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March 25, 1998

Geraldine A. Matise
Chief, Network Services Division
Federal Communications Commission
Common Carrier Bureau
2000 M Street, N.W., Room 235
Washington, D.C. 20554

Received

MAR 25 1998

Common Carrier Bureau
Network Services Division
Office of the Chief

Re: Petition to Extend Time for Implementation
NSD File No. L-98-27; CC Docket 95-116
DA 98-449; DA 98-538
Ex Parte

RECEIVED
MAR 30 1998
FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Dear Ms. Matise:

On Friday, March 20, 1998, Doug McDougal of BellSouth Telecommunications, Inc. (BST), Vish Emani of BellSouth Applied Technologies, Inc. (BAT), Ben Almond of BellSouth D.C., Inc., and the undersigned met with you. Les Selzer of the Tariff Division, and Patrick Forster, Andre Rausch, Gayle Radley Teicher and Marian Gordon of the Network Services Division to answer questions arising out of the referenced petition and related filings. A copy of the ex parte notification was filed pursuant to the Commission's rules.

At the conclusion of our meeting, Common Carrier Bureau Staff requested additional information from BellSouth, including a more comprehensive illustration of both BellSouth's long-term database method of number portability (LNP) "Gateway" service management system (SMS) database and Advanced Intelligent Network (AIN) SMS development efforts. The Bureau also requested that BellSouth confer with the new Southeast Number Portability Administration Center (NPAC) Region Local Number Portability Administrator (LNPA), Lockheed Martin, on the reasonableness of the length of time BellSouth has requested to conduct "turn-up" testing of its new interface (May 11, 1998 - September 1, 1998).

Since the conclusion of our meeting, both Ben Almond and I have provided your office with telephone status reports of BellSouth's efforts in response to the Bureau Staff's requests. The purpose of this letter is to provide you with (1) a copy of the requested GANTT charts for the BellSouth LNP Gateway SMS and AIN SMS development efforts; (2) a written summary of our meetings with Lockheed-Martin in response to the Bureau Staff's request; (3) information

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concerning recent dial-up interoperability testing that BellSouth received after we finished meeting with you last Friday; (4) identification of the IEEE standards BellSouth tests software against; and (4) a summary of BellSouth's efforts to secure an NPAC interface through third party vendors.

1. LNP Gateway SMS/AIN SMS GANTT Chart

Attached are GANTT Charts for the BellSouth LNP Gateway SMS and AIN SMS Project Plan. These charts demonstrate that BellSouth's LNP Gateway SMS development effort has been initiated and will be executed concurrent with BellSouth's AIN SMS development effort.

As we discussed Friday, the BellSouth LNP Gateway SMS is BellSouth's individual "downstream database" as contemplated by the Commission's Rules. 47 C.F.R. § 52.25(i). It operates as an integrated interface between the Southeast Region NPAC master database of all ported numbers and over forty downstream operations support systems (OSS) within BellSouth. In addition to its NPAC interface functionality, the Gateway LSMS has electronic interfaces to Local Carrier Service Centers (LCSC) for the purpose of monitoring the status of LNP orders. Not only is it a gateway to all these OSS processes, but it is a key tool for the LCSC to maintain status during the time it takes to process an order for LNP. It is an access mechanism back into the NPAC to check on the status of a particular number in the event of a trouble report.

BAT has developed the most robust and most mechanized NPAC/carrier interface in the country. The robustness of the BellSouth LNP Gateway, however, does not affect the length of the turn-up testing interval. This is because the additional functionalities of the BellSouth LNP Gateway SMS does not impact the suite of tests involved in turn-up testing, which involves carrier certification against the NPAC interface software.

The BellSouth AIN SMS is the critical call processing OSS that manages the actual software application that resides on the service control points (SCP). As we discussed Friday, the Commission's LNP architecture represents a dramatic reconfiguration of the former paradigm of the public switched telephone network (PSTN). In the LNP environment established by the Commission's rules, PSTN switches no longer actually "switch" or route numbers to a specific geographic location based on the first six digits dialed. Rather, call processing software loaded into the SCPs responds to call queries from originating switches by supplying the routing instructions based on the status (ported or not ported) of the dialed number.

There seemed to be some confusion last Friday over whether BellSouth was devoting more time to its AIN SMS development efforts than to its LNP Gateway SMS development efforts. We hope we established that the LNP Gateway SMS is the larger effort by far; the development of both SMS databases is proceeding concurrently. This work, and BellSouth's efforts are devoted to NPAC certification with Lockheed.

2. Length of Turn-up Testing Interval

Bureau staff questioned BellSouth on the length of time set forth in BellSouth's petition devoted to turn-up testing. The Bureau asked whether BellSouth had formulated the duration of this interval in consultation with the new LNPA, and subsequently requested that BellSouth consult with the new LNPA as quickly as possible on this matter. In response to this request, BellSouth contacted the new LNPA on Sunday, March 22; these contacts continued throughout the course of Monday, March 23, resulting in a conference call at 4:00 p.m. est. on Monday, March 23, between Lockheed Martin (Michael Dorian, Joseph Franlin and John Pope) and BellSouth (Doug McDougal, Vish Emani, Ben Almond and me).

Lockheed Martin advised us at that time that they were unable to comment on any testing intervals specific to any of their client companies because of the differences that necessarily arise from carrier to carrier and from region to region. However, Lockheed Martin agreed to receive additional information from BellSouth and to meet again. On Tuesday, March 24, the same individuals from BellSouth met with John Pope and Martin Breen of Lockheed Martin. Lockheed Martin advised BellSouth that Lockheed recently advised the Bureau Staff that, in Lockheed's experience, the total time required to execute the interoperability test suite is typically 8 weeks, and that the same amount of time is needed for turn-up testing. Lockheed also advised BellSouth that it advised the Commission that these testing intervals were "rough averages." Further, Lockheed advised BellSouth that these averages assumed a testing carrier had built to the same NPAC interface specification as Lockheed. Lockheed further advised BellSouth that Lockheed has always completed interoperability and turn-up testing in less time than was originally scheduled.

Lockheed then compared its average 8 week testing intervals with BellSouth's proposed 10 and 11 week intervals for interoperability and turn-up testing. Lockheed noted that BellSouth had to update its system software from the Perot Systems NPAC specification to the Lockheed Martin NPAC specification. Lockheed advised us that from their perspective the difference between the BellSouth and Lockheed testing intervals is "due exclusively" to BellSouth's software development efforts. While Lockheed advised us that they are not in a position to give an opinion or comment on BellSouth's specific software development test phase requirements, Lockheed agreed that under the circumstances BellSouth's proposed testing intervals, taking into account the necessary BellSouth systems software development and testing requirements, are reasonable from an engineering standpoint and consistent with Lockheed's experience in the development, testing and deployment of systems software interfaces.

Lockheed and BellSouth then undertook discussions aimed at accelerating testing efforts in an attempt to do everything possible to shorten the current projected testing intervals. Among options discussed were the possibilities of undertaking preliminary or "initial" turn-up testing after the first week of April; managing BellSouth and Lockheed resources to create parallel test teams; and examining the appropriate turn-up test category for BellSouth in order to determine if

the number of turn-up test cases required can be reduced. Lockheed and BellSouth agreed to meet again on Monday, March 30, 1998, to continue to explore these efforts.

After consulting with Lockheed Martin, BellSouth is confident that the initial implementation schedule proposed in its petition is consistent both with sound engineering practices, with Lockheed Martin's generic process experience to date, and with Lockheed's approach to "test as much as you can, as soon as you can." BellSouth also has no further empirical basis at this time on which it can rationally propose to shorten its implementation schedule plan of record. This is because the LNP Gateway SMS and AIN SMS are call processing systems integral to the provisioning of ported numbers for *all* local exchange carriers in the Southeast NPAC Region, and it is imperative that BellSouth apply the same process and rigor to the testing and debugging activities as whenever BellSouth introduces new switch software in any part of its network. Failure to provide this level of technical due diligence could cause a network catastrophe similar to the large scale service failures that occurred earlier in this decade when software used in the Signaling-System 7 (SS7) networks of AT&T, Bell Atlantic and Pacific Bell contained a coding error.¹

BellSouth anticipates that by the end of the first week of May it will have enough empirical data on which it can make a judgment as to whether the testing intervals set forth in its original petition can be shortened. This will be especially true if BellSouth and Lockheed are able to implement some or all of the options currently under discussion in an attempt to reduce the length of these intervals. BellSouth will report to the Bureau Staff the results of its data analysis. If the data indicate that the intervals can be shortened, BellSouth will manage its development and testing efforts accordingly.

3. New Developments - Interoperability Testing

At our meeting last Friday, we reported that BellSouth was "cautiously optimistic" about results from our dial-up testing facility. At the time BellSouth filed its petition, and as of last Friday, Lockheed Martin was not in a position to participate in direct interoperability testing with BellSouth over dedicated facilities. Therefore, in the meantime, BellSouth arranged for Lockheed to provide a set of its NANC 1.7 compliant software to DSET, a software vendor and testing subcontractor to Lockheed Martin with testing laboratories in New Jersey. Beginning the first of this month, BellSouth has engaged in interoperability testing via dial-up facilities with DSET. Prior to our meeting with the Bureau Staff last Friday, BellSouth confirmed with Lockheed that BellSouth was testing its LNP Gateway release 1.1 software developed to the Perot Systems NPAC interface against a Lockheed NPAC release 1.2 compliant with NANC 1.7 interface. The test results BellSouth began receiving last week were so encouraging that, based

¹ *Amendment of Part 63 of the Commission's Rules to Provide for Notification by Common Carriers of Service Disruption*, Notice of Proposed Rulemaking, CC Docket No. 91-273, 6 FCC Rcd 5531 (1991) at ¶ 2.

on this limited set of data, BellSouth advised the Commission early Friday afternoon that it appeared our implementation schedule could be accelerated by two weeks.

BellSouth subsequently learned from Lockheed late Friday that the software provided by Lockheed to DSET was not, in fact, NANC 1.7 compliant software, but rather NANC 1.2 compliant software. Mr. Almond then advised the Bureau staff that the effect of this mistake is that BellSouth does not have the two week advantage that the test results shared with the Commission on Friday apparently indicated: that BellSouth would never have gone to the significant daily expense to test its NANC 1.1 software, which has already been certified with the previous NPAC vendor, to a version below NANC 1.7; and that BellSouth, therefore, is in the same position, empirically, as it was on March 2 when it filed its petition.

In our meeting with Lockheed yesterday, we asked how soon Lockheed can provide DSET with NANC 1.7 compliant software so that BellSouth can resume interoperability testing. Lockheed advised that, subject to confirmation, the ASNI and GDMO changes between versions 1.2 and 1.7 are more in the nature of clarifications of intent rather than changes in messaging format. This confirmation by both Lockheed and BellSouth is expected by Monday, March 30, 1998; it may be that BellSouth has in fact been testing in as empirically valid a manner as is currently possible, notwithstanding the current state of the NPAC software at the DSET testing facility. Nevertheless, until the state of the software releases can be confirmed by Lockheed, BellSouth is not able to rely on the data it presented to the Commission last Friday as a basis for adjusting its implementation plan of record.

4. Testing Standards

BellSouth's petition, its related filings, and its ex parte contacts have emphasized the need for rigorous testing, debugging, regression testing and development as it builds its system interface from Perot System's interpretation of NANC FRS and IIS specifications to Lockheed's interpretation of the NANC FRS and IIS specifications, addressing, in this context, the additional software specifications resulting from the change. At Friday's meeting, Mr. Rausch inquired and Mr. Emani confirmed, that the testing intervals set forth in BellSouth's petition were developed in accordance with IEEE standards. Specifically, the intervals set forth in BellSouth's petition, related filings and the attached GANTT charts take into account the following specific IEEE standards into its software test plans:

Standards for Software Quality Assurance Plans	IEEE 730-1989
Standard for Software Test Documentation	IEEE 829-1983
Standard Dictionary of Measures to Produce Reliable Software	IEEE 982.1-1988
Guide for the Use of IEEE Standard Dictionary of Measures to Produce Reliable Software	IEEE 982.2-1988
Standard for Software Unit Testing	IEEE 1008-1987
Standard for Software Verification and Validation Plans	IEEE 1012-1986

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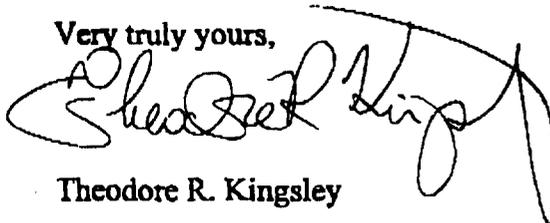
5. Third-Party Vendors

As we discussed at Friday's meeting, in addition to BellSouth's ongoing development efforts, BellSouth has contacted the other two NPAC software interface vendors, ESI and Bellcore, as well as MCI Systemhouse, in order to ascertain whether, in the alternative, these vendors could provide the required interface quicker than BAT. ESI made three site visits to BellSouth last week. Bellcore has visited BellSouth and participated in a day-long conference call. We will apprise the Commission of the results of these efforts. We do anticipate that we will be able to implement LNP sooner if BellSouth continues to pursue its own development efforts through BAT, and, at the present time, our plan of record remains our very best effort to ensure the efficient development of number portability in the Southeast NPAC Region as a result of the change in NPAC vendors and the resulting change in NPAC interface specifications.

Pursuant to Section 1.1206(b) of the Commission's rules, an original and one copy of this transmittal letter are being submitted to the Office of the Secretary for inclusion in the public record.

If you have any further questions, please do not hesitate to call.

Very truly yours,



Theodore R. Kingsley

cc: Martin Breen
John Pope
Patrick E. Forster
Andre H. Rausch
Leslie J. Selzer
Marian R. Gordon
Gayle Radley Teicher
Vish Ermani
Doug McDougal
Ben Almond

Project Schedule for LNP Migration

ID	Task Name	Start	Finish	% Comp	Pred	1st Quarter		2nd Quarter			3rd Quarter			4	
						Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		Oct
	Summary Release Schedule	Wed 2/11/98	Thu 10/1/98	28%											
1	✓ Sign Contract with vendor	Fri 2/13/98	Fri 2/13/98	100%											
3	✓ Requirements	Wed 2/11/98	Mon 3/9/98	100%											
4	✓ Complete NANC 1.1 to NANC 1.8 upgrade requirements	Wed 2/11/98	Mon 3/2/98	100%											
5	✓ Approve NANC 1.1 to NANC 1.8 upgrade requirements	Tue 3/3/98	Mon 3/9/98	100%	4										
6	Network and Communications	Mon 2/16/98	Mon 4/6/98	83%											
7	✓ Set up test system for dial-up testing to DSET	Mon 2/23/98	Fri 3/6/98	100%											
8	Install T1 lines to Lockheed	Mon 2/16/98	Mon 3/30/98	90%											
9	Test Connectivity to Chicago NPAC with T1	Tue 3/31/98	Mon 4/6/98	0%	8										
10	Development (includes QA)	Mon 2/23/98	Wed 7/29/98	23%											
11	Release 1.5 - LNP Gateway modifications to support GDMO recompilation changes only for NANC 1.8; this will allow BellSouth to successfully complete Interoperability Tests	Mon 3/2/98	Tue 4/7/98	60%											

Prepared by David Samsky
BellSouth Applied Technologies, Inc.
Phone 770 209-8088

Task		Rolled Up Task		Split	
Progress		Rolled Up Milestone		Rolled Up Split	
Milestone		External Tasks			
Summary		Project Summary			

Project Schedule for LNP Migration

ID	Task Name	Start	Finish	% Comp	Pred	1st Quarter			2nd Quarter			3rd Quarter			4
						Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
12	Release 1.6 - Implement NANC 1.8 Change Orders in LNP Gateway based on Requirements identified in Task 5 above; these are functional changes to the LNP Gateway.	Mon 3/16/98	Mon 5/11/98	13%	5										
13	Release 1.7 - LNP Gateway functional implementation of Electronic Data Interface (EDI) Issue 7 for mechanized exchange of Orders. Required by contracts signed by BellSouth and CLECs	Mon 2/23/98	Wed 7/29/98	18%											
14	Test Planning	Mon 2/23/98	Fri 3/27/98	80%											
15	Negotiate with Lockheed on required interoperability tests and test process	Mon 2/23/98	Fri 3/13/98	100%											
16	Negotiate with Lockheed on required turn-up tests and test process	Mon 3/9/98	Fri 3/27/98	65%											
17	Develop test plan	Mon 3/2/98	Fri 3/27/98	75%											
18	Release Testing	Mon 2/23/98	Wed 8/5/98	40%											
19	Accept LNP Release 1.1 - Load Dial-up system and Atlanta & Charlotte Data Center	Mon 2/23/98	Fri 3/6/98	100%											
20	Accept LNP Release 1.5 (includes Automation and recompile of GDMO)	Wed 4/8/98	Tue 4/14/98	0%	11										
21	Accept LNP Release 1.6 (includes NANC 1.8)	Mon 5/11/98	Fri 5/15/98	0%											
22	Accept LNP Release 1.7 (includes Issue 7)	Thu 7/30/98	Wed 8/5/98	0%	13										

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Task		Rolled Up Task		Split
Progress		Rolled Up Milestone		Rolled Up Split
Milestone		External Tasks			
Summary		Project Summary			

Project Schedule for LNP Migration

ID	o	Task Name	Start	Finish	% Comp	Pred	1st Quarter		2nd Quarter			3rd Quarter			4	
							Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		Oct
23		Certification Testing	Mon 3/9/98	Mon 8/24/98	5%											
24	■	LTI testing with MediaOne - Currently NOT scheduled	Mon 4/27/98	Tue 4/28/98	0%											
25		Interoperability Testing - LNP Gateway (NANC 1.1 & Gateway Release 1.1) with DSET (NANC 1.7) - Dial-Up	Mon 3/9/98	Fri 3/27/98	30% 7											
26		Continue Interoperability Testing at NJ, DSET - OR - Start Turnup Testing in Chicago, Lockheed; LNP Gateway Release 1.1	Mon 3/30/98	Tue 4/7/98	0% 25											
27		Continue Interoperability Testing at NJ, DSET - OR - Start Turnup Testing in Chicago, Lockheed; LNP Gateway Release 1.5	Wed 4/15/98	Tue 4/21/98	0% 20											
28		Turn-up Testing - Certification of LNP Gateway Release 1.6 with Lockheed in Chicago (Contains all functional changes for NANC 1.8)	Mon 5/18/98	Wed 7/29/98	0% 21											
29		Turn-up Testing - Certification of LNP Gateway Release 1.7 with Lockheed in Chicago (Contains all functional changes for NANC 1.8)	Thu 8/6/98	Mon 8/24/98	0% 22											
30		Field Testing	Wed 3/25/98	Wed 9/30/98	0%											
31		Generate Run Books for Technical Support Center	Wed 3/25/98	Wed 5/13/98	0% 32SF											
32		Technical Support Center incorporate Run Books	Wed 5/13/98	Mon 7/13/98	0% 33SF											
33	■	Internal BellSouth Testing	Mon 7/13/98	Mon 8/24/98	0% 29FF											

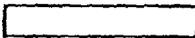
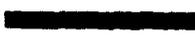
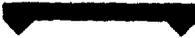
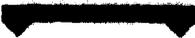
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Task		Rolled Up Task		Split
Progress		Rolled Up Milestone		Rolled Up Split
Milestone		External Tasks			
Summary		Project Summary			

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ID	o	Task Name	Start	Finish	% Comp	Pred	1st Quarter		2nd Quarter			3rd Quarter			4	
							Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		Oct
34	☐	Reset Database	Tue 8/25/98	Fri 8/28/98	0%	33										
35	☐	CLEC End to End Testing	Mon 8/31/98	Wed 9/30/98	0%	34										
36		Live Porting	Thu 10/1/98	Thu 10/1/98	0%	35										

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Task		Rolled Up Task		Split
Progress		Rolled Up Milestone		Rolled Up Split
Milestone		External Tasks			
Summary		Project Summary			

ID	o	Task Name	Duration	Start	Finish	% Comp	Pred	Res Ini	1st Quarter	2nd Quarter	3rd Quarter
									Qtr 1	Qtr 2	Qtr 3
1	✓	NANC Compliance Analysis	30 days	Tue 2/10/98	Mon 3/23/98	100%					
2		Requirements	30 days	Mon 3/23/98	Fri 5/1/98	0%	Client				
3	□	NPAC Issues Resolved	6.06 days	Mon 3/23/98	Tue 3/31/98	1%					
4	□	Issue Draft for Engineering Review	11 days	Mon 3/23/98	Mon 4/6/98	0%					
5	□	Issue Final Requirements	1 day	Wed 4/15/98	Wed 4/15/98	0%					
6	□	System Design	13 days	Wed 4/15/98	Fri 5/1/98	0%					
7		Software Development	44 days	Fri 5/15/98	Wed 7/15/98	0%					
8	□	Unit Testing	22 days	Fri 5/15/98	Mon 6/15/98	0%					
9	□	System Testing	23 days	Mon 6/15/98	Wed 7/15/98	0%					
10	□	Test Case Development	13 days	Mon 6/15/98	Wed 7/1/98	0%					
11	□	Network Integrity and Reliability Testing	13 days	Wed 7/15/98	Fri 7/31/98	0%					
12	□	Final Certification	1 day	Mon 8/3/98	Mon 8/3/98	0%					

Project: ain_sms_32398.MPP Date: Wed 3/25/98	Task		Rolled Up Task		Project Summary	
	Progress		Rolled Up Milestone		Split	
	Milestone		Rolled Up Progress		Rolled Up Split	
	Summary		External Tasks			