

CONSULTATION

National Numbering Plan

National Numbering Plan

**A Consultation issued by the Telecommunications
Regulatory Authority**

20 October 2005

The address for responses to this document is:

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**The deadline for responses is 5pm on 17 November
2005**

Purpose: A consultation on the further development of the National
Numbering Plan in relation to allocation and categorization of numbering
resources in the Kingdom of Bahrain.



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1. Introduction

Legislative Decree No. 48 of 2002 promulgated the Telecommunications Law for the Kingdom of Bahrain. Among other things, the Telecommunications Law formed the Telecommunications Regulatory Authority (the TRA or the Authority), a body that has responsibility for the regulation of telecommunications in Bahrain. One of the roles allocated to the TRA (Section 3.C.12 Duties and Powers of the Authority) is to prepare and follow up the implementation of the National Numbering Plan (NNP) and allocate numbers to operators in accordance with that Plan.

In September 2003, the TRA issued the National Numbering Plan MOU/PN/002 to provide a framework for the allocation of numbers in the national telecommunications system to competing service providers. The Plan was updated in June 2004. The purpose of the update was the removal of the outdated sections related to the eight digits migration.

With the full market liberalization in the Kingdom and the entry of new operators in the market, it was necessary to review several sections in the NNP, including Short Codes, Special Numbers, Premium Numbers and other related issues, to best address the needs of the market.

In pursuance of its duties, the Authority has prepared this Consultation document, the principal aim of which is to propose options related to the numbering resources that may be required in a fully liberalized telecommunications market. As such, this Consultation is relevant to all licensed operators, organizations that may be considering becoming an operator, other interested parties and the general public.

1.1. Document Approval and Issue

This document is issued pursuant to Section 3 (c) 12 and (f) of the Telecommunications Law. It is made publicly available via the TRA web site in order that interested parties may comment. Anybody who wishes to do so should respond in writing to the TRA during the public consultation period. Responses must be received no later than 5.00pm on the 9 November 2005.

The address for responses to this Consultation is:

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Alternatively, e-mail responses may be sent to the Authority's e-mail address at

consult@tra.org.bh

The TRA will publish the comments as received unless respondents explicitly ask that their responses be treated as confidential, in total or in part. If any party wishes to have the whole of its submission withheld, it should state that clearly at the beginning of the submission. If the respondent wishes to have some parts withheld, it should put them in separate annexes and clearly mark them as such.

1.2. Scope and Timing

While it remains in consultation form, this document has no status other than a document for discussion. Once this consultation is complete, the TRA will issue the updated version of the National Numbering Plan.

1.3. Structure of the Consultation

The consultation is structured into a number of main sections, as follows:

- Availability of Geographic Resources
- Carrier Selection
- Migration of Short Codes from 3 to 5-digits and Categorization of Short Codes
- 8 Series Special Service Range
- 9 Series Premium Service Range
- 5 Series Corporate Numbering
- SMS Numbering
- Use of Numbers for Activation of Prepaid Cards
- Separate Numbering Range for IP Telephony
- National Number to Identify ISPs

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2. Availability of Geographic Resources

2.1. Background

Presently in the NNP, the national numbers in the 1, 2 and 7 ranges are designated for geographic services. End users in Bahrain have become accustomed to dialing the numbers in the 17 range to reach other fixed or wire line customers of Batelco because no fixed line competitors had introduced services since the introduction of competition in the Kingdom's telecoms market. However, with the entrance of new operators and service providers, there was a need to identify and allocate geographic national numbers for the new operators and service providers. With the awarding of additional fixed line licenses, each of the new operators requires blocks of numbers to offer services to their customer and each of these operators needed to have access to national numbering resources as the incumbent. Therefore, it is necessary to identify new national numbering ranges for geographic purposes.

The NNP specifies the allocation of further geographic numbering requirements from the 1X range until it is exhausted. Therefore, it has become important to identify numbering resources in the leading digit "1" series to allocate to the new wire line operators and service providers.

During the last revision of the NNP, the series 1XX has been used for short codes. In August of 2005, the TRA went through an analysis of the NNP and reviewed each of the 1XX blocks in order to identify potential numbering ranges to allocate for geographic purposes as part of the short codes migration process.

2.2. Numbering Range Availability

In reviewing the existing allocations within the 1XX series, several short codes have been allocated to services and are used by and are familiar to end users. Therefore, it was necessary to determine if ranges could be identified where short codes have been used extensively for internal purposes and consequently not used by end users.

The table below indicates those short code series that are used in Bahrain, in order to provide a baseline to begin the review.

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Table 1: Allocation of 1XX Codes		
Series	Code	Service
10	100	Operator Assisted Calls
11	112	Emergency
12	121	Fault Center
14	140	Clock – English
	141	Clock – Arabic
15	151	International Operator Assistance – Wake Up
18	181	National Directory
	188	Directory Inquires- Mobile
19	191	International Inquires – Operator services
	199	Traffic Emergency

On the basis of short code usage in Bahrain, it was determined that the codes in the 13X and 16X range could be reclaimed for allocation to geographic services providers.

The TRA has reclaimed the 16X codes for geographic numbering allocations and has already begun the allocation of the 16 resources for geographic purposes. In addition, the TRA proposes that the entire 13 range be protected for future geographic numbering allocations.

2.3. Numbering Format

The format option selected for the allocation of geographic numbers in the 16 range is as follows:

Format - 16 X XXXXX

Where:

16 identifies the call as geographic

X identifies the Service Provider

XXXXX identifies the subscriber

This option provides 10 blocks of 100,000 numbers.

In addition to designating the 16 range for geographic purposes to allow for new entrants and potential growth for Batelco, the TRA proposes that the entire 13 range be protected for future geographic growth. The numbers in the 13 range would follow the same format (13 X XXXXX) as the 16 range. This would provide additional 10 geographic numbering blocks each of 100,000 numbers. The use of the 16 and 13 ranges for geographic purposes will allow for up to twenty (20) blocks and provide maximum of 1 million numbers per range. This would create

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sufficient capacity for future needs and maintain the dialling in the “1” series for all geographic numbers in Bahrain.

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1. Respondents are invited to comment on whether the entire 13 range should be protected for further geographic growth and whether to follow the same allocation format adopted by the TRA in allocating blocks in the 16 range to operators.

2.4. Digit Analysis

It should be pointed out that the network routing for these new geographic codes (16 X and 13 X) needs to be modified to accommodate the new format and function of the numbers. Today, if an end user dials a 17 number, the networks route that call to Batelco, with the third digit X identifying a geographic location, e.g., a village. However, with the introduction of these new geographic numbers and the need to identify the service provider within the dialled digits, the analysis of additional digits in order to properly route the call is required. Therefore, the network will need to analyze the first two digits to identify the call as geographic, e.g., 16, and then the third digit in order to identify and route the call to the appropriate operator or service provider. This, of course, would require changes to the routing tables and modifications to switching systems to accommodate this change.

The exception would be the existing 17 numbers already allocated to Batelco. These numbers could still be translated and routed the same.

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2. Respondents are invited to comment on the possible impact of the additional digit analysis associated with the introduction of new geographic number ranges. Comments should be supported by appropriate details.

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3. Carrier Selection

Competition in voice telephony requires that customers have the means to choose between two or more carriers. Availability of carrier selection is therefore an important prerequisite for the development of competition. A fully liberalized voice telephony market provides customers with an easy way to change services providers and obtain better services at competitive prices.

Carrier Pre-selection is another approach for customers to choose between two or more carriers. It is the process by which a subscriber designates its choice of Pre-Selected Operator(s) to provide its National Telecommunication Services and/or International Telecommunication Services.

In examining other countries, there appears to be no uniform approach to the format of Carrier Selection codes. International Carrier Selection codes for several countries are shown in the table below.

Table X: International Carrier Selection Codes		
Country	Prefix	Code
Australia	0011	14XX
Finland	00	10XX
France	00	16XX
Hong Kong	001	15XX, 16XX
Japan	010	122XX
Malta	00	10XX
Saudi Arabia	00	94XX
USA	011	101XXXX

Although there is no uniform approach, each country has designated the initial digit zero "0" as the prefix and then a set of digits that range from four to seven digits for this purpose.

The TRA issued a Regulation on Carrier Pre-Selection on 13th June 2004, and the Telecommunications Law allows for Carrier Selection in the Kingdom of Bahrain as well. The TRA is planning to consult on the introduction of Carrier Selection in Bahrain as part of its Plan for 2005/2006. The following section discusses the possible options for Carrier Selection codes (insofar as the provisioning of Carrier Selection in Bahrain is allowed) in accordance with the NNP.

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3.1. Numbering Format Options

Option 1 – 0Z XXX

Where:

0Z is the Prefix, Z=1-9

XXX is the Carrier Selection code

This option would provide for a 2-digit Carrier Selection code with a prefix of two digits (the first digit being zero, e.g. 01XXX), and would allow for a maximum of 1000 codes in the 0Z range.

The prefix 0Z was proposed because currently there are no allocations in the 0Z range and the implementation of Carrier Selection would therefore require opening up the zero “0” range for this purpose. The TRA proposes the prefix 01 for this option because it is the first numbering block in the “0” series.

So far, no designations have been made in the zero range of the NNP, and a decision needs to be made on how to reflect the entire range of codes in the NNP.

Option 2 – 1Z XXX

Where:

1Z is the Prefix, with Z from 0-9

X is the remaining digits

This option would utilize a 5-digit code with a 2-digit prefix in the “1” code series. This would allow a maximum of 1000 allocations in the 1Z range. Since the “1” code series is currently consumed by 3-digit short codes, the options for selecting the Z digit are limited at this stage before freeing up the series. However, short code migration would free up some of the 1X blocks and therefore more options would be available for Carrier Selection numbers under this format.

Option 3 presents the allocation options in the 11XXX block where Z in this case is 1. This option is discussed below separately and in detail, because the code 112 is used for Emergency.

Option 3 – 11 ZXX

Where:

11 is the Prefix

Z is the digit 0,1 or 3-9

X is the remaining digits

This would also utilize a 5-digit code with a 2-digit prefix (11), but the maximum number of allocations is 900, because the digit 2 could not

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be used as the C-digit (third digit), given that the code 112 is used for Emergency.

In this case, the code ZX would be allocated to identify the operator and service provider and the network would need to perform a 3-digit analysis to determine what type of code is being dialled. For instance, based on the dialled digits 11, the network would need to analyze the first three digits to determine if the call was an emergency call or a carrier selection call.

The TRA would like to avoid allocating numbers with different lengths in the same numbering block for the above reason. Although this option proposes the allocation of 5-digit short codes in the block of the emergency number 112, it is considered in this consultation because it utilizes a 10 million numbering block and offers a nice-numbering range beginning with "11".

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3. Respondents are invited to comment on the three options for Carrier Selection codes in Bahrain and indicate the most suitable option for implementation.

4. Respondents are also invited to suggest any alternative options for Carrier Selection codes in accordance with NNP rules for short codes.

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4. Migration of Short Codes from 3 to 5 digits and Categorization of Short Codes

A short code can be defined as a string of digits with the following properties:

- It can be used as a complete dialling sequence or as one of the first parts of a complete dialling sequence on public telephony networks.
- It should provide access to a specific network/service or specific type of network/service. 'Network' is a telecommunications network. 'Service' is a telecommunications service or its subscriber application.

The need for short codes is changing. The most important worldwide developments which affect the need are:

- Development of intelligence in networks and in terminal equipment.
Modern networks are less dependent on short numbers for easy routing of calls. Similarly, terminal equipment can more simply replace the need for short numbers or short prefixes by provisions for automatic dialling or abbreviated dialling.
- Development of non-geographic services. National numbers for non-geographic services such as free phone, premium rate, and shared revenue services provide an alternative for some short numbers. The advantages of an access code for an IN (intelligent network) service may outweigh the advantages of a short number. The access code may inform the caller about the type of service and/or the tariff, which a short number does not.
- Development of feasible alternatives for telephony networks/services.
Some information/assistance services lose their social importance because of the development of feasible alternatives. For example, weather reports on Teletex or on the Internet may replace telephony equivalents. On the other hand, access to non-telephony networks is gaining significance.
- Development of competition. Information/assistance services which were initially offered in a monopoly environment may more often be provided in a competitive environment now. This may increase the demand for short numbers. The scarcity of short numbers may prohibit their continued use, assuming that one competitor should not have an advantage over another because of a shorter number. An alternative is to allow network-specific short numbers. Network operators demonstrate a need to use network-specific short numbers which are not coordinated and provide them with possibilities for branding their services and making these services easily accessible. This is an effect of competition which runs counter to the use of short numbers and their coordination.

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There is no worldwide best practice for dealing with the effect of these developments on the demand for short codes. The decision in Germany to delete almost all short numbers and the plans in Denmark and Lebanon to bring the quantity of short numbers down considerably are proof of the decreasing demand. In other countries, however, such as Hong Kong, Japan and Australia, the demand for short codes is high.

Short codes need careful consideration in order to safeguard efficient use and non-discriminatory access regarding numbering resources. It is the TRA's intention that there should be uniform use of access codes for similar services across the various networks within Bahrain, where that is possible. However, an attempt should be made to coordinate such code utilization on an ongoing basis and to change some of the service providers' current code allocations in order to achieve this objective.

Three categories of short codes exist in the existing NNP (Type A, Type B, and Type C). These designations are internationally recognized, although most countries do not currently define the national use of short codes in this specific manner.

Other countries such as the United States have just one range - N11, for Emergency and National Services - while Hong Kong and Japan have numerous allocations of short codes but do not use these categories in describing their short codes.

In the NNP the categories of short codes are defined as follows:

- **Type A** – These codes are used by callers to reach commonly used services, such as operator services or information services such as the speaking clock. These codes may be used throughout the Kingdom of Bahrain by all operators offering equivalent services (and may not be used by any operator for any other service). More recently, the use of Type A codes has been refined for particular services where there is a social imperative, sometimes backed up by regulatory force, such as emergency services. Type A codes will be designated individually by the Authority for such services, and not allocated to a particular operator or a service provider.
- **Type B** – These access codes have network-wide significance as they are used by the end users of one public telecommunications operator to have selected calls connected by an operator other than the one from whom they rent their telephone line (e.g.- Carrier Selection). For example, callers might use Type B codes to select Carrier Selected providers for long distance and/or international calls. Type B codes can also be used by callers to access services available from their own operator's system or another public operator's system. These codes are allocated by the Authority.
- **Type C** - These access codes are set aside for independent use by public telecommunications operators, either to provide particular services exclusively to their directly connected end users or for internal network operations. This might include codes for access to sales services, fault reporting or general enquiries. Operators of different systems have the opportunity to choose corresponding codes where it is convenient and potentially beneficial to adopt a common approach, but are not

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obliged to do so. While the Authority would designate a range, it would not allocate Type C codes. Based on information supplied by operators, their use is recorded in the Plan.

The following sections discuss in detail the three to five-digit migration options and the need to provide classification for each of the services utilizing short codes. The TRA would appreciate input as to which codes to classify in what category and whether the definition for each type needs to be revised.

4.1. Migration of the existing 3-Digit Short Codes

The NNP states that the 3-digit 1XX short codes will migrate to 5 digits. However, certain codes such as for National, Government and Emergency/Highway Services, will remain as 3 digits.

In the large majority of countries, short codes and prefixes are grouped into a numbering series within an NNP. Generally these ranges are either in the zero (0) or the one (1) range. In some countries, like the US, both the digit zero (0) and the digit one (1) are used for prefixes. In Bahrain, the digit one (1) series is used for both geographic and short codes. There is no standard practice around the world and it would be beneficial if the short codes and the national numbers for geographic purposes were in separate numbering ranges.

In reviewing the 1X ranges, the following table represents the current allocation or proposed allocation for each range. This is necessary to determine the 1XX short code ranges that are available for expansion.

Table 2: Allocation of 1XX Codes	
10X	Used by three-digit short codes
11X	Not available, since 112 is emergency short code
12X	Used by three-digit short codes
13X	Protected – Geographic Services
14X	Used by three-digit short codes
15X	Used by three-digit short codes
16X	Geographic Services
17X	Geographic Services
18X	Used by three-digit short codes
19X	National Short Codes

On the basis of the table above, the existing 3-digit 1XX short code ranges that are available for expansion include the 10X, 12X, 14X, 15X, and 18X ranges.

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Option 1 – Add 2 digits at the end of the existing 3-digit short codes

Example:

The existing Short Code 181 becomes 181XX

This migration option would provide the capacity for 1,000 short codes within each of the ranges 10, 12, 14, 15, and 18, thereby creating the added capacity for 5000 5-digit short codes in Bahrain. The TRA recommends that the additional digits be “00” at the time of the transition. Obviously, the rule would change once new codes are to be allocated and the entire numbering range was open for additional allocations (e.g. 18120).

Advantages

- This option has the advantage of keeping the same initial digits and adding digits at the end.
- At the time of transition these additional digits would be “zeros” (00) and from an end-user perspective this option would be fairly easy to remember, as users would only have to dial two zeros at the end of existing codes.
- This option provides an additional 5000 short codes.

Disadvantages

- One issue associated with this option is a transition phase. With the selection of this option, parallel running would not be practical since the network would not be able to determine whether a 3-digit or 5-digit code was being dialled until the 4th digit, which would make parallel running impractical. Consequently, this would require a flash cut implementation and a date certain with no parallel_running would need to be set for the implementation of this expansion option.
- Maintains the use of the “1” range for both short codes and national numbers for geographic purposes.
- Does not free up the used 1XX blocks.

Option 2 – Add repeating digits in front of the access code

Example:

The existing Short Code 181 becomes 18 181

This would also provide the capacity for 1,000 short codes within each of the ranges 10, 12, 14, 15, and 18, since additional XXX allocations could be made after each 2-digit code set, thereby creating the capacity for 5000 5-digit short codes in Bahrain.

Advantages

- This option has the advantage of repeating digits, for example, National Directory would be allocated 18 181 and every other existing allocation would be prefaced by the same two digits that would now be placed in the 3rd and 4th position.
- Repeating digits are easy for end users to understand.

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- This option provides an additional 5000 short codes

Disadvantages

- An issue associated with this option is a transition phase. With the selection of this option, parallel running would not be practical since the network would not be able to determine whether a 3-digit or 5-digit code was being dialled until late in the dialled number. For example, any existing 3-digit code ending in the digit one (1) would not be able to be differentiated until the 4th digit was dialled. In the case of other codes, e.g. Arabic Speaking Clock, an end user would dial 14 140 and the network would not be able to determine until the 3rd digit was dialled whether the code was a 3 or a 5-digit short code. From a network perspective it is best to identify a 3 vs. a 5-digit call either by the first or at most the second digit. This option would therefore require a flash cut implementation.
- Maintains the use of the “1” range for both short codes and national numbers for geographic purposes.
- Does not free up the used 1XX numbering blocks.

Option 3 – Place all the codes behind one of the existing unallocated 2-digit ranges in the “1” code series.

Example:

The existing Short Code 181 becomes 1Z 181, where Z is the possibly available block from the blocks currently occupied by three-digit short codes; Z can be 0, 1, 2, 4, 5, or 8.

This option would move all the existing 3-digit short codes under one of the unallocated 2-digit ranges and would free up all the remaining ranges for future use. For example, if this method was implemented using the 2-digit range 10, then the other ranges 12, 14, 15, and 18 would be freed up.

This option would also provide the capacity for 1,000 short codes within each of the ranges 10, 12, 14, 15, and 18, if allocated for short codes, since additional XXX allocations could be made after each 2-digit code set, thereby creating the capacity for 5000 5-digit short codes in Bahrain.

Advantages

- It would be easy for customers to remember, because the same rule would apply: e.g. dial the code 10 in front of any existing short code.
- This option would free up the 1X range for additional short codes or geographic numbers allocations.
- This option would provide a further 5000 short codes.
- Having a parallel running period would be possible for all the existing codes in ranges other than the selected 1Z range.

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Disadvantages

- Parallel running would not be possible for short codes in the 1Z range such as Local Operator Assistance code (100) and MTC-VB's code (107) if 10 range is selected.
- Maintains the use of the '1' range for both short codes and national numbers for geographic purposes.

Option 4 – Place all the codes behind the OZ prefix range

Example:

The existing Code 181 becomes OZ 181, where Z is 1-9.

This option, similar to Option 3, would move all the existing 3-digit short codes under a new 2-digit range (for example, 02), and would free all the existing 1XX codes. This option creates 1,000 short codes in the OZ range.

Advantages

- This option would be fairly easy for end users to understand, because it would require dialling the digits OZ before every short code.
- This option would free up all the codes in the 1X series, which could then be protected and used for geographic purposes.
- Having a parallel running period would be possible for all migrated short codes.

Disadvantages

- This option would necessitate opening up a new prefix code range, OZ, which has previously not been used.

The table below provides a summary of the expansion options, using the short code 181 for National Directory Enquiries as an example:

Table 3: Allocation Options for 181 Short Codes			
Option 1	Option 2	Option 3	Option 4
18100	18181	10181	02181

There are other permutations on expanding the short codes to 5-digits, but the options stated above were considered to be the most viable alternatives.

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5. Respondents are invited to propose the preferred option for the allocation and migration of short codes, citing reasons as well as details of the preferred block of allocation or the digits to be added.

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6. Respondents are invited to comment on whether the “0” code series should be opened for short code allocation or should remain in the “1” series.

7. Respondents are invited to comment on whether there is a need for the parallel running period upon migration from three to five digits; and, if so, what is the proposed period? Is this period needed for all three-digit short codes?

8. Respondents are invited to propose other possible options for smoother migration, as well as alternative allocation formats.

The following sections deal with the various classifications of short codes (Types A, B, and C) and the need to determine which category the short codes should be allocated to.

4.2. Type A

The identification and dialling of Type A public interest short codes should be consistent across all networks. It should be possible to dial Type A codes from any network or telephone in Bahrain. These codes would be classified as “off-net” since the calls may originate on one network but should be terminated by any other network. Consequently, each of the operators and service providers would need to make the appropriate interconnection arrangements to route these calls. At an absolute minimum, three codes have been identified for this purpose: 112, 999, and 199 are allocated for emergency and traffic emergency.

In addition, the TRA would like to protect a series of codes for National, Government and Emergency/Highway Services for future use, and proposes that the codes in the 19X range be reserved for that purpose.

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9. Respondents are invited to propose which short codes or services should be considered as Type A.

10. Respondents are invited to comment on whether the entire 19X range should be protected for Government and Emergency/Highway Services.

In addition, the TRA is interested in determining whether a set of short codes should be identified as common in Bahrain, meaning that the identification and dialling of these codes should be consistent across all networks (e.g. National Directory Enquiries, 181). It should be possible to dial these short codes from any network or telephone in Bahrain. If it is agreed that a “common” classification of services is worthwhile, the services would first have to be identified, and then each of the operators would need to implement the relevant code in their network and provide the “common service”. For example, if it is

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determined that National Directory Enquiries should use a “common” short code, 181, then each operator in Bahrain would route the dialled short code to that service in its own network. For example, if a subscriber of Operator A dials National Directory Enquiries, then the call would be routed to Operator A’s National Directory Enquiries Service. If a subscriber of Operator B dials the same National Directory Enquiries short code, the call would be routed to Operator B’s National Directory Enquiries Service, and so on. If Operator C did not provide the National Directory Enquiries Service, they would be required to route the call to an operator that provides that service, based on an agreement between them. In addition, if an operator wants to introduce a National Directory Enquiries Service, that operator would be obligated to use the 181 short code (or, when the 5-digit expansion occurred, 02 181, for example).

There is no international standard practice regarding the use of “common” short codes, thus the TRA would like input on the need for identifying a common set of services that should be allocated short codes.

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11. Respondents are invited to comment on whether there is a need to identify a common set of services in the Kingdom of Bahrain.

12. Respondents are invited to suggest which services could be included in this common set, and to propose a block that could be designated for the common set.

4.3. Type B

According to the NNP definition of Type B codes, these are used by the end users of one public telecommunications operator to have selected calls connected by an operator other than the one from whom they rent their telephone line (e.g. Carrier Selection).

Type B codes, as defined in the NNP, are discussed in the Carrier Selection Section of this consultation (Section 3).

4.4. Type C

As defined in the NNP, Type C access codes are set aside for independent use by public telecommunications operators, either to provide particular services exclusively to their directly connected end users or for internal network operations. This might include codes for access to sales services, fault reporting or general enquiries.

Therefore, a set of short codes needs to be allocated to each operator or service provider to offer network-specific type services. These services and codes would be classified as “on-net”, since each network operator or service provider would provide the service to its own customers and the call would only be routed and terminated on the same network. Consequently, it is not required that the dialing of these codes be routed outside an operator’s network.

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For example, a short code set aside for internal testing does not need to be coordinated across networks. Each operator, therefore, would determine its own short code for that purpose.

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13. Respondents are invited to comment on the need to identify a special range for the use of Type C codes.

14. If respondents are of the view that there is such a need, they are invited to propose a range for Type C codes and explain their proposal; if not, respondents are invited to propose possible solutions to avoid the conflict of codes.

15. Respondents are invited to raise any issues (if applicable) that should be considered by the Authority and the operators when introducing new Type C codes to the market.

5. 8 Series Special Service Range

As telecommunications competition in Bahrain increases and new operators introduce services, access to 8 series special service numbers, mainly used for toll free and shared cost services, becomes a fundamental requirement. It is therefore important that the telecommunications industry have equal access to these numbering resources and that all calls dialled by subscribers be completed. One of the high level worldwide numbering principles is that competing service providers must have equal access to comparable numbering resources, which will enable them to compete fairly for customers. Customers must be able to access competing networks and service providers in a comparable manner.

The format of these special numbers is considered non-geographic in nature because it is not possible to determine the location of the called party based on the dialled digits. When a special service number is dialled, the operator/service provider from which the call originated needs to determine the appropriate operator or service provider to which the number is allocated. This is achieved either through intelligent network capabilities or digit analysis capabilities that are embedded in the network. In Bahrain the network operators/service providers will need to analyze a series of digits to identify the appropriate operator in which to route the call, since there is no centralized database currently in use. The operator of the calling party performs the digit analysis to determine the routing of the call and identifies, in the dialled digits, the operator or service provider to whom the digits have been allocated. Subsequently, that operator/service provider performs a further translation to determine the subscriber routing information for call termination.

The numbers in this series are considered national; a call originating from one network must have the potential to be routed to and terminated by any other network, and should thus be considered “any-to-any” communication. Therefore, any calling customer should be able to dial one of these numbers and have the call completed even if the call originates from one network but is terminated by another network operator or service provider. This is standard worldwide practice for

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these types of special series numbers. Consequently, any subscriber in Bahrain should be able to dial an 8 special service number originating from any network and have the call completed within that network or routed for call completion to any other network or service provider in Bahrain. This would require that all operators either have separate interconnection agreements with each other or that they have an interconnection agreement with one operator so that all calls could be completed from any one operator to any other operator. This would be based on commercial agreements and the charging and settlements would be negotiated commercially.

5.1. Number Format

In a situation where additional space and/or capacity are needed within a segment of a NNP – in this case, the 800 Code – the first action is usually to determine if usable space/capacity can be identified.

The first step when considering the overall allocation of 8 series range numbers is to conduct an impartial audit of the current allocations in order to determine ranges of numbers, if any, which are not currently allocated. This would be necessary in order to determine unallocated resources. The goal of the audit is to identify available 2-digit combinations of numbering resources that can be allocated to competing service providers.

Following a review of the numbering returns from Batelco and the TRA certificates, Batelco has been allocated the block 8000 0000 through 8000 9999, and Kalaam Telecom has been allocated the blocks 8001 0000 through 8001 9999, 8440 0000 through 8440 9999 and 8770 0000 through 8770 9999. Therefore, in order for additional service providers to have access to this resource, the following format is proposed:

80 [XX] XXXX,

where:

80 identifies the service

[XX] identifies the service provider

XXXX identifies the subscriber

In this format, the first two digits would identify the service, the third and fourth digit would identify the provider and the remaining 4 digits would identify the subscriber. In this case, Batelco would be identified by the digits “00” and Kalaam Telecom by the digits “01”. Allocations would therefore be in blocks of 10,000 and allow for one hundred (100) service providers in each of the service categories from 80 to 89. It should be pointed out that this option would represent a departure from the existing NNP, where the first three digits identify the service. In order to accommodate this change, an alteration in the overall number format for the 8 series special service numbers is required and is discussed in the a subsequent section (Section 5.3).

The TRA has already protected 8X ranges so that there is an adequate supply of numbers available for the allocation of toll-free numbering

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ranges to competing service providers. Moreover, for any new services offering the 8 series range, the same rationale and numbering format should be used.

5.2. Digit Analysis and Routing

It should be pointed out that the network routing for these codes needs to be modified so as to accommodate the new format and function of the numbers. When Batelco was the only operator allocated 800 numbers, the network would route the dialled 800 numbers to Batelco. However, with the introduction of additional service providers, the need has arisen to analyze additional digits in order to identify the service provider and route the call as appropriate.

Therefore, on the basis of the proposed numbering format, the network will need to analyze the first four digits of the dialled number: the first two to identify the type of service (e.g. 80 toll-free), and the third and fourth to identify the provider that the number is allocated to.

One of the reasons for changing the service identifier from the third to the second digit is to simplify the identification of the service for subscribers.

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16. Respondents are invited to comment on whether to implement the proposed allocation format in section 5.1 for the "8" series in Bahrain, noting any significant difficulties in digit analysis and routing that might prevent this format from being applied.

5.3. Format Change

Additionally, in reviewing the NNP, the following format change for the 8 Series codes is proposed, in order to ensure alignment with the new proposed 2-digit service identifier:

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Table 4: 8 Series Code

From:		To:	
Code	Service	Code	Service
8X0	No Charge to caller	80X	No Charge to caller
8X1	Protected	81X	Protected
8X2	Internet for Schools	82X	Internet for Schools
8X3	Protected	83X	Protected
8X4	Cost Shared with operator	84X	Cost Shared with operator
8X5	Protected	85X	Protected
8X6	Protected	86X	Protected
8X7	Cost borne by caller	87X	Cost borne by caller
8X8	Protected	88X	Protected
8X9	Protected	89X	Protected

The table above recommends changing the format of the 8 series so that the second or X digit would become the third digit and the existing third digit would become the second digit and would identify the service type. For example, the code set 8X4 for Cost Shared with Operator would become 84X. Only the order of the digits would change, not the service type. This is being proposed because from an end user perspective it is easier to identify the type of service. In addition, this format presents the blocks of this range in a more systematic form. Therefore, easier identification of the operator using the block and better numbering administration and allocation management could be achieved. Also, from an operator's perspective, it minimizes the number of digits to analyze for routing purposes.

The numbers already allocated will not be affected by this format change; operators currently allocated 8X blocks will not need to migrate to any new format and their customers will not face any numbering change.

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17. Respondents are invited to comment on whether the format change suggested in the table of section 5.3 should be implemented.

18. Respondents are also invited to indicate their preferred format (the old one or the one currently proposed), taking into account the reasons given by the TRA for the change.

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6. 9 Series Premium Service Range

As telecommunications competition in Bahrain increases and new operators introduce services, access to 9 series premium service numbers becomes a fundamental requirement. It is therefore important that the telecommunications industry has equal access to these numbering resources and that all calls dialled by subscribers be completed. One of the high level worldwide numbering principles is that competing service providers must have equal access to comparable numbering resources, which will enable them to compete fairly for customers. Customers must be able to access competing networks and service providers in a comparable manner.

The format of these premium numbers is considered non-geographic in nature, because it is not possible to determine the location of the called party based on the dialled digits. When a premium service number is dialled, the operator/service provider from which the call originated needs to determine the appropriate operator or service provider to which the number is allocated. This is achieved either through intelligent network capabilities or digit analysis capabilities that are embedded in the network. In Bahrain the network operators/service providers will need to analyze a series of digits to identify the appropriate operator in which to route the call, since there is no centralized database currently in use. The operator of the calling party performs the digit analysis to determine the routing of the call and identifies, in the dialled digits, the operator or service provider to whom the digits have been allocated. Subsequently, that operator/service provider performs a further translation to determine the subscriber routing information for call termination.

The numbers in this series are considered national; a call originating from one network must have the potential to be routed to and terminated by any other network, and should thus be considered “any-to-any” communication. Internationally “any-to-any” communication is defined as a calling party being able to reach a called party by dialing the number or code of the called party, irrespective of the networks (mobile and fixed inclusive) used by the calling party and the called party, and irrespective of whether the calling party is calling from overseas or from a local station. Therefore, any calling customer should be able to dial one of these numbers and have the call completed even if the call originates from one network but is terminated by another network operator or service provider. This is standard worldwide practice for these types of numbers. Consequently, any subscriber in Bahrain should be able to dial a 9 special service number originating from any network and have the call completed within that network or routed for call completion to any other network or service provider in Bahrain. This would require that all operators either have separate interconnection agreements with each other or have an interconnection agreement with one operator, so that all calls could be completed from any one operator to any other operator. This would be based on commercial agreements, and the charging and settlements would be negotiated commercially.

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6.1. Number Format

In a situation where additional space and/or capacity are needed within a segment of a NNP - in this case, the 900 Code – the first action is usually to determine if usable space/capacity can be identified.

Following a review of the numbering returns from Batelco and the TRA certificates, Batelco has been allocated the block 9000 0000 through 9000 9999 and Kalaam Telecom has been allocated the block 9010 0000 through 9010 9999. Therefore, in order to allow additional service providers to have access to this resource, the following format is proposed:

90 [XX] XXXX,

where:

90	identifies the service
[XX]	identifies the service provider
XXXX	identifies the subscriber

This format would be in alignment with the proposal for the “8” series special service codes and would signify that the first two digits would identify the service, the third and fourth digits would identify the provider and the remaining four digits would identify the subscriber. In this case, Batelco would be identified by the digits “00” and Kalaam Telecom by the digits “10”. Allocations would therefore be in blocks of 10,000 and allow for one hundred (100) service providers in each of the service categories 90-93, 94-96, and 97-98. It should be pointed out that this option represents a departure from the existing NNP, where the first three digits identify the service. In order to accommodate this change, an alteration in the overall number format for the 9 series numbers is required and is discussed in Section 6.3.

The TRA has already protected 9X ranges so that there is an adequate supply available for the allocation of numbering ranges to competing service providers. Moreover, for any new services offering the 9 series range, the same rationale and numbering format should be used.

6.2. Digit Analysis and Routing

It should be pointed out that the network routing for these codes needs to be modified so as to accommodate the new format and function of the numbers. When Batelco was the only operator allocated 900 numbers, if an end user dialled a 900 number the network would route that call to Batelco. However, with the introduction of additional service providers, the need has arisen to analyze additional digits, in order to identify the service provider and route the call as appropriate.

Therefore, on the basis of the proposed numbering format, the network will need to analyze the first four digits of the dialled number: the first two so as to identify the type of service (e.g. 90, Premium Rate-Low Cost), and the third and fourth digits so as to identify the provider that the number is allocated to.

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19. Respondents are invited to comment on whether the proposed allocation format in section 6.1 should be implemented, noting any significant difficulties in digit analysis and routing that would prevent this format from being applied.

6.3. Format Change

Additionally, in reviewing the NNP, the following format change for the 9 Series codes is proposed, in order to ensure alignment with the new proposed 2-digit service identifier:

Table 5: 9 Series Code				
From:		To:		
Code	Service		Code	Service
9X0	Premium Rate		90X - 93X	Premium Rate – Low Cost
9X1	Premium Rate Non-Content Related		94X - 96X	Premium Rate – Medium Cost
9X2 – 9X8	Broadband Services		97X - 98X	Premium Rate – High Cost
9X9	Protected		99X*	Protected

* NOTE: This range is protected due to the use of the code 999 for Emergency.

The table above recommends changing the format of the 9 series so that the second or X digit would become the third digit and the existing third digit would become the second digit and would identify the service type. Additionally, the TRA proposes to simplify the grouping of premium rate numbers by banding them in terms of low, medium and high cost. If this is agreed to in principle, then the code range 9X2-9X8 for broadband services can be reclaimed. The reclamation of the 9X2-9X8 range is being proposed due to the lack of any need or demand for the numbering resources in this range. A separate section (section 11) in this consultation deals with the issue of numbering resources to access ISPs platforms. It is envisioned that ISPs will offer broadband type services, and thus a separate numbering range in the 9 series special service code range will not be required. The restructuring is being proposed because, from an end user perspective, the cost of the call can be easily identified. In addition, the restructuring would present the blocks of this range in a more systematic form. Therefore, easier identification of the operator using the block and better numbering administration and allocation management could be achieved. The premium numbers already allocated may be affected by this restructuring; customers currently allocated 9X numbers may need to change their numbers according to the cost of their services.

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20. Respondents are invited to comment on whether the format change suggested in the table in section 6.3 should be implemented.

21. Respondents are invited to indicate their preferred format (the old one or the one currently proposed), taking into account the reasons given by the TRA for the change.

22. Respondents are invited to comment on whether the 9X2-9X8 range for Broadband Services should be reclaimed by the TRA.

23. Respondents are invited to comment on whether they recommend the categorization of 9X numbers on the basis of cost, as well as on what rates (per minute) should be considered Low (90-93), Medium (94-96) and High (97-98) .

24. If it was decided to categorize 9X numbers on the basis of cost, respondents are invited to comment on whether it would be beneficial if the TRA introduced a separate regulation on the minimum and maximum rates for these ranges, as well as other guidelines for consumer protection when calling premium numbers.

25. Respondents are invited to comment on any negative effects (where applicable) as a result of applying the new structure to the currently allocated numbers and the operators using these numbers.

7. 5 Series Corporate Numbering

7.1. Number Structure and Format

A corporate number can be defined as a telephone number allocated to a service provider with a view to be assigned by that service provider to a specific corporate customer. Some countries, including the UK, have reserved the 5 series code in their NNP for assignment to service providers and their corporate customers.

The original rationale for corporate numbering was based on the belief that corporate customers may wish to obtain and operate telephone numbers which facilitate contact with customers, dealers and members of the public. In addition to national demand for such services, multi-national corporations have also shown an interest in international corporate numbering. The United Kingdom appears to be the only country that is actively promoting the use of corporate numbers based on the 5 series code.

The format of these special numbers is considered non-geographic in nature because it is not possible to determine the location of the called party based on the dialled digits. When a corporate number is dialled, the operator/service provider from which the call originated needs to determine the appropriate operator or service provider to which the number is allocated. This is achieved either through intelligent network capabilities or digit analysis capabilities that are embedded in the network. In Bahrain the network operators/service providers will need to analyze a series of digits to identify the appropriate operator in which to route the call, since there is no centralized database currently in use. The operator of the calling party performs the digit analysis to determine the routing of the call and identifies, in the dialled digits, the operator or service provider to whom the digits have been allocated.

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Subsequently, that operator/service provider performs a further translation to determine the subscriber routing information for call termination.

The numbers in this series are considered national; a call originating from one network must have the potential to be routed to and terminated by any other network. Therefore, any calling customer should be able to dial one of these numbers and have the call completed even if the call originates from one network but is terminated by another network operator or service provider. Consequently, any subscriber in Bahrain should be able to dial a corporate number originating from any network and have the call completed within that network or routed for call completion to any other network or service provider in Bahrain. This would require that all operators either have separate interconnection agreements with each other or have an interconnection agreement with one operator so that all calls could be completed from any one operator to any other operator. This would be based on commercial agreements and the charging and settlements would be negotiated commercially between operators.

In this case, the initial digits only identify the corporate entity. It would be up to the service provider and the corporate user to define the use of the remaining digits. One use may be to identify locations within the number, but that is an internal decision to be made. The number format only serves to determine the service provider so that other networks can route the call to the serving network for call completion.

The proposed format options for the 5 series code for corporate numbering assignments are as follows:

Option 1

5 XX XXXXX,

where:

5 identifies the number as corporate

XX identifies the service provider

XXXXX identifies the subscriber

The above assignment would provide each operator with a block of 100,000 numbers to assign to its corporate customers. This option would allow up to 100 blocks to allocate to operators or service providers.

Option 2

5 XXX XXXX,

where:

5 identifies the number as corporate

XXX identifies the service provider

XXXX identifies the subscriber

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The above assignment would provide each operator with a block of 10,000 numbers to assign to its corporate customers. This option would allow up to 1000 blocks to allocate to operators or service providers.

Consultation

26. Respondents are invited to indicate their preferred allocation format from the options in section 7.1, and to indicate their preference regarding whether to allocate blocks in 100,000 or 10,000 numbers.

7.2. Digit Analysis and Routing

It should be pointed out that the network routing for these codes need to be initiated to accommodate the format and function of the numbers. With the introduction of the Corporate Numbering service, the analysis of additional digits to identify the service provider in order to properly route the call is required. Therefore, based on the format options selected, the network will need to analyze the first three or four digits of the dialled number: the first digit so as to identify the type of service (e.g. 5 – Corporate Numbering), and the next two or three digits so as to identify the provider.

Consultation

27. Respondents are invited to comment on any significant difficulties (if applicable) in implementing and using corporate numbers, as well as on how operators could overcome such problems.

7.3. Other Issues

In addition to the numbering format for the 5 series, there are other issues to be taken into consideration, such as:

Method of Allocation

- Who gets the “Golden Numbers” and by what method (lottery, bidding, first come-first served, etc.)?

Assignment Criteria:

- Should there be a set of eligibility criteria specific to businesses applying for corporate numbers?
- Should third parties who may wish to offer corporate network services to groups of businesses forming a pseudo-corporate network be eligible?
- Should businesses that wish to converge networks with third parties in the supply chain by sub-allocating numbers be allowed to do so?
- Should there be sub-allocation by businesses?

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Cost issues:

- Charging associated with the corporate numbers (free to callers, Premium, or geographic?)
- Should there be different categories for different number ranges?
- Cost or revenue sharing related to Interconnection arrangements.

Consultation

28. Respondents are invited to comment on the issues under section 7.3 and mention their preferred options.

8. SMS Numbering

In the initial stages of development of the messaging market, text messages were sent exclusively between mobile phone subscribers, and between the Internet and mobile phone subscribers, using public mobile numbers from national numbering plans.

For exchange of messages between users, the telephone number is used, for practical reasons, as the recipient's address. Subscribers send SMS text messages to any other subscriber just as they call any subscriber on any mobile network today. Messages originating from a subscriber are first routed to a short message exchange center on the basis of the called party's mobile number. Given that every user of a telephone network has a number, no special SMS numbering is necessary.

In subsequent stages, businesses began to offer value-added services based on SMS to end users, usually at a higher charge than normal SMS. The information provided by these services is supplied on request or periodically as part of a subscription. The most popular applications include the downloading of ring tones, voting, and sports information. M-commerce applications – for example, paying a parking meter – have also started to emerge in some countries. Increasing numbers of fixed network operators are also starting to offer SMS to their customers.

In Europe, value-added services based on SMS most commonly use 3-6 digit short codes. Initially, operators allocated these numbers to content providers independently of each other. The codes were considered by operators to be specific to their networks. In many countries, however, a need has been identified for coordination of the allocation of these codes in order to prevent different network specific numbers from being allocated by different operators for the same service, and in those cases the operators or service providers have coordinated their allocation and use.

In Hong Kong, the codes "50(1-9)" are designated for value-added SMS. Public Mobile Radiotelephone Service Operators, Personal Communications Service Operators and Mobile Carrier Licensees are entrusted by the Regulator to administer these codes. The Regulator may appoint other operators (e.g. Fixed Telecommunications Network

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Services or Fixed Carrier Licensees and Mobile Virtual Network Operators offering SMS) to administer these codes.

The TRA has allocated numbers for Short Codes services but does not specify a special categorization of the numbering ranges for assignment purposes based on cost or service.

Consultation

29. Respondents are invited to comment on whether there is a need to introduce a specific numbering format for SMS services.

30. Respondents are invited to comment on whether there should be a categorization of numbers into ranges based on cost or content.

31. Respondents are invited to mention other issues to be considered by the Authority or the operators regarding the use of SMS numbering.

9. Use of Numbers for Activation of Prepaid Cards

Providers of prepaid calling cards require that a national number or short code be dialled to access the platform in order to activate or use the card. These national numbers or short codes are typically placed on the back of the card. After the number or code is dialled, the subscriber is prompted to enter a pin number that is also on the back of the card to activate the card or gain access to his/her profile. In Bahrain, toll-free Special Service numbers are used to activate a prepaid card.

National numbers or short codes for access to the prepaid platform were examined for providers in several countries where different types of access are utilized. However, although there are different access mechanisms in place throughout the world, there is usually an agreed common practice within a country on the choice of either a short code or the use of a national number. Throughout the world, the most common methods of access are either toll free (8XX) numbers or short codes. In all instances, no charges were incurred by subscribers when the numbers or short codes were dialled to access the prepaid platform. In Bahrain, several operators provide prepaid services using (800) numbers to access their prepaid platform.

The use of a toll-free 8X number is easier to implement across all networks because it is a national number; a call from any network can be terminated in any other network. Short codes are not national numbers, and the allocation of such codes across all networks may require special arrangements in order to be implemented.

Consultation

32. Respondents are invited to comment on whether the method of accessing prepaid services in Bahrain should be unified, or should be open to both short codes and 800 numbers.

33. Respondents are invited to propose the most convenient type of number (short code or 800) to be used for accessing the prepaid card platform in Bahrain, and support their answers with reasons.

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34. Respondents are invited to propose other possible options of numbers to be used for accessing prepaid cards, and support their answers with reasons.

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10. Separate Numbering Range for IP Telephony

Internet Protocol (IP) is a connectionless protocol in which packets can take different paths between the endpoints, and all paths are shared by packets from different transmissions. This enables efficient allocation of network resources, as packets are routed on the paths with the least congestion. Header information makes sure that the packets reach their intended destinations and helps reconstruct the messages at the receiving end. VoIP is the ability to make telephone calls over IP-based data networks with a suitable quality of service (QoS). VoIP-based networks often have superior cost/benefit as compared with traditional PSTN.

Without a doubt, the IP revolution is gaining momentum with more and more voice traffic moving onto IP networks. Vendors of voice equipment will continue to develop integrated voice and data devices based on packetized technology. However, the impact on numbering resources is being evaluated by many countries around the world. In the extreme, one could imagine that every potential IP Telephony device (e.g. every PC or even every TV) could be allocated a phone number.

The main numbering issue that needs to be resolved is whether or not VoIP is eligible for specific numbering designation. One argument is that, since the service is still voice, whether it is carried via wireline or wireless, PSTN or VoIP, it is immaterial what type of transmission the call is carried over and the existing rules of allocation should be maintained. On the other hand, numbering resources to the VoIP providers and some countries have set aside national numbering ranges to identify VoIP calls.

Different countries are utilizing different approaches to resolve this issue. Norway and France, for example, have designated an NDC, an Area Code equivalent, to IP Telephony that allows for single stage dialling, while Japan has designated short code resources for access to IP type services. The US allocates numbers to IP telephony providers, e.g. Vonage, from the pool of geographic resources, and the Federal Communication Commission (FCC) has determined that unique numbering ranges should not be designated to technologies. Therefore, in the US you cannot determine from the dialled digits if the call originates from or is terminated via IP. In the US, it is felt that IP is a method of transport for a voice call which is similar to the introduction of ISDN and ATM, and therefore IP is a technology used to deliver calls and is thus not eligible for separate and unique numbering ranges. The US takes the view that numbering resources are designated to services and not technologies.

On the other hand, the advantage of dedicating numbering ranges to VoIP is that the user originating a call knows by the dialled digits whether they are dialing a customer served by an IP network. The user originating a call can then expect a certain level of quality of service and, in some cases, charges for that call which may be lower than the usual tariffs. The disadvantage of dedicating numbering ranges to VoIP is that today many of the backbone networks of operators are already IP-enabled and new operators entering the marketplace have deployed VoIP technology. Moreover, the existing providers are all migrating their

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networks to VoIP-based solutions. Therefore, as previously mentioned, IP technology is going to be deployed throughout all networks, so eventually all calls will be based on VoIP. Consequently, a country's entire NNP resources would all be allocated within a single range dedicated to IP, and that would not be an efficient or effective way of designing an NNP and allocating numbering ranges specifically to IP telephony.

Consultation

35. Respondents are invited to comment on the need for a numbering range for IP telephony services in the Kingdom of Bahrain. Respondents are requested to elucidate their answers by citing possible advantages and disadvantages. If respondents recommend a separate range for IP telephony, they are invited to propose the numbering range to be used for IP Telephony services.

36. Respondents are invited to comment on the possible problems associated with specifying a range for IP telephony services.

37. Respondents are invited to comment on the possible problems associated with using geographic numbers for IP telephony services.

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11. National Number to Identify ISPs

Internet Service Providers (ISPs) enable subscribers to access the internet either through a dial-up or a broadband connection – cable, satellite, or digital subscriber line. Unlike broadband connections, a dial-up connection means that ISPs must provide their subscribers with access numbers. Depending on the size of their subscriber base, one or more numbers may be made available to subscribers. An ISP that provides one access number could thereby be uniquely associated with that number. If multiple numbers are provided, ISP identity is possible if one or more digits are used within the number for identification purposes. The allocation of these numbers within the NNP must therefore be decided by the authority.

Currently, in Bahrain, there is no common numbering range for ISP access. In some cases geographic numbers are used, while in other cases the 9 special series numbers are utilized. The TRA wants to consult on adopting a common approach for ISP access in Bahrain and is interested in obtaining views on the type of numbering resource that should be allocated.

By way of examining ISP access in various countries, it has been determined that subscribers dial either geographic numbers or special service numbers (toll-free or shared cost type numbers):

- Some countries, notably the USA, use geographic numbers. Subscribers are provided with a set of numbers that are distributed throughout the coverage area that an ISP wishes to serve. Charges may or may not be incurred for the call. A subscriber within a specific local calling area can dial a number within the local calling area and not be charged for the call. Should that subscriber dial a number outside their local area to connect to the ISP, a charge will be incurred.
- In other countries, notably the United Kingdom, 8XX numbers are used for accessing ISPs. The call is regarded as a special services call and the subscriber will incur charges. It should be noted that not all the 8XX range in the UK is toll-free. There are designated ranges of numbers within the 8 series that provide a “low cost”, which typically means a cost lower than that of a local call.

Customers would generally be able to estimate the cost of the call depending on the numbering range used. Customers may not know the exact amount, but, if geographic numbers were used, they would be able to calculate the cost for any single call, since the cost of the call would be based on the national calling rates. If the 8 special service code series were used, the customer would know whether the cost was shared by the operator (84X series), or borne by the caller (87X series). (Please refer to Section 5 on 8 series special service codes for changing the format of the 8 series). Lastly, if the 9 series special service codes were used, the customer would know if the rate being applied was Low, Medium or High Cost, depending on the range used within the 9 series.

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38. Respondents are invited to comment on whether there is a need for a unified access method for ISPs, i.e. whether ISP access should be limited to special service numbers in the 8X range, or premium service numbers in the 9X range, or geographic numbers.

39. Respondents are invited to comment on whether there is a need for categorizing the access numbers to reflect the cost of each call to customers.

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Glossary and Definitions

Access Code

A short, generally memorable, code, which allows end users to access a wide range of telephony services.

Allocated

The status of a Code Block that has been allocated to an operator for a particular purpose.

Allocation Certificate

A formal document issued by the TRA to the operator with the allocation information of a certain block or code, to be used by that operator for a particular purpose.

Annual Numbering Return

Information supplied to the Authority according to the NNP Convention (5) regarding the utilization of their allocated numbers.

Batelco

Bahrain Telecommunications Company.

Broadband

A service or connection allowing a considerable amount of information to be conveyed, such as television pictures. Broadband is generally defined as a bandwidth that is more than 2Mbits per second.

'Find-me-anywhere' services

These are services that enable end users to be contacted, whatever their location, where the call charge is not distance dependent. Mobile, personal numbering and paging services are included in this category.

Free

The status of a Code Block that has not been allocated for any purpose.

Geographic Numbering Range (GNR)

Those numbering blocks that have geographic significance.

Indirect Access

Indirect access is the acquisition of calls by an operator through a different

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operators infrastructure.

International Prefix

The International Prefix is the recognized numeric prefix that is added before the called number, which the telecommunications system uses to recognize that an international number is being called. For the Kingdom of Bahrain, the prefix is 00.

Local rate

An indication that the price for the call is equivalent to the rate for a geographic local call set by the relevant originating operator, where such a rate exists (local rate is not differentiated at present in Bahrain).

National Destination Code (NDC)*

A nationally optional code field, within the international public telecommunications numbering plan as set out in the ITU-T Recommendation E.164 number plan, which, combined with the subscriber number, will constitute the National Significant Number. In the Kingdom of Bahrain, this corresponds to the area code, used before the called subscriber's number. In the Kingdom of Bahrain, the NDC has 2 digits.

National Number

A number is considered national when originating calls to this number can be routed to and terminated by any other network.

National Numbering Plan (NNP)

The Kingdom of Bahrain's Numbering Scheme (also known as the Plan). The Plan indicates the number ranges that are designated, or not designated, for particular purposes (see Section 3.9 - Convention 8).

National Numbering Plan List (the List)

The list of codes and numbers that make up the Plan, published by the Authority on its website and updated, normally, on a weekly basis. The List gives details of the current status of delegated parts of the Plan, e.g. Allocated, Free, Protected or Reserved.

National Rate

An indication that the price for the call is equivalent to the rate for a geographic national call set by the relevant originating operator, where such a rate exists (National Rate is not differentiated at present in Bahrain).

Number Block

A unit of 1,000, 10,000, or 100,000 numbers depending on the section of the Plan to which the number pertains.

CONSULTATION

National Numbering Plan

Number Range

A set of contiguous numbers of a specified or unspecified size.

Personal Identification Code (PIN)

A number defined by a user that provides a degree of security in the operation of a service.

Premium Rate Services (PRS)

Services that are paid for through the telephone bill of a subscriber and charged at rates above those for Special Services. The revenue for a PRS call may be shared between the operator and the provider of the service.

Protected

The status of a Code Block that is withheld from issue for some future purpose.

PSTN

Public Switched Telephone Network.

Reserved

The status of a Code Block that has been provisionally allocated to an unnamed party pending confirmation.

Schedules

Sections of the NNP document that detail the specific rules of the Plan.

Special Services

Services that are paid for through the telephone bill of a subscriber, and charged at special rates, from free up to, and including, national rate. Charges for these calls can be paid by the called party, shared between the caller and the called party, or paid wholly by the caller.

Subscriber Number (SN)*

The number identifying a subscriber in a network or numbering area.

Telecommunications Regulatory Authority

The "Authority" or the "TRA" is the Telecommunications Regulatory Authority of the Kingdom of Bahrain established by Legislative Decree No. 48 of 2002 promulgating the Telecommunications Law.