

## **TELECOMMUNICATIONS NUMBERING ADVISORY COMMITTEE**

### **Effective Use of Telecommunications Numbers**

### **有效使用電訊號碼**

#### **Purpose**

This paper summarizes the deliberation results of the Working Group on Numbering Issues and recommends new administrative measures with a view to improving the utilisation efficiency of telecommunications numbers.

#### **Background**

2. When the Secretary for Commerce and Economic Development (“the Secretary”) tabled a sub-legislation amendment proposal in May 2008 to introduce a new Unified Carrier Licence (“UCL”) with a new annual licence fee component of \$3 per number for telecommunications services allocated to holders of UCL, there were suggestions from Legislative Councillors, carrier licensees, telecommunications user groups and other stakeholders that the Office of the Telecommunications Authority (“OFTA”) should explore various possible administrative measures to further improve the efficient use of telecommunications numbers. In fact, a working group under the Telecommunications Number Advisory Committee (“NAC”), i.e. the Working Group on Numbering Issues (“the Working Group”) was established in March 2008 to take up the tasks<sup>1</sup>. A total of five working group meetings were held during April to July 2008. The Working Group has considered a number of administrative measures, including the tightening up of current procedures and introduction of new measures that will improve the effective use of

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<sup>1</sup> Terms of reference of the Working Group, minutes of the Working Group can be found at OFTA website at “<http://www.o>

[fta.gov.hk/en/ad-comm/nac/nacnumissue.html](http://www.ofta.gov.hk/en/ad-comm/nac/nacnumissue.html)”.

telecommunications numbers. More details are given in the following paragraphs.

### **Reduction of Idle Numbers**

3. Idle numbers means telecommunications numbers allocated to licensees but not yet assigned to end customers. The Working Group considers that numbers will be more effectively used if the amount of idle numbers can be minimized. This can be achieved by introducing various measures outlined below.

### **The Number Fee**

4. In the consultation paper on the creation of a Unified Carrier Licence (“UCL”) issued on 21 December 2007<sup>2</sup>, the Telecommunications Authority (“TA”) considered it necessary to provide operators with the necessary financial incentive to utilise numbers already allocated to them more effectively. Therefore, the TA has proposed to impose a number fee of \$3 per subscriber number for all numbers that have been allocated to the licensees regardless of whether or not the numbers have been assigned to end customers. Such a fee should encourage operators not to hold idle numbers that are more than necessary and so the number utilisation efficiency will be improved. Operators will consider returning idle numbers to OFTA for re-allotment so as to avoid paying unnecessary number fee.

5. As the number fee is for improvement of number utilisation efficiency, the Working Group sees no reason why the fee should only be applied to Unified Carrier licensees such that all telecommunications licensees who consume numbers would be treated equally. This principle was discussed at the 3<sup>rd</sup> Working Group meeting and no Working Group members indicated objections to applying the same to all licensees who consume numbers. ***It is therefore recommended that the number fee arrangement be extended to all telecommunications licensees requiring numbers for provision of services to***

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<sup>2</sup> The Consultation Paper on the creation of a Unified Carrier Licence can be downloaded from “<http://www.ofta.gov.hk/en/report-paper-guide/paper/consultation/consultation-fts.html>”.

*their end customers, for example, paging service providers and mobile virtual network operators (“MVNOs”).*

### **Procedures for Return of Idle Numbers**

6. Currently, there are some 16.5 million of idle numbers, including fixed, mobile, service-based operators (“SBOs”), paging and personal numbers (see Annex 1). With the introduction of the number fee, there will be financial incentive for the operators to return some of the idle numbers to OFTA so as to reduce the total number fee.

7. The Working Group proposes that non-contiguous idle numbers, including non-contiguous idle paging numbers, could be returned to OFTA on the condition that the same numbers would be re-allocated to that operator when it requires numbers to meet new demands in future. This arrangement means that operators may return as many idle numbers as it wishes. If OFTA imposes a very rigid contiguous number block requirement, then operators with idle numbers scattering among different number blocks (so that there are few contiguous number blocks) would find it difficult to return idle numbers to OFTA for re-allocation.

8. While the Working Group will further discuss implementation details such as the return frequency, the return date, the need for different treatments for ordinary number and DDI numbers, the minimum block size of the number block to be returned etc., it is considered advisable that OFTA can confirm those agreed measures and implement them as soon as practicable so that wastage of scarce numbering resources could be minimised. ***It is therefore recommended that the TA should accept return of non-contiguous numbers and the operators will be allocated with their respective returned numbers first in future when they have new demands.***

### **Relinquishment of Inactive Ported Numbers**

9. During the discussions about the re-allocation of the six former TDMA number blocks to mobile operators in 2007, it was found that some

records about porting numbers were not updated after the services provided by the Recipient Network Operators (“RNOs”) were terminated. This has resulted in holding up some inactive ported numbers and hence a wastage of scarce number resource.

10. In order to prevent ineffective use of numbers due to late return of inactive ported numbers to the Original Donor Network Operator (“ODNO”), the Working Group considers that it is necessary to establish a validation process in the mobile number portability administration database (“MNPAD”) and operator number portability administration database (“ONPAD”) to ensure that inactive ported numbers were relinquished speedily.

11. All fixed and mobile operators agreed to check their ONPAD/MNPAD and to relinquish the terminated ported numbers to the ODNOs. This one-off validation process was completed in April 2008 and from May 2008 onwards, all operators have automated the return of inactive ported numbers on a regular basis with a frequency not lower than once a month. ***It is recommended that OFTA will conduct periodic review and audit to ensure that inactive ported numbers are returned to the ODNOs promptly.***

#### **Allocation of Smaller Number Block**

12. According to the Code of Practice relating to the Use of Number Bands and Codes in the Hong Kong Numbering Plan (“the COP”), the TA will allocate a block of 100k numbers to a mobile network operator (“MNO”) and a block of 50k numbers to a fixed network operator (“FNO”) who is qualified for the allocation. For SBOs, a block of 10k numbers will be assigned to individual SBO licensees who is qualified for the allocation.

13. It is noted that some overseas administrations, including the US and Singapore, only allocate a block of 1k or 10k numbers to their licensees. The Working Group takes the view that by allocating a smaller number block to individual operators, the number utilisation efficiency will be improved as operators will have a smaller amount of idle numbers in hand when new number blocks are allocated. However, a smaller number block size will

require more in-depth digit analysis in the network. In addition, more administrative work would be imposed on OFTA and operators. Hence, the number block sizes should not be too small.

14. Since a number of mobile and fixed operators only applied for one number block of 100k and 50k numbers respectively in the past three years, the Working Group, after taking into account the past trend in allocating numbers and considering that it is necessary to strike a proper balance between the need to minimize additional administrative costs and the need for more effective use of numbers, proposes that the existing number block sizes of 50k for fixed operators and 100k for mobile operators be brought in line with that designated for SBOs, i.e. 10k. ***It is recommended that for any new number allocation, the minimum block size to be allocated by the TA will be 10,000 (10k) for all services.*** The Working Group will continue to study how this is to be adjusted when the application is from existing operators with a track record of high number consumption or a justifiable case of allocating multiple number blocks (see paragraph 23 below).

#### **Allocation of Personal Number**

15. Under the current Numbering Plan, “81X” to “83X” numbers are allocated to fixed operators for personal numbering services. “84X” numbers can also be allocated to personal numbering services whereas “85X” to “89X” are reserved for future migration to a longer digit Numbering Plan. According to OFTA’s record, there has been no additional demand for personal numbers since 2005. Currently, there are 1.25 million of unallocated personal numbers, including all vacant number blocks in “81X” to “83X” (see Annex 1).

16. The main feature associated with personal numbers is call forwarding. Incoming calls to a personal number can be forwarded to another number or a sequence of numbers preset by a user. Fixed operators may use the existing fixed numbers with prefix “2” or “3” to provide similar personal numbering services in lieu of using “8X” numbers.

17. In view of the low demand of “8X” personal numbers, the Working

Group has agreed that OFTA may continue to allocate “8(1-3)X” numbers to fixed operators for personal numbering services until all available numbers in this range are exhausted, with the number block size brought in line with that for other services, i.e. 10,000 (10k). The Working Group has also agreed that the unallocated “84X” numbers may be reserved.

18. OFTA takes a different view that because personal numbering service has not been a popular service since its inception in 1995, there is a need to review the original policy objectives for allocating a whole digit level for such a service with further restriction that the numbers are available solely to the fixed service operators. OFTA will conduct a critical review on whether the current practices for allocating the “8” digit series numbers for personal service and allowing only fixed operators to provide such a service should be discontinued. ***Pending the completion of such a review, OFTA will stop allocating personal numbers for the time being.***

#### **The Criterion for Allocation of a New Number Block**

19. Under the COP, a fixed or mobile operator may apply to the TA for a new fixed or mobile number block when its number utilisation rate has achieved the threshold level of 60%. As at end April 2008 (see Annex 1), some 12.6 million numbers (i.e. accounting for 39% of the allocated numbers) were yet to be assigned to end users by fixed and mobile operators. Though on average the number utilisation rate has reached 60%, the situation is considered unsatisfactory. With 12.6 million idle numbers being kept by MNOs and FNOs, this means that on average each operator holds more than half million idle numbers in hand and this in itself would be sufficient to meet the need of an operator for 12 months or more. In this connection, the Working Group has reviewed the utilisation rate and is of the view that a higher utilisation rate of 75% should be adopted as the threshold level for allocating additional numbers so as to reduce the quantity of idle numbers.

20. Instead of relying on the criterion of a static threshold figure of utilisation rate for allocating new number block to a licensee, it is considered that a dynamic threshold approach, which was proposed by the disbanded NAC

Working Group in 2007, might be more effective and appropriate. Under the dynamic threshold approach, the threshold number utilisation rate of each operator or class of operators for allocating additional numbers would depend on a number of factors including the total amount of numbers that have been allocated to the operator, the total quantity of idle numbers in hand, the past number consumption rate and estimated future number demand of the operator.

21. The dynamic allocation approach based on the past 6-month number reserve plus a buffer stock equal to 6-month number demand has been reviewed by the Working Group. The advantage of this method is that it has the built-in flexibility to cope with the actual future demand of the requesting operator (and hence minimize the chance of over/under-supply). However, some operators consider that this approach has not taken into account certain overheads such as the demand of numbers for pre-paid SIM cards, contiguous numbers for DD services and the geographical factor of telephone exchanges.

22. Other than the static and dynamic allocation methods, a hybrid method was also discussed by the Working Group. Under the hybrid method, an operator could submit an additional number allocation application if the criterion either under the static threshold or dynamic approach is met.

23. Up to this point in time, no consensus has been reached among Working Group members on the dynamic allocation approach. Having said that, the Working Group will further study and review the issue and hopefully a proposal on dynamic allocation approach will be developed in the future meetings. In the meantime, in order to reduce the quantity of idle numbers as soon as possible, ***it is recommended that the threshold utilisation rate for allocation of additional numbers be increased immediately to 75%. In addition, the number block size to be allocated should be reduced to 10k immediately. Operators with high consumption track records and justifiable future demand may be allocated with more than one block each time but in no case will the TA allocate more than 10 blocks in a single exercise to an individual operator. The Working Group is asked to continue its study of the dynamic allocation approach and submit a proposal by end October 2008.***

The recommended arrangement will serve as a stop-gap measure to improve

number utilisation without significant impact on operators before a new allocation method can be generally agreed among Working Group members.

### **Other Outstanding Issues**

24. There are other areas that the Working Group will further explore for more effective use of numbers, for example, how the recycling time for numbers assigned for pre-paid SIM cards may be shortened. The Working Group will come up with more concrete proposals in due course.

### **Summary of recommendations**

25. It is recommended that:

- the number fee arrangement of \$3 per number per annum be extended to all telecommunications licensees which have been allocated with numbers by the TA;
- OFTA will accept return of non-contiguous numbers from operators and they will be re-allocated with their respective returned numbers first when they have new demands for numbers;
- OFTA will conduct periodic review and audit to ensure that inactive ported numbers are returned to the Original Donor Network Operators promptly;
- The threshold number utilisation level for allocating additional numbers be increased to 75%;
- for new number allocation, the minimum block size will be 10,000 (10k) for all services;
- the TA may allocate not more than 10 number blocks to an operator on the conditions that the operator has a very good track record of high number consumption rate and justifiable future demand; and
- pending the completion of an overall review, OFTA will stop allocating personal numbers in the "8" digit level to fixed operators.

## **Way Forward**

26. Subject to the endorsement of the recommendations by NAC members, the recommendations will be submitted to the TA for consideration and approval. The COP and other relevant documents will be updated to reflect the approved changes. The Working Group will continue its deliberations and make recommendations to the TA on additional measures to improve number utilisation efficiency and deployment of scarce numbering resources.

## **Advice Sought**

27. Members are invited to give views and comments on this paper and endorse the recommendations given in paragraph 25.

**Office of the Telecommunications Authority**  
**22 July 2008**

**Allocation of Numbers for Different Services  
(as at 30 April 2008)**

Type of Service	Fixed		Mobile	SBO	Paging
Allocation	Fixed Network Operator		Mobile Network Carriers	SBO Licensees	Paging Operators
Prefixes	2X, 3X	8X	5X, 6X, 9X	57X, 58X	7X
Total available capacity (A)	15.3	3	24.7	2	9
Capacity allocated to operators (B)	13.2	1.75	17.7	0.06	4.0
Estimated numbers assigned to customers (C)	8.81	0.51	10.8	0.01	0.14
Capacity of Unallocated numbers = (A) - (B)	2.1	1.25	7	1.94	5.00
Capacity of idle numbers = (B) - (C)	4.40	1.25	6.90	0.05	3.86
Utilisation rate of numbers assigned to service = (C) / (B)	62.3%		61.0%	16.7%	3.5%

Note: All figures are in million.