

CONSULTATION REPORT

National Numbering Plan

National Numbering Plan

A Report Following Consultations Issued by the
Telecommunications Regulatory Authority

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**The deadline for responses is 4 pm on 17 July
2008**

Purpose: A report introducing a revised National Numbering Plan, following consultations and workshops in relation to allocation and categorization of numbering resources in the Kingdom of Bahrain



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1 Introduction

This consultation report presents a proposed revised National Numbering Plan (NNP). This 3rd revision of the National Numbering Plan is as a result of several consultations and workshop discussions with industry. The report provides the TRA's reasoning for the modifications in the proposed revised National Numbering Plan published together with this report. Comment from interested parties may be sent to consult@tra.org.bh no later **than 4 pm, local time on July 17th 2008**.

The series of reviews commenced with the publication of a consultation on October 20, 2005 which explained issues related to the numbering plan currently in force and listed 39 questions for the industry and interested parties to present their views and potential alternatives to suggested structures for the Plan. The consultation did not conclude in a new issue of the Plan, mainly due to uncertainty in the numbering requirements for potential new services to be offered in the market by the newly established players.

Through the latter half of 2006, all of 2007, and early 2008 TRA held a number of workshops and presentations, which included a short consultation 28 August 2007.

During this time, noteworthy changes in the development of market players as well as technology related influences had further significantly changed the landscape of numbering issues. Such influences included the introduction of New Generation Network (NGN) services in Bahrain, meshed WiFi type networks and WiMax networks for fixed access. Further other new technologies have been introduced such as Multi-Protocol Label Switching (MPLS) together with nomadic services and soft diallers together with a progressive convergence of fixed and mobile services.

The implementation of such technology has allowed new levels of services to be developed for the Bahrain market. The most significant of these service types which influence numbering is the nomadic capability of customers and terminals across different networks e.g. using wireless, fixed line or mobile technologies and the proposed introduction of Number Portability. Number Portability allows customers to keep their number even when changing from one operator to a similar service provided by another operator.

The development path of Bahrain's telecommunications operators and their services are now reasonably well defined. In turn this reflects in numbering requirements being clarified as far as is possible, given the rapid changes in technology and converged services.

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2 Issues raised during consultations

2.1 Overview of Numbering Issues

Evaluating and revising national numbering plans is a formidable challenge. If it is not carried out in with the utmost care, changes can be disruptive and costly to users and service providers. It is imperative that the numbering plan support the evolution of competitive telecommunications services as envisaged by the National Telecommunications Plan.

In coming to its conclusions TRA has not only reviewed the responses of interested parties to the various consultations, but has also drawn on reports and experience of other countries.

The technological changes that are taking place within the world of telecommunications has initiated the need to review how numbering is used. The historic methods of identifying users of network services, via fixed geographic numbers and their mobile counterparts, have been complicated with the introduction of the new naming and addressing conventions of alternative network architectures. Users of services may now be identified for example by IP network addresses or proprietary network names, nomadic numbers as well as the traditional numbers.

As a result, the allocation of the National Numbering resource to operators requires a review of the criteria defining the eligibility of applicants requesting a number allocation, in addition to the use of those numbers, and the conditions which may apply to allocations.

2.2 Service/Customer Type/Personal

Number ranges, being made available for allocation, have recently tended to be defined for a service or range of services, as opposed to being defined for a customer type.

However, convergence and number porting have served to confuse this general principle. It would appear, from current analysis, that the most efficient methodology would be to introduce personal numbering, which in the case of Bahrain would not be a major issue due to the relatively unlimited resource of national numbers.

However, full convergence is unlikely to be ubiquitous. It is envisaged that niche operators will always exist. Users are therefore likely to require several “personal numbers”. and at least a method of identifying the operator or service provider from which calls are received.

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2.3 Connectivity Issues

With the break up of the monopoly, held by Batelco in the field of telecommunications, the Kingdom of Bahrain now has many licensed operators capable of providing traditional telecommunications services as well as new services using the capability of new network technology.

The development of effective competition in the telecommunications market depends upon the ability for customers of one operator to call customers of another operator. The revised Numbering Plan takes account of this basic requirement.

2.4 Number Porting

Number portability is regarded, in the European Framework, as a user right irrespective of the cost. The problems of changing number have reduced with the ability for subscribers to easily inform their correspondents of a change in number, for example via a broadcast email.

A comprehensive review of numbering cannot be performed without considering number portability as a future requirement in Bahrain.

Internationally Regulators agree that traditional services, which use geographic and mobile numbers, are subject to portability. On the other hand, differences of opinion exist concerning new IP based services, which may have access to geographic numbers, as to whether the number can be ported from one operator to another.

TRA is adhering to the International Telecommunications Union (ITU) recommendation to associate number portability with a specific number range .

2.5 Convergence

With the drive towards network convergence, the definition of a customer type or a service type is becoming blurred. The perceived effect on numbering allocations will be to require more specific detailed designations, with trends towards a much higher level of activity in number management.

TRA has taken the initiative to reduce specific designations for numbers used to identify customers. Appropriately licensed operators may apply for allocations of numbers that may simply be used to identify customers or their terminals, as opposed to also defining the specific service type e.g. mobile customer or fixed line customer.

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At the same time, ranges not used for customer identification such as Access Codes, Premium Rate and Special Service numbers will be more detailed to assist further consumer awareness.

2.6 Consumer Awareness

One of the aims of the numbering Plan is to ensure a system for consumers to have an indication of the cost of calling specific numbers. Numbers associated with services such as Freephone or Premium Rate services must remain identifiable as specific charging cases. However, operator specific call charges will be subject to competitive pressures and therefore the cost to the consumer of dialling specific number ranges for each and all service types will change with time.

2.7 Emergency Services

The requirement for emergency services to be able to trace a call has been the subject of great debate. A number of national and cross border initiatives have been introduced to enhance the capability of emergency services to support the safety and security of the general public.

The allocation of numbers as specific service types allows emergency services to evaluate the possibility of tracing the calling party to an exact location address or with mobility, at least to an area.

The element of mobility in networks has led to specific tracing methods being introduced into networks that may provide location data varying from a few centimetres to a square kilometre or more. The potential for roaming adds an element of identifying simply which country the caller is in, before any detailed data may be made available. IP based networks and the associated addressing techniques have added significantly to the complexity of the problem.

However, the emergency services are always reliant on network operators to provide the data. It follows that provided the network geographic location data is available, the actual numbering of services may not be so crucial.

2.8 Nomadic Effect of IP Based Services

The effect of the Internet on the communications world has been dramatic. The simple fact that a subscriber of a national operator may physically be anywhere in the world, but still appear to be local for the purpose of making or receiving calls, has introduced its problems as well as providing the customer benefits.

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This nomadic capability demands that we reshape the rules for allocating numbers. Services are not so easily compartmentalised, for example the consumer may be operating from either a fixed network or a mobile network, or may simply be a soft user on the public internet from a home base or a hosted base. The borders have all but disappeared. How numbers may be allocated for this activity cannot be based on the network service type. They may be a subscriber type, but it will vary depending how the subscriber is hosted. Personal numbers may be the answer for the future but full convergence may never be achieved as the common goal, so again different services on different networks may require several numbers.

2.9 Other Issues

The Public Internet and “soft diallers”, together with other developments in the use of international facilities, has enabled services that bypass established network hierarchies and a new regime of international and national service providers. This regime, although mostly legitimate and the source of a significant range of alternative services, is also the source of the current disorder in standards of quality and operations in the telecommunication market, particularly the international voice market.

TRA, in taking its decisions, has to consider the expectations of the consumers of the Kingdom of Bahrain with regard to their historical experience of quality of service experienced in a standards driven regime. The quality standards are being challenged by the migration of legacy networks to new generation IP based networks.

In addition, security agencies are increasingly concerned with the complications surrounding the ability to identify calling and called parties.

Methods will therefore be introduced to ensure that licensed operators comply with a minimum set of standards. Within the numbering regime, this will be applied as a requirement to provide CLI for all call types. This will involve operators adopting a mapping system for national numbers to other address types.

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3 Major Decisions

3.1 Service Based Numbering

The overall effect of the TRA's investigations and consultations is to remove the designations associated with service based numbering. This is a major change in the structure of the Numbering Plan and in the historical reasoning behind certain designations. However, the change does not have any effect on current service allocations, and no migration plans are required.

Other than Special Numbers (e.g. free phone and premium charge services) the decision is to issue the vast majority of numbers to qualifying licensed operators who may then use those numbers as customer identifiers. This means that the current Designations of Geographic, Find Me Anywhere, Personal and Corporate numbers will no longer be a necessity in the National Numbering Plan. Number ranges will simply be allocated to service providers. This will facilitate the flexibility to offer converged services and allows customers to identify the provider of those services.

3.2 Operators must prepare and maintain a Number Plan

Under the Conventions of this new Numbering Plan TRA will enforce the existing requirement for Licenced Operators to prepare, maintain and publish their own Numbering Plan, in addition to providing an Annual Numbering Return to TRA.

Licenced Operators will be responsible for maintaining records of all customers, including Pre Paid customers, and their allocated numbers, in readiness to provide such information to emergency services or designated security agencies under the appropriate legal processes.

3.3 Calling Line Identification

In an effort to ensure the capability of operators to correctly handle the variable classes of call quality offered by different service providers, with the potential for variable billing of different call types in a multi operator, multi network, and multi quality environment, TRA will mandate that Calling Line Identity (CLI) is provided, no matter what underlying technology is used to deliver a call.

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3.4 Special Service and Premium Rate Numbers

Numbers ranges and codes not designated for individual customer identification purposes e.g. Premium Rate and Special Services are further detailed to enhance consumer awareness and provide for further non-voice designations.

Special Service and Premium Rate Service number ranges are redefined to simplify the charging combinations for the benefit of consumer understanding. Charging mechanisms and maximum rates are for further study, and may be defined in a separate regulation.

Short numbers are defined within the Special Service and Premium rate number ranges to allow a simpler interaction with media and messaging systems.

3.5 Short Codes

Type A Short Codes (e.g. Emergency Services) are extended to incorporate new government initiatives for the capability to direct emergency calls to specialist agencies such as the Coast Guard.

Type B Short Codes may be suballocated, and provided approval is gained and interconnection exists, may have traffic directly routed.

Type C Short Codes (e.g. on-net codes) have a new set of common codes to implement for ease of customer understanding when moving from one service provider to another.

3.6 Obligation to Route and Allow Connection

Allocation of number ranges and codes to Licenced Operators comes with an obligation to implement the routing to access those numbers for customers from other networks, thus guaranteeing connectivity for all customers.

3.7 Charging for Numbers

In line with other licensing and certification procedures, TRA will charge licensed operators for their allocated range of numbers starting from 1st January 2009. Charging rates will be defined in a TRA schedule of fees to be published towards the end of the year.