CONSULTATION PAPER ON NUMBER PORTABILITY

1-BACKGROUND

The general regulatory framework for the Telecommunications Numbering Resources, including Number Portability in Rwanda is provided by Article 8 of the Presidential Degree No. 4/01 of 15th March, 2004 specifying the role of RURA Regulatory Board in terms of Numbering Resources in the Republic of Rwanda.

1.1 Number Portability

Number Portability is a telecommunications network feature that enables consumers of telecommunication services to retain their telephone numbers whenever they decide to change service providers and/or service types. It is a key factor in enhancing competition in a multi-operator environment. This is due to the fact that this feature enables customers who wish to take advantage of benefits offered by other network operators in the market to migrate without having to worry about the prospects of having to be out of contact with business associates, friends, family, etc.
This inherently facilitates more competition by allowing seamless Customer churns.

1.2 Current Situation

With the recent introduction of one additional mobile service provider in Rwanda namely; Tigo Rwanda which has scheduled to launch its services later in the year, the number of licensed mobile cellular operators will increase to three. Coupled with the need to enhance effective competition in the telecommunications market, the introduction of Number Portability is now most appropriate in order to give consumers the benefit and flexibility of changing service providers.

1.3 Porting Process

Number portability is a facility that enables consumers to retain their existing numbers when changing service providers. There are three basic steps to porting a number from the Old Service Provider (OSP) to the New Service Provider (NSP):

(a) **Port Initiation**

(b) **Exchange of Porting Information**

(c) **Network Routing Schemes**

1.3.1 Port Initiation

To start the porting process, a subscriber needs to contact an operator to request the port. There are two basic approaches for this process:

(a) **Donor Initiated**

(b) **Recipient Initiated**

(a) Donor initiated: In this model the donor operator or OSP starts the porting process. The subscriber contacts their current service provider and indicates their desire to change service providers and port their number. The OSP then initiates the administrative process with the NSP.

(b) Recipient Operator Initiated: In this model the porting process starts when the subscriber contacts a desired new service provider (NSP) or recipient operator to initiate the porting process. The subscriber contacts a retail point of sale (a retail center, an authorized agent, etc.) and provides information regarding his/her current operator (OSP), such as account number. The NSP then begins the administrative process and must validate the subscriber-provided-information with the OSP. At this point, the OSP still has the ability to reject the port, based upon agreed valid reasons, such as incorrect subscriber information.

1.3.2 Exchange of Porting Information

Regardless of the method chosen for port initiation, the OSP and NSP must exchange information for validation and port coordination. This information

exchange is commonly referred to as Inter-Carrier Communications or Inter-Operator Communications (**IOC**). There are several different methodologies used to accomplish IOC:

(a) Automated approach

(b) Manual approach

(a) Automated approach:

(i) The first one is the fully automated exchange through a single central clearinghouse: This method uses a pre-determined format for the data and can be completed in minutes. This fully automated exchange is "kicked-off" by one operator's back-office system (e.g. a billing system or a customized gateway) and is responded to automatically by the other operator's back-office system.

(ii) Another automated approach involves entering the porting information into a GUI (Graphical User Interface). The information is then exchanged through a centralized clearinghouse with the other operator.

The automated solution results in less errors and a much faster overall porting experience for the subscriber. This automation comes at a cost – software systems need to be developed, and modifications to operators' existing back-office systems need to be made to exchange the information.

(c) Manual approach:

In some countries, a manual approach is used, often using facsimile or e-mail to exchange information. The manual approach can be troublesome – faxes can be lost, e-mails can be deleted, and in both cases, humans need to interpret and input the information into various systems. And of course,

a manual approach results in a much longer porting process.

In both of these cases, software systems play a major role in validating the port, expediting the changeover in service providers, and tracking the porting process end-to-end.

2 DEFINITIONS.

2.1 Default Routing: Letting a call be routed according to the digits of the directory number without regard to whether or not the call is to a ported line range. Also known as normal routing from the donor network to the recipient network after the call has already been routed from another operator to the donor operator without being queried beforehand.

2.2 Directory Number: The number used by the calling party to establish a call to the end user. This number is also used for presentation services like Calling Line Identification (CLI) and Connected Line Identification Presentation (COLP). It is a number of digits for national numbers (excluding country codes) or for international numbers, up to 15-digits including the country codes.

2.3 Donor Operator: The operator that gives up a customer (e.i., ports out a number) to another operator called the recipient operator. Sometimes called the Old or Original Service Provider (OSP).

2.4 Graphical User Interface (GUI): A man-machine interface to a system or application, typically, representing files and operations visually, using icons, buttons, windows, and other imagery that allow the user to manipulate with a mouse and keyboard.

2.5 Home Location Register (HLR): A database that contains information about the subscriber, his/her service features and capabilities, and current location.

2.6 Inter-Operator Communications (IOC): is the communication between the two operators (the donor and the recipient operator), when a subscriber initiates a port either with the donor or recipient operator, the two operators communicate information regarding the port, including subscriber information, validation and time and date of port.

2.7 Number Portability (NP): The ability of a telephone customer to retain a local phone number when switching to a different service provider.

2.8 Old Service Provider (OSP): The donor operator losing a customer via a Port-Out. Also referred to as the Original Network Service Provider.

2.9 Recipient Operator: The operator that wins a customer (i.e., ports in a number) from another operator known as the donor operator. Also known as the New Service Provider (NSP).

2.10 Short Message Service (SMS): Text based messaging system. It is a communications protocol allowing the interchange of short text messages between mobile telephone devices.

2.11 Signaling System Seven (SS7): Out of band signaling protocol or signaling network that aids in call set up, teardown, registration of mobile subscribers and delivery of other essential information to enable advanced intelligent network services.

2.12 Visited (or Visitor) Location Register (VLR): Similar to an HLR, the VLR is the database in a serving market that maintains temporary information on the roaming visiting subscriber.

3 IMPLEMENTATION OPTIONS.

Although there are many variations and hybrids, the routing of incoming calls in a ported environment can be categorized into three (3) basic methodologies; namely:

(a) Onward routing (OR)
(b) Query on Release (QoR)
(c) All Call Query (ACQ).

3.1 Onward Routing (OR) Method

The call steps for the Onward Routing (OR) method are as follows:

a) The Originating Network receives a call from the caller and routes the call to the donor network;

b) The donor network detects that the dialled directory number has been ported out of the donor switch and checks with an internal network-specific Number Portability Data Base (NPDB);

c) The internal NPDB returns the routing number associated with the dialled directory number; and

d) The donor network uses the routing number to route the call to the new serving network.

The internal network –specific NPDB may be stand-alone database shared by all the switches belonging to the donor operator or may be switch-resident and only contain information about numbers ported out of that switch. This method has been referred to as a "***call forwarding***" scheme. Most switches have some call forwarding capability and therefore this method is a very quick and relatively simple to implement. It does not involve a centralized database, as does the other methods, and therefore does not require close cooperation among competitive operators.

3.2 Query on Release (QoR) Method

The following steps apply for the Query on Release (QoR) method:

a) The Originating Network receives a call from the caller and routes the call to the donor network;

b) The donor network checks on the call and if the number has been ported then it releases the call back to the originating network.;

c) The Originating Network sends a query to the centrally administered Number Portability Data Base (NPDB);

d) The centralized NPDB returns the routing number associated with the dialled directory number;

e) The Originating Network uses the routing number to route the call to the new serving network.

With QoR, circuits are allocated to the donor network but are released immediately rather than remain tied up for the length of the call, as in OR. And although the donor network is still involved in each call, its involvement is minimized. This method therefore is more efficient in terms of circuit and transmission facilities. But a new network element is needed – a centralized database. This requires that all operators agree on a process by which the centralized database is updated and maintained – typically by agreeing on a third party to own and operate the database. Also, the costs to own and operate the centralized database must be borne by all the operators.

3.3 All Call Query (ACQ) Method

The call steps for the All Call Query (ACQ) NPDB method is as follows:

a) The Originating Network receives a call from the caller and sends a query to a centralized Number Portability Database (NPDB);

b) The centralized NPDB returns the routing number associated with the dialled directory number; and

c) The Originating Network uses the routing number to route the call to the new serving network.

In this method, the originating network does not route calls to the donor network; in fact, once a number has been ported, the donor network is not involved at all. In reality, where ACQ method is used, most operators query all calls to simplify administration. As in QoR, there is a process to update and maintain the database and a third party to own and operate the database in which all the operators must agree upon. And as in QoR, the costs to own and operate the database must be borne fairly by all the operators.

3.5 Implementation Schedule

The Rwanda Utilities Regulatory Agency (RURA) proposes that Number Portability be fully implemented by 30th April, 2010. The proposed activities leading to the implementation shall be as follows:

Activity	Start Date	End Date
(a) Publication of Notice	15th June, 2009	27th June,2009
(b) Submission of public and stakeholders' comments	18th June, 2009	18th July, 2009
(c) Consideration & analysis of initial comments	20th July, 2009	1st August, 2009
(d) Publication of the analysis and invitation for comments on the results	10th August, 2009	15th August,2009
(e) Submission of comments on the results	17th August, 2009	29th August, 2009
(f) Analysis of the additional comments	1st September, 2009	12thSeptember, 2009
(g) Formulation and adoption of the implementation framework and information dissemination	14th September, 2009	17th October, 2009
(h) Implementation period	26th October, 2009	30th April, 2010

4- INVITATION FOR COMMENTS

The Rwanda Utilities Regulatory Agency (RURA) wishes to invite the licensed telecommunications operators and the general public for their comments and views on the Number Portability in general and specifically in regard to the following:

a) The introduction of Number Portability in Rwanda.

b) The preferred Option of implementation.

c) The proposed implementation schedule.

Please kindly submit your written comments and views, in accordance with the time frame shown above to the address given below:

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ANNEX-1: REGULATORY & OPERATIONAL GUIDELINES AND FAQ

1- REQUIREMENTS FOR PORTING PROCEDURE

1.1 The requests for number portability from a subscriber shall be handled by the recipient operator.

1.2 Network operators who are subject to number portability requirements shall agree on Number Portability conditions.

1.3 When the recipient operator takes a request for number portability, it shall advise the subscriber to retrieve any messages or any other information stored by the donor operator that might be lost when the account is closed.

1.4 Recipient operator shall also advise subscribers that credit and unused usage allowances are not portable from one account to another.

1.5 Recipient operator shall validate the porting request.

1.6 The recipient operator may apply any checks it wishes for the opening of the new account.

1.7 The donor operator may reject a request to port an individual number or a number block only on the following grounds:

(a) The number or number block is not a valid number or number block on the donor operator's network, or the number block is not used exclusively by the entity requesting the porting;

(b) The account numbering in the request is not the account number used by the donor operator for the number or number block for which porting is

requested.

(c) The subscriber is already subject to suspension of outgoing or incoming calls because of failure to pay a bill;

(d) The number or number block is already subject to a porting process;

(e) The number or number block has already been ported in the last two months;

(f) Any other reason agreed to by RURA and notified to the operators in writing.

1.8 At the time when the donor operator rejects a request, it shall report reason for rejection to the recipient operator.

1.9 The ported number shall be activated on the network of the recipient operator before the number is de-activated on the network of the donor operator.

1.10 The recipient operator may make temporary use of its available numbers for subscribers who are awaiting completion of number portability.

1.11 The donor operator shall respond to requests from the recipient operator for authorization of a porting by the end of the next working day in the case of individual numbers or within 3 working days in the case of number blocks.

1.12 The donor operator and the recipient operator shall cooperate to establish a quick process whereby if the subscriber requests number porting as soon as possible, the porting shall be effected within 20 working days for number blocks, or within time limits notified by RURA to the operators in writing with at least six months notice.

1.13 Where the recipient operator requests the donor operator to deactivate an individual number and apply rerouting at a specific time, the donor operator shall require no more than 48 hours notice and shall effect these actions as close as possible to the time requested and no earlier than the time requested and no later than one hour after the time requested.

1.14 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 hour.

1.2 - REQUIREMENTS FOR QUALITY

1.2.1 The arrangements for number portability shall not result in an increase in the call set up time for a call to a ported number of more than 2 seconds compared to the call set up time for a call to the same subscriber on the same network if they were using a non-ported number.

1.2.2 The arrangements for number portability shall not result in an increase in the one-way transmission time for a call to a ported number of more than 20 milliseconds compared to the one-way transmission time for a call to the same subscriber on the same network if they were using a non-ported number.

1.2.3 Each network operator or their nominated agent shall report to RURA at six month intervals for the first two years of operation and thereafter annually the following statistics:

(a) The number of requests received as recipient for the porting of individual numbers, with the figures shown separately for individual numbers and number blocks (recipient operator reports).

(b) The number of requests made by the recipient operator that have been rejected by the donor operator for the porting of numbers, with the figures shown separately for individual numbers and number blocks (recipient operator reports, separate figures for each donor operator).

(c) The two most common reasons for the donor operator to reject requests for portings (donor operator reports).

(d) The number of portings where responses were not received or actions were not effected within the time limits specified in this functional specification (recipient operator reports separate figures for each donor operator).

(e) The number of ported numbers that have been returned to the donor operator under sub-regulation 4.3.8 (recipient operator reports separate figures for each block operator).

1.3 - OTHER REQUIREMENTS

1.3.1 Where a geographic number that is subject to number portability is used for more than one service, for example for both telephony and SMS, the subscriber may not take one service from one network operator and another service with the same number from another network operator.

1.3.2 For clarification, other facilities or services such as forms of broadband internet access that share the same line and for which the use of the geographic number to be ported is not essential may be provided independently of the choice of operator who serves the geographic number subject to any relevant regulation or authorization.

1.3.3 The donor operator is not required to disclose the subscriber's service profile to the recipient operator.

1.3.4 Where the retail or interconnection charges for calling a number change

as a result of the number being ported, the operators affected are not required to apply the new charges until midnight at the end of the first whole working day after the recipient operator adds the number to the list of ported numbers that it serves and makes the updated list available to other operators: Provided that RURA may vary this requirement as necessary and may introduce a requirement for all operators to synchronize changes to billing and charging if it considers this necessary.

1.3.5 Every recipient operator shall provide test numbers that enable users who have ported their numbers:

(a) To check that their CLI (Calling Line Identification) is being sent correctly; and

(b) To request an incoming test call to be made within the next five minutes and routed via the network to check that incoming calls are being routed correctly.

1.3.6 These test services shall be available at no more than a cost based charge to the users who have ported their numbers and the operators concerned may levy interconnection charges on a cost basis for them. The provision of the test numbers shall be dimensioned a 2% grade of service.

1.3.7 Where service is ceased on a ported number or number block without the number or number block being ported again, the operator who was serving that number shall inform other operators and remove that number from the list of ported numbers that it serves when it next up-dates that list. The operator who was serving that number shall not re-use that number for another subscriber. The number shall return to donor operator concerned to whom it was originally allocated and the donor operator shall quarantine the number for at least three months.

1.3.8 The number contemplates in sub-regulation (5.3.7) shall return to the donor operator concerned to whom it was originally allocated and the operator shall quarantine the number for at least 3 months.

1.4 - COST RECOVERY AND CHARGING

1.4.1 Each network operator or Service Provider that is required to provide Number Portability shall bear its own set-up costs.

1.4.2 The Recipient Service Provider shall pay the Donor Service Provider their reasonable per-customer costs necessarily incurred when a customer ports their number.

1.4.3 Where the network operator is a separate entity to the Service Provider the Recipient Service Provider shall pay the Recipient network Operator and the Donor Service Provider shall pay the Donor network Operator their reasonable per-customer costs necessarily incurred when a customer ports their number.

1.4.4 Neither the Donor Service Provider nor the donor network operator may charge the Subscriber when the Subscriber ports their number.

1.4.5 The Recipient Service Provider or Recipient network Operator may charge the customer for Number Portability.

1.4.6 Each network operator that is required by sections 5.4.2 or 5.4.3 to incur additional costs in routing calls may charge the operator from which they receive the calls for those additional costs. Such additional charges may be applied to each call individually or averaged over all the calls from the said operator. Where the operator that is subject to the requirements of sections 5.4.2 or 5.4.3 has their interconnection charges controlled by regulation, the said operator may apply to RURA to have the reasonable

incremental costs necessarily incurred taken into account in the next revision of their price control.

2-FREQUENTLY ASKED QUESTIONS (FAQ)

2.1. What is Number Portability?

Number portability is a telecommunications feature that enables you to retain your telephone numbers whenever you decide to change your service provider and/or service types.

2.2. What is 'porting'?

'Porting' is the act of transferring your number to a new service, either with a different network or a different provider, or both.

2.3. What are the benefits of porting?

The main benefit of Number portability is the enhancement of your freedom of choice. You are free to choose, say a new mobile service provider without losing your existing number.

If you are not satisfied with your existing provider, you don't have to stay just to keep your number. If you are in business, keeping your number when changing phone companies means you will avoid missing calls, reprinting stationery and having any signage redone. For individuals it means avoiding the inconvenience of having to notify friends and associates that you've changed your number.

2.4. What are the main considerations?

There are a number of considerations that you may wish to take into account such as the following:

- the features of the new service you are seeking,
- your existing contract (if any),
- whether to change to or from pre-paid,
- whether to get a new handset,
- possible effects on other service features such as international roaming, etc.

2.5. Do I have to keep my number in all cases?

You do not necessarily have to keep your number if you don't want. You can still change to a different provider and get a new number as the case for now.

2.6. When can I take the advantage of Number Portability?

Number Portability is only useful if you see a benefit in changing the service or the provider. Consider what you want from a service provider and whether the benefits of changing outweigh any costs.

- Are you on the right tariff plan? Could you lower your bills by changing the tariff plan?
- How comparable is the quality of service of your current provider and your potential new provider? What are the differences, in terms of network coverage and service quality of these providers in your common area of operation?
- Are you on the right kind of network for your operations?
- Does your network have the coverage you need?
- Would you, your friends or family benefit from discounts if you changed to a particular provider?
- Do you want to change the way you pay for your service, by changing from pre-paid to post-paid or vice-versa?

Please note that changing providers does not absolve you of any contractual obligations.

2.7. Can I keep my number and change providers if I'm on a pre-paid service?

Yes, you can, but first confirm that your handset is not SIM-locked. Some handsets sold as part of a pre-paid service are 'network SIM-locked' to prevent customers using a SIM card with the handset other than the one issued for the pre-paid service.

If you want to use the same handset you may need to arrange with your existing provider to have your handset unlocked. An operator may charge to unlock your handset.

This does not apply if you already owned the phone when you obtained the pre-paid service, or if you are prepared to get a new handset with the new service. But remember that new handsets may increase the cost to you.

If you have been a pre-paid customer and you want to port, you should ask your existing provider the following quesions:

- is my handset SIM-locked?
- if so, is there a fee to unlock it and how much is it?

An important point for mobile phone users on a pre-paid service is that you will lose any credit you have on your service at the time of the change. That is something to take into account in the timing of a change.

2.8. Should I cancel my existing service?

No. Only an active number can be ported to another provider. It is important that you do not cancel your existing service.

The existing service will be cancelled automatically once the new service is activated.

2.9. If I can't tell what network somebody is from the number, how will discounts for calls on the same network operate?

The providers will know who their customers are, so they can still offer the discounts, but callers won't necessarily know if the people they call have switched to a new provider. To avoid unexpected charges, mobile users should confirm with their friends and their associates that they are using the same mobile network.

2.10. If I've decided to port; Who do I approach- my current mobile provider or the one I'm planning to move to?

Go to the new provider. The new provider will make contact with your existing provider as part of the porting process and inform the existing provider that you are porting.

2.11. What should the new provider tell me before I port?

The new provider should explain the terms and conditions of the new service to you. Make sure you have a record of any special offers or inducements.

The new provider must explain to you that you could still owe money to your existing provider. The provider you are leaving must, once you ask, tell you what you owe without delay. Any possible debts will most probably arise from the terms and conditions of the contract you signed.

The new provider must also alert you to 'related services', that is, if say you use your mobile service with separate numbers for fax or data. That is important

because if you do, arrangements have to cover all the elements of your service at the same time.

2.12. Will I get a final bill from my former provider?

Yes, you are likely to get a final account or a number of accounts to settle your contractual obligations or to pay for the calls and network access you used between your last bill and the time of the switch.

2.13. What about all the information, like names and phone numbers, programmed onto my old SIM card?

Take care not to lose it. There are a few possibilities, depending on both your handset and the dealer. If you are keeping the handset, check the manual to find out if there is an option to save the information from the SIM into the handset. If you are getting a new handset at the same time, you might want to note down all the information on the old SIM card before it is turned off as part of the cancellation of the old service. Some dealers may have the capacity to download the information from the SIM onto a computer and then to upload it onto the new SIM, but this is not a standard capability for dealers.

2.14. Can I nominate the date and time at which my service is ported?

Yes, you can and it may be helpful to choose that date-and approximate time-carefully.

If you are moving from a pre-paid service, you may want to use up your credits before you move.

If you receive many calls you may want to time the port for a non-busy time. Note that porting is only available during normal working hours.

If you have to wait for the new SIM card, you may want to postpone the activation of the new service until you obtain the new SIM card.

2.15. I travel overseas and roam onto other networks. Will international roaming be affected?

Availability of international roaming is dependent on bilateral agreements between your network operator and overseas network operators. The new provider might not have the same agreements as your previous provider. This will only matter if it does not have any agreements with operators in the countries you visit.

You should ask the new provider to which you are considering porting if it has agreements with network operators in the countries which you visit.

2.16. If I'm considering porting to an alternative mobile carrier, how can I find out reliably whether that operator has adequate coverage for my needs?

Service Providers should be able to supply coverage areas on request. Ask your potential provider if coverage is offered in areas where you wish to utilise your service. It is important that you identify whether the service you wish to acquire is appropriate for your needs and whether a particular provider can provide coverage in areas you wish to use it.