

BEFORE THE
Federal Communications Commission
WASHINGTON, D.C.

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

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In the Matter of)
)
Telephone Number Portability) CC Docket No. 95-116
) RM 8535

REPLY COMMENTS OF TIME WARNER COMMUNICATIONS HOLDINGS, INC.

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October 12, 1995

No. of Copies rec'd 074
List A B C D E

TABLE OF CONTENTS

	Page
SUMMARY	iii
INTRODUCTION	1
DISCUSSION	3
I. The Record Unambiguously Establishes the Competitive Significance of Service Provider Number Portability	3
A. The Record Demonstrates the Need for the Commission to Act to Ensure the Development and Deployment of Number Portability	3
B. The Commission's Efforts Should Focus Upon Service Provider Number Portability, Leaving Service and Location Portability to Market-Based Solutions	6
II. The Flexible Implementation of Medium Term Solutions Suggested by TWComm is the Soundest Approach to the Deployment of Service Provider Portability	7
A. Database Technology Permits Carriers Serving the Same Area to Offer True Number Portability Using the Numbering and Triggering Solutions that Best Suit Their Networks	11
1. Example One -- Call Originates on a Carrier Using LRN and Terminates on a Carrier Using LANP	12
2. Example Two -- Call Originates on a Carrier Using LANP and Terminates on a Carrier Using LRN	17
B. Transitional Database Solutions Are Evolutionary Steps Toward the Network of the Future	23
III. LECs Have Overstated the Costs of Implementing Service Provider Portability	25
A. LECs Have Exaggerated the Network-Related Costs of Implementing Number Portability	26

1.	Arguments That Do Not Apply To Medium Term Solutions	28
2.	Alterations Whose Complexity Has Been Overstated	30
3.	Alterations that only Pose Problems for Outdated Networks	34
B.	LECs Have Exaggerated the Financial Cost of Number Portability	35
IV.	The FCC and State Regulators Must Oversee the Transition to Number Portability	38
	CONCLUSION	41

SUMMARY

The record in this proceeding should now be clear on several issues. First, there should be no question that competition in the local loop will be materially impeded in the absence of true database number portability solutions. Second, there ought to be little doubt that the Commission should focus on the provision of service provider portability. If sufficient demand exists, it appears that carriers will be able to provide location and service portability without the aid of regulatory intervention.

The less settled issues in this proceeding concern the technical aspects of service provider portability. TWComm believes that it is well within current technical capabilities to deploy what TWComm calls medium term database solutions in the very near term. The development of a long term, national portability solution could proceed while the medium term solutions are in place. LEC parties, on the other hand, have argued that even service provider portability is both too complicated and too expensive to deploy at this or perhaps any time.

In order to clarify the record TWComm offers a detailed explanation of exactly how database solutions can function in the short term. As demonstrated in that discussion, database technology permits two carriers serving the same local area to use the numbering and triggering schemes that function most effectively on their networks. The upgrades required for this functionality are minimized first by the fact that each carrier

need only support a single numbering scheme and second by the fact that most networks already have deployed triggering capabilities.

As further demonstrated in that discussion, the investment required for deployment of medium term solutions will not be "thrown away" when a long term solution is eventually adopted. For example, the changes in the Local Exchange Routing Guide and the establishment of a portability database should be almost exactly the same for medium term and long term solutions. Moreover, carriers will have every opportunity and incentive to make changes in operations systems for medium term solutions that can be expanded efficiently for a long term solution.

Nor are the costs of number portability particularly high. Several LECs included in their Comments extensive lists of network upgrades that number portability would require. TWComm demonstrates below, however, that many of those upgrades do not apply to medium term solutions. The other upgrades identified are either far less complex than LECs seem to think or, to the extent they reflect a need for carriers to correct past failures to timely upgrade their networks, involve costs that are properly assigned to other services and not to number portability. LEC estimates as to the financial investment required for these investments are in any event overstated.

But while LEC arguments with regard to network and financial costs are unconvincing, the message underlying them is clear: LECs will resist number portability deployment with all of the

resources available to them. It is this fact that makes FCC intervention and leadership so important. TWComm believes that the Commission should use that leadership role to compel the LEC obligation to deploy adequate database solutions in the very near future.

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Time Warner Communications Holdings, Inc. ("TWComm"), hereby files its Reply Comments on the Commission's Notice of Proposed Rulemaking¹ in the above-referenced proceeding.

INTRODUCTION

As TWComm explained in its initial Comments, this proceeding is critically important to companies seeking to enter the local telephone market. Simply stated, competitive entrants such as TWComm cannot compete on equal terms with incumbent LECs without database service provider portability solutions.

The LEC interests commenting in this proceeding try to argue that the demand for service provider portability has been overstated, that Remote Call Forwarding and Direct Inward Dialing are satisfactory solutions, or that service, location and service provider portability must be deployed all at once. As the

¹ See Telephone Number Portability, Notice of Proposed Rulemaking, CC Docket No. 95-116, RM 8535 (released July 13, 1995).

Commission no doubt sees, these positions do not hold up under any kind of scrutiny.

Policy makers should be able to assess the weakness of the *technical* arguments offered by the LECs as well. The central message of these arguments is that even service provider number portability is too complicated and requires too many network upgrades to permit deployment of a solution at this or perhaps any time.

In response to these arguments, TWComm has included below an extensive discussion of the technical aspects of service provider portability. Section II provides a detailed explanation of how database service provider portability solutions can work in the very near term. Section III sets forth a point-by-point analysis of LEC assertions that portability is too complex and requires too many network upgrades to permit implementation in the near future.

As demonstrated in that discussion, database service provider portability solutions can be implemented in the very near term and at only modest cost in terms of upgrades to the network and financial investment. Above all, deployment of medium term database solutions is not overly complex. Moreover, industry experience with the 800 and line information database solutions has given engineers more than enough experience to execute the required technical adjustments.

There is therefore no reason to delay service provider portability. Database solutions, far superior to Remote Call

Forwarding and Direct Inward Dialing, are available now and at moderate cost. The Commission should act as soon as possible to compel LEC cooperation in the deployment of these solutions.

DISCUSSION

- I. **The Record Unambiguously Establishes the Competitive Significance of Service Provider Number Portability.**
 - A. **The Record Demonstrates the Need for the Commission to Act to Ensure the Development and Deployment of Number Portability.**

The record clearly shows that service provider number portability is a critical element to enabling workable competition for local access and exchange services. Competitive entrants such as TWComm have adduced substantial and creditable evidence that competition in the local loop will be materially impeded in the absence of true database solutions to number portability.

Many of the incumbent telephone company interests offer rhetoric ostensibly supportive of the Notice, but thereafter provide many pages on why number portability isn't really that important after all. TWComm believes that no serious attempt can be credibly made to rebut the obvious: if customers must change their phone numbers in order to switch carriers, they will be far less likely to do so. More fundamentally, however, TWComm is concerned that the telcos' recalcitrance in acknowledging the obvious may reflect intentions to provide something less than the full and necessary cooperation to develop and deploy number portability.

The record is now unrefuted on the significance of service provider number portability. Four market studies have been submitted, each demonstrating that lack of number portability significantly inhibits consumer choice and competition.² Even the study submitted by PacTel, used by its sponsor to try to diminish the importance of number portability, in fact shows that competitors would be foreclosed from a substantial part of the market without number portability.³

There is also the FCC's own experience with the industry. This agency has expressed repeated concerns about barriers which impede or diminish consumer choice of quality services and service providers. It has thus imposed affirmative obligations upon local telephone companies in order to remove such barriers,

² See Pacific Telesis Comments at Attachment A ("PacTel Study"); TWComm Comments at Appendix A; MFS Communications Comments at Attachment A; MCI Comments at Attachment A.

³ There are very good reasons, however, to believe that the PacTel Study understates considerably this importance. First, with respect to business customers surveyed, the percentages of lines that customers are willing to switch without service provider portability include, for example, both main and "other" lines. See PacTel Study, Business Market Study at 43. The Study thus measures as potential customers those who would choose to remain LEC subscribers for at least some portion of their service -- indeed as to perhaps the most critical part of their service. In fact, the study reveals substantial resistance to switching main lines when doing so would require a telephone number change. Second, as to residential subscribers surveyed, the study sample reflected a 36% rate of unlisted numbers. See id., Residence Market Study at 25. Plainly, customers with unlisted numbers can be expected to have less inclination to want to keep their numbers. The study sample overstates this percentage materially. See Brad Edmondson, Unlisted America, American Demographics, June 1995, at 60 (31.5% of U.S. households with telephones have unlisted numbers, but more than half of those unlisted numbers are the result of changes in address that take place after directory publication).

such as equal access deployment⁴ and 800 number portability.⁵ It has similarly proscribed conduct by local telephone companies that if allowed would inhibit consumer choice, such as the discriminatory imposition by LECs of non-recurring charges upon customers desiring to utilize competitive access providers.⁶

Some of the LECs try to diminish the importance of number portability by arguing that competition is not impossible without it. But certainly sound policymaking does not require a standard of impossibility in order to justify the prescription of number portability rules here. The public policy issue is not whether competitive entrants can gain any market share from the incumbent monopolists, but whether workable competition can develop and be sustained. The telephone companies' advocacy suggests that consumers and competitors should somehow be satisfied with limited competition from a service that would ab initio be less than a perfect substitute for their current telephone service. Again, this is an old debate: the fact that some customers were willing to use MCI before equal access did not eliminate the desirability of imposing equal access requirements. There is no

⁴ See MTS and WATS Market Structure, Phase III, 100 F.C.C.2d 860 (1985); Investigation into the Quality of Equal Access Services, 60 Rad. Reg.2d (P&F) 417, 419 (1986).

⁵ See Provision of Access for 800 Service, Memorandum Opinion and Order on Reconsideration and Second Supplemental Notice of Proposed Rulemaking, CC Docket No. 86-10, 6 F.C.C.R. 5421 (1991); Order, 7 F.C.C.R. 8616 (1992).

⁶ See Expanded Interconnection with Local Telephone Company Facilities, 7 F.C.C.R. 7569, 7465 at ¶ 203 (1992).

reason -- only telephone company enrichment -- to relegate local service consumers to less than a full competitive choice.

Moreover, there is no need to require any precise quantification of the percentage of the local market that is foreclosed to competitive entrants due to lack of number portability. It is more than sufficient for the Commission, as the responsible expert agency, to decide that the lack of number portability creates a substantial impediment to the critical goal of competitive, more efficient local telecommunications services, and that the impediment should be removed. Especially in light of the fact that, as explained below, the incremental costs of providing portability will be relatively modest (in marked contrast to the exaggerations provided by GTE and others),⁷ the FCC can and should decide that the ongoing costs to competition and consumer welfare in the absence of number portability are too great to be tolerated.

B. The Commission's Efforts Should Focus Upon Service Provider Number Portability, Leaving Service and Location Portability to Market-Based Solutions.

TWComm and most other commenters have explained that the Commission's efforts here should be focused upon service provider number portability. As explicated in TWComm's Comments, it is this area in which the local telephone industry has the greatest incentives to delay and frustrate the removal of this significant competitive imbalance. This analysis is given unwitting witness by the local telephone companies' suggestions that either service

⁷ See Section III below.

provider portability is not that important, too complicated for the FCC, or too costly.

The Commission should be especially wary of those comments insisting that service provider, service, and location portability all be perfected simultaneously, before any database solution is deployed. First, there is conflicting evidence as to whether location portability would in fact benefit consumers or be demanded by them.⁸ Second, to the extent consumers do want location portability, a competitive market -- if allowed to develop -- will respond to that demand. Third, the need for service provider number portability is real and immediate; it should not be delayed or made more costly in the pursuit of more speculative features. Fourth and finally, TWComm believes that location portability can be efficiently accommodated, if market demand exists, through marginal changes to the database solutions that will be deployed for service provider number portability. There is thus good reason to proceed immediately with service provider portability, with the confidence that future market requirements for location and/or service portability will be met.

II. The Flexible Implementation of Medium Term Solutions Suggested by TWComm is the Soundest Approach to the Deployment of Service Provider Portability.

The record thus far in this proceeding has included very little detailed explanation of exactly how database solutions could function in the short term. Indeed, viewing the record as

⁸ See, e.g., GTE Comments at 13; U.S. West Comments at 24; Missouri PUC Comments at 4.

a whole it is difficult to escape the impression that there is still considerable confusion as to the nature of database technology and its current viability. The following discussion is an attempt to provide some focus on and explanation of these issues.

In its Comments, TWComm identified three categories of solutions for service provider portability. The first such category is comprised of the non-database "solutions"⁹ currently offered by LECs to competitive LECs ("CLECs"), such as Remote Call Forwarding ("RCF") and Direct Inward Dialing ("DID"). As explained by TWComm and other commenting parties, these solutions leave CLECs at a significant competitive disadvantage. The competitive imbalance arises largely from the fact that both of these technologies require all calls to CLEC subscribers to pass through the incumbent LEC's network.

Although RCF and DID thus leave CLECs dependent on their competitors for processing calls and offer opportunities for LECs to abuse this position, they are currently the only way for CLEC subscribers to keep their old telephone numbers. They are, indeed, a flawed necessity that LECs must be required to provide free of charge to CLECs until database technology can be provided.

⁹ As TWComm pointed out in its Comments, RCF and DID do not in fact offer true number portability. Thus, properly understood, there are only two categories of number portability solutions, medium and long term. TWComm uses the three categories here merely for clarity.

Those database solutions comprise the remaining two categories of "solutions." As TWComm explained in its Comments, there are four central concepts in database service provider portability: (1) the numbering schemes such as Local Routing Number ("LRN"), Carrier Portability Code ("CPC") and Local Area Number Portability ("LANP"); (2) the triggering schemes such as Intelligent Network ("IN") and Advanced Intelligent Network ("AIN"); (3) the fact that different carriers in the same region can use different numbering and triggering schemes, and (4) the call processing scenarios such as Terminating Access Provider, Originating Service Provider, and N-1. In what TWComm calls the medium term database solutions, carriers choose the numbering and triggering schemes that best suit their networks. The only major "national" component of medium term solutions should be the adoption of a national call processing scenario which, in TWComm's view, should be N-1.¹⁰

As TWComm also explained in its Comments, medium term solutions are far superior to RCF and DID because they do not require all calls to be routed through the incumbent LEC's network. Moreover, since most carriers have already deployed IN or AIN triggering capabilities, medium term solutions can be implemented within the very near term without enormous cost. In light of the significant competitive improvement they offer to

¹⁰ Indeed, there is strong support among the commenting parties that N-1 is the most efficient call processing scenario. See e.g., Cincinnati Bell Comments at 8; MFS Communications Comments at 11; Citizens Utility Co. Comments at 12; New York PUC Comments at 8; AT&T Comments at 19.

CLECs and the relatively modest cost of deployment, TWComm has recommended that the Commission mandate the adoption of medium term solutions within six months of a bona fide request therefor.

In contrast, a long term national approach, the third and final category of solution, will not be deployable for at least three to four years. This is because a long term national approach would likely entail many of the time-consuming network upgrades described in such detail by LECs commenting in this proceeding. It would also require the adoption of certain SS7 standards, a process that by itself could delay deployment by three to four years.

This is not to say that TWComm does not support the eventual deployment of a long term solution. Indeed, the benefits of such an approach are considerable. First, it would permit network architects to maximize routing efficiencies. Second, it would offer the possibility of national reliance on dedicated AIN triggers which would simplify considerably the triggering process. These advantages make the eventual adoption of a long term solution a sound policy approach.

TWComm does not agree, however, with most of the LECs, and some other parties as well, who argue that the Commission should not adopt any database service provider portability solution until it has settled on a full national approach. Some parties apparently take this view because they do not understand medium term solutions or are skeptical of their viability. The LECs more likely take this position hoping to delay the implementation

of true number portability as long as possible. Regardless of their reasons, these parties essentially advocate putting off the implementation of a critical step toward local competition by as much as three to four years.

But the Commission must not permit this to happen. Viable database solutions can be implemented to improve dramatically the competitive position of CLECs in the very near term. It is true, of course, that these service provider solutions are not as robust as long term solutions. However, as the D.C. Court of Appeals has admonished the Commission, "the best must not become the enemy of the good, as it does when the FCC delays making any determination while pursuing the perfect [solution]."¹¹ This principle is especially applicable when, as explained below, most of the network changes required by medium term solutions will carry over into long term solutions and when, as also explained below, medium term solutions can be deployed at a relatively modest cost.

A. Database Technology Permits Carriers Serving the Same Area to Offer True Number Portability Using the Numbering and Triggering Solutions that Best Suit Their Networks.

Database technology can in fact function as a good medium term solution using existing technology. In order to dispel the notion that the issue is simply too complex and unworkable to permit immediate action, TWComm offers below a detailed explanation of how medium term solutions would function. It

¹¹ MCI Telecommunications Corp. v. FCC, 627 F.2d 322, 341-342 (D.C. Cir. 1980).

bears repeating at the outset that these database solutions associate two numbers with each subscriber: (a) the traditional "telephone number" or dialed number which can be dialed to reach the subscriber and is used for billing, and (b) a routing number which identifies where the call must be routed to reach the subscriber. The database that permits this approach to numbering also permits carriers serving the same area to use the numbering and triggering solutions that best suit their networks.

In the first example below, database technology uses these dialed and routing numbers to complete a call to a carrier using the LANP numbering scheme. In the second example, the database uses these to complete a call to a carrier using LRN and the modified LRN numbering schemes.¹²

1. Example One -- Call Originates on a Carrier Using LRN and Terminates on a Carrier Using LANP

In Local Area Number Portability, the dialed number is called the Customer Number Address ("CNA") and the routing number is known as the Network Node Address ("NNA"). The NNA identifies a specific end office location and subscriber line.¹³ Calls are routed to NNAs, not to a particular NPA NXX code.

¹² Although CPC is not used in either of the examples, it would function in a manner that resembles LRN and LANP.

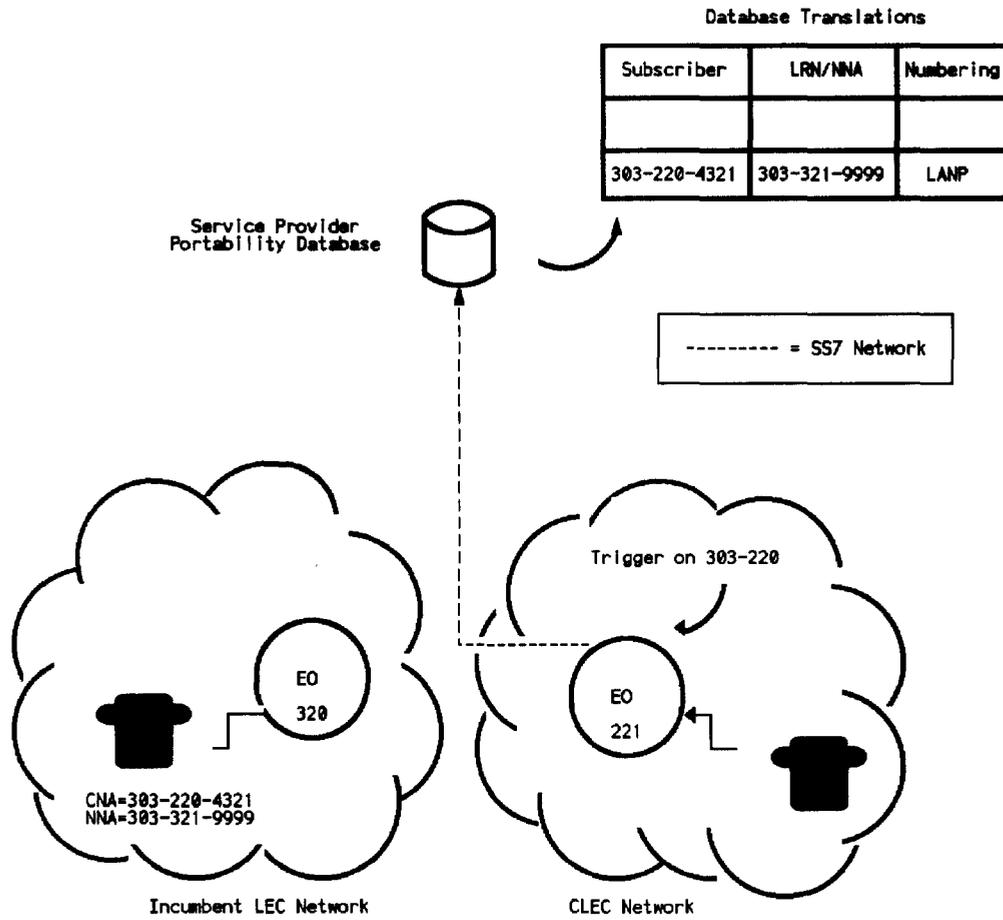
¹³ In simplified terms, the NNA may be understood as an internal number that identifies the specific end office hardware serving a subscriber. In a rental home, for example, a new tenant moving in to the home would likely be assigned a different telephone number (CNA) from the previous tenant, but the same NNA. The NNA associated with the new telephone number would likely be the same since the LEC would probably use the same central office equipment to serve the new subscriber.

In example one, shown in the illustrations on the following pages, a subscriber calling from a CLEC end office wishes to telephone another subscriber who has been ported back to the incumbent LEC. The called subscriber's telephone number is 303-220-4321. The called subscriber is connected to end office equipment that is identified by the NNA 303-321-9999.

The subscriber first dials the called subscriber's telephone number. Using the N-1 call processing scenario, one of two carriers will use an IN or AIN trigger (either one will work) to initiate a query to the portability database over the SS7 network. On local calls, the originating local carrier will issue the query. On interexchange and toll calls, the toll carrier will issue the query. In our examples, the CLEC end office serving the calling subscriber will make the query.

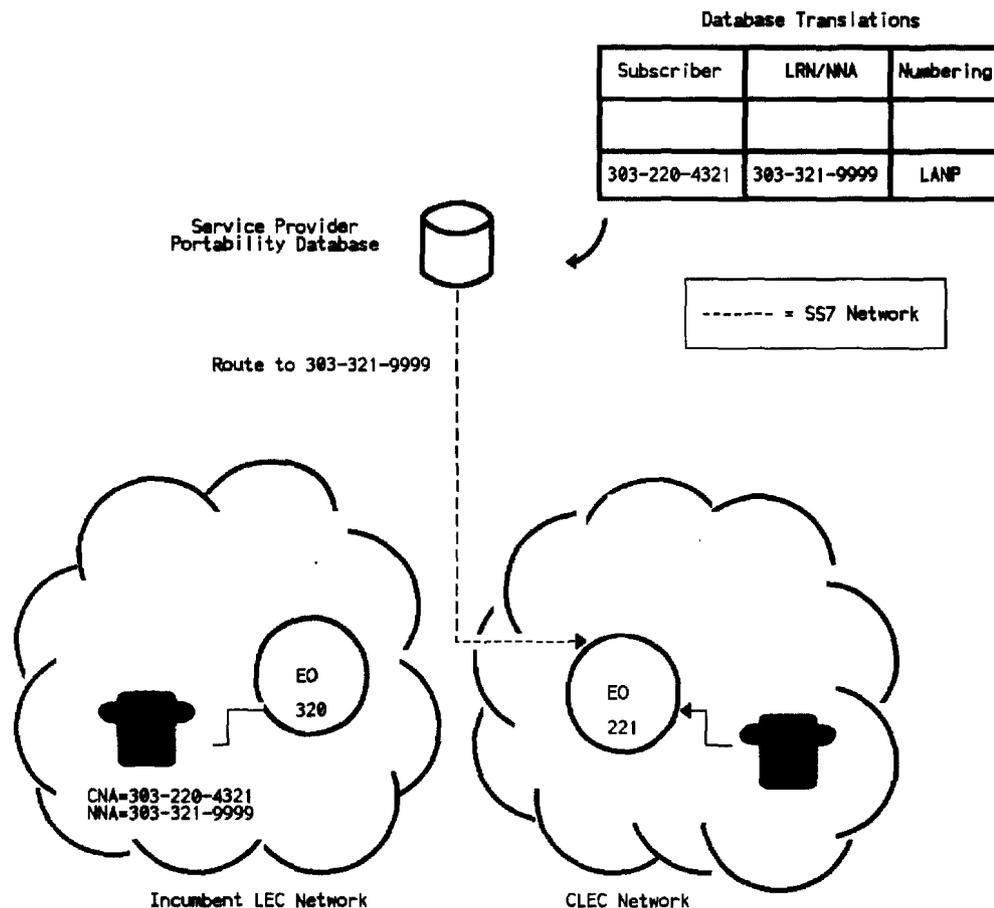
The trigger will cause a query to be sent to the portability database as shown in Diagram A.

DIAGRAM A



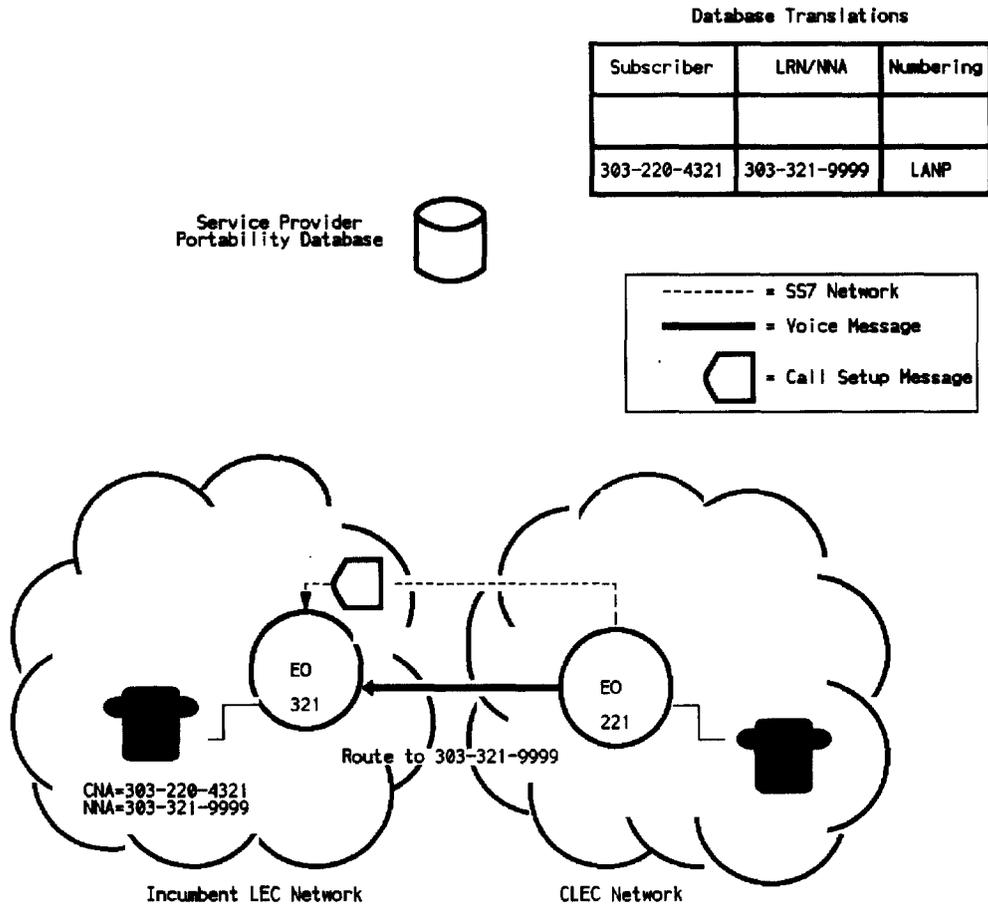
If the called phone number has been ported, as in our example, the portability database will return information to the calling end office. As shown in Diagram B, the information returned will indicate that the called number (303-220-4321) is associated with the NNA 303-321-9999.

DIAGRAM B



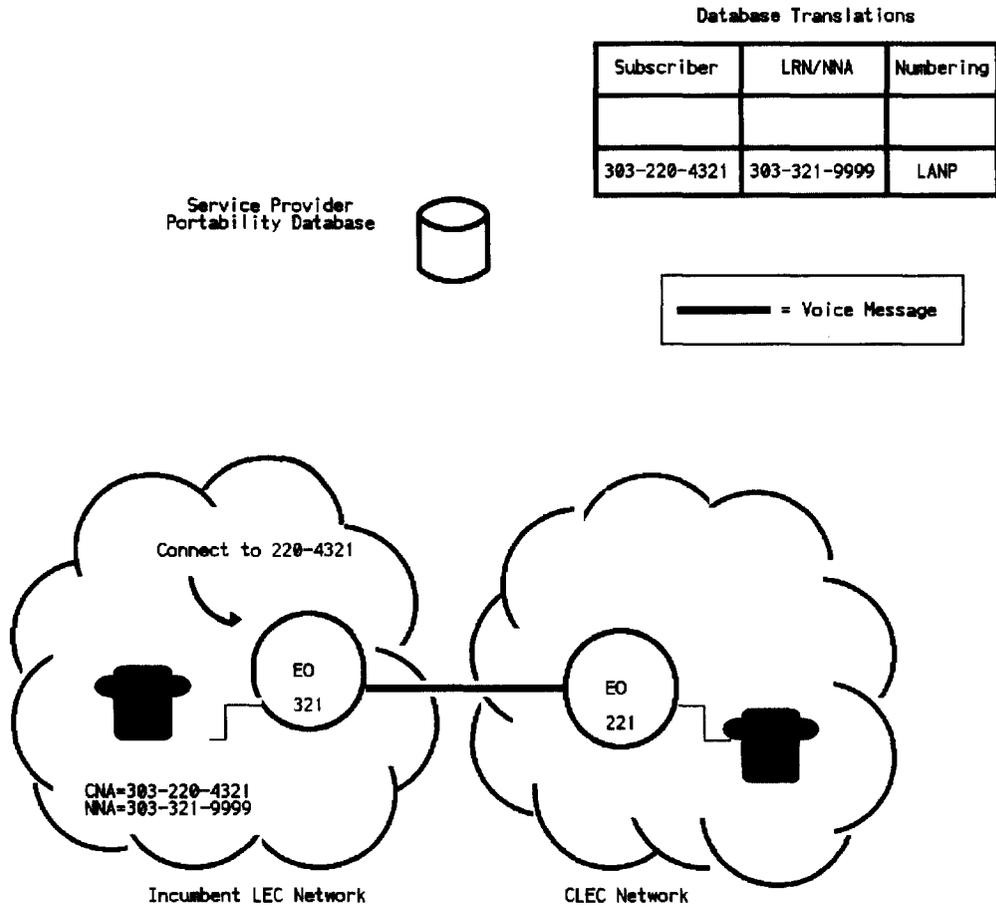
The originating switch will then pass this information to the terminating carrier along with the actual call as shown in Diagram C. An important point to recognize is that the originating end office need not support LANP in order to pass the NNA to the terminating carrier. The NNA is simply sent in the existing SS7 call setup parameters. As a result, a carrier need only support one numbering solution.

DIAGRAM C



As illustrated in Diagram D, when the call has been completed to NNA 301-321-9999, the calling subscriber will have been connected with the called subscriber with the CNA 303-220-4321. Neither the calling nor called subscriber sees the NNA -- the NNA (301-321-9999) is used only to reach the subscriber. The CNA (301-220-4321) is used as the number to dial to reach the subscriber and also for billing purposes.

DIAGRAM D



2. Example Two -- Call Originates on a Carrier Using LANP and Terminates on a Carrier Using LRN

AT&T's Location Routing Number allows the network to route the call to a specific end office using a unique ten digit "location routing" number, rather than the present system of using the NPA and NXX of the dialed subscriber telephone number to route calls. Although LRN is a long term solution, a modified form of LRN can be used as a medium term solution.

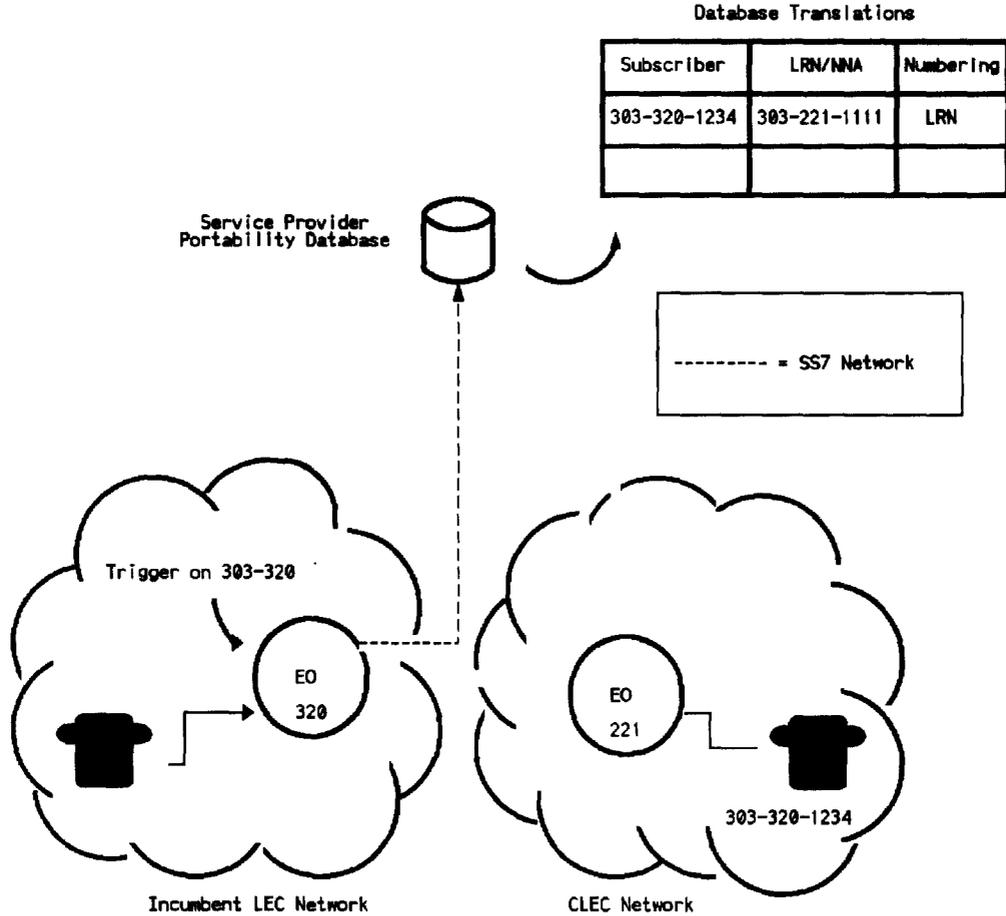
In example two, the location routing number LRN 303-221-1111 identifies a specific end office of a CLEC in the area. The subscriber in the example has the telephone number (303) 320-1234.¹⁴

When the LEC subscriber dials the subscriber served by the CLEC using the LRN numbering scheme, several events occur. Again, using the N-1 call processing scenario, one of two carriers will use an IN or AIN trigger to initiate a query to the portability database over the SS7 network. On local calls, the originating LEC will issue the query. On interexchange and toll calls, the N-1 carrier (i.e., the toll carrier) will issue the query. Here, as shown in Diagram E, the originating LEC has issued the query.

If, as in our example charted below in Diagram F, the number has been ported, the database will return information to the LEC indicating that: (a) 303-320-1234 has been ported, (b) the ported number uses the LRN numbering scheme, and (c) the call should be routed to Location Routing Number (LRN) 303-221-1111.

¹⁴ Under LRN, another subscriber served by the same end office could have the telephone number (303) 456-1212 since LRN permits one central office to serve multiple NXX codes.

DIAGRAM E



Specifically, the database will return data which allows the querying switch to insert the ten digit dialed number into the appropriate SS7 signalling Initial Address Message parameter used for call setup (i.e., the ISDN User Part Initial Address Message Generic Address parameter or Redirecting Party ID) and place the returned LRN (303-221-1111) into the Called Number parameter.