For Discussion NAC Paper No. 2/2008

TELECOMMUNICATIONS NUMBERING ADVISORY COMMITTEE

Effective Use of Telecommunications Numbers (II)
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Purpose

This paper gives a final report on the deliberation results of the Working Group on Numbering Issues and recommends new administrative measures for more efficient use of telecommunications numbers.

Introduction

2. The Working Group on Numbering Issues ("the Working Group") under the Telecommunications Numbering Advisory Committee ("NAC") was established in March 2008 to explore feasible administrative measures for more efficient use of telecommunications numbers. After having six Working Group meetings in the period from April to September 2008, the Working Group has come to consensus of introducing a number of measures, including tightening up the current procedures and introducing some new initiatives to encourage the effective use of telecommunications numbers.

The Interim Measures

3. Based on the deliberation results of the first five Working Group meetings, a NAC Paper No. 1/2008 entitled "Efficient Use of Telecommunications Numbers" was prepared in July 2008 and circulated to NAC Members for comments. Taking into account the comments received, the Telecommunications Authority ("TA") agreed in principle the introduction

of the following interim administrative measures to encourage the effective use of telecommunications numbers from September 2008:

i) To conduct periodic review and audit (i.e. no more than once per year) to ensure that inactive ported numbers are returned to the Original Donor Network Operators ("ODNO") promptly;

ii) To stop allocating "8(1-3)X" personal numbers to fixed operators with effective from 1 January 2009;

iii) To unify the minimum block size for subscriber number allocation as 10,000 (10k) for requests from different types of operators;

iv) To extend the number fee of $3 to public radio paging operators and mobile virtual network operators subject to the outcome of the consultation;

v) To raise the threshold of the number utilisation level for allocating additional numbers to 70%;

vi) Before the finalisation of the exact criteria for determining the amount of number blocks to be allocated, to allocate one 10k block or more (subject to a maximum of 10 number blocks) to an operator provided that the operator has shown genuine need of such amount of additional numbers; and

vii) To accept return of non-contiguous numbers from operators on a condition that they accept re-allocation of formerly returned numbers when they have new demand for numbers in future.

Further Deliberations in the 6th Working Group Meeting

4. In the 6th Working Group Meeting held on 18 September 2008, the Working Group Members had come up with some further details for the relevant administrative measures which are elaborated in the following paragraphs.

Number Fees for Public Radio Paging and Mobile Virtual Network Services

5. One of the administrative measures to encourage effective use of numbers is to revise the licence fee structure imposed upon public radio paging operators and mobile virtual network operators so that there will be a number fee of $3 per number while the customer connection fee will be reduced from $18 to $8. Provided that the relevant operators return most of their unassigned numbers to OFTA, they will be subject to a lower licence fee. The consultation entitled "Review of the Licence Fees for Provision of the Public Radio Paging and Mobile Virtual Network Services" was conducted in the period from 24 September 2008 to 14 November 2008. Some relevant licensees expressed in their submissions to the consultation that ample time should be provided so that they will be able to arrange the return of idle numbers to OFTA before the effect of the new licence fee structure. Since they may return a large quantity of idle numbers once the new licence fee structure is imposed, OFTA will take into account such request and provide sufficient time for them to return idle numbers.

Dynamic Number Allocation Arrangement

6. Subsequent to the adoption of 70% of number utilisation as the threshold for allocation of additional numbers, the remaining issue is to determine the amount of numbers to be allocated to a licensee for each of its number application.

7. The Working Group recognised that allocating too many numbers to operators was not efficient enough whereas allocating too little numbers would increase the frequency of applications and thus increase the administration work of both operators and the Office of the Telecommunications Authority ("OFTA"). Based on the past records, operators on average applied for additional numbers about once in every five months. The Working Group therefore agreed in the meeting that the amount of numbers to be allocated to a successful applicant should meet its demand for numbers for a period of six months.

8. The amount of numbers can be derived with reference to the average monthly number consumption of the applicant in the 6-month period prior to the number application (i.e. the amount shall be equal to six times the average monthly consumption figure). In response to the request of some operators, OFTA may consider allocating additional numbers provided that the concerned operator can substantiate its application with sound justifications (e.g. the evidence of the recent marketing campaign).

9. It is proposed to implement the dynamic number allocation arrangement in the manner that when the utilization level of a licensee reaches or exceeds 70%, successful number applications will be allocated with an amount of numbers equal to six times its average monthly number consumption, to be rounded up to the nearest 10k numbers.

Arrangement for Return of Numbers

10. With reference to the NAC Paper No. 1/2008, there were some 16.5 million of unassigned numbers, including fixed, mobile, service-based operators ("SBO"), paging and personal numbers held by operators. Operators would have initiative to return some of the unassigned numbers to OFTA so as to reduce the number fee. The Working Group has had a number of discussions on the number return arrangement. The principle on the

acceptance of return of non-contiguous numbers by OFTA and that the operators be allocated with their respective returned numbers has been agreed at the 5th Working Group Meeting.

11. At the early stage of the discussion, operators requested that they should have the flexibility to return numbers to OFTA at any time. It was then identified that operators would have no benefit to return numbers to OFTA except shortly before the date that OFTA uses the amount of numbers allocated to an operator in the calculation of the licence fee payable. To rein in the administrative effort arising from the handling of the return of numbers from the industry, the Working Group agreed that the frequency of the return of numbers by each operator should be confined to one in each licensing year.

12. The number fee is levied together with other elements of the licence fee on the grant date of the licence or its anniversary in subsequent years. The Working Group has discussed measures to discourage operators from returning numbers right before these dates and then applying immediately for additional numbers thereafter for the purpose of evasion of licence fee. It was generally agreed that an operator is not permitted to:

(a) apply for return of numbers during the 3-month period before the grant date / anniversary date of its licence; and
(b) apply for allocation of additional numbers within a 6-month period[1] after its return of unassigned numbers back to OFTA.

13. However, it is understandable that holders of Fixed Carrier Licence / Mobile Carrier Licence may wish to return their unassigned numbers right before conversion of their licences to Unified Carrier Licence ("UCL"). Similarly, there will be strong financial incentive for public radio paging

[1] The 6-month period is derived on the ground that when an operator considers returning of numbers to OFTA, it should reserve sufficient numbers to meet its coming 6-month demands, similar to the principle adopted in the dynamic number allocation arrangement that OFTA will allocate 6-month demands for an operator when it applies for additional numbers.

operators and mobile virtual network operators to do the same right before OFTA effects the imposition of the number fee as proposed in the consultation paper. In light of the above consideration, OFTA may opt for a more lenient approach by lifting the restriction in paragraph 12(a) such that an operator may return unassigned numbers to OFTA at any time but not more than once in each licensing year. Further, no additional numbers will be allocated to this operator within a period of six months from the date of its last return of numbers.

Numbers Assigned for Direct-Dialling-In ("DDI") Circuits

14. With reference to the Code of Practice Relating to the Use of Numbers and Codes in the Hong Kong Numbering Plan ("the Numbering CoP"), fixed operators may assign in multiple of 100 DDI numbers to customers in accordance with the circuit-to-number ratio of 1:12.5. Currently, fixed operators will assign a block of contiguous numbers for the provision of DDI services to end users (e.g. 300 numbers for 1 T1 line of 24 circuits). Fixed operators indicated that they have genuine need of contiguous numbers for provision of DDI and new services.

15. From technical point of view, fixed operators may deploy network numbers ("NN") for call routing purpose so that non-contiguous numbers can be used for the provision of DDI services. In this connection, the fixed numbers can be used more efficiently as there is no need to partition certain number ranges as DDI numbers. However, fixed operators expressed that the demand for contiguous numbers comes from end users who would not likely accept a DDI group composing of non-contiguous number ranges or to have some individual numbers within the DDI group be assigned to some other users.

16. In the NAC Paper No. 9/2000, the existing circuit-to-number ratio of 1:12.5 for DDI services is set. Since some of the digital private automatic

branch exchanges can now put through both incoming and outgoing traffic on the same digital circuits (e.g. ISDN T1 Primary Rate Interface), it is based on similar calculation[2] that the circuit-to-number ratio for both way DDI circuits should be set to 1:6.3 thereby reducing the amount of numbers to be assigned to this type of DDI circuits.

Re-allocation of Returned Numbers to Fixed Operators

17. When fixed operators convert their licences to UCL, they may return some unassigned numbers to OFTA so as to reduce the total licence fee. The numbers returned from fixed operators would most probably be non-contiguous numbers as contiguous numbers are relatively more critical for the provision of DDI and new services. Some fixed operators expressed the concern that the re-allocation of their returned non-contiguous numbers to them first, rather than new contiguous number blocks, cannot meet their business need. For instance, due to the exchange factor, even the numbers originally assigned to one exchange unit are returned, these numbers cannot be re-allocated for use in some other exchange units. Some operators requested that the return and re-allocation of direct exchange line ("DEL") numbers and DDI numbers should be treated separately. The Working Group considered that if operators have the flexibility to be re-allocated with their preferred blocks of returned numbers, though not contiguous, it would ease some of the concerns of the fixed operators.

18. Considering that fixed network operators will unlikely convert their licences to UCL before the expiry of their existing licences, the earliest date for re-allocation of returned number to fixed operators will probably be in or after 2010. In this connection, there should be some more time for OFTA and fixed operators to explore various practical options on the number re-allocation

[2] Technically an ISDN T1 Primary Rate Interface (i.e. with 23B+D channels) can support 14.5 Erlang of both way traffic at 1% grade-of-service. By taking the both way traffic of 0.1 Erlang per circuit (i.e. about two times the incoming traffic of 0.055 Erlang of a DDI circuit), an ISDN T1 Primary Rate Interface can support 145 extensions (requiring 145 numbers), thus equivalent to one both way circuit can support 145/23 = 6.3 extensions.

arrangement.

Pre-paid Numbers

19. As at August 2008, more than 5.2 millions of mobile users (i.e. about 47% of total mobile subscribers) were using pre-paid services. Since this is a significant portion of the mobile market and it is projected that the growth of pre-paid users will be higher than post-paid users, it is desirable to ensure that the numbers assigned for pre-paid services would be efficiently used. The Working Group has reviewed various arrangements trying to improve the efficient use of pre-paid numbers.

20. Due to the increasing demand of pre-paid services including "one card two/multiple numbers" service, the Working Group has explored the feasibility of allocating 9/10-digit numbers for such services. Some operators indicated that in order to support mobile numbers with longer than 8 digits, a lot of development and modification in the existing networks and systems are required. Besides, a subscriber number with more than 8 digits will deviate from the existing unified 8-digit numbering plan.

21. For the provision of pre-paid services, many mobile operators expressed that they need a lot of numbers to be pre-programmed in their pre-paid SIM cards. Since all sales outlets need to be stocked with different types of pre-paid cards to cater for different segments of customers, a large portion of pre-paid numbers are tied up by those not yet activated pre-paid cards. As such, the Working Group has explored the feasibility to assign pre-paid numbers over the air ("the OTA assignment method") at the time of service activation. Most mobile operators expressed that the system development work to cater for the OTA assignment method is quite complicated and costly. Since many different types of services are embedded in pre-paid cards, the network may take a relative long time (minutes rather than seconds) to complete the on-line set up of a user profile that is linked with

a newly assigned number. Unlike the current practice of activating a pre-paid SIM card by simply making the first call, the OTA assignment method will require a user to make a connection to an IVRS system at the activation centre first and then wait for the centre to send back an SMS to inform the user the assigned pre-paid number. Such an activation process will be more complicated than the existing arrangement and may not be favoured by most of the users.

22. The Working Group has also reviewed the length of various "periods" associated with pre-paid cards of different operators including the validity period, grace period and recycle period. To cater for different segments of users, the length of periods associated with different types of pre-paid SIM cards is set differently. Since operators have different strategies to target different segments of users, it would be practically difficult to have a consensus on shortening the length of the periods associated with different types of pre-paid SIM cards.

23. In light of the above considerations, mobile network operators would need to conduct further studies on the feasibility of the above measures including the possible service impact to end users. The Working Group proposed to shelve these initiatives for the time being and may resurrect them in future as necessary.

Recommendations

24. After the discussion in the 6th Working Group meeting, the proposed recommendations (with changes marked in bold and italic as compared with those given in paragraph 3) are as follows:

i) To conduct periodic review and audit (i.e. no more than once per year) to ensure that inactive ported numbers are returned to the Original Donor Network Operators promptly;

ii) To stop allocating "8(1-3)X" personal numbers to fixed operators with effective from 1 January 2009;

iii) To unify the minimum block size for subscriber number allocation as 10,000 (10k) for requests from different types of operators;

iv) To extend the number fee of $3 to public radio paging operators and mobile virtual network operators ***before which the relevant licensees will be provided with a sufficient time period for return of idle numbers***;

v) To raise the threshold of the number utilisation level for allocating additional numbers to 70% and to allocate one 10k block or more to an operator ***with an amount of numbers equal to its 6-month number demand, to be rounded up to the nearest 10k numbers***;

vi) To accept return of non-contiguous numbers from operators on a condition that they accept re-allocation of formerly returned numbers when they have new demand for numbers in future. ***An operator may return unassigned numbers to OFTA at most once in a licensing year and no additional numbers will be allocated to this operator within a period of six months from the date of the last return of numbers***; and

vii) ***To deploy a circuit-to-number ratio of 1:6.3 in assigning numbers to both way circuits of DDI services***.

<u>Advice Sought</u>

25. Members are invited to give views and comments on this paper and endorse the recommendations given in paragraph 24. The Numbering CoP

and other relevant documents will then be revised accordingly to provide necessary guidance for implementation of the aforementioned measures.

Office of the Telecommunications Authority
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