

**RECOVERY OF COSTS
FOR OPERATOR NUMBER PORTABILITY
AND NETWORK CONDITIONING
ASSOCIATED WITH PORTING OF “NON-LEVEL 2” NUMBERS**

**STATEMENT OF THE TELECOMMUNICATIONS AUTHORITY
HONG KONG**

5 March 2001

INTRODUCTION

On 3 November 2000, the Telecommunications Authority (“TA”) issued a consultation paper entitled “Recovery of Costs for Operator Number Portability and Network Conditioning Associated with Porting of ‘Non-Level 2’ Numbers” (“the Consultation Paper”) to solicit the views of the industry on the principles for the recovery of costs for the implementation of operator number portability (“ONP”) and “network conditioning” associated with the porting of “non-level 2” numbers.

2. By the closing of the consultation, the TA received a total of four submissions from the following operators of fixed telecommunications network services (“FTNS”):

- Hutchison Global Crossing Limited (“HGC”)
- New T & T Hong Kong Limited (“New T & T”)
- New World Telephone Limited (“NWT”)
- PCCW-HKT Limited (“PCCW-HKT”)

The submissions have been posted on the Office of the Telecommunications Authority (“OFTA”) homepage at www.ofta.gov.hk.

3. Having considered the submissions of the above operators, the TA has finalised his views on the principles for the recovery of costs for the implementation of ONP and “network conditioning” associated with

the porting of “non-level 2” numbers. The views of the TA are set out in this Statement.

DISTINCTION OF THE NATURE OF WORK

4. In the Consultation Paper, the TA has highlighted his view that the work of FTNS operators in implementing ONP for “non-level 2” numbers should be divided into the following two categories:

- (a) work that is genuinely required to enable the customers to keep their telephone numbers unchanged upon switching of network operators; and
- (b) work that is carried out to enable the customers to switch network operators. Although such work is carried out at the same time as the porting of the telephone numbers, it is not genuinely required to enable the customers to keep their telephone numbers unchanged, since the work would still be required even if the customers opted to use new telephone numbers upon switching of network operators. The nature of such work is closer to that of “network conditioning” referred to in the TA Statement No. 7 (Revised) issued on 18 November 1997 on “Carrier-to-Carrier Charging Principles” (“the November 1997 Statement”).

5. New T & T supports the TA’s view that the work and the resultant costs for enabling the customers to keep their telephone numbers unchanged upon switching of network operators should be distinct from the work and the resultant costs that would have been required if the customers opt to use new telephone numbers upon switching of network operators. New T & T considers that such a distinction is important for the determination of the fair ONP costs to be recovered among FTNS operators. The TA notes that the HGC and NWT have no objection to the proposed distinction between the two categories of work.

6. PCCW-HKT, however, objects to the distinction. PCCW-HKT alleges that “OFTA attempts to classify the work associated in the ‘non-level 2’ migration/special porting by using the same principles for

‘level-2’ ONP. However, OFTA seems to have neglected the difference of the very nature of the ONP arrangement vs. migration / special porting arrangement”.

7. The TA has considered the views of PCCW-HKT. As explained in paragraph 17 of this Statement, the TA does not see any reason why the principles applicable to ONP for “level-2” numbers and ONP for “non-level 2” numbers should be different. Although the implementation approach (database or otherwise), operational procedures (based on HKTA Specifications 2106 or 2107) and impacts on traffic flow (volume and volatility) for “porting” are not the same as those for “migration”, these differences should only affect the level of the costs to be recovered rather than the principles under which the costs should be recovered.

8. The proposed distinction is to distinguish the work that is relevant to the implementation of ONP for “non-level 2” numbers from the work that is irrelevant. As the identification of the relevant costs is a key element of a fair and reasonable cost recovery framework, the TA maintains his view that the distinction between the work for ONP for “non-level 2” numbers and that for “network conditioning” is essential.

“PORTING” AND “MIGRATION” OF NUMBERS

9. The TA proposes to divide ONP movements into the “porting” category and the “migration” category. The proposal is made on the consideration that the operational procedures for the “porting” and “migration” of numbers are different. Such a categorisation was agreed by the industry in the technical forums established for the development of the operational procedures for ONP¹:

Numbers under the “Porting” Category

10. The numbers under the “porting” category refer to the categories of numbers that are allocated by OFTA to FTNS operators (which are

¹ See OFTA document entitled “Implementation of Operator Number Portability (HKTA 2105)” issued in December 2000.

entrusted with the responsibility of number assignment) who then assign the numbers to customers. These numbers are normally not associated with volatile or significant traffic volume and their movements from one FTNS network to another FTNS network do not result in significant impacts on the traffic flows among FTNS networks. Examples of the number levels under the “porting” category are:

Number Levels	Used for
180x	Payment by Phone Service
183x	Services with high volume of traffic
187x	Telebet, Phone-in, Community Service Hotline/Casualty Enquiry, Hotline for Charity
2x	Calling Card or Fixed Network Numbers
3x	Access Code for Number Translation Devices, Public Non-exclusive Telecommunications Services (“PNETS”) and Fixed Network Numbers etc.
8x	Freephone Service and Personal Numbering Service
900x	Information Services

Numbers under the “Migration” Category

11. The numbers under the “migration” category refer to the categories of numbers that are assigned by OFTA directly to customers without going through the FTNS operators. This category of numbers is typically used for services associated with volatile or significant traffic volume. The movements of these numbers from one FTNS network to another FTNS network usually result in significant change in the traffic flows among FTNS networks. The relevant FTNS operators (including the Donor Network Operator (“DNO”), the Recipient Network Operator (“RNO”) and the Other Network Operator (“ONO”)) are required to make special arrangements in their respective networks to ensure smooth and uncongested traffic flows after the “migration”. The required special arrangements include the increase of network capacities, closer network monitoring, etc. Examples of the numbers under the “migration” category are:

Number Levels	Used for
15x	External Telecommunications Services
16x	External Telecommunications Services
181x	Hong Kong Jockey Club customer service
18282	Community Service/Charity Hotline
184x	Hong Kong Jockey Club data telebet
188x	Hong Kong Jockey Club voice telebet /Mark Six
7x	Paging Service/Special Services

Note: “Mobile services” in this table in the Consultation Paper has been deleted. See paragraph 15.

Classification of “Porting” and “Migration”

12. NWT agrees that the division of numbers under the “porting” and the “migration” category should be based on the criteria of traffic volume and volatility. However, it has observed that some numbers, which are assigned to end-users by network operators, e.g. access codes for Public Non-exclusive Telecommunications Services (“PNETS”) licensees and Telebet services, should be grouped under the “migration” category (instead of under the “porting” category), as they are associated with volatile and high traffic volume. Similarly, PCCW-HKT also queried whether the number level “183x” (which is for services with high volume of traffic) should be grouped under the “porting” category.

13. The TA would like to point out that, according to the definitions for “porting” and “migration” agreed in the technical forums for the development of operational procedures for ONP, the definitions of “porting” and “migration” (as reflected in paragraphs 10 and 11 of this Statement) are based on whether the numbers are assigned to the end-users by the FTNS operators entrusted with this function (“porting”), or by OFTA direct (“migration”). The technical forums developed separate operational procedures for “porting” and “migration”. While the numbers in the “porting” category are normally not associated with volatile or significant traffic volume, this is not always the case. The access codes for PNETS licensees, the Telebet services and the number level “183x” are assigned by the FTNS operators to the customers. ONP

for these codes/numbers is implemented by the intelligent network database approach in the same way as the other numbers under the “porting” category. Therefore, although these numbers are associated with volatile and high traffic volume, the operational procedures for the ONP of these numbers are not different from those for the other numbers under the “porting” category. The TA therefore considers that these numbers should be grouped under the “porting” category, instead of the “migration” category.

14. PCCW-HKT also commented that the number levels of mobile service should not fall into the scope of “migration” because, throughout the technical forum, such mobile levels were excluded from discussions. PCCW-HKT requests the TA to conduct further studies and consultation before determining the cost recovery principles for the “migration” of number levels for mobile services.

15. The TA has considered the view of PCCW-HKT and agrees that movements of mobile networks and the associated numbering blocks are outside the scope of “migration” and ONP altogether. However, he considers that correct routing of traffic to networks is a fundamental part of the obligation to interconnect to other networks under General Condition 13 of an FTNS Licence. This obligation continues even if the configuration of network interconnection changes (e.g. when one mobile network ceases to be directly interconnected with one fixed network and is directly interconnected with another fixed network). Therefore any work in the network to enable correct routing of traffic after change of network interconnection configurations (e.g. modifying routing tables, adjusting capacity of trunks between switches, etc.) should rightly fall within the category of “network conditioning” work.

16. The TA considers that the argument in paragraph 15 would apply to access codes “15x” and “16x”, and the numbering blocks “7x” for paging services, if these service operators had “network” status. However, noting the fact that these operators are currently treated as service providers (instead of “carriers” or network operators), he has retained these codes under the “migration” category under ONP. Based on the principles set out in paragraphs 4 - 8 that the cost for “network conditioning” work should be excluded from ONP costs, the TA considers

that grouping the movements of these access codes/numbering blocks within ONP (under “migration”) or outside ONP would not affect how the “network conditioning” costs are to be borne and recovered.

COMPENSATION PRINCIPLES

17. Although the operational procedures for the “porting” and “migration” of numbers are different, they are ONP activities of the same nature. “Porting” and “migration” are essentially for the same purpose of enabling customers of FTNS operators to retain their telephone numbers upon switching of networks, irrespective of whether the numbers concerned are within or outside “level 2”, and whether the customers are small or large end-users, or service providers. All these activities are to facilitate the development of effective competition among networks. The FTNS operators have the licence obligations of implementing ONP, and ONP includes movements of “level 2” and “non-level 2” numbers, in the “porting” and “migration” categories. The TA will therefore apply the same compensation principles for the recovery of the ONP costs for “level 2” numbers and “non-level 2” numbers among FTNS operators. The compensation principles for the “porting” of “level 2” numbers have been stated in the TA Statement entitled “Operator Number Portability: Recovery of Costs Under the Intelligent Network Approach” issued on 13 September 1997 (“the September 1997 Statement”) as follows:

- relevant costs;
- cost causality;
- cost minimization;
- effective competition; and
- distribution of benefits.

18. The principles stated in the September 1997 Statement are applicable to the recovery of costs for the implementation of ONP and therefore should be applicable only to the work that is genuinely required to enable the customers to keep their telephone numbers unchanged upon switching of network operators. As regards the special arrangements required to be carried out in the network to ensure smooth and uncongested traffic flow after the number “migration”, the TA considers

that such work should be considered as “network conditioning” and to be recovered among FTNS operators according to the principles as stated in paragraphs 13 - 15 of the November 1997 Statement. This is because “network conditioning” is necessary even if the customers opt to use new telephone numbers upon switching of network operators (or when an FTNS operator acquires a customer who newly enters the market with substantial volume of traffic). This demonstrates that the work for “network conditioning” is not attributable to ONP. The work is required whenever there is a customer with substantial volume of traffic (regardless of whether it needs ONP or not) connects to a FTNS network.

19. New T & T supports the TA’s view that the cost recovery principles stated in the September 1997 Statement should be applicable to all “level 2” and “non-level 2” numbers, regardless of whether they are under the “porting” category or the “migration” category. New T & T considers that the rationales of the application of these cost recovery principles are consistent with the TA’s long term objectives which are to promote effective competition and to enhance consumer interest.

20. PCCW-HKT, however, has raised an objection to the TA’s proposal. PCCW-HKT considers that the TA’s proposal “leads to the risk that for simplicity sake the same cost recovery principles and mechanisms are applied to the arrangement disregarding the complexity of migration arrangement”. In PCCW-HKT’s view, the compensation principles for “migration” should be based on what particular works/activities have been done for attaining the objective rather than the objective alone. In addition, PCCW-HKT also pointed out that the compensation principles stated in the September 1997 Statement did not cater for the “migration” cases.

21. The TA also accepts that the September 1997 Statement had not explicitly stated that the statement covered the ONP for “non-level 2” numbers. That is why he considers it necessary to clarify, through this consultation exercise, whether the established cost recovery principles set out in the September 1997 Statement should apply to all “level 2” and “non-level 2” numbers, and if not, what cost recovery principles should be applied for the ONP for “non-level 2” numbers. The application of the same compensation principles for the recovery of ONP costs for

“porting” of “level 2” numbers and “porting”/“migration” of “non-level 2” numbers is not “for simplicity sake”, but for the lack of rationale for applying different principles. The complexity of the work involved should just affect the operational procedures and the level of costs involved.

COSTS FOR THE “PORTING” AND “MIGRATION” OF NUMBERS

22. To develop the cost recovery principles for ONP for “non-level 2” numbers, the TA proposes to follow the same approach as adopted in the September 1997 Statement to classify the costs for the implementation of “porting” and “migration” of numbers into the following three categories for separate review:

- System set-up costs;
- Additional conveyance costs; and
- Per line set-up costs.

23. The above cost classification is generally supported by FTNS operators. PCCW-HKT had, however, expressed a view that the “per line set-up costs” should take a broader meaning, which will be further discussed in paragraphs 40 - 42 below.

System Set-up Costs

24. System set-up costs refer to the costs incurred by a FTNS operator for the establishing, maintaining and upgrading of a system ready for the implementation of ONP across networks upon receipt of customer orders.

“Porting”

25. Similar to the ONP for “level 2” numbers, the ONP for “non-level 2” numbers under the “porting” category is carried out by the intelligent network database approach. To be ready to port numbers upon receipt of customer orders, FTNS networks must be equipped with

the necessary database systems for the implementation of the “porting”. According to the TA’s understanding, the four wireline-based FTNS operators have each maintained a replicated on-line gateway number (“GN”) database. Each of them has also established an off-line administration database (“AD”) and linked the AD to similar databases of other operators to exchange information for the updating of the GN databases.

26. The TA is of the view that, for the implementation of ONP for “non-level 2” numbers under the “porting” category, each FTNS operator should bear its own relevant system set-up costs. The TA’s view is based on the consideration that, in a multi-network environment, the provision of ONP is an obligation of the FTNS licensees pursuant to the FTNS Licence therefore each FTNS operator must make its network capable of routing calls to the ported numbers efficiently and correctly. The TA’s view is supported by FTNS operators.

“Migration”

27. For the “migration” of “non-level 2” numbers, the TA notes that the FTNS operators have at this stage employed a non-intelligent network database approach (details of which were specified in OFTA’s document referenced HKTA 2106 issued in December 2000). Under such an approach, FTNS operators are required to make their own special routing arrangements by modifying the routing tables of their exchanges to implement the “migration” of numbers from one network to another.

28. In the context of the non-intelligent network database approach, system set-up costs refer to the costs of establishing the network up to the stage that it is ready for the implementation of revisions to routing arrangements for the “migration” of numbers upon request by the customer. The TA considers that the actual revision of routing tables of the exchanges and the subsequent work for the “migration” of numbers should not be regarded as part of the system set-up for the following two reasons:

- (a) such work is more related to the arrangements made to migrate a particular block of numbers rather than the general set up of the

entire network; and

- (b) such work cannot be proceeded with unless and until a customer request indicating the exact “migration” requirement (i.e. which numbers, identity of donor network, identity of recipient network, etc.) is known.

29. Bearing in mind the scope of system set-up as defined in paragraph 28 above, the TA considers that the same principle as for “porting” concerning the responsibility for bearing the system set-up costs is applicable to the handling of ONP for “non-level 2” numbers under the “migration” category. The reason is that the obligation of FTNS operators does not draw a distinction between the ONP for numbers under the “porting” category and the “migration” category. The users of the numbers under the “migration” category are also customers of the FTNS Licensees. Hence, the TA is of the view that each FTNS operator should bear its own system set-up costs for the handling of portability for numbers, regardless of whether they are numbers under the “porting” category or the “migration” category.

30. The TA’s view is supported by FTNS operators. New T & T has further added that, pursuant to the TA’s direction, PCCW-HKT is obliged to carry out a database solution for the ONP of all numbers, regardless of whether they are under the “porting” category or the “migration” category, with effect from 1 January 1997. It is therefore unreasonable for PCCW-HKT to implement the “migration” of “non-level 2” numbers by the non-intelligent network database approach and use the costs for such for the computation of the ONP charges. The same cost recovery principles should be applied to both the “porting” and “migration” of numbers alike, based on the intelligent network database approach. The TA does not consider it necessary to address the reasonableness of the non-database approach adopted by PCCW-HKT, but notes that HKTA 2106 tolerates such an approach.

Additional Conveyance Costs

31. Additional conveyance costs refer to the additional costs of signalling capacity required for the delivery of calls to a “ported” or

“migrated” number compared with the corresponding capacity if the numbers concerned are not “ported” or “migrated”.

“Porting”

32. The TA notes that the FTNS operators have employed the intelligent network database approach to implement the “porting” of “non-level 2” numbers. Under such an approach, to complete a call to a number that has been “ported” from one FTNS network to another FTNS network, the originating network operator has to access the GN database. The GN database then translates the number in question into a gateway number. According to the gateway number, the originating network operator will know to which FTNS network that the number has been moved and complete the switching of the call. There is no material difference between this procedure for the “porting” of “non-level 2” numbers and that for the porting of “level 2” numbers.

33. As the signalling activities for the “porting” of “non-level 2” numbers are essentially the same as those for “level 2” numbers, following the same principles as given in the September 1997 Statement that the provision of signalling is a “network conditioning” requirement in a multi-network environment, the TA considers that each FTNS operator should bear its own additional conveyance costs for ONP activities. The TA’s view is supported by FTNS operators.

“Migration”

34. For the “migration” of “non-level 2” numbers, the TA notes that the FTNS operators have at this stage employed a non-intelligent network database approach. Under such an approach, when there is a need to complete a call to a number that has been “migrated” from one FTNS network to another FTNS network, the originating network operator has to refer to the modified routing tables of its exchanges to find out the correct destination and then deliver the call. The TA considers that there should be no additional conveyance costs for signalling as the routing tables in individual switches have to be consulted anyway with or without the “migration” therefore there is no need to establish any cost recovery arrangement for the additional conveyance costs for the

“migration” of “non-level 2” numbers. The TA’s view is supported by FTNS operators.

Per Line Set-up Costs

35. Per line set-up costs refer to the administrative and engineering costs for the implementation of ONP after the receipt of an ONP request from customer.

“Porting”

36. The TA notes that the FTNS operators have adopted the intelligent network database approach to implement the “porting” of “non-level 2” numbers. Under such an approach, when there is a need for the “porting” of “non-level 2” numbers, administrative work has to be carried out by the RNO, the DNO and the other FTNS operators which operate ONP databases because they need to update their databases and other support systems. In addition, the DNO has to perform system checks to confirm that the number portability request can be met and to carry out the necessary steps with the RNO to implement the “porting” of the numbers. The DNO and the RNO would also need to liaise with each other and make the necessary arrangements for the disconnection of the customer from the DNO and the connection of the customer to the RNO at the scheduled cutover time.

37. In view of the fact that the activities for the “porting” of “non-level 2” numbers are essentially the same as those for “level 2” numbers under the intelligent network database approach, the TA considers that the cost recovery principles for the per line set-up costs of the “porting” of “level 2” numbers should also be extended to the “porting” of “non-level 2” numbers. That is, the RNO should compensate the DNO for the per line set-up costs which are directly attributable to the implementation of the porting customers’ decision. The relevant per line set-up costs of the DNO should be recovered on a long-run average incremental cost (“LRAIC”) basis and should be best approximated “by summing up the costs incurred for carrying out the administrative work, testing the systems, disconnecting the customers, wiring the customers to the recipient network and updating the database, less the incremental costs incurred for pure termination of services and for providing Type II

interconnection where applicable”². In addition, the TA also stated that the per line set-up costs should be recovered by the DNO as one-off charges from the RNO, unless the DNO could demonstrate that there would also be recurrent costs to be induced by the porting customers. However, the RNO could determine itself how it would like to recover these costs from the customers.

38. The TA’s view is generally supported by FTNS operators. While agreeing to the TA’s view, New T & T commented that common costs should not be recovered between the DNO and RNO unless it is incremental in nature as a result of the “porting” activities. New T & T also considers that the RNO should not compensate the DNO for the inefficiency already existed in the DNO. The TA would like to respond that, as it has been stated clearly in paragraph 37 above, the per line set-up costs that the DNO is entitled to recover from the RNO should be restricted to the incremental costs directly attributable to the implementation of the porting customers’ decision. The incremental costs are the differences in the DNO’s total costs with and without the “porting” activities. Therefore, common cost item that is not incremental as a result of the “porting” activities would not be included in the cost recovery. As regards New T & T’s view that the RNO should not compensate the DNO for the inefficiency already existed in the DNO, the TA considers that as for determination of interconnection charges, the charges should be based on a reasonably efficient operation of the DNO.

“Migration”

39. The TA notes that the FTNS operators have adopted the non-intelligent network database approach to implement the “migration” of “non-level 2” numbers. Under such an approach, when there is a customer request, the concerned FTNS operators need to carry out administrative and engineering work for the implementation of the “migration” of numbers. The work includes checking information of customers who request “migration”, liaison with other operators on the detailed arrangements for the “migration” of numbers, activating and deactivating the “migrated” numbers in the relevant telephone switches, etc.

² See paragraph 50 of the September 1997 Statement

As the activities are similar in nature to those required for the implementation of the “porting” of numbers, the TA is of the view that the cost recovery principles as stated in paragraph 37 above should also apply to the “migration” of “non-level 2” numbers. The DNO is therefore entitled to recover the relevant per line set-up costs³ from the RNO. The per line set-up costs that the DNO is entitled to recover from the RNO should be restricted to those incremental costs which are directly attributable to the “migration” of numbers. The incremental costs should be assessed based on the difference in the costs to the DNO between the case where the customers request for the “migration” of numbers and the case where the customers only change the network operator without keeping the numbers.

40. The view of the TA is supported by New T & T, NWT and HGC. However, PCCW-HKT disagrees and claimed that the “migration” of numbers, unlike normal service termination, involved extra arrangement and resources, including emergency restoration, network routing and translation works. PCCW-HKT therefore considers that the DNO should be able to recover the costs involved for such extra works from the RNO. In addition, PCCW-HKT also takes a view that the per line set-up costs for the “migration” of numbers should take a broader meaning because the activities are not concerned with the portability of a direct exchange line (“DEL”) but the portability of groups of T1/E1 trunks for high-traffic operators. Among the activities involved in the “migration” of numbers, PCCW-HKT believes that the following should be chargeable as they are required as a result of a “non-level 2” customer’s commercial request:

- network trunking and traffic planning for the customer’s movement before the cutover;
- trunking data and routing re-arrangement before the cutover; and
- the cutover implementation (usually lasting for a few hours).

³ The relevant per line set-up costs of the DNO should be recovered on a LRAIC basis and should be best approximated by summing up the costs incurred for carrying out the administrative work, liaison with other operators, activating and de-activating the “migrated” numbers in the telephone switches, etc. less the incremental costs incurred for pure termination of services.

41. The TA notes that PCCW-HKT's views are, in fact, consistent with his views. According to PCCW-HKT's submission, the TA notes that PCCW-HKT has no objection to the cost recovery principles proposed by the TA concerning the system set-up costs and the additional conveyance costs for the ONP for "non-level 2 numbers" under both the "porting" category and the "migration" category. As regards the per line set-up costs for the "porting" of "non-level 2" numbers, PCCW-HKT also has no objection to the cost recovery principles proposed by the TA.

42. The TA notes that what PCCW-HKT is concerned about is the complexity of the work carried out by the DNO for the "migration" of "non-level 2" numbers. PCCW-HKT emphasized that more work is required for the implementation of the "migration" of "non-level 2" than the "porting" of "non-level 2" numbers. The TA considers that the differences in the quantity and complexities of work should not preclude the application of the same cost recovery principles for the two types of activities - the differences should only affect the level of charges. The TA agrees that the DNO is entitled to recover from the per line set-up costs from the RNO, provided that such are "incremental" costs and are directly attributable to the "migration" of numbers. Therefore, if the costs for those activities as identified by PCCW-HKT in paragraph 40 above (including network trunking and traffic planning; trunking data and routing re-arrangement and the cutover implementation) are "incremental" and "directly attributable to the 'migration' of numbers" (meaning that such work will not be required if the customer with the traffic volume merely joins the RNO's network without keeping the same telephone numbers), the TA agrees that the DNO is entitled to recover them from the RNO.

COSTS FOR NETWORK CONDITIONING

43. For the implementation of the "migration" of "non-level 2" numbers, the TA recognises that the RNO may request the DNO and the other concerned FTNS operators to make "network conditioning" arrangements in addition to the work genuinely required for the customer to migrate the numbers from one network to another network. Such "network conditioning" work is needed because the "non-level 2"

numbers under the “migration” category are typically associated with substantial or volatile traffic volume. The movement of these numbers from one FTNS network to another FTNS network will bring about significant impact on the traffic flow among the FTNS networks. In order to cater for the significant change in traffic flow and to prevent access to the “migrated” numbers from being interrupted by traffic congestion, the RNO may request the DNO to carry out “network conditioning” work, including the re-configuration and/or re-dimensioning of the capacity of their networks and the concerned interconnection facilities, closer network monitoring etc., for the implementation of the number “migration”.

44. According to the principles for the recovery of costs for “network conditioning” set out in paragraphs 13 to 15 of the November 1997 Statement, the TA is of the view that the DNO and the RNO should bear their own “network conditioning” costs for the implementation of the “migration” of “non-level 2” numbers. The DNO is not entitled to recover from the RNO the “network conditioning” costs arising from the implementation of the “migration” of “non-level 2” numbers.

45. The TA’s view is based on the consideration that each FTNS licensee has the obligation to develop and maintain its network to meet the efficient interconnection obligations under its licence. As each FTNS operator has an equal responsibility in ensuring that its FTNS network is interconnected promptly and efficiently with the other FTNS networks, the “network conditioning” costs incurred by an FTNS operator for the purposes of preparing and maintaining its own network for interconnection to meet licence obligations should be borne by that FTNS operator itself. 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 (paragraph 13 of the November 1997 Statement). If a carrier is requested to “condition” its network beyond its licence obligations, the carrier will also be entitled to recover the costs from the other interconnecting carrier (paragraph 15 of the November 1997 Statement).

46. The TA has considered whether the “network conditioning” costs are incurred directly as a result of the “migration” of the numbers and whether the RNO should compensate the DNO for such costs according to the cost causality principle. The TA holds the view that in operating an FTNS business, an FTNS operator must be prepared to “condition” (prepare) its network as and when required to cope with the changing environment caused by acquisition and termination of customers, movements of customers from one network to another and growth/reduction of traffic volume of customers connected to its network. To maintain an efficient interconnection with other networks to meet licence obligations, the “conditioning” of the network must cater for such changes and movements of customers/traffic volume occurring in the interconnecting networks as well. The “network conditioning” is not carried out purely for the benefit of the interconnecting carriers, because the work is also required to provide a satisfactory quality of service to the customers of the operator carrying out the “network conditioning” work. These customers, having paid their line rentals to the operator carrying out the work, expect that their calls will be delivered correctly and efficiently to the called destinations, be they on the same network as the customers or on other interconnecting networks. The responsibility to “condition” the networks for efficient interconnection is mutual. This is the basis of the interconnection charging principles applicable to “network conditioning” as stated in paragraph 13 of the November 1997 Statement.

47. In the case of the “network conditioning” work associated with “migration” of numbers, the work is done for coping with the change in the flow of traffic between the DNO and the RNO after the “migration” of the numbers. Such work will be required even if the customer opts to change to new numbers after switching network operators. The work to deliver calls correctly and efficiently is clearly within the licence obligations of the FTNS operators and therefore the principles in paragraph 13, not paragraph 15, of the November 1997 Statement should apply. In addition, the argument for the RNO to bear the “network conditioning” costs of the DNO is also inconsistent with the principles of “cost minimisation” and “effective competition” because such an arrangement could encourage the DNO to inflate the “network conditioning” costs and discourage the customers from changing FTNS

operators according to their preference.

48. In fact, the principle that the DNO and the RNO should bear their own “network conditioning” costs is analogous to the situation when an FTNS operator acquires a new customer or loses an existing customer with substantial traffic volume, or when the traffic level of an existing customer increases or decreases substantially. In such situation, the FTNS operator would similarly request the interconnecting FTNS operators to “condition” their networks to cope with the changes in traffic flows. As the interconnecting FTNS operators have the licence obligations to provide efficient interconnection, the costs for such “network conditioning” work are borne by the interconnecting FTNS operators themselves. The requesting FTNS operator is not required to compensate the interconnecting FTNS operators for the “network conditioning” work done by the interconnecting FTNS operators for coping with the changes in traffic flows in an integrated, interconnected, multi-network environment.

49. New T &T supports the TA’s proposal that the DNO and the RNO should bear their own “network conditioning” costs for the implementation of the “migration” of “non-level 2” numbers. HGC also supports the views of the TA but added that the DNO should not be requested to “condition” its network beyond its licence obligation.

50. However, NWT commented that, if DNO incurred costs on facilitating ONP which were not otherwise recoverable from interconnection charges, the DNO should be entitled to recover such costs from the RNO. PCCW-HKT also commented that “network conditioning” should only refer to the first implementation in FTNS networks, and subsequent change of network in response to customers’ “migration” requests should not be viewed as “network conditioning”. PCCW-HKT emphasized that “migration” involved trunk lines carrying large volume of traffic from many end customers, not single telephone lines. The “migration” request from operators, unlike ONP request from end customers, is purely a commercial decision. The end customers are either unaware of such movement or have no say in such decision making. Therefore, PCCW-HKT considers that the cost elements involved in satisfying such commercial requests should be recovered by the DNO in a

commercial way. PCCW-HKT also expressed that if the TA classified the special work associated with “migration” as “network conditioning”, it would only lead to inefficient and uneconomical network arrangement in the whole industry. As there are 10 FTNS operators in Hong Kong, if an operator such as ETS or paging operator makes frequent requests for number “migration”, the FTNS operators would waste a lot of resources in response to such requests based on purely commercial decisions. PCCW-HKT requests that, if the TA insists on the view of classifying the migration as “network conditioning”, the whole interconnect charging regime has to be reviewed to take into account the costly migration which the TA has neglected in forming the Statement for the “porting” of “level 2” numbers as well as the existing interconnection charging regime.

51. In response to NWT’s comments, the TA agrees that it is fair for the DNO to recover from the RNO only the relevant ONP costs which are not otherwise recoverable by the DNO from interconnection charges. According to the principles in the November 1997 Statement, “network conditioning” costs are recovered through interconnection usage charges among the FTNS operators. In recovering costs for ONP, it is important to look at the nature of the work involved and to clarify whether the work and the resultant cost items are for ONP or for “network conditioning”. If the cost items are for ONP, it is necessary to determine whether it should be classified as the system set-up costs, additional conveyance costs or per line set-up costs. For the reasons stated in this Statement, only the per line set-up costs should be recovered from the RNO.

52. In response to PCCW-HKT’s comments, the TA does not agree that the customers in a “migration” is not aware of the commercial decision of the service provider requesting the movement of numbers. In this context, the “customer” of the FTNS operator is the service provider. The recovery of “network conditioning” costs through interconnection usage charges has always been part of the charging principles set out in the November 1997 Statement. The TA therefore does not accept that treating “migration” costs as “network conditioning” would require a fundamental review of the interconnect regime. PCCW-HKT’s point that “network conditioning” should only refer to the first implementation is arbitrary because the preparation and maintenance of its own network for interconnection is an on-going responsibility for a

FTNS licensee throughout the duration of the FTNS licence.

OTHER NETWORK OPERATORS

53. As the ONO would not incur any incremental system set-up costs and additional conveyance costs for the “porting” and “migration” of “non-level 2” numbers, the TA considers that there is no need for the ONO to recover any system set-up costs or additional conveyance costs from the DNO nor the RNO. As regards the per line set-up costs, the TA recognises that a little incremental costs may be incurred by the ONO (e.g. for handling administrative work; updating databases or routing table etc.) when there are customer requests for the “migration” of non-level 2 numbers. However, the bulk of the work that an ONO is required to carry out to facilitate “migration” of “non-level 2” numbers is connected with “network conditioning”. Therefore, in view of the fact that the genuine per line set-up work should not be substantial and considering that there is an equal opportunity for each of the operators to serve as ONO to incur similar costs for the benefit of the other operators as RNO, the TA holds the view that no cost recovery should be done. In fact, it is not worthwhile to establish an inter-operator charging mechanism for the settlement of the per line set-up costs for the “migration” of “non-level 2” numbers, in the light that the additional administrative costs that will be incurred by operators for the calculation, billing and collection of the charges may be higher than the amount of costs that needs to be settled.

54. However, if the ONO is required to implement “network conditioning” arrangements (e.g. the re-configuration and re-dimensioning of their networks and interconnection facilities, closer network monitoring etc.) to facilitate the “migration” of “non-level 2” numbers between the DNO and RNO, pursuant to the same principles as stated in the November 1997 Statement and as discussed in paragraphs 45 and 46 of this Statement, the TA considers that the ONO should bear its own “network conditioning” costs. Hence, the ONO is not entitled to recover the “network conditioning” costs arising from the implementation of the “migration” of “non-level 2” numbers from the DNO nor the RNO.

55. HGC supports the view of the TA. New T & T also agrees

with the TA's view that the per-line set-up costs incurred by the ONO should be insignificant. New T & T considers that it is not justifiable to establish an inter-operator charging mechanism for the settlements of costs incurred and the ONO should absorb their own costs.

56. NWT commented that the "migration" of number might bring about significant change in the traffic among FTNS networks. NWT considers that, if ONO incurs cost on facilitating ONP which are not otherwise recoverable from interconnection charges, it should be entitled to recover such cost from the RNO. For the reason as stated in paragraph 53, the TA considers that it is not worthwhile to establish an inter-operator charging mechanism for ONO charges.

57. PCCW-HKT disagrees that there is an equal opportunity for each of the FTNS operators to serve as ONO to incur such costs for the benefits of the other operators as RNO, because PCCW-HKT is at present the hub of interconnection. PCCW-HKT is more often to serve as the ONO for the "porting" and "migration" of numbers among FTNS networks. Thus, PCCW-HKT will bear higher ONO costs than any other FTNS operators until each operator had an equal opportunity to form the interconnection hub and balance out the cost in long run. The TA considers that in the present situation it is probable that PCCW-HKT is serving more often as the DNO or RNO, rather than ONO. Moreover, in view of the fact that most of the extra work that an ONO is required to carry out to facilitate the "migration" of "non-level 2" numbers is connected with "network conditioning" and that the per line set-up cost that an ONO is required to implement is not material, the TA maintains his view that no mechanism for the recovery for ONO costs is necessary among the ONO, DNO and RNO.

OTHER ISSUES

58. New T & T submits that the "LRAIC" charging basis should be applied retrospectively to all the work on the "migration" of numbers that have been carried out from 1 January 1997 onwards by the DNO. New T & T considers that PCCW-HKT's continuous adoption of the non-intelligent network database approach has unreasonably pushed up the

ONP costs on other FTNS operators. New T & T requests that all the ONP charges that RNO paid to PCCW-HKT for the migration of “non-level 2” numbers should be reviewed and be recomputed on the LRAIC basis.

59. In line with the policy that the TA would not lightly interfere with commercial agreement voluntarily entered into, the TA is of the view that the charging principles stated above should not be retrospectively applied to those commercial agreements that have been established by commercial negotiations by FTNS operators in the past, unless the agreements contain clauses for such review.

CONCLUSION

60. The TA is of the view that the cost recovery principles stated in the September 1997 Statement should be applicable to all “level 2” and “non-level 2” numbers, regardless of whether they are under the “porting” category or the “migration” category. The DNO is not entitled to recover from the RNO the system set-up costs and the additional conveyance costs from the ONO for the “porting” and “migration” of “non-level 2” numbers. The DNO is entitled to recover from the RNO the per line set-up costs for the “porting” and the “migration” of “non-level 2” numbers. The costs which are recoverable are the incremental costs incurred for the implementation of number portability. “Network conditioning” costs which are not connected with the implementation of number portability should be excluded. The appropriate test to determine if a cost item falls within the definition of per line set up costs is whether the cost would be incurred if the customer switches from one network to another without keeping the same numbers.

61. In cases where there is a need for the RNO, DNO and ONO to carry out “network conditioning” work for the implementation of the “migration” of “non-level 2” numbers, the RNO, DNO and the ONO should bear their own “network conditioning” costs and there is no need for the RNO, DNO and ONO to compensate each other for the “network conditioning” costs arising from the implementation of the “porting” or “migration” of “non-level 2” numbers.

Office of the Telecommunications Authority

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