implementation of the charging arrangements have been raised. Many operators submitted that they would not be able to conclude any commercial agreements until these implementation issues are resolved. In light of the large number of concerned parties, some operators foresaw that it might not be possible to resolve these implementation issues through individual bilateral negotiations. In order to resolve these issues as soon as possible, OFTA would like to propose solutions to these implementation issues. This attachment presents the technical proposal from OFTA and invites comments from the relevant operators on the proposed solutions.

¹ The TA Statement entitled “Charging Arrangements for International Call Forwarding Services – Intention to Proceed with a Determination Pursuant to Section 36A(2) of the Telecommunications Ordinance”

Implementation Issues Raised by Operators

5. The following implementation issues have been raised by operators since the issue of the 11 June Statement:

Issue (i): How to identify the ICFS providers and the number ranges used for ICFS?

The MNO argued that the identities of the ICFS providers and the number ranges used for ICFS could change on a daily basis. Because MNOs do not have a direct commercial relationship with the ICFS providers, MNOs do not have updated information about the identities of the ICFS providers and the number ranges used for ICFS.

Issue (ii): How to distinguish between the traffic of ICFS and international calling card?

As the numbering ranges “305 - 309” may be deployed for ICFS or international calling card services, the MNOs do not have updated information on the deployment to distinguish between traffic of ICFS and international calling card services.

Issue (iii): How to reconcile the billing records maintained by MNOs and ICFS providers?

ICFS providers would receive invoices from MNOs for the access charge. As the ICFS providers do not have information on the originating MNOs of individual calls forwarded to the ICFS platform by the MNOs, the ICFS providers are not in a position to determine if the individual invoices from the MNOs are correct and to reconcile the amount claimed by each MNO with the total ICFS traffic of the individual ICFS providers.

Issue (iv): How to collect the access charges from the ICFS providers?

As the MNOs may not have direct commercial relationship with every ICFS provider, there would be difficulty in collecting the access charges from all ICFS providers.

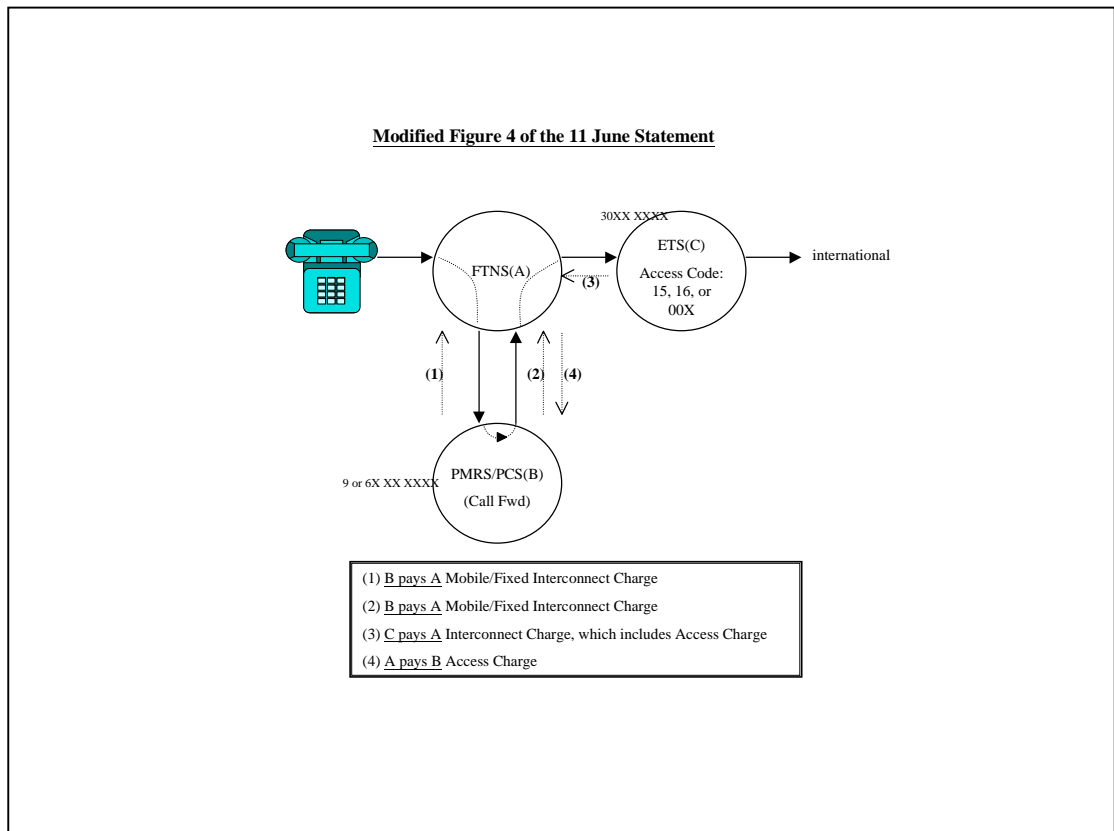
Issue (v): What if the numbers used for ICFS are ported among the networks of FTNS operators?

Due to the difficulty in collecting the access charge from ICFS providers, MNOs proposed to bill the FTNS operators at which the ICFS providers are hosted for the access charge. However, since “305-309” numbers are portable across FTNS networks and MNOs do not have access to the operator number portability (“ONP”) database, MNOs would have difficulty in billing the FTNS operators correctly.

Proposed Solutions

Indirect Interconnection between MNOs and ICFS providers

6. OFTA considers that both direct and indirect interconnections between the MNOs and ICFS providers are feasible. In case MNOs and ICFS providers choose to interconnect indirectly via FTNS operators (as shown in Figure 4 of the 11 June Statement), the aforesaid implementation issues could be resolved efficiently if FTNS operators are also involved in the billing and settlement process for the access charge applicable to ICFS traffic since they have direct interconnection with both the MNOs and ICFS providers.



7. The arrangement is similar to that for the collection of Local Access Charge (LAC)². The ICFS providers are customers of the FTNS operators providing the connection between the ICFS providers and the local fixed networks and therefore there are commercial contracts between them. The FTNS operators in turn have interconnection agreements with the MNOs and therefore would be able to settle interconnection charges over the interconnection circuits between them. The billing reconciliation and payment settlement can be considered as part of the service provided to their customers, i.e. the ICFS providers, in providing the interconnection for the ICFS service. OFTA considers that FTNS operators should recover the costs incurred for such service through the interconnection charge the FTNS operators collect from the ICFS providers. Accordingly, in the indirect interconnection arrangement, the ETS operator as ICFS provider should pay an interconnection charge to the FTNS operator which supplies the connection to the ICFS provider, under the commercial contracts between them. This interconnection charge would include the

² See Figure 2, page 20 in TA Statement of 25 November 1998 entitled “Local Access Charge and Modified Delivery Fee Arrangements”.

“access charge” referred to in the 11 June Statement plus any reasonable costs the FTNS operator has incurred in relation to the billing and settlement process, including possible bad debt cost. The FTNS operator will in turn pass on the “access charge” to the MNO under the interconnection agreement between the FTNS operator and the MNO. The FTNS operator should pay the interconnecting MNO the total access charge minus the mobile/fixed interconnection charge for the ICFS traffic metered over the interconnection concerned.

Issue (i): How to identify the ICFS providers and the number ranges used for ICFS?

Issue (ii): How to distinguish between the traffic of ICFS and international calling card?

8. Under the proposed solution, FTNS operators would be responsible for the billing reconciliation and payment settlement. Therefore, both FTNS operators and MNOs have to obtain the information of number ranges used by ETS operators for ICFS. Since the FTNS operators have direct interconnection with the ETS operators and the “305-309” numbers are assigned by the FTNS operators, OFTA considers it more effective for the FTNS operators to obtain this information from ETS operators under their commercial contract. In other words, an ETS operator will be required as an obligation under the contract to advise its host FTNS operator the number ranges used by them for the ICFS.

9. According to the Numbering Plan in Hong Kong, numbers with leading digits “305-309” are reserved for public non-exclusive telecommunications services (“PNETS”), which includes both ICFS and international calling card service. If the “305-309” numbers are deployed for ICFS, the MNO would be entitled to receive an access charge from the ETS operator. On the other hand, if the “305-309” numbers are deployed for international calling card service, the FTNS operator would be entitled to receive the access charge (decided by market) from the ETS operator while the normal Mobile/Fixed Interconnect Charge would apply over the interconnection between the FTNS operator and MNO. Given the different payment levels and directions of the two services, it is of paramount importance for the FTNS operator to distinguish between the traffic of ICFS and international calling card service. As such, the ETS operators would be required to inform the FTNS operator of the number ranges used for ICFS as well as international calling card service when they are assigned with the “305-309” numbers. In case there is any change to the number ranges, the ICFS providers are required to update the FTNS operators directly. FTNS operators are required to maintain an up-to-date record of the deployment of “305-309” numbers for different types of services, and provide the said record to the MNOs.

10. Since FTNS operators and MNOs would be informed of all the deployed “305-309” numbers, the remaining “305-309” numbers should be considered as “not in use”, until there is further notification from the ETS operators. As such, MNOs are obliged to deliver calls efficiently to all the “305-309” numbers reported by the ETS operators. However, MNOs are entitled to receive access charges for delivering calls to the ICFS numbers only.

11. Under this arrangement, the FTNS operators are required to inform the interconnecting MNOs, under their interconnection agreements, of the numbering ranges used for ICFS. The level of the access charge should also be a matter for negotiation between the MNOs and the FTNS operators as terms under their

interconnection agreements. Based on this level, the FTNS operators will determine the level of the interconnection charges applicable to the connections to the ETS operators for ICFS traffic. This arrangement would significantly reduce the complexity of the commercial negotiations in that the MNOs do not have to approach individual ICFS providers for the negotiations and each ICFS provider would have to deal with the hosting FTNS operator only. If the ICFS provider is not satisfied with the level of access charge between the MNOs and the hosting FTNS operator, it may request a determination by the TA of the access charge under section 36A of the Telecommunications Ordinance, on the ground that the ICFS provider is also a party of the indirect interconnection arrangement among the ICFS provider, the FTNS operator and the MNOs.

12. There may be concerns that ETS operators might misinform the FTNS operators about the number ranges to be used for ICFS and international calling card service so as to save the access charges payable to MNOs. For example, an ETS operator who is planning to operate 1,000 numbers for ICFS might misinform the FTNS operator that they are planning to operate 1,000 numbers for international calling card service so as to circumvent the access charges payable to MNOs. According to the *Code of Practice Relating to the Use of Numbers and Codes in the Hong Kong Numbering Plan* dated 26 February 2002 (“CoP”), international calling card service falls within Group 1 PNETS, in which all customers would access the service through several access codes and they would not be assigned with unique numbers. On the other hand, ICFS falls within Group 2 PNETS, in which each individual customer would be assigned with a unique number for the service. In other words, the numbers deployed for ICFS should be much more than those for international calling card service. Therefore, FTNS operators should be able to notice such misinformation, if any, when the ETS operators submit their number ranges used for these services. Furthermore, OFTA will enforce the CoP to stop any misuse of Group 2 number blocks for Group 1 PNETS.

13. MNOs mentioned in their submissions that the numbers used for ICFS are usually mixed with other PNETS, e.g. international calling card services. As a result, they have to read the call number up to 8 digits in order to measure the traffic correctly and this is an inefficient way of traffic measurement from both the technical and economical perspectives. In accordance with the CoP, if ETS operators plan to provide Group 2 PNETS, they can request for a maximum of 300 numbers from the FTNS operator for every installed or additional T1 circuit. In other words, number blocks for ICFS will be assigned to ETS operators in multiples of 300. As such, MNOs only need to read the call number up to 6 digits, and OFTA considers it technically and economically acceptable.

14. In the longer term, all ICFS should be moved to dedicated numbering ranges. As the ICFS numbers are known to the customers of the ICFS only, rather than callers who need to contact those customers (who are contacted via the mobile numbers), OFTA does not consider that the migration of the ICFS numbers would cause undue inconvenience to the ICFS customers. A short migration period would suffice.

Issue (iii): How to reconcile the billing records maintained by MNOs and ICFS providers?

15. OFTA consider that with the FTNS operators involving in the billing and

settlement process for access charges for ICFS traffic, the need for reconciliation does not arise. ICFS providers will settle the interconnection charges for the traffic over the interconnection links they have with the hosting FTNS operators, just like Local Access Charges and PNETS charges. ICFS providers no longer receive separate invoices from the MNOs and therefore they do not have to reconcile those invoices with their own ICFS traffic record. On the other hand, FTNS operators and MNOs will settle interconnection charges over the interconnection links between their respective networks, and they would be in position to meter or verify the traffic at their ends of the interconnection links.

Issue (iv): How to collect the access charges from the ICFS providers?

16. FTNS operators would collect interconnection payment from the ICFS providers as their customers. Such payment includes the cost component of access charges from the ICFS providers. FTNS operators in turn settle interconnection payment between FTNS operators and MNOs. Such interconnection payment will include passing on the access charge to the MNOs. As the FTNS operators are involved in this billing and settlement process for the access charge for ICFS traffic, they must be fairly compensated for the costs incurred in the process.

17. FTNS operator may have concerns that they would have to bear extra credit risks arising from the collection of charges on behalf of MNOs. However, based on normal commercial practice, it is the FTNS operators' commercial decision to cease the lease of circuits if the ETS operators fail to settle the payments due to the FTNS operators. FTNS operators are encouraged to commercially negotiate with the ETS operators on how to introduce measures to manage the extra credit risks, if any.

Issue (v): What if the numbers used for ICFS are ported?

18. Numbers with leading digits "305-309" are portable across FTNS networks under ONP. Since FTNS operators have access to the ONP database, FTNS operators should be able to resolve the ONP issue in the billing and settlement process.

Direct Interconnection between MNOs and ICFS Providers

19. OFTA believes that all aforesaid implementation issues could be resolved by direct interconnection between the MNOs and ICFS providers. Since the direct interconnection would be dedicated for ICFS traffic only, there is no need to distinguish between the traffic of ICFS and international calling card, and there will be no more implementation issues in relation to billing reconciliation and payment settlement. Furthermore, portability of "305-309" numbers across FTNS networks will not create any implementation issues as long as the ETS operators have direct interconnection with the MNOs.

20. ETS operators who choose direct interconnection are required to inform the MNOs directly of their number ranges used for ICFS. MNOs are obliged to deliver calls efficiently to the "305-309" numbers reported by the ETS operator via the direct interconnection. As mentioned in paragraph 8, the ETS operator is still required to inform the FTNS operator of the number ranges used for international calling card service when they are assigned with the "305-309" numbers.

Direct Interconnection between MNOs and ICFS Member Hub

21. In consideration of the fact some ETS operators only have small amount of ICFS traffic, direct interconnection with each of the 6 MNOs may not be economical for some ETS operators. Another possible solution is direct interconnection between the MNOs and a member hub co-established by the ICFS providers. As paragraph 18 explained, direct interconnection will resolve the implementation issues (ii), (iii), (iv) and (v).

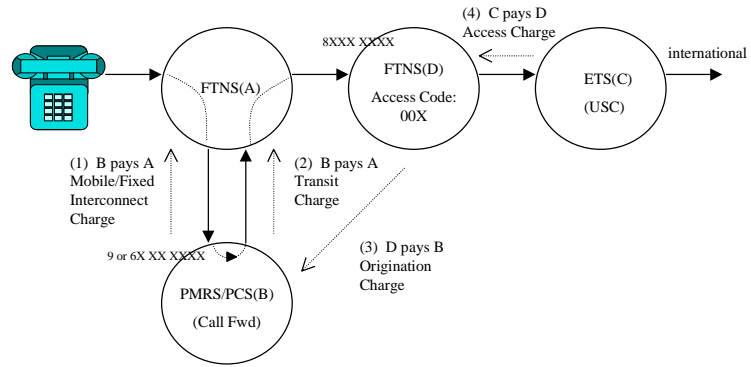
22. The hub administrator will keep an up-to-date record of its members and the number ranges used by its members for ICFS. The up-to-date record has to be provided to MNOs. MNOs are obliged to deliver calls efficiently to the “305-309” numbers reported by the member hub. As mentioned in paragraph 8, the hub members are still required to inform the FTNS operators of the number ranges used for international calling card service when they are assigned with the “305-309” numbers.

23. All establishment costs and operating expenses of the hub should be shared among the hub members. ICFS providers can join the hub on a voluntary basis.

ICFS Provided by FTNS Operators

24. The 11 June Statement has included the settlement arrangement for ICFS operated by the FTNS operators themselves (using numbers in the personal numbering ranges). The FTNS operators operating the ICFS are required to pay the MNOs an origination charge for the traffic forwarded to the ICFS numbers. The submissions received in response to the 8 August Statement did not indicate that there are problems with the billing and settlement of origination charges. The arrangement indicated in Figure 3 of the 11 June Statement could continue. Alternatively, FTNS (A) could be involved in the billing and settlement in a similar manner as for the settlement of access charge for ICFS operated by ETS operators. Since there are no insurmountable problems in relation to the billing and settlement of the origination charge, MNOs and FTNS operators should continue their commercial negotiations on the level of origination charge.

Figure 3 of the 11 June Statement



Office of the Telecommunications Authority
22 November 2002