Telkom

Submission to the Independent Communications Authority of South Africa

Draft proposed Number Portability Regulations published on 24 November 2017

29 January 2018

1 EXECUTIVE SUMMARY

The primary objective of number portability is to stimulate competition by allowing a subscriber the freedom to move his/her number from one communication service provider to another communication service provider. This freedom cuts across several issues including 1) subscriber rights, 2) successful call routing, 3) knowledge of which network provider the ported subscriber is now located, 4) rules of engagement between the donor and recipient operators when facilitating porting of a subscriber between them and 5) behaviour of donor operators towards subscribers seeking to port out from them.

Subscriber rights are paramount and protection as well as enabling customer choice are pivotal issues which must be achieved through these regulations. However, an alarming trend is becoming visible where numbers are being ported without the customer requesting port out or consenting to it. This exposes customers to bank account hacking and other fraudulent activities. Entrenching clear and secure mechanisms to trigger porting has become paramount and must be addressed urgently.

The Number Portability Company manages the central reference database for ported numbers seamlessly today, and any changes effected through these regulations should be cognisant of the impact on it to fulfil its mandate for and on behalf of Industry. The processing of millions of porting queries requires significant processing power, and any minor alteration can potentially place a material burden on the central reference database system. Telkom cautions the Authority to ensure that processing efficiencies are considered when finalising these regulations.

Telkom is migrating to a new modern Next Generation Network (NGN), but as it transitions towards this new network it is also constrained by the limitations of its legacy network. This becomes acute in the case of geographic number portability where its routing tables are decentralised and fragmented compared to its new NGN and mobile networks. NGN and Mobile networks have a centralised routing table which allows for rapid activation and synchronisation of ported numbers. These limitations come with material implications for Telkom, and Telkom urges the Authority to relax the tight activation/synchronisation timers to allow Telkom to transition successfully without suffering regulatory penalties due to its legacy network constraints.

Toll free numbers (080) and smart access numbers (086) are now being subjected to number portability, which is a regulatory remedy which needs to be preceded by a market review undertaken by the Authority for these respective markets. Telkom strongly recommends the Authority delay the imposition of this remedy until it has full insight into the specific markets via the required market reviews. The imposition of this regulatory remedy poses material risks to Telkom's toll free and smart access businesses should it be imposed.

2 INTRODUCTION

1. Telkom SA SOC Limited ("**Telkom**") welcomes the opportunity to submit its written comments on the draft Number Portability Regulations published by the Authority on 24 November 2017 in Government Gazette 41275 and trusts the Authority will find these inputs useful.

2. Should the Authority decide to hold public hearings as part of this public consultation Telkom requests an opportunity to make oral presentations.

3. Format of this document:

   Sdfkljsdfjklflj – ICASA's proposed text

   Lfjkghldfkghsdfkl – Telkom proposal

3 GENERAL COMMENTS

3.1 Illegal Porting (without initiation or consent)

There is a notable trend emerging where customers are being ported out without initiating a port out request. This is giving rise to numerous problems, including:

- hacking of customers bank accounts.
- The RICA process is also not being adhered to.
- CLI verification is also being circumvented for port out.

This is a material issue for Telkom and the telecommunication industry at large and must be urgently addressed.

3.1.1 Telkom request:

- That no port should be effected without the express authorization of a customer. Expression authorization must include, but is not limited to:
  - For mobile service numbers:
    - Customer approval as part of port out process in the form of:
      - SMS,
      - CLI verification
  - For geographic numbers:
    - Written application process must be defined by ICASA to facilitate access to port applications by the donor.

3.2 Operational System Specification (OSS) consolidation

The proposed consolidation of mobile service and geographic number porting into a single operational system specification is not supported. Telkom would recommend these be kept separate due to the difference in dealing with block porting. The timelines and porting processing are distinctly different between mobile service and geographic numbers.

3.3 Porting of 080 (FreeCall) & 086 (SmartAccess)

3.3.1 Summary

Telkom is concerned that the attempt by the Authority to subject toll free numbers and 086 numbers to number portability regulatory remedy is problematic for several reasons:

1) The scope of ICASA's Inquiry into number portability was limited

2) No market review was undertaken for the toll free service market or the 086 number block range (which assumed that the 086 number block range is a service market)

3) The Scope of "number portability" as defined in the ECA does not extend to VAS and therefore 080 and 086 numbers are beyond the scope of number portability envisaged in the definition of number portability in the ECA.

Telkom elaborates on these points below.

3.3.2 The Scope of ICASA's Inquiry into Number Portability was limited

The Authority's objectives of the inquiry into number portability did not contemplate a market review of the toll free market or the 086 markets as no markets were defined or reviewed.

The Authority states the following in its "Number Portability Public Inquiry Findings Report":

> *"There is broad consensus on the inclusion of non-geographic numbers for portability and the NPC will be required to configure specification for 080, 086, 087 numbers."*

Telkom submits that a "consensus" (majority) view amongst operators does not constitute a market review finding since no evidence is presented. An evidence based market review for the toll free service market and the "086" "market" was therefore not done.

3.3.3 080 & 086 require Market Reviews

3.3.3.1 Number portability is a regulatory remedy

Number portability is a regulatory remedy that promotes competition in the absence of sufficient competition in a defined market. However, the market review process associated with this remedy in South Africa was pre-empted by the legislator who identified the fixed and mobile service markets in South Africa as lacking sufficient competition. As a result number portability was legislated into the Telecommunications Act for both mobile services in the mobile service market and geographic (fixed line) services in the public switched telecommunication service market. The Authority was mandated to introduce number portability for these markets in 2005.

The Authority is bound by the processes defined in the ECA, which in this case requires the Authority to first do a market review in which market players are identified, the state of competition assessed, potential remedies identified and finally it may institute the most appropriate remedies to address the identified problems in that market.

3.3.3.2 What is the market for which number portability is a remedy?

Telkom submits the Authority is seeking to impose a regulatory remedy without having undertaken the prescribed market review as defined in Chapter 10 of the ECA.

Telkom wishes to underscore the importance of undertaking such a market review prior to imposing remedies as follows:

For example, Telkom draws the Authority's attention to the distinctly different types of services (and markets) found under the 086 number block range. The Authority appears to have conveniently arrived at the conclusion that a number block range 086 equates to a specific market. However, this is simply not true. Telkom presents below in Table 1 a list of all the different types of services (and consequently potential markets) that reside behind the 086 number block range.

Table 1 - 086 number block range of services

Number block	Service (potential market)
0860x	Telkom Share Call
0860x	OLO services
0861x	Telkom Maxi Call
0861x	OLO services
086201-9, 08621, 086224-6, 086228-9, 08623-4, 08626-7, 086290-941, 0862948-9, 086295-9, 0865, 0864, 0866, 086710, 0867133, 086714-6, 086718-9, 086720-1, 086723-6, 086729, 086730-4, 086736, 0867370-6, 0867378-9, 086738-9, 086740-3, 086746, 0867470-6, 0867478-9, 086748-9, 086750-1, 086753-4, 086756, 086758-9, 08676, 086770-8	Telkom Fax to E-mail
08625	Neotel Inbound Call Services
086200	Telkom Audio & Web Conferencing
086220-3, 086227, 0862942-7	Telkom Competition Line
0862800	Vodacom Non-Geographic numbers
0862860	JSDAAV ZA Telecoms Non-Geographic numbers
0863200-1	Wireless Connect Fax-to-Email
0867001	Switch Telecom Inbound Call Services
086711-2, 0867130-2, 0867134-9, 086717, 086722, 086727-8, 086757	Telkom Information Services
086735, 0867377, 086744-5, 0867477, 086752, 086755	Telkom Revenue Share Service
086784250-4, 086926280-4, 0869990	Nashua Communications

This warrants a thorough market review to determine which of the services/markets provided under the 086 number block range requires regulatory intervention.

As can be seen from the above table, if the Authority proceeds to institute a blanket number portability remedy for the entire 086 number block range which is comprised of different markets, the consequences for those markets would potentially be disastrous.

Similarly, a market review of a toll free service market (not necessarily only the 080 number block range), must also be undertaken by the Authority in order to arrive at an evidence based assessment of that market and the state of competition in that market before being able to identify the possible remedies and imposing the most effective remedies on the identified market players.

3.3.3.3 Do Telkom's toll free numbers constrain subscribers from porting?

Telkom submits no. If one considers that subscribers may port their mobile service and geographic numbers due to number portability then it is evident that the toll free number places no constraint on a mobile or fixed line subscriber to port out their subscriber number to another similar operator providing a similar service. In Telkom's case the subscriber may continue to use Telkom's VAS and the associated toll free service number.

Telkom submits that the Authority presented no market review in its Inquiry into Number Portability, and there is no basis to institute number portability as a regulatory remedy to promote competition.

3.3.4 The Scope of "number portability" as defined in the ECA does not extend to VAS

The definition of "number portability" [1] applies to electronic communication services licensees and subscribers to these communication services. The definition of "electronic communication service" [2] in essence is a conveyance service over an electronic communications network.

As outlined below in 3.3.2.1, toll free services and 086 services constitute Value Added Services (VAS) due to the technical manner in which they are activated.

However, what should be clarified is whether these VAS also constitute electronic communications services since these VAS may not necessarily perform in any conveyance.

The World Trade Organisation defines value-added service in telecommunications as follows: "*Value-added telecommunication services are telecommunications for which suppliers "add value" to the customer's information by enhancing its form or content or by providing for its storage and retrieval*".[3]

From this definition Telkom argues that its primary business is the conveyance of electronic communication i.e. an electronic communication service, and that the 080 and 086 services do not perform conveyance, but serve as a lookup function, in support of the primary business of Telkom, namely conveyance from one point to another.

3.3.4.1 080 & 086 services constitute Value Added Services (VAS)

ITU-T Recommendations draw a distinction between subscriber services and supplementary services. There is also a further category of Value Added Services (VAS) and this is where toll free services are located from a technical perspective. This is because of the distinctly different manner in which these services work and relate to a customer. See Figure 1 below for an illustration as to which layer the different services are located, and the associated numbers that are used at these respective layers.

[1] **"number portability"** means the ability of subscribers to an electronic communications service or persons providing a service pursuant to a licence exemption, to retain their existing numbers without impairment of quality, reliability, or convenience when switching from one electronic communications service licensee to another electronic communications service licensee;

[2] **"electronic communications service"** means any service provided to the public, sections of the public, the State, or the subscribers to such service, which consists wholly or mainly of the conveyance by any means of electronic communications over an electronic communications network, but excludes broadcasting services;

[3] https://www.wto.org/english/tratop_e/serv_e/telecom_e/telecom_coverage_e.htm

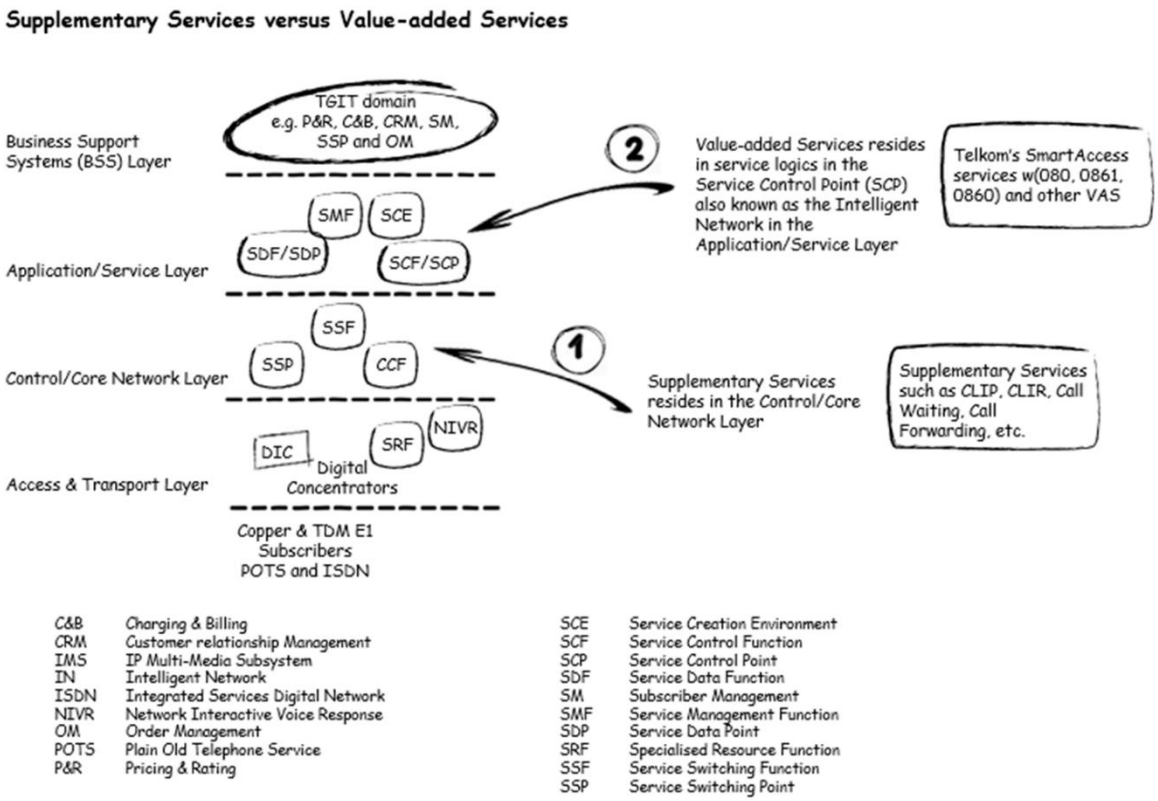

Figure 1 - Illustration of the different layers at which different services and numbers are used

Supplementary services relate directly to the subscriber service and can be easily activated by by the subscriber by simply dialing a code to activate the supplementary service. These services reside in the Control/Core Network Layer. They don't require any additional number to work, but may require the use of an existing subscriber number like for example call forwarding which requires another subscriber number to where the call needs to be forwarded if there is no answer at the subscriber's number.

VAS in turn need to be procured as additional value added services, which are strategically designed at the Service Control Point (a.k.a. Intelligent Network). Note, that these services require the use of a number at the IN level of the network. Typically VAS at this level serve as a pilot light (a single number that can be advertised nationally, but once dialed will inform what the B-party number is to where the call will be routed. Numbers used at this level in the network act as intermediary numbers, as they are not viewed as a subscriber number, but as a number required to enable a VAS for a subscriber.

Therefore, there exists a clear technical distinction in the manner in which a toll free number is used compared to a normal subscriber number that is assigned and located at the access and transport layer. Since competition is promoted at the subscriber level, toll free numbers don't reside at this layer, and cannot justifiable be argued to fall within the same category as subscriber numbers, where competition is required.

3.3.5 Conclusion:

Due to the legal, technical and competition constraints raised above there presently exists no case that requires a regulatory remedy in the form of porting of toll free numbers.

3.4 One Time Pin (OTP) & Interactive Voice Recognition (IVR) Requirements

3.4.1 OTP – for mobile service numbers

Telkom support the OTP process proposed in 4(1) of Schedule A and the window period of 4 hours before rejection.

However, the OTP proposal should be clarified as to whether it is required for Port Request or ort Validation. Telkom is of the view that OTP should be applied to port request by the recipient operator.

A similar pattern should be applied for Port Authorisation as well, initiated by the donor operator to allow the customer to approve the port request to avoid fraudulent port-outs.

The OTP should be zero rated across the point of interconnection.

3.4.2 IVR – for geographic numbers

Telkom does not support the IVR mechanism for numerous reasons, but specifically because it assumes customers will always have a voice service through which they can call the IVR, but in many cases the customer only takes a data service and is not capable of making such a voice call.

3.5 Winback must be re-instated

Telkom requires the re-instatement of the winback prohibition with tighter constraints to guard against practices which stifle competition amongst operators. Please see Telkom's specific proposal under the "winback" definition further down in this submission.

3.6 Timer violation changes

In the case of GNP Telkom cannot support any reduction on timer violations. However, for number portability routing updates the violation timers should be extended due to the legacy network. The proposal of 1 hour is not enough for the legacy systems as Telkom informed the Authority during the number portability inquiry. Telkom proposes an increase in the time to update the routing tables on Telkom's fixed network to 6 hours within working hours.

Alternatively, NST for geographic porting should be moved to 06h00 in the morning which would avoid delays currently experience due to outside office hours.

4 SPECIFIC COMMENTS

4.1 Definitions

4.1.1 "block operator"

"**block operator**" means a licensee that has been allocated a number/number block under the National Numbering Plan

Telkom submits an operator allocated a single number cannot be regarded as a block operator.

Telkom proposed amendment:

"block operator" means a licensee that has been allocated a ~~number/~~number block under the National Numbering Plan

4.1.2 "Central System"

"**Central System**" means a system that facilitates the Number Portability process and includes a database of all ported numbers as well as numbers that have not been ported

The Central System serves the following main functions:

1) Acts as an intermediary which **implements the porting protocol between two licensees** for porting of a number or number block, as defined in the operational system specification (OSS),
2) **Keeps and updates a record of all ported numbers in a central reference database** which contains the network location (Routing Number) of all ported numbers/number blocks at any given point in time to enable successful and efficient routing of calls destined to these numbers,
3) **Keeps record of all number block allocations made by ICASA** to enable successful returning of deactivated numbers to the correct block operator.

Against the above essential functions that the Central System needs to perform, Telkom would like to propose an alternative definition of "Central System" as follows:

"**Central Porting System**" means the system that implements the porting protocol between two licensees to port an individual number or number block as defined by the operational system specification (OSS), by keeping and updating a record in a central reference database of the network location of all ported numbers at any given point in time to inform correct routing of calls to these ported numbers by licensed operators.

4.1.3 "customer premises equipment"

"**customer premises equipment**" a telecommunications hardware located at the home or business of a subscriber

No comment. (used in section 2.3(b) of Schedule A)

4.1.4 "donor operator"

"**donor operator**" means a licensee from which a number/number block is being or has ported out

The difficulty with this definition, which replaces the previous definition, is that it jumps between past and future, when what is really sought is to identify the ECS licensee from where the number will be ported away from.

Telkom proposes the following definition, based on the previous definition, in light of the new definition of "number portability" found in the ECA:

'donor operator' means the ECS licensee who will cease to serve the number once it has ported.

4.1.5 "donor service provider"

"**donor service provider**" REMOVED

Telkom does not support the removal of this definition and it should be re-instated.

4.1.6 "functional specification"

"**functional specification**" UNCHANGED

No comment.

4.1.7 "geographic number portability"

"**geographic number portability**" number portability, which allows geographic numbers to be ported between licensees or service providers

The ECA has defined "number portability". This ECA definition is number type neutral, and can be applied for each type of number that the Authority declares to be portable. There is thus no need to define number portability for each category of numbers as is being proposed here. If the Authority follows this approach it would need to define several new terms which are superfluous i.e.:

- Geographic number portability
- Non-geographic number portability
    - Mobile service number portability
    - Toll free number portability
    - Inbound service number portability, etc

The 2016 Numbering Plan Regulations have already defined the different categories of numbers i.e. geographic, mobile service, toll free, inbound service, etc. as these are well defined terms.

Telkom does not support this approach as it would become more cumbersome and introduce unnecessary additional definitions and replication.

4.1.8 "mobile number portability"

"**mobile number portability**" number portability, which allows non-geographic numbers to be ported between licensees or service providers

Not supported. See Telkom's comments in 4.1.7 above.

4.1.9 "non-geographic number portability"

"**non-geographic number portability**" number portability which allows non-geographic numbers to be ported between licensees or service providers

Not supported. See Telkom's comments in 4.1.7 above.

4.1.10 "ordering system specification"

"**ordering system specification**" UNCHANGED

No comment.

4.1.11 "recipient operator"

"**recipient operator**" means a licensee to which a number/number block has been ported in and provides a service to a subscriber number after porting

Telkom proposes the following definition, based on the previous definition and to align with the definition of "number portability" found in the ECA.

"**recipient operator**" means the ECS licensee who will serve the number/number block, once it is ported in.

4.1.12 "recipient service provider"

"**recipient service provider**" REMOVED

Telkom does not support the removal of this definition and should be re-instated.

4.1.13 "subscriber identity module (SIM)"

"**subscriber identity module(SIM)**" in an integrated circuit that encrypts voice and data transmissions and securely stores the international mobile subscriber identity (IMSI) number so that a subscriber can be identified and authenticated by their respective network

Supported.

4.1.14 "service provider"

"**service provider**" REMOVED

Telkom does not support the removal of this definition and should be re-instated.

4.1.15 "subscriber"

"**subscriber**" REMOVED

Supported, since it is already defined in the ECA.

4.1.16 "winback"

winback REMOVED

Telkom does not support the removal of this definition.

Telkom proposes an amendment to the existing definition of "winback" to address the practice where subscribers are approached immediately after the donor operator is informed of the subscriber's request to port out with an inducement, which results in the subscriber aborting the request to port out.

Telkom's proposal:

1) Add a sub-regulation which prohibits winback.

   "x) A donor operator shall not engage in winback and shall ensure that the donor service provider does not engage in winback"

2) There are two distinct periods in which a donor operator or donor operator service provider can attempt to winback a subscriber. The first period is between the moment the subscriber requested to port out but before porting out, and the second period is after the subscriber has ported out. The winback definition must prohibit the donor operator or donor service provider from attempting any winback during this period. Telkom proposes the following definition for winback below which should be included in the final number plan regulations:

   "winback" means
   a) a donor network operator or donor service provider who contacts its existing subscribers~~,~~ after the subscriber has requested the recipient operator to port out, to offer discounts, free services or other inducements in order to convince th~~ose~~ subscriber(s) to abort the port out to the recipient operator ~~change operators~~ or
   b) where the subscriber has already ported to the recipient operator to revert back to the~~ir original~~ donor operator within the first two months after having ported~~requesting number portability~~; but does not include offers made to subscribers in general that do not refer to number portability or the individual subscriber's current or past services.

4.2 Purpose

	The purpose of these Regulations is to ensure:
2(1)	effective functionality of number portability;
2(2)	access and routing of communication despite the number being ported;
2(3)	that number portability occurs in an efficient manner without unreasonable delays or disruptions of services; and
2(4)	that they provide mechanisms to address cost allocation and cost recovery among licensees with regards to Number Portability

The primary objective of number portability is to allow a subscriber the freedom to move its number from one network provider to another network provider (electronic communication service licensee). This subscriber freedom to move to another network provider hinges on several critical success factors which must be addressed in these regulations:

1) Subscriber rights
    a. Technical **enabling and protection of a subscriber's right to choose** a network provider to port out to or not.
2) Call Routing
    a. **Successful reception (routing) of calls** to the ported number from any local network provider,
3) Central reference database
    a. which requires each network provider that originates calls to the ported number to **know on which network the ported number is located** (at any particular moment in time),
    b. which requires that **a record be kept of each ported number and the recipient network on which the number is presently active** (a central reference database managed by the Number Portability Company).
4) Central Database update rules
    a. A **set of rules that govern how the central reference database will be updated** (Operational System Specification), and
5) Network Provider engagement rules
    a. A **set of rules that govern how network providers will engage with each other on port requests** (functional specifications)

The purpose of these regulations should be amended to capture the essential functions associated with number portability regulations, as outlined above.

Telkom proposes the following amendments:

The purpose of these Regulations are to:
2(1) enable and protect a subscriber's right to choose a network provider
2(2) ensure successful reception (routing) of calls by ported customers
2(3) ensure network providers always know on which recipient operator's network the ported number is located
2(4) establish a central reference database that keeps record of the recipient operator on who's network a ported number is located at any given time for routing purposes

2(5) establish a set of rules on how the central reference database will be updated through prescribed operations system specifications

2(6) establish a set of rules that govern how network providers will engage with each other on port requests through prescribed functional specifications.

4.3 Scope of these Regulations

"These Regulations apply to all licensees with number allocations classified under these Regulations"

Supported, although Telkom notes the definition of "number portability" defined in the ECA refers to electronic communication service licensees, which according to the 2016 Numbering Plan Regulations are the only licensees who can apply for and be allocated numbers. In light of this the Authority may consider whether the scope shouldn't perhaps be amended to align with these points.

4.4 Application of Number Portability

"Number Portability shall apply to the following allocated numbering ranges:

a) geographic numbers; and

b) non-geographic numbers, in particular numbers in the 086, 080 and 087 National Destination Codes(NDCs) and mobile numbers as classified in the Numbering Plan Regulations"

Please see Telkom's response in the General section 3.3 of this submission, where it presents it case as to why 080 and 086 numbers should not be subject to porting.

In addition Telkom proposes the restructuring of this regulation as follows:

"Number Portability shall apply to the following allocated numbering ranges:

a) geographic numbers; and

b) mobile service numbers, and
c) non-geographic 087 numbers~~, in particular numbers in the 086, 080 and 087 National Destination Codes(NDCs) and mobile numbers~~ as classified by the Numbering Plan Regulations"

4.5 Number Portability for Geographic numbers

1) A Licensee that has been allocated block(s) of geographic numbers must offer number portability to subscribers who have been assigned a block of ten or more numbers within the same allocated block(s) provided that:
a) no numbers within the block to be ported are assigned to other subscribers; and
b) the network termination points remain within the geographic boundaries associated with the allocated block.

2) Porting of geographic number blocks must be confined to the national destination code level associated with that number.

3) A recipient operator shall maintain and make available, either through a third party or the internet, free of charge a list of the ported numbers of their subscribers.

4) The list, in terms of sub-regulation (3), must be updated at least once per day and must be made publicly available.

4.5.1 Individual porting cause block fragmentation lower number utilisations for Telkom

The present practices observed w.r.t. geographic block porting used for DDI (Direct Dialing Inbound) associated with Telkom's PRA/BRA services is of concern to Telkom and poses a risk to industry in the long term to serve corporates with contiguous number blocks.

In brief:

i) Telkom uses contiguous number blocks in the provisioning of PRA/BRA services.

ii) Recipient operators only seeks to port out individual numbers within these contiguous number blocks associated with Telkom's PRA/BRA services.

iii) Porting out of only certain numbers within these contiguous number blocks associated with Telkom's PRA/BRA (DDI) services leads to:

(1) fragmentation of the contiguous number blocks results in smaller contiguous block sizes being available.
(2) Not all numbers in the number blocks are ported out as required, which gives rise to lower utilisation levels of Telkom's geographic numbers.
(3) Routing inefficiencies occur when recipient operators fail to inform Telkom, as required by the functional specification and the OSS requirements, of the termination date for the PRA/BRA service. This results in the greater portion of the unported numbers still being configured in Telkom's network while calls continue to be routed to these numbers, but the calling party only receives a unanswered dial tone. These ports are being forced by recipient operators, as the process required by the OSS and Functional Specification has not been completed, but circumvented.

iv) Telkom is placed at risk of not being able to obtain number ranges from the Authority due to the lower number utilisation levels arising from this practice.

Telkom therefore requires the entire block to be ported (i.e. 10, 100, 1000, 10000) and to kept intact as per the existing operational system specification (see section 9(1) & 9(3) of the geographic OSS).

In addition, no number block assigned to a subscriber may be broken up by porting of individual numbers in that block. This practice results in numerous problems ranging from routing problems, inefficient use of numbers, increased inefficiency of Telkom's number utilization figures etc.

Failure to comply with the functional specifications and the OSS which requires licensees to inform Telkom of the PRA termination date is resulting in inefficiencies within Telkom's network, which are impacting Telkom's network and customers negatively.

Telkom proposed amendments:

1) A Licensee that has been allocated block(s) of geographic numbers must offer number portability to subscribers who have been assigned a contiguous block of numbers ~~of ten or~~

~~more numbers (~~in multiples of 10 or 100 or 1000 or 10000 within the same allocated block(s) provided that:

a) no numbers within the block to be ported are assigned to other subscribers; and
b) the number block range to be ported must remain a single entity and once porting activites have commenced must remain an entity. Furthermore, a number block may not be split into sub-ranges or merged into larger number ranges whilest in ported status.
c) a number block shall be ported as a complete range and no individual numbers shall be ported from the assigned number block.
d) the network termination points remain within the geographic boundaries associated with the allocated block.

2) Porting of geographic number blocks must be confined to the national destination code level associated with that number.

3) A recipient operator shall maintain and make available, either through a third party or the internet, free of charge a list of the ported numbers of their subscribers.

4) The list, in terms of sub-regulation (3), must be updated at least once per day and must be made publicly available.

Please see Telkom's comments in 4.6 below on the proposed list as contemplated in sub-regulations 5(3) & 5(4).

4.6 Number portability for mobile and non-geographic numbers

1) Mobile Number Portability
a) Licensees that have been allocated mobile service numbers must work together to offer number portability to their subscribers.
b) The implementation of number portability must conform to the ordering system specification to be published by the Authority in the Government Gazette.
c) A recipient operator shall maintain and make available, either through a third party or the internet, free of charge a list of the ported numbers of their subscribers.
d) The list, in terms of sub-regulation 1(c), must be updated at least once per day and shall be publicly available.

2) Non-Geographic Number Portability
a) Licensees that have been allocated non-geographic numbers in the 086, 080 and 087 NDCs must work together to offer number portability to their subscribers;
b) The implementation of non-geographic number portability must conform to the ordering system specification to be published by the Authority in the Government Gazette;
c) A recipient operator must maintain and make available, either through a third party or the internet, free of charge a list of the ported numbers of their subscribers; and
d) The list, in terms of sub-regulation 2(c), must be updated at least once per day and shall be publicly available.

4.6.1 List requirement

Telkom has two concerns with regulation 6(1) (c&d) & 6(2) (c&d):

1) Making available multiple points of access to different non-realtime versions of the central reference database, other than from the master reference database managed by the Number Portability Company (NPC), could result in **increased queries to operators' customer support divisions**, due to the time-delayed update of the database.
2) Smaller operators might think this could become a cheaper alternative to access the porting database than the NPC's interface. Such an attempt by a smaller operator risks that operator updating its routing tables with outdated information, which in

turn lead to **incorrect routing and uncompleted calls, or more expensive calls to customers**.

Telkom recommends that only a single point be accessed by the public for the latest up to date central porting reference database. Currently the NPC does provide such a service to the public via their website where customers can see to which network operator a number has been ported.

Telkom proposed amendments:

6(2)(a) Licensees that have been allocated non-geographic numbers in the ~~086, 080 and~~ 087 NDC~~s~~ must work together to offer number portability to their subscribers;

4.7 Ordering System Specification (OSS)

1)	The implementation of number portability must conform to the ordering system specification to be published by the Authority in the Government Gazette.
2)	The ordering system specification shall be developed, reviewed and maintained by the Authority in consultation with licensees, service providers and other interested parties including user organisations

Telkom does not support a single operational specification for number portability as there are different processes required between geographic and mobile service numbers.

Telkom recommends that separate operational system specifications be developed for geographic and mobile service numbers. Should any additional categories of numbers be added like 087 for voice over internet protocol (VoIP) Telkom would recommend that these categories of numbers also have separate operational system specifications.

4.8 Routing

1)	A Licensee that originates or routes a call to a ported number must, by means of all call query, ensure that: a) the call is routed directly or indirectly; and b) any value of the original calling line identification (CLI) remain unchanged by the routing process.
2)	A Licensee must ensure it receives, stores and updates a local copy of its database of ported numbers for the purposes of originating, routing and receiving calls to and from ported numbers;
3)	In the event that a ported number or number block(s) cease(s) to be active on the recipient operator's network, the recipient operator must within three (3) months and in writing return the number or number block(s) to the donor operator; and
4)	The recipient operator who was serving the number or number block(s) contemplated in sub-regulation (3) must not re-assign the number or number block(s) to another subscriber.
5)	The donor operator must open receipt of the number/number block(s) contemplated in sub-regulation (3) quarantine the number/number block(s) for at least 3 three months

4.8.1 Fragmentation and splitting of blocks directly impact on routing of calls

In order to ensure successful routing of calls Telkom requests the Authority to ensure that number blocks should not be fragmented when ported and once a number block has been ported it not be allowed to split.

4.8.2 All call query

The All Call Query (ACQ) status in Telkom is as follows:

(1) Telkom Mobile – Compliant

(2) Telkom Fixed-line (legacy)
(a) MNP ACQ compliant

(b) GNP ACQ not compliant

The 'Onward routing' principle/model is implemented for GNP (see ETSI Technical Report TR 101 118 V1.1.1 (1997-11), Network Aspects (NA); High level network architectures and solutions to support number portability)

A switch-based Local Number Portability (LNP) solution is implemented in all (14) transit (DPSU) exchanges

Telkom/Openserve's legacy TDM exchanges cannot support an ACQ (100% IN trigger) due to Line Group/Packet Control Unit and Coordination Processor load handling limitations (> 25-year old technologies)

(3) Telkom Fixed-line (NGN)
(a) MNP ACQ compliant (ACQ initiated in the National Gateways)

(b) GNP ACQ not compliant

Telkom's network is in transition, decommissioning programs have commenced to migrate customers connected to legacy technologies to the NGN technologies. Telkom therefore request a regulatory holiday while this transition is in progress.

4.8.3 Routing Number

In order to route a call successfully to a ported number the network operator originating or routing the call to the ported number needs to know on which network the ported number is now active. Technically this is achieved by assigning a routing number/code to each network.

These routing numbers are presently allocated to a licensee upon application to the Authority through an informal process.

Telkom therefore recommends that these regulations define a more formal process through which a licensee can acquire a routing number from the Authority.

Telkom recommends that the Authority should used ITU-T definitions to ensure consistency as said will remove all misunderstanding.

Telkom proposes the following new provision in support of this point:

6) "A Licensee terminating calls to a ported number on its network must apply to the Authority for a routing number."

7) "The Authority shall keep a record of all routing numbers allocated to licensees which will be included in the Numbering Plan Regulations"

In addition Telkom recommends that the term "routing number" be defined in these regulations, taking into consideration the ITU Recommendations presented below.

ITU Recommendation E.164, Supplement 2

"**Routing Number**" means a "D" code assigned by ICASA to identify the recipient operator of a ported number

4.8.4 Aligning with ITU Recommendations

Telkom would recommend that industry adhere to the existing RN (Routing Number) regime as recommended in the ITU-T recommendation E.164, Supplement 2.

*"3.1.18 **routing number**: A number that is derived and used by the network to route the call towards a ported number."*

"7 Entities addressed by routing

> *Entities which need to be addressed by a routing number (RN), whose definition is a national matter, in one or more routing solutions are identified in this clause.*

According to the structure of the routing number, one or a combination of several of the following entities should be addressable:

> *– **A recipient network**: In this option, the routing number identifies the network where the customer is now located. Therefore, the routing process will need additional information (i.e., DN) to be completed.*
>
> *– **A point of interconnection (POI)**: In this option, the routing number identifies an interface to the next network in the routing process. Therefore, the routing process will need additional information (i.e., DN) to be completed.*
>
> *– **Network termination point (NTP)**: In this option, the routing number identifies the subscriber/access line/service. The ported customer identified by the RN is unique. Therefore, the routing process, in terms of number portability, can be completed without any additional information."*

South Africa follows the first option where the routing number identifies the recipient operator to whom the number has been ported. Said aligns with the ITU-T Recommendation E.164 Supplement 2 (number portability).

Ideally, the routing numbers (e.g. Dxxx) should be published in the Numbering Plan Regulations.

4.8.5 Routing number obligation

A general concern applicable to both fixed and mobile ported numbers is that the smaller operators do not insert their porting code and Telkom find that the call gets routed

incorrectly as Telkom does not do any lookup queries on the B number as this is a transit call.

Routing problem example:

Telkom deleted the number, name and porting code of the specific operator and will keep the explanation generic:

"The number 0NN ABC XXXX has ported to Operator X. Telkom correctly routes the call to Operator X with the Operator X GNP routing code DXXX prefixed in the B number. Operator X however returns the call back to Telkom with the Operator Z GNP routing code DXXY prefixed in the B number, and Telkom then routes the call to Operator Z."

Telkom recommends operators be mandated to always insert the routing number, irrespective of whether they use direct or indirect routing.

Telkom propose the following addition requirement to ensure successful routing of calls to ported numbers:

"6) All operators shall ensure that routing numbers are inserted, irrespective of whether a call is routed directly or indirectly to ensure correct routing and billing of calls to ported numbers"

4.9 Cost recovery and charging

1) Licensees must bear the set-up costs for the implementation and provision of number portability.
2) No payments must be made for rejected or unsuccessful ports.
3) Per-customer costs between licensees must be cost based.
4) Donor operator must not charge subscribers when subscribers port their numbers.
5) Recipient operator may charge subscriber for successful ports.
6) In the event that the recipient operator charges a customer for successful ports as per Regulation 8 (5) the recipient operator must declare the said charges prior initiating the port.

Telkom support this section. Telkom notes a typo error referencing 8(5), which should be 9(5).

4.10 Principles for ported numbers services

1) A recipient operator shall not request to port a number for any subscriber unless it has received a written request from that subscriber.
2) To promote transparency and alert subscribers that a number has been ported, the call-originating operator must issue a warning to the calling subscriber before connecting the call. The call-originating operator must not charge the calling subscriber for the duration in which the warning is being applied. The warning duration must be at least five (5) seconds.

4.10.1 "Written request"

Please see Telkom's comments under section 3.1 of this submission.

4.10.2 Tariff Transparency vs Customer Privacy vs Technical Complexities

a) Technical Complexities

In light of the 'negative impact' experienced by the European and some RSA network operators/service providers after the implementation of the 'audible warning message', specific to the conclusion that not all network operators/service providers (world-wide) have implemented an 'audible warning message' and the complex implementation rules in South Africa's case, Telkom could safely claim that the implementation of an 'audible warning message' is not an international inclination and has more negative impacts than positive outcomes.

i) Call Setup Time will increase

Telkom is at present experiencing concerns and issues with the 3-beep 1.5-seconds 'audible warning message'. The proposed 5-second (15-beeps) warning duration would complicate the implementation and extend call setup as the warning is inserted in the initial stage of the call setup.

ICASA must also consider that call setup time will be increased by 5 seconds, which means network operators/service providers will not be able to comply with section 7 (1) 'Quality Services for Porting' of the 'Functional Specification for Number Portability', Schedule A.

> *"The call set up time for a call to a ported number shall not be increased when compared to the set up time for a call, on the same network, to a non-ported number."*

The implementation of the solution as requested will have a major impact on the Telkom/Openserve Intelligent Network (IN) application/service logic and will necessitate software license upgrades (additional licenses) and expansion of the Media Resource Function (MRF) to cater for the additional media load. Telkom/Openserve must investigate the technical and financial feasibility for the introduction of the requested solution.

Should the Authority consider to push ahead with the warning message obligation the following must also be considered:

ii) The onus should be placed on the terminating operator.

Telkom does not support the proposal that the onus be placed on the operator originating a call to alert its subscribers when a call is being made to a ported number as this would require the interrogation of the entire central reference database which is extensive. This will places an enormous processing burden on each originating operators to interrogate the entire number porting database. It also places an undue burden on smaller operators, who would need to interrogate the entire porting database, compared to simply interrogating those numbers ported in to them, thereby pushing up startup costs etc.

A more efficient approach to achieve this is to place the obligation on the terminating operator. This reduces the size of the database that needs to be interrogated by the terminating operator since it will concerned with those numbers that have been ported into

to it. The speed at which the look up can be done will be much faster, reducing database interrogation processing and making the warning process much more efficient.

b) Tariff Transparency

As outlined before by Telkom in its response to the Inquiry into Number Portability (section 6.16.2 of Telkom's response) Telkom has extensively outlined the complexities and more importantly the challenges in discerning the magnitude of such price differentials when the weighted impact on consumers is almost negligent.

Furthermore, considering that voice call charges are in a race towards zero, the longer term differential on calls to ported numbers will become muted, making transparency w.r.t. voice charges immaterial compared to data charges.

c) Customer Privacy

Telkom/Openserve proposes that the Regulator take note and consider the **European Telecommunications Standards Institute** (ETSI) '*Generic assumptions for number portability*' as detailed in the Technical Report Network Aspects, ETSI TR 101 119 V1.1.1 (1997-11), section 6.2, paragraph 4,

i. *"The privacy of the user which has ported his/her number should be granted. That means that the calling party should not be informed that the called party has ported his number."*

d) Conclusion:

The Authority would need to strike a balance between tariff transparency, customer privacy and technical complexities and quality of service issues and the resultant impact on consumers. Considering that over the medium term voice call charges will be decreasing rapidly due to new technologies being applied by customer to communicate, the need to secure tariff transparency for voice calls will be muted. Telkom therefore recommends the Authority strongly consider moving towards customer privacy (by not enforcing a warning message) as opposed to tariff transparency, which will secure a longer stable regulatory framework for all customers.

4.11 Complaints

The process and procedures for resolving subscriber complaints are provided for in the End User Subscriber Charter regulations developed in terms of section 69(3) of the ECA.

No comment.

4.12 Contraventions and penalties

A Licensee that contravenes these Regulations shall be liable for a fine of not less than R300 000 (three hundred thousand rands) but not exceeding R3 000 000 (three million rands) once off per infringement.

No comment.

4.13 Short title and commencement

These Regulations are called the Number Portability Regulations, 2017 and will come into effect on the date of publication in the gazette.

No comment.

4.14 Repealed regulations

This section repeals the 2005 Number Portability Regulations (GG 28091) as well as the Functional Specification for Geographic Number Portability(GG30089) under the Number Portability Regulations

Telkom does not support a single operational system specification as raised 4.7 of this submission.

In addition Telkom advises that the existing operational system specification for geographic numbers not be repealed until such time that it is replaced with a new operational system specification. The same approach should also be adopted for the operational system specification for mobile number portability.

4.15 SCHEDULE A – Functional Specification for number portability

4.15.1 Scope of porting

This functional specification applies to:
1) the portability of geographic and non-geographic numbers; and

2) all licensees that have been allocated portable geographic and non-geographic numbers;

As noted earlier in this submission Telkom does not support a single consolidated operational system specification for both mobile and geographic number portability. Please see Telkom's comments in 4.7 & 4.14 of this submission.

4.15.2 Porting procedure

1) Number porting process is recipient-led and shall be initiated when a subscriber submits a porting request to the recipient operator as detailed in the ordering system specification.

2) The porting times to support number portability shall include Monday to Friday 09h00 to 17h00 and 09h00 to 13h00 on Saturday excluding Sundays and public holidays.

3) When the recipient operator receives a request for number portability, it shall advise:
a) the subscriber to retrieve any message or any other information stored in the Subscriber Identity Module (SIM) card that could be lost when the account is closed; and
b) the subscriber to retrieve any message or any other information stored in the Customer Premises Equipment (CPE) that could be lost when the account is closed.

4) Recipient operator must advise the subscriber that any credit, unused allowances, bundled services and any third-party services used by the subscriber on the donor operator's network will no longer be available once the number is ported.

Supported, but please see Telkom's concern about illegal porting in section 3.1 under General.

4.15.3 Information required for porting

1) Request to port a number or number blocks from a pre-paid subscriber shall include:
a) the valid assigned number or numbers blocks;
b) Identity Document\card or Passport; and
Proof of Residence (valid for 3 month).

2) Requests to port a numbers or number blocks from a post-paid subscriber shall include:
a) the valid assigned number or number blocks;
b) account number from the donor operator;
c) Identity Document or card or Passport; and
d) Proof of Address (valid for 3 months).

Supported.

4.15.4 Port validation process

1) A donor operator shall validate a mobile number porting request by means of a one-time pin (OTP). The OTP shall be valid for four (4) hours after which if no response to the OTP is sent the port request is rejected.

2) A donor operator shall validate a geographic number and non-geographic number (with the exception for mobile numbers) by means of an Interactive Voice Response (IVR).

3) a donor operator may seek independent confirmation from the subscriber in the case of:
a) accounts of more than one number;
b) accounts held by legal entities other than natural persons; and
c) any other category agreed by the Authority in writing.

4) The confirmation sought by the donor operator listed in paragraph (3) do not constitute grounds to reject or decline a port request.

Please see Telkom's comments in section 3.4 of this submission.

4.15.5 Reasons for port rejection

1) A donor operator may reject a request to port only on the following grounds:
   a) the number or number block(s) is not valid on the donor operator's network;
   b) the number is excluded from number portability in Regulation 3;
   c) the account number is invalid (post-pay only);
   d) the classification of the account does not match, example a request is made under the pre-pay procedure for a post-pay account;
   e) the account is suspended at the time of the port request;
   f) the number is already subject to a porting process;
   g) the number has already been ported within one (1) calendar month;
   h) any other reason agreed to by the Authority and notified to the operators in writing; and
   i) the geographic number or number block(s) is being ported to an area not within the geographic boundary (ONN) associated with the number\number block.
2) At the time when a donor operator rejects a request, it shall report the reason for rejection to the recipient operator within five (5) hours of receiving the request.
3) A recipient operator may refuse to port a short code.
4) A recipient operator may refuse to port a short code that would clash with another code that is un use, or is planned to be used, in their network.
5) A donor operator must not reject a request to port a mobile number under a post pay account on the grounds that the subscriber still owes money, nor delay the porting until the debt is collected, unless the subscriber has already been subjected to suspension.
6) A donor operator must not reject a request to port a mobile number on a pre-pay or post-pay account because the subscriber's terminal is locked to the operator's network.

Telkom observes that the port id sometimes contains more than one porting customer. Telkom is of the opinion that only one customer per port id should be catered for, failing which the port request will be rejected. Telkom therefore kindly request the Authority to address this abuse of the porting process by restricting the port id to be associated only with a single porting customer. In addition Telkom requires the ability to reject the particular port request to force single porting. Please see Telkom's proposal in section 4.5.1 of this submission which will address this concern.

4.15.6 Activation for ported numbers

The procedure for number portability shall result in the ported number or number blocks being activated on the network of a recipient operator before the number or number block are de-activated on the network of the donor operator.

The donor operator must respond to requests from a recipient operator, and effect any actions requested, as soon as possible and/or within a period of one (1) hour.

Where network operators synchronize changes to their networks, the changes shall be made at a time of low network traffic to be agreed between the operators and specified in the ordering system specification and shall be completed within one (1) hour.

These regulations are tailored towards mobile service number portability which uses only a central routing table to be updated. In the case of Telkom's legacy fixed network the routing tables are decentralized regional routing tables which require manual updating. The activation of a ported number therefore takes significantly more time compared to a mobile port.

"ICASA regulation 6.9 of the Geographic Number Portability Ordering Systems Specifications (Rev No 1.0 of 2010) requires that all operators **update their routing tables within 1 hour of receiving Routing Update broadcast** (Message 10, 36 or 44) from the CRDB and effect all changes (Update their routing tables) or in the case where they are not involved in Direct Routing, respond that they have noted the update.

Telkom is currently not compliant with this regulation and unable to effect all routing updates changes within the specified interval due to too many manual interventions on the

systems and processes alike. This results in Telkom not being able to successfully route calls to ported numbers, both on-net and off-net, which affects customer service. It also in turn results in revenue leakage due to incomplete interconnection calls.

In the light of these legacy technical challenges which are very costly to address on their own Telkom kindly requests a relaxation of the current activation period until such time as Telkom has transitioned sufficiently to its new NGN technology i.e. expected to be complete by 2021. Telkom notes that its challenges are not unique and that said challenges are experienced by most Tier 1 operators migrating from a legacy network to an all-IP (NGN) network (and who also introduced a 'sweat-the-asset strategy' in the past). In this regard Telkom can provide real case studies that acknowledge the complexity of the migration of legacy OSS/BSS systems to NGN systems to support the NP regulatory requirements.

Telkom therefore recommends a two pronged approach to assist it improve overall activation and synchronisation of geographic numbers:

a) Change the time that geographic managed port changes be done during office hours as opposed to the current evening process, as this is more cost efficient and effective as it avoids unnecessary operational expenses for work having to be done after working hours.
b) Extend the period for activation of a geographically ported number from 1 hour to 4.

The above recommendation will assist with reducing porting disputes and escalations while also reducing the risk of penalties due to technical constraints experienced by Telkom from its legacy equipment.

4.15.7 Quality of service for porting

The call set up time for a call to a ported number shall not be increased when compared to the set up time for a call, on the same network, to a non-ported number.

The one-way transmission time for a call to a ported number shall not be increases as compared to the one-way transmission time for a call on the same network to a non-ported number.

4.15.7.1 Call setup time

Please see Telkom's response in section 4.10.2 of this submission.

In addition Telkom notes that due to the technical point of injection of the warning message it has a direct impact on the call setup time of a call to a ported number, which goes contrary to the requirement in this sub-regulation.

Telkom will not be able to comply to this sub-regulation 7(1) of the functional specification as long as it also has to comply with the requirement to insert a warning message of set duration.

4.15.7.2 One-way transmission time

No comment.

4.15.8 Subscriber's service profile

A donor operator is not required to disclose a subscriber's service profile to the recipient operator.

Supported.

5 Appendix 1: Option 3 - Single Direct Connection Model

5.3 Option 3 - Single Direct Connection and Multiple Transit connections to the B-Party (B Party with single relationship)

5.3.1 Description

a) The B-Party has a commercial and technical relationship with one licensee of their choice.
b) Toll free number allocations are exclusive to a single licensee.
c) All other licensees will connect to the B-Party through the licensee (Licensee 1) who has a direct connection with the B-Party.

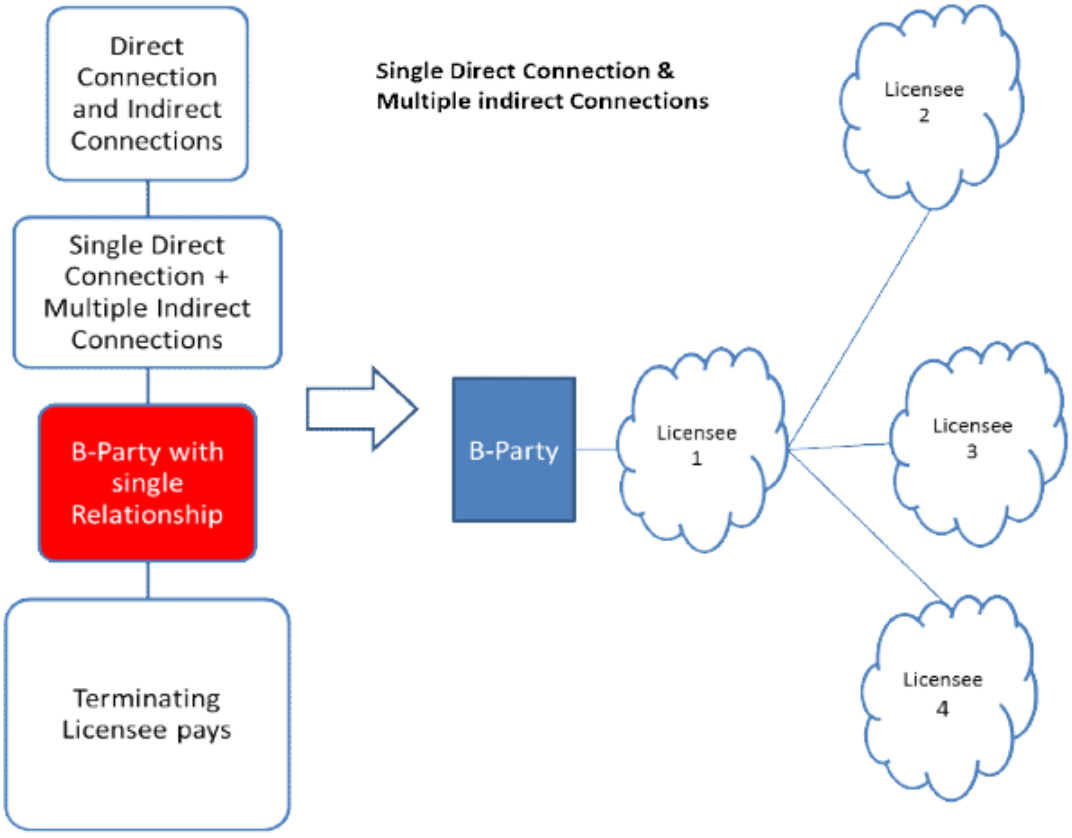

Figure 4: Single Direct Connection model

5.3.2 Advantages

a) Calls are free to all A-parties irrespective of the Originating licensee.
b) Simplicity for the B-Party (technical and commercial).
c) Incentive for licensees to compete on price and quality of service.
d) Licensees can bundle services and B-Parties have an advantage of a single bill.
e) Existing interconnection agreements in place.
f) Relative ease of number administration and speed of service deployment.
g) Straightforward technical support for B-Party.

5.3.3 Disadvantages

a) Single point of failure as B-Party is connected to all licensees through a single licensee.
b) Advantages licensees with larger market share.
c) Would require non-geographic number portability for effective competition on existing toll free numbers.
d) Service Level agreement required between licensees.
e) Licensee 2 and 3 are not party to the commercial arrangements with B-Party and Licensee 1.
f) Requires a number portability framework.

5.3.4 Interconnection considerations

Amendments of interconnection agreements and transit agreements required

END OF REPORT