

The Number Portability Working Group – Phase 1 Recommendations to URCA

Submitted to URCA by Stephen Bereaux, Chair, Number Portability Working Group

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1. Background

This document contains recommendations to URCA by the Number Portability Working Group (NPWG), in accordance with the Terms of Reference issued to the NPWG by URCA.

1.1 Consultation of Number Portability and Formation of the NPWG

URCA is required by section 80 of the Communications Act (Comms Act) to consult and make a determination on NP. As its initial step in the fulfilment of this requirement, on 15th April, 2011, URCA issued a document for public consultation entitled “Number Portability for The Bahamas – Consultation Document” (ECS 8/2011) the closing date for the receipt by URCA of responses to the consultation was 10th June, 2011, which was extended at the request of a prospective respondent, to 24th June 2011.

On 16th November, 2011, URCA issued its Statement of Results on Number Portability (ECS 20/2011) based on the responses submitted to the Consultation Document. The Statement of Results expressed definitive positions on several issues, including the decision that Service Provider Number Portability should be implemented in The Bahamas for fixed networks as soon as feasible, and for mobile networks in time for the introduction of competition (which is currently anticipated no earlier than 2014). Many of the issues, however, were deferred pending further deliberations and recommendations by a joint Industry/Regulator working group, to be comprised of representatives from the key stakeholders for number portability (i.e., operators who have been granted numbers by URCA, and who are likely to have to provide portability to their customers) and URCA.

Pursuant to the positions taken in the Statement of Results, URCA appointed the NPWG to deliberate on the deferred issues, and held the initial meeting of the NPWG on 8th December, 2011. The NPWG is comprised of four representatives from URCA (one of whom is its Chair) as well as two representatives from each of the Bahamas Telecommunications Company Limited (BTC), Cable Bahamas Limited (CBL) and IP Solutions International Limited (IPSI) which are the three operators in The Bahamas who have been issued telephone numbers under The Bahamas National Numbering Plan (ECS 17/2011). Only BTC and CBL (including its affiliates SRG) currently

provide fixed telephony services in The Bahamas. The NPWG held its kick-off meeting on 8th December 2011.

The NPWG has been advised throughout its deliberations by Mr. James Wild, of Laurasia Associates, who was appointed by URCA on 23rd January, 2012 as the consultant advisor to the NPWG.

1.2 Terms of Reference of the NPWG

The Terms of Reference of the NPWG were set out in the Statement of Results (ECS 20/2011), and include as the first deliverable of the NPWG that it should provide to URCA recommendations on the following within sixteen (16) weeks of its first meeting:

- i. Outline of the solution for NP in The Bahamas, suitable for both fixed and mobile networks, including:
 - a. Network Routing Solution;
 - b. Database solution, i.e., centralised or decentralised, local or outsourced; and
 - c. NP clearinghouse Service Provider selection approach.
- ii. A detailed work plan for the NPWG, including timelines for future work streams, as follows:
 - a. Detailed technical recommendations;
 - b. NP clearinghouse Service Provider selection;
 - c. Costing and cost recovery recommendations;
 - d. Administrative procedural recommendations;
 - e. Documentation recommendations; and
 - f. Implementation work plan and timeframes.

Further deliverables are set out in the TOR, based on the anticipated tasks to be completed in order to implement number portability in The Bahamas, however, the purpose of this document is to set out and provide to URCA the recommendations of the NPWG in relation to the first group of deliverables.

1.3 Structure of these Recommendations

The remainder of these recommendations to URCA comprises the following:

Section 2: Deliberations of the NPWG;

Section 3: Recommendations of the NPWG to URCA;

Section 4: Conclusion and Next Steps.

2. Deliberations of the NPWG

The NPWG has held its deliberations on the issues relevant to the recommendations comprised in Section 3 of this document primarily at meetings of the NPWG, held at URCA's offices, supplemented by email correspondence and document exchange as appropriate. The Chairman of the NPWG, Stephen Bereaux was present at and chaired all meetings of the NPWG, and coordinated all correspondence between the members of the NPWG.

2.1 Meetings of the NPWG

The following is a summary of the meetings held and matters discussed, respectively:

1st Meeting held on 8th December 2011 at URCA's Offices

This meeting was chaired by Mr. Stephen Bereaux (URCA) and attended by representatives of BTC, CBL, IPSI and URCA's Policy and Regulation staff.

No decisions were made at this meeting, which took the form as a kick off meeting however, matters discussed at the meeting included the following:

- URCA presentation to the NPWG on:
 - NPWG Terms of Reference; and,
 - NPWG Deliverables.
- URCA intention to appoint a NPWG Advisor.

2nd Meeting held on 23rd January 2012 at URCA's Offices

This meeting was chaired by Mr. Stephen Bereaux (URCA) and attended by representatives of BTC, CBL, IPSI, URCA and Mr. James Wild, the NP Advisor who attended via teleconference.

Matters discussed at the meeting included:

- Introduction of NP Advisor;
- Routing method for number portability: The NPWG agreed, in principle, that the All Call Query (ACQ) method of routing is most suitable for The Bahamas.

- Database solution: The NPWG agreed, in principle, that a Centralised Database provided by a NP Service Provider was the preferred database solution.
- A work plan for Phase 1 (work up to initial recommendations to URCA) was agreed upon.

3rd Meeting held on 7th and 8th February 2012 at URCA's Offices

This meeting was chaired by Mr. Stephen Bereaux (URCA) and attended by representatives of BTC, CBL and IPSI, URCA and Mr. James Wild.

Matters discussed at the meeting included:

- Presentations by the NP Advisor to the NPWG on the following topics:
 - NP Considerations and international experiences from comparable jurisdictions
 - NP Routing and Database Options
- An updated version of the NPWG workplan was tabled by URCA and agreed to by the NPWG.
- The NPWG discussed various issues regarding the selection of Routing Numbers for The Bahamas.
- The NPWG discussed the preparation of a Request for Proposals for a NP Service Provider and it was agreed that Mr. Wild would produce a first draft (based on a precedent in his possession) for review by the NPWG.

4th Meeting held on 14th March 2012 at URCA's Offices

This meeting was chaired by Mr. Stephen Bereaux (URCA) and attended by representatives of BTC, CBL, IPSI, URCA, and Mr. James Wild, the NP Advisor who attended via teleconference.

Matters discussed at the meeting included:

- Review of Detailed Work Plan – the work plan was reviewed in detail. Members were in broad agreement but agreed to submit detailed comments by 23 March 2012;
- Review of RFP for the NP Administration Service – The NPWG reviewed the draft RFP prepared by the NP Advisor. Members were in general agreement with the draft, but agreed to submit detailed comments by 23 March 2012;

- Requirements for Recommendations to URCA – The Chair noted that he would prepare a draft of the recommendations to URCA based on the agreements reached, for distribution to the NPWG by the end of March;
- Discussion of operator preference for Routing Numbers – Operators agreed to provide their input on the proposed routing number format by 16 March 2012.

5th Meeting held on 24th April 2012 at URCA's Offices

This meeting was chaired by Mr. Stephen Bereaux (URCA) and Mr. James Wild (NP Advisor) and attended by representatives of BTC, CBL, IPSI and URCA.

Matters discussed at the meeting included:

- Review and Approval of Recommendations to URCA – The NPWG reviewed and approved the draft document that was previously circulated via email by the Chair. It was agreed that the recommendations, incorporating changes made at the meeting, would be submitted to URCA by Friday 27th April 2012;
- Review and Approval of RFP for the NP Administration Service – The NPWG reviewed and approved the draft RFP as revised by URCA following the 4th meeting.
- Review of work plan – The NPWG reviewed and revised the work plan for submission to URCA.

2.2 Summary of Discussions and Agreements

The NPWG commenced work at the second meeting on 23rd January 2012, and based on the matters set out in ECS 8 /2011, proceeded to discuss the technical and database solutions for NP, having regard to the positions taken by each of the NP Licensees stated in response to the Consultation Document. The positions of the NP Licensees during the consultation was opposed on the optimal technical solution, in that BTC and IPSI felt that the preferable solution was All Call Query using a Centralised Database while CBL opted for a Onward Routing Solution based on a Centralised Database or Distributed Databases whichever was quicker. However, faced with URCA's stated position in ECS 8 /2011 that the selected solution should be suitable for both

fixed and mobile, CBL acknowledged that the ACQ solution was preferable. Therefore, it was possible very quickly for the NPWG to adopt ACQ as the preferred technical solution.

Consensus on a centralised database was achieved quickly afterward at the 3rd Meeting, and the NPWG was therefore in a position to focus its deliberations on the detailed matters relating to the implementation of the selected solution. Presentations by the NPWG Advisor at the 3rd Meeting served to further focus the members' minds on the issues to be deliberated upon and progress was quickly achieved on all aspects under deliberation. It was agreed that the NPWG Advisor would circulate a first draft Request for Proposals for the NP Solution, and that the NPWG Chairman would circulate a draft Work Plan for the NPWG's consideration. In addition, the NP Licensees would submit their positions on NP Routing Numbers, in response to a questionnaire circulated by the NPWG Advisor, and the NPWG would seek to have an agreement on NP Routing Numbers to include in the Initial Recommendations to URCA if possible. The NP Licensees also agreed to submit key business information to the NPWG Advisor and URCA to assist in the preparation of the Request for Proposals for the NP Solution.

Responses to the business information questionnaires were received during late February and early March 2012.

At the 4th meeting on 14th March, 2012, it was noted that all key matters had been agreed upon in principle, and the decision was made to focus on collating and recoding the agreements made in the form of draft Recommendations to URCA, a further draft Request for Proposals for the NP Solution provider, and a further draft Work Plan to address the timeframes for all phases of work leading up to the implementation of NP. Discussion also continued at that meeting on the suggestions for NP Routing Numbers.

Responses to the questionnaire on NP Routing Numbers were submitted on 16th March, 2012 and 19th March 2012. The draft documents were prepared by the NPWG Advisor and Chairman, informed by comments on earlier drafts and the NP Routing Numbers information submitted by NP Licensees, and circulated to the NPWG on in early April 2012.

The NPWG met for a 5th Meeting on 24th April 2012 at which these Recommendations to URCA, including the Request for Proposals and the work plan were agreed.

3. Recommendations

The Number Portability Working Group (NPWG), having regard to its Terms of Reference set by URCA on 16th November 2011, and having duly considered the matters required by URCA to be addressed, hereby makes the recommendations set out in this Section 3, to URCA.

3.1 Number Portability Routing and Database Solution

Having regard to URCA's statement that:

"URCA shall mandate that service provider NP for fixed communications services be implemented and operational as soon as economically and technically feasible, having regard to all the relevant circumstances.

URCA shall mandate that service provider NP for mobile communications be implemented and operational in time for the introduction of competition in mobile communications (with the input and in consultation with the first new entrant selected to enter the mobile communications market). Accordingly, any solution implemented for fixed NP (save in the case of an interim solution which, if selected, shall be implemented by no later than 31 March 2012) must be technically compatible and adequately robust and scalable to be implemented for mobile NP."

THE NPWG HEREBY RECOMMENDS that service provider number portability for both fixed and mobile networks in The Bahamas should be implemented by way of a single solution, using the All Call Query (ACQ) method with a centralised database. Number portability would be implemented as soon as possible for fixed networks, in a manner which enables mobile number portability functionality to be added upon the introduction of mobile competition in The Bahamas.

Using ACQ, the originating network queries a locally held copy of the centralised database before routing each call to determine whether the dialled number has been ported from its original network, and if so, to obtain the required routing information on the network where the

number currently resides. That information is then used to route the call accordingly. As noted in the Consultation Document, the advantages and disadvantages of this method are as follows:

The advantages are:

- It eliminates the reliance on the Donor Network, thereby providing the ability to maintain portability in the event that the Donor Network fails.
- Network congestion, which could occur on the Donor Network as ported calls are routed through it, is minimised.
- Call routing and network usage is more optimised and efficient.

ACQ has the following disadvantages:

- Since all calls are queried, call set-up time for both ported and non-ported numbers will increase due to additional signalling and processing time for each call compared to a regular call. However, the increase in call set-up time is usually not noticeable by the caller.
- The required network database needed to support ACQ versus Onward Routing needs to be larger and more complex.

The NPWG believes that this method is the most suitable having regard to the need to implement a solution which will work for both fixed and mobile networks. In making its recommendation, the NPWG notes that ACQ has been used for most successful NP implementations recently, and is by far the most popular method of implementation. The NPWG notes the increased complexity and cost of this method, however, it is satisfied that the solution is the most efficient method for a fixed and mobile implementation.

3.2 Number Portability Database and Clearinghouse

The NPWG notes URCA's directions in relation to the establishment of a clearinghouse, and has considered the various options that can be adopted.

The NPWG recommends that URCA, with the assistance and upon the recommendations of the NPWG, seek and engage the services of an external third party (the "NP Service Provider") to

provide a number portability database and clearinghouse solution (the “NP Administration Service”) to support the ACQ solution, in accordance with the further details set out below.

The NPWG has also considered the issue of the manner in which the NP Service Provider can be engaged by URCA. The NPWG has considered the following possible methods of engaging a service provider:

- (a) The NP Service Provider contracts with each NP Licensee: The NPWG has noted that this method often leads to delays and challenges as the contractual framework must be worked out between the NP Licensees and the NP Service Provider, and it leaves open the possibility that the NP Licensees may not agree on the terms. This has been a cause of delay in launching NP in the Cayman Islands. It is noted though that this was successful in the Channel Islands. It is not preferred by the regulators or the NP Service Provider, and most favours parties who wish to delay NP launch.
- (b) The NP Service Provider is licensed by URCA, and enters into contract with each NP Licensee based on an approved framework: This method was seen as desirable from a regulatory perspective, and also for the NP Licensees as it would afford URCA a high degree of regulatory oversight of the NP Service Provider. It may be the least desirable from the NP Service Provider for those reasons, however it has successfully been implemented in other jurisdictions and is becoming more popular in recent NP implementations.
- (c) The NP Service Provider contracts with URCA, and NP Licensees are beneficiaries of the contract: It was noted that while this is desirable from a NP Service Provider context as it provides a high level of security, it may be undesirable for URCA as it exposes the regulator to contractual liability for services that URCA is not, strictly speaking, receiving.
- (d) The NP Service Provider is established as a joint venture of the NP Licensees: This method was considered unlikely to be achieved for the same reasons in (a) above, and also because it requires an unrealistically high level of cooperation between operators.

It was also noted that the Board of Directors of licensees would expressly prohibit joint ventures with competitors.

The NPWG advises that the URCA members on the NPWG reviewed the Communications Act, 2009 (Comms Act) and based on the provisions of section 16, and the definition of a “carriage service”, the NP Service Provider can be considered as providing a carriage service on the basis that the NP Administration Service would constitute the “*ancillary services to the conveyance of signals*” as referred to in the definition of a “carriage service” set out in section 2 of the Comms Act.

Based on the foregoing considerations, the NPWG hereby recommends that, subject to appropriateness under the relevant legislative and policy provisions, URCA issue an **Individual Operating Licence (IOL)** to the NP Service Provider, which requires the provision of the NP Administration Service to the NP Licensees. The following matters should be addressed in relation to the IOL:

- i. The IOL should require the NP Service Provider to provide the NP Administration Service, details of which shall be determined by URCA (having regard to the recommendations of the NPWG) to the NP Licensees;
- ii. The IOL should contain appropriate reporting requirements to URCA and the NP Licensees regarding number portability statistics and issues;
- iii. The IOL should contain other terms and conditions for the NP Administration Service based on the negotiations between URCA (having regard to recommendations from the NPWG) and the NP Service Provider, and the requirements of the Comms Act.

Notwithstanding the NPWG’s recommendation that the provision of the NP Administration Service be covered by a licensing arrangement, this is expected to cover only the service provided from and following NP launch in The Bahamas. URCA is advised that the development and implementation of the NP Administration Service, which must occur prior to the launch of NP, may require URCA and possibly the NP Licensees to enter into a contractual arrangement

with the selected Service Provider to ensure that clear and enforceable terms and conditions are in place during that critical phase.

The NPWG has deliberated on and prepared for URCA's consideration and use a draft Request for Proposals for the provision of a NP Administration Service. The NPWG proposes the following process for the selection and engagement of the NP Service Provider:

- i. URCA prepares and issues the *"Request for Proposals for the NP Service Provider for The Bahamas"*;
- ii. NPWG review and conduct a preliminary assessment of the proposals received and report to URCA, recommending a shortlist of two (2) to four (4) respondents for URCA's approval;
- iii. URCA reviews the shortlist, and approves a final shortlist;
- iv. The shortlisted providers are invited to make one or more presentations to URCA and the NPWG on their proposals;
- v. The NPWG makes recommendations to URCA on a final solution provider; and,
- vi. URCA selects the successful NP Service Provider having regard to the recommendations of the NPWG.

The NPWG also deliberated on whether the location and ownership of the NP Service Provider should be a relevant factor, and decided that while URCA should encourage the establishment of a local database and facilities, provided that in doing so it does not materially increase the cost to NP Licensees of the service. Otherwise, the NPWG was of the view that considerations taken into account regarding the location of the service should focus on security of any data shared with the NP Service Provider and reliability of the NP Administration Service.

It is noted, however, that due to the recommendation that a licensing arrangement be entered into with the selected NP Service Provider, section 26(3) of the Communications Act, 2009 will

require that person to have a presence in The Bahamas, and to manage the “licensed” business from The Bahamas.

3.3 Work-plan for the Implementation of Number Portability

The NPWG has prepared and submits for URCA’s consideration a detailed work plan for the implementation of service provider number portability for fixed voice services in The Bahamas.

Based on the work plan, URCA is asked to note and endorse the following key milestones:

April 2012

- NPWG approves and submits recommendations to URCA on:
 - Network routing method for NP;
 - NP Database and Clearinghouse solution;
 - Draft RFP for a NP Administration Service; and,
 - NP work plan.

May 2012

- URCA first Preliminary Determination on Number Portability, to include:
 - Network routing method for NP in The Bahamas;
 - Database and Clearinghouse solution for NP in The Bahamas.
- URCA issues Request for Proposals for a NP Administration Service.

June 2012

- URCA issues its first Determination on Number Portability.

July 2012

- Request for Proposals for a NP Administration Service submission deadline.

August 2012

- NPWG completes initial assessment of the NP Administration Service submission responses and submits initial shortlist recommendations to URCA

September 2012

- URCA approves initial NP Administration Service shortlist recommendations
- Shortlisted NP Administration Service provider presentations to URCA and NPWG.

October 2012

- NPWG approves and submits recommendations to URCA on:
 - NP cost recovery;
 - NP administration process and administrative functions;
 - NP business operational rules;
 - NP regulatory/legal documentation;
 - NP Consumer Code documentation;
 - NP Porting documentation;
 - NP operational management documentation; and,
 - Routing numbers.
- NPWG present NP Administration Service provider selection recommendation to URCA.
- URCA approve NP Administration Service provider selection recommendation.

November 2012

- URCA approve and announce successful NP Administration Service provider;
- URCA and NPWG complete negotiations with NP Administration Service, and URCA and NP Licensees enter into development and implementation contract with NP Administration Service provider; and
- URCA second Preliminary Determination on Number Portability, to include, *inter alia*:
 - NP cost recovery;
 - NP administration process and administrative functions;

- NP business operational rules;
- NP regulatory/legal documentation;
- NP Consumer Code documentation;
- NP Porting documentation;
- NP operational management documentation;
- Routing numbers; and
- Number Portability Launch Date.

December 2012

- Operator routing testing commences.

January 2013

- URCA second (and final) Determination on Number Portability, to include, *inter alia*:
 - NP cost recovery;
 - NP administration process and administrative functions;
 - NP business operational rules;
 - NP regulatory/legal documentation;
 - NP Consumer Code documentation;
 - NP Porting documentation;
 - NP operational management documentation;
 - Routing numbers;
 - NP Administration Service provider shortlist; and,
 - Number Portability Launch Date.
- NP Administration Service delivered.
- NP public awareness and education campaign starts.

February 2013

- Operator routing testing completed.
- NP Administration Service commissioned.

March 2013

- Operators complete connection with NP Administration Service.
- Operator testing of NP Administration Service commences.
- URCA issues IOL to NP Administration Service provider.
- Final acceptance testing of NP Administration Service.

April 2013

- Inter-Operator Porting testing completed.
- End-2-End NP testing starts.

May 2013

- NPWG test NP Operational Management processes and facilities.
- URCA Number Portability Launch GO/ NO GO decision.
- NUMBER PORTABILITY LAUNCH.

July 2013

- URCA / NPWG final post Number Portability performance and troubleshooting review.
- Number Portability project closure.

The NPWG notes that although the work plan is considered a realistic estimate of the likely timeframes to conduct the various activities required to implement number portability, it should be recognised by URCA that timeframes for particular activities and the completion of the implementation may vary due to unforeseen circumstances or changes in scope as the NPWG continues its work.

4. Next Steps

URCA is asked to:

- i. Accept and approve the recommendations of the NPWG;
- ii. Take such steps as URCA considers appropriate to put in place a regulatory framework to support the further work of the NPWG, the NP Licensees and URCA in relation to the implementation of number portability; and,
- iii. Issue the Request for Proposals for an NP Administration Service and delegate to the NPWG the management of the selection process for a NP Service Provider, in accordance with the process outlined in section 3.2 above.

Notwithstanding the likely timeframe for the process to implement the necessary regulatory framework, the NPWG is keen to continue its work in accordance with the work-plan proposed in these recommendations. Subject, therefore to URCA's endorsement, the NPWG proposes to continue to effect the work-plan whilst URCA's deliberations and processes are on-going so as not to introduce any delay to the final launch date of NP in The Bahamas.