

DOCKET FILE COPY ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

RECEIVED

FEB 20 1998

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of

Telephone Number Portability

CC Docket No. 95-116

PETITION FOR EXTENSION OF TIME OF SOUTHWESTERN BELL TELEPHONE
COMPANY AND PACIFIC BELL

SOUTHWESTERN BELL TELEPHONE COMPANY
PACIFIC BELL

Robert M. Lynch
Durward D. Dupre
One Bell Plaza, Suite 3703
Dallas, Texas 75202
(214) 464-4244

Nancy C. Woolf
140 New Montgomery Street, Rm. 1522A
San Francisco, California 94105
(415) 542-7657

Their Attorneys

Date: February 20, 1998

No. of Copies rec'd
List ABCDE

045

TABLE OF CONTENTS

	PAGE
I. INTRODUCTION AND SUMMARY	1
II. THE STP SUPPLIER’S PRODUCT HAS FAILED IN CERTAIN TESTS AND MUST BE FIXED BEFORE WE CAN TURN UP LNP	5
III. A WAIVER IS JUSTIFIED BY THE FAILURE OF A KEY COMPONENT OF THE LNP SYSTEM	6
IV. EXTRAORDINARY CIRCUMSTANCES JUSTIFY A LIMITED WAIVER OF THE IMPLEMENTATION DEADLINES	7
A. We Are Unable To Meet The FCC-Mandated Schedule.	8
B. Detailed Explanation Of Activities We Have Taken To Meet The Schedule.	8
C. Identification Of Switches Affected.	11
D. Time In Which We Will Complete Deployment.....	12
E. Proposed Schedule With Milestones.....	12
V.CONCLUSION	12

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of

Telephone Number Portability

CC Docket No. 95-116

**PETITION FOR EXTENSION OF TIME OF SOUTHWESTERN BELL
TELEPHONE COMPANY AND PACIFIC BELL**

I. INTRODUCTION AND SUMMARY

Southwestern Bell Telephone Company (SWBT) and Pacific Bell (Pacific) (collectively the SBC Companies) file this Petition for Extension of Time of the implementation timeline set forth by the Commission in the *First Memorandum Opinion and Order on Reconsideration* in this docket, released March 11, 1997 (“*Reconsideration Order*”). The *Reconsideration Order* requires local exchange carriers to institute service provider number portability in the 100 largest MSAs nationwide by December 31, 1998. The FCC has set five phases of deployment, and has assigned set MSAs to each phase.¹ The FCC required the first phase, containing the largest MSAs, to complete by March 31, 1998; Phase II is slated to complete May 15, 1998; Phase III is slated to complete June 30, 1998; Phase IV is slated to complete September 30, 1998; and Phase V is slated to

¹ *Telephone Number Portability*, CC Docket No. 95-116, *First Report & Order*, 111 FCC Rcd 8393 (*First Report & Order*).

complete December 31, 1998.² Pursuant to 47 CFR 52.23(b)(2)(iv) additional MSAs are subject to a bona fide request process after the expiration of the first five phases.

By this waiver, the SBC Companies seek a delay in the schedule to accommodate the testing defects found in connection with the Signal Transfer Point (STP) upgrades needed for local number portability (LNP). Both SWBT and Pacific entered into a contract with DSC for the STP hardware and software upgrades needed to perform LNP. The implementation of LNP throughout SWBT and Pacific utilizes the DSC Communications' STP to perform Message Relay Service (which routes Signaling System 7 (SS7) messages to the correct network for advanced network services such as Alternate Billing Services (ABS)/Line Information Data Base (LIDB), CLASS^(sm), Voice Messaging Service, and Calling Name. DSC also provides the Location Routing Number (LRN) Database (which provides the LRN³ used by the querying switch and subsequent switches to route the call to a ported number to the correct serving switch.)

In testing, three significant issues have been uncovered relating to (1) the interoperability of the Message Relay Service with queries originating in GTE's network, (2) the inability of the STP to process certain AIN-based services properly, and (3) the failure of a recent DSC software release to properly perform certain LNP network management functions used to prevent network overload. These problems are described more fully in the Declaration of Delbert L. Duncan, attached hereto as Exhibit A. The SBC Companies seek an extension of time for the implementation periods mandated by the FCC in order to address these problems and ensure reliability of the public switched

² *Reconsideration Order Appendix E.*

³ The LRN is a 10-digit number which uniquely identifies a switch that serves at least one ported number.

telephone network. In ex partes, we have kept the FCC apprised of the implementation schedule and challenges. We have publicly stated our concern with suppliers and have stated that our schedule could not accommodate any further vendor slippages.⁴

SWBT seeks a delay in Phase I to May 26, 1998; a delay in Phase II until June 26, 1998; and a delay in Phase III until July 27, 1998. Subsequent phases will not be affected by this extension.

Pacific will be filing its waiver shortly regarding the NPAC software vendor recognized by the Commission in their *Local Number Portability Phase I Implementation*, CC Docket No. 95-116, *Order*, released January 28, 1998. As that Order recognizes, a delay until March 1, 1998 in the filing date relating to the NPAC vendor failure is warranted so that carriers have time to evaluate the ability to meet the March 31, 1998 deadline, and to have a better grasp on the new implementation schedule. Pacific is still examining the effect of the NPAC vendor failure but does not believe that the STP issues will determine the ultimate implementation deadlines.

The implementation of number portability in the existing local exchange network is the most costly and complex change ever to occur in the telecommunications business. It requires significant changes to call processing, call routing, network switches, signaling network, business processes, support systems, operator services and billing processes. Hundreds of millions of dollars are being spent, and have already been spent, to deploy this massive change in our network.

The *Reconsideration Order* delayed the introduction of number portability for Phases I and II from the dates initially ordered in the *First Report & Order*. In addition,

⁴ See, for example, our November 19, 1997 ex parte

the *Reconsideration Order* concluded that LECs need only provide number portability within the 100 largest MSAs in switches for which another carrier has made a specific request for the provision of portability.⁵ The *Reconsideration Order* acknowledges that the implementation timeframes ordered relied on the representations of switch vendors regarding the dates by which the necessary switching software will be generally available for deployment.⁶ We will demonstrate the substantial work underway in the SWBT and Pacific network, and why it is solely the issues which arose during network interconnection and laboratory testing of the STP that has caused SWBT to be unable to meet the FCC-mandated schedule. Of course, Pacific is also adversely impacted by the failure of the NPAC-supplier, Perot Systems, to supply a certifiable NPAC in accordance with the FCC timeline. Pursuant to the FCC's recent order,⁷ Pacific will be filing a waiver of the implementation deadlines on March 1, 1998 due to that failure. However, Pacific is also adversely affected by the DSC issues as outlined below. These problems constitute an additional reason to grant a waiver to these companies. The March 1, 1998 filing will detail the schedule with which Pacific can comply given the failures of the NPAC supplier as well as the STP issue. The critical schedule for Pacific is dependent on the NPAC availability. Given current expectations, we do not anticipate the DSC issue to require any additional time to be added to that schedule.

Many efforts are underway to implement LNP. Internally, SWBT and Pacific have mobilized many departments to develop and prepare for LNP. Substantial amounts

⁵ In Pacific's territory in the initial three Phases, all switches in the MSAs have been designated by other carriers.

⁶ *Reconsideration Order* para 48.

⁷ *Local Number Portability Phase I Implementation*, CC Docket No. 95-116, *Order*, released January 28, 1998.

of engineering, procurement, installation, testing, and support system development have been accomplished. A management team is in place to oversee the project and keep it on the very strict timelines mandated by the FCC.⁸

II. THE STP SUPPLIER'S PRODUCT HAS FAILED IN CERTAIN TESTS AND MUST BE FIXED BEFORE WE CAN TURN UP LNP

Due to no fault of SWBT or Pacific, the STP is not ready for LNP service in three respects: 1) it is unable to validate calling card queries from GTE's network after GTE upgraded its switches to support FCC- mandated CIC expansion changes. Depending upon a service provider's handling of response failures, this may lead to substantial amounts of toll fraud; 2) it is incompatible with certain AIN based services which result in misrouting of customer calls; and 3) its LRN-based network management controls do not work which can have serious impacts on network reliability and the survivability of the SS7 signaling system.

DSC has informed us that it is diligently working on fixing these problems, and that a recently delivered release will correct these problems. The SBC Companies are currently testing the software release on as fast a timeline as possible, but will be unable to complete testing and deployment of the new release prior to the implementation deadline for Phase I. See Declaration of Delbert L. Duncan. Since the STP is an integral part of the SS7 backbone, we must rigorously test it before using it in our network. Since these problems with the STP were found in the final stages of the testing process, we are repeating the initial reliability testing on the new release received from DSC on February

⁸ The attached Declarations of Sally D. Swan (Exhibit B) and Delbert L. Duncan (Exhibit A) outline the steps the companies have taken to implement LNP.

17, 1998. Paragraphs 5 of the Declaration of Delbert L. Duncan outline the steps we must take prior to completion of LNP testing in Phase I.

III. A WAIVER IS JUSTIFIED BY THE FAILURE OF A KEY COMPONENT OF THE LNP SYSTEM

The Commission may waive any provision of its rules, in whole or in part, if good cause is shown. 47 C.F.R. §1.3. An applicant for a waiver must demonstrate that special circumstances warrant a deviation from the general rule and that such deviation will serve the public interest. *Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990); *WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969). The Commission has recognized that the unavailability of a product from a manufacturer is an appropriate ground for finding good cause. For example, the Common Carrier Bureau recently granted waivers to various small local exchange carriers in connection with the conversion to 4 digit CIC code implementation. In those waivers the Bureau recognized that the products these companies needed to accomplish the upgrade to their individual networks are not readily available from switch manufacturers, and that has caused the companies a delay in meeting the FCC-mandated schedule. *Clarks Telecommunications Co., et al.* DA 97-2528, released December 3, 1997.

Similarly, in 1996, the Bureau granted a waiver to Pacific Bell and Nevada Bell for their ONA requirements for their Calling Directory Number Delivery via Bulk calling Line Identification service (BCLID). In the waiver, which Pacific and Nevada requested

because of CPE vendor product availability problems, the Bureau ruled that good cause was shown for the waiver.⁹

Therefore, a delay in implementation due to vendor product availability is a recognized reason to grant waivers. And, as we will show below, we have substantial, credible evidence that the reason for the delay is due to extraordinary circumstances beyond our control. We meet all of the FCC's additional standards set out in the *First Report & Order*.

IV. EXTRAORDINARY CIRCUMSTANCES JUSTIFY A LIMITED WAIVER OF THE IMPLEMENTATION DEADLINES

The *First Report & Order* contains a specific delegation of authority to the Chief, Common Carrier Bureau to waive or stay any of the dates in the implementation schedule, "as the Chief determines is necessary to ensure the efficient deployment of number portability, for a period not to exceed 9 months." The *Order* states that a carrier may file with the Commission, at least 60 days in advance of the deadline, a petition to extend the implementation time periods. The Commission stated that "a carrier seeking relief must present extraordinary circumstances beyond its control in order to obtain an extension of time." Substantial, credible evidence must be the basis of any request. And, any request must show "(1) the facts that demonstrate why the carrier is unable to meet [the] deployment schedule; (2) a detailed explanation of the activities that the carrier has undertaken to meet the implementation schedule prior to requesting an extension of time; (3) an identification of the particular switches for which the extension is requested; (4)

⁹ 11 FCC Rcd 14338 (1996).

the time within which the carrier will complete deployment in the affected switches; and
(5) a proposed schedule with milestones for meeting the deployment date.”

We will show by substantial credible evidence that we are in compliance with all of these items.

A. We Are Unable To Meet The FCC-Mandated Schedule.

The STP is an irreplaceable component for local number portability implementation. The software at issue here is a key element of the SS7 signaling system. Adequate testing and controls must be in place so that catastrophic network failures do not occur. And, the software must be compatible with existing services and network controls. It does not currently meet this standard. The Declaration of Delbert L. Duncan details the issues.

B. Detailed Explanation Of Activities We Have Taken To Meet The Schedule.

SWBT and Pacific have been active participants in the industry groups which were formed in order to implement number portability in its region. We are key members of the Task Force, participate in all phases of subcommittees and other efforts, we are active members of the Southwestern LLC, the West Coast Portability LLC, participate as a member of the NANC Local Number Portability Selection Working Group and Task Force, and we participate in state and federal regulatory proceedings concerning number portability.

In addition to these efforts external to the company, we have mobilized within the company to implement LNP. The design and implementation of the significant network, business system, and business process changes required to allow the porting of end users

numbers involves every organization in the business. SBC management ensures that organizations affected by LNP are included in the scope of LNP design and implementation, and provides technological oversight for the implementation effort through focused support teams. The workgroups implementing the LNP technology are:

- **Information Technology** - This group is responsible for the design and implementation of LNP functionality in the Business Systems. This effort includes upgrading, replacing, or adding applications in the ordering and provisioning systems (including the Local SMS), service assurance systems, billing systems, and E911. In total, more than 60 system applications within Pacific Bell are affected and more than 100 within SWBT.
- **Technology Planning Network Planning and Engineering** - Designs and implements the required software and hardware upgrades in the network. This effort includes the high level network design, vendor technical coordination and evaluation, feature/components testing, upgrades selection and procurement, and network testing.
- **Network Operations/Customer Service** - Installs the required software and hardware upgrades in the network, and performs the required preconditioning and cutover translations and test efforts to “turn-up “ the LNP features in the involved switches. Network operations is also developing the monitoring processes and tools required to manage the network and the provisioning process in a porting environment.
- **Business Process Design** - LNP has required the redesign of business work flows associated with ordering, provisioning, billing and service assurance functions. These business flows define the requirements for system architecture design to make the needed modifications to ordering, provisioning, billing, and service assurance systems.
- **Industry Markets** - Manages the implementation of LNP in the carrier ordering centers and represents competitive local exchange carriers customers in the product development process. Industry Markets also operates as the LNP Product Manager, establishing Business Policy, developing tariff filings, and providing Billing definition in support of LNP. Finally, they act as the primary CLEC interface providing updates to the CLEC Handbook, training for the CLEC in new procedures, and appropriate language for the Interconnection Agreements as needed to incorporate LNP.
- **Retail Markets** - Manages the LNP Method & Procedure development and training needs of the marketing organization.

- **Procurement** - Negotiates and manages the significant subcontracting efforts required to obtain the software and hardware required to add LNP functionality.
- **E911** - Develops and implements the required changes to the E911 system caused by LNP.
- **Operator Services** - Develops and implements the required changes to the operator's system caused by LNP. This includes upgrades required to maintain the ability to perform functions such as Busy Line Verify and Interrupt (BLVI) in an LNP environment.

In addition to the functional workgroups, various management support has been established responsible for information systems, network implementations, and overall project management.

LNP represents a very significant and unique change to the business, combining fundamental changes to the network with major changes to our systems. With the exception of the STP issues, the upgrades and functionality required to support the introduction of LNP in the region covered by the mandate are progressing satisfactorily.¹⁰

We are deploying vast amounts of hardware, software, and system upgrades to support LNP across our two regions:

Southwestern Bell

- Upgrading 681 switches in the mandated MSAs
- Upgrading 8 Signal Transfer Point (STP) pairs
- Adding 2 Intelligent Service Control Point (ISCP) pairs
- Upgrading over 100 operational support systems.

Pacific Bell and Nevada Bell

- Upgrading 523 end office switches
- Upgrading 13 STP pairs
- Adding 5 ISCP pairs
- Upgrading over 60 operational support systems.

¹⁰ Of course, as the FCC has noted, the Pacific and Nevada regions are adversely impacted by the NPAC vendor failure in the West Coast Region. Pacific and Nevada will file a petition for extension of time to address that vendor failure.

The status of the network switch upgrades in our Phase I MSAs, as well as our overall company progress, has been on target:

End Office Switch Status	Phase I MSAs		Overall Company	
	Houston	Los Angeles	SWB	PB/NB
Switch Upgrades Complete	100%	99%	63%	74%
Translations Complete	96%	98%	41%	22%
Query Initiated	83%	98%	15%	22%

C. Identification Of Switches Affected.

All of the selected switches in the SWBT & Pacific territory are affected by this waiver for the first three phases. In these phases, the carriers operating in the MSAs served by SWBT and Pacific have chosen almost every switch, requiring us to implement LNP in almost all of these switches in the first three phases.¹¹ A complete listing of each switch affected by this waiver is attached on Exhibit C. In the waiver filing due March 1, 1998, Pacific will identify each switch affected by the failure of the NPAC vendor, as well as those affected by the DSC failure.

D. Time In Which We Will Complete Deployment.

Once SWBT gets new software from DSC, performs all the necessary testing to assure that network reliability will not be compromised and that customers' services will not be adversely affected, SWBT plans on completing implementation in a compressed 30 day period for Phases I, II and III. Therefore, Phase I MSA (Houston) will be complete May 26, 1998; Phase II MSAs (Dallas/ St. Louis) will be complete by June 26, 1998; and Phase III MSAs (Kansas City/ Ft. Worth) will be complete by July 27, 1998.

¹¹ Only 1 Nevada Bell switch was chosen for Phase III in the Las Vegas MSA.

E. Proposed Schedule With Milestones.

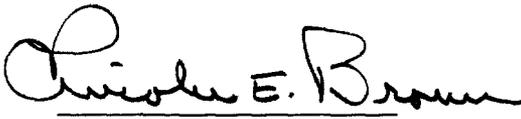
Attached as Exhibit D are charts showing milestones for the implementation in SWBT once testing of the new DSC release has been completed. In addition, we continue to supply periodic reports to the Southwestern LLC and to the NANC LNP Working Group and the FCC.

V. CONCLUSION

The SBC Companies have shown that due to circumstances beyond its control, it is unable to comply with the implementation timelines mandated by the FCC. A substantial level of activity within the companies, and external to the companies, has occurred in order to try and meet the implementation schedule. Good cause for this waiver exists.

Respectfully submitted,

SOUTHWESTERN BELL TELEPHONE COMPANY
PACIFIC BELL


f— Nancy C. Woolf

140 New Montgomery Street, Rm. 1522A
San Francisco, California 94105
(415) 542-7657

Their Attorneys

Robert M. Lynch
Durward D. Dupre
One Bell Plaza, Suite 3703
Dallas, Texas 75202
(214) 464-4244

Date: February 20, 1998

EXHIBIT A

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of

Telephone Number Portability

CC Docket No. 95-116

DECLARATION OF DELBERT L. DUNCAN

I, Delbert L. Duncan, declare as follows:

1. Biographical Background

Current Position:

I am the Director-Technology Planning (LNP), for SBC Operations. In this capacity I supervise the following Local Number Portability (LNP) project activities for the SWBT five-state area of Arkansas, Kansas, Missouri, Oklahoma, and Texas: technology planning, business case preparation, funding approval and allocation, test plan development, implementation support, and project schedule development/maintenance. I also coordinate technology planning with our West Coast Region states of California and Nevada. My business address is 530 McCullough, Suite 10-K-06, San Antonio, Texas, 78215.

Professional Background:

I have a Bachelor of Science Degree-Electrical Engineering from Oklahoma State University, Stillwater, Oklahoma. I am also a Registered Professional Engineer.

I was employed by Southwestern Bell in 1965. Since that time, I have held a variety of positions including equipment engineering, PBX engineering, transmission engineering, special services engineering, toll planning (both switch and transmission), operations support systems planning/implementation, capital budget program management, and technology planning for new products and services.

In 1996, I was assigned to my current position, Director-Technology Planning (LNP) with the responsibilities listed above.

Personal LNP Involvement:

As part of my responsibilities I am thoroughly familiar with the efforts that SBC has undertaken to implement LNP.

I am a member of the Southwestern Bell Telephone Company LNP Steering Committee (an internal team responsible to the SBC officers for all aspects of the deployment of LNP within SWBT). Members of my staff are members of the following inter-industry committees/teams:

- Southwest Region LNP Operations Committee
- Southwest Region LNP Requirements Committee
- State-specific LNP Implementation Teams.

All of these teams provide the coordination and cooperative planning within the industry that is necessary to satisfy the requirements of the Telecommunications Act of 1996 and the FCC's guidelines for implementation of LNP.

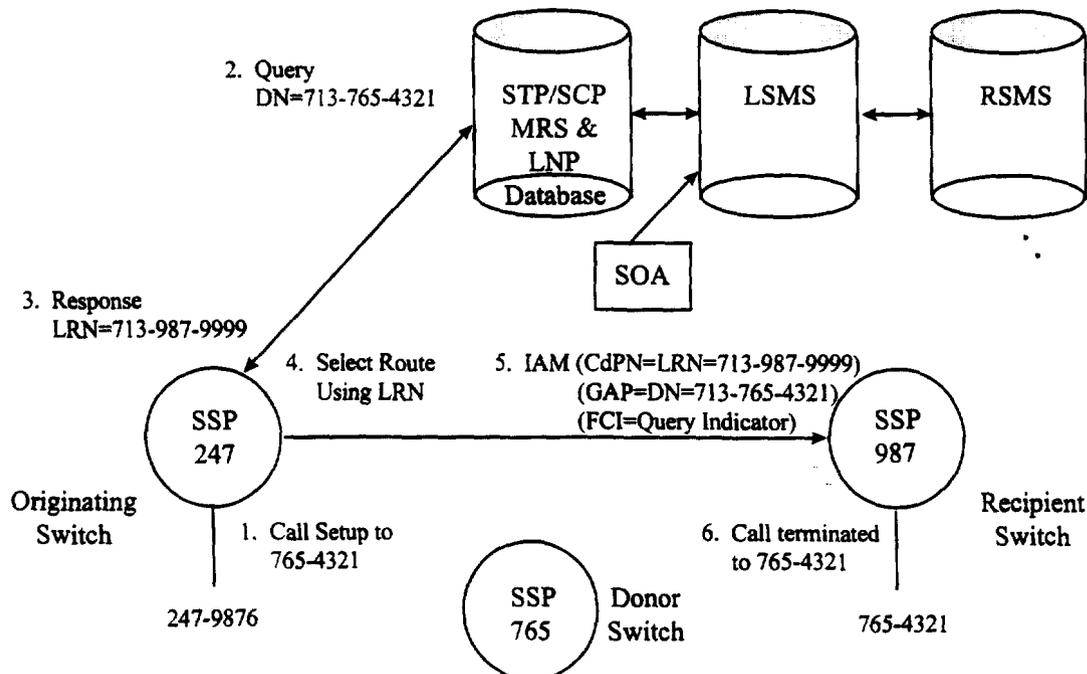
2. Local Number Portability (LNP) - Architecture and Functionality

Local Number Portability (LNP) provides the subscriber the ability to maintain their telephone numbers while changing their service provider, geographic location, and/or services. The *First Memorandum Opinion and Order on Reconsideration*, released March 11, 1997, requires the local exchange carriers to implement *service provider* number portability in the 100 largest MSAs by 12/31/98. The schedule for the SBC MSAs was set forth as follows:

	Live Port Date	SWB MSAs	PB MSAs	NB MSAs
Phase I	3/31/98	Houston	Los Angeles	
Phase II	5/15/98	Dallas, St. Louis	Riverside, San Diego	
Phase III	6/30/98	Kansas City, Ft. Worth	Orange County, San Francisco, Oakland	Las Vegas
Phase IV	9/30/98	San Antonio, Austin, Oklahoma City, Memphis	San Jose, Sacramento, Fresno	
Phase V	12/31/98	Wichita, Little Rock, Tulsa, El Paso	Ventura, Bakersfield, Stockton, Vallejo	

The LNP solution adopted by the industry uses a Location Routing Number (a 10-digit number uniquely identifying a recipient switch, which serves at least one ported number) to provide routing information necessary to complete a call to a ported number. The basic LNP network architecture and functionality is illustrated on the chart below:

Basic LNP Architecture and Functionality



In the chart above, when a customer places a call to a ported number, the following steps are involved in completing the call using the LRN:

1. The originating switch first recognizes that the NXX called is a ported NXX.
2. It then launches a query to the ISCP/STP requesting an LRN for the ported number.
3. The ISCP/STP responds with the LRN.
4. The LRN is then used by the originating and subsequent switches to route the call to the recipient switch.
5. The routing information returned from the ISCP/STP includes the LRN, called number, and a query indicator to designate that this call has been queried.
6. The recipient switch then terminates the call to the ported number.

While the LNP call completion illustrated above appears straight forward and simplistic, its implications to underlying systems and processes is extremely complex. Its implementation requires significant changes to call processing, call routing, switching, SS7 signaling, operational support systems, operator services, billing processes, customer interfaces, etc.

The magnitude of SBC's LNP network deployment effort is significant. We are deploying vast amounts of hardware, software, and system upgrades to support LNP across our two regions:

• Southwestern Bell

- Upgrading 681 switches (hosts and remotes) in the mandated MSAs
- Upgrading 8 Signal Transfer Point (STP) pairs
- Adding 2 Intelligent Service Control Point (ISCP) pairs
- Upgrading over 100 internal and third-party systems.

Pacific Bell and Nevada Bell

- Upgrading 524 switches (hosts and remotes)
- Upgrading 13 STP pairs
- Adding 5 ISCP pairs
- Upgrading over 60 internal and third-party systems.

Our progress has also been significant. The status of the network switch upgrades in our Phase I MSAs, as well as our overall company progress, has been on target:

End Office Switch Status	Phase I MSAs		Overall Company	
	Houston	Los Angeles	SWB	PB/NB
Switch Upgrades Complete	100%	99%	63%	74%
Translations Complete	96%	98%	41%	22%
Initiated Querying	83%	98%	15%	22%

LNP implementation further triggers changes to established processes and protocols which support our existing products and services. The implementation of LNP is one of the most complex programs pursued in telecommunications history.

3. LNP - Testing

One concern during preparation for LNP has been that we are working in a new area without the security of established standards. This has left much open to interpretation. In this environment, SBC has sought to establish LNP testing schedules for the new LNP software which would allow some flexibility to respond should software problems be encountered.

Our original timelines allowed for 8 weeks of inter-industry testing beginning on 2/2/98; however, as this start of inter-industry testing fell within the FCC 60-day waiver period, the start of inter-industry testing was advanced to 1/19/98 in hopes of being able to respond should problems be encountered. Equipment and software vendor slippages compressed the schedule to a point where it was necessary for us to revert to the original schedule. Software problems with the Local Service Management System (LSMS) and Number Portability Administration Center (NPAC) necessitated the delivery of additional releases into mid-January to fix LNP service affecting issues. With the concurrence of the Southwest Region LNP Operations Team, the start of inter-industry testing was re-established as 2/2/98.

All LNP systems, software, and hardware that are being integrated into the SBC network have gone through a progression of extensive testing to ensure that the network will not be adversely affected by any new upgrade and that network reliability will not be compromised. This has included:

- Tests by suppliers
- Tests in Bellcore's Interoperability Lab (for major releases)
- Tests in SBC's Technology Resources, Inc. (TRI) Lab or internal test platforms (for internally developed systems)
- Tests in a production mode.

The Test Plans developed by SBC have incorporated, and appended additional tests to, the Illinois Local Number Portability Test Plan, as produced by the Illinois Number Portability Workshop. The SBC Test Plans have delved deeper into testing scenarios beyond those required by the inter-industry Southwest Region LNP Test Team.

An LNP test network was established in the TRI Lab where application testing (call through, protocol verification, AMA verification, operator services, AIN interaction, etc.) was started in June, 1997. LNP components were first tested on a stand alone basis and then in connection with other network systems that are also available in the lab. In total, it is estimated that well over 2100 test calls were placed for LNP by the lab. (Appendix A contains further details on the TRI testing and results relating to this Declaration).

Intra-company testing began in Houston in December, 1997. A test suite of offices, consisting of at least one switch for each switch-type in the SWBT network, was used to verify translations, call through, porting capabilities, etc. Provisioning systems had been tested as both stand alone components and in concert with adjacent systems.

Following LSMS and NPAC issue resolution in January, we were ready to start inter-industry testing the first week of February.

4. Findings - STP Software Problems

Implementation of LNP was on target to meet the 3/31/98 Commercial Port Date for Phase I in Houston until three software problems were discovered (independently of each other) within a 2-week time frame in late-January/early-February. These software problems are each related to the DSC Communications' Signal Transfer Point (STP).

The implementation of LNP throughout SBC utilizes the DSC Communications' STP to perform the following functions:

- Message Relay Service (MRS) - routes Signaling System 7 (SS7) messages to the correct network for advanced network services such as Alternate Billing Services (ABS)/Line Information Data Base (LIDB), CLASSSM, Voice Messaging Service (VMS), and Calling Name (CNAM).
- Location Routing Number (LRN) Database - provides the LRN (a 10-digit number uniquely identifying a recipient switch which serves at least one ported number) used by the querying switch and subsequent switches to route the call to a ported number to the correct serving switch.

(Initial implementation in the Houston and Los Angeles MSAs will utilize Bellcore's Intelligent Service Control Point (ISCP) to provide the LRN functionality and DSC Communications' STP to provide the Message Relay Service functionality. All subsequent MSA implementations will utilize the DSC Communications' Integrated STP to perform both functions).

While the LRN Database is unique to LNP call processing, the MRS functionality impacts the entire SS7 signaling network which routes the advanced network services as mentioned above. It is in the MRS functionality, outside of LNP call processing, where the DSC Communications' STP software incompatibilities were found.

The SBC Phase I MSAs of Houston and Los Angeles were to be dependent only on DSC Communications' STP Release 10.0 for the MRS feature capabilities; as noted above, they would utilize the ISCP for the LRN feature capabilities.

The subsequent MSAs would use the DSC Communications' Integrated-STP for the LRN feature; as such, they would be dependent on Release 10.0 and subsequent releases for the LRN feature capabilities. The Automatic Code Gap (ACG) functionality, which manages network overload conditions for the LNP feature, would be in Release 11.0 with an expected General Availability (GA) of June, 1998. ACG is a feature which allows the SCP/STP to control incoming message traffic by throttling/choking the traffic at the local switch during periods of abnormal traffic. This ability to manage the incoming traffic is *critical* to the reliability of the overall network. As such, an interim solution, called Selective Code Gapping (SCG), which would allow manual overrides was to be delivered in an interim Release 10.10 in January, 1998, in time for the Phase II MSAs.

After extensive lab testing by both DSC Communications and SBC, including a Bellcore Technical Audit, network operations personnel began loading Release 10.0 in the production

environment beginning with the Houston Jackson STP on November 24th. Release 10.0 software was on-line for 8 weeks without problems. Testing of the MRS feature capabilities had progressed through CLASSsm and VMS without issue. Testing with LIDB/CNAM functionality had been deferred until last to accommodate changing of the SS7 routing point codes in the end office switches and loading of the new vendor software required for LIDB/CNAM (Release 10.0) on our Regional STPs. When the MRS function for LIDB (10-digit) queries was activated, the following network problems were encountered:

- **Alternate Billing Services/LIDB Queries:**
On January 21st the MRS function for LIDB queries was activated on the Walnut Creek STP. The STP experienced LIDB Global Title Translations (GTT) software problems on queries originating from GTE's Ontario, CA switch. These queries all included an additional SS7 TCAP parameter - CIC Code Expansion Indicator. The CIC Code Expansion Indicator parameter is included in the LIDB messages to meet the FCC mandate on CIC Code Expansion; all networks will have to comply with this standard by July, 1998. The STP encountered problems on all LIDB queries (for services such as Calling Card and Billed Number Screening) with this new changed message format. The resultant impact could have led to widespread toll fraud for some service providers if calls are completed without Alternate Billing Service validation. Therefore, the MRS feature for LIDB was deactivated. It should be noted that GTE uses a different operator services switch than SBC and that GTE did not begin sending the additional SS7 parameter until January of this year.
- **Advanced Intelligent Network (AIN) Service:**
On February 2nd the MRS function for LIDB queries was activated in the Kansas City and Austin Regional STPs in our on-line SS7 network. The STPs experienced LIDB GetData query software problems; the LIDB GetData queries are associated with our customers' AIN advanced services. Approximately 20,000 calls were mishandled between February 2nd and 5th due to these LIDB GetData query software problems before we were able to identify and isolate the source of the problems. For our AIN advanced services customers, who use their service to route incoming calls to multiple locations, this resulted in the misrouting of calls to their default routing location rather than the normally expected service location. The MRS feature for LIDB was deactivated in the STPs. (The impact of this problem is limited to the SWBT five-state area as this service is not offered in our West Coast Region).

During this same two week period, we were continuing our Technology Resources, Inc. (TRI) Lab testing for the interim Release 10.10, needed for our Phase II and subsequent MSAs. A critical software problem was discovered in the lab:

- **Selective Code Gap Network Management:**
On January 29th during TRI's Lab testing of Release 10.10, the Selective Code Gap feature failed. The software was incorrectly handling certain SS7 parameter fields necessary for proper SS7 message handling. As previously stated, lack of LNP network management controls would seriously impact network reliability and the survivability of the SS7 network in the event of an overload.

5. Resolution

SBC has been working diligently with DSC Communications to expedite the delivery of the software fixes, but we have been unable to improve the dates relative to meeting the mandated commercial ready to port dates. We were notified on February 6th that the availability of fixes would not be until February 17th with the Release 10.10, Version 4 tape.

Based upon our discussions with DSC Communications for software availability and the necessary testing intervals, as discussed below, the following are the planned Live Commercial Port Dates for the SWBT MSAs:

	Live Port Dates	SWB MSAs
Phase I	5/26/98	Houston
Phase II	6/26/98	Dallas, St. Louis
Phase III	7/27/98	Kansas City, Ft. Worth
Phase IV	9/30/98 (NC)	San Antonio, Austin, Oklahoma City, Memphis
Phase V	12/31/98 (NC)	Wichita, Little Rock, Tulsa, El Paso

The delivery and testing intervals for deployment of these fixes is planned as follows:

- DSC Communications delivered the Version 4 tape for Release 10.10, which should contain fixes for these three critical problems, to the TRI Lab on 2/17/98. TRI Lab testing will require 3½ weeks of full regression testing before the software will be released for “soak” in the live production environment. With a 3/13/98 load at the soak node and a network soak period of 2 weeks, the earliest General Availability (GA) date will be 3/27/98. (The TRI Lab testing and soak intervals are minimum standards and cannot be further compressed in order to avoid compromising network reliability).
- After the lab testing is complete, we will load the new release software in our network and phase in the STP loads over a 3 week period to support Phase I deployment without compromising network integrity. Testing will then be performed in Houston for both intra-company and inter-industry (testing with the other telecommunications service providers) to validate MRS and LRN functionality and to ensure that no other compatibility problems have been created.
- We will begin taking orders for Houston on 5/15/98 with a service date of 5/26/98 for uncoordinated orders.
- The thirty day interval planned between our first three phases provides the necessary time for processing any “pent up” demand from new CLEC entrants, as well as conversions from Interim Number Portability (INP) to Local Number Portability (LNP). This interval is also necessary for all participants to become familiar with the new LNP service order processes. It should be noted that some of these new processes are still being defined. NPAC certification to-date has waived certain requirements until software improvements can be made, i.e. improved NPAC throughput. Until certification is complete, the service order

activation (SOA) centers' ability to handle large numbers of simultaneous requests will be limited by the NPAC. Compression of these schedules could jeopardize the centers' ability to handle each new MSAs initial demand.

- The critical path for the West Coast Region (Pacific Bell and Nevada Bell) is currently driven by NPAC availability. Specific information about NPAC concerns for the West Coast Region will be described under a separate filing by March 1, 1998 per FCC order. If the STP issues become the critical path, we will provide a schedule based upon the controlling STP schedules.

6. Summary/Close

As stated above, the implementation of LNP is one of the most complex programs pursued in telecommunications history. Its implementation requires significant changes to call processing, call routing, switching, SS7 signaling, operational support systems, operator services, billing processes, and customer interfaces, not only in the processing of LNP calls, but also in the processing of other existing products and services.

A primary cause for concern has been that the development of complete national LNP standards to support this functionality has lagged its implementation due to the time constraints required. In the absence of national standards, vendors are building to specifications set forth by the Illinois Commerce Commission (ICC) in the Ameritech LNP trial. This produces an environment of ambiguity and leaves much open to interpretation.

For example, the MRS function has to delve into the applications layer of the SS7 protocol in order to obtain the necessary ten digit called number for determination of porting status, and therefore, SS7 message routing. Normally, all SS7 message routing would be done at a lower level of the protocol (signaling connection control part) designed for message routing. With LNP we will now have to be more rigid in the development of applications in order to allow for SS7 message routing, or STP vendors will have to be more open in routing code design to take into account unknown applications' design. The previously mentioned incompatibility of the MRS feature with ABS SS7 queries is a case in point. Two different switch suppliers have implemented the same feature - CIC Code Enhancement - in the SS7 applications level differently. As a result, a software incompatibility was found only after deployment in the live network with interconnection to another network provider.