

LNPA Working Group 2<sup>nd</sup> Report  
on Wireless Wireline Integration

**NORTH AMERICAN NUMBERING COUNCIL**

*Local Number Portability Administration  
Working Group*

*2<sup>nd</sup> Report on Wireless Wireline Integration*

*June 30, 1999*

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## 1. Executive Summary

The LNPA Working Group (LNPA WG) has prepared the 2<sup>nd</sup> Report on Wireless Wireline Integration to address the open issues that were identified in the initial integration report submitted to the FCC on May 18, 1998.

In the First Report and Order, the Commission established rules mandating number portability for both LECs and CMRS providers. A separate timetable was established for CMRS providers, requiring them to implement Service Provider number portability by June 30, 1999. The Wireless Telecommunications Bureau, acting on delegated authority, issued a Memorandum Opinion and Order (Order) granting a petition filed by the Cellular Telecommunications Industry Association (CTIA). The petition requested a nine-month stay of the requirement that all cellular, broadband personal communications service (PCS), and covered specialized mobile radio (SMR) carriers provide Service Provider number portability by June 30, 1999, changing the mandatory wireless implementation date to March 31, 2000. Subsequently, the FCC issued a further extension of the wireless portability implementation until November 24, 2002. This further extension does not alter the LNPA Working Group's scheduled 6/30/99 delivery of its porting interval recommendations. All regulatory considerations of this report specifically apply to the US environment. The Canadian Radio and Telecommunications Commission (CRTC) has not to date mandated wireless portability. Some of the operational and process data is specific to the US environment. Operational issues relating to roaming between Canadian and US networks need to be addressed.

### 1.1 Report Recommendations

This report continues to address the integration of wireline and covered CMRS provider number portability issues. The following list summarizes the recommendations made by the LNPA WG and its subcommittees. Please see the individual sections for a more detailed analysis of the issues.

1. **Inter-Service Provider LNP Operations Flows.** The Inter-Service Provider LNP Operations Flows have been modified to incorporate the LNP Operations of the wireless industry segment. *The LNPA Working Group recommends adoption of the modified flows (Appendix C, Figure 1 through 9) in place of those flows currently in use for LNP.*
2. **LSR/FOC Processing Interval.** To date, experience has shown that the LSR/FOC process between wireline Service Providers, requires *at least* the one-day interval, whether electronic or manual interfaces are employed. *the service providers participating in the analysis believe that it is not yet possible to shorten the LSR/FOC processing interval, and recommend that the 24-hour interval be applicable for all ports including ports to wireless providers.*

3. **The Porting Interval Alternatives.** Due to the difference of timeframes involved in the establishment of service between wireline and wireless providers, the LNPA Working Group recommends that the following alternatives be thoroughly developed and investigated in an effort to find mutually acceptable variations that may improve the porting interval in some circumstances.

*Alternative 1:*

By negotiation between individual Service Providers, the potential exists to reduce the porting interval by allowing the new Service Provider to activate the port at the NPAC as soon as the 10-digit trigger<sup>1</sup> has been applied by the old Service Provider, if “mixed service”<sup>2</sup> from both the wireline and the wireless providers is acceptable until the disconnect process can be completed.

*Alternative 2:*

It may be acceptable to perform the new SP NPAC activation of the port immediately following the receipt of the FOC by the new service provider and concurrence at the NPAC by the old SP, if “mixed service” from both the wireline and the wireless providers is acceptable until the disconnect process can be completed.

*Alternative 3:*

If the Service Providers involved agree, it may be acceptable for the new Service Provider to perform the NPAC creation and activation of the port immediately following the receipt of the notification of the old SP create from the NPAC. If the old Service Provider is in agreement with the LSR, then the old SP indicates authorization to proceed with the port by issuing an old SP create with the authorization flag set to true. The new SP may rely on the NPAC notification in lieu of an FOC. This results in a “mixed service” situation from both the wireline and the wireless providers simultaneously until the disconnect process can be completed.

4. **Integrated LSR Forms.** The LNPA Working Group, as a result of the efforts of the CTIA Inter-Service Provider Sub-committee, and subsequently the WWISC, recommends an integration of wireless requirements into the existing wireline LSR process. Relevant data elements that could be populated within the four LSR forms, by wireless Service Providers for all port scenarios, have been identified.

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<sup>1</sup> The unconditional ten-digit trigger is an option assigned to a line on a donor switch during the transition period when the line is physically moved from donor switch to recipient switch. During this period it is possible for the TN/MDN to reside in both donor and recipient switches at the same time.

<sup>2</sup> Mixed service refers to calls that can be originated from both the new wireless phone and the old wireline phone. There are two forms of mixed service: Before NPAC activation, when all calls terminate to the wireline phone, and after NPAC activation when most calls terminate to the wireless phone. The mixed service period ends when the wireline phone is disconnected.

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**5. Operational Issues.**

*a) Holidays*

The LNPA Working Group recommends the following Holidays be observed in the NPAC/SMS:

- New Years Day, Jan 1
- Martin Luther King Day, Third Monday in January
- President’s Day, Third Monday in February
- Memorial Day, Last Monday in May
- Independence Day, July 4<sup>th</sup>
- Labor Day, First Monday in September
- Columbus Day, Second Monday in October
- Thanksgiving Day (US), Last Thursday in November
- Day after Thanksgiving (US), Day after Thanksgiving
- Christmas Eve, December 24<sup>th</sup>
- Christmas Day, December 25<sup>th</sup>

*b) Business Days and Hours of Operation*

Wireless Number Portability will include new hours of operations for wireless carriers to reflect their business model and incorporate the hours of their retail operations. The LNPA Working Group recommends adoption of these business hours for wireless LNP operations (with local time to be determined by region).

	Wireline	Wireless*
Sunday		
Monday	7AM TO 7PM CT	8 or 9 am 12 hr duration
Tuesday	7AM TO 7PM CT	8 or 9 am 12 hr duration
Wednesday	7AM TO 7PM CT	8 or 9 am 12 hr duration
Thursday	7AM TO 7PM CT	8 or 9 am 12 hr duration
Friday	7AM TO 7PM CT	8 or 9 am 12 hr duration
Saturday		8 or 9 am 12 hr duration

\* Local time to be determined by region

**6. Coordination of Complex Ports.** The LNPA Working Group recommends that guidelines for identification and coordination of Complex Ports as defined in Section 5

of this report be adopted for use by the industry when circumstances warrant.

7. **Treatment of Type 1 Numbers.** Agreement was reached on the treatment of Type 1 NPA-NXXs. Wireless carriers may request that the wireline switch and NPA NXX code is number portability capable. Wireless carriers may port the assigned and reserved Type 1 numbers to their MSC. The wireless carrier then may terminate their old Type 1 interconnection contract with the ILEC.

## **1.2 E911 Process Considerations**

The FCC Report and Order 96-264 (also commonly known as FCC Docket 94-102) mandates the delivery of a wireless 9-1-1 caller's callback and location information to the Public Safety Answering Point (PSAP). Because implementation of number portability affects the routing of a call from emergency services to the callback number, wireless Service Providers need to be aware of the interaction of 911 service and number porting. See Section 5.3 for examples of situations that may occur.

## **1.3 Contents of the Report**

The Introduction in Section 2 discusses the purpose of the 2nd Report on Wireless Wireline Integration.

Section 3 provides information on porting intervals when porting from wireline to wireless carriers and provides a workplan for developing porting procedures when porting from wireline to wireless.

Section 4 discusses Operational issues including Holidays, Business Days and Hours of Operation, NPAC Timers, and wireless integration of the LSR/FOC process.

Section 5 contains other integration issues that were identified and discussed at the LNPA WG and recommendations to the industry. This section includes a discussion of coordination of Complex Ports, treatment of Type 1 numbers, 911 issues, and first port.

Section 6 identifies open issues that are still under analysis.

Section 7 contains definitions of the terms used in the report.

Appendix A contains a list of the LNPA Working Members.

Appendix B contains the LNPA Working Group and Task Force meeting schedule.

Appendix C contains the revised, integrated Inter-Service Provider LNP Operations Flows and their narrative descriptions.

## 2. Introduction

The LNPA Selection Working Group Report outlined seven (7) areas relating to future LNP implementation activities, including integration of wireless in LNP. This was necessary as the original report was developed from a wireline perspective. In June 1997 the LNPA Working Group established a subgroup to develop a work plan for accomplishing the integration of wireless into LNP, as well as to address several other of the areas defined in the Future Roles section of the report. This activity led to the formation of the Wireline/ Wireless Integration Task Force (WWITF). As a result of the restructuring of the LNPA WG in July of 1998, the WWITF was renamed to the Wireless Wireline Integration Sub-Committee (WWISC).

### 2.1 Charter of the WWISC

The WWISC, open to all parties representing all segments of the telecommunications industry, was chartered to make recommendations on the following areas from the FCC's Second Report and Order:

1. Recommend modifications to the NANC Functional Requirements Specification (FRS), which defines the requirements for the Number Portability Administration Center Service Management System (NPAC/SMS), as necessary, to support wireless number portability<sup>3</sup>.
2. Recommend modifications to the NANC NPAC SMS Interoperable Interface Specification (IIS), which defines the requirements for the mechanized interfaces with the NPAC/SMS, as necessary, to support wireless number portability<sup>4</sup>.
3. Monitor industry efforts to develop technical solutions for implementing wireless number portability<sup>5</sup>.
4. Develop wireless recommendations to the FCC no later than nine (9) months after release of the Second Report and Order (i.e., May 18, 1998)<sup>6</sup>.

The WWISC subcommittee has now been incorporated into the LNPA WG and no longer exists as a separate entity.

### 2.2 LNPA WG 2<sup>nd</sup> Report on Wireless Wireline Integration

On May 18, 1998 the LNPA WG presented NANC with the First LNPA WG Report on Wireless Wireline Integration. During the presentation, the NANC instructed the LNPA WG to continue to review systems and work processes during the remainder of 1998, in

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<sup>3</sup> Second Report and Order in CC Docket No. 95-166, ¶ 61.

<sup>4</sup> Id. At ¶ 64.

<sup>5</sup> Id. At ¶ 92.

<sup>6</sup> Id. At ¶ 91.

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order to determine if the porting intervals could be reduced when porting from wireline to wireless carriers. At that time, the NANC also requested the LNPA WG to give monthly status reports to the NANC and to provide the recommendations no later than December 31, 1998. The recommendations are presented in this second report, but open issues still remain.

The report includes an analysis of current porting intervals and processes used by the wireline carriers. This report incorporates the wireless provisioning processes and procedures into the current NANC Inter-Service Provider LNP Operations Flows. The report also addresses operational issues for wireless porting that have been discussed by the WWISC.

### 3. Wireline to Wireless Porting Intervals

#### 3.1 Revised NANC Flows

Please see Appendix C for the integrated NANC Inter-Service Provider LNP Operations Flows.

#### 3.2 Study Recommendation Timeframe

In the first report of the LNPA Working Group on Wireless Wireline Integration, the members of the working group recommended that before a determination to shorten porting intervals could be considered, an analysis be performed to evaluate the impacts of actual porting experience on systems and work processes effected by proposed shortened porting intervals. It was deemed necessary to gather sufficient porting data to complete this analysis. However, since porting volumes had been minimal and porting delayed in certain MSAs, a number of wireline Service Providers would not gain significant porting experience before the end of 1998, resulting in a delay in completing an analysis. Therefore, the members of the working group requested that a period of analysis be undertaken that was intended to support the development of 1 recommendations by June 30, 1999 on porting intervals when porting from a wireline provider to a wireless provider. Subsequently, the NANC requested that every effort be made to prepare the recommendations by December 31, 1998. Additionally, the NANC reserved the right to review these timeframes with any changes in the wireless number portability implementation date.

As a result of the initial extension of the wireless portability implementation until March 31, 2000, the LNPA Working Group requested that NANC support the Working Group's recommendation to perform further analysis before making its recommendations on porting intervals by June 30, 1999.

#### 3.3 The Wireline to Wireless Porting Process

For ports from wireline providers to wireless, wireless Service Providers desire reduced porting intervals from those currently used by the wireline segment of the industry. The current porting intervals for wireline include a maximum of one (1) day for the LSR/FOC process and three (3) days for the porting process. Wireline ports may be accomplished in less time when conditions are optimal, however, the timeframes were established to support the complex systems and work processes of all the wireline Service Providers. A variety of systems are used during the porting process including, but not limited to the following:

- LSR/FOC Systems – *Processing of inter-Service Provider communication documents*
- Service Order Systems – *Initiate the service orders for Service Provider provisioning and to begin the porting process*

- Inventory Systems – *Manage the distribution and assignment of equipment and telephone numbers*
- Work Force Assignment Systems – *Schedule assignments to accomplish any facilities work*
- Billing Systems – *Update records required to ensure accurate billing*
- Maintenance Systems – *Update records required to enable quality trouble resolution*
- Switch Administration Systems – *Maintain switch translations and activate optional ten-digit triggers*
- E911 Systems – *Update records to ensure accurate customer data*

The above systems were individually designed and developed by each wireline Service Provider. Many of these systems operate in batch environments that require at least an overnight timeframe to process updates. Porting intervals were negotiated during 1996 and 1997 by the wireline industry segment to allow for differences in processing parameters of these various carriers' systems.

The one (1) day LSR/FOC process and the three (3) day porting interval were negotiated by the wireline carriers in order to perform all of the system updates and any physical work required to accomplish the port. For example, the batch service order process used by many wireline carriers results in the need for the one (1) day LSR/FOC process. During the three (3) day porting timeframe, a batch process is used by many Service Providers to complete the translations work needed to activate the ten-digit trigger in order to enable routing calls to ported customers, and subsequently, to disconnect the porting customer.

### **3.4 Wireless to Wireless Porting Requirements**

The expectation of wireless customers is that they can leave a wireless point of sale with a fully functional handset i.e. the ability to make and receive calls. The wireless industry's customer acquisition and provisioning systems are geared to meet this expectation with remote access network provisioning systems and Over the Air Activation. These systems can provide a functional service in one half hour, or less. To satisfy the current wireless business model and to meet wireless customer expectations, wireless providers require shorter porting intervals and an LSR/FOC process that supports the technological advancements of wireless service.

### **3.5 Wireline Porting Experience**

To date, experience has shown that the LSR/FOC process between wireline carriers requires *at least* the one-day interval, whether manual or electronic interfaces are employed. *Thus, the wireline Service Providers participating in the analysis believe that it is not yet possible to shorten the LSR/FOC processing interval, and require that the 24-hour interval be applicable for all ports including ports to wireless providers*

The remaining three-day porting process includes the issuance of service orders needed to apply the optional ten-digit trigger and to disconnect service. Although a single porting process flow is desired and extremely important to ensure fair and equitable competition, the many processing systems employed by wireline Service Providers to perform these functions operate in various timeframes and sequences. Thus, there may be some opportunity to define alternative means of achieving a reduced porting interval under some circumstances.

### 3.6 The Study to Assess the Inter-Service Provider Porting Interval

Wireline Service Providers recommend that the following alternatives, as well as any others that emerge during the study, be thoroughly developed and investigated with wireless Service Providers in an effort to find mutually acceptable variations that may improve the post-FOC porting interval in some circumstances.

There are two flavors of mixed service. The first occurs when the cellular phone is activated prior to NPAC Activation. Wireless and wireline phones can both originate calls, but in general, calls terminate to the wireline phone. The second occurs after NPAC activation but prior to the wireline disconnect, when both the wireless and wireline phones can originate calls, but in general, calls will terminate only at the wireless phone.

*Alternative 1:*

*By negotiation between individual Service Providers, the potential exists to reduce the porting interval by allowing the new Service Provider to activate the port at the NPAC as soon as the 10-digit trigger<sup>7</sup> has been applied by the old Service Provider, if “mixed service from both the wireline and the wireless providers is acceptable until the disconnect process can be completed.*

*Alternative 2:*

*It may be acceptable to perform the new SP NPAC activation of the port immediately following receipt of the FOC by the new Service Provider and concurrence at the NPAC by the old SP, if “mixed service” from both the wireline and the wireless providers is acceptable until the disconnect process can be completed.*

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<sup>7</sup> The unconditional ten-digit trigger is an option assigned to a line on a donor switch during the transition period when the line is physically moved from donor switch to recipient switch. During this period it is possible for the TN/MDN to reside in both donor and recipient switches at the same time.

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*Alternative 3:*

*If the Service Providers involved agree, it may be acceptable for the new Service*

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### 3.7.1 Proposed Methods of Invoking Alternative 1, 2, or 3 when Porting from Wireline to Wireless

#### *I. Procedure to follow in the event Alternative 1 is invoked:*

##### *Alternative 1:*

*By negotiation between individual Service Providers, the potential exists to reduce the porting interval by allowing the new Service Provider to activate the port at the NPAC as soon as the 10-digit trigger has been applied by the old Service Provider, if “mixed service from both the wireline and the wireless providers is acceptable until the disconnect process can be completed.*

#### Service Provider Agreement prior to Porting

- New SP should notify old SP with whom it intends to invoke the expedited process for ports from wireline to wireless.
- Old SPs who accept this alternative will agree to the invocation of the alternative process.

#### Alternative Porting Process Steps

- New SP follows the integrated provisioning process flow (Appendix C, Figure 1) including submission of an LSR to the old SP which requests a due date at least three days following receipt of the FOC (Step 6).
- By agreement between the old SP and the new SP, the old SP will take the actions necessary to provision the 10-digit forced query trigger after sending the FOC. Timing for activation of the trigger will vary depending on the old SP provisioning systems. Some are batch processes; others are closer to real time. The agreement should specify the means for the new SP to know when the 10-digit trigger is applied.
- If the following events have occurred, the new SP may submit a change of due date modification to the pending NPAC port to advance the Due Date (usually to the current day):
  1. New SP has received the FOC, which *confirms the request\** (Step 7).
  2. New SP has sent a create subscription to the NPAC.
  3. New SP has received a notice from the NPAC that the old SP subscription with the authorization flag set to true was received.

4. 10-digit forced trigger is provisioned. (The 10-digit trigger must be in place for all incoming calls to be routed to the new SP.)
- New SP may then immediately submit an activation action to the NPAC on the modified due date.
  - Old SP completes its processes as soon as possible, but not later than the original due date.

\*If the FOC indicates any difference with the requested LSR, it must be resolved before the expedited process may be invoked.

## ***II. Procedure to follow in the event Alternative 2 is invoked:***

### *Alternative 2:*

*It may be acceptable to perform the new SP NPAC activation of the port immediately following receipt of the FOC by the new Service Provider and concurrence at the NPAC by the old SP, if “mixed service” from both the wireline and the wireless providers is acceptable until the disconnect process can be completed.*

### Service Provider Agreement prior to Porting

- New SP should notify old SP with whom it intends to invoke the expedited process for ports from wireline to wireless.
- Old SPs who accept this alternative will agree to the invocation of the alternative process.

### Alternative Porting Process Steps

- New SP follows the integrated provisioning process flow (See Appendix C, Figure 1) including submission of an LSR to the old SP which requests a due date at least three days following receipt of the FOC (Step 6).
- If *after* the FOC which *confirms the request\** is received by the new SP (Step 7), a notice is received from the NPAC that the old SP subscription with the authorization flag set to true has been received, then the new SP may submit a change of due date modification to the pending NPAC port (usually to advance the Due Date to *today*).
- New SP may then immediately submit an activation action to the NPAC on the modified due date.
- Old SP completes its processes as soon as possible, but not later than the original

due date.

\*If the FOC indicates any difference with the requested LSR, it must be resolved before the expedited process may be invoked.

### ***III. Procedure to follow in the event Alternative 3 is invoked:***

#### *Alternative 3:*

*If the Service Providers involved agree, it may be acceptable for the new Service Provider to perform the NPAC creation and activation of the port immediately following the receipt of the notification of the old SP create from the NPAC. If the old Service Provider is in agreement with the LSR, then the old SP indicates authorization to proceed with the port by issuing an old SP create with the authorization flag set to true. The new SP may rely on the NPAC notification in lieu of an FOC. This results in a “mixed service” situation from both the wireline and the wireless providers until the disconnect process can be completed.*

#### Service Provider Agreement prior to Porting

- New SP should notify any SP with whom it intends to invoke the expedited process for ports from wireline to wireless.
- Old SPs who accept this alternative will agree to the invocation of the alternative process.

#### Alternative Porting Process Steps

- New SP follows the integrated provisioning process flow (See Appendix C Figure 1) including submission of an LSR to the old SP which requests a due date at least three days following receipt of the FOC (Step 6)\*.
- When a notice is received from the NPAC that the old SP subscription with the authorization flag set to true has been received, then the new SP may submit a change of due date modification to the pending NPAC port (usually to advance the Due Date to *today*).
- New SP may then immediately submit an activation action to the NPAC on the modified due date.
- Old SP completes its processes as soon as possible, but not later than the original due date.

\*If the old SP disputes any information on the LSR, it must be resolved before the expedited process may be invoked.

## **4. Operational Issues**

### **4.1 Inter-Service Provider Communication**

#### **4.1.1 CTIA Wireless LNP Workshop Results**

The CTIA sponsored a number of Subject Matter Expert Workshops that met from August 1997 until February 1998. During one of these workshops, a sub-committee was formed to evaluate the wireline process of inter-Service Provider communications as related to Local Number Portability (LNP). As a result of the discussions in that sub-committee, wireless carriers adopted the same means of communication currently used by wireline carriers for LNP, namely, the Local Service Request (LSR) process as an interim solution. The participating carriers further agreed to undertake a feasibility study to eliminate the LSR process while porting between wireless carriers.

#### **4.1.2 LSR Process**

The LSR process for Number Portability includes the use of the following forms (data structures) currently in use by wireline carriers:

- Local Service Request (LSR),
- End User Information (EUI),
- Number Portability (NP),
- Local Service Request Confirmation (LSC), also known as the Firm Order Confirmation (FOC).

All guidelines for these forms are maintained by the ATIS sponsored Ordering and Billing Forum (OBF).

##### **4.1.2.1 Local Service Request (LSR)**

The LSR form contains four sections:

- Administrative Section shows a purchase order number, identifies the originating company by means of a carrier name abbreviation, gives information regarding the date and time of the completion of the form and the requested service change, the type of request, and gives the name of the person who authorized the request;
- Bill Section shows details regarding the customer's current billing information;
- Contact Section shows information regarding the person/company requesting the service change;
- Remarks Section is a free-form portion of the LSR where additional information can be included.

#### **4.1.2.2 End User Information (EUI)**

The EUI form contains six sections:

- Administrative Section contains a purchase order number (same as the PO number on the LSR), and an account number and account telephone number;
- Location and Access Section gives information regarding the location and name and address of the end user;
- Inside Wire Section gives information regarding billing for inside wire provision and maintenance;
- Bill Section gives billing name and address information specific to the location identified in the second section;
- Disconnect Information Section gives information such as the telephone number and whether or not any of the lines are to be transferred to another number when they are disconnected;
- Remarks Section provides a free-form section for any additional information.

#### **4.1.2.3 Number Portability (NP)**

The NP form contains three sections:

- Administrative Section, like the EUI form, contains a purchase order number and an account number and account telephone number in addition to the number of lines that are included in the port;
- Service Details Section contains information regarding each line that is being ported such as the line number relative to the total number of lines, the directory number of the line being ported, and the Location Routing Number assigned to the ported number;
- Remarks Section provides a free-form section for any additional information.

#### **4.1.2.4 Local Service Confirmation (LSC)**

The LSC form contains seven sections:

- Administrative Section contains the same information as the Administrative section of the EUI form plus an LSR number used in tracking, the date and time the confirmation is sent, the name and telephone number of the Service Provider contact, the date and time of the requested service change, the account number involved in the request, and a code for the reason that the old Service Provider cannot meet the service change

request;

- Hunt Group Section gives information needed when the directory number involved in the service change is part of a hunt group;
- DID Section gives information needed when the directory number involved in the service change is a DID number;
- Circuit Detail Section includes information regarding actual circuit and porting information for each line involved in the service change;
- SECLOC Section identifies, for each line, related circuit and connection information;
- Directory Section is used in response to a Directory Service Request (DSR) and gives information regarding the type of response being returned to the new Service Provider, the account number, the company code, names and numbers of company contacts, and billing account numbers;
- Remarks Section provides a free-form section for any additional information.

#### **4.1.3 Analysis of Wireline LSR forms**

After reviewing these four forms in detail, it became evident that wireless carriers would be unable to populate all of the data elements. Wireline Service Providers had initially used these forms for ordering unbundled services and the forms included information that is either not relevant to LNP or is specific to wireline services. As a result, the CTIA Inter-Service Provider Sub-committee, and subsequently the WWISC, agreed to propose an integration of wireless requirements into the existing wireline LSR process. Relevant data elements that could be populated within the four forms by wireless Service Providers for all port scenarios were identified.

#### **4.1.4 OBF Issue #1732**

In order to begin the integration process, an OBF Issue document and supporting WWISC liaison letter were presented by two wireless carriers to the Ordering and Provisioning Committee (O&P) at OBF #63 in August. The issue was accepted by the O&P committee as Issue #1732 and a Task Force was formed to review the data elements for use and content, and recommend changes where needed. The Task Force met in September and reviewed each data element in the four forms. As a result, changes to the existing guideline documentation and the addition of a Wireless Service Indicator were recommended. These results were presented to WWISC in October and to the full O&P committee at OBF #64 in November.

#### **4.1.5 Additional LSR Forms**

Other OBF forms are being utilized or are under design by the wireline industry for LNP that wireless may need to consider. These forms will be used for pre-order (e.g.

Customer Information Request, Service Configuration Request and Loss Alert forms), completion notification and loss alert.

## 4.2 Holidays, Business Days, and Hours of Operation

The purpose of this section of the document is to present the industry agreement on holidays, business days, and hours of operation for wireless and wireline carriers conducting number porting. It should be noted that the NPAC timers do not run and carriers are not expected to process information outside of the normal business hours of operations.

### 4.2.1 Holidays

The following table provides a list of Holidays that have been agreed upon by the wireless and wireline industries and contractually with Lockheed Martin. These holidays apply to all NPAC/ SMS time-dependent operations. (Please note that Canadian Holidays are not included nor are local regional Holidays).

Table 1: NPAC Holidays	
Holiday	Calendar Date
New Years Day	January 1
Martin Luther King Day	Third Monday in January
President's Day	Third Monday in February
Memorial Day	The last Monday in May
Independence Day	July 4 <sup>th</sup>
Labor Day	The first Monday in September
Columbus Day	The second Monday in October
Thanksgiving Day (US)	The last Thursday in November
Day after Thanksgiving (US)	Day after Thanksgiving
Christmas Eve	December 24 <sup>th</sup>
Christmas Day	December 25 <sup>th</sup>

### 4.2.2 Business Days and Hours of Operation for the NPAC/SMS Timers

All NPAC regions are currently operating on the wireline model for business hours. Wireless Number Portability will include new hours of operations for wireless carriers to reflect their business model and incorporate the hours of their retail operations. These hours are designed to allow for a buffer between the acceptance of a "request by a customer to port their number" and the close of business of retail outlets. Although many wireless carriers operate 24 hours a day, 7 days a week, the following table reflects the hours that have been agreed to by the industry.

Table 2: Normal Hours of Operation **		
	Wireline	Wireless*
Sunday		
Monday	7AM TO 7PM CT	8 or 9 am 12 hr duration
Tuesday	7AM TO 7PM CT	8 or 9 am 12 hr duration
Wednesday	7AM TO 7PM CT	8 or 9 am 12 hr duration
Thursday	7AM TO 7PM CT	8 or 9 am 12 hr duration
Friday	7AM TO 7PM CT	8 or 9 am 12 hr duration
Saturday		8 or 9 am 12 hr duration

\*Local time to be determined by region

\*\*Support outside normal business hours is provided by the NPAC

The NPAC timers run during the hours for operations stated in Table 2. Wireless carriers may process ports in the NPAC (create subscriptions, etc.) outside of the hours of operation. However, the timers do not run.

Wireless carriers may also process LSRs/FOCs outside of days and hours of operation stated in Tables 1 and 2. However, carriers are not required to respond or process LSR/FOCs outside of the normal business hours of operation. (Business hours for processing information coincide with business hours of operation stated in Tables 1 and 2).

Table 3 provides a matrix of both the (wireline) long timers and the (wireless) short timers available in the NPAC/SMS.

Table 3: NANC 201 Timers			
Tunable Timer	Long Timer Default	Short Timer Default	Value Range
Create Subscription Version Initial Concurrence Window (T1 Timer)	9 business hours	1 business hour	1-72 business hours
Create Subscription Version Final Concurrence Window (T2 Timer)	9 business hours	1 business hour	1-72 business hours
Conflict Restriction Window	12:00 noon of the business day before the due date or before the expiration of T2 timers, whichever is later.	12:00 noon of the business day before the due date or before the expiration of T2 timers, whichever is later.	00:00 – 24:00
Conflict Resolution New Service Provider Restriction	6 business hours	6 business hours	1-72 business hours
Cancellation Initial Concurrence Window	9 business hours	9 business hours	1-72 business hours
Cancellation Final Concurrence Window	9 business hours	9 business hours	1-72 business hours

## 5. Other Issues

### 5.1 Coordination of Complex Ports

This section discusses the identification and processing of complex ports.

Ports can be less or more complex<sup>8</sup>. For example, a single-line account port is relatively easy to process in contrast to a multi-line port with non-consecutive numbers involving a National Account.

Differentiating between a “regular” port and a “complex” port is important. Consider a complex wireless-wireless porting request of a business with 1,000 non-consecutive phone numbers across 3 NPAC regions. Even if the services providers involved were able to complete their LSR/FOC process within the allotted 30 minutes, it is unlikely that they would be able to complete all pre-porting processes for porting all 1,000 numbers at the due date and time which may be as soon as two hours after receipt of the FOC.

Complex Ports require more time for data entry, increased coordination between the Service Providers and/or additional time for other processes. As a result of this added complexity and coordination-intensity between the Service Providers, special rules and processes apply to Complex Ports that do not apply to Regular Ports.

This section of the report explores the distinction between Regular Ports and Complex Ports, describes how to identify a Complex Port, and gives recommendations for processing Complex Ports.

#### 5.1.1 Identifying a Complex Port

Multiple factors are involved when trying to identify whether a port is complex. This section discusses those factors and introduces the parameters that have been found to exhibit a significant correlation with the complexity of a port. Table 4 summarizes these parameters. A detailed explanation of all parameters follows below.

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<sup>8</sup> This report uses the terms *complex* and *coordination-intensive* to qualify the ports discussed in this report. The term *complex* has previously been used in a similar fashion in the wireline industry and, in this context, refers to the added effort, such as additional data entry, that is required for processing a port of this nature. The term *coordination-intensive* refers to the higher level of coordination required amongst the Service Providers involved.

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<b>Parameter</b>
Number of Lines
Multiple Geographic Locations
Multiple Time Zones
Non-Consecutive Numbers
Time to Perform the Port – After Hours or Busy Times
Involvement of Multiple Service Providers
Coordination Request from one Involved Carrier

**Table 4 Complex Port Parameters**

#### **5.1.1.1 Number of Lines**

For obvious reasons, the number of lines to be ported has notable impact on the complexity and coordination-intensity of a port. One line can be ported easier than ten, provided other influencing factors remain the same.

#### **5.1.1.2 Multiple Geographic Locations**

Considering a Major Account or a National Account it is conceivable that a customer requests a multi-line port across multiple geographic locations. The fact that multiple offices for each Service Provider are involved may cause them to pursue a project management approach to flash-cut the account. This increases the coordination intensity of such a port.

#### **5.1.1.3 Multiple Time Zones**

The problem of multiple geographic locations is compounded when these locations span multiple time zones. Business hours in one of the time zones involved may be after-hours in another geographic location.

#### **5.1.1.4 Non-Consecutive Numbers**

Although the NPAC offers functionality to process consecutive phone numbers in a single command statement. Multi-line ports of non-consecutive numbers may require multiple instances of notification to the NPAC.

### **5.1.1.5 Time to Perform the Port – After Hours or Busy Times**

Some ports may have to be performed at night. For example, large multi-line ports for business customers which cannot tolerate a cutover during their business hours may be performed after-hours. Such ports can be considered more complex and more coordination-intensive. Similarly, some ports may have to be performed during particularly busy times during the day, which increases the complexity of the port.

### **5.1.1.6 Involvement of Multiple Service Providers and Service Types**

Dependent on the port, multiple Service Providers may be involved. A customer may port several directory numbers from multiple Service Providers (SPs) to one Service Provider (SP), from one SP to multiple SPs, or from multiple SPs to multiple SPs. In addition, there are some Service Providers who are voice service consolidators or integrators. These Service Providers offer both wireline and wireless services. In these cases, one Service Provider (who is providing consolidated voice service for wireless and wireline) may need to coordinate a port with either another consolidator of voice services or both wireless and wireline Service Providers.

### **5.1.1.7 Coordination Request from one Involved Carrier**

Service Providers may make a discretionary decision based on their internal business rules to request a coordinated port. One reason for a Service Provider to take that step may be the type of account. The fact that a customer is a major account can add complexity and coordination-intensity to a porting request. Service Providers may choose to implement supplemental quality processes for major accounts to provide for an additional safeguard for processing ports successfully.

## **5.1.2 Identifying a Complex Port – Aggregation Thresholds**

After the factors were identified that correlated with the complexity of a port, an effort was made to determine how the parameter *values* for a particular port could be summarized into one output on which to make a decision on whether a port is complex. A simple way to aggregate the parameter values or input variables for comparison to a defined threshold was attempted.

This approach proved too complicated. Many of the input variables were not clear-cut and it was difficult to incorporate them into a formula. Therefore, it was decided to use more general *guidelines* as the vehicle to determine whether a port is complex. The next two sections outline these guidelines. Section 5.1.3 discusses guidelines as they pertain to individual parameters and section 5.1.4 introduces scenarios considering multiple parameters at once.

### 5.1.3 Complex Port Parameter Guidelines

This section provides guidelines for each parameter introduced in section 5.1.1. These guidelines should be used and understood as aides to determine the point of transition between a Regular and a Complex Port for the individual parameter considered. Table 5 summarizes these guidelines. Note that there are some parameters which may be considered *knock-out* parameters. When a knock-out parameter assumes a certain value, a port can automatically be considered complex regardless of the other parameters.

Parameter	Complex Port Guidelines
Number of Lines	The port may be considered complex if the number of lines involved becomes onerous depending on whether or not the Service Provider has an automated or manual system of communication with other Service Providers and with the NPAC
Multiple Geographic Locations	Always a Complex Port
Multiple Time Zones	If the port is taking place in two or more time zones, the port can be considered to be complex
Non-Consecutive Numbers	The port may be considered to be complex when the ordering process for the non-consecutive number port becomes so time intensive that compliance with the agreed upon timers is no longer possible
Time of Day to Perform the Port	Any port which must be completed at a time other than normal business hours can be considered to be complex due to the coordination of personnel to work off-hours
Involvement of Multiple Service Providers	Always a Complex Port
Coordination Request from one Involved Carrier	Always a Complex Port

**Table 5 Guidelines for Individual Parameters**

#### 5.1.4 Processing a Complex Port

This section discusses the differences in processing between Complex and Regular Ports and provides guidelines on how a Service Provider could process a Complex Port. How are Complex Ports processed differently? For Regular Ports, clearly defined porting flows, generally referred to as the *NANC Inter-Service Provider LNP Operations Flows*, have been developed. These flows describe how regular ports are processed, how long steps may take and when coordination between the Service Providers occurs. These flows are still applicable to a Complex Port. However, there may be differences in timing and additional support processes may have to be adopted. Time Intervals established as agreements between Service Providers for Regular Ports may not be appropriate for multi-line ports, especially if those intervals are short (Wireless-Wireless ports). Likewise, coordination processes employed during Regular Ports may not sufficiently address the coordination intensity of Complex Ports. Therefore, Complex Ports may need to be processed differently.

Since Complex Ports vary significantly, agreement was reached that there is no set of rules that can be established for all Complex Ports. However, it was deemed appropriate to provide recommendations on how the processing of a Complex Port may be addressed.

#### 5.1.5 Recommendations for Processing a Complex Port

One recommendation for addressing the processing of a Complex Port is for the Service Provider to analyze the NANC Inter-Service Provider LNP Operation Flows<sup>9</sup> in light of the Complex Port that is to be processed. The individual Service Provider may need to supplement the NANC LNP Operation Flows processing in order to accommodate a Complex Port.

The sections below describe several processing characteristics that were determined to be prime candidates to be considered in the SP's analysis. This list of characteristics is not comprehensive and other characteristics may need to be considered for a SP process to address a specific Complex Port.

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<sup>9</sup> Please refer to Appendix C.

### 5.1.5.1 Time Intervals

The time intervals may need to be extended to accommodate Complex Ports<sup>10</sup>.

### 5.1.5.2 Coordination Processes

Coordination processes may be more elaborate for Complex Ports, hence, Service Providers may choose to employ a project management approach. For example, this could involve the preparation of a spreadsheet listing all Telephone Numbers involved in the port. The spreadsheet could contain data such as TN, NPA-NXX, Port-Out Wire Center, Port-In Wire Center, Due Date, Due Time, etc. The spreadsheet can then be used as a status check as each TN is ported.

### 5.1.6 Additional Complex Port Questions

There are a number of additional questions that need to be answered by individual Service Providers before a generally applicable solution can be recommended. Moreover, depending on the Service Provider, there may be no reasonable generally applicable solution. For example, a particular Service Provider may have a severe limitation on entering data into its Service Order Entry Systems. For a general solution to be applicable, it needs to comply with the least common denominator of Service Providers' capabilities that, in certain cases, may not be reasonable in respect to the performance capabilities of other Service Providers. The following list exhibits the additional questions that may need to be discussed internal to a Service Provider's organization.

- For Wireless to Wireless ports with compatible handset technology, what are the issues in regards to customers bringing in their old phones versus purchasing a phone with the new Service Provider?
- What are issues related to porting authorization?
- What is the Service Provider's limitation on entering large amounts of data into their existing Service Order Entry Systems?
- What is the Service Provider's limitation on entering phone number ranges into their existing Service Order Entry Systems?
- What are issues concerning inter-Service Provider communication (including conflicts during LSR/FOC) determined by inter-Service Provider agreements?
- Do ancillary services that are attached to the current line or account impact

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<sup>10</sup> Please note the NPAC timers t1 and t2 will not be affected by the extension of Time Intervals. Time Intervals are agreed upon by the Service Providers participating in the porting activity and are independent of the NPAC timers, which ensure timely submission of subscription versions and cancellation of subscription versions, where necessary.

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the complexity?

- Are there different vehicles (faxes, EDI, email) used to transport information between Service Providers involved in the port which may have an impact on the processing of the port?
- Are there 3<sup>rd</sup> party vendors involved in the port that may contribute to the complexity of the port, e.g. PBX vendor, pre-paid service bureau?

## 5.2 Treatment of Type 1 Numbers

Type 1 interconnection is a trunk interconnection between an MSC and a wireline end office switch which supports traffic between the MSC and the PSTN. Type 1 numbers are not necessarily assigned in 10,000 number blocks, i.e. 100s or 1000s blocks. Type 1 numbers reside in the wireline end office.

The NPA NXX associated with the Type 1 interconnection is assigned to the ILEC providing the interconnection arrangement and not the wireless carrier using the Type 1 interconnection to route traffic to their MSC. As a consequence, when the wireless Type 1 customer elects to port, both the ILEC and the existing wireless carrier are involved.

Agreement was reached on the treatment of Type 1 NPA-NXXs. Wireless carriers may request that the wireline switch is number portability capable and the NPA-NXX code is open for porting. Wireless carriers may port the assigned and reserved Type 1 numbers to their MSC. The wireless carrier then may address their old Type 1 interconnection contract with the ILEC.

## 5.3 911 Service

The FCC Report and Order 96-264 (also commonly known as FCC Docket 94-102) mandates the delivery of a wireless 9-1-1 caller's callback and location information to the Public Safety Answering Point (PSAP). Because implementation of number portability affects the routing of a call from emergency services to the callback number, wireless Service Providers need to be aware of the interaction of 911 service and number porting.

911 calls from wireless phones trigger a service process which both routes the call and delivers caller identification data to the appropriate PSAP. For LNP Phase I Wireless implementations, both the calling party's number and a pseudo-ANI (p-ANI or p-Routing number, or Emergency Services Routing Key) are delivered to the PSAP, and the p-ANI is used to query the Automatic Location Identification (ALI) database for information about the caller. The ALI database is used by PSAPs to access the location information for 911 callers.

In a wireline to wireless port, a scenario could occur in which the call back from emergency services gets routed incorrectly. If the wireless phone is activated for service prior to the completed port activation by the NPAC, and the customer calls 911, the correct MDN for callback will still be delivered to the PSAP. However, until the port activation is completed and the NPAC has downloaded the new routing information to the

network, a callback attempt to this MDN would be routed to the old wireline switch instead of the wireless switch.

Another 911 issue exists during a “mixed service” period between NPAC activation by the wireless carrier and disconnect by the wireline carrier. If a call to 911 is placed from the wireline phone and subsequently, the emergency service attendant attempts to return the call, the attendant’s call would be routed to the wireless phone instead of to the wireline phone from which the emergency situation was reported. That is, the PSAP attendant cannot reestablish the connection to the wireline phone during the “mixed service” interval. This will occur for virtually all calls in this situation.

#### **5.4 First Port**

Service Providers need to consider several factors when conducting a first port. For instance:

- Is the current Service Provider switch LNP capable
- Is the NPA NXX open for porting
- Is this the first port in the NPA NXX ( first ports require 5 days to complete)

#### **5.5 Time Frames for Equipping Switches to be LNP Capable**

Time frames for equipping switches to be LNP capable are defined in the FCC’s *First Memorandum Opinion and Order (CC Docket No. 95-116, FCC 99-19 dated February 8, 1999)*. In Appendix A, the time frames are specified as follows: "The time frames for deployment of additional wireless switches are as follows: (1) Equipped Remote Switches within 30 days; (2) Hardware Capable Switches within 60 days; (3) Capable Switches Requiring Hardware within 180 days; and (4) Non-Capable Switches within 180 days. As in the wireline context, carriers may submit requests for deployment of number portability in areas outside the 100 largest MSAs at any time. CMRS providers must provide number portability in those smaller areas within six months after receiving a request or within six months after November 24, 2002, whichever is later."

## **6. Open Issues**

### **6.1 Rate Center Issue**

Differences exist between the local serving areas of wireless and wireline carriers. These differences impact Service Provider Portability with respect to porting from a wireless Service Provider to a wireline Service Provider. These differences, resulting in an impact called “disparity”, exist because the geographic scope of Service Provider number portability was limited to rate centers. Consensus was not reached at the WWISC/LNPA WG on a solution for this issue. The issue was therefore escalated to the NANC on February 18, 1998. NANC did not reach consensus for a resolution on the issue. Consequently, the rate center issue was referred to the FCC. No resolution of this issue has occurred.

### **6.2 Support of National Roaming**

Nation Wide Roaming may not be supported as it is currently, unless MIN/MDN separation is implemented by all MIN based wireless systems (not just those in the top 100 MSAs) prior to the start of wireless number portability. Clarification was provided by the FCC for this issue in the Memorandum and Order CC95-116 dated February 8, 1999, paragraph 41.

All wireless carriers even those outside major markets must configure their networks to support number portability regardless of whether there is consumer demand for LNP among customers in their home markets. This configuration requires the MIN/MDM to be separated to support nationwide roaming for the following :

- Automatic callback
- Delivery of calling number and calling name;
- Delivery of callback number on E911 calls;
- Generation of the correct calling party number used for toll billing by the interexchange carriers;
- Generation of the correct calling party number used for billing records;
- Generation of the correct calling party number used to bill for various operator services (e.g. DACC).

### **6.3 Mechanization of Wireless to Wireless Inter-Carrier Communication**

The Wireless Number Portability Subcommittee reached consensus that standards would be required for the inter-carrier communications process for wireless to wireless porting if the thirty minute interval was to be met.

In January 1998, the CTIA sponsored workshop on Inter-Carrier Communications recommended adopting a phased approach to wireless number portability inter-carrier communications. The first phase was to begin June 30, 1999 using a modified version of the wireline LSR forms and process. The second phase eliminated the wireline LSR method from the wireless number portability processes for inter-carrier communications. The workshop recommended “the second phase begin upon completion of the enhancement to either the NPAC or an alternative system which could enable wireless carriers to exchange information about porting subscribers through a third party communication, rather than using direct carrier to carrier communications.” Further, the workshop representatives recommended launching wireless number portability with phase two if at all possible.<sup>11</sup>

On February 8, 1999 the FCC granted the wireless industry an extension regarding their number portability obligations until November 24, 2002.<sup>12</sup> The additional time granted to wireless carriers could make possible the launch of wireless number portability with an inter-carrier communications process that adequately supports the wireless business model. This process may allow the wireless industry to meet the agreed to 30 minute interval for inter-carrier communications.

The Wireless Number Portability Subcommittee requested the CTIA Numbering Advisory Group (NAG) to assemble a wireless technical team of subject matter experts to produce a technical report that would include recommended standard solutions for wireless inter-carrier communications. The Subcommittee requested the NAG to 1.) Hold a public forum with the wireless community to accept additional contributions to the technical report and gain industry agreement for the recommendations; 2.) Oversee the legal review of the document and process; and 3.) Issue an addendum to the Wireless Number Portability Report for use by the industry.

The Wireless Number Portability Subcommittee will monitor the wireless to wireless inter-carrier communications work at this industry forum to ensure that: 1.) Any recommended changes to the NPAC/SMS be referred to the LNPAWG for development; 2.) Any recommended changes to the LSR/FOC process be referred to OBF; and 3.) The wireless number portability milestones for implementation are met.

The following is the timeline that was developed by the Wireless Number Portability Subcommittee for the NAG technical team that is consistent with the Wireless Number

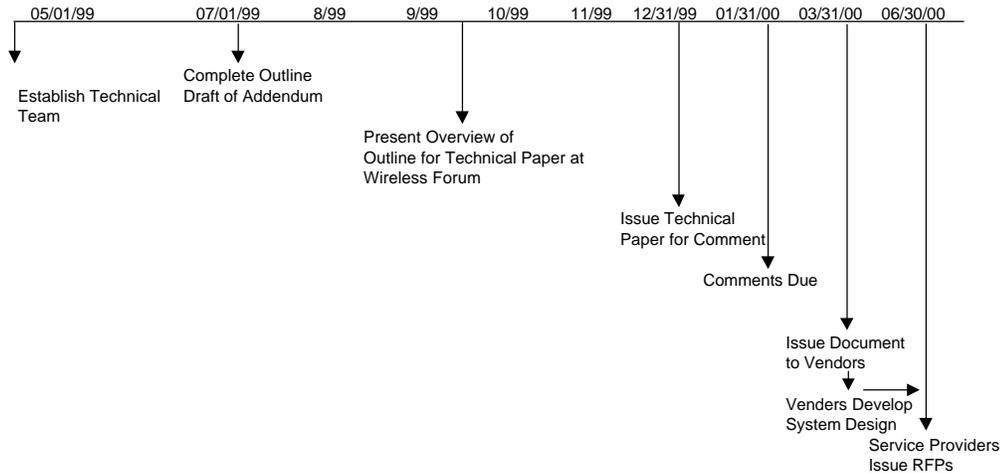
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<sup>11</sup> CTIA Number Portability Working Group, Inter-Service provider communication Subcommittee, Operations flows and Local Service Request Recommendations, Section 6.1, page 6.

<sup>12</sup> Memorandum Opinion and Order, Docket 98-229, adopted February 8, 1999, Cellular Telecommunications Industry Association's Petition for Forbearance From Commercial Mobile Radio Service Number Portability Obligations.

Portability Implementation milestones.

## INTER- CARRIER REPORT TIMELINE



### 6.4 Reseller Interaction with NPAC/SMS

Given the wide range of service provisioning and customer acquisition methods used within the wireless industry, the issue of number porting techniques and access to the NPAC SMS by resellers has been raised. Wireless models involving the port of a number have no attendant facilities transferred or provisioning required by the underlying facilities provider. Handset programming is either done by the reseller or by the facilities provider at the retail point of sale, or with automated “over the air” programming coordinated by the reseller or the Service Provider. In both instances, the reseller or Service Provider can directly provision the customer into the facilities based network, with no involvement by the facilities based network provider. In some cases, the facilities based provider may not have or be permitted to have any information on the customers provisioned on its network.

Because some reseller/ Service Providers have the entire relationship with the customer including network provisioning, some wireless facilities based providers may want the entire porting process handled by the reseller /Service Provider.

There are a number of open issues remaining to be examined and discussed by the LNPA WG relative to this issue.

## 6.5 Directory Listing Issue

Directory listing issues may occur when porting between Service Providers. For example, at the present time wireless customers do not generally list their mobile directory numbers. The new Service Provider must designate the disposition of the listing, if the telephone number to be ported is currently listed in the directory. Processes are needed to support the disposition of the listing when the telephone number is ported from one Service Provider to another.

There is a process in place currently used by the wireline industry that the Wireless Number Portability Subcommittee needs to research and integrate with the assistance of the LNPAWG subcommittee.

## 6.6 Billing Issue

During the mixed service period, as defined in Section 3.6 calls made through inter-exchange carriers (IXC) may not be billed properly. Calls may be billed twice, rated wrong or not billed at all depending on whether the calls are originated from the old or new SP network and the billing arrangement the IXC has with the SPs.

For a TN that is ported between wireless carriers or ported between wireline and wireless carriers, ANI (MDN) alone is not adequate to identify call origination as either wireless or wireline and it is not adequate to identify call origination with either the old or new SP.

Before NPAC activation, the IXC will bill according to its Inter Carrier agreement with the old SP. After NPAC activation, the IXC will bill according to its Inter Carrier agreement with the new SP.

Proposed Solution:

It is recommended that the OBF Billing Committee and NIIF provide resolution for this issue.

## 6.7 911 Issue

During the mixed service period, as defined in the Wireline Wireless Integration Second Report (section 3.6), an unacceptable public safety situation may occur for the time period when both donor and recipient phones can make 911 calls. In the event of a disconnected 911 call before NPAC activation, the PSAP can only call back a donor wireline phone and cannot call back a recipient mobile phone that is able to originate calls. After NPAC activation, the PSAP can only call back a recipient mobile phone and cannot call back a donor wireline phone that is able to originate calls.

Proposed Solution:

In order to avoid unacceptable public safety liability, the LNPAWG will need to develop a work plan to resolve this issue in order to meet the Wireless Number Portability Industry Implementation timeline.

## 7. Acronyms/Definitions

AMPS	Advanced Mobile Phone System
ANSI	American National Standards Institute
CDMA	Code Division Multiple Access
CLASS®	Custom Local Area Signaling Services
CMRS	Covered Commercial Mobile Radio Service
CNAM	Calling Name Delivery
CTIA	Cellular Telecommunications Industry Association
DACC	Directory Assistance Call Completion
DID	Direct Inward Dial
E911	Enhanced 911
EDI	Electronic Data Interchange
FCC	Federal Communications Commission
FOC	Firm Order Confirmation
FRS	Functional Requirements Specifications
GSM	Global Standard for Mobile communication
GTA	Global Title Address
HLR	Home Location Register
IIS	Interoperable Interface Specification
IMSI	International Mobile Station Identifier (E.212)
ISVM/MWI	Intersystem Voicemail/Message Waiting Indication
IS-41	Interim Standard 41
IXC	Interexchange Carrier
LNPA-T&O	Local Number Portability Administration- Technical and Operational Requirements Task Force, Former Subcommittee of the LNPA WG
LNPA-WG	Local Number Portability Administration-Working Group
LEC	Local Exchange Carrier
LIDB	Line Information Data Base
LNP	Local Number Portability
LSMS	Local Service management System

LSR	Local Service Request
LTI	Low Tech Interface
MDN	Mobile Directory Number
MIN	Mobile Identification Number
MSA	Metropolitan Statistical Area
MSC	Mobile Switching Center
MSID	Mobile Station Identifier
MSISDN	Mobile Station Integrated Service Digital Network Number (E.164)
NANC	North American Numbering Council
NP	Number Portability
NPA	Numbering Plan Area
NPAC	Number Portability Administration Center
NPAC/SMS	Number Portability Administration Center/Service Management System
NPDB	Number Portability Database (contains associations between ported numbers and LRNs)
NXX	4 <sup>th</sup> , 5 <sup>th</sup> , 6 <sup>th</sup> digits of the 10-digit dialable number. N cannot equal 1 or 0.
OBF	Ordering and Billing Forum
PCS	Personal Communications Service
PSAP	Public Safety Answering Point
PSTN	Public Switched Telephone Network
Rate Center	A uniquely defined geographical location within an exchange area for which mileage measurements are determined for the application of call rating.
SCP	Service Control Point
SME	Subject Matter Expert
SMR	Specialized Mobile Radio
SMS	Service Management System
SMS	Short Message Service
SOA	Service Order Administration
SP	Service Provider
SS7	Signaling System Seven

TCIF	Telecommunications Industry Forum
TDMA	Time Division Multiple Access
TN	Telephone Number
WNP	Wireless Number Portability
WSP	Wireless Service Provider
WWISC	Wireless Wireline Integration Sub Committee
WWITF	(LNP) Wireline/Wireless Integration Task Force

## **APPENDIX A LNPA WORKING GROUP MEMBER LIST**

The LNPA WG is open to all parties and is representative of all segments of the telecommunications industry. The following is a current list of members:

Aerial Communications  
AG Communication Systems  
Airtouch Cellular  
Alltel  
American Management Systems  
Ameritech  
Ameritech Cellular  
APCC, Inc.  
Architel Systems Corp  
AT&T  
AT&T Wireless Services  
Bell Atlantic  
Bell Atlantic Mobile

BellSouth  
BellSouth Cellular  
Cincinnati Bell Telephone  
Cox  
CTIA  
DSC  
DSET  
Evolving Systems, Inc.  
Florida Public Service Commission  
GTE  
Illuminet  
Interstate FiberNet  
Level 3 Communications  
Lockheed Martin  
Lucent Technologies  
MCI/WorldCom  
MCI System House  
Microcell

Nextel  
Nextlink Communications  
Nortel  
Omnipoint Communication Services  
Ohio PUC  
OPASTCO  
Operations Development Consortium  
Pacific Bell  
PCIA  
Peak Software Solutions  
SBC  
SBC/TRI  
SBC Wireless  
Sprint  
Sprint PCS  
Stentor  
Tekelec  
Telcom Strategies Group  
Telcorida Technologies  
Telecom Software Enterprises (TSE)  
Telecom Technologies  
Telecommunications Resellers Association  
Telus  
Time Warner  
US West  
USTA  
Voicestream Wireless  
WinStar Communications

## **APPENDIX B**

### **LNPA WORKING GROUP MEETINGS (AS OF JANUARY, 1999)**

LNPA Working Group meetings (and associated integration subcommittee meetings) are scheduled generally on a monthly basis in various cities throughout the United States and Canada.

<b>Week Of</b>	<b>City &amp; State</b>
January 12, 1999	Atlanta, GA
February 9, 1999	San Ramon, CA
March 9, 1999	Denver, CO
April 13, 1999	Washington, DC
May 11, 1999	Baltimore, MD
June 8, 1999	San Ramon, CA
July 13, 1999	Ottawa, Ontario
August 10, 1999	Portland, OR
September 14, 1999	Chicago, IL
October 12, 1999	Kansas City, KS
November 9, 1999	San Antonio, TX
December 7, 1999	Phoenix, AZ

**APPENDIX C**  
**NANC INTER-SERVICE PROVIDER LNP OPERATIONS FLOWS**  
**AND NARRATIVE DESCRIPTIONS**



Flow1028.ppt



Desc1-4-99.doc