

RECEIVED

1:30
JUN 12 1997

FLORIDA PUBLIC SERVICE COMMISSION
Capital Circle Office Center • 2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

FPSC - Records/Reporting

M E M O R A N D U M

JUNE 12, 1997

TO: DIRECTOR, DIVISION OF RECORDS AND REPORTING (BAYO)

FROM: DIVISION OF COMMUNICATIONS (GREER) *SG RTT*
DIVISION OF LEGAL SERVICES (BARONE) *MCB*

RE: DOCKET NO. 960100-TP - INVESTIGATION INTO PERMANENT
NUMBER PORTABILITY

AGENDA: JUNE 24, 1997 - REGULAR AGENDA - PROPOSED AGENCY ACTION

CRITICAL DATES: NONE

SPECIAL INSTRUCTIONS: S:\PSC\CMU\WP\960100TP.RCM

CASE BACKGROUND

On March 24, 1997, the Commission issued Order No. PSC-97-0324-FOF-TP endorsing the Florida Number Portability Standards Group's (FNPSG's) efforts to develop the Southeast regional approach. The Southeast Region Limited Liability Corporation (LLC) has selected Perot Industries as the regional provider and is currently in contract negotiations with that company.

Pursuant to the Act, Congress has given the FCC authority to establish the requirements for number portability. The FCC has issued two orders (Order No. FCC 96-286, on July 2, 1996; Order No. FCC 97-74, March 11, 1997) establishing the requirements for permanent number portability in Docket No. 95-116. The FCC determined that number portability provides consumers flexibility in the way they use their telecommunications services and promotes the development of competition among alternative providers of telephone and other telecommunications services. The FCC noted several studies that indicated customers were unwilling to change their service provider if they had to change their telephone number. In addition, it believed Congress intended it to play a leadership role in developing a national number portability policy.

The FCC declined to choose a specific method for providing permanent number portability and left that decision for the states. However, the FCC established criteria for long-term number

DOCUMENT NUMBER-DATE

05931 JUN 12 97

FPSC-RECORDS/REPORTING

DOCKET NO. 960100-TP
DATE: JUNE 24, 1997

portability methods that must be met by the state solutions. The FCC believed these criteria would ensure an appropriate level of national uniformity, while maintaining flexibility to accommodate innovation and improvement. It required that any long-term number portability method, including call processing scenarios or query triggering, must:

- (1) support existing network services, features, and capabilities;
- (2) efficiently use numbering resources;
- (3) not require end users to change their telecommunications numbers;
- (4) not result in unreasonable degradation in service quality or network reliability when implemented;
- (5) not result in any degradation of service quality or network reliability when customers switch carriers;
- (6) not result in a carrier having a proprietary interest;
- (7) be able to accommodate location and service portability in the future; and
- (8) have no significant adverse impact outside the areas where number portability is deployed.

The FCC did not establish a national call processing scenario, which determines where a database query is done, since it believed the carriers may wish to determine among themselves how to process calls under alternative scenarios.

Although the FCC did not mandate the method to provide number portability, it did establish a schedule specifying the dates when companies would be required to implement long-term number portability in switches requested by the competing carriers in various metropolitan statistical areas (MSAs). The FCC left the method of prioritizing switches within the MSAs up to the industry and the state commissions. The Florida Number Portability Standards Group (FNPSG) is in the process of prioritizing the switches in Florida for LRN deployment. The FCC believed that requiring implementation of long-term number portability by a date certain is consistent with the Act's requirements that LECs, including CMRS providers, offer number portability as soon as they can do so. This will advance the Act's goal of encouraging competition in the local exchange market. The schedule requires LECs operating in the 100 largest MSAs to offer long-term service provider number portability commencing on October 1, 1997 and concluding by December 31, 1998 for the switches identified by the competing carriers. After December 31, 1998, each LEC must make long-term number portability available in smaller MSAs within six months after a specific request by another telecommunications carrier in the areas in which the requesting carrier is operating

DOCKET NO. 960100-TP
DATE: JUNE 24, 1997

or plans to operate. Although the FCC has established the schedule for implementation of number portability, it strongly encourages carriers to provide such portability before the FCC imposed deadlines. Table A shows the schedule, as modified by the FCC, for the areas in Florida that are included in the largest 100 MSAs.

DOCKET NO. 960100-TP
 DATE: JUNE 24, 1997

TABLE A

MSA	Counties in MSA	Dates of Implementation
Miami	Dade	1/1/98-5/15/98
Ft. Lauderdale	Broward	1/1/98-5/15/98
Orlando	Lake, Orange, Osceola, Seminole	1/1/98-5/15/98
Tampa	Hillsborough, Pinellas, Hernando, Polk	1/1/98-5/15/98
Jacksonville	Clay, Duval, Nassau, St. Johns	7/1/98-9/30/98
West Palm Beach	Palm Beach	7/1/98-9/30/98
Sarasota	Manatee, Sarasota	10/1/98-12/31/98

Source: FCC 97-74

The FCC concluded that an impartial entity should be selected to be the database administrator. In addition, it believed that a regionally deployed database system will ensure that carriers have the number portability routing information necessary to route telephone calls between carriers' networks, and will also promote uniformity in the provision of such number portability data. The FCC required the North American Numbering Council (NANC), which is responsible for selecting the new North American Numbering Plan Administrator, to select the regional database provider as well as determine all technical interoperability and operational standards associated with a regional database. The FCC provided the states the ability to opt out, within 60 days from issuance of the Notice by the FCC, of using an FCC regional database and develop a state specific database. However, the state database must meet the national requirements and operational standards recommended by the NANC. Carriers within the state can petition the FCC for relief if a state opts out of a regional database, and the state's decision to opt out of a regional database delays the deployment of long-term number portability.

On May 1, 1997 the NANC forwarded to the FCC its recommendations (Attachment 1) as to who should serve as the local number portability administrator(s) (LNPAs). The NANC issued recommendations in the following areas:

DOCKET NO. 960100-TP
DATE: JUNE 24, 1997

- (1) What party or parties should be selected as LNPA(s);
- (2) Whether one or multiple LNPA(s) should be selected;
- (3) How the LNPA(s) should be selected;
- (4) Specific duties of the LNPA(s);
- (5) Geographic coverage of the regional databases;
- (6) Technical standards, including interoperability standards, network interface standards, and technical specifications, for the regional databases;
- (7) The sharing of numbering information between the North American Numbering Plan Administrator and the LNPA(s); and,
- (8) The future role of the NANC with respect to local number portability issues.

Essentially, NANC recommended the FCC adopt the various regional approaches being developed across the country. This recommendation is to officially determine whether the Florida Commission will opt into the Southeast Regional Database System as described in the NANC report to the FCC.

DOCKET NO. 960100-TP
DATE: JUNE 24, 1997

DISCUSSION OF ISSUES

ISSUE 1: Should the Commission participate in (opt into) the Southeast Region Permanent Number Portability Database System?

RECOMMENDATION: Yes, the Commission should participate in (opt into) the Southeast Region Permanent Number Portability Database System. (GREER)

STAFF ANALYSIS: As discussed in the case background, the Commission is required by FCC Order No. 96-286 to notify the FCC's Common Carrier Bureau within 60 days (by July 1, 1997) from the release date of the Public Notice (May 2, 1997) if it decides not to participate in the FCC regional database system for number portability. Carriers may challenge a state's decision not to participate in the regional database system by filing a petition with the FCC. The FCC indicates that relief will be granted to the carrier if it can demonstrate that the state's decision not to participate would significantly delay deployment of permanent number portability or result in excessive costs to carriers. The NANC recommended to the FCC that it use the regional number portability mechanisms that are already under development to comply with the requirements of the Act. On May 2, 1997, the FCC requested comments on NANC's recommendations and released the Public Notice beginning the 60 day clock.

The FNPSG has done considerable work to be in the position to implement permanent number portability as required by the FCC Orders. The members of the FNPSG believe the Commission should choose to participate in the Southeast Region Permanent Number Portability Database System. FCC Order Nos. FCC 96-286 and FCC 97-74 establish the national criteria, excluding cost recovery, that must be met prior to the implementation of any permanent number portability mechanism. The Florida telecommunications industry, via the FNPSG members, believes that the regional approach will minimize the cost of implementing LRN as a permanent number portability mechanism in Florida. In addition, the Florida Number Portability Standards Group (FNPSG) has determined that LRN is currently the only solution that meets the FCC's criteria.

The Southeast Region Number Portability Database System will use the underlying documents developed in Georgia for the implementation of LRN. These documents were originally developed in Illinois and have evolved to address problems identified in various states. As LRN is implemented throughout the country, the requirements and operational documents will continue to evolve to enhance the LRN mechanism. The Southeast Region Limited Liability Corporation (LLC) has already chosen Perot Industries to provide

DOCKET NO. 960100-TP
DATE: JUNE 24, 1997

the Service Management System function of the LRN solution. The LLC has begun contract negotiations with Perot Industries.

On March 24, 1997, the Commission issued Order No. PSC-97-0324-FOF-TP that endorsed the FNPSG efforts in the development of the Southeast Region Number Portability Database System.

Based on the discussion above, staff believes the Commission should participate in (opt into) the FCC regional database system since it mirrors the Southeast Region Number Portability Database System and would be the least cost approach to implement permanent number portability in Florida.

DOCKET NO. 960100-TP
DATE: JUNE 24, 1997

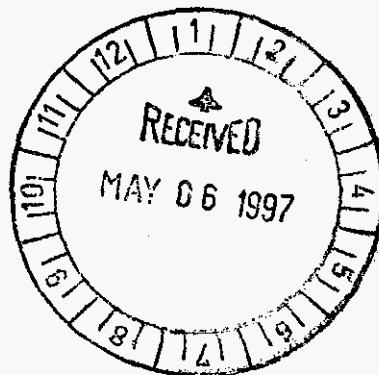
ISSUE 2: Should this docket be closed?

RECOMMENDATION: No. This docket should remain open to address future issues in the development of permanent number portability.
(BARONE)

North American Numbering Council

**Local Number Portability Administration
Selection Working Group**

April 25, 1997



North American Numbering Council
LNPA Selection Working Group

TABLE OF CONTENTS

Section		Page
1	Executive Summary	1
2	Introduction - LNPA Selection Working Group	2
2.1	Background	2
2.2	Mission	2
2.3	Composition	3
2.4	Assumptions and Processes	3
2.5	Operating Premise	4
2.6	Meetings	6
2.7	Documentation	6
3	Wireless Number Portability	8
4	LNPA Vendor Selection	9
4.1	Criteria Governing the LNPA Selection Process	9
4.2	Mechanics of the LNPA Selection Process	9
4.3	Organization of the LNPA Selection Process	11
4.4	LLC Attributes Complying with the Competitive Neutrality Criteria	12
4.5	LLC Attributes Complying with Other Criteria	14
4.6	LLC Attributes Addressing Legal and Practical Considerations	15
5	Task Force Reports	17
5.1	LNPA Architecture Task Force Report	17
5.2	LNPA Technical & Operational Requirements Task Force Report	17
6	LNPA Selection Working Group Recommendations	18
6.1	Introduction	18
6.2	LNP Administrators	18
6.3	Number of LNP Administrators	19
6.4	LNP Administrator Selection	20
6.5	LNP Administrator Duties	21
6.6	Regional Coverage	22

North American Numbering Council
LNPA Selection Working Group

6.7	LNP Standards	23
6.8	Numbering Information Sharing	26
7	Future Role	27

Appendices

Appendix A - Working Group and Task Force Composition

Appendix B - Working Group and Task Force Meetings

Appendix C - LNPA Vendor Selection Schedule

Appendix D - Architecture & Administrative Plan for Local Number Portability

Appendix E - LNPA Technical & Operational Requirements Task Force Report

North American Numbering Council
LNPA Selection Working Group

1. EXECUTIVE SUMMARY

- 1.1 The LNPA Selection Working Group prepared this report to address all issues delegated to North American Numbering Council (NANC) by the Federal Communications Commission (FCC) regarding Local Number Portability Administration (LNPA) selection. The report begins with an Introduction (see Section 2) that gives a brief background concerning formation of the LNPA Selection Working Group by NANC followed by the mission, composition of both the Working Group and related Task Forces, and the processes used in administering Working Group activities. An overarching operating premise is discussed where the state/regional activities that preceded formation of the Working Group were reviewed and compared to recommended national selection criteria to determine the adequacy of the selection process.
- 1.2 The activities of the Working Group and associated Task Forces focused primarily on the wireline segment of the industry, therefore a brief section (see Section 3) regarding potential issues involving wireless number portability follows the Introduction.
- 1.3 The LNPA Vendor Selection section (see Section 4) defines in some detail the criteria governing the selection process followed by a description of the actual process including an example of the neutrality requirement placed on LNPA vendors. Also included is a discussion of limited liability companies (LLCs) formation and the LLC processes designed to maintain competitive neutrality. The LLC discussion concludes by describing the LLC attributes that support the remaining selection criteria and legal and practical considerations. This section sets the stage for the recommendations made in Section 6.
- 1.4 Section 5 contains descriptions of the reports developed by the two (2) associated Task Forces. The LNPA Architecture Task Force report, "Architecture & Administrative Plan for Local Number Portability", is contained in Appendix D. The report of the LNPA Technical & Operational Requirements Task Force is contained in Appendix E. These documents support and expand on the contents of the Working Group report.

North American Numbering Council
LNPA Selection Working Group

-
- 1.5 The Working Group Recommendations section (see Section 6) describes the recommendations developed in response to the list of seven (7) determinations left to NANC by the FCC regarding LNPA.
- 1.6 The Future Role section (see Section 7) describes seven (7) areas relating to LNP implementation and ongoing operation where the Working Group believes there is a continued need for national oversight. Each area is described and a recommendation made concerning future oversight activities. Certain of these are critical issues that require early NANC attention.

North American Numbering Council
LNPA Selection Working Group

2. INTRODUCTION - LNPA SELECTION WORKING GROUP

2.1 Background

2.1.1 On July 2, 1996, the FCC ordered all local exchange carriers (LECs) to begin the phased deployment of a long-term service provider local number portability (LNP) method in the 100 largest Metropolitan Statistical Areas (MSAs) no later than October 1, 1997, and to complete deployment in those MSAs by December 31, 1998¹. A separate schedule was established for Commercial Mobile Radio Services (CMRS) provider portability. In addition to setting the schedule and addressing LNP performance criteria, the FCC made two important determinations regarding the appropriate database architecture necessary for long-term LNP. First, the FCC found that an architecture that uses regionally-deployed databases would best serve the public interest; and second, the FCC determined that the LNP databases should be administered by one or more neutral third parties².

2.1.2 In support of those findings, the FCC directed the NANC, a federal advisory committee, to "select as a local number portability administrator(s) (LNPAs), one or more independent, non-governmental entities that are not aligned with any particular telecommunications segment, within seven months of the initial meeting of the NANC".³ The FCC directed the NANC to make several specific determinations regarding the administration selection process, the overall national architecture, and technical specifications for the regional databases. At the initial meeting of the NANC, the committee established the LNPA Selection Working Group to review and make recommendations on these database administration issues. Two sub-groups, the LNPA Architecture Task Force and the LNPA Technical & Operational Requirements Task Force, were also established to support the Working Group efforts.

¹ First Report and Order and Further Notice of Proposed Rulemaking, CC Docket No. 95-116, July 2, 1996 (LNP Order). On March 11, 1997, the FCC released a First Memorandum Opinion and Order on Reconsideration, in which the LNP deployment periods for the first two implementation phases were extended. However, the essential requirements of the LNP Order as they relate to the Working Group's efforts were unchanged. The LNP Order also addressed other issues not germane to the current LNPA Selection Working Group activities, including: Interim portability measures, service and location portability, 500 and 900 number portability, and cost recovery for long term LNP.

² *Id.* at ¶ 91-92.

³ *Id.* at ¶ 93. The initial meeting of the NANC was held on October 1, 1996. Therefore, the deadline for the NANC determinations was established as May 1, 1997.

North American Numbering Council
LNPA Selection Working Group

2.1.3 This report documents the organization and processes adopted by the Working Group and its Task Forces, and presents and supports recommendations on all issues designated for their review.

2.2 Mission

2.2.1 The LNPA Selection Working Group was formed to address and to submit recommendations on all issues delegated to the NANC by the FCC regarding LNP administration.

¹ First Report and Order and Further Notice of Proposed Rulemaking, CC Docket No. 95-116, July 2, 1996 (LNP Order). On March 11, 1997, the FCC released a First Memorandum Opinion and Order on Reconsideration, in which the LNP deployment periods for the first two implementation phases were extended. However, the essential requirements of the LNP Order as they relate to the Working Group's efforts were unchanged. The LNP Order also addressed other issues not germane to the current LNPA Selection Working Group activities, including: Interim portability measures, service and location portability, 500 and 900 number portability, and cost recovery for long term LNP.

² *Id.* at ¶ 91-92.

³ *Id.* at ¶ 93. The initial meeting of the NANC was held on October 1, 1996. Therefore, the deadline for the NANC determinations was established as May 1, 1997.

4

North American Numbering Council
LNPA Selection Working Group

2.2.2 At the initial LNPA Selection Working Group meeting, as part of the overview of the FCC LNP Order, the FCC staff presented a list of determinations left to NANC regarding LNP. The Working Group used this as the comprehensive list of determinations requiring review. Following is the list as presented by the FCC staff:

1. What neutral third party or parties will be the local number portability administrator(s);
2. Whether one or multiple LNPA(s) should be selected;
3. How the LNPA(s) should be selected;
4. Specific duties of the LNPA(s);
5. Geographic coverage of the regional databases;
6. Various technical standards, including interoperability operational standards, network interface standards, and technical specifications; and
7. Guidelines and standards by which the NANPA and LNPA(s) share numbering information.

2.3 Composition

2.3.1 The LNPA Selection Working Group is open to all concerned parties and is representative of all segments of the telecommunications industry. A list of the member companies and associations, as well as the representatives that generally attended meetings, is contained in Appendix A. Also, members of the FCC staff attended most of the meetings held by the LNPA Selection Working Group.

2.3.2 The LNPA Selection Working Group oversees two (2) task forces that are assigned various functions. These groups are the LNPA Architecture Task Force and the LNPA Technical & Operational Requirements Task Force. Both Task Forces also have an open membership policy and are representative of

North American Numbering Council
LNPA Selection Working Group

the total telecommunications industry. A list of the member companies and associations, as well as the representatives that generally attend meetings, is contained in Appendix A. In addition, members of the FCC staff occasionally attend the meetings of the two (2) Task Forces.

2.4 Assumptions and Processes

2.4.1 The LNPA Selection Working Group adopted the following working assumptions to govern the operation of the group:

- A. Membership in the Working Group adequately represents the industry.
- B. Membership and participation in meetings is unrestricted, but a given entity exercises only one (1) vote on any given issue.
- C. Decisions are reached by consensus, which does not require unanimous consent, but is not reached if the majority of an affected industry segment disagrees.
- D. Members elect co-chairs from the Incumbent Local Exchange Carrier (ILEC) and Competitive LEC (CLEC) segments of the industry to administer Working Group activities and determine consensus when required.
- E. Unresolved issues are escalated to the NANC Steering Committee and/or the full NANC when required.
- F. Only issues that fall within the scope of the LNPA Selection Working Group mission outlined in Section 2.2 are considered by the working group.

2.5 Operating Premise

North American Numbering Council
LNPA Selection Working Group

2.5.1 At the outset, the LNPA Selection Working Group recognized that industry representatives were participating in state/regional LNP workshops, and a significant effort had already occurred to select LNPA vendors and to develop technical specifications. Efforts were well underway in at least one state in each of the seven (7) RBOC regions to select a neutral third-party LNPA vendor. For example, Requests for Proposals (RFPs) had been developed and issued in each region. In the Midwest (i.e., Ameritech) region a vendor was already selected and LNPA development was underway. In addition, the Working Group was aware that the RFPs issued in each region contained substantially similar documents that define the NPAC SMS requirements and the mechanized interface requirements.

2.5.2 In light of the considerable, and apparently consistent, state/regional LNP activities, the Working Group decided to first undertake an in-depth review and assessment of these efforts, rather than construct a separate and competing vendor selection plan. Therefore, the Working Group adopted the process of first reviewing state/regional efforts and then establishing national criteria. The Working Group would then develop national LNPA criteria, drawing largely from existing efforts, but adding and/or revising those efforts as deemed necessary. Once final national criteria had been established, state/regional selections that met these criteria could be recommended to the NANC for endorsement.

2.5.3 In order to accomplish the necessary review of state/regional efforts, the Working Group developed the following work plan and identified whether a Task Force or the Working Group was responsible for each item:

1. Create a repository of industry documentation on current efforts (e.g., RFPs, Interoperability Interface Specification, Generic Requirements Specification, etc.). Item assigned to the LNPA Working Group.
2. For each of these documents, examine technical and operational aspects to see how/if they differ. Item assigned to the LNPA Technical & Operational Task Force.

North American Numbering Council
LNPA Selection Working Group

-
3. For those aspects that differ, determine if differences need to be eliminated. Item assigned to the LNPA Technical & Operational Task Force.
 4. Establish a single set of technical and architectural criteria that each regional system must meet in order to be endorsed by the NANC. Item assigned to both the LNPA Technical & Operational and the LNPA Architecture Task Forces.
 5. Determine specific duties of the LNPA(s). Item assigned to the LNPA Architecture Task Force.
 6. Ensure that all geographies are covered. Item assigned to the LNPA Architecture Task Force.

2.5.4 Although the Working Group determined to make use of state/regional LNPA efforts, it did not relinquish its responsibility to create national standards and criteria for LNPA selection and operations. During the time period when the LNPA Selection Working Group was developing national LNPA criteria, the state/regional teams continued to move forward with their efforts. As a result, an iterative process developed between the national and regional efforts, with the Working Group and Task Forces becoming the forum for resolution of disputed state/regional issues. For example, a disagreement among carriers in state workshops concerning the LNP provisioning flows was brought to the LNPA Technical & Operational Requirements Task Force for resolution. After an extensive effort, the Task Force was unable to reach consensus and escalated the issue to the LNPA Selection Working Group, who subsequently brought it to NANC to inform it of the lack of consensus. NANC encouraged the Working Group and Task Force to continue working the issue and gave instructions to report the results by a given date. The Task Force continued discussions and eventually adopted a compromise acceptable to all members. This example demonstrates the role of the Working Group and Task Forces in providing a lead role in national LNP activities. Similarly, issues concerning snap back, line based calling cards, porting of reserved and unassigned numbers, Service Provider-to-Service Provider audits, etc. were brought by the regions to the Task Forces for resolution. Each of the issues

North American Numbering Council
LNPA Selection Working Group

brought to the Task Forces were resolved by the Task Forces or, in some cases, were escalated to the Working Group and NANC; all issues were resolved and subsequently adopted by the regions.

2.6 Meetings

2.6.1 The first meeting of the LNPA Selection Working Group was held on November 8, 1996. At this meeting members were introduced, work activities were discussed, and the co-chairpersons were selected. Subsequently, ten (10) Working Group meetings were held, where the activities of the Task Forces were reviewed and escalated issues considered. Meetings were open to all interested parties from both member and non-member companies and associations. The dates and locations of all meetings are shown in Appendix B.

2.6.2 The first meeting of both Task Forces occurred on November 18, 1996. At these meetings, co-chairpersons were selected and potential work plans discussed. Subsequently, the LNPA Architecture Task Force met eight (8) times and the LNPA Technical & Operational Requirements Task Force met seventeen (17) times. The Task Force teams adopted the same open meeting policy as that used by the Working Group. The dates and locations of all Task Force meetings are shown in Appendix B.

2.6.3 Regular reports of the LNPA Selection Working Group's activities were made to the NANC by co-chairpersons. LNPA Selection Working Group issues that were not resolved by reaching consensus were referred to the NANC for resolution.

2.6.4 Minutes of the LNPA Selection Working Group meetings are available on the FCC website (see Section 2.7.2 for website address).

2.7 Documentation

2.7.1 The LNPA Selection Working Group and associated Task Forces developed a communication process using e-mail to distribute meeting notices, minutes, and other correspondence, followed by posting most documents to a website.

North American Numbering Council
LNPA Selection Working Group

2.7.2 Following are the address for the website provided by the FCC
and a list of documents it contains.

<http://www.fcc.gov/ccb/Nanc>

- Meeting minutes from the Working Group and Task Forces
- Meeting Notices
- Conference Call Notices
- LNPA Vendor Selection Schedule (Appendix C)
 - This one-page document identifies the significant activities of the vendor selection process and displays the due dates for each activity by region
- Request For Proposals (RFPs)
 - The RFPs prepared by the regional LLCs are documents issued to primary vendors to invite participation in submitting proposals for developing, implementing, and operating the regional Number Portability Administration Center - Service Management System (NPAC SMS) (i.e., LNPAs). Contained in the RFPs are the requirements necessary to prepare such a bid.
- LLC Operating Agreements
 - These are the agreements in each region that define the operational requirements for each LLC.

2.7.3 Following is the address for a website containing the following
technical documents:

<http://www.npac.com>

- NANC Functional Requirements Specification (FRS)
 - The NANC FRS defines the functional requirements for the NPAC SMS. The NPAC SMS is the hardware and software platform that contains the database of information required to effect the porting of telephone numbers.
- x • NANC Interoperable Interface Specification (IIS)

North American Numbering Council
LNPA Selection Working Group

• The NANC IIS contains the information model for the NPAC SMS mechanized interfaces. These interfaces reflect the functionality defined in the NANC FRS.

2.7.4 Following are the address for a website provided by the Illinois Operations Committee and a list of documents it contains:

<http://www/ported.com>

- Illinois NPAC SMS RFP
- Generic Switch Requirements
- LNP Test Plan
- Generic Operator Services Requirements
- Generic Download SCP Requirements Document

North American Numbering Council
LNPA Selection Working Group

3. WIRELESS NUMBER PORTABILITY

- 3.1 The work plan executed by the LNPA Selection Working Group and related Task Forces was directed primarily to the wireline portion of the industry and did not fully address wireless concerns. The assumptions used in preparation of the "Architecture and Administrative Plan for Local Number Portability" explicitly excluded wireless. The LNPA Technical & Operational Requirements Task Force did not consider wireless concerns in depth during NPAC SMS requirements development. Therefore, modifications to the Functional Requirements Specification (FRS) and the Interoperable Interface Specification (IIS) may be required to support wireless number portability.
- 3.2 Discussion of potential impacts of wireless number portability was deferred to insure completion of requirements associated with wireline LNP implementation to comply with the FCC deployment schedule. The Cellular Telecommunications Industry Association (CTIA) and other standards and industry forums are currently addressing number portability technical solutions. Therefore, it is necessary to develop and update the FRS and IIS documents with wireless requirements and to develop a schedule to include these changes in a subsequent NPAC SMS release.

North American Numbering Council
LNPA Selection Working Group

4. LNPA VENDOR SELECTION

4.1 Criteria Governing the LNPA Selection Process

4.1.1 The Telecommunications Act of 1996 and the FCC's July 2, 1996 LNP Order established mandatory criteria (Criteria, individually Criterion) for the selection of the LNPA and all related activities. Central among these Criteria are competitive neutrality, which is a requirement for the third party LNPA itself (LNP Order, ¶93), the LNPA's administrative activities (LNP Order, ¶92), and the manner by which LNPA costs are borne by telecommunications carriers (1996 Act, §251(e)(2)). Additional significant Criteria that apply to the LNPA selection process include: (1) equal and open access to LNP databases and numbers (1996 Act, §251(e)(1) and LNP Order, ¶98); (2) uniformity in the provision of LNP data (LNP Order, ¶91); (3) cost effective implementation of LNP (LNP Order, ¶¶91, 93, 95); (4) consistency in LNPA administration (LNP Order, ¶93); (5) LNPA compliance with NANC-determined technical and functional proficiency standards (LNPA Order, ¶¶95, 99); and (6) regionalized LNPA deployment within the FCC deployment schedule (LNP Order, ¶91 and Appendix F).

4.2 Mechanics of the LNPA Selection Process

4.2.1 The LNPA Selection Working Group reviewed the state/regional selection process and determined that each and every action undertaken as part of the LNPA selection process conforms to, and thus satisfies, the Criteria. These actions consist of a sequence of carefully planned steps taken by telecommunications service providers interested in advancing implementation of LNP in each of the seven (7) regions where LNPAs are being selected. The Working Group determined that all of the regions were following substantially similar vendor selection processes, as documented in Appendix C, LNPA Vendor Selection Schedule. The Working Group determined that any differences in vendor selection process were inconsequential and of an administrative nature only.

4.2.2 Service Providers in each region first consulted with a broad community of groups interested in LNP, including state regulatory commissions, providers of database services and carriers of all types, to develop request for

North American Numbering Council
LNPA Selection Working Group

proposals (RFPs). The RFPs were then widely distributed to firms that could provide NPAC SMS services (Vendors). The Service Providers received and answered RFP-related questions raised by Vendors. A crucial element of the RFPs was the imposition of a neutrality requirement for all Vendors. For example, Section 1.3.4 of the Mid-Atlantic Region's RFP provided:

- A. In order to prevent a real conflict of interest, the Primary Vendor/System Administrator must be a neutral third party that has no financial or market interest in providing local exchange services within the United States.
- B. To prevent such a conflict of interest, the Primary Vendor/System Administrator "NPAC" function will not be awarded to:
- 1.) any entity with a *direct material financial interest* in the *United States portion* of the North American Numbering Plan (NANP), and number assignments pursuant to the Plan, including (but not limited to) telecommunications carriers;
 - 2.) any entity with a *direct material financial interest* in manufacturing telecommunications network equipment;
 - 3.) any entity affiliated in other than a de minimus way in any entity described in 1.) or 2.) above, and;
 - 4.) any entity involved in a contractual relationship or other arrangement that would impair the entity's ability to administer numbers fairly under the NANP and in accordance with the procedural delivery schedule set forth in the RFP.

Identical or substantially similar neutrality requirements appeared in the other six (6) RFPs. The Vendors ultimately selected in the seven (7) regions, Lockheed Martin and Perot Systems, have thus established their neutrality following a

North American Numbering Council
LNPA Selection Working Group

review and approval screening process by seven (7) different groups of Service Providers conducting their own independent investigations in their seven (7) respective regions.

- 4.2.3 This screening process was implemented as part of a pre-qualification procedure undertaken by the Service Providers. Pre-qualification also considered such Vendor attributes as financial responsibility, experience and ability to deliver on time. Subsequently, the Service Providers conducted an exhaustive evaluation of those Vendors satisfying the pre-qualification requirements, which primarily focused on the proficiency, pricing and contract requirements of Vendors. By these pre-qualification and evaluation procedures, the Service Providers sought out qualified Vendors that could provide timely, cost-effective and technically proficient services in conformity with the Criteria. This two-step review process culminated in the Service Providers' selection of the best qualified Vendors.
- 4.2.4 Those Service Providers that organized themselves into a contracting entity (see Section 4.3 below) then began negotiations with one or more best qualified Vendors of a master contract that would govern the obligations and rights of the parties and establish the conditions for the provision of LNP data to all utilizing carriers. By requiring compliance with certain technical requirements (see Section 6.7) for the provision of LNP data to all utilizing carriers, the master contract conformed to the Criterion which requires uniformity of provision of LNP data. By conducting negotiations with one or more Vendors, those Service Providers secured competitive pricing in maximum conformity with the cost effectiveness Criterion.
- 4.2.5 Currently, Master Contract negotiations are either just completed or near completion. It is contemplated that upon execution of a master contract with the winning Vendor (LNPA), those Service Providers that organized themselves into a contracting entity (see Section 4.3 below) will conduct on-going supervision of the LNPA. As authorized under the terms of the master contract, those Service Providers will oversee the LNPA with regard to quality control, system modifications and enhancements, contract administration and timely delivery. It is fully anticipated that these supervisory activities will be conducted in strict conformity with the Criteria.

North American Numbering Council
LNPA Selection Working Group

4.2.6 Finally, the experience of the Service Providers conducting this sequence of events has been that a minimum of 12-18 months is required. Service Providers have found that concerted and intense efforts are necessary to complete this sequence within such a time period. It is for this reason that Service Providers have proceeded to launch LNPA selection efforts in advance of NANC's LNPA selection date of May 1, 1997. To commence such efforts on or about May 1, 1997, would effectively preclude any prospect of timely compliance with the FCC's deployment schedule.

4.3 Organization of the LNPA Selection Process

4.3.1 To implement the extensive sequence of LNPA selection activities described in Section 4.2 above, the Service Providers needed an organization that could perform all these actions and take on all the associated risks and responsibilities. The Service Providers also recognized that, in light of the LNP Order, any such organization and all its activities would be required to conform to the Criteria.

4.3.2 Based on extensive research and discussion, the Service Providers concluded that the optimal means of conducting these activities in conformity with the Criteria were to operate jointly and equally with one another in an organization open to any carrier interested in porting numbers. Following significant legal research, the Service Providers chose the limited liability company (LLC) as the most advantageous organizational form. Other organizational forms, including a C corporation and a limited partnership, were deemed viable alternatives, but based on the circumstances surrounding LNPA selection, the LLC was determined to be best suited to accomplish all objectives and simultaneously conform to the Criteria.

4.4 LLC Attributes Complying with the Competitive Neutrality Criteria

4.4.1 In each of the seven (7) regions where LNPAs are being selected, LLCs have been established and specifically designed to maintain competitive neutrality. Membership in the LLC is open to any local exchange carrier, whether or not certified, intending to port numbers in the region. This open membership policy would apply equally to incumbent and competing local

North American Numbering Council
LNPA Selection Working Group

exchange carriers, as well as to any new entrant into the business of local exchange service. To fund the LLC's administrative expenses, capital contributions are imposed equally on LLC members (in modest allotments of \$10,000 to \$20,000). All these requirements permit open and barrier-free membership in a manner that treats all local exchange carriers equally.

4.4.2 Each LLC member possesses a single, equal vote in all matters decided by the LLC. Most LLC decisions are made by a simple majority vote. In recognition that under such conditions the voting power of a single member can be diluted by the collective votes of other members, and that this circumstance may not always be appropriate for certain matters of significant importance, LLCs have required that certain decisions be made unanimously or by super majorities. These extraordinary majorities have been required for such decisions as LLC operating agreement amendments, master contract execution, debt issuance and mergers. To maintain the one-vote-per-member policy in an industry filled with affiliated interests and constantly evolving corporate structures among carriers, affiliated members are collectively entitled to a single vote. Affiliation thresholds are at 10 percent (or 15% in the Western Region LLC), in conformity with the definition of affiliation established in the 1996 Act. Because of various business and policy considerations, the West Coast Region LLC adopted a 50% affiliation threshold. The overall voting regime of the LLC guarantees each member an equal voice and in appropriate circumstances an equally magnified voice or equal veto power, and thus has carefully and effectively achieved competitive neutrality among members.

4.4.3 The combination of open membership and a one-vote-per-member policy facilitates full and vigorous neutrality in the actions of LLCs. The LLCs are comprised of RBOCs, CLECs, and carriers providing local services in combination with an array of other services. All of the LLCs are open to CMRS provider membership at such time as they intend to or are porting numbers. These members are in competition with each other. With equal voices in LLC decision making, these competitors will scrutinize all activities for any hint of favoritism, and thereby act as an effective check and balance on each other.

4.4.4 The LLC is a flexible and simple organization. These characteristics are uniquely well suited to permit an LLC to establish its own governance, as well as to submit to the governance of federal and state

North American Numbering Council
LNPA Selection Working Group

regulators. This has led all seven (7) LLCs, by the terms of their respective operating agreements, to empower themselves to comply with any and all directives from such regulatory authorities. LLCs have also informed LNPAs that they, too, shall comply with regulatory directives, and by language to this effect in both the RFPs and the master contracts, LNPAs are so obligated by force of contract. Such actions were deemed necessary by the LLCs to permit regulatory authorities to govern the LLCs' compliance with competitive neutrality. Such actions were deemed appropriate by the LLCs in light of such measures as the FCC's delegation to NANC of LNPA selection and oversight recommendations activities. Under these circumstances, the LLCs determined to continue to move forward on deployment activities knowing that with full and unqualified submission by LLCs to regulatory directives, competitive neutrality could always be maintained by regulators.

4.4.5 This express action by LLCs to subject to regulatory directives is a crucial element of the LLCs. In its LNP Order, the FCC recognized the significant progress of LNPA selection efforts in the states made possible by the LLC entities. The FCC raised no concern or objection to this early progress in its LNP Order, nor did it discourage further progress. In its more recent March 11, 1997 Order, the FCC applauded and supported these ongoing commitments by the LLCs to make LNP a reality in their respective regions.

4.4.6 By submitting to regulatory directives, the LLCs allow for the resolution of disputes in a competitively neutral manner. Each LLC has established a dispute resolution process that provides in part for the resolution of disputes by the directive of an appropriate regulatory authority. Because disputes can be expected to center precisely on competition issues, these dispute resolution processes greatly enhance the ability of regulators to maintain competitive neutrality. Moreover, in the event that a permanent NANC LNPA dispute resolution process were established (see, Section 7.1.1, Future Roles), unresolved LLC disputes could be submitted to such a NANC process, as appropriate.

4.4.7 The conduct of business by LLCs is a process open to any interested person. LLC meetings are public with the exception of certain limited portions of those meetings deemed by the members or Vendors to be proprietary,

North American Numbering Council
LNPA Selection Working Group

due to discussion of such sensitive matters as the negotiation of the master contract. Every element of the LLCs, including powers, composition, membership criteria, activities and voting, are set forth in written operating agreements, all seven (7) of which are freely available to any interested person (and are on the FCC's website discussed in Section 2.7.2). This openness permits regulators, as well as non-member carriers and the public, to verify that the LLCs are conducting their affairs in a competitively neutral manner.

- 4.4.8 LLCs facilitate the management of financial risk in a competitively neutral manner. Each LLC has obtained liability insurance, separate and apart from any coverages or self insurance of individual LLC members, covering the full scope of affairs conducted by the LLC and its members. Each LLC member shares equally in risk management by paying an equal share of the insurance premium, and each LLC member derives an equal benefit of the full amount of the insurance coverage. An incidental benefit of this risk management strategy is that the entire risk of LNPA selection falls on and is managed by the LLC, thereby assuring that other persons, including non-members, regulators and end-user customers, are shielded from risk.
- 4.4.9 Significantly, those carriers that are ineligible for LLC membership or for whatever reason choose not to become an LLC member are not in any way disadvantaged in their use of the LNPA's services. Thus, such carriers will also be permitted to operate in a competitively neutral environment. This is because LLC membership has been specifically designed *not* to be a prerequisite to utilization of the LNPA's services. Any telecommunications carrier that requires rating or routing or any entity that performs billing for such a telecommunications carrier, including both members and non-members of the LLC, will have non-discriminatory access to the LNPA's services. To do so, a user agreement (User Agreement) must be executed directly with the LNPA.
- 4.4.10 This open and equitable access to the LNPA through execution of a User Agreement also facilitates competitively neutral conditions by which utilizing carriers obtain services from the LNPA. The LLCs recognize that NPAC SMS cost allocation and recovery will be determined by the FCC and/or state regulator jurisdictions. However, each User Agreement will set forth standard cost elements and prices that could be uniformly charged to utilizing carriers if so required by the FCC and/or state regulators. Thus, each User

North American Numbering Council
LNPA Selection Working Group

Agreement will ensure that each utilizing carrier will be subject to uniform terms, conditions and potentially prices for the LNPA's services. These terms, conditions and prices have been or will be extensively negotiated by the LLC to be as low and favorable as possible, and are set forth in the master contract so as to be enforceable by law upon the LNPA. Significantly, this approach guards against any utilizing carrier obtaining preferred treatment from the LNPA, which clearly would violate competitive neutrality. For practical reasons, each User Agreement may vary to accommodate engineering or technical modifications suiting particular network configurations, so long as no other utilizing carrier is placed at a competitive disadvantage.

4.5 **LLC Attributes Complying With Other Criteria**

4.5.1 The LLCs are specifically designed and well suited to conform to the Criterion calling for regionalized deployment by LNPA. The formation of an LLC within each RBOC region, combined with the open membership policy for any local exchange carrier intending to port numbers in the region, facilitates development on a regionalized basis. LLCs also are requiring in their RFPs and in their master contract negotiations that Vendors bid on the provision of NPAC/SMS services on a regionalized basis.

4.5.2 LLCs also conform well to the Criterion requiring consistency in LNP administration. Although the seven (7) LLCs are established under state laws, the LLC laws in the 50 states are substantially similar (in contrast, laws governing partnerships and other corporate forms contain wide variation among the states). Accordingly, the seven (7) LLCs are virtually identical in their structure and operation, and they are governed by operating agreements which are also substantially similar (there are minor variations in operating agreement provisions reflecting certain policy and business determinations made on a region-specific basis). Accordingly, there will necessarily be substantial uniformity and consistency in the manner of contracting with and supervising of LNPAs.

4.6 **LLC Attributes Addressing Legal and Practical Considerations**

North American Numbering Council
LNPA Selection Working Group

-
- 4.6.1 Early in the RFP process, it became clear to the Service Providers that LNPA selection necessarily entailed the procurement in each region of a large and sophisticated database service provider that would be deriving multi-million dollar compensation for regionalized deployment of its services. This presented several problems. There needed to be a single legal entity contracting with the LNPA to implement such a procurement, and such an entity had to be an acceptable and even attractive business venture to Service Providers that would comprise and govern it. Such a procurement had to be completed well within the FCC's stringent deployment schedule so as to permit NPAC SMS development and testing in advance of the deployment deadlines. Given the potential financial liabilities associated with such a business venture, Service Providers were initially quite reluctant to participate in joint contracting activity. LLCs were uniquely well suited to resolve all of these legal and practical concerns fully.
- 4.6.2 An LLC affords its members complete statutory protection from liability, whether in tort, contract or otherwise. All liability is assumed exclusively by the LLC itself, and any liability exposure can be fully managed and protected against by liability insurance coverages secured by the LLC. These advantages served to allay the liability concerns of Service Providers. No other corporate or organizational form possesses such attributes.
- 4.6.3 An LLC was a suitable, single legal entity with which an LNPA would agree to contract. The reality of procuring LNPAs is that they would not undertake the impractical approach of bidding or contracting with multiple organizations for a single service, nor would they contract with an entity that excluded any party intending to port numbers or newly enter the local exchange service market. The LLC, with its open membership policy allowing all interested Service Providers to be organized under the auspices of a single legal entity, created the conditions necessary for the LNPAs to proceed to contract.
- 4.6.4 An LLC was ideally suited as a flexible and easily governed organization that could quickly implement the procurement of an LNPA within the FCC's stringent deployment schedule. LLCs can be formed quickly, and unlike other corporate and organizational forms, they can make decisions and conduct their business with great speed and flexibility and without the statutory constraints, formalities and time requirements associated with more traditional corporate governance.

North American Numbering Council
LNPA Selection Working Group

4.6.5 The LLCs are aware that NANC will ultimately review and act on the selection of LNPAs and determine the guidelines for LNP deployment. As part of this authority, NANC will review the full scope of all past and current LLC activity. The LLC's intention is, and has always been, to present its progress for NANC to embrace and adopt as NANC's own progress. Given the FCC's stringent deployment schedule, the LLCs reasonably believe that NANC will adopt (and alter as appropriate) the LLCs' significant progress as the common sense, practical course of action, rather than commence deployment efforts anew and recreate existing progress.

North American Numbering Council
LNPA Selection Working Group

5. TASK FORCE REPORTS

5.1 LNPA Architecture Task Force Report

5.1.1 The LNPA Architecture Task Force developed the "Architecture & Administrative Plan for Local Number Portability" report for presentation of the Task Force's recommendations to the LNPA Selection Working Group. The report contains an overview of LNP, a brief history of LNP, the LNP performance criteria adopted by the FCC and a list of LNP assumptions. Following are recommendations concerning NPAC geographic coverage and the NPAC certification process including technical and business requirements and the NPAC roles and responsibilities.

5.1.2 A draft copy of the "Architecture & Administrative Plan for Local Number Portability" was provided to the NANC membership at their February 5, 1997, meeting. The draft provided information in advance of the delivery of the final report from the LNPA Selection Working Group.

5.1.3 See Appendix D for the complete "Architecture & Administrative Plan for Local Number Portability" report.

5.2 LNPA Technical & Operational Requirements Task Force Report

5.2.1 The LNPA Technical & Operational Requirements Task Force prepared the report contained in Appendix E for presentation to the LNPA Selection Working Group. The report consists of four (4) administrative sections followed by sections describing standards rationale and the contentious issues addressed by the team. The final sections contain a series of five (5) recommendations offered for consideration by the task force. Finally, five (5) appendices contain the major documents developed by the team.

5.2.2 A draft of this report was presented to the NANC membership at their February 26, 1997, meeting. NANC was requested to review the recommendations made in Sections 8 and 9 for early concurrence. The remaining sections were informational and were intended to prepare the NANC members for receipt of the final report in April.

North American Numbering Council
LNPA Selection Working Group

5.2.3 See Appendix E for the complete "LNPA Technical &
Operational Requirements Task Force Report".

North American Numbering Council
LNPA Selection Working Group

6. LNPA SELECTION WORKING GROUP RECOMMENDATIONS

6.1 Introduction

6.1.1 The LNPA Selection Working Group used the determinations left to NANC as described in Section 2.2.2 as the comprehensive list of determinations requiring review and recommendation. Each of the determinations listed in Sections 6.2 through 6.8 below, reviews the process used by the Working Group to address them (i.e., to which Task Force the issue was assigned), where in a specific Task Force report the issue is addressed, a summary of the findings, the Working Group's recommendation, and justification for the recommendation.

6.2 LNP Administrators

- What neutral third party or parties will be the local number portability administrators?

6.2.1 Process

The issue was assigned to the LNPA Architecture Task Force.

6.2.2 Report Reference

See Section 4 of this report for description and justification of the regional vendor selection process. See also Section 12 of the "Architecture & Administrative Plan for Local Number Portability" contained in Appendix D for technical, business and architectural requirements that must be met by regional NPAC systems.

6.2.3 Summary of Findings

The Working Group reviewed the vendor selection processes used by each of the regional LLCs (described in detail in Section 4 of this report), and determined that selections made according to these processes met basic criteria for neutrality.

North American Numbering Council
LNPA Selection Working Group

6.2.4 Recommendation

The Working Group recommends that the NANC approve the NPAC vendor selections made by the regional LLCs. The LLCs selected the following vendors for their respective NPAC region, subject to final contract negotiation.

North American Numbering Council
LNPA Selection Working Group

Region	NPAC Vendor	Contract Completed
Northeast	Lockheed Martin IMS	No
Mid-Atlantic	Lockheed Martin IMS	No
Midwest	Lockheed Martin IMS	Yes
Southeast	Perot Systems, Inc.	No
Southwest	Lockheed Martin IMS	No
Western	Perot Systems, Inc.	No
West Coast	Perot Systems, Inc.	Yes

6.2.5 Justification

The Working Group determined that the above selections were made according to the process described and justified in Section 4 of this report. This recommendation assumes that the technical, business and architectural requirements in Section 12 of the LNPA Architecture Task Force report will be approved, and has determined that these selections comply with those requirements. Therefore, the Working Group recommends that these selections be approved by the NANC as the LNPAs for their respective regions.

6.3 Number of LNP Administrators

- Whether one or multiple LNPA(s) should be selected.

6.3.1 Process

This issue was assigned to the LNPA Architecture Task Force.

6.3.2 Report Reference

It was not necessary to address this issue in the LNPA Architecture Task Force report. See 6.3.3 below.

North American Numbering Council
LNPA Selection Working Group

6.3.3 Summary of Findings

The Working Group endorses the outcome of the state/regional competitive bid and selection processes, which resulted in the selection of multiple vendors (Lockheed Martin and Perot Systems) to administer the regional NPAC systems.

6.3.4 Recommendation

The Working Group believes it is unnecessary to make a specific recommendation at this time regarding whether one or multiple LNPA(s) should be selected, since two different vendors were independently selected by the regional LLCs to administer NPAC systems and services. Had only a single vendor been selected to administer all of the regional NPAC systems, the Working Group had planned to undertake a review of the consequences, and make further recommendations if appropriate.

6.3.5 Justification

The Working Group endorses the selection of multiple vendors to administer the regional databases for two reasons. First, it ensures the diversity of supply of NPAC services throughout the contract timeframe. This means that if one vendor is unable to perform, or declines to renew its initial service contract term, there will be at least one other vendor capable of providing these services within a relatively short timeframe. Thus, potential disruption to the industry of a vendor failure or default is minimized when more than one vendor is providing NPAC services. Second, the presence of more than one potential vendor in the initial and future competitive bid and selection processes enables carriers to obtain more favorable rates, terms and conditions than if only a single LNPA had been selected. This supports the FCC's directive to consider the most cost-effective way of accomplishing number portability.

6.4 LNP Administrator Selection

- How the LNPA(s) should be selected

North American Numbering Council
LNPA Selection Working Group

6.4.1 Process

The LNPA Selection Working Group delegated responsibility to recommend how the LNPA(s) are selected to the LNPA Architecture Task Force.

6.4.2 Report Reference

Section 12.2 of the "Architecture & Administrative Plan for LNP" contained in Appendix D defines the recommended criteria for LNPA selection.

6.4.3 Summary of Findings

Initially, the Task Force reviewed the selection criteria as outlined in Section 4.1.1 above. The LNPA Architecture Task Force then reviewed the activities being undertaken to select LNPA vendors in the state/regional workshops and the regional LLCs. The Task Force concluded that the steps taken by the Service Providers in each region to organize the selection process led to adoption of a selection process in each region that satisfies the criteria.

North American Numbering Council
LNPA Selection Working Group

6.4.4 Recommendation

The LNPA Selection Working Group recommends adoption of the process used to make LNPA vendor selections.

6.4.5 Justification

The process used for LNPA vendor selection is extensively discussed in Section 4 above.

6.5 LNP Administrator Duties

- Specific duties of the LNPA(s)

6.5.1 Process

The LNPA Selection Working Group delegated responsibility to define the specific duties of the LNPA, i.e., the NPAC, to the LNPA Architecture Task Force.

6.5.2 Report Reference

Section 12.5 of the Task Force report, "Architecture & Administrative Plan for LNP", Appendix D, describes the business roles and responsibilities of the NPAC. Further, the roles of the NPAC are defined in detail in the Functional Requirements Specification (FRS) and Interoperable Interface Specification (IIS). These documents describe, for example the NPAC responsibilities in the areas of data administration, subscription management, NPAC SMS interfaces, system security, reports, performance and reliability, and billing.

6.5.3 Summary of Findings

The Task Force reviewed the process used in each state/region to develop the FRS and IIS documents and determined that the NPAC roles and responsibilities defined in those documents were substantially similar. Further, these requirements thoroughly document standard functions necessary to administer

North American Numbering Council
LNPA Selection Working Group

such a system and its databases, the interfaces between the system and those of the various Service Providers, as well as the administrative functions performed by the NPAC personnel.

6.5.4 Recommendation

The LNPA Selection Working Group recommends adoption of the duties outlined in the Architecture & Administrative Plan for LNP contained in Appendix D, and those detailed requirements defined in the FRS and IIS documents.

6.5.5 Justification

The LNPA duties as defined in Appendix D and in the FRS and IIS documents represent the consensus of the industry technical experts, and the two (2) selected NPAC vendors are currently developing systems and processes (i.e., duties) in accordance with these requirements.

6.6 Regional Coverage

- **Geographic coverage of the regional databases**

6.6.1 Process

The LNPA Selection Working Group delegated to the LNPA Architecture Task Force the responsibility to provide a plan that identified the recommended geographic coverage of regional databases.

6.6.2 Report Reference

Section 9 of the "Architecture & Administrative Plan for LNP" contained in Appendix D identifies the geographic coverage areas of the regional databases.

6.6.3 Summary of Findings

The Task Force recognized that the significant work in state/regional workshops was directed towards selecting a vendor to serve a region rather than a single

North American Numbering Council
LNPA Selection Working Group

state. The lead states in LNP deployment were seeking other states with which to merge under an NPAC effort, and some state commissions (e.g., Maryland and California) had formally asked neighboring states to join the efforts of their state LLC.

6.6.4 Recommendation

The LNPA Working Group recommends that the NANC adopt the recommendations in the "Architecture & Administrative Plan for LNP" related to the geographic coverage of the regional databases. This recommendation includes adoption of a seven (7) region structure with the selected LNPA developing one (1) NPAC SMS in each region. If the LNPA operates in two (2) or more regions, the LLCs in those regions may elect to request that the administrator serve one or more regions on the same platform as long as the administrator satisfies all service requirements specified in the master contract with the LLCs and in specific user agreements. In addition, consistent with the LLC Operating Agreements, the merging of regional LLCs is not precluded.

6.6.5 Justification

6.6.5.1 Separate NPAC systems for each state would clearly be uneconomic and inefficient, while a single, nationwide NPAC system would be technically and administratively unwieldy.

6.6.5.2 Regional databases make sense. Although state-of-the-art system architectures are available for industry use, a single database is not desirable because the amount of routing information would, in time, become overwhelming as number portability is deployed nationwide. In addition, having several diverse and independent regional databases reduces the scope of impact if a given regional vendor were unable to fulfill its contractual obligation. Also, by establishing regions that match RBOC territories, the RBOC will (at least initially) have to connect to only a single regional database. This will simplify and speed up an otherwise complicated implementation and may lead to lower costs.

North American Numbering Council
LNPA Selection Working Group

6.6.5.3 State commissions, the industry and the FCC have become accustomed to working with the RBOCs within their regions. State commissions within RBOC service territories have formed associations to address regional issues. The industry is working in state commission-sponsored workshops. Therefore, the RBOC region provides a base within which both incumbents and new entrants are currently working. In addition, state commissions have been asked by LLCs to focus their NPAC efforts on established RBOC territories. The industry, when faced with the opportunity for system efficiencies and a need to meet an aggressive schedule, has leaned toward the established RBOC territories.

6.6.5.4 The designation of the RBOC serving territories and the appropriate NPAC coverage areas has been agreed to by all industry segments in these and state/regional LNP forums.

6.7 LNP Standards

- Various technical standards, including interoperability operational standards, network interface standards, and technical specifications.

6.7.1 Process

The LNPA Selection Working Group delegated responsibility to define standards to the LNPA Technical & Operational Requirements Task Force.

6.7.2 Report Reference

Sections 7 through 11 of the Task Force report contained in Appendix E describe in detail the recommendations made by that team.

6.7.3 Summary of Findings

6.7.3.1 The LNPA Technical & Operational Requirements Task Force developed industry standard NPAC SMS Provisioning Process Flows. See Section 7 and Appendix B of the

North American Numbering Council
LNPA Selection Working Group

LNPA Technical & Operational Requirements Task Force Report contained in Appendix E of this report for more details.

- 6.7.3.2 The LNPA Technical & Operational Requirements Task Force developed an industry standard NANC Functional Requirements Specification (FRS) document that defines the functional requirements of the NPAC SMS. See Section 8 and Appendix C of the LNPA Technical & Operational Requirements Task Force Report contained in Appendix E of this report for more details.
- 6.7.3.3 The LNPA Technical & Operational Requirements Task Force developed an industry standard NANC Interoperable Interface Specification (IIS) document that contains the information model for the NPAC SMS mechanized interfaces. See Section 9 and Appendix D of the LNPA Technical & Operational Requirements Task Force Report contained in Appendix E of this report for more details.
- 6.7.3.4 The LNPA Technical & Operational Requirements Task Force developed an industry wide process to enforce compliance with the policy developed by the LNPA Architecture Task Force for porting of reserved and unassigned numbers. The process includes notification to non-compliant Service Providers followed by the Service Providers right to invoke the NANC Resolution of Numbering Disputes procedures or other escalation as the service provider deems appropriate should a dispute arise. See Section 10 of the LNPA Technical & Operational Requirements Task Force Report contained in Appendix E of this report for more details.
- 6.7.3.5 The LNPA Technical & Operational Requirements Task Force developed an interim industry wide procedure to control the change management process for designing, developing, testing, and implementing changes to the NANC FRS, NANC IIS, and related processes. This interim process was developed to ensure consistency in the submission and consideration of changes to requirements until a permanent process is adopted as recommended in 7.1.1.D.

North American Numbering Council
LNPA Selection Working Group

6.7.4 Recommendation

6.7.4.1 The LNPA Selection Working Group recommends adoption by NANC of the documents described in Sections 6.7.3.1 through 6.7.3.3 above, and the processes described in Sections 6.7.3.4 and 6.7.3.5 above.

6.7.5 Justification

6.7.5.1 The LNPA Technical & Operational Requirements Task Force reviewed the activities in each of the seven (7) regions to evaluate the LNP planning activities currently underway. It was determined that certain documents were under development concurrently in each region. The regional LNP documents that had relevance to the Task Force mission included:

A. Requirements Documents

Request for Proposals (RFPs) were developed in each region to invite neutral third party vendors to submit proposals to provide NPAC SMSs. The RFP in each region included, either as an attachment or by reference, the Functional Requirements Specification (FRS), which defines the functional requirements for the NPAC SMS and the Interoperable Interface Specification (IIS) which contains the information model for the NPAC SMS mechanized interfaces. Since these two (2) requirements documents were being discussed concurrently in all regions, the Task Force determined that immediate consideration for standardization across the regions was required.

B. NPAC SMS Provisioning Process Flows

The NPAC SMS Provisioning Process Flows document describes the inter-service provider and NPAC SMS process flows. This series of nine (9) flows was also being addressed independently in

North American Numbering Council
LNPA Selection Working Group

each region. The Task Force determined that the flows also required immediate consideration for standardization.

6.7.5.2 **The LNPA Technical & Operational Requirements Task Force reviewed the content of the above regional documents and determined that they were substantially similar to each other. The Task Force concluded there were significant advantages to the industry if standard FRS, IIS, and NPAC SMS Provisioning Process Flows were developed and endorsed as industry standards. These advantages are defined in greater detail in Section 5.2 of the Task Force report contained in Appendix E. At a high level the advantages include:**

- **Facilitates meeting FCC schedule**
- **Better use of LNP resources in all companies**
- **Facilitates design of associated processes by other industry groups**
- **Produces timely and cost effective offers of LNP related products**
- **Minimizes expenditure of time and resources and increases quality for nationwide Service Providers**

6.8 **Numbering Information Sharing**

- **Guidelines and standards by which the NANPA and LNPA(s) share numbering information.**

6.8.1 **The manner in which the North American Numbering Plan Administrator (NANPA) and the LNPA(s) might share numbering information is considered to be an aspect of number pooling. While number pooling may certainly be a desirable outcome made possible by LNPA, it was considered outside the scope of the Working Group's immediate mission, and was therefore not addressed.**

North American Numbering Council
LNPA Selection Working Group

7. FUTURE ROLE

7.1 Future Roles

7.1.1 The LNPA Selection Working Group and associated Task Forces have addressed the specific LNPA selection, technical and architectural issues designated by the FCC. However, the Working Group has identified several important areas relating to LNP implementation and ongoing operation that, in the opinion of Working Group members, require continued regulatory and industry oversight. The current structure and membership of the NANC and the LNPA Working Group and Task Forces are well suited to assist in carrying out these activities or at a minimum, initiate the activity by investigating issues and making recommendations. Following is a list of these activities, and recommendations for a potential role for the Working Group and/or its Task Forces.

A. Number Pooling - Number pooling and any other steps required to achieve number utilization efficiency are a short term priority. Area code splits and the advancement of NANP exhaust are issues of grave concern. To ensure a coordinated number pooling effort, interaction between NANPA and LNPA is required during the design, development, and implementation of number pooling. It is recommended that the LNPA Selection Working Group work jointly with the NANPA Working Group in support of this effort.

A. LNPA Initial Deployment Oversight - To ensure compliance with the FCC order, there is a need to review LNPA deployment on a national basis through, at a minimum, the top 100 MSA deployment period. The successful introduction of 800 portability was fostered by an Oversight Committee, chaired by FCC staff, and a committee modeled along these lines could be equally important and necessary to successful LNPA deployment. Specifically, such a committee could be chaired by the Chief, Common Carrier Bureau (or her designate) and staffed by LNPA Working Group members. In support of this Oversight Committee recommendation, the Working Group notes that the FCC has already delegated responsibility to the Chief, Common Carrier Bureau, to take action to address any problems that arise over specific implementation procedures, and the Working Group is already comprised of industry experts in LNPA implementation.

North American Numbering Council
LNPA Selection Working Group

a) LNPA General Oversight - NANC will provide oversight to ensure that LNPA activities support FCC objectives of neutral operation of the LNPAs and to ensure that national uniformity and interoperability in LNP administration are achieved. The LLCs, by terms of their respective operating agreements, accept the role of NANC in this oversight capacity, and acknowledge that they will comply with FCC directives. Further, the LNPAs are obligated to comply with regulatory directives through requirements in both the RFPs and master contracts. See Section 4.4.4 for additional information. Details of how NANC recommendations will be applied to the LLCs will be developed by the LNPA Selection Working Group for NANC consideration.

D. NPAC SMS Change Management Process - NPAC SMS Change Management Process - There is an immediate need to maintain a centralized focus on the change management process for future NPAC SMS enhancements. The LNPA Technical & Operational Requirements Task Force developed an interim procedure to fill this role over the last four (4) months and currently fills the role of reviewing, selecting, and prioritizing NPAC SMS release two (2) and release three (3) changes. The Task Force recommended adoption of this interim change management process in Section 6.7.3.5 above.

The LNPA Selection Working Group recognizes that, having recommended technical and operational standards for the industry to follow for the implementation of NPAC SMS, ongoing changes to the requirements must be managed. The Working Group recommends that an open industry group, such as the LNPA Technical & Operational Requirements Task Force or other similar group designated by the NANC, be charged to continue to maintain ongoing technical standards for the NPAC. The recommendation includes development of a permanent change management process that will provide an open and neutral facility for the submission and consideration of changes requested to the NANC FRS and/or NANC IIS requirements. The procedure should include the definition of standard change request documents, vehicles for the submission and distribution of

North American Numbering Council
LNPA Selection Working Group

requests, and timetables for the process of open consideration and prioritization of such requests.

- E. Location/Service Portability and Wireless LNP - A number of other concerns will require oversight. For example, inclusion of wireless in LNP and implementation of location and service portability are areas that will potentially require changes to the NPAC SMS design, and will therefore require NANC oversight. The LNPA Selection Working Group, with task force support, or similar teams as NANC deems appropriate, are required in the future to oversee these changes.
- F. LNP Dispute Resolution - The NANC Dispute Resolution Working Group developed a dispute resolution process called "Resolution of Numbering Disputes". The LNPA Selection Working Group recommends that a common NANPA and LNPA dispute resolution process be developed jointly by the two (2) Working Groups. The LNPA Selection Working Group further agrees to recommend modifications to each LLC's dispute resolution process to incorporate these new NANC dispute resolution procedures. LLC disputes and other LNP disputes as may be defined by the process could then be submitted through dispute resolution to NANC, as appropriate.
- G. Expanded NANP Environments - To ensure effective development and implementation of expanded NANP (12-13 or more digits) environment, interaction between NANP and LNPA is necessary. It is recommended that the LNPA Selection Working Group work with the NANPA Working Group in support of future expanded NANP environments.

North American Numbering Council
LNPA Selection Working Group

Appendix A

**LNPA Selection Working Group
and
LNPA Task Forces Composition**

North American Numbering Council
LNPA Selection Working Group

LNPA Selection Working Group

Company/Association	Name
Airtouch Communications	Kim Mahoney
Ameritech	Terry Appenzeller (Co-Chair)
APCC, Inc.	Greg Haledjian
AT&T	Ellwood Kerkeslager (Co-Chair)
Bell Atlantic	Renie Spriggs
Bell Atlantic	John Rudden
Bellcore	John Malyar
BellSouth	Bill Shaughnessy, Jr.
BellSouth Wireless	Ken Buchanan
California PUC	Natalie Billingsley
Cox	Carrington Phillip
Florida Public Service Commission	Stan Greer
Frontier	David Keech
GTE	Bob Angevine
Interstate Fibernet	Steven Brownsworth
Lucent Technologies	Doug Rollender
Maryland PSC	Geoffrey Waldau
MCI	Beth Kistner
MCI	Woody Traylor
Nextel	Rob Chimsky
Nortel	Mike Sutter
NYNEX	Frank Saletel
Ohio PUC	Scott Potter
PACE/COMPTEL	David Malfara

Page A-1

North American Numbering Council
LNPA Selection Working Group

Pacific Bell	Joanne Balen
Perot Systems	Tim McCleary
SBC	Gary Fleming
Selectronics	Daniel Owen
Sprint	Hoke R. Knox
Sprint PCS/PCIA	Larry Grisham
Stentor	Rich Leroux
Telefonica de Puerto Rico	Roberto Correa
Teleport	Ed Gould
Time Warner/NCTA	Dan Engleman
US West	Cathy Handley
USTA	Dennis Byrne
WorldCom	Scot Lewis

Page A-2

North American Numbering Council
LNPA Selection Working Group

LNPA Architecture Task Force

Company/Association	Name
Airtouch	Paula Jordan
Ameritech	Roger Marshall
AT&T	Karen Weis
Bell Atlantic	Renie Spriggs (Co-Chair)
Bell Atlantic	John Rudden
Bellcore	John Malyar
BellSouth	Steve Sauer
BellSouth Wireless	Karl Koster
California PUC	Natalie Billingsley
Cox	Carrington Phillip
GTE	David Wang
Illinois Commerce	Brent Struthers
Interstate Fibernet	Steve Brownsworth
Lucent Technologies	Doug Rollender
MCI	Woody Traylor
Nortel	Pat Carstensen
NYNEX	Thomas McGarry, Kevin Cooke
Ohio PUC	Scott Potter
OPASTCO	Greg Rise
Pacific Bell	Sandra Cheung
Perot Systems	Tim McCleary
Sprint	Hoke R. Knox (Co-Chair)

North American Numbering Council
LNPA Selection Working Group

SBC	Bob Schaefer
Time Warner/NCTA	Dan Engleman
US West Wireless	Debbie Steele

Page A-4

North American Numbering Council
LNPA Selection Working Group

LNPA Technical & Operational Requirements Task Force

Company/Association	Name
Ameritech	Donna Navickas
AT&T	Bonnie Baca (Co-Chair)
Bell Atlantic	Bob Allen
Bellcore	John Malyar
BellSouth	Ron Steen
BellSouth Wireless	Karl Koster
California PUC	Natalie Billingsley
Cox	Karen Furbish
EDS	Michael Haga
GTE	Bob Angevine
IBM	J. Paul Golick
Illuminet/ITN	Robert Wienski
Interstate Fibernet	Steve Brownsworth
Lockheed Martin	Larry Vagnoni
Lucent Technologies	Doug Rollender
MCI	Steve Addicks
NYNEX	Ed Birmingham
OPASTCO	John McHugh
Pacific Bell	Sandra Cheung
Pacific Bell Mobile Service	Linda Melvin
Perot Systems	Tim McCleary
Pocketcom/CTA	Nina Blake
SBC	Marilyn Murdock (Co-Chair)
Sprint	Dave Garner

Page A-5

North American Numbering Council
LNPA Selection Working Group

Telecom Software Enterprises	Lisa Marie Maxson
Teleport	Phil Presworsky
Time Warner/NCTA	Karen Kay
US West	Cynthia Gagnon
WinStar	Steve Merrill
WorldCom	Bettie Shelby

North American Numbering Council
LNPA Selection Working Group

Appendix B

**LNPA Selection Working Group
and
LNPA Task Force Meetings**

North American Numbering Council
LNPA Selection Working Group

LNPA Selection Working Group Meeting Schedule

<u>Meeting Date</u>	<u>Meeting Location</u>
November 8, 1996	Washington, DC
November 18, 1996	Washington, DC
December 3, 1996	Arlington, VA
December 18, 1996	Conference Call
January 7, 1997	Arlington, VA
February 4, 1997	Arlington, VA
February 25, 1997	Arlington, VA
March 21, 1997	Arlington, VA
April 7, 1997	Arlington, VA
April 18, 1997	Conference Call

LNPA Architecture Task Force Meeting Schedule

<u>Meeting Date</u>	<u>Meeting Location</u>
November 18, 1996	Washington, DC
December 2, 1996	Washington, DC
January 7, 1997	Arlington, VA
February 3, 1997	Arlington, VA
February 24, 1997	Arlington, VA
March 10, 1997	Conference Call
March 27, 1997	Conference Call
March 31, 1997	Conference Call

**LNPA Technical & Operational Requirements Task Force
Meeting Schedule**

<u>Meeting Date</u>	<u>Meeting Location</u>
November 18, 1996	Washington, DC
December 2-3, 1996	Arlington, VA
December 16, 1996	Chicago, IL

North American Numbering Council
LNPA Selection Working Group

December 30, 1996	Conference Call
January 7, 1997	Arlington, VA
January 14, 1997	Conference Call
January 20, 1997	Kansas City, MO
January 27-31, 1997	San Francisco, CA
February 24-25, 1997	Arlington, VA
March 5-7, 1997	Dallas, TX
March 14, 1997	Conference Call
March 18, 1997	Conference Call
March 20, 1997	Arlington, VA
March 24, 1997	Denver, CO
April 2, 1997	Conference Call
April 14, 1997	Chicago, IL
April 18, 1997	Conference Call

North American Numbering Council
LNPA Selection Working Group

Appendix C

LNPA Vendor Selection Schedule

North American Numbering Council
LNPA Selection Working Group

LNPA VENDOR SELECTION SCHEDULE*

SMS EVALUATION PROCESS	Midwest Region	Mid-Atlantic Region	North-east Region	West Coast Region	Western Region	South-east Region	South-west Region
LLC Operating Agreement	10/96	6/28/96	9/5/96	11/14/96	Yes	10/14/96	3/13/97
LLC Formed	10/96	6/17/96	9/96	9/96	Yes	10/1/96	12/2/96
RFP Issued	2/6/96	7/8/96	9/13/96	9/20/96	10/2/96	10/24/96	12/23/96
Vendors Notified of Eligibility Status	2/12/96	8/7/96	10/4/96	10/9/96	10/23/96	N/A	N/A
Vendor Submits Q&A	2/22/96	8/15/96	10/4/96	10/18/96	10/16/96	11/4/96	N/A
Bidder's Conference	Q&A	9/17/96	10/11/96	10/18/96	10/29/96	11/20/96	1/6/97
RFP Responses Due	3/18/96	10/8/96	10/25/96	11/1/96	11/12/96	11/26/96	1/13/97
LLC Notifies Vendor of Selection	5/15/96	11/25/96	12/18/96	02/21/97	12/11/96	2/1/97	2/28/97
Contract Negotiated/Signed	12/96	2Q97	2Q97	4/3/97	2Q97	2Q97	2Q97
"Build Out" Period Completed	3/17/97	4/1/97	4/15/97	TBD	6/1/97	6/1/97	6/1/97
NPAC Ready - Testing	4/18/97	5/1/97	5/15/97	TBD	7/1/97	7/1/97	6/1/97

North American Numbering Council
 LNPA Selection Working Group

NPAC Ready - Live Testing	** 7/1/97	8/1/97	TBD	TBD	TBD	TBD	9/16/97
Deployment	10/1/97 - 3/31/98	9/1/97 - 3/31/98	10/1/97 - 3/31/98	10/1/97 - 3/31/98	10/1/97 - 3/31/98	10/1/97 - 3/31/98	10/1/97 - 3/31/98

- * Schedule as of 4/9/97
- ** Illinois Field Trial 7/1/97 - 8/30/97

North American Numbering Council
LNPA Selection Working Group

Appendix D

Architecture & Administrative Plan
for Local Number Portability

**NORTH AMERICAN NUMBERING COUNCIL
LNP ARCHITECTURE & ADMINISTRATIVE PLAN**

**NORTH AMERICAN NUMBERING
COUNCIL**

**ARCHITECTURE &
ADMINISTRATIVE PLAN FOR
LOCAL NUMBER PORTABILITY**

NANC - LNP Architecture Task Force

EDITOR: Hoke R. Knox

**"ISSUE - 1, REVISION 3"
APRIL 23, 1997**

Page 1

nanca1r3.doc

**NORTH AMERICAN NUMBERING COUNCIL
LNP ARCHITECTURE & ADMINISTRATIVE PLAN**

1. LOCAL NUMBER PORTABILITY OVERVIEW4

2. SERVICE PROVIDER BUSINESS DOMAIN IMPACT4

3. IXC BUSINESS DOMAIN IMPACT4

4. HIGH LEVEL LNP PROCESS VIEW (FOR ILLUSTRATION)5

5. LNP HISTORY5

6. LNP PERFORMANCE CRITERIA6

7. LNP ASSUMPTIONS (WIRELINE ONLY).....6

7.1 SERVICE PROVIDER DEFINITION.....6

7.2 LRN -- LOCATION ROUTING NUMBER6

7.3 LNP PORTABILITY BOUNDARY6

7.4 NPAC LNP DATABASES CONTENT.....7

7.5 LINE INFORMATION DATA BASE (LIDB) AND CUSTOM LOCAL ACCESS SIGNALING SERVICES (CLASS).....7

7.6 LINE BASED CALLING CARDS7

7.7 PORTING OF RESERVED & UNASSIGNED NUMBERS.....7

 7.7.1 Reserved Numbers7

 7.7.2 Unassigned number/Unreserved.....7

7.8 N-1 CALL ROUTING7

7.9 DISCONNECTED TELEPHONE NUMBERS (SNAP-BACK)8

7.10 DEFAULT ROUTING OVERLOAD AND FAILURES8

7.11 NUMBER POOLING.....8

7.12 NPAC TO LSMS ARCHITECTURAL RESTRICTIONS8

7.13 HIGH VOLUME CALL IN NUMBERS (CHOKE NETWORK)9

8. LNP CALL SCENARIOS - LOCAL TO LOCAL VIEW11

9. NPAC REGIONS.....12

10. NPA NXX ASSIGNMENTS - PORTED NUMBERS13

11. VIRTUAL NPACS.....14

11.1 NPAC SOA AND LSMS LINK(S)14

11.2 POINT OF PRESENCE (POP)14

12. NPAC CERTIFICATION PROCESS14

12.1 TECHNICAL REQUIREMENTS14

 12.1.1 IIS.....14

 12.1.2 FRS.....14

12.2 BUSINESS & ARCHITECTURE REQUIREMENTS.....15

 12.2.1 LLC (Limited Liability Company).....15

 12.2.2 Competitively Neutral Pricing15

 12.2.3 Competitive Neutral Service15

 12.2.4 NPAC User Criteria.....15

12.3 NANC.....15

 12.3.1 Architectural Change Approval Process15

**NORTH AMERICAN NUMBERING COUNCIL
LNP ARCHITECTURE & ADMINISTRATIVE PLAN**

12.3.2 Conflict Resolution	16
12.4 LLC MERGER PROCESS	16
12.5 NPAC BUSINESS ROLES AND RESPONSIBILITIES.....	16
12.5.1 Neutral Third Party	16
12.5.2 NPAC Role.....	16
12.5.3 NPAC Administrative Functions.....	16
12.5.4 Transition Guidelines	16
13. REFERENCE DOCUMENTS.....	16

Attachment A.....N-1 Call Scenarios

**NORTH AMERICAN NUMBERING COUNCIL
LNP ARCHITECTURE & ADMINISTRATIVE PLAN**

1. LOCAL NUMBER PORTABILITY OVERVIEW

On June 27, 1996, the FCC ordered the phased implementation of Local Number Portability (LNP). A subsequent First Memorandum Opinion And Order On Reconsideration was adopted on March 6, 1997 and released on March 11, 1997.

LNP is defined in the Telecommunications Act of 1996 as "the ability of users of telecommunications services to retain, at the same location, existing telecommunications numbers without impairment of quality, reliability, or convenience when switching from one telecommunications carrier to another." The primary elements of the order are as follows:

- All LECs are required to begin the implementation of a long term LNP solution in the 100 largest Metropolitan Statistical Areas (MSAs). Implementation of a LNP trial will begin in the Chicago, Illinois MSA, with the implementation in remaining MSAs beginning October 1, 1997. The FCC has mandated that implementation in the top 100 MSAs will be complete by December 31, 1998.
- After December 31, 1998, each LEC must make long term number portability available in smaller MSAs within six months after a bona fide request by another telecommunications carrier.
- All cellular, broadband PCS, and covered SMR (Specialized Mobile Radio) providers are required to have the capability of delivering calls to ported numbers anywhere in the country by December 31, 1998, and to offer number portability including support for roaming, throughout their networks by June 30, 1999.

2. SERVICE PROVIDER BUSINESS DOMAIN IMPACT

LNP touches every aspect of a Service Provider's business domain. Changes in business processes and their support systems are required to implement LNP. Also, major changes in call processing are required in the network. Figure 1 is a high level illustrative view of the business and network systems that are impacted.

This specification was developed primarily from a wireline number portability perspective. Unique wireless number portability requirements have not yet been considered in the development of this document. Modifications to this document may be required to support wireless number portability.

3. IXC BUSINESS DOMAIN IMPACT

The Interexchange Carriers (IXCs) will have many of the same change impacts that the Service Provider business entities have. Impacts to call processing, their business processes and their support systems are required to implement LNP.

**NORTH AMERICAN NUMBERING COUNCIL
LNP ARCHITECTURE & ADMINISTRATIVE PLAN**

4. HIGH LEVEL LNP PROCESS VIEW (for Illustration)

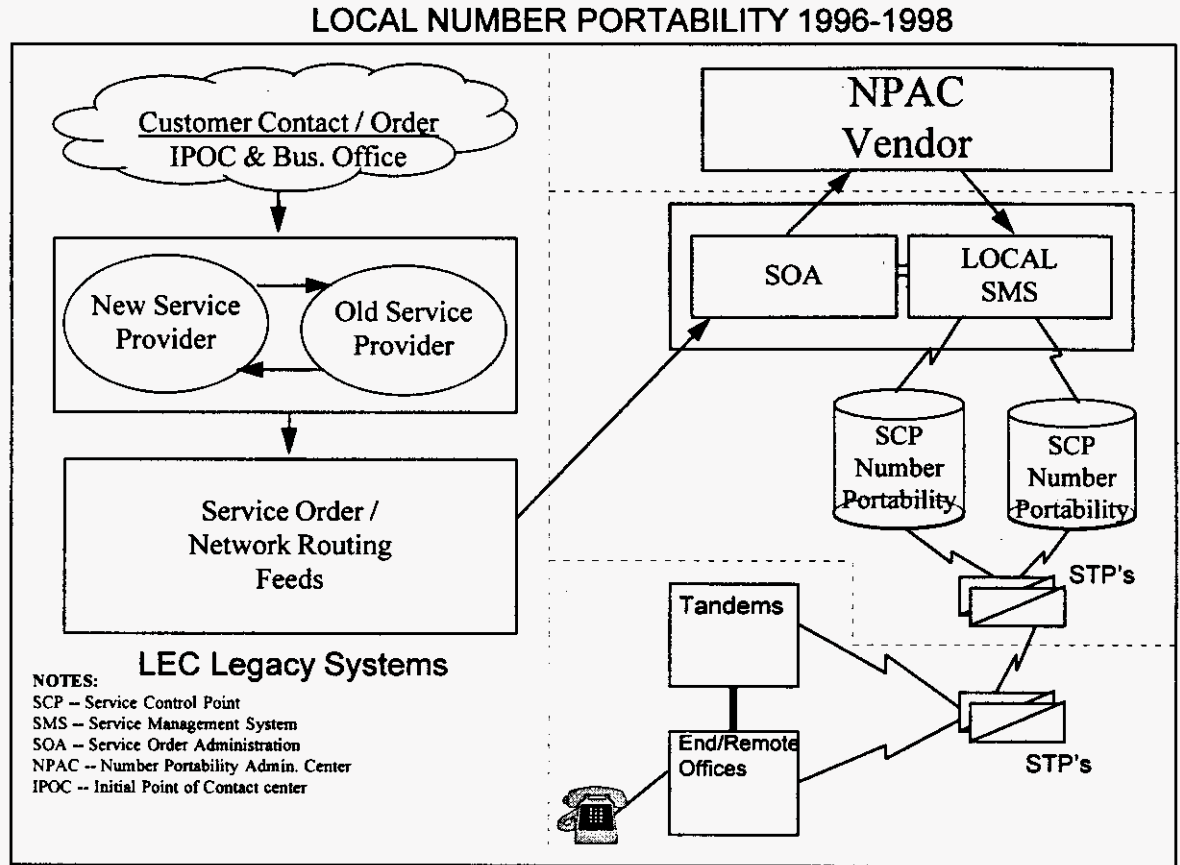


Figure 1

5. LNP HISTORY

The Illinois Commerce Commission (ICC) took the lead in July, 1995 as the first state to address LNP. Four different LNP architectures were being reviewed by the ICC LNP workshop. The workshop selected AT&T's LRN solution for LNP during September 1995.

In the main ICC LNP workshop on November 16, 1995, all switch vendors present indicated that they could provide LNP software capabilities based upon the Illinois specifications by 2Q97. The switch vendors present were AT&T Network Systems (now Lucent), Nortel, Siemens, and Ericsson. The issue of vendors being able to provide LNP was resolved and the planned date for LNP implementation in Chicago was established for 2Q97. This date was changed by the FCC Order which called for LNP testing during 3Q97 leading to full implementation in 4Q97.

**NORTH AMERICAN NUMBERING COUNCIL
LNP ARCHITECTURE & ADMINISTRATIVE PLAN**

6. LNP PERFORMANCE CRITERIA

The FCC adopted in its original order the following minimum performance criteria. Any long-term number portability method, including call processing scenarios or triggering, must:

- (1) support existing networking services, features, and capabilities;
- (2) efficiently use numbering resources;
- (3) not require end users to change their telecommunications numbers;
- (4) Deleted¹
- (5) not result in unreasonable degradation in service quality or network reliability when implemented;
- (6) not result in any degradation of service quality or network reliability when customers switch carriers;
- (7) not result in a carrier having a proprietary interest;
- (8) be able to accommodate location and service portability in the future; and
- (9) have no significant adverse impact outside the areas where number portability is deployed.

7. LNP ASSUMPTIONS (Wireline Only)

7.1 Service Provider Definition

In the context of LNP, a Service Provider is a facility (switched) based² local telecommunications provider certified by the appropriate regulatory body or bodies.

7.2 LRN -- Location Routing Number

LRNs are 10 digit numbers that are assigned to the network switching elements (Central Office - Host and Remotes as required) for routing of calls in the network. The first six digits of the LRN will be one of the assigned NPA NXX of the switching element. The purpose and functionality of the last four digits of the LRN have not yet been defined, but are passed across the network to the terminating switch.

7.3 LNP Portability Boundary

If location portability is ordered by a state commission in the context of Phase I implementation of LRN, location portability is technically limited to rate center/rate district boundaries of the incumbent LEC due to rating/routing concerns. Additional boundary limitations, such as the wire center boundaries of the incumbent LEC may be required due to E911 or NPA serving restrictions and/or regulatory decisions.

¹ Item (4) was deleted in the First memorandum Opinion And Order On Reconsideration adopted March 6, 1997 and released on March 11, 1997.

²The term facility based is used in this document to describe carriers who own or lease switching equipment.

**NORTH AMERICAN NUMBERING COUNCIL
LNP ARCHITECTURE & ADMINISTRATIVE PLAN**

7.4 NPAC LNP Databases Content

The NPAC LNP database contains only ported numbers and the associated routing and service provider information.

7.5 Line Information Data Base (LIDB) And Custom Local Access Signaling Services (CLASS)

The new service provider has the responsibility to populate the appropriate LIDB and CLASS information associated with the ported telephone number.

7.6 Line Based Calling Cards

When a telephone number is ported the nonproprietary line based calling card number will be deactivated by the old service provider and may be activated by the new service provider if the new service provider offers a line based calling card service. There are currently billing fraud and other technical concerns with nonproprietary line based credit cards which limit their provision to the new service provider. If the new service provider does not offer a nonproprietary line based calling card, the customer is not precluded from obtaining a proprietary line based calling card from another service provider.

7.7 Porting of Reserved & Unassigned Numbers³

7.7.1 Reserved Numbers

Telephone numbers that are reserved for a customer under a legally enforceable written agreement should be ported when the customer changes service providers.

- 1) Reserved numbers that have been ported must be treated as disconnected telephone numbers when the customer is disconnected or when the service is moved to another service provider and the reserved numbers are not ported to subsequent service providers;
- 2) Reserved numbers that are ported may not be used by another customer;
- 3) Implementation of the capability to port reserved numbers may require modifications to operation support systems and may not be available initially.

7.7.2 Unassigned number/Unreserved

Service Providers will not port unassigned numbers unless and until there is an explicit authorization for such porting from a regulator with appropriate jurisdiction.

³ It will be the responsibility of the service provider receiving the ported reserved telephone numbers to provision their switches so that appropriate treatment by the recipient switch is provided which suppresses cause code 26 release messages for the ported reserved telephone numbers only.

**NORTH AMERICAN NUMBERING COUNCIL
LNP ARCHITECTURE & ADMINISTRATIVE PLAN**

7.8 N-1 Call Routing

Each designated N-1 carrier is responsible for ensuring queries are performed on an N-1 basis where "N" is the entity terminating the call to the end user, or a network provider contracted by the entity to provide tandem access. Examples of N-1 routing are found in **Attachment A**.

7.9 Disconnected Telephone Numbers (Snap-back)

When a ported number is disconnected, that telephone line number will be released (Snap-back), after appropriate aging, back to the original Service Provider assigned the NXX in the LERG.

7.10 Default Routing Overload and Failures

Unless specified in business arrangements, carriers may block default routed calls incoming to their network in order to protect against overload, congestion, or failure propagation that are caused by the defaulted calls.

7.11 Number Pooling

The FCC Order on LNP provided no explicit guidance on number pooling. Various industry activities are underway addressing this issue and Number Pooling is outside the scope of this Task Force.

7.12 NPAC to LSMS Architectural Restrictions

All networks will rely on the NPAC database as the ultimate source of porting data. Synchronization of networks to a single set of routing data is paramount to network operations. Therefore appropriate restrictions must be placed upon how these network elements may interconnect from an architectural perspective.

Specifically, the NPAC shall download relevant porting data required by participating carriers or their agents for the specific subset of network nodes. Consequently, the NPAC system shall be the source of all porting data for all carriers or agents of those carriers, thereby being the sole originator of all downloads.

As a result of these restrictions, the LSMS must operate as the intermediate database management system which receives downloads from the NPAC, and then further downloads directly to the appropriate SCP functionality in its associated network(s).

Through this architecture, it is intended that if a systems provider is performing a service management functionality, then this systems provider is responsible for contributing its appropriate share of the economic support (as determined via regulatory actions on cost allocation) to the NPAC. The local SMS architecture must not allow service providers to avoid their allocation of the shared NPAC costs. Such architecture does not preclude the

**NORTH AMERICAN NUMBERING COUNCIL
LNP ARCHITECTURE & ADMINISTRATIVE PLAN**

implementation of the LSMS functionality in a distributed manner in an individual service provider's network.

**NORTH AMERICAN NUMBERING COUNCIL
LNP ARCHITECTURE & ADMINISTRATIVE PLAN**

7.13 High Volume Call In Numbers (Choke Network)(Further study req.)

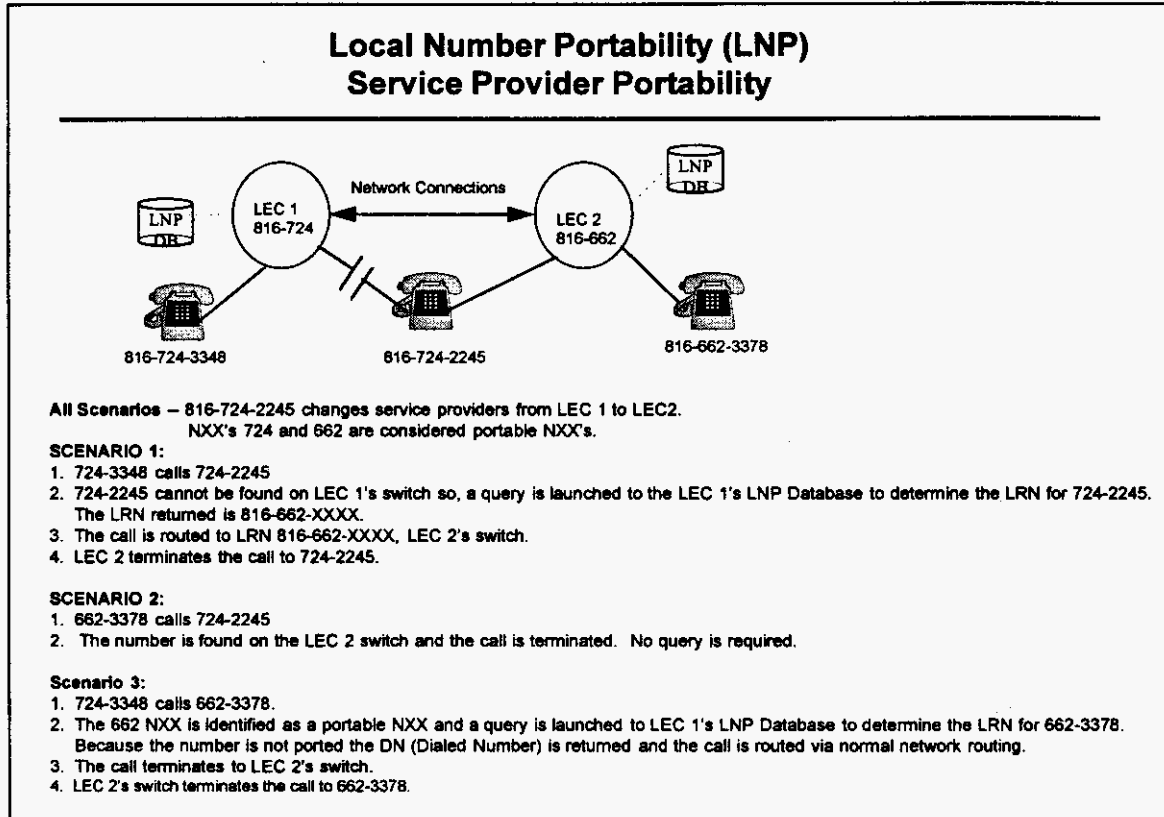
An area of concern regarding LNP is High Volume Call In (HVCI) networks. When a carrier determines that a customer regularly generates large volumes of terminating traffic, the customer may be moved over to an HVCI network. Examples of these types of customers could be radio stations that regularly hold contests that require many participants to call in a short period of time. An HVCI network allows all such customers to be assigned numbers in an NPA-NXX (e.g., 213-520) dedicated for HVCI. This HVCI number is the number that is announced for any high call in event. Switches in the area can be designed to segregate traffic for HVCI numbers and route it via trunk groups that are dedicated to the network and do not overflow to other trunk groups. The dedicated trunks are engineered to handle limited traffic and, in this way traffic is throttled and cannot congest the network. Such networks has proven to be effective in limiting the effects of large call in events.

However, with LNP before route selection takes place a database query is performed on calls to portable NPA-NXXs. If HVCI numbers are portable, they can generate large volumes of queries that can congest the signaling links and SCPs. Also if the HVCI number is ported and an LRN is returned in the database response, the call will not be routed via HVCI-dedicated trunks. This congestion can in turn effect other POTS type services which compromises the design of HVCI networks. One way to avoid this is to not perform queries on NPA-NXXs dedicated for HVCI networks. Further study is required in order to determine the proper network arrangements.

**NORTH AMERICAN NUMBERING COUNCIL
LNP ARCHITECTURE & ADMINISTRATIVE PLAN**

8. LNP Call Scenarios - Local to Local View

Example LNP call scenarios on Service Provider Portability are shown in Figure 2. See additional example scenarios in Attachment A for N-1 Call Routing.



lnpexinf.ppt

Figure 2

NORTH AMERICAN NUMBERING COUNCIL LNP ARCHITECTURE & ADMINISTRATIVE PLAN

9. NPAC Regions

The following number of Number Portability Administration Center (NPAC) regions, their geographic coverage areas, and the NPAC assignment of Canada and the U.S. Caribbean are shown in Figure 3 and Chart 1:

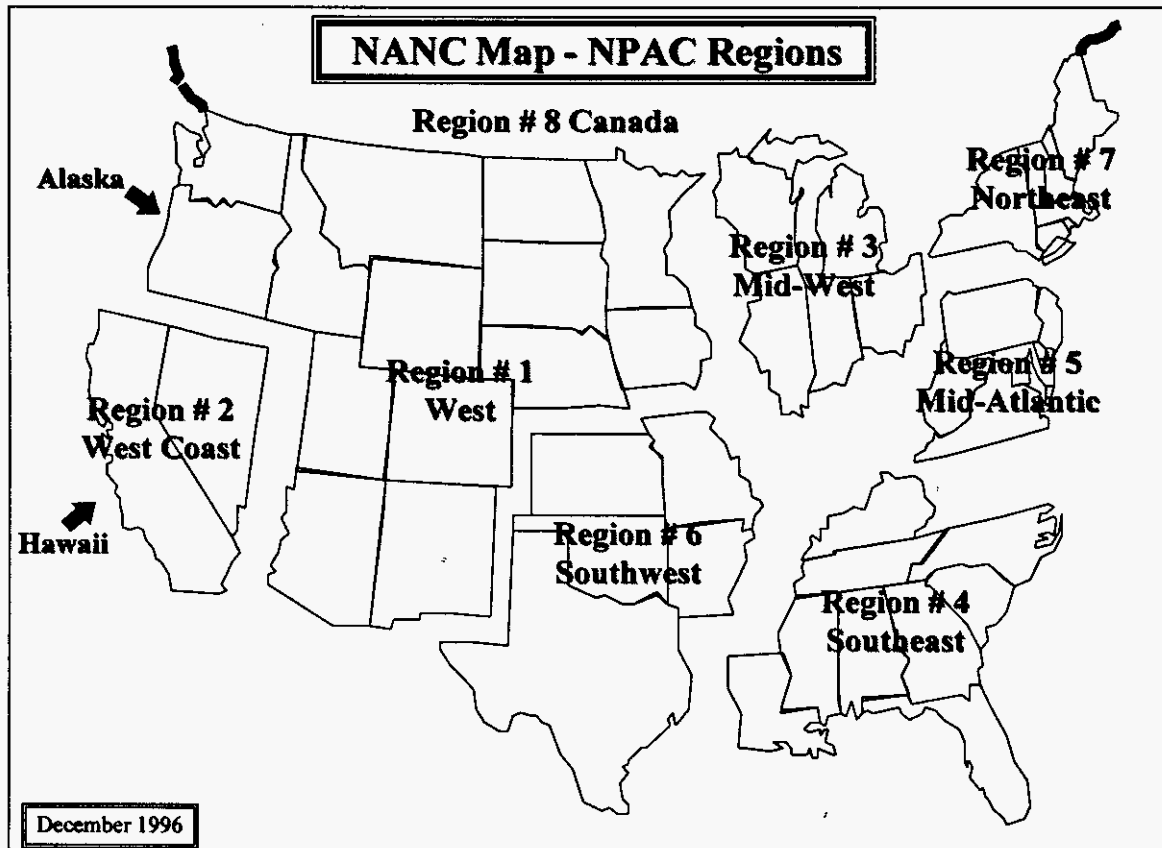


Figure 3

Factors considered in developing the NPAC regions were:

- ⇒ Economic efficiency and administrative simplicity -- On these factors, having multi-state NPACs is clearly superior to either an NPAC for each state or a single NPAC for the entire country.
- ⇒ Existing LLCs -- Each proposed region has an LLC which has chosen an NPAC vendor. The work at the state level should be built upon rather than re-invented.
- ⇒ Uniform sizes -- The number of access lines in the proposed regions are roughly comparable.
- ⇒ Existing regulatory structures -- State PUCs have formed regional associations that correspond to the proposed NPAC regions. These associations were formed to allow the PUCs to deal jointly with a Regional Bell Operating Company.
- ⇒ National responsibilities -- The NANC Architecture Task Force recognizes that Canada intends to create its own NPAC to serve all of Canada.

**NORTH AMERICAN NUMBERING COUNCIL
LNP ARCHITECTURE & ADMINISTRATIVE PLAN**

GEOGRAPHIC COVERAGE CHART

RECOMMENDED NPAC REGIONS	SPECIFIC STATES per NPAC REGION
Region # 1: WESTERN	Washington, Oregon, Montana, Wyoming, North Dakota, South Dakota, Minnesota, Iowa, Nebraska, Colorado, Utah, Arizona, New Mexico, Idaho, and Alaska
Region # 2: WEST COAST	California, Nevada, and Hawaii
Region # 3: MID-WEST	Illinois, Wisconsin, Indiana, Michigan, and Ohio
Region # 4: SOUTHEAST	Florida, Georgia, North Carolina, South Carolina, Tennessee, Kentucky, Alabama, Mississippi, and Louisiana
Region # 5: MID-ATLANTIC	New Jersey, Pennsylvania, Delaware, Maryland, West Virginia, Virginia, and Washington, D.C.
Region # 6: SOUTHWEST	Texas, Oklahoma, Kansas, Arkansas, and Missouri
Region # 7: NORTHEAST	Vermont, New Hampshire, Maine, New York, Connecticut, Rhode Island, and Massachusetts
Region # 8: CANADA	

Chart 1

1. The NANC Architecture Task Force recommends seven (7) NPACs to cover the 50 United States and the U.S. territories in the North American Numbering Plan Area (e.g. U.S. Virgin Islands and Puerto Rico). Refer to the Chart 1 for specifics.
2. The NANC Architecture Task Force recommends that the U.S. territories choose from one of the seven (7) U.S. NPACs.
3. The NANC Architecture Task Force recognizes that Canada intends to create its own NPAC to serve all of Canada.

10. NPA NXX Assignments - Ported Numbers

The NPA NXX XXXX's (Ten Digit Phone Numbers) for ported numbers are assigned to their respective NPAC regions. Uploads and downloads via the SOA and LSMS interfaces, respectively, are transmitted to and from their assigned NPAC platforms.

**NORTH AMERICAN NUMBERING COUNCIL
LNP ARCHITECTURE & ADMINISTRATIVE PLAN**

11. Virtual NPACs

Virtual NPACs are not precluded. If an NPAC vendor wins two or more regions, that vendor is not precluded from serving one or more of the regions on the same platform as long as the vendor meets all service requirements as specified in the contract or in End User Agreements.

11.1 NPAC SOA and LSMS Link(s)

Under the Virtual NPAC arrangement, Service Providers are not precluded from accessing the vendor's one NPAC platform for SOA and LSMS functionality via one or more physical links. Link capacity limitations such as reliability and performance requirements will determine the quantity of physical SOA and LSMS link(s).

The service provider is responsible for contributing its appropriate share of the economic support to the NPAC vendor for each region in which it operates.

11.2 Point of Presence (POP)

The NPAC vendor will provide the physical links (SOA/LSMS) from the NPAC platform to each respective POP (Physical Facility) as identified by each regional LLC. Each service provider or its agent that directly connects to the NPAC shall be required to provide SOA and/or LSMS connectivity to the POP.

12. NPAC CERTIFICATION PROCESS

12.1 TECHNICAL REQUIREMENTS

12.1.1 IIS

The NPAC vendor(s) and any entity directly connecting to the NPAC platform are required to use the current NPAC SMS Interoperable Interface Specification (IIS) as adopted by NANC.

12.1.2 FRS

The NPAC vendor(s) and any entity directly connecting to the NPAC platform are required to use the current NPAC SMS Functional Requirement Specification (FRS) as adopted by NANC.

**NORTH AMERICAN NUMBERING COUNCIL
LNP ARCHITECTURE & ADMINISTRATIVE PLAN**

12.2 BUSINESS & ARCHITECTURE REQUIREMENTS

12.2.1 LLC (Limited Liability Company)

Each NPAC vendor has to be established under the Regional LLC. At a minimum, each respective Regional LLC has to keep its respective vendor in compliance with the Architecture requirements identified by NANC.

The sole purpose of the formation of a Limited Liability Corporation (LLC) is to create an entity to select and manage a neutral third party number portability administrator. Example activities of the LLC are the negotiation of the third party contract, prioritization of platform/software upgrades and on going direction of the third party's activities as described in the master contract. Membership of the LLC is not required for service providers to receive services from the neutral third party.

12.2.2 Competitively Neutral Pricing

The NPAC vendors have to be competitively neutral in pricing. It is the responsibility of each respective Regional LLC to ensure that competitively neutral pricing is consistent with FCC and state regulatory mandates.

12.2.3 Competitive Neutral Service

The NPAC vendor shall provide non-discriminatory service to all users.

12.2.4 NPAC User Criteria

NPAC Users are required to be telecommunications Service Providers or facilities-based⁴ interexchange carriers that have been certified by the FCC or a State Public Utility Commission or are under contract to a Service Provider or facilities-based interexchange carrier to provide billing, routing, and/or rating for that respective Service Provider or interexchange carrier. The above criteria limits NPAC access to those with an operational need for NPAC service in order to provide local number portability. These limitations are necessary to protect security of information and to minimize NPAC costs.

12.3 NANC

12.3.1 Architectural Change Approval Process

All NPAC/SMS architecture changes will be approved by NANC. Implementation of these changes will be managed via each respective Regional LLC with its respective NPAC vendor. If NANC is dissolved, an oversight body should be identified or established to support/approve NPAC/SMS architecture changes.

⁴ The term facility based is used in this document to describe carriers who own or lease switching equipment.

**NORTH AMERICAN NUMBERING COUNCIL
LNP ARCHITECTURE & ADMINISTRATIVE PLAN**

12.3.2 Conflict Resolution

Any conflicts between Service Providers in relation to NANC architecture will be escalated to NANC for conflict resolution.

12.4 LLC Merger Process

The merging of Regional LLC's is not precluded.

12.5 NPAC Business Roles and Responsibilities

12.5.1 Neutral Third Party

The NPAC will be staffed by a neutral third party vendor.

12.5.2 NPAC Role

The primary role of the NPAC will be to assist users in obtaining access to the NPAC SMS. To perform this duty, the NPAC must support the following functional areas: administration, user support, and system support.

12.5.3 NPAC Administrative Functions

1. The administrative functions of the NPAC will include all management tasks required to run the NPAC.
2. The NPAC will work with the users to update data tables required to route calls for ported local numbers or required for administration.
3. The NPAC will be responsible for NPAC SMS logon administration, user access, data security, user notifications, and management.
4. The NPAC will be the primary contact for users that encounter problems with NPAC system features.
5. The user support function should also provide the users with a central point of contact for reporting and resolution of NPAC problems.
6. The system support function will provide coordination/resolution of problems associated with system availability, communications and related capabilities.
7. The NPAC hours of operation will be 24 hours a day, seven days a week.
8. The NPACs must meet the service level requirements as established by their respective LLCs.
9. The NPAC will provide reports to regulatory bodies as required.

12.5.4 Transition Guidelines

1. The NPAC will provide the same level of quality service during the period of transition to a new NPAC.
2. Transition to a new NPAC will be transparent to users.
3. Sufficient time will need to be established to allow each user to operate in a dual mode during transition to allow for installation of new NPAC links, testing of new NPAC links, problem resolution, installation at disaster recovery site, and de-installation of access links from old NPAC.

**NORTH AMERICAN NUMBERING COUNCIL
LNP ARCHITECTURE & ADMINISTRATIVE PLAN**

13. REFERENCE DOCUMENTS

- (1) Illinois Commerce Commission Order 96-0089 dated March 13, 1996.
- (2) FCC First Report and Order and Further Notice of Proposed Rulemaking; FCC 96-286; CC Docket 95-116, RM 8535; Adopted: June 27, 1996; Released: July 2, 1996.
- (3) FCC First Memorandum Opinion And Order On Reconsideration; CC Docket No. 95-116, RM-8935; Adopted: March 6, 1997; Released: March 11, 1997.

**NORTH AMERICAN NUMBERING COUNCIL
LNP ARCHITECTURE & ADMINISTRATIVE PLAN**

Attachment A

EXAMPLE N-1 CALL SCENARIOS

Refer to Paragraph 7.8 of the main document for the definition of N-1 carrier. Also refer to Section 8 of the main document for the local to local view of LNP call scenarios.

Refer to the figure on the last page of this attachment to help understand the call processing and routing described in the following call scenarios.

All Scenarios:

1. 816-724-2245 has changed service providers from LEC-1 to LEC-2.
2. NXX's 724 and 662 are considered ported NXX's.

WIRELINE LONG DISTANCE CALLS

SCENARIO A1 (Long Distance - LNP/LRN Capable IXC):

1. 507-863-2112 calls long distance to 816-724-2245 from outside the ported area.
2. LEC-3 routes the call to the caller's pre-subscribed carrier without any requirement to determine the LRN.
3. The pre-subscribed IXC (IXC-1) is the N-1 carrier, determines the LRN by performing a database dip, and routes the call to LEC-2. If IXC-1 does not have a direct connection to LEC-2, calls may be terminated through tandem agreement with LEC-1.

SCENARIO A2 (Long Distance - IXC without LNP/LRN capability):

1. 507-863-2112 calls long distance to 816-724-2245 from outside the ported area.
2. LEC-3 routes the call to the caller's pre-subscribed carrier without any requirement to determine the LRN.
3. The pre-subscribed IXC (IXC-2) is the N-1 carrier. Because IXC-2 does not have LNP/LRN capability, IXC-2 should have an agreement with LEC-1 (or LEC-2) to terminate default routed traffic, and LEC-1 (or LEC-2) becomes the carrier actually performing the LNP/LRN function to determine proper routing.

**NORTH AMERICAN NUMBERING COUNCIL
LNP ARCHITECTURE & ADMINISTRATIVE PLAN**

WIRELINER LOCAL CALLS FROM OUTSIDE THE PORTED AREA

SCENARIO A3 (Local call outside ported area - LNP/LRN Capable LEC):

1. 816-845-1221 makes a call within her local calling area, but from outside the ported area to 816-724-2245.
2. LEC-4 is the N-1 carrier and performs the database dip to determine the LRN and then routes the call to LEC-2. If no direct connection exists between LEC-4 and LEC-2, calls may be terminated through tandem agreement with LEC-1.

SCENARIO A4 (Local call outside ported area - LEC without LNP/LRN capability):

1. 816-845-1221 makes a call within her local calling area, but from outside the MSA and ported area to 816-724-2245.
2. LEC-4 is the N-1 carrier and at some time may be required to perform the database dip to determine the LRN to route the call to LEC-2. Until that time, LEC-4 should arrange with LEC-1 (or LEC-2) to terminate default routed calls.

**NORTH AMERICAN NUMBERING COUNCIL
LNP ARCHITECTURE & ADMINISTRATIVE PLAN**

Simplified Trunking and SS7 Diagram for Connections to Ported Area

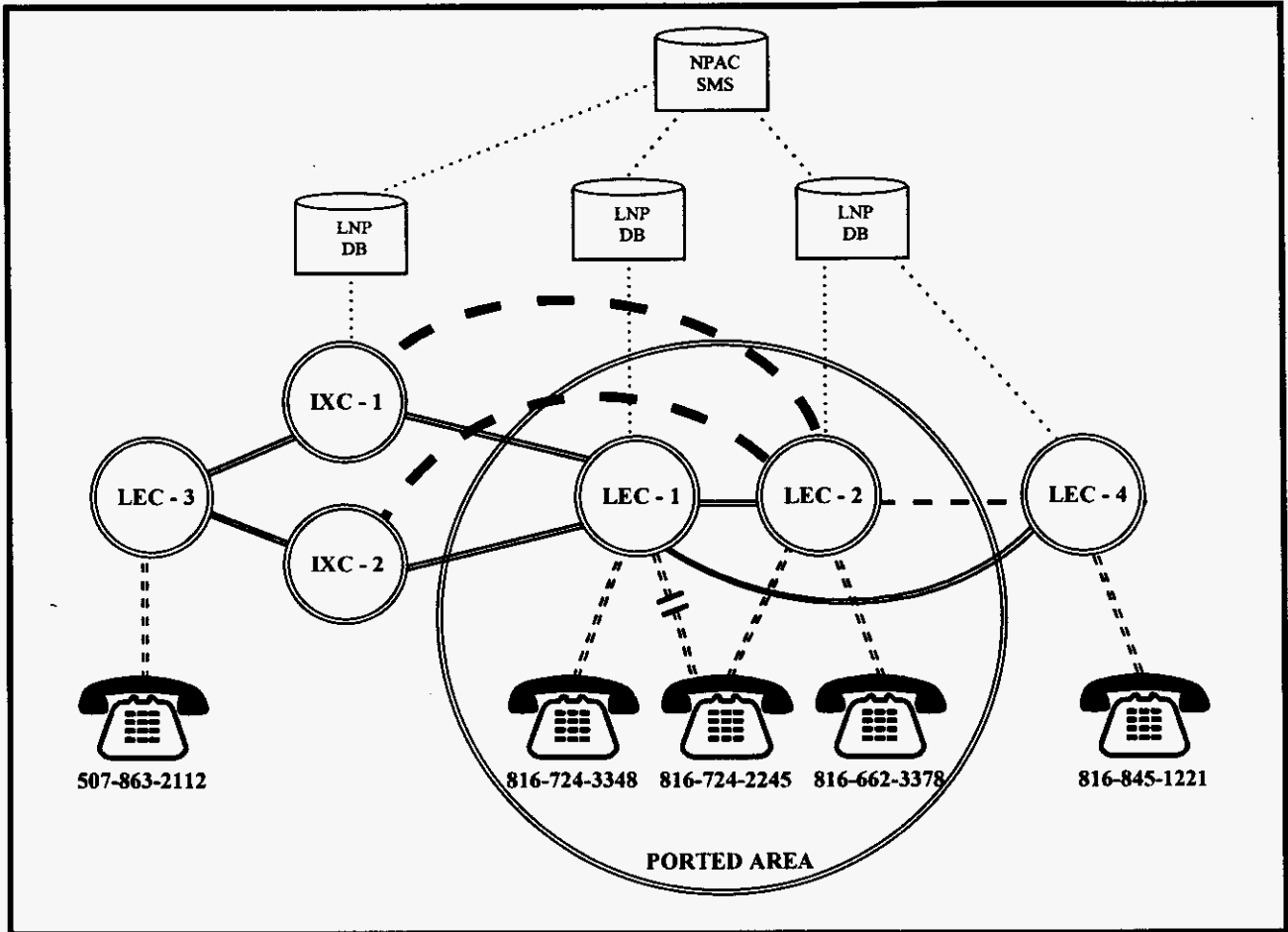


Figure A-1

North American Numbering Council
LNPA Selection Working Group

Appendix E

**LNPA Technical & Operational
Requirements Task Force Report**

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

Table of Contents

Section		Page
1	Introduction	1
2	Mission Statement	2
3	Task Force Composition	3
4	Working Assumptions ..	4
5	Standards Rationale	5
6	Issues	7
6.1	Issues Introduction	7
6.2	LNP Provisioning Flows Issue	7
6.3	Service Provider-to-Service Provider Audit Issue	7
6.4	Mismatch of Provisioning and Network Update Rate Issue	7
6.5	Network Element Update Acknowledgment Issue	8
6.6	Interactive Voice Response Unit Issue	8

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

7 Recommendation - NPAC SMS Provisioning Process Flows 9

8 Recommendation - NPAC SMS Standards - Functional Requirements Specification (FRS) 10

9 Recommendation - NPAC SMS Standards - Interoperable Interface Specification (IIS)..... 11

10 Recommendation - Policy for the Porting of Reserved and Unassigned Numbers and Compliance Process 12

11 Recommendation - Change Management and Compliance Process 13

Appendices

- Appendix A - Issues and Resolutions
- Appendix B - Inter-Service Provider LNP Operations Flows
- Appendix C - NANC Functional Requirements Specification
- Appendix D - NANC Interoperable Interface Specification
- Appendix E - Glossary

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

1. INTRODUCTION

- 1.1 The initial NANC LNPA Selection Working Group meeting occurred on November 8, 1996. At that meeting FCC representatives charged the LNPA Selection Working Group to fulfill the following responsibilities.
- A. Determine the neutral third party or parties to act as the Local Number Portability Administrator(s) (LNPA)
 - B. Determine whether one or multiple LNPA(s) are selected
 - C. Determine the requirements for LNPA(s) selection
 - D. Define the duties of the LNPA(s)
 - E. Determine the geographic coverage of the regional databases
 - F. Develop technical standards, including interoperability operational standards, network interface standards and technical specifications
 - G. Develop guidelines and standards by which the North American Numbering Plan Administrator and the LNPA(s) share numbering information
- 1.2 At a subsequent LNPA Selection Working Group meeting the LNPA Architecture and LNPA Technical & Operational Requirements (T&O) Task Forces were formed to begin addressing these overall responsibilities. The LNPA T&O Task Force was directed to satisfy item F above, develop technical standards, network interface standards and technical specifications. This report describes the process the T&O Task Force used to satisfy this requirement.
- 1.3 The LNPA T&O Task Force interpreted this responsibility to include maintaining and updating these standards going forward and establishing a long term compliance process for Service Providers (SP) and Number Portability Administration Centers (NPACs).

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

2. MISSION STATEMENT

- 2.1 In support of the LNPA T&O Task Force responsibilities the following mission statement was developed:

Develop initial and future NPAC SMS technical and operational requirements, identify pertinent industry standards, and recommend an oversight process to insure compliance.

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

3. TASK FORCE COMPOSITION

3.1 The LNPA T&O Task Force membership consists of representatives from the following companies and regulatory bodies:

Company/Association	Name
Ameritech	Donna Navickas
AT&T	Bonnie J. Baca (Co-Chair)
Bellcore	John Malyar
BellSouth	Ron Steen
BellSouth Wireless	Karl Koster
California PUC	Natalie Billingsley
Cox	Karen Furbish
EDS	Michael Haga
GTE	Bob Angevine
IBM	J. Paul Golick
ILLUMINET/ITN	Robert M. Wienski
Interstate Fiber Net	Steven Brownworth
Lockheed Martin	Larry Vagnoni
Lucent Technologies	Doug Rollender
MCI	Steve Addicks
Nortel	Marcel Champagne
NYNEX	Kevin Cooke
OPASTCO	John McHugh
Pacific Bell	Sandra E. Cheung
Pac Bell Mobil Svc	Linda Melvin
Perot Systems	Tim McCleary
Pocket Com/CTA	Nina Blake
SBC	Marilyn Murdock (Co-Chair)
Sprint	Dave Garner

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

Telecom Software Enterprises	Lisa Marie Maxson
Teleport	Phil Presworskey
Time Warner/NCTA	Karen Kay
US West	Cynthia Gagnon
WinStar	Steve Merrill
WorldCom	Bettie Shelby

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

4. WORKING ASSUMPTIONS

- 4.1 The LNPA T&O Task Force adopted the following working assumptions which govern the operation of the Task Force:
- A. Membership on the Task Force adequately represents the industry.
 - B. Only issues that fall within the scope of the LNPA T&O Task Force Mission Statement are considered by the Task Force.
 - C. Task force members elect co-chairs from the Incumbent Local Exchange Carrier (ILEC) and Competitive LEC (CLEC) segments of the industry to administer Task Force activities and to determine consensus when required.
 - D. Decisions are adopted by consensus rather than by a simple majority with each entity receiving one (1) vote.
 - E. Unresolved issues are escalated by the co-chairs to the LNPA Selection Working Group for possible escalation to NANC if required.
 - F. The standards are adopted by the LNPA T&O Task Force for areas which do not fall under the jurisdiction of any other industry forum.
 - G. The industry will comply with the standards developed by the LNPA T&O Task Force.

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

5. STANDARDS RATIONALE

5.1 The LNPA T&O Task Force reviewed the activities in each of the seven (7) regions to evaluate the LNP planning activities currently underway. It was determined that certain documents were under development concurrently in each region. The regional LNP documents that had relevance to the Task Force mission included:

A. Requirements Documents

Request for Proposals (RFPs) were developed in each region to invite neutral third party vendors to submit proposals to provide NPAC SMSs. The RFP in each region included, either as an attachment or by reference, the Functional Requirements Specification (FRS), which defines the functional requirements for the NPAC SMS and the Interoperable Interface Specification (IIS) which contains the information model for the NPAC SMS mechanized interfaces. Since these two (2) requirements documents were being discussed concurrently in all regions, the Task Force determined that immediate consideration for standardization across the regions was required.

B. NPAC SMS Provisioning Process Flows

The NPAC SMS Provisioning Process Flows document describes the inter-service provider and NPAC SMS process flows. This series of nine (9) flows was also being addressed independently in each region. The Task Force determined that the flows also required immediate consideration for standardization.

5.2 The LNPA T&O Task Force reviewed the content of these regional documents and determined that they were essentially similar. These documents were each subsequently updated by the Task Force and are recommended as industry standards in Sections 7 through 9 of this report. The Task Force concluded there were significant advantages to the industry if standard FRS, IIS, and NPAC SMS Provisioning Process Flows were developed and endorsed by the industry. Following is a list of the most critical advantages:

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

- A. Industry standards reduce work activities required by the regional teams resulting in earlier completion of certain critical path activities such as functional requirements for the NPAC SMS. Completion of this and other activities are necessary for the NPAC SMS vendors, the Service Providers (SPs), and other associated product vendors, to implement systems, centers, and processes according to the FCC schedule.
- B. The work underway in the seven (7) regions was producing essentially equivalent FRS and IIS documents and provisioning flows resulting in duplication of effort across the regions, and was therefore an ineffective use of the resources available for LNP deployment.
- C. Standard NPAC SMS requirements and operational flows facilitate the design and development of associated processes such as the Local Service Request (LSR) process where procedures are defined as a national standard for the industry by the Ordering and Billing Forum (OBF).
- D. The vendors that are currently developing or modifying LNP-related products such as Local SMS, Service Order Administration (SOA) interfaces, and network Service Control Points (SCP) are able to develop standard products rather than multiple versions based on regional differences, resulting in more timely and cost effective offers to the SPs.
- E. There are currently numerous nationwide SPs and mergers and market expansions will result in additional nationwide SPs in the future. It is advantageous to these companies to maintain standard system requirements and processes to gain maximum efficiency and effectiveness in all LNP functions. For example, a standard interface between the NPAC SMS and the SP systems allows for minimum expenditure of time and resources while at the same time producing higher quality customer service processes.

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

6. ISSUES

6.1 Issues Introduction

6.1.1 During the initial meetings, the LNPA T&O Task Force identified certain contentious issues that, depending on the outcome, would significantly impact the standards contained in the requirements documents developed by the Task Force. Each of the five (5) issues described below was resolved by the Task Force and additional details and the resolution on each are contained in Appendix A.

6.2 LNP Provisioning Flows Issue

6.2.1 The issue concerned the amount of control the old and new SPs can exercise during the customer porting process in the NPAC as documented in the provisioning flows. Following failure by the Task Force to reach a consensus, the issue was escalated to the LNPA Selection Working Group on January 7, 1997, and presented to NANC on January 13. NANC directed the Task Force to continue working the issue and to report back to the NANC chairman on January 23.

6.3 Service Provider-to-Service Provider (SP-to-SP) Audit Issue

6.3.1 There was a disagreement regarding the use of SP-to-SP audits in the Number Portability Administration Center Service Management System (NPAC SMS). These audits are used when customers notify their SP of a repair problem, and the SP launches an audit to determine if there are discrepancies between NPAC SMS and Local SMS (LSMS) subscription data. This issue concerns minimizing the functions performed by the NPAC.

6.4 Mismatch of Provisioning Download and Network Upload Rate Issue

6.4.1 The NPAC SMS to LSMS interface transaction rate, as defined in the NANC FRS, is 25 telephone numbers (TNs) per second, sustained for five (5) minutes for each such interface. The SCP requirement states that the LSMS must support the download rate specified by the NPAC, and contains a goal for

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

activating portability for subscribers within 15 minutes after the record for the ported subscriber is downloaded by the NPAC. This requirement is defined in the Generic Requirements for SCP Application and GTT Function for Number Portability, Issue 0.99, January 6, 1997. However, prior issues of this document consistently stated an SCP requirement of one (1) TN per second update rate; hence, the mismatch. The SCP generic requirements document also indicates that the NPAC SMS transaction rate places requirements for the processing of download records on the LSMS, SCP LNP application, and LNP GTT function, which must be addressed by the vendor and the SP.

6.5 Network Element Update Acknowledgment Issue

6.5.1 There is no acknowledgment of update from the network element (i.e., SCP) back to the NPAC SMS. This results in the NPAC SMS knowing only that the LSMS has received the ported TN information and does not tell it whether the SP's network was updated.

6.6 Interactive Voice Response Unit Issue

6.6.1 The LNPA T&O Task Force considered requiring an Interactive Voice Response (IVR) unit for NPAC development. The purpose of the IVR is to provide automated responses to calls issued by selected users (e.g., service providers' technicians, E911 personnel, etc.) who require the name of the Service Provider (SP) of a ported subscriber.

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

7. RECOMMENDATION - NPAC SMS PROVISIONING PROCESS FLOWS

7.1 The LNPA T&O Task Force adopted the Illinois LNP provisioning process flows and associated descriptions as a frame of reference for refining the NPAC SMS flows. The flows document the following inter-service provider and NPAC SMS processes:

- A. Provisioning - Figure 1
- B. Provisioning without unconditional 10-digit trigger - Figure 2
- C. Provisioning with unconditional 10-digit trigger - Figure 3
- D. Conflict flow for service creation provisioning process - Figure 4
- E. Cancellation flow for provisioning process - Figure 5
- F. Cancellation conflict flow for provisioning process - Figure 6
- G. Disconnect process for ported telephone numbers - Figure 7
- H. Audit process - Figure 8
- I. Code Opening Processes - Figure 9

7.2 The original Illinois LNP provisioning process flows were updated to reflect the changes resulting from the resolution of the LNP Provisioning Flow Issue described in Section 6.2 above. In addition, each flow was reviewed and modified to ensure industry wide endorsement. The Task Force also reviewed and modified the associated process flow descriptions until each member of the team was able to endorse the language selected. The LNPA T&O Task Force recommends endorsement by NANC of these flows and descriptions as industry standards for adoption by each region. A pictorial representation of these flows, now referred to as Inter-Service Provider LNP Operations Flows and the associated descriptions, are contained in Appendix B.

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

8. RECOMMENDATION - NPAC SMS STANDARDS - FUNCTIONAL REQUIREMENTS SPECIFICATION (FRS)

- 8.1 The LNPA T&O Task Force adopted the Functional Requirements Specification (FRS) as a framework document. This document, which was originally developed by Lockheed Martin IMS Corporation, defined the functional requirements of NPAC SMS for use in the Illinois trial.
- 8.2 The NPAC SMS is a hardware and software platform that contains the database of information required to effect the porting of telephone numbers. In general, the NPAC SMS receives customer information from both the old and new SPs, validates the information received, and downloads the new routing information when an "activate" message is received indicating that the customer has been physically connected to the new SP's network. The NPAC SMS contains a record of all ported numbers and a history file of all transactions relating to the porting of a number. The NPAC SMS also provides audit functionality and the ability to transmit routing information to SPs to maintain synchronization of SP's network elements that support portability.
- 8.3 The Request for Proposal (RFP) in each of the remaining six (6) regions included, either as an attachment or by reference, a version of the Illinois FRS. Therefore, the vendor proposals received in each of the seven (7) regions were in response to substantially similar requirements.
- 8.4 The LNPA T&O Task Force updated the Illinois FRS, Version 1.4 to reflect agreed upon standards. This revised version was released as NANC FRS Version 1.0 on April 7, 1997. The current version of this document is referenced in Appendix C. The LNPA T&O Task Force recommends endorsement by NANC of the NANC FRS as an industry standard for use in developing and maintaining the NPAC SMS in each of the seven (7) regions.
- 8.5 This specification was developed primarily from a wireline number portability perspective. Unique wireless number portability requirements have not been fully considered in the development of this document. Therefore, modifications to this document may be required to support wireless number portability.

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

9. RECOMMENDATION - NPAC SMS STANDARDS - INTEROPERABLE INTERFACE SPECIFICATION (IIS)

- 9.1 The LNPA T&O Task Force also adopted the Interoperable Interface Specification (IIS) as a framework document. This document, which was originally developed by Lockheed Martin IMS Corporation, is also being used in the Illinois trial.
- 9.2 The NPAC SMS IIS contains the information model for the NPAC SMS mechanized interfaces. These interfaces reflect the functionality defined in the FRS. Both Service Order Administration (SOA) and Local Service Management System (LSMS) interfaces to the NPAC SMS are described in this document. The interfaces, defined using Common Management Information Protocol (CMIP), are referred to as the SOA to NPAC SMS interface and the NPAC SMS to LSMS interface, respectively.
- 9.2.1 The SOA to NPAC SMS interface, which allows communication between an SP's operating support systems and the NPAC SMS, supports the creation and update of subscription information.
- 9.2.2 The NPAC SMS to LSMS interface is used for communications between an SP's LSMS and the NPAC SMS for support of LNP network element provisioning.
- 9.3 The Request for Proposal (RFP) in each of the remaining six (6) regions included, either as an attachment or by reference, a version of the Illinois IIS. Therefore, the vendor proposals received in each of the seven (7) regions were in response to substantially similar requirements.
- 9.4 The LNPA T&O Task Force updated the Illinois IIS, Version 1.4, to agreed upon standards. This revised version was released as NANC IIS, Version 1.0, on April 7, 1997 and is referenced in Appendix D. The LNPA T&O Task Force recommends endorsement by NANC of this revised IIS as an industry standard for use in developing and maintaining the NPAC SMS interfaces in each of the seven (7) regions.
- 9.5 This specification was developed primarily from a wireline number portability perspective. Unique wireless number portability requirements have not been fully

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

considered in the development of this document. Therefore, modifications to this document may be required to support wireless number portability.

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

10. RECOMMENDATION - POLICY FOR THE PORTING OF RESERVED AND UNASSIGNED NUMBERS AND COMPLIANCE PROCESS

10.1 Industry Agreement

- 10.1.1 The LNPA T&O Task Force adopted a compromise on the LNP Provisioning Flows (see Section 6.2) that included endorsing a policy that carriers will not port unassigned numbers unless and until there is an explicit authorization for such porting from a regulator with appropriate jurisdiction. The LNPA T&O Task Force further adopts the Porting of Reserved and Unassigned Number policy developed and documented in Section 7.7 of the "Architecture & Administrative Plan for Local Number Portability."

10.2 Non-compliance Notification Process

- 10.2.1 The LNPA T&O Task Force will develop and put in place a process to inform all current and future SPs that participate in the NPAC process within each of the regions of the Porting of Reserved and Unassigned Numbers policy and of the industry expectation regarding compliance.
- 10.2.2 The LNPA T&O Task Force defined requirements to develop reports in the NPAC SMS to identify instances of SP non-compliance with the Porting of Reserved and Unassigned Numbers policy. Such reports are forwarded on a periodic basis to the SPs involved.
- 10.2.3 Should an SP feel disadvantaged by instances of non-compliance of the Porting of Reserved and Unassigned Number policy by another SP, several courses of action are available to the aggrieved SP. First, it is recommended that the SP contact the offending SP to resolve the issue through normal discussions.
- 10.2.4 Should the SP remain unsatisfied following SP to SP discussion, that SP may escalate the issue to one or more of the following as appropriate, or other bodies as deemed appropriate by the SP:

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

- To the regional LLC via the dispute resolution process
- To NANC via the procedures for Resolution of Numbering Disputes
- To the state Public Utilities Commission

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

**11. RECOMMENDATION - CHANGE MANAGEMENT AND COMPLIANCE
PROCESS**

11.1 Change Management Required

11.1.1 The LNPA T&O Task Force members recognize that, having developed and recommended technical and operational standards for the industry to follow for the implementation of NPAC SMS, ongoing changes to the requirements must be managed. The members agree and recommend that an open industry group, such as this Task Force, or other similar group designated by the NANC, should be charged to continue to recommend ongoing technical standards for the NPAC as changes are identified and introduced.

11.2 Change Management Process

11.2.1 The LNPA T&O Task Force members further recommend that a change management process be developed, by the designated oversight group, which will provide an open and neutral facility for the submission and consideration of changes requested to the NANC FRS and/or NANC IIS requirements specifications. The procedures should include the definition of standard change request documents, vehicles/facilities for the submission and distribution of requests, and timetables for the process of open consideration and prioritization of such requests.

11.2.2 The LNPA T&O Task Force adopted an interim process to ensure continued consistency in the submission and consideration of changes to the NANC FRS and/or NANC IIS requirements specifications until NANC finalizes a recommendation on a permanent process. The interim process includes all the components of the change management process described in Section 11.2.1, however, administration of the process is performed by one of the NPAC vendors. While the industry is responsible for all decisions made concerning changes, it is important to move the administrative role to a neutral organization managed by the industry.

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

11.3 Compliance Process

- 11.3.1 The LNPA T&O Task Force members also agree that compliance with the published NANC FRS and NANC IIS standards is expected, and that instances of non-compliance may be reported to the NANC for appropriate action.

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

APPENDIX A

ISSUES AND RESOLUTIONS

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

ISSUES AND RESOLUTIONS

I. ISSUE STATEMENT

LNP Provisioning Flows Issue

- A. The issue concerned the amount of control the old and new SPs can exercise during the customer porting process in the NPAC as documented in the provisioning flows. Following failure by the Task Force to reach a consensus, the issue was escalated to the LNPA Selection Working Group on January 7, 1997, and presented to NANC on January 13. NANC directed the Task Force to continue working the issue and to report back to the NANC chairman on January 23.

ISSUE RESOLUTION

LNP Provisioning Flows Issue

- A. After several attempts to reach compromise, the ILECs made a proposal that was adopted with minor modifications on January 20, 1997. Following are descriptions of the three (3) part compromise proposed by the ILEC members of the LNPA T&O Task Force followed by the compromise adopted by the full Task Force:
1. ILEC Proposal
 - a. After the Firm Order Commitment (FOC) is received by the new Service Provider (SP), both old and new SPs send subscription records to the NPAC which must include the FOC due date. The FOC due date will be no earlier than three (3) business days after the FOC receipt date. No NPAC subscription version may activate before the FOC due date unless a new FOC is negotiated with the old SP.
 - b. The NPAC SMS processing timers will include business hours only. Local business hours are to be defined as 12 daytime hours per day on Mondays through Fridays,

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

except holidays. (Time zone issue must be resolved and will be addressed separately.)

- c. An old SP may only cause a subscription version to be set to conflict state one (1) time from the pending state, and only up to noon on the business day before the subscription due date. Within six (6) business hours of the conflict initiation, "conflict off" may be set only by the old SP alone or by the concurrence of both SPs. After six (6) business hours, "conflict off" may be set by the new SP alone, **except** when the LSR/FOC process has not been followed, and/or the subscription version submitted to the NPAC SMS includes a vacant, non-working telephone number, then the old SP alone controls the conflict/cancellation process.

2. Accepted Compromise

- a. The ILEC proposal was accepted. This represents a compromise by the CLECs as they maintain this adds an additional day to the provisioning process since the three (3) business days are counted from the FOC due date rather than the LSR receipt date.
- b. The ILEC proposal was accepted.
- c. An old SP may only cause a subscription version to be set to conflict state one (1) time from the pending state, and only up to noon on the business day before the subscription due date. Within six (6) business hours of the conflict initiation, "conflict off" may be set only by the old SP alone or by the concurrence of both SPs. After six (6) business hours "conflict off" may be set by either the old or new SP. This represents a compromise by the ILECs as the ILEC proposal included an exception to the conflict process where the old SP controlled removal from conflict in certain cases.

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

- B. Points a and c above are linked, therefore, withdrawal or modification of either point by industry factions nullifies the compromise agreement. In addition, adoption of the compromise is contingent on satisfying the following conditions:
1. The Task Force will recommend a policy to the Working Group for NANC and FCC concurrence that carriers will not port unassigned numbers unless and until there is an explicit authorization for such porting from a regulator with appropriate jurisdiction.
 2. A tracking vehicle in the NPAC will be developed to measure the reasons transactions are placed into conflict. This measurement becomes the vehicle to identify specific SPs or processes needing improvement and subsequently to develop process improvement plans.
 3. The LNPA T&O Task Force will recommend to the Working Group for NANC and FCC concurrence an expedited process to resolve instances of SP non-compliance with the assumption that all SPs will follow the Local Service Request (LSR) and Firm Order Commitment (FOC) processes.
- C. The industry vote in support of the compromise provisioning flows was unanimous in both the Task Force and the Working Group. However, while Pacific Bell voted yes, they do not agree with a process that does not allow the prevention of porting of unassigned telephone numbers or telephone numbers that do not have an associated LSR and FOC. Pacific Bell recognizes the need to move forward with these process flows with the condition that NANC recommend that porting of unassigned numbers is prohibited until a commission approved process for number pooling is in place. Pacific Bell reserves the right to appeal to the commission on this issue.

II. ISSUE STATEMENT

Service Provider-to-Service Provider (SP-to-SP) Audits Issue

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

- A. There was disagreement regarding the use of SP-to-SP audits in the NPAC SMS. These audits are used when a customer notifies their SP of a repair problem and the SP launches an audit to determine if there are discrepancies between NPAC SMS and Local SMS (LSMS) subscription data. This issue concerns minimizing the functions performed by the NPAC. A proposal, which did not reach consensus, was made providing for screening of audits, allowing an SP to block audits from any other SP.

ISSUE RESOLUTION

Service Provider-to-Service Provider Audits Issue

- A. On January 30, 1997, the LNPA T&O Task Force agreed to allow the SP-to-SP audit function without screening in the NPAC SMS, but to monitor the use of audits to identify the effectiveness and efficiency of the process in resolving repair calls.

III. ISSUE STATEMENT

Mismatch of Provisioning Download and Network Upload Rate Issue

- A. The NPAC SMS to LSMS interface transaction rate, as defined in the NANC FRS, is 25 telephone numbers (TNs) per second, sustained for five (5) minutes for each such interface. The SCP requirement states that the LSMS must support the download rate specified by the NPAC, and contains a goal for activating portability for subscribers within 15 minutes after the record for the ported subscriber is downloaded by the NPAC. This requirement is defined in the Generic Requirements for SCP Application and GTT Function for Number Portability, Issue 0.99, January 6, 1997. However, prior issues of this document have consistently stated an SCP requirement of one (1) TN per second update rate; hence, the mismatch. The SCP generic requirements document also indicates that the NPAC SMS transaction rate places requirements for the processing of download records on the LSMS, SCP LNP application, and LNP GTT function, which must be addressed by the vendor and the SP.

ISSUE RESOLUTION

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

Mismatch of Provisioning Download and Network Upload Rate Issue

- A. The Task Force concluded that the NPAC SMS requirement of 25 TNs per second will remain unchanged. The LNPA T&O Task Force recommends gaining experience by monitoring the downloads from the NPAC SMS and the ability of the network elements to activate subscriptions within the target interval of 15 minutes. This issue will be revisited when this data is available.

IV. ISSUE STATEMENT

Network Element Update Acknowledgment Issue

- A. There is no acknowledgment of update from the network element (i.e., SCP) back to the NPAC SMS. This results in the NPAC SMS knowing only that the LSMS has received the ported TN information and does not tell it whether the SP's network was updated.

ISSUE RESOLUTION

Network Element Update Acknowledgment Issue

- A. After many discussions and considerable research on this issue, it was decided that due to an unacceptably high level of complexity to implement changes to network provisioning systems, the Task Force would not pursue network element acknowledgment at this time.

V. ISSUE STATEMENT

Interactive Voice Response Unit Issue

- A. The LNPA T&O Task Force considered requiring an Interactive Voice Response (IVR) unit for NPAC development. The purpose of the IVR is to provide automated responses to calls issued by selected users (e.g., service providers' technicians, E911 personnel, etc.) who require the name of the Service Provider (SP) of a ported subscriber.

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

1. The IVR concept originated from help desk calls to the 800 SMS. With experience, it was determined that a high percentage of those calls (approximately 80%) were inquiries concerning the SP associated with a certain toll free number. When an IVR was installed to handle such calls in an automated fashion, the 800 SMS help desk's efficiency was increased substantially.

2. Due to the similarity between the 800 SMS and the NPAC SMS, the IVR concept was introduced to provide a mechanism for SPs and emergency personnel to determine the SP of a ported subscriber (provider name and telephone number of a business/repair office), based on the ported telephone number. The users of the IVR are issued a password for validation prior to use of the IVR.

ISSUE RESOLUTION

Interactive Voice Response Unit Issue

- A. There is no consensus that an IVR is necessary for NPAC development. The recommendation is to gain experience with NPAC SMSs in production and determine whether an IVR would alleviate help desk inquiries. Furthermore, there are other means to retrieve the same information in the current design, namely:
 1. The SP information associated with a ported customer is downloaded to each Local SMS after activation at the NPAC SMS. SP contact information is available through the NPAC SMS to the Local SMS interface. Each SP can rely on its Local SMS to retrieve relevant porting information, including contact information for the service provider of a ported customer.

- B. The LNPA T&O Task Force recommends that it gain practical experience with the NPAC SMSs, measure type and volume of help desk calls, and revisit the IVR issue when this data is available.

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

APPENDIX B

INTER-SERVICE PROVIDER LNP
OPERATIONS FLOWS

Inter-Service Provider LNP Operations Flows

Provisioning
Figure 1

Step	Description
1. End-user Contact	<ul style="list-style-type: none"> • The process begins with an end-user requesting service from the New Service Provider. • It is assumed that prior to entering the provisioning process the involved NPA/NXX was opened for porting.
2. End-user agrees to change to New Service Provider	<ul style="list-style-type: none"> • End-user agrees to change to New Service Provider and requests retention of current telephone number (TN)
3. New Service Provider obtains end-user Authorization	<ul style="list-style-type: none"> • New Service Provider obtains authority from end-user to act as the official agent on behalf of the end-user. The New Service Provider is responsible for demonstrating necessary authority.
4. Is end-user porting all telephone numbers?	<ul style="list-style-type: none"> • The New Service Provider determines if customer is porting all TNs. • If yes, go to Step (6). • If no, go to Step (5).
5. New Service Provider notes "not all TNs being ported" in remarks field on LSR.	<ul style="list-style-type: none"> • The New Service Provider makes a note in the remarks section of the LSR to identify whether the end-user is not porting all telephone numbers (TNs).

Inter-Service Provider LNP Operations Flows

Provisioning
Figure 1

<p>6. New Service Provider notifies Old Service Provider of change using Local Service Request (LSR).</p>	<ul style="list-style-type: none">• The New Service Provider notifies the Old Service Provider of the porting using the LSR and sends the information via an electronic gateway, FAX, or other manual means. The LSR process is defined by the Ordering and Billing Forum (OBF) and the electronic interface by the Telecommunications Industry Forum (TCIF).
<p>7. Old Service Provider provides Firm Order Confirmation (FOC) to New Service Provider within 24 hours.</p>	<ul style="list-style-type: none">• The minimum expectation is that the FOC is returned within 24 hours excluding weekends unless otherwise defined by inter-company agreements. It is the responsibility of the Old Service Provider to contact the New Service Provider if the Old Service Provider is unable to meet the 24 hour expectation for transmitting the FOC. If the FOC is not received by the New Service Provider within 24 hours, then the New Service Provider contacts the Old Service Provider.• The FOC due date is no earlier than three (3) business days after the FOC receipt date. The first TN ported in an NPA-NXX is no earlier than five (5) business days after FOC receipt date. It is assumed that the porting interval is not in addition to intervals for other requested services related to the porting (e.g., unbundled loops). The interval becomes the longest single interval required for the services requested.• The FOC process is defined by the OBF and the electronic interface by the TCIF.

Inter-Service Provider LNP Operations Flows

Provisioning
Figure 1

<p>8. Old and New Service Providers create and process service orders.</p>	<ul style="list-style-type: none"> • The Service Providers create and process their service orders through their internal service order systems, from the information provided on the FOC and LSR.
<p>9. Old (optionally) and New Service Providers notify NPAC.</p>	<ul style="list-style-type: none"> • Due date on create message is the due date on the FOC. Any change of due date to NPAC is the result of a change in the FOC due date. • Service Providers enter subscription data into NPAC SMS via SOA interface for porting of end-user in accordance with the NANC Functional Requirements Specification (FRS) and the NANC Interoperability Interface Specifications (IIS).
<p>10. NPAC performs data validation on each individual message.</p>	<ul style="list-style-type: none"> • NPAC SMS validates data to ensure value formats and consistency as defined in the FRS. This is not a comparison between Old and New Service Provider messages.
<p>11. Is data valid?</p>	<ul style="list-style-type: none"> • If yes, go to Step (14). If this is the first valid create message, the t_1 timer is started. • If no, go to Step (12).
<p>12. Return data to Service Provider.</p>	<ul style="list-style-type: none"> • If the data is not valid, the NPAC returns notification to the Service Provider for correction.
<p>13. Data corrected and forwarded.</p>	<ul style="list-style-type: none"> • The Service Provider, upon notification from the NPAC SMS, corrects the data and forwards back to NPAC SMS.

Inter-Service Provider LNP Operations Flows

Provisioning
Figure 1

<p>14. Did NPAC receive both and matching create messages within nine (9) business hours (t_1).</p>	<ul style="list-style-type: none"> • If matching, go to Step (17). • If mismatched, go to Step (15). • If t_1 timer expires, go to Step (16). • NPAC SMS processing timers include business hours only, except where otherwise specified. Local business hours are defined as 12 daytime hours per day on Monday through Friday, except holidays. Holidays and business hours are regionally defined.
<p>15. NPAC notifies appropriate Service Provider that information is mismatched.</p>	<ul style="list-style-type: none"> • The NPAC informs the Service Provider that sent the second create that the messages are mismatched. If necessary, the Service Provider notified coordinates the correction.
<p>16. NPAC notifies appropriate Service Provider that create message is missing.</p>	<ul style="list-style-type: none"> • If Service Providers do not notify the NPAC SMS and/or provide matching data, the NPAC SMS sends a notification to the Service Provider who did not respond to the port.
	<ul style="list-style-type: none"> • The NPAC SMS provides an Initial Concurrence Window tunable parameter (t_1) defined as the number of hours after the subscription version was initially created by which both Service Providers can authorize transfer of subscription service. The current default is nine (9) business hours. • The t_2 timer starts.
<p>17. Did Old Service Provider place order in Conflict.</p>	<ul style="list-style-type: none"> • If yes, go to Step (25). • If no, go to Step (18).

Inter-Service Provider LNP Operations Flows

Provisioning
Figure 1

	<ul style="list-style-type: none"> • Check Concurrence Flag Yes or No. If no, a conflict cause code as defined in the FRS, is designated. Old Service Provider makes a concerted effort to contact New Service Provider prior to placing subscription in conflict. Old Service Provider may initiate conflict with proper conflict cause code at anytime prior to noon of the business day before the due date.
<p>18. New Service Provider coordinates physical changes with Old Service Provider.</p>	<ul style="list-style-type: none"> • The New Service Provider has the option of requesting a coordinated order. This is the re-entry point from the Inter-Service Provider LNP Operations Flows - Conflict Flow for the Service Creation Provisioning Process tie point BB. • If coordination is requested on the LSR, an indication of yes or no for the application of a 10-digit trigger is required. If no coordination indication is given, then by default, the 10-digit trigger is applied as defined in inter-company agreements. If the New Service Provider requests a coordinated order and specifies 'no' on the application of the 10-digit trigger, the Old Service Provider uses the 10-digit trigger at its discretion.
<p>19. Does NPAC receive information within nine (9) business hours (t_2)?</p>	<ul style="list-style-type: none"> • The NPAC SMS provides a Final Concurrence Window tunable parameter (t_2), defined as the number of hours after the concurrence request is sent by the NPAC SMS. The current default is nine (9) business hours.

Inter-Service Provider LNP Operations Flows

Provisioning
Figure 1

	<ul style="list-style-type: none"> • NPAC SMS processing timers include business hours only, except where otherwise specified. Local business hours are defined as 12 daytime hours per day on Monday through Friday, except holidays. Holidays and business hours are regionally defined. • If create messages match, go to Step (17). • If t_2 timer expires, go to Step (20). • If create messages are mismatched they will be processed in the same manner as Step (15).
20. Is create message missing from New or Old Service Provider?	<ul style="list-style-type: none"> • If New Service Provider, go to Step (21). • If Old Service Provider, go to Step (23).
21. NPAC logs no response.	<ul style="list-style-type: none"> • The NPAC records that no matching create message was received from the New Service Provider.
22. NPAC notifies both Service Providers that transaction is cancelled and change is rejected.	<ul style="list-style-type: none"> • The subscription version is immediately cancelled by NPAC SMS. Both Service Providers take appropriate action related to internal work orders.
23. NPAC notifies Old Service Provider that porting proceeds under control of New Service Provider.	<ul style="list-style-type: none"> • A notification message is sent to the Old Service Provider noting that the porting is proceeding in the absence of any message from the Old Service Provider.
24. Is the Unconditional 10-Digit Trigger being used?	<ul style="list-style-type: none"> • If yes, go to Inter-Service Provider LNP Operations Flows - Provisioning with Unconditional 10-Digit Trigger - tie point AA.

Inter-Service Provider LNP Operations Flows

Provisioning
 Figure 1

	<ul style="list-style-type: none"> • If no, go to Inter-Service Provider LNP Operations Flows - Provisioning without Unconditional 10-digit Trigger - tie point A.
	<ul style="list-style-type: none"> • The unconditional 10-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 to reside in both donor and recipient switches at the same time. • The unconditional 10-digit trigger may be applied by the New Service Provider.
<p>25. NPAC logs request to place order into Conflict including conflict cause code.</p>	<ul style="list-style-type: none"> • Go to Inter-Service Provider LNP Operations Flows - Conflict Flow for the Service Creation Provisioning Process - tie point B.
<p>26. END</p>	

Inter-Service Provider LNP Operations Flows

Provisioning Without Unconditional 10-Digit Trigger
Figure 2
Flow A

<u>Step</u>	<u>Description</u>
NOTE: Steps 1 and 2 are worked concurrently.	
1. New Service Provider activates its Central Office translations.	<ul style="list-style-type: none"> • The New Service Provider activates its own Central Office translations.
2. Old and New Service Providers make physical changes (where necessary).	<ul style="list-style-type: none"> • Physical changes may or may not be coordinated. Coordinated physical changes are based on inter-connection agreements. • Following completion of steps 1 and 2, the New Service Provider is now providing dial tone to ported end user.
3. New Service Provider notifies NPAC to activate subscription.	<ul style="list-style-type: none"> • The New Service Provider sends an activate message to the NPAC SMS via the SOA. • No NPAC subscription version may activate before the FOC due date.
NOTE: Steps 4, 5, 6, and 7 may be concurrent, but at a minimum should be completed ASAP.	
4. NPAC SMS Downloads (real time) to all Service Providers.	<ul style="list-style-type: none"> • The NPAC SMS broadcasts new subscription data to all Service Providers in the serving area in accordance with the NANC FRS and NANC IIS. The Generic Requirements for Service Control Point (SCP) Applications and GTT Function for Number Portability document contains a reference to a target interval for SCP updates.

Inter-Service Provider LNP Operations Flows

Provisioning Without Unconditional 10-Digit Trigger
Figure 2
Flow A

<p>5. NPAC SMS records date and time in history file.</p>	<ul style="list-style-type: none"> The NPAC SMS records the current date and time as the Activation Date and Time stamp, after all Local SMSs have successfully acknowledged receipt of new subscription version.
<p>6. Old Service Provider removes translations in Central Office.</p>	<ul style="list-style-type: none"> The Old Service Provider initiates the removal of translation either at designated Due Date and Time or, if the order was designated as coordinated, upon receipt of a call from the New Service Provider.
<p>7. NPAC SMS logs failures and non-responses and notifies the Old and New Service Providers of failures.</p>	<ul style="list-style-type: none"> The NPAC SMS resends the activation to a Local SMS that did not acknowledge receipt of the request. The number of NPAC SMS attempts to resend is a tunable parameter for which the current default is three (3) attempts. Once this cycle is completed NPAC personnel investigate possible problems. In addition, the NPAC sends a notice via SOA interface to both the Old and New Service Providers with a list of Local SMSs that failed activation.
<p>8. All Service Providers update routing databases (real time download).</p>	<ul style="list-style-type: none"> This is an internal process and is performed in accordance with the Generic Requirements for SCP Applications and GTT Functions for Number Portability document.
<p>9. New Service Provider may verify completion.</p>	<ul style="list-style-type: none"> The New Service Provider may make test calls to verify that calls to ported numbers complete as expected.

Inter-Service Provider LNP Operations Flows

Provisioning Without Unconditional 10-Digit Trigger
Figure 2
Flow A

10. END	
---------	--

Inter-Service Provider LNP Operations Flows

Provisioning With Unconditional 10-Digit Trigger

Figure 3

Flow AA

<u>Step</u>	<u>Description</u>
1. Old Service Provider activates unconditional 10-digit trigger in Central Office.	<ul style="list-style-type: none"> • The actual time for trigger activation is defined on a regional basis. • The unconditional 10-digit trigger may optionally be applied by the New Service Provider.
NOTE: Steps 2 and 3 may be worked concurrently.	
2. New Service Provider activates Central Office translations.	<ul style="list-style-type: none"> • The New Service Provider activates their own Central Office translations.
3. Old and New Service Providers make physical changes (where necessary).	<ul style="list-style-type: none"> • Any physical work or changes are made by either Old or New Service Providers as necessary. • Physical changes may or may not be coordinated. Coordinated physical changes are based on inter-connection agreements.
4. New Service Provider notifies NPAC to activate subscription.	<ul style="list-style-type: none"> • The New Service Provider sends an activate message via the SOA interface to the NPAC SMS. • No NPAC subscription version may activate before the FOC due date.
NOTE: Steps 5, 6, and 7 may be concurrent, but at a minimum should be completed ASAP.	

Inter-Service Provider LNP Operations Flows

Provisioning With Unconditional 10-Digit Trigger

Figure 3

Flow AA

<p>5. NPAC SMS Downloads (real time) to all Service Providers.</p>	<ul style="list-style-type: none"> • The NPAC SMS broadcasts new subscription data to all Service Providers in the serving area in accordance with the NANC FRS and NANC IIS. The Generic Requirements for Service Control Point (SCP) Applications and GTT Function for Number Portability document contains a reference to a target interval for SCP updates.
<p>6. NPAC SMS records date and time in history file.</p>	<ul style="list-style-type: none"> • The NPAC SMS records the current date and time as the Activation Date and Time stamp, after all Local SMSs successfully acknowledged receipt of new subscription version.
<p>7. NPAC SMS logs failures and non-responses and notifies the Old and New Service Providers of failures.</p>	<ul style="list-style-type: none"> • The NPAC SMS resends the activation to a Local SMS that did not acknowledge receipt of the request. The number of NPAC SMS attempts to resend is a tunable parameter for which the current default is three (3) attempts. Once this cycle is completed NPAC personnel investigate possible problems. In addition, the NPAC sends a notice via SOA interface to both the Old and New Service Providers with a list of Local SMSs that failed activation.
<p>8. All Service Providers update routing databases (real time download).</p>	<ul style="list-style-type: none"> • This is an internal process and is performed in accordance with the Generic Requirements for SCP Applications and GTT Functions for Number Portability document.

Inter-Service Provider LNP Operations Flows

Provisioning With Unconditional 10-Digit Trigger

Figure 3

Flow AA

9. Old Service Provider removes appropriate translations.	<ul style="list-style-type: none">• After update of its databases the Old Service Provider removes translations associated with the ported TN. The specific time for removal may be specified on a regional basis.
10. New Service Provider may verify completion.	<ul style="list-style-type: none">• The New Service Provider may make test calls to verify that calls to ported numbers complete as expected.
11. END	

Inter-Service Provider LNP Operations Flows

Conflict Flow for the Service Creation Provisioning Process
Figure 4
Flow B

Step	Description
1. Tie-point (B)	<ul style="list-style-type: none"> • The conflict flow is entered through the Provisioning process flow (Figure 1) through tie point (B), when the Old Service Provider enters a concurrence flag of "No", and designates a conflict cause code.
2. First time into conflict?	<ul style="list-style-type: none"> • The Old Service Provider may only place subscription into conflict status one time. If this is the first time for the Old Service Provider to place the order into conflict, proceed to Step (3); if not, proceed to Step (5).
3. Is Conflict initiated prior to noon the business day before Due Date?	<ul style="list-style-type: none"> • If no, go to Step (5). • If yes, go to Step (4).
4. NPAC changes subscription to Conflict Status and notifies both Service Providers.	<ul style="list-style-type: none"> • Both Service Providers take appropriate action related to internal work orders. • Subscriptions may be modified while in the conflict state (e.g., due date).
5. NPAC rejects conflict request.	<ul style="list-style-type: none"> • NPAC notifies Service Provider of rejection. • Proceed to tie point BB on the Provisioning flow (Figure 1).
6. New Service Provider contacts the Old Service Provider to resolve Conflict. If no agreement is reached, begin normal escalation.	<ul style="list-style-type: none"> • The escalation process is defined in the inter-company agreements.

Inter-Service Provider LNP Operations Flows

Conflict Flow for the Service Creation Provisioning Process

Figure 4

Flow B

<p>7. Was conflict resolved within 30 calendar days?</p>	<ul style="list-style-type: none">From the time a subscription is placed in conflict, there is a 30 calendar day limit after which it is removed from the NPAC database. If it is resolved within the 30 calendar day limit, proceed to Step (8); if not, the subscription request will "time out" and proceed to Step (11).
<p>8. How was Conflict resolved?</p>	<ul style="list-style-type: none">Conflict resolution initiates one of two actions: 1) cancellation of the subscription, or 2) resumption of the service creation provisioning process. If the conflict is resolved by cancellation of the subscription, then proceed to the Cancellation Flows for Provisioning Process (Figure 5) through tie point C. If the conflict is otherwise resolved, proceed to Step (9).
<p>9. If conflict was resolved within six (6) business hours, only the Old Service Provider may notify NPAC of "conflict off". If conflict was resolved after six (6) hours, either the New or Old Service Provider may notify NPAC of "conflict off".</p>	<ul style="list-style-type: none">In order for the porting process to continue at least one Service Provider must remove the subscription from conflict.
<p>10. NPAC notifies both Service Providers of conflict off via SOA.</p>	<ul style="list-style-type: none">NPAC notifies both Service Providers of the change in subscription status. The porting process resumes as normal, proceeding to the Provisioning process flow (Figure 1) at tie point BB.

Inter-Service Provider LNP Operations Flows

Conflict Flow for the Service Creation Provisioning Process

Figure 4

Flow B

11. NPAC initiates cancellation and notifies Service Providers.	<ul style="list-style-type: none">• NPAC notifies both Service Providers that the subscription version status was updated to <i>cancelled</i>.• Both Service Providers take appropriate action related to internal work orders.
12. END	

Inter-Service Provider LNP Operations Flows

Cancellation Flows for Provisioning Process
Figure 5

Introduction

A service order and/or subscription may be cancelled through the following processes:

- The end-user contacts the Old or New Service Provider and requests cancellation of their porting request.
- Conflict Flow for the Service Creation Provisioning Process - Figure 4: As a result of the Conflict Resolution process (at tie-point C) the Old and New Service Providers agree to cancel the subscription and applicable service orders.

Step	Description
1. End-user	<ul style="list-style-type: none"> • The Cancellation Process may begin with an end-user requesting cancellation of their pending port. The Cancellation process flow applies only to that period of time between subscription creation, and either activation or cancellation of the porting request. If activation completed and the end-user wishes to revert back to the former Service Provider, it is accomplished via the Provisioning Process.
2. Did end-user contact Old or New Service Provider?	<ul style="list-style-type: none"> • The end-user contacts either the Old or New Service Provider to cancel the porting request. Only the Old or New Service Provider can initiate this transaction, not another Service Provider.

Inter-Service Provider LNP Operations Flows

Cancellation Flows for Provisioning Process
Figure 5

	<ul style="list-style-type: none">• The contacted Service Provider gathers information necessary for sending the LSR to the other Service Provider noting cancellation, and for sending the cancellation request to NPAC SMS.• If the end-user contacted the Old Service Provider, then proceed to Step (3).• If the end-user contacted the New Service Provider, proceed to Step (6).
3. Old Service Provider obtains end-user authorization.	<ul style="list-style-type: none">• The Old Service Provider obtains actual authority from the end-user to act as the official agent on behalf of the end-user to cancel the porting request. The Old Service Provider is responsible for demonstrating such authority as necessary.
4. Old Service Provider sends notification to New Service Provider	<ul style="list-style-type: none">• The Old Service Provider notifies the New Service Provider, via their inter-company interface, indicating that the porting request is to be cancelled.

Inter-Service Provider LNP Operations Flows

Cancellation Flows for Provisioning Process
Figure 5

<p>5. Old Service Provider sends cancellation to NPAC, if appropriate</p>	<ul style="list-style-type: none">• The Old Service Provider, contacted directly by the end-user or notified by the New Service Provider via their inter-company interface, sends a cancellation message to NPAC via the SOA interface. This cancellation message is accepted by NPAC SMS only if the Old Service Provider had previously uploaded during the subscription creation. If the Old Service Provider sends a cancellation message and a create message was not previously sent, the NPAC responds with a reject message. If the Old Service Provider does not upload a create message to the NPAC SMS for this subscription, it cannot subsequently send a cancellation message.• The Old Service Provider takes appropriate action related to internal work orders.
<p>6. New Service Provider sends LSR to Old Service Provider noting cancellation as soon as possible prior to activation time</p>	<ul style="list-style-type: none">• The end-user contacts the New Service Provider to cancel the porting request. The New Service Provider fills out and sends the LSR form to the Old Service Provider via their inter-company interface, indicating cancellation of the porting request.

Inter-Service Provider LNP Operations Flows

Cancellation Flows for Provisioning Process
Figure 5

<p>7. New Service Provider sends cancellation to NPAC, if appropriate</p>	<ul style="list-style-type: none">• The New Service Provider, contacted directly by the end-user or notified by the Old Service Provider via their inter-company interface, sends a cancellation message to NPAC via the SOA interface. This cancellation message is accepted by NPAC SMS only if the New Service Provider previously uploaded during the subscription creation. If the New Service Provider sends a cancellation message and a create message was not previously sent, the NPAC responds with a reject message. If the New Service Provider did not upload a create message to the NPAC SMS for this subscription, it cannot subsequently send a cancellation message.• The New Service Provider takes appropriate action related to internal work orders.
<p>8. Did NPAC receive notification(s) within nine (9) business hours?</p>	<ul style="list-style-type: none">• The NPAC applies a nine (9) business hour [tunable parameter] time limit on receiving cancellation messages from both Service Providers. This is referred to as the Initial Cancellation Window.• NPAC SMS processing timers include business hours only, except where otherwise specified. Local business hours are defined as 12 daytime hours per day on Monday through Friday, except holidays. Holidays and business hours are regionally defined.

Inter-Service Provider LNP Operations Flows

Cancellation Flows for Provisioning Process
Figure 5

	<ul style="list-style-type: none">• The NPAC SMS tests for receipt of cancellation messages from the two Service Providers based on which Service Provider had previously uploaded into NPAC SMS. Since the Old Service Provider's upload is optional for subscription creation, if the Old Service Provider did not upload during the creation process, the Old Service Provider's input during cancellation is not accepted by NPAC SMS. Similarly, if during the subscription creation process only the Old Service Provider uploaded, and not the New Service Provider, only the Old Service
	<p>Provider's input is accepted when canceling an order.</p> <ul style="list-style-type: none">• For a "concurrent" subscription, when the first cancellation message is received, NPAC sets the subscription status to <i>cancel-pending</i>. Both the Old and New Service Providers are notified of this change in status via the SOA interface.• If the second cancellation notification, from the other Service Provider, is received within nine (9) business hours, proceed to Step (11).• If the second cancellation notification from the other Service Provider is not received within nine (9) business hours, proceed to Step (9).• For a "non-concurrent" subscription, when the first cancellation message is received, NPAC sets the subscription status directly to <i>cancel</i>, and proceeds to Step (11). Both the Old and New Service Providers are notified of this change in status via the SOA interface.

Inter-Service Provider LNP Operations Flows

Cancellation Flows for Provisioning Process
Figure 5

<p>9. NPAC notifies appropriate Service Provider that information is missing</p>	<ul style="list-style-type: none"> The Initial Cancellation Window starts with receipt of the first cancellation message at NPAC. When this timer times out, the NPAC requests the missing information from the Service Provider who did not provide the cancellation message via the SOA interface. Only "concurrent" subscriptions reach this point in the process flow.
<p>10. Does NPAC receive concurring notification within nine (9) business hours?</p>	<ul style="list-style-type: none"> The NPAC applies a nine (9) business hours [tunable parameter] time limit on receiving cancellation messages from both Service Providers. This is referred to as the Final Cancellation Window.
	<ul style="list-style-type: none"> NPAC SMS processing timers include business hours only, except where otherwise specified. Local business hours are defined as 12 daytime hours per day on Monday through Friday, except holidays. Holidays and business hours are regionally defined.
	<ul style="list-style-type: none"> Upon receipt of the concurring notification, proceed to Step (11). If no notification is received by the time this timer times out, proceed to tie-point H, "Cancellation Conflict Process Flow."
<p>11. NPAC logs information, cancels subscription, and notifies both Service Providers of cancellation</p>	<ul style="list-style-type: none"> The porting request is cancelled by changing the subscription status to <i>cancelled</i>. Both Service Providers are notified of the cancellation via the SOA interface.
<p>12. END</p>	

Inter-Service Provider LNP Operations Flows

Cancellation Conflict Flows for Provisioning Process
Figure 6

Step	Description
<p>1. Is Old or New Service Provider cancellation notification missing or inaccurate?</p>	<ul style="list-style-type: none"> • At this point in the process flow, the subscription status is <i>cancel pending</i>, because either the Old or New Service Provider's cancellation notification is missing or inaccurate (i.e., mismatched). • If the Old Service Provider's notification is at fault, then proceed to Step (2). • If the New Service Provider's notification is at fault, then proceed to Step (3).
<p>Note that the Cancellation Conflict process flow is reached only for "concurrent" subscriptions.</p>	
<p>2. NPAC logs information, cancels subscription, and notifies both Service Providers of cancellation with proper cause code</p>	<ul style="list-style-type: none"> • If the Old Service Provider does not provide a cancellation notification message to NPAC, in spite of a Cancellation LSR from the New Service Provider and two reminder messages from NPAC, the subscription is cancelled. NPAC notifies both Service Providers via the SOA interface, that the subscription status is updated to <i>cancelled</i>, and places the proper cause code on the subscription record. • Both Service Providers take appropriate action related to internal work orders.

Inter-Service Provider LNP Operations Flows

Cancellation Conflict Flows for Provisioning Process
Figure 6

<p>3. NPAC logs information, places subscription in "conflict status" with proper conflict cause code, and notifies both Service Providers</p>	<ul style="list-style-type: none"> • If the New Service Provider does not provide a cancellation notification message to NPAC, in spite of a Cancellation LSR from the Old Service Provider and a reminder message from NPAC, the subscription is placed in a <i>conflict</i> state. NPAC also writes the proper conflict cause code to the subscription record, and notifies both Service Providers, with proper conflict cause code, of the change in status via the SOA interface. • Both Service Providers take appropriate action related to internal work orders.
<p>4. How does New Service Provider wish to continue?</p>	<ul style="list-style-type: none"> • With the subscription in <i>conflict</i>, it is only the New Service Provider who controls the transaction. The New Service Provider makes a concerted effort to contact the Old Service Provider prior to proceeding. • If the New Service Provider decides to cancel the subscription, proceed to Step (5). • If the New Service Provider decides to proceed with the porting process, go to Step (8). • If the New Service Provider decides to ignore, proceed to Step (7).
<p>5. New Service Provider notifies NPAC to cancel subscription</p>	<ul style="list-style-type: none"> • The New Service Provider may decide to cancel the subscription. If so, they notify NPAC of this decision via the SOA interface.

Inter-Service Provider LNP Operations Flows

Cancellation Conflict Flows for Provisioning Process
Figure 6

<p>6. NPAC logs information, cancels subscription and notifies both Service Providers of cancellation</p>	<ul style="list-style-type: none"> • Following notification by the New Service Provider to cancel the subscription, NPAC logs this information, and changes the subscription status to <i>cancelled</i>. Both Service Providers are notified of the change in the subscription status via the SOA interface. • Both Service Providers take appropriate action related to internal work orders
<p>7. NPAC waits for 30 calendar days, cancels subscription, and notifies both Service Providers of time-out.</p>	<ul style="list-style-type: none"> • After no response from the New Service Provider for 30 calendar days regarding this particular subscription, NPAC changes the status to <i>cancelled</i> and notifies both Service Providers of the change in status via the SOA interface. • Both Service Providers take appropriate action related to internal work orders.
<p>8. New Service Provider notifies NPAC to remove subscription from Conflict status</p>	<ul style="list-style-type: none"> • The New Service Provider may choose to proceed with the porting process, in spite of a cancellation message from the Old Service Provider. As both Service Providers are presumably basing their actions on the end-user's request, and each is apparently getting a different request from that end-user, each should ensure the accuracy of the request. • If the New Service Provider decides to proceed with the porting, they update the status of the subscription to <i>pending</i> via the SOA interface.

Inter-Service Provider LNP Operations Flows

Cancellation Conflict Flows for Provisioning Process
Figure 6

	<ul style="list-style-type: none">• It is the responsibility of the New Service Provider to contact the Old Service Provider, to request that related work orders which support the porting process are performed. The Old Service Provider must support the porting process.
9. NPAC notifies both Service Providers of conflict off via SOA	<ul style="list-style-type: none">• NPAC notifies both Service Providers of the change in subscription status. The porting process resumes as normal, at tie-point BB.
10. END	

Inter-Service Provider LNP Operations Flows

Disconnect Process for Ported Telephone Numbers
Figure 7

Step	Description
1. End-user calls current Service Provider to disconnect service.	<ul style="list-style-type: none"> The end user provides disconnect date and negotiates intercept treatment with current Service Provider.
2. Current Service Provider initiated disconnect	<ul style="list-style-type: none"> Current Service Provider initiates disconnect of service based on regulatory authority(s)
3. Current Service Provider arranges intercept treatment	<ul style="list-style-type: none"> Current Service Provider arranges intercept treatment as negotiated with the end user, or, when the disconnect is Service Provider initiated, per internal processes.
4. Current Service Provider creates and processes service order	<ul style="list-style-type: none"> Current Service Provider follows existing internal process flows to ensure the disconnect within its own systems.
5. Current Service Provider notifies NPAC of disconnect date ¹ and indicates effective release date ²	<ul style="list-style-type: none"> Current Service Provider notifies NPAC of disconnect date via the SOA interface and indicates effective release date, which defines when the broadcast occurs. If no effective release date is given, the broadcast from NPAC/SMS is immediate. The maximum interval between disconnect date and effective release date is 18 months.
6. NPAC notifies NPA/NXX owner/holder of the disconnected telephone number(s), effective release and disconnect dates	<ul style="list-style-type: none"> On effective release date, NPAC notifies NPA/NXX owner/holder of the disconnected telephone number(s), effective release and disconnect dates via the SOA.

¹ Disconnect Date: Date the telephone number or numbers are no longer associated between an end user and the current Service Provider.

² Effective Release Date: Date the telephone number reverts back to NPA/NXX holder/owner.

Inter-Service Provider LNP Operations Flows

Disconnect Process for Ported Telephone Numbers Figure 7

7. NPAC broadcasts subscription deletion to all applicable Service Providers	• On effective release date, NPAC broadcasts subscription deletion to all applicable Service Providers via LSMS
8. NPAC deletes telephone number(s) from active database on effective release date	• On effective release date, NPAC/SMS removes number from its database.
9. END	

¹ Disconnect Date: Date the telephone number or numbers are no longer associated between an end user and the current Service Provider.

² Effective Release Date: Date the telephone number reverts back to NPA/NXX holder/owner.

Inter-Service Provider LNP Operations Flows

Audit Process
Figure 8

Step	Description
1. Service Provider requests NPAC for audit.	<ul style="list-style-type: none"> • A Service Provider may request an audit to assist in resolution of a repair problem reported by an end-user. Prior to the audit request, the Service Provider completes internal analysis as defined by company procedures and, if another Service Provider is involved, attempts to jointly resolve the trouble in accordance with inter-company agreements. Failure to resolve the trouble following these activities, the Service Provider requests an audit.
2. NPAC SMS issues queries to appropriate LSMSs.	<ul style="list-style-type: none"> • The NPAC SMS issues queries to the Local SMSs (LSMS) involved in the customer port.
3. NPAC SMS compares own Subscription Version to LSMS Subscription Version	<ul style="list-style-type: none"> • Upon receipt of the LSMS Subscription Version, the comparison of the NPAC SMS and LSMS Subscription Versions is made to determine if there are discrepancies between the two databases.
4. NPAC SMS updates appropriate LSMS with Subscription Version updates.	<ul style="list-style-type: none"> • If inaccurate routing data is found, the NPAC SMS broadcasts the correct subscription data to any involved Service Provider's networks to correct inaccuracies.
5. All audits completed	<ul style="list-style-type: none"> • If no, return to Step (4). • If yes, proceed to Step (6).

Inter-Service Provider LNP Operations Flows

Audit Process
Figure 8

6. NPAC reports audit completion to requesting Service Provider	<ul style="list-style-type: none">• NPAC reports to the requesting Service Provider following completion of the audit to allow the Service Provider to close the trouble ticket.• Upon request, NPAC provides ad hoc reports to Service Providers that wish to determine which Service Providers are launching audit queries to their LSMS.
7. END	

Inter-Service Provider LNP Operations Flows

Code Opening Processes
Figure 9

NPA-NXX Code Opening

Step	Description
1. NPA-NXX holder notifies NPAC SMS of NPA-NXX Code(s) being opened for porting.	<ul style="list-style-type: none"> • The service provider responsible for the NPA-NXX being opened must notify the NPAC SMS via the SOA or LSMS interface within a regionally agreed to time frame.
2. NPAC SMS updates its NPA-NXX databases	<ul style="list-style-type: none"> • NPAC SMS updates its databases to indicate that the NPA-NXX has been opened for porting.
3. NPAC SMS sends notification of code opening to all Service Providers via LSMS.	<ul style="list-style-type: none"> • The NPAC SMS provides advance notification of the scheduled opening of NPA-NXX code(s) via the LSMS interface.

First TN Ported in NPA-NXX

Step	Description
1. NPAC SMS receives subscription create request for first TN in NPA-NXX	<ul style="list-style-type: none"> • Service Provider notifies NPAC SMS to create subscription for the first telephone number in an NPA-NXX.

Inter-Service Provider LNP Operations Flows

Code Opening Processes
Figure 9

<p>2. NPAC SMS sends notification of first TN ported to all service providers via SOA and LSMS</p>	<ul style="list-style-type: none">• When the NPAC SMS receives the first subscription create request in an NPA-NXX, it will broadcast a "heads-up" notification to all service providers via both the LSMS and SOA interfaces. Upon receipt of the NPAC message, all service providers, within five (5) business days, will complete the opening for the NPA-NXX code for porting in all switches.
----------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT**

APPENDIX C

**NANC FUNCTIONAL REQUIREMENTS
SPECIFICATION**

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

The NANC Functional Requirements Specification (NANC FRS) document is available at the following website:

<http://www.npac.com>

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

APPENDIX D

NANC INTEROPERABLE INTERFACE
SPECIFICATION

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

The NANC Interoperable Interface Specification (NANC IIS) document is available at the following website:

<http://www.npac.com>

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

APPENDIX E

GLOSSARY

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

GLOSSARY

CLEC	Competitive Local Exchange Carrier
CMIP	Common Management Information Protocol
FCC	Federal Communications Commission
FOC	Firm Order Commitment
FRS	Functional Requirements Specification
IIS	Interoperable Interface Specification
ILEC	Incumbent Local Exchange Carrier
IVR	Interactive Voice Response
LEC	Local Exchange Carrier
LNP	Local Number Portability
LNPA	Local Number Portability Administrator(s)
LSMS	Local Service Management System
LSP	Local Service Provider
LSR	Local Service Request
NANC	North American Numbering Council
NANPA	North American Numbering Plan Administrator
NPAC	Number Portability Administration Center
NSP	New Service Provider

NORTH AMERICAN NUMBERING COUNCIL
LNPA TECHNICAL & OPERATIONAL REQUIREMENTS TASK FORCE
REPORT

OSP	Old Service Provider
RFP	Request for Proposal
SCP	Service Control Point
SMS	Service Management System
SOA	Service Order Administration
SP	Service Provider
SPOS	Service Provisioning Operating Systems
TN	Telephone Number