

TELECOMMUNICATIONS NUMBERING ADVISORY COMMITTEE

Expanding the Number Supply for Fixed and Mobile Services (III)

Background

At the NAC Paper No 1/2004, it was estimated that the current number supply for mobile services would be exhausted in about 2 years. In addition to making available new number supply for mobile services, it is also necessary to take into consideration the future migration path to a longer digit numbering plan. Without a clear migration path, additional number blocks have to be reserved to support different migration approaches causing inefficient utilization of number resource. Four migration approaches were raised for discussion:

- (a) Straightforward Migration - prefix “5” to all subscriber numbers;
- (b) Partial Migration - fixed and mobile numbers migrate at different pace to 9-digit numbers with prefix “32”/”33” and “66”/”69”;
- (c) Two-step Migration (A) - allocate 8-digit “8X” and “7X” numbers for mobile services. Fixed and mobile services will use 9-digit “3X” and “6X” numbers respectively; and
- (d) Two-step Migration Approach (B) - release “66-69” and “5X” numbers for mobile services. Fixed and mobile services will use 9-digit “3X” and “5X” numbers respectively.

2. Members had different views on these proposed migration approaches. A working group was established to explore the different migration approaches in details.

Comments Received at the Working Group Meeting

3. In the Working Group Meeting on 5 March 2004, the mobile operators opined that the potential shortage of mobile numbers should be resolved as soon as possible while the migration options could be decided later. Members of the Working Group noted that releasing number blocks “66X” – “69X” would rule out the option of allocating numbers with prefix “6” for

mobile services in the 9-digit numbering plan but agreed in general that such measure could solve the immediate problem of potential number shortage.

4. The mobile operators suggested that the reserved number level “5” should be reserved to meet the potential demand of new services. Under the Two-step Migration Approach (B), they also proposed that OFTA should consider the options of “7X” or “8X” 9-digit mobile numbers.

5. The paging operators considered that further information on the proposed migration of paging numbers to other number ranges should be considered and that sufficient lead-time should be given for preparation of the migration. The notes of the Working Group Meeting are attached at Annex.

Written Comments submitted to Working Group

6. OFTA received one submission from the Hong Kong Radio Paging Association (HKRPA). HKRPA agreed that it was necessary to optimize the utilization of the paging number resources. Nevertheless, HKRPA advocated that any measures to relocate the existing “7X” numbers should not affect the current paging service subscribers and the demand for paging services. In addition, the proposed measures should not incur additional cost to the paging operators because the operators did not gain any financial benefit from the relocation of “7X” paging numbers.

7. HKRPA further commented that consolidation of active “7X” numbers into consecutive “7X” number blocks would inevitably involve changes of paging numbers that would adversely affect both paging subscribers and operators. Regarding the proposal of adding a new prefix to paging numbers, HKRPA considered that such measure would lead to paging numbers having longer digit length than other types of subscriber numbers. Such a non-uniform numbering plan may cause inconvenience to both the callers and the paging subscribers.

OFTA’s Considerations

8. In deciding the way forward, the following Guiding Principles on the structure of the numbering plan and the schedule of migration should be observed :

- (a) uniform numbering plan – uniform digit length for subscriber numbers;
- (b) integrated numbering plan – network operators share same number levels;
- (c) leading digit(s) convey service information – dedicated number level(s) for individual services;
- (d) lengthen the life-time of the 8-digit numbering plan as far as possible; and
- (e) defer any change of existing “7X” paging numbers as far as possible in order to minimize inconvenience to the paging subscribers.

Expansion of Number Supply

9. Given 72 spare number blocks (including Special Number Blocks) for fixed services are currently available for allocation, OFTA does not envisage the need for additional supply of numbers for the fixed services in the medium term. Moreover, spare “8X” number blocks may be deployed to fixed service in case of unexpected surges for demand of fixed network numbers.

Release of “66X” – “69X” to Mobile Services

10. To meet the imminent demand of mobile numbers, the Working Group had a consensus view of releasing “66X” – “69X” numbers for mobile services. OFTA consider that this is acceptable and would implement the proposal. However, in line with the current practice, number blocks “666” and “696” would be reserved as special number blocks.

Additional Number Supply for Mobile Services in the medium term

11. To cater for the demands of mobile numbers in the medium term, additional number resources have to be identified. The feasibility of allocating vacant numbers in levels “5X”, “7X”, and “8X” to mobile services are evaluated below.

12. At present, “8X” numbers are allocated to FTNS for provision of personal numbering services. The deployment of “8X” numbers to both fixed and mobile services will adversely affect the integrity of the numbering plan.

In addition, “8X” numbers also serve as reserve for fixed network as mentioned in paragraph 9 above. Allocation of “8X” numbers to mobile service will reduce the number supply for fixed network services and hence shorten the useful life of the 8-digit numbering plan. As such, allocation of “8X” numbers to mobile services is not recommended.

13. Both "5X" and "7X" numbers could be deployed for mobile services. Since all “5X” numbers are spare numbers, they are readily available for allocation of mobile services after “6X” and “9X” numbers are exhausted. On the other hand, 7X” numbers are currently allocated for paging services. According to the Guiding Principle (e) that any change to existing "7X" numbers should be deferred as far as possible, "7X" numbers should only be deployed for mobile service after "5X" numbers are exhausted.

Evaluation of different Migration Approaches

14. The straightforward migration approach, the partial migration approach and the two-step migration approach (A) are considered not feasible due to the proposed deployment of "5X" and "6X" 8-digit numbers for mobile services. As suggested by the mobile operators in the Working Group meeting, various options using prefix “5”, “7” and “8” under the two-step migration approach (B) are evaluated below.

15. **Prefix-5 Option.** To facilitate the implementation of dual access during number plan migration to 9-digit numbers, “32”, “33”, “38”, “55”, “56”, “57” and “59” have to be reserved in the current numbering plan. Based on the current number consumption rate, it is estimated that numbering plan migration will take place in year 2020, with prefix “3” and prefix “5” for fixed services and mobile services respectively. This is not the preferred option because the paging numbers would need to be re-located to other level in year 2012, which is 4 year earlier than Prefix-7 option.

16. **Prefix-7 Option.** Similar to Prefix-5 option, level “32”, “33”, “38”, “75”, “76”, “77” and “79” have to be reserved for dual number access. In this option, mobile services can fully utilized all "5X" numbers thus allowing the relocation of paging numbers be deferred further. It is estimated that the migration will take place in year 2020 (i.e. same as prefix-5 option) with prefix “3” and prefix “7” allocated for fixed services and mobile services

respectively. This is the preferred option because this option has the added advantage of allowing relocation of existing paging numbers be deferred to year 2016.

17. **Prefix-8 Option.** Similar to previous options, level “32”, “33”, “38”, “85”, “86”, “87”, and “89” have to be reserved for dual number access. In this option, only “80X - 84X” numbers can be allocated for fixed network services because “85X - 89X” numbers will have to be reserved for future migration. After the numbering plan migration in about year 2016, 9-digit numbers with prefix “3” and prefix “8” will be allocated for fixed services and mobile services respectively. This option is not preferred because the lifetime of 8-digit numbering plan is 4 years shorter than both of Prefix-5 option and Prefix-7 option due to early exhaustion of fixed network numbers.

Conclusion

18. In order to ensure sufficient number resources to meet the imminent demand of mobile services and taking the consensus view of the members of Working Group into account, the TA has determined that the number levels “66” to “69” should immediately be released for mobile services. Furthermore, the TA has formed the following preliminary views:

- (a) release “5X” numbers to mobile services after the exhaustion of “6X” and “9X” numbers;
- (b) relocate “7X” paging numbers to a new number level or prefixed by an access code, and release the vacated “7X” numbers for mobile services after the exhaustion of “5X” numbers; and
- (c) allocate 9-digit numbers with leading digits “3” and “7” for fixed and mobile services respectively.

Advice Sought

19. Members are advised to give their views and comments on this paper.

Office of the Telecommunications Authority
May 2004

**Notes of Working Group Meeting on
Expansion of Number Supply for Mobile Service
held on 5 March 2004**

Present :	Mr T F So	OFTA [Chairman]
	Dr Li Chi Kwong	HKIE
	Mr Kit Chan	Telecom Digital
	Mr Carlson Leung	HTCL
	Mr Almond Tso	China Resources Peoples Telephone
	Mr T L Or	Smartone
	Mr P F Ma	NWPCS
	Mr W L Cheung	SUNDAY
	Mr Sutton Cheung	Citic 1616
	Ms Cinder Chan	CSL
	Ms Jullian Cordeiro	CSL
	Mr Paul Li	China-Hongkong
	Mr Alex To	China Unicom
	Ms Iris Lau	China Unicom
	Ms Lin Ri Xin	China Unicom
	Mr C Y Lee	Trident
	Mr P T Yip	HGC
	Mr Cheung Kam To	PCCW-HKT
	Mr Eric Ng	WTT
	Mr Desmond Chan	WTT
	Mr P H Ma	OFTA
	Mr Isaac Ip	OFTA [Secretary]

Absent with Apologies

Mr Daniel Lo	HKBN
Dr Victor Hung	Consumer Council

1. The Chairman welcomed members to the meeting and said that the purpose of the working group meeting was to exchange views on various numbering options outlined in NAC Paper No. 1/2004. He pointed out that without a clear migration path to 9-digit plan, additional number blocks had to be reserved to support different migration approaches which would further

reduce the number supply under the existing 8-digit plan. Due to the imminent need for additional mobile numbers, an urgent decision was needed on the future migration approach. In deciding the way forward, the Chairman drew members' attention to the following guiding principles on the structure of the numbering plan:

- (a) uniform numbering plan – uniform digit length for subscriber numbers;
- (b) integrated numbering plan – network operators share same number levels;
- (c) leading digit(s) convey service information – dedicate number level(s) for individual services.

2. Mr P H Ma summarized the salient points of the four approaches. In the Straightforward Migration Approach, the digit "5" would be prefixed to all the fixed, mobile and paging numbers. Under Partial Migration Approach, individual services would migrate to 9-digit numbers at different time frames according to their needs. Mobile services would use prefix "6" numbers. Regarding Two-step Migration Approach (A), spare "8X" numbers and then "7X" numbers (after paging number migration) would be allocated for mobile services. Mobile services would use prefix "6" numbers. Finally, Two-step Migration Approach (B) proposed that the reserved "66-69" numbers should be allocated for mobile services. After exhaustion of "6X" and "9X" numbers, "5X" numbers would be allocated to mobile services. The schematic diagrams of these approaches were attached in Annex.

3. In response to Mr Kit Chan on details about paging number migration, Mr P H Ma replied that the NAC Paper No. 1/2004 had proposed a few options, including migration to "57X" 9-digit numbers, or migration to 10-digit (XY-7xxx xxxx) or 11-digit (XYZ-7xxx xxxx) numbers prefixed by an access code XY or XYZ to be allocated for the paging service. Mr Ma stressed that these are some of the options available and no decision had been made.

4. In response to Mr Kit Chan's query, the Chairman assured members that sufficient lead time would be given should paging numbers were required to be migrated to other number ranges.

5. Mr T L Or opined that the potential shortage of mobile numbers should be resolved as soon as possible while the migration path for mobile

number could be determined in due course. Mr Or proposed that the reserved "66X"/"69X" and the vacant "67X"/"68X" number blocks should be released for immediate use. As regards the migration path, it was preferable to leave the migration options open for a decision later. Mr C Y Lee said that a total solution might not be readily available and he agreed with Mr Or's proposal.

6. The Chairman reminded members that releasing "66X - 69X" would rule out the feasibility of dual-access of "6X" 8-digit and 9-digit mobile numbers during the transitional period of numbering plan migration. Under this circumstance, releasing "66X - 69X" for mobile services would in effect remove the migration option of having prefix "6" for mobile services in the 9-digit numbering plan. Having noted the Chairman's comment, members of the meeting agreed in general that "66X - 69X" numbers should be released to solve the immediate problem of potential number shortage.

7. Mr T L Or said that the virgin level "5" should be reserved for migration and for potential demand by new services. Mr Or did not support the proposal of allocating level "5" to mobile services. He counter-proposed the following migration approaches for mobile services for members' consideration:

- migrates to "7X" 9-digit mobile numbers. Release vacant "6X", "7X" and "5X" numbers for mobile services prior to migration.
- migrates to "8X" 9-digit mobile numbers. Release vacant "6X", "7X" and "5X" numbers for mobile services prior to migration.

8. Mr Eric Ng opined that any consolidation or migration of numbering blocks should initially be applied to those blocks with low utilisation such as paging number blocks in order to minimise the number of affected customers. Mr Desmond Chan said that "8X" numbers are currently deployed for fixed services and he had reservation in allocating "8X" numbers to mobile services. Mr P H Ma supplemented that, even if "8X" numbers were not allocated to mobile services, some "8X" levels such as "85" "86", "87" or "89" might need to be reserved if mobile services were migrated to 9-digit "8X" numbers.

9. Mr K T Cheung suggested that a quantitative analysis on the future demand of numbering resources should be conducted when considering the various migration approaches. Mr P H Ma replied that OFTA had taken into

consideration the latest number consumption rates by the fixed and mobile services in evaluating the pros and cons of various migration approaches. The Chairman emphasised that, given the rapid technological development and market conditions, it would be difficult to precisely predict the consumption of numbering resources by telecommunication services.

10. The Chairman said that OFTA would consider members' views and evaluate the proposed migration approaches mentioned at paragraph 5 above. OFTA would circulate the result of the evaluation to members of the meeting as soon as possible.

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