

CONSULTATION DOCUMENT

Recommendation of the Eastern Caribbean Telecommunications Authority ("ECTEL") To the National Telecommunications Regulatory Commission to consult on

Consultation on Policy Recommendations for the Adoption of Number Portability in ECTEL States

Consultation Document /NO.

December, 2015

1. The National Telecommunications Regulatory Commission is in receipt of a submission from ECTEL containing ECTEL's recommendation for a Policy on Number Portability for its Member States.
2. The initial comments period will run from **Thursday 10th December 2015 – Friday 8th January 2016.**
3. The Comment on Comments period will run from **Tuesday 12th January – Friday 22nd January 2016.**
4. Following the Reply Comments period, ECTEL's Directorate will make a final determination on the recommendations for implementing Number Portability in ECTEL Member States.
5. All responses to this Consultative Document should be written and sent by post, fax or e-mail to: -
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Disclaimer

This consultative document does not constitute legal, commercial or technical advice. The consultation is without prejudice to the legal position of ECTEL's duties to provide advice and recommendations to the Ministers with responsibility for telecommunications and the National Telecommunications Regulatory Commissions.

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**EASTERN CARIBBEAN
TELECOMMUNICATIONS AUTHORITY (ECTEL)**

**Consultation on
Policy Recommendations for the
implementation of
Number Portability (NP)
In ECTEL STATES**

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November 2015

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Suggested Guidelines for Responses to Consultation

In order to reduce administrative lags in ECTEL's public consultation processes and to enable a reasonable degree of transparency by sharing of views submitted, ECTEL hereby recommends that parties desirous of making contributions to the attached consultation follow the procedures outlined below.

- 1) Responses to consultations should be clearly labeled as a response to the particular ECTEL consultation and correctly referenced by title.
- 2) Documents should contain; the Name of Party/Licensee/NTRC commenting, address, telephone, fax number and email contacts of commentary author or corporate officer(s) responsible for the document. This information will enable ECTEL to clarify any comments where necessary, or to facilitate follow-up dialog by ECTEL where required.
- 3) Where specific recommendations require it, commenting parties should indicate clearly via a "Yes" or "No" response, whether they concur or disagree with the recommendation and provide explanations/reasons for each response.
- 4) Where parties have no view or interest in expressing a view on a specific recommendation, parties should indicate "no comment" and number appropriately.
- 5) Responses/comments to specific recommendations should be double spaced and numbered in sequence with the recommendation. Where comments are extensive, paragraphs should be numbered. Pages should be numbered.
- 6) Commenting parties should avoid making comments in the form of tracked changes to consultation documents.
- 7) Where possible, comment documents should be submitted in PDF format.
- 8) Where possible, parties should make explicit reference to academic articles, legislative provisions in other jurisdictions, or other sources relied on, and should provide copies of these together with comments. Accurate citations of resources relied on will suffice if copies cannot be provided.
- 9) If relevant, parties commenting on specific provisions of legal language should propose alternative language where possible. Such language should be appropriately highlighted and double spaced. Parties should avoid proposing alternative language in tracked changes to the consultation document.

10)Comments may be submitted via letter, e-mail or fax, but should be submitted via one method only. Only comments submitted via e-mail may be acknowledged.

11)Commenting parties should expressly indicate or highlight which parts of comment documents contain commercially sensitive or confidential information that should not be published.

ECTEL reserves the right to publish all the responses received to the consultation and provides no undertakings to refuse to publish such comments where requested, on its website or otherwise.

ECTEL is grateful to those parties adopting the recommended guidelines for submitting comments to this consultation.

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Introduction

The purpose of this consultation is to set out the key parameters that will define the implementation of Number Portability (NP) in ECTEL Contracting States. In the course of the document, ECTEL will outline its responses and seeks feedback on the following NP functional features from interested parties:

- (i) Basic types of NP
- (ii) Recipient led versus Donor led NP
- (iii) Centralised NP versus De-centralised NP
- (iv) Routing Approach
- (v) Porting process timeframes
- (vi) NP cost recovery
- (vii) Customer validation of porting requests
- (viii) Ancillary NP features, such as onward porting restriction, winback protection, multiple number porting etc
- (ix) NP implementation approach

The Council of Ministers representing the ECTEL Contracting States has determined the NP service will be introduced across the ECTEL Contracting States and has instructed ECTEL to proceed with the development, implementation and launch of the NP service. This consultation is therefore not intended to consult on the principle or feasibility of introducing the NP service across the ECTEL Contracting States, but to seek the feedback of interested parties on the key parameters that will define the implementation of the NP service.

ECTEL believes that the intended NP functional features align with global and regional best practices and the requirements of the ECTEL Contracting States' markets and consumers. ECTEL welcomes the feedback and comments from interested parties on the key parameters defined in this consultation document, if an interested party is of the opinion that they would propose alternative options to the parameters outlined in this document then ECTEL would welcome specific justification for why the alternative option offers either a better consumer porting experience or a more efficient NP service.

This consultation represents the final phase of ECTEL's recommendations to move toward the introduction of NP. Upon completion of the policy framework at the conclusion of the current consultation, ECTEL will progress the development, implementation and launch of the NP service.

ECTEL hereby invites views and comments on the issues raised in this document to be submitted by 4:30 p.m. on the 15th of January 2016 to the following address:

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Number Portability – An Overview

It is a well-established fact that the inability to keep one's number when moving to a new telecommunications provider is a major disincentive to switch providers.

In newly liberalized markets, this lack of capacity to retain a telephone number can be an especially difficult hurdle for customers to overcome. In cases where telecoms monopolies have existed for several years, it is common for customers to regard themselves as having become very closely associated with a particular telephone number, resulting in general reluctance to be associated with a new number when switching providers.

This tendency is especially acute in cases of business customers, for whom the practical implications of abandoning long established numbers are significant. Specifically, changing numbers can often mean high transaction costs, as businesses must replace existing stationery, signs and invest resources in marketing and advertising to advise both existing and potential customers of the change. These are additional costs over and above those purely related to actually switching providers.

The capacity for customers of telecommunications providers to retain their telephone numbers when changing providers, services or location, is referred to as NP. In circumstances where customers lack the option of provider portability, actual competition may be hampered, or prevented from developing altogether, even though other providers have formally entered the market. In some cases the lack of the feature in a market can serve as a barrier to entry for new entrants, who must carefully weigh the level of investment required against the potential subscriber inertia caused by the inability to keep their numbers when they move.

At a competitive level, NP helps promote customer choice and prompts providers to compete on quality of service as opposed to merely price. No longer restricted to one provider, customers are able to move freely, based on their assessment of a range of factors, including but not limited, to prices and quality of service. A fixed-line customer unhappy with his or her provider's terms and conditions of service can change to another provider offering better terms. A mobile customer unable to get adequate coverage near his or her home or simply dissatisfied with the level of dropped calls by one provider, can move to another offering better call quality, or perhaps even new and different mobile services. In both cases, each customer can keep his or her number, reducing the potential inconvenience and disruption to their personal lives previously caused by having to inform others of his or her new contact details, every time they switch providers.

For the provider, the empowerment of customer choice through NP provides an important competitive incentive. Faced with the potential threat of a loss in market share to competitors offering new or better services, better customer service or more impressive or up-to-date technologies, providers will simply respond by making

necessary adjustments to improve customer experience or face the prospect of going out of business.

As a result, NP can potentially encourage the development of more efficient networks; investment in infrastructure, the introduction of advanced telecommunications technologies and services, improved standards of quality, reduced barriers to entry and increased customer choice.

Simply put therefore, NP is an important catalyst of true competition in telecommunications markets. Indeed the European Union has noted, “number portability is a key facilitator of consumer choice and effective competition in a competitive telecommunications market.”¹ Globally, the number of countries, which have imposed or adopted NP is growing exponentially, and includes: the USA, Canada, most of the EU, (including the UK, Portugal, Spain and France) and several countries in Asia, including India, Malaysia and Singapore. Of increasingly special note is the imposition by regulatory authorities of NP in small jurisdictions like Luxembourg, Jersey and Malta, which represents the strongest possible rebuttal to potential arguments that NP is impractical in small markets.

NP is progressing across the Caribbean, for instance Dominican Republic launched NP in 2009, Cayman Islands launched NP in 2012, the Bahamas launched NP in 2013 and Jamaica launched NP in 2015. Additionally, NP services are under consideration in a number of other Caribbean jurisdictions, including Haiti and Trinidad and Tobago.

ECTEL’s Basic Policy on Numbers

ECTEL regards telephone numbers as a national public resource, notwithstanding their assignment to providers for commercial use. Ultimately therefore, ECTEL regards numbers as being allocated to subscribers for their benefit and use.

Competition in ECTEL Markets

In the ECTEL Contracting States, the option to retain one’s fixed line or mobile telephone number upon switching providers has thus far not been available to subscribers. This is despite the emergence of formal competition in both mobile and fixed-line services in nearly all ECTEL states, over the last several years.

Although ECTEL markets were formally liberalized in 2000, it was not until the introduction of new mobile providers in St. Lucia followed closely by St. Vincent and the Grenadines in 2003 that actual competition began. In the period between 2003-2011, the markets of all ECTEL states evidence more than one provider for most basic telecommunications services, including fixed and mobile services.

¹ See the Universal Service Directive.

In the case of fixed service provision, some competition is evident in all member states except St. Kitts and Nevis. In the case of mobile services, two providers operate in all member states and a third provider is or has operated at one point or another in Dominica, St. Kitts and Nevis, St. Lucia and St. Vincent and the Grenadines since 2003. In a reversal of technological developments, actual competition for fixed-line services lagged considerably behind the mobile sector, with new entrants providing alternative services to the incumbent fixed-line provider only recently in some cases.

Despite the introduction of formal competition however, a reasonable assessment of either market would not compel a conclusion that such competition has been or is dynamic.

Since the promotion of dynamic competition in telecommunications represents one of the core aims of the regulatory system, ECTEL regards NP as an important regulatory tool that could be utilized to help promote that objective. The decision to recommend NP is therefore in keeping with ECTEL's standing policy of making appropriate recommendations for broadening and deepening competition in the telecommunications markets of Contracting States based on continuous assessments of existing market conditions.

In keeping with its mandate to promote competition in telecommunications markets of Contracting States, facilitate the introduction of advanced technologies and an increased range of services therefore, ECTEL hereby publishes its recommendations for the implementation of NP in ECTEL states.

1. Types of NP services appropriate for ECTEL

Generally, there are considered to be three basic types of NP:

- Service provider number portability;
- Service portability; and
- Location portability

Service provider number portability enables users of electronic communications services (particularly their voice, or telephone, service provider) to change their service provider and retain their telephone number. To simplify the assessment, ECTEL proposes to restrict discussions to portability of a single element only, and therefore service provider number portability is limited to users changing between providers within the same service type and location, for example from one fixed provider to another fixed provider at the same location/ island.

Typically, a subscriber's identity becomes intrinsically linked with their telephone number, while a business builds up goodwill in a telephone number through the marketing activities performed by the business using that number. Service provider

number portability helps to promote consumer choice and market competition by enabling customers to keep their number when changing provider thereby improving the ability of customers to take advantage of the most appropriate telecommunications services and products to meet their needs.

Additionally, by allowing customers to keep their number whilst changing operators means that the new operator does not need to assign the customer with a new number and thus service provider number portability improves the management and usage of ECTEL numbers, which are a finite resource.

ECTEL believes that service provider number portability is likely to have the most significant impact on competition, as it is the only form that is an enabler of competition between different providers.

Service portability allows a subscriber to retain their telephone number without impairment of quality, reliability or convenience when changing from one type of service to another, but without changing service provider, the most significant example being between fixed and mobile services. For example, service portability would enable a subscriber to replace their existing landline telephone number with a mobile service having the same number.

Whilst full-service portability or hybrid portability has been discussed across the world, ECTEL's research has been unable to identify any jurisdiction where full-service portability has been successfully launched and operated. The key concern related to service portability is the likelihood for losing clarity of the different levels of charging between fixed and mobile networks and the corresponding consumer confusion and dissatisfaction. For instance;

- In "receiving party pays" mobile call charging regimes, it is important for mobile users to be able to determine whether incoming calls are from lower cost fixed line numbers or higher cost mobile numbers;
- Significant price differentials exist between fixed and mobile service tariffs across the ECTEL jurisdictions which drive different consumer usage of the services and which are likely to discourage demand for porting between the different service types;
- Consumers are very aware of the existing price differentials between the mobile and fixed telephone services across the ECTEL jurisdictions and thus it is essential for subscribers to be able to differentiate between calls to and from fixed and mobile numbers; and

- There is no evidence that mobile and fixed telephones are direct substitutes for each other, especially since business and retail customer usage of mobile and fixed services have evolved differently.

Location portability enables a subscriber to retain their same (fixed) telephone number when moving from one physical location within a single island to another or between individual ECTEL jurisdictions without changing service provider.

Based on the current framework for assignment of numbers across the ECTEL jurisdictions, there are four possible options for location portability of fixed or mobile numbers, as follows:

- Portability across ECTEL jurisdictions – Typically each NTRC is responsible for the licencing and management of fixed and mobile numbers and services within their specific national jurisdictions. Consequently, allowing the porting of fixed or mobile numbers is not normally permitted since there are national or international price differentials between the fixed and mobile tariffs operating in different ECTEL national jurisdictions. ECTEL believes that allowing the porting of fixed or mobile numbers between different ECTEL jurisdictions is unlikely to be a key driver for ECTEL consumers and could result in significant billing and charging confusion across the ECTEL region. ECTEL does not believe that allowing the porting of numbers between ECTEL jurisdictions will result in consumer billing confusion and will not generate any appreciable consumer porting demand for inter-island porting of fixed or mobile numbers;
- Portability within the local exchange area – Typically in incumbent operator networks, a local exchange area is delineated by a single local telephone exchange, with one or more switching units, which are directly connected to subscribers. Providing NP whereby subscribers can change their location within the local exchange area without changing their number poses no significant technical or billing issues;
- Local Call Area – Incumbent operator fixed networks, typically combines local exchange areas situated in a local call area LCA (namely, the local call charge) to all calls that both originate and terminate within that area. ECTEL believes that operating NP in such environments is technically and commercially viable;
- Between Local Call Areas (LCAs) - Charging for calls between LCAs is often toll based, depending on the origin and destination locations. Thus, subscribers need to be able to identify the location of the called party before the call is made to determine the charging rate that will apply to the call. Typically, operators allocate “central office” (CO) codes to each LCA, enabling the calling party to identify the called LCA. However, allowing portability between different LCAs will result in numbers having CO Codes which do not correspond to the actual

location of the subscriber, which could lead to consumer confusion and dissatisfaction over call charging to ported numbers between LCAs. ECTEL does believe this situation is unacceptable and thus, ECTEL intends to consider only allowing portability between different LCAs if operators are able to advise callers in advance of the call that the called party is not in the LCA so callers can identify the cost of calls made to a ported number.

Recommendation 1 – NP will be restricted to service provider number portability, specifically porting between mobile to mobile and fixed to fixed numbers only, within the same ECTEL jurisdiction only. The porting of fixed to mobile numbers and mobile to fixed numbers will not be permitted across the ECTEL jurisdictions. In the case of fixed NP, the porting of fixed numbers will only be permitted within the same local exchange and local call areas only, but the porting of numbers between different ECTEL jurisdictions will not be permitted.

2. Recipient Led versus Donor Led NP

The early implementations of NP were designed around a donor process where the customer was required to contact the current or donor operator to request permission to port and then the customer coordinated the porting transaction between the donor and recipient operators. However, the donor led approach is viewed as not delivering a positive customer porting experience since the customer is required to drive the porting transactions, porting timeframes are often extended and donor operators try to dissuade customers from porting or just frustrate the porting process.

Most recent NP implementations have adopted the recipient led porting approach in which the customer agrees a limited power of attorney with the new or recipient operator authorising the recipient operator to close the customer's account with the donor operator and to arrange the porting or transfer of their number to the new recipient network. Recipient led porting is viewed as being much more customer friendly and efficient, since the recipient as beneficiary in the porting process is responsible for driving the smooth transfer of number to their network. Consequently, recipient led porting is seen to offer faster porting timeframes, much lower porting rejection rates and simpler porting processes. Recipient led porting is now favourite approach for all new NP implementations and many countries with established donor led porting processes are migrating to the more efficient and positive recipient led approach.

Recommendation 2 - The NP process of moving a customer's number from one provider to another provider will be achieved by Recipient Led (the customer requests porting through the new Recipient operator).

3. NP Administration - Centralised or De-Centralised Porting?

A key element in the operation of NP services is the efficient and reliable administration and processing of porting requests between recipient and donor operators.

- Peer-to-Peer/ De-Centralised Solutions - Bilateral peer-to-peer solutions allow operators to enter into individual arrangements for porting. These arrangements may be standardized across the industry or may be unique to each agreement. Although internationally, such peer-to-peer arrangements are fewer given the availability and convenience of centralized solutions, it is nonetheless arguable that the arrangement may be suitable for jurisdictions with small port volumes and a limited number of operators.
- Centralized Database Solutions – are the most popular approach to delivering NP services. These solutions are centred around a reference database or number clearing house owned or operated by an independent third party or sometimes maintained by a consortium of providers is established for the purposes of facilitating NP. With these systems, direct routing can be used to determine whether a call is to a ported number and to ensure that the call is then efficiently directed to the destination network. Most recent NP implementations and those involving small jurisdictions have adopted this option, including Channel Islands, Isle of Man, Gibraltar, the Bahamas, Jamaica, and the Cayman Islands, whose population sizes are comparable to the ECTEL jurisdictions. These CDBs provide several advantages which make them attractive solutions for regulators.
 - The databases can be operated by third parties with specialized infrastructure for providing such services that is already established. This means that costs can usually be shared by providers both within and in some cases, depending on the approach pursued, outside of the ECTEL jurisdictions. If this option is pursued, the initial start-up costs are reduced significantly, making it incredibly attractive. Alternatively providers may jointly choose to establish such a centralized reference database.
 - The CDB solution is easily adaptable to different types of services, so that both fixed and mobile, or even other types of portability may be facilitated. A single reference database containing all the numbers issued in a jurisdiction is established. This central database is then assimilated as operational databases in each participating network operator and updated as each porting transaction is completed.

Whilst the set-up costs for peer-to-peer/de-centralised solutions may be lower than those for centralised database solutions, peer-to-peer solutions do not offer a consistent

and efficient porting experience for customers and may require increased network capacity investment and long term maintenance and operating costs for operators.

Recommendation 3 - The fixed and mobile NP service will be managed and operated across the ECTEL jurisdictions through a centralised NP system which will track all fixed and mobile numbers throughout the ECTEL jurisdictions, manage the porting process between recipient and donor operators and provides some ancillary administration functionality. This approach enables a standardised porting process to be operated across all providers across the ECTEL jurisdictions.

ECTEL's research suggests that there are a number of different licencing and contracting approaches used by different countries across the world to manage the operation of centralised NP systems/ platforms, commonly termed as NP Clearinghouse. In some countries, the operators jointly create a specific entity to set-up and run the NP Clearinghouse in which the joint venture entity contracts directly with the NP Clearinghouse provider, but this approach is considered unsuitable for small jurisdictions, since it can be expensive and complex to establish and manage.

An alternative approach is for the NP Clearinghouse provider to contract with the local regulator to establish and manage the NP service on behalf of the regulator. ECTEL does not believe that this approach is appropriate for the ECTEL jurisdictions since it unnecessarily complicates the engagement between ECTEL, the NTRCs and the ECTEL NP stakeholders.

In many countries, the local regulator licences the NP Clearinghouse provider to establish and manage the NP service for a fixed licence period. Such licencing frameworks are restricted to the provision of NP services, but the terms align closely with the licencing regime applied to operators. This approach requires the NP Clearinghouse provider to contract with the local operators either collectively through a multi-party agreement or on an individual operator basis. ECTEL favours the licencing approach since it is efficient and simple to administer for the ECTEL stakeholders and aligns the provision of NP services with the operator regulatory requirements to support the provision of NP across the ECTEL jurisdictions.

Recommendation 4 - By adopting the centralised driven NP approach, the successful provider of the NP Clearinghouse will be licenced by ECTEL on behalf of the NTRCs to provide NP services across all ECTEL jurisdictions and will be required to contract directly with the licenced ECTEL operators.

The main function of the NP clearinghouse is to track and bill for the usage of the centralized database used for storing the routing information for numbers. The NP clearinghouse would also be responsible for the day-to-day running of the centralised database, its operational maintenance and keeping it updated. The NP clearinghouse

provider would also provide a Help Desk facility, responsible for, trouble ticketing, problem resolution, logon administration, and training.

ECTEL believes there are three options exist for establishing and operating a NP clearinghouse for the ECTEL jurisdictions:

- Locally based in an ECTEL jurisdiction;
- Externally hosted solution (outsourced to a NP service provider located abroad); and
- Regional (a hosted solution that provided in partnership with other regulated jurisdictions in the Caribbean).

Locally based NP Clearinghouse – ECTEL believes this is a feasible solution for the ECTEL jurisdictions, with the following advantages and disadvantages:-

Advantages:-

- Reduces the demand for foreign exchange as it eliminates the need to remit NP clearinghouse charges overseas in a foreign currency;
- Eliminates possible political and economic influence that a foreign entity might exert upon the NP clearinghouse provider; and
- No need to increase the capacity of international off island signaling routes to allow for traffic between the clearinghouse and the local operators.

Disadvantages:-

- Requires increases up front for set up investment;
- Could involve prolonged set-up timeframes whilst local hosting facilities are established and equipment procured and installed;
- Despite being considered by other Caribbean regulators and NP stakeholders, with the exception of Panama, the increased set-up and operating costs have discouraged the set-up of locally based or in-country NP clearinghouse services;
- Involves the recruitment and training of local support and operational resources to manage the NP clearinghouse.; and
- The increased set-up and operating costs may not be appropriate for small island economies such as the ECTEL jurisdictions.

Externally hosted NP Clearinghouse – This approach is already used successfully by a number of small island jurisdictions, which have introduced NP, including the Bahamas, Jamaica, Channel Islands, Isle of Man, Gibraltar and the Cayman Islands. ECTEL believes this is a viable solution for the ECTEL jurisdictions, with the following advantages and disadvantages:-

Advantages:-

- Offers lower up-front set-up costs;

- Faster to implement and launch the NP service since the hosting facilities and infrastructure/ equipment are already in place;
- May be more cost effective since operating costs are shared with the NP Clearinghouse provider's other clients; and
- Offers quicker and better set-up for local ECTEL stakeholders/ operators, since the core infrastructure is already in-place and working and configuration is restricted to links between the operators and the hosted NP Clearinghouse facilities.

Disadvantages:-

- Requires increased in capacity of the international signalling routes to accommodate ECTEL porting transaction traffic;
- NP service availability is reliant on the quality and stability of the international signalling links between ECTEL stakeholders/ operators and the NP clearinghouse provider;
- Increased outflow of foreign exchange to remit NP clearinghouse transaction and service charge payments; ;and
- Potential privacy and security concerns since subscriber and ECTEL numbering information is managed and held in an overseas location.

Regional Clearinghouse – ECTEL is aware that when other Caribbean regulators have considered implementing NP all are presented with similar challenges related to the size of their jurisdictions. ECTEL's research suggests that whilst there was an opportunity for regional cooperation between regulators and operators to devise and implement a regional NP clearinghouse, but as more Caribbean jurisdictions have launched NP the opportunity to collaborate and establish a regional NP clearinghouse have diminished.

A regional NP clearinghouse would offer many of the advantages of the external solution while still retaining the control and flexibility of a local solution. However, such a solution would also present many of the disadvantages of an external solution (unless it was housed in the ECTEL region).

Recommendation 5 - The NP Clearinghouse service may be either operated from ECTEL or hosted overseas.

4. ECTEL Traffic Routing – Direct or Indirect?

Establishing and operating an efficient and robust mechanism for managing the transfer or porting of numbers between donor and recipient operators is an important requirement for an NP service, the ability to efficiently and securely deliver or route fixed and mobile traffic to ported and non-ported numbers is of vital importance to ensure NP is successfully provided across the ECTEL region.

NP implementations across the world use either direct or indirect routing. Direct routing requires the originating network to route the traffic directly to the terminating network

on which the number (ported or non-ported) currently resides, whereas, indirect routing involves the originating network routing the traffic to the block operator to whom the number was originally allocated, if the number has subsequently ported out, then the block operator routes the traffic to the network to which the number was ported.

Routing approaches can be defined as follows:-

- Indirect Routing
 - Onward Routing/ Call Forwarding
 - Query on Release/ Call Drop Back
- Direct Routing
 - All Call Query

Onward Routing is an indirect, bilateral, routing approach in which:

- The traffic is routed to the network on which the number originally resided (the block or donor network) since this is the only network the originating network is able to identify;
- The block/ donor networks identifies the dialled number as no longer being in its inventory because it has been ported to another network and checks with an internal network-specific number portability database (NPDB) to identify the network to which the number was ported;
- The block/ donor network's NPDB provides the routing number associated with the dialled number and the block/ donor network uses the routing number to route the traffic to the network to the recipient network to which it ported the number.

Advantages:-

- The NPDB of the donor/ block network can be small since it contains only the routing numbers of its own numbers that have been ported. It does not have to contain all ported numbers;
- As NP is established only a small percentage of traffic is required to be onward routed;
- Signalling impact is minimal; and,
- No increase in call set-up time for non-ported numbers.

Disadvantages:-

- Routing of traffic to ported numbers is not efficient nor optimised since the traffic uses the block/ donor operator's network before being delivered to the recipient/ terminating operator;
- It may be necessary to develop an additional transit/ interconnect charging framework to recompense the block/ donor operator for the transit use of their network;
- Routing quality of onward routed traffic is dependent on the quality of the block/ donor operator's network and operations. If there is a failure within the donor/

block operator's network, then onward routing of traffic to ported numbers will fail or be compromised; and

- Increased call set-up time for traffic routed to ported numbers; and
- Potential for donor/ block operators to differentiate the quality of routing for ported and non-ported traffic.

Call forwarding is similar to Onward Routing and has the advantage of being an existing network feature that operators offer to subscribers who wish to have their incoming calls forwarded to another number. Where the Call forwarding approach is used, the recipient operator will issue a shadow or dummy number to which the block/ donor operator forwards traffic for the customer's "ported" number. Call forwarding has similar disadvantages to Onward Routing, but has the advantage that as an existing network feature, it requires less re-configuration and can be implemented quicker.

Onward Routing is an indirect, bilateral, routing approach in which:-

- The originating network routes traffic to the donor/ block Network for completion. If the dialled number is resident on the donor/ block network, the call is completed;
- However if the dialled number has been ported, the donor/ block network releases the traffic back to the originating network with a signaling/ routing identifier that the number has been ported;
- The originating network queries its own copy of the centrally administered NPDB, which provides the routing information for the dialled number; and
- The originating network completes the call to the recipient/ terminating network, on which the dialled number currently resides.

Advantages:-

- Reduced routing inefficiency for the donor/ block operator;
- Reduced interconnection capacity requirement since traffic to ported numbers are handed back to the originating operator for direct routing;
- Potentially reduced processor capacity requirements for donor/ block operators, who no longer needs to identify the routing number of the recipient/ terminating operator;
- Donor/ block network is no longer in the terminated traffic path and thus the originating operator is not reliant on the operational quality of the donor/ block network; and,
- No increase in call set-up time for non-ported numbers.

Disadvantages:-

- Traffic to ported numbers is required to be routed twice thereby consuming additional originating operator network resources;
- It may be necessary to develop an additional transit/ interconnect charging framework to recompense the block/ donor operator for the query use of their network;

- Originating operators are required to invest in the set-up and maintain separate local NPDB for the storage of routing data for ported numbers; and
- Increased call set-up time for traffic routed to ported numbers; and
- Potential for donor/ block operators to differentiate the quality of routing for ported and non-ported traffic.

Call Drop Back is a similar routing approach to Query on Release, except the Call Drop Back approach requires the donor/ block operator to provide the routing data of the terminating/ recipient network that is hosting the ported number, to the originating network. Call Drop Back offers marginal operational advantages, but requires additional hardware/ software changes to the donor/ block operator's network.

Direct Routing/All Call Query (ACQ) is a direct centralised, routing approach in which:-

- The originating network queries its own local copy of the NPDB for all traffic originated on its network, irrespective of whether the traffic is destined for a ported or no-ported number. Note – Operators' local NPDBs are typically mirrored against the centralized NPDB, provided by the NP clearinghouse provider. The centralised NPDB updates routing data held in the operators' local NPDB each time a porting transaction is completed; and
- The originating network's NPDB provides the location routing number of the recipient/ terminating network on which the dialled number resides which enables the originating network to directly route the traffic to the recipient/ terminating network, irrespective of whether the terminating number has been ported or not.

Advantages:-

- Direct routing eliminates the reliance on the donor/ recipient network, thereby providing the ability to maintain traffic routing to ported numbers in the event that the donor/ block network fails;
- Traffic routing and network utilisation are optimised since "tromboning" of traffic between networks is eliminated;
- Traffic to ported and non-ported numbers are treated equally;
- No additional set-up time for traffic to ported numbers; and
- Potential for network congestion or disruption that may occur on the donor/ block network is eliminated.

Disadvantages:-

- All operators are required to invest in establishing and maintaining their own local copy of the NPDB;
- Significant configuration and infrastructure changes are required within all operators core network and associated systems to support ACQ direct routing. Implementing the necessary network changes can be complex and risky;

- Additional core network processing capacity may be required to support the query activity for all traffic to the local copy of the NPDB;
- Set up time for all traffic may be increased due to the additional ACQ processing activities.

On a global perspective, ECTEL understands that different countries use different routing approaches. However, it is widely accepted that the direct ACQ routing approach is the most operationally efficient and consequently direct ACQ routing is the approach adopted in virtually all recent NP implementations. Whilst implementing direct ACQ routing requires significant investment and resourcing for all operators involved, the operational efficiencies and improved traffic routing quality benefits are seen to greatly outweigh the advantages offered by indirect routing approaches.

ECTEL is aware that the cost to operators for implementing the direct ACQ routing approach into their networks is falling and ECTEL understands that direct ACQ routing approach has been adopted in recent NP implementations in other small/ medium island jurisdictions, including, Jamaica, the Bahamas, Channel Islands, Isle of Man, Gibraltar, Cayman Islands and Panama.

ECTEL therefore concludes that the direct ACQ routing approach is the preferred routing approach for supporting NP across the ECTEL region.

Recommendation 6 – All fixed and mobile traffic to ported and non-ported numbers originated and terminated in ECTEL jurisdictions will be directly routed by the originating network to the terminating network using the All Call Query approach. All Call Query direct routing is widely used in NP implementations across the world and is considered to be the most operationally efficient and reliable form of routing in NP jurisdictions.

5. Optimising the implementation and operating costs related to NP

ECTEL sets out below its proposals on NP cost recovery for NP. ECTEL does not believe that NP cost recovery should be left solely to commercial negotiations between operators. This view is informed by experience in other countries where reliance on commercial negotiations has served to delay implementation of NP and resulted in high or inappropriate charges, or both.

International studies and experience of NP implementations in other countries suggests that there are two broad categories of costs associated with the provision of NP, namely: (i) establishment / set-up costs and (ii) consumption costs.

Establishment/ Set-up costs - represent the capital costs incurred by operators and NP stakeholders to ensure that customers have the capability to port their telephone

numbers. These costs are incurred because of the regulatory policy objectives to reduce the cost and inconvenience of customers switching between operators, and to foster competition amongst operators through the implementation of NP and include:-

- Initial operator network modifications;
- Software modifications in the information systems such as customer accounting and billing system and inter-operator accounting and billing system;
- Set-up of new inter-operator tools and procedures;
- Modification of internal operator processes;
- Training of operator staff to provide NP services; and
- Establishment of NP Clearinghouse.

Consumption costs - represent the additional costs incurred when customers make use of NP services. These costs are typically more easily linked to individual operators/ stakeholder or customers.

- Per-line/ number administration costs, generated by:-
 - NP service ordering procedures;
 - Modifications of subscribers data in the information systems; and
 - Modification of subscriber data in the network elements.
- Additional conveyance costs, caused by:-
 - Extension of traffic link capacity; and
 - Additional call processing, switching and intelligent network (IN) resources.
- Continuing administrative costs, including:
 - Management and operation of the NP Clearinghouse; and
 - Administration of general NP information.

ECTEL understands that the establishment/setup costs are likely to vary between operators and NP stakeholders, since these costs will be driven by different factors, such as network characteristics, organisation structure, business scale, this is system types etc. However, ECTEL's research stakeholder costs incurred in other NP implementations suggests that the variation in establishment/setup costs between operators is actually low.

In line with accepted cost recovery practice, ECTEL is proposing a set of economic principles (See table below) to ensure that the cost recovery process for NP is fit for purpose. ECTEL believes that the cost recovery process should be equitable by ensuring the appropriate allocation of the costs resulting from the implementation of NP between operators and their customers. ECTEL believes that its proposals will engender regulatory certainty, and minimise inter-operator disputes, thereby ensuring the mechanism for cost recovery is transparent, non-discriminatory, and reasonable, and reflects the underlying costs of providing NP.

Effective competition - Pressures for effective competition should not be weakened by the mechanism of cost recovery. As such, the cost recovery mechanism should not be used to raise a competitor's cost or weaken their ability to compete.

Distribution of benefits - Cost recovery mechanism should reflect the distribution of benefits that accrue from a customer porting their telephone number. Portability generates both direct and indirect benefits, as everyone benefits from increased competition. Hence, those who benefit from portability indirectly should pay some of the costs.

Cost minimisation - The mechanism for cost recovery should provide strong incentives to minimise costs. Those who are in a position to affect the size of the costs should face strong incentives to minimize costs.

Cost causation - Cost should be borne by those whose actions cause the cost to be incurred.

Relevant costs - Only those costs directly incurred or attributable as a result of the provision of NP should be recovered.

Reciprocity - Where NP is provided on a reciprocal basis it may be appropriate for charges to be reciprocal in each direction.

Practicality - Costs should be recovered in a way that is practicable and does not unduly raise administration costs.

In this document, ECTEL has defined the core functional requirements for the introduction and operation of NP across the ECTEL region as the basis of the corresponding direction and engagement programme with operators/ NP stakeholders to support the development, implementation and provision of porting services to ECTEL consumers. Supporting and providing number portability is a fundamental operator obligation and condition to continue to provide telecommunications services within the ECTEL jurisdictions.

ECTEL believes the establishment/setup costs of the ECTEL operators and NP stakeholders will be relatively similar and from assessment of establishment/setup cost recovery in other NP jurisdictions, ECTEL is proposing that each operator and NP stakeholder should be responsible for their own establishment/setup costs and that such costs cannot be recovered from other stakeholders or the consumer.

The recovery of NP clearinghouse setup and consumption costs is a critical element of any NP implementation. In view of the relative small scale of the ECTEL jurisdictions, ECTEL will focus on ensuring that the tendering process delivers a NP clearinghouse solution that offers excellent value and is effectively benchmarked against the NP

clearinghouse costs secured in similar jurisdictions. ECTEL is committed to ensuring the NP clearinghouse cost recovery model is appropriate for the ECTEL market and that costs are allocated between operators based on the principles of "Distribution of benefits", "Cost minimisation" and "Practicality"

Recommendation 7 - Each operator will be responsible for their own set-up costs to prepare for the implementation and launch of NP across the ECTEL and such set-up costs shall not be directly charged to consumers or other stakeholders.

Studies of NP implementations from around the world clearly show the strong relationship between consumer demand and the charges levied to customers for using porting services. In many recent NP implementations, the local regulators have specified that porting will be free of charge to customers in order to maximise consumer demand for NP services.

At this stage, ECTEL is minded to allow recipient operators to decide whether to charge customers for porting their services, but such charges should be determined in accordance to the principles of "relevant costs", "cost minimisation" and "practicality", as outlined above. By allowing recipient operators to determine whether to charge consumers for porting or not, ECTEL is aware that market, competitive forces could minimise or eliminate consumer NP charging, however, ECTEL will retain the right to review consumer NP charging and where appropriate set a maximum limit.

In line with best practice from other NP implementations, ECTEL will not permit donor operators levying NP related charges to customers who leave their network or services. Donor charging of consumers who port their number or service is viewed to be contrary to the interests of consumers and NP, since such charges could discourage consumers requesting NP.

Recommendation 8 - Recipient operators will be allowed to charge customers for porting their numbers at the discretion of each recipient operator. Consumer charging will be reasonable but ECTEL and the NTRCs reserve the right to set a maximum limit to consumer porting charges. Donor operators will not be permitted to charge customers for porting out numbers from their network.

ECTEL recognises that donor operators could incur additional incremental costs directly related to the processing of porting requests for customers wishing to leave their network or service. Whilst ECTEL has already stated that donor operators should not be permitted to levy charges on customers leaving their networks, under the cost recovery principles outlined above, ECTEL accepts that it may be appropriate for donor operators to recover from recipient operators, reasonable and directly attributable costs incurred in efficient processing of porting costs.

ECTEL believes that there are charges, if or where appropriate, should be set and assess based on the cost recovery principles of "Effective competition", "Cost minimisation", "Cost causation", "Relevant costs", "Reciprocity" and "Practicality". ECTEL reserves the right to review and assess donor charges and where appropriate set a maximum limit.

ECTEL also recognises that in many countries once NP is established, porting transaction volumes between different operators in the market tend to become balanced. Consequently, there can be an argument that due to the principle of "Reciprocity", an operator is likely to be a recipient in equal proportion to being a donor, then charging between operators becomes balanced and there is no need for the levying of donor charges.

Recommendation 9 - Donor operators shall be permitted to charge recipient operators for reasonable costs which are directly attributable to the actual efficient processing of porting requests. ECTEL reserves the right to set a maximum limit to donor porting charges. ECTEL reserves the right to set a maximum limit to donor porting charges.

6. NP Implementation Approach across the ECTEL region

Experience from other NP implementations across the world clearly shows that implementing and launching NP is a complex initiative requiring full and positive cooperation across the different stakeholders, carefully planned and driven using a disciplined approach. Implementing cannot be rushed, ECTEL understands that ECTEL and the NTRCs as key consumer guardians are responsible that NP is delivered effectively and timely.

This section of the document will consider the phasing of the introduction of NP services, the likely timeframes and the implementation approach to be adopted across the ECTEL NP stakeholders.

ECTEL has already identified that NP is suitable for introduction into the ECTEL fixed and mobile telecommunications sectors. The core process for porting fixed and mobile services between donor and recipient operators should be fundamentally the same. However, the porting timeframes, service delivery mechanisms and customer validation approaches may differ for the porting of fixed and mobile numbers.

For instance, the delivery of equivalence in service for mobile operators relies on parity in network coverage across the territory, whereas for fixed operators, delivery of service to customers may be through fundamentally different fixed technologies and maybe impacted by infrastructure and capacity availability. Validation of the customer's right to ported number is a critical aspect of the porting process and thus the validation

approach adopted for fixed and mobile NP may differ, for instance, mobile NP can be validated using SMS.

From ECTEL's research, it is evident that all potential NP clearinghouse vendors' solutions should be capable of supporting both fixed and mobile NP, as well as accommodating differing porting processes for each type of NP, for instance, timeframes, process steps, validation checks etc.

Recent NP implementations in similar small jurisdictions in Jamaica, Cayman Islands and Gibraltar have demonstrated that fixed and mobile NP can be implemented and launched successfully at the same time. ECTEL appreciates that developing and implementing multiple forms of NP simultaneously can complicate and extend the implementation programme and timeframe, but, the parallel development of fixed and mobile NP can be achieved in an effective and timely manner.

Recommendation 10 – Fixed and mobile NP should be implemented and launched in parallel and where practical, at the same time.

ECTEL appreciates that successfully implementing and launching NP across the different ECTEL jurisdictions requires detailed planning and disciplined and structured management across the broad range of NP stakeholders. Introducing NP cannot be rushed yet there is urgency driven by the expectations of the public/ consumers for ECTEL and the NTRCs to launch NP services in a timely manner.

ECTEL believes a reasonable timeframe to progress to the launch of NP in ECTEL would be 20 months, including the stakeholder consultation, joint development, implementation and launch of the NP service. ECTEL's research has assessed the actual development and implementation timeframes experienced in other NP implementations and has considered the breadth of the potential NP stakeholder community across the ECTEL region.

ECTEL believes that a 18 month timeframe is reasonable to complete the key activities to enable NP to be launched across the ECTEL region, including:-

- Completing the advanced NP stakeholder consultation and engagement process;
- Completing the NP Clearinghouse and vendor selection;
- Licencing of the NP Clearinghouse and corresponding NP Stakeholder contractual framework;
- Implementation of the NP Clearinghouse and interconnectivity with the ECTEL operators/ NP stakeholders;
- Internal operator technical, operational and commercial NP readiness preparations;
- Developing the ECTEL Inter-Stakeholder NP framework, including NP process, business rules, legal instruments, consumer code, etc; and
- Building public/ consumer awareness of NP.

Recommendation 11 - NP will be implemented and launched to the ECTEL public within 12 to 15 months from the official launch of the ECTEL NP programme to the operators and NP stakeholders.

Preparing for the introduction of NP across the ECTEL region and NTRC markets and progressing the corresponding NP development and implementation activities is a complex undertaking involving a wide range of potential NP stakeholders, including, ECTEL, the NTRCs, ECTEL operators, NP clearinghouse provider, other ECTEL government bodies, the ECTEL public and other local and external interested parties. ECTEL recognises that as the guardian of public/consumer interests across the ECTEL region, ECTEL and the NTRCs are key stakeholders in ensuring that NP is introduced and operated in an effective, appropriate and efficient manner.

From ECTEL's research, it is evident that successful NP implementations are characterised by strong leadership, clear direction and continuous involvement by the regulator. Thus, ECTEL intends to drive the NP implementation and launch process, develop an appropriate and comprehensive NP framework for the ECTEL region, set clear and achievable implementation schedule and establish an effective and positive management forum engaging with the key NP ECTEL stakeholders.

Whilst ECTEL will set the agenda for the implementation of NP and will be responsible for all key NP decisions, ECTEL proposes to establish a working group (NP working group) comprising the key ECTEL and NTRC NP stakeholders.

The NP working group would be responsible for making recommendations to ECTEL and the NTRCs on detailed matters pertaining to the introduction and operation of NP across the ECTEL region. Following ECTEL's final determination on NP, the NP working group would be responsible for overseeing the actual implementation and launch of NP across the ECTEL region, subject to the directions from ECTEL and the NTRCs.

Recommendation 12 - The implementation and preparations for the launch of NP in ECTEL will be managed by a cross stakeholder working group reporting to ECTEL, but ECTEL and the NTRCs shall be responsible for setting the key NP process, functional details and implementation timeframes and making key NP programme decisions etc.

7. Porting times across ECTEL

Research shows that consumer demand for NP services is directly linked to the time taken to port a customer's number. In early NP implementations, porting times could be up to one month, but developments in porting process approach have enabled recent NP implementations to reduce porting times to less than two working days. In some countries, porting can be completed consistently in a matter of a few hours. The link between porting time and consumer demand recognised by regulators across the world

as being critical, and in fact, the European Union (EU) has recently mandated that all EU countries must ensure that number supported within one working day.

ECTEL recognises the importance of minimising porting times across the ECTEL jurisdictions but ECTEL appreciate that the timeframes for porting fixed and mobile numbers may differ due to the different approaches used for provisioning fixed and mobile services. ECTEL's research indicates that international best practice suggests that mobile numbers to be ported within one working day and fixed numbers ported within five working days. ECTEL's stated timeframes compare favourably with benchmarks timeframes in similar small jurisdictions in which NP is already available.

When determining porting timeframes, ECTEL believes it is important to clearly define the starting point of the porting process. On this basis, ECTEL proposes to define the starting point of the ECTEL fixed and mobile porting processes to be when the customer and the recipient operator have agreed the porting of the customer's number, with the recipient operator confirming it can provide service to the customer and the customer has completed and signed the necessary porting form/declaration.

Recommendation 13 - All customer porting requests will be completed within; 1 working day for mobile NP and 5 working days of fixed NP, from the date of the customer's validated and signed porting request.

8. Validation of Porting Requests

ECTEL recognises that careful and considered NP process design is critical element in the successful introduction and operation of NP in ECTEL. It is necessary, particularly in a recipient led process, for the recipient operator to be able to reliably ensure that the person requesting the port is the legitimate owner of the number to be ported and is eligible to request the porting service.

The NP process must balance operational efficiency with adequate security to protect legitimate subscribers from fraudulent or inappropriate porting. Consequently, with recipient led porting, it is necessary for the recipient operator to verify the customer's identification and ownership of the number to be ported.

Various validation methods are used across the world to address these issues, with varying levels of success. In some countries, it is not necessary to transfer a wide range of customer confidential data between the recipient and the donor for verification, which can extend porting timeframes significantly and result in unnecessarily high reject levels of porting requests. ECTEL understands that a number of particularly successful NP implementations in which porting timeframes are short and fraud and rejection levels are low, limit the amount of customer data transfer between donor and recipient during the porting process, through the use of additional secure customer validation

mechanisms, for instance, requiring the customer to send a dedicated validation SMS to the NP clearinghouse.

ECTEL considers it necessary to implement fixed and mobile NP processes across the ECTEL jurisdictions that will ensure the highest level of accuracy, without unduly delaying or complicating the porting process, or increasing the costs of portability. However, ECTEL believes that the sending of extensive customer confidential information between the recipient and the donor during the porting process is not necessary, because:-

- Increases the likelihood of data input errors by the recipient and hence unnecessarily increases porting rejection rates;
- Increases the donor operator checking resources;
- Extends the validation process timeframe and hence the overall porting period; and
- Potentially compromises the protection of customer confidential data.

ECTEL understands that secondary customer validation mechanisms, such as, parallel customer initiated Short Message Service (SMS) or Interactive Voice Response (IVR) validation, work well in other similar jurisdictions and enable the porting process to be efficient, quick and secure.

ECTEL proposes that the data transfer during the porting process between the recipient and donor operators will be minimised to:-

- Mobile Station Integrated Services Digital Network (MSISDN) identification or number to be ported;
- Confirmation by the recipient operator, that the validation process has been completed correctly; and
- Name of the donor operator.

In parallel, ECTEL proposes that the fixed and mobile porting processes adopted across the ECTEL regions will use secondary customer initiated validation/authorisation either by SMS for mobile NP requests or IVR/PIN for fixed NP requests.

Recommendation 14 - The data transfer during the porting process between the recipient and donor operators is minimised to ensure efficient and robust consumer porting experience with minimal unnecessary porting failures or rejections. Porting data transfer will be restricted to MSISDN/ number being ported and donor operator. Porting process security and integrity will be provided by independent customer validation for each porting request, by either SMS (for mobile number porting requests) or Interactive Voice Response or PIN (for fixed number porting requests).

NP processes differ widely across the world into the complexity. In some cases, NP processes involved multiple steps, offering the option of changing or cancelling porting

right up to the point that the number is migrated from the donor to the recipient. ECTEL recognises that the greater the complexity and number of steps in a porting process, then porting timeframes become extended and there is great opportunity for confusion and errors.

ECTEL intends the fixed and mobile NP processes to be launched across the ECTEL region will be simplified yet secure, to ensure efficient and robust porting. ECTEL is advised that once porting requests have been validated by the NP clearinghouse, and then further revision or cancellation by either the customer or the recipient should not be allowed, the so-called "point of no return". By adopting the secondary customer initiated validation/authorisation approach then ECTEL believes that the customer has the final power to validate whether their porting request proceed or not by deciding whether to send the secondary validation message/activity or not.

ECTEL believes that prohibiting the cancellation or modification of porting requests once the point of no return has been reached will not only reduce porting transaction errors or failures, but will also eliminate the opportunity for inappropriate engagement of the customer by the donor operator during the porting process.

Recommendation 15 - Once a customer's porting request has been authorised by the customer and validated by the NP Clearinghouse and passed to the donor operator for approval, the porting request must proceed to completion unless legitimately rejected by the donor operator in compliance with the rejection reasons determined by ECTEL and the NTRCs. Once a validated porting request has been passed to the donor operator by the NP Clearinghouse it cannot be amended or cancelled by any party.

ECTEL recognises that some stakeholders will be concerned about the potential for post-pay customers to port their numbers to avoid settling their debts or liabilities. However, ECTEL believes that a key principle of NP is that operators should not discriminate between porting and non-porting customers and thus NP should not be considered an extension of an operator's existing credit management activities or processes.

ECTEL believes that operators have an obligation to protect their own business interests by operating effective credit and risk management processes and policies. On this basis, ECTEL is proposing that if a customer's account has not been barred or suspended by the donor operator from making outbound calls/SMS, then the customer has the right to port their number at that point in time. Consequently, in such circumstances, ECTEL is proposing that donor operators cannot reject porting requests on the basis of outstanding debt, if the customer's has not already been barred or suspended.

ECTEL recognises that post-pay customers, by the nature of the services they use will always have a debt accrued with the donor operator at any particular point in time.

ECTEL accepts that customers are absolutely obliged to settle all outstanding debts and charges with the donor operator, ECTEL believes such settlement should be completed outside of the porting process. Consequently, ECTEL proposes that key element of the porting process in this ensure customers are aware of their absolute obligation to settle outstanding debts and charges to the donor operator, and that such charges may also include any early termination fees applicable to their service or contract.

ECTEL also recognises that the use of the secondary customer initiated validation approach also provides a mechanism to safeguard operators from potential errant customers using porting to avoid their current debts, but the effectiveness of this safeguard depends on the efficiency of the operator's existing credit management processes and policies.

Recommendation 16 - Post paid consumers can port their number if the total billed and unbilled account balance is less than the deposit held by their current operator, provided their service is not barred or suspended from making outbound calls at the time the consumer's porting request is processed by the recipient operator. Debt cannot be used to prevent pre-paid consumers porting their number.

9. Winback Protection

Winback is defined as contact initiated by the donor operator to the customer, purpose of which is to either dissuade the customer from porting out their number or to encourage the customer to return to the donor operator's network.

Whilst ECTEL believes that the making of winback attempts may in certain circumstances be a legitimate competitive activity, it has the potential to quickly undermine the benefits of NP by acting as a further barrier to switching and compromising the NP process. On this basis, ECTEL proposes that winback activity is contrary to the interests of a fair NP service across the ECTEL region and should therefore be prohibited for a defined period.

ECTEL's research indicates that when winback is permitted in some jurisdictions, it also becomes a source of customer frustration and irritation.

ECTEL recognises that it may be appropriate and necessary for the donor operator to engage the customer after the porting process is completed to discuss the settlement of outstanding debts and charges.

ECTEL does not advocate prohibiting donor operators from making winback contact to customers over an extended or prolonged period. ECTEL believes that former/donor operators should be allowed to contact former customers in the future with the intention of encouraging them to return to their networks, but there should be a reasonable winback prohibition period to enable the customer to form a relationship

with and form an opinion of the new recipient operator. ECTEL's research to benchmark with other similar NP jurisdictions, suggests that an appropriate winback prohibition period would be 60 days.

ECTEL therefore proposes that the donor operator will not be permitted to initiate any contact with the customer once the NP clearinghouse has passed the porting request to the donor operator and for the remaining period until the porting transaction is completed. Furthermore, for a period of 60 days after the customer's number has been ported, the only permitted contact that a donor operator may have with the customer is for the sole purpose of recovering any outstanding payments or debts and will under no circumstances contact the customer for the purpose of soliciting the return to the donor operator's network. Winback prohibition provisions will only apply to numbers or services that are subject to the porting process and thus the donor operator is permitted to freely contact customers about non-ported numbers or services.

Recommendation 17 - Once the customer's validated porting request has been passed to the donor operator by the NP Clearinghouse, the donor operator will not be permitted to contact the customer during the period the porting request is being processed. Once the porting request has been successfully completed, for a period of 60 days, the donor operator will only be permitted to contact the customer for the sole purpose of recovering any outstanding payments or debts and will under no circumstances contact the customer during this period with the purpose of soliciting the customer to return to the donor operator's network.

10. Onward Porting Restrictions

NP is intended to enable customers to move their number to the service provider/operator who best meets their needs and requirements and thus NP enables customers to form constructive and meaningful relationships with their new service provider/operator. Providing NP services to the ECTEL market involves costs to operators and NP should be considered as a finite resource, which must be effectively managed for the best interests of the ECTEL markets and consumers. ECTEL recognises that the NP service could be abused by customers frequently switching from one operator to another to merely avail themselves of the latest or best offers or price promotions.

To prevent NP services being abused, many implementations enforce onward porting restriction periods which prevent customers from onward porting their number to another operator for a minimum period from the date of the previous porting transaction. Such onward porting restriction functionality is typically enforced automatically by the NP clearinghouse.

ECTEL's research to benchmark with other similar NP jurisdictions, suggests that an appropriate porting restriction period would be 60 days, which also aligns with the corresponding winback prohibition period, outlined in this document.

Recommendation 18 - Customers will not be permitted to port their number to another operator within 60 days of their previous successful porting request.

11. Ancillary Porting Functions

ECTEL has already expressed its preference for simple and streamlined fixed and mobile NP processes for the ECTEL region in the interests of efficiency, consistency and to ensure positive customer porting experience. ECTEL has stated that the NP process should be limited to simple and efficient porting numbers between donor and recipient and ancillary functions avoided unless absolutely necessary.

In some NP processes, customers are allowed to nominate a future date for their porting request processed. ECTEL recognises that such a deferred porting function may be useful in certain circumstances. However, the ECTEL's research suggests that such deferred porting functions are seldom used and can result in confusion amongst NP stakeholders resulting in unnecessary porting theories and errors.

ECTEL believes that only real-time porting of numbers should be permitted in the ECTEL fixed and mobile NP processes and that deferred or delayed porting should not be allowed.

Recommendation 19 - Only real-time porting of customer numbers will be allowed and customers will not be able to defer or delay porting requests to later dates.

The introduction of NP into the ECTEL markets is intended to benefit all ECTEL consumers, both retail and business/corporate. ECTEL recognises that the porting requirements for retail and business/corporate customers may differ and in particular that business/corporate customers may wish to port multiple numbers in a single transaction.

ECTEL understands that of the successful NP implementations allow multiple numbers to be ported in a single transaction, but this capability may require separate process and/or NP clearinghouse functionality. For instance, if the ECTEL fixed and mobile NP processes are to include secondary customer initiated validation of porting requests, there are multiple number porting transactions and require each number to be separately validated by the user or customer which could be cumbersome and complex to manage.

In the interests of efficiency and positive customer porting experience, ECTEL proposes that the ECTEL fixed and mobile NP processes should allow the porting of multiple

numbers within a single porting request, irrespective of whether such number blocks are contiguous or non-contiguous. However, ECTEL recognises that to simplify the validation process for donor operators all numbers within a multiple number porting request should come from the same customer account held by the donor operator.

For simplicity and clarity, ECTEL proposes that a multiple number porting request is defined as a request that contains two or more numbers. It may be appropriate for such multiple number porting requests to be exempt from the standard timeframe, but ECTEL/ NTRCs will review potential multiple porting process requirements during the post-consultation NP implementation phase.

Recommendation 20 – The porting process will allow the porting of multiple customer numbers within a single porting request (where “multiple number” is defined as two or more numbers belong to the same customer account), both contiguous and non-contiguous number ranges, to support the efficient porting of multiple number blocks.

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12. Summary of NP Recommendations

ECTEL is pleased to submit the following recommendations for the critical NP service parameters, functions and drivers that are critical to the development and operation of an efficient, robust and consistent fixed and mobile NP service for the ECTEL Member States.

Interested parties are requested to provide kind feedback and comments to the key recommendations outlined in this document.

Recommendation 1 – NP will be restricted to service provider number portability, specifically porting between mobile to mobile and fixed to fixed numbers only, within the same ECTEL jurisdiction only. The porting of fixed to mobile numbers and mobile to fixed numbers will not be permitted across the ECTEL jurisdictions. In the case of fixed NP, the porting of fixed numbers will only be permitted within the same local exchange and local call areas only, but the porting of numbers between different ECTEL jurisdictions will not be permitted.

Recommendation 2 - The NP process of moving a customer's number from one provider to another provider will be achieved by Recipient Led (the customer requests porting through the new Recipient operator).

Recommendation 3 - The fixed and mobile NP service will be managed and operated across the ECTEL jurisdictions through a centralised NP system which will track all fixed and mobile numbers throughout the ECTEL jurisdictions, manage the porting process between recipient and donor operators and provides some ancillary administration functionality. This approach enables a standardised porting process to be operated across all providers across the ECTEL jurisdictions.

Recommendation 4 - By adopting the centralised driven NP approach, the successful provider of the NP Clearinghouse will be licenced by ECTEL on behalf of the NTRCs to provide NP services across all ECTEL jurisdictions and will be required to contract directly with the licenced ECTEL operators.

Recommendation 5 - The NP Clearinghouse service may be either operated from ECTEL or hosted overseas.

Recommendation 6 – All fixed and mobile traffic to ported and non-porting numbers originated and terminated in ECTEL jurisdictions will be directly routed by the originating network to the terminating network using the All Call Query approach. All Call Query direct routing is widely used in NP implementations across the world and is considered to be the most operationally efficient and reliable form of routing in NP jurisdictions.

Recommendation 7 - Each operator will be responsible for their own set-up costs to prepare for the implementation and launch of NP across the ECTEL and such set-up costs shall not be directly charged to consumers or other stakeholders.

Recommendation 8 - Recipient operators will be allowed to charge customers for porting their numbers at the discretion of each recipient operator. Consumer charging will be reasonable but ECTEL and the NTRCs reserve the right to set a maximum limit to consumer porting charges. Donor operators will not be permitted to charge customers for porting out numbers from their network.

Recommendation 9 - Donor operators shall be permitted to charge recipient operators for reasonable costs which are directly attributable to the actual efficient processing of porting requests. ECTEL reserves the right to set a maximum limit to donor porting charges. ECTEL reserves the right to set a maximum limit to donor porting charges.

Recommendation 10 – Fixed and mobile NP should be implemented and launched in parallel and where practical, at the same time.

Recommendation 11 - NP will be implemented and launched to the ECTEL public within 12 to 15 months from the official launch of the ECTEL NP programme to the operators and NP stakeholders.

Recommendation 12 - The implementation and preparations for the launch of NP in ECTEL will be managed by a cross stakeholder working group reporting to ECTEL, but ECTEL and the NTRCs shall be responsible for setting the key NP process, functional details and implementation timeframes and making key NP programme decisions etc.

Recommendation 13 - All customer porting requests will be completed within; 1 working day for mobile NP and 5 working days of fixed NP, from the date of the customer's validated and signed porting request.

Recommendation 14 - The data transfer during the porting process between the recipient and donor operators is minimised to ensure efficient and robust consumer porting experience with minimal unnecessary porting failures or rejections. Porting data transfer will be restricted to MSISDN/ number being ported and donor operator. Porting process security and integrity will be provided by independent customer validation for each porting request, by either SMS (for mobile number porting requests) or Interactive Voice Response or PIN (for fixed number porting requests).

Recommendation 15 - Once a customer's porting request has been authorised by the customer and validated by the NP Clearinghouse and passed to the donor operator for approval, the porting request must proceed to completion unless legitimately rejected by the donor operator in compliance with the rejection reasons determined by ECTEL

and the NTRCs. Once a validated porting request has been passed to the donor operator by the NP Clearinghouse it cannot be amended or cancelled by any party.

Recommendation 16 - Post paid consumers can port their number if the total billed and unbilled account balance is less than the deposit held by their current operator, provided their service is not barred or suspended from making outbound calls at the time the consumer's porting request is processed by the recipient operator. Debt cannot be used to prevent pre-paid consumers porting their number.

Recommendation 17 - Once the customer's validated porting request has been passed to the donor operator by the NP Clearinghouse, the donor operator will not be permitted to contact the customer during the period the porting request is being processed. Once the porting request has been successfully completed, for a period of 60 days, the donor operator will only be permitted to contact the customer for the sole purpose of recovering any outstanding payments or debts and will under no circumstances contact the customer during this period with the purpose of soliciting the customer to return to the donor operator's network.

Recommendation 18 - Customers will not be permitted to port their number to another operator within 60 days of their previous successful porting request.

Recommendation 19 - Only real-time porting of customer numbers will be allowed and customers will not be able to defer or delay porting requests to later dates.

Recommendation 20 – The porting process will allow the porting of multiple customer numbers within a single porting request (where "multiple number" is defined as two or more numbers belong to the same customer account), both contiguous and non-contiguous number ranges, to support the efficient porting of multiple number blocks.

CONCLUSION

Based on the responses received to this consultation, ECTEL will make a final determination on the recommendations for implementing Number Portability in ECTEL Member States.