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

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

In the Matter of)
)
Telephone Number Portability)

CC Dkt. No. 95-116
RM 8535

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COMMENTS OF AT&T CORP.

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SUMMARY

The Commission should act now to select and ensure the implementation of a permanent number portability solution. The benefits of competition are ample and well-documented, and if competition can be tested, introduced, and sustained in the local exchange, customers of exchange services, and of all other telecommunications services, will profit enormously.

Customers' current inability to retain their telephone numbers when changing service providers -- i.e., the lack of number portability -- acts as one clear barrier to potential competition in the local exchange. Studies show that customers are reluctant to sample new exchange service offerings if they must change telephone numbers in order to do so. The Commission is authorized to promote competition in the provision of exchange and exchange access by adopting and implementing a uniform number portability solution to remove this barrier. The Commission need not, and should not initially seek to implement location portability and service portability to serve this purpose.

Current interim portability arrangements do not substantially promote local exchange competition. These arrangements require new exchange carriers to rely on, and route through, networks of incumbent carriers with which they compete in order to terminate calls. Moreover, these

arrangements produce routing inefficiencies, cause reliability and maintenance problems, and result in call processing delays for new carriers.

From the proposals presented to it, the Commission should chose the Location Routing Number ("LRN") proposal as the permanent number portability solution. The LRN solution allows all service providers efficiently to route terminating calls, does not generate reliability and maintenance problems or cause call processing difficulties for new carriers, supports operator services and advanced features, conserves and enhances the utilization of, numbering resources, and allows all carriers properly to bill and rate calls. In contrast, the Stratus/US Intelco proposal does not conserve numbering resources, does not support advanced features, and may create significant billing and administrative problems. The GTE proposal essentially requires all customers who wish to choose an alternative carrier to choose a new telephone number -- the very requirement that a number portability solution should eliminate.

The Commission should consider the MCI Metro Carrier Portability Code ("CPC") proposal as an "interim" database solution. The CPC proposal does have certain significant limitations that make it unsuitable as a permanent number portability solution. CPC, for example,

produces some routing inefficiencies by requiring that all calls be terminated to a pre-designated location that may not be the serving end office. CPC also will place pressure on numbering resources because it requires numerous NPA codes. Nonetheless, as a near-term database solution, CPC promotes competition to a much greater degree than current interim arrangements. CPC does not require that calls be routed through the incumbent's network and allows alternative carriers to control many of their portability costs and engineering decisions. CPC also allows vertical features to be offered, and may be implemented quickly, by early 1996. Significantly, CPC is technically compatible with the LRN permanent solution.

The Commission should act resolutely to ensure the establishment of an industry Service Management System ("SMS") that can support both an interim database and a permanent number portability solution. AT&T submits that the Commission should direct a neutral industry group or forum study and make recommendations to the Commission on the industry SMS. The Commission should also direct this industry group or forum to develop a full implementation plan for a number portability solution, incorporating its recommendations on the SMS, and presenting recommendations for interim and permanent portability architecture, and plans for a transition from the recommended interim to the

recommended permanent solutions. These recommendations should be made by early 1996.

The Commission should then act on the information it has gathered to select an interim database and permanent number portability solution. The Commission should then set the industry on a dual track: all carriers should make necessary modifications to their networks to support number portability and an inclusive industry group should select a neutral party or parties to develop requirements for, select a vendor for, and administer an SMS. The interim database and permanent number portability solutions should be implemented as soon as possible. AT&T submits that the LRN proposal should be selected as the permanent solution and, absent a compelling alternative, CPC should be chosen as the interim database solution.

The permanent number portability solution should be administered in a competitively neutral manner. The entity selected to administer and maintain the industry SMS should have no affiliation with any service providers using portable numbers to provide service. Carriers should contribute to the recovery of all of the costs of the SMS based on their use of it in "loading" and "downloading" information.

The Commission need not address the portability of non-geographic numbers immediately in order to promote local

exchange competition. The emerging market for 500 ("PCS N00") services will not mature for a number of years, and the Commission can and should await further market development before implementing portability solutions for these services. The market for 900 services has unique characteristics that the Commission should take into account before implementing portability for these services as well.

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COMMENTS OF AT&T CORP.

Pursuant to the Commission's Notice of Proposed Rulemaking (the "Notice") released July 13, 1995, AT&T Corp. ("AT&T") hereby submits its comments on the implementation of a "number portability" solution that will enable customers to retain their telephone numbers when selecting new telecommunications service providers and service arrangements. As shown below, the Commission should select and ensure the implementation of a permanent number portability solution as part of a comprehensive plan to promote competition in the local exchange.

The Notice continues the Commission's consideration of the means by which to provide meaningful number portability to subscribers of telecommunications services. Previously, the Commission solicited comment on number portability as part of its broader inquiry into the future of the North American Numbering Plan and related

numbering plan issues.¹ The Commission concluded at that time that further information on the feasibility and benefits of number portability was required, and thus deferred resolution of the issue. The Commission now tentatively concludes (para. 7) that number portability will benefit consumers and promote competition, and solicits comment on the rules it should adopt to ensure the development and deployment of number portability.

Consideration of, and action to implement, number portability is timely, and AT&T fully supports the Commission's tentative conclusion. By itself, number portability can afford customers the benefits of greater choice in their telecommunications providers and use of telecommunications services. As part of a broader comprehensive effort to test, and ultimately to promote, competition in the local exchange, moreover, number portability offers even greater potential benefits to telecommunications customers. The development, adoption, and deployment of a permanent number portability solution is

¹ See Administration of the North American Numbering Plan, Notice of Inquiry ("NANP NOI"), CC Dkt. No. 92-237, 7 FCC Rcd. 6837 (1992); Notice of Proposed Rulemaking ("NANP NPRM"), 9 FCC Rcd. 2068, (1994); Report and Order ("NANP Report and Order"), FCC 95-283 (released July 13, 1995).

one of several critical elements of an appropriate test of whether local competition is feasible.²

The Commission has ample evidence of the benefits of competition; it need only consider how significantly competition has transformed the segments of the telecommunications industry other than the local exchange market.³ The Commission now can help to bring equal -- and possibly more dramatic -- benefits to consumers of local

² As AT&T has demonstrated in other proceedings, there are at least nine interrelated conditions that must be established to conduct a true and full test of local competition. See Comments of AT&T Corp., In the Matter of Unbundling of Local Exchange Carrier Common Line Facilities, RM 8614 (filed April 10, 1995). True number portability is one of these nine conditions.

³ The price decreases driven by interexchange competition have allowed customers to save approximately \$850,000,000 in the last three years alone. Competition has had an even more pronounced effect on use of interstate services. In the third quarter of 1984, AT&T's interstate switched access minutes totaled 31.6 billion; by the third quarter of 1994, they had reached 58.6 billion -- an increase of more than 85 percent in only a decade. The results have been even more pronounced for the long distance industry as a whole. During the same period, the industry total for interstate switched access jumped from 39.6 billion minutes to 101.3 billion minutes -- an increase of 155 percent. See Long Distance Market Shares, Third Quarter 1994, Federal Communications Commission, Common Carrier Bureau, Industry Analysis Division, January 1995, Table 2. This explosion in demand has led established, as well as new, interexchange carriers to develop and introduce a plethora of new interexchange services tailored to the needs and demands of residential, small business, and larger business customers. See e.g., Competition in the Interstate Interexchange Marketplace, 6 FCC Rcd. 5880, 5892 (1991).

exchange and exchange access services, if competition can be introduced and sustained. The monopoly local exchange and exchange access markets represent \$95 billion annually,⁴ and effective competition in the local exchange would surely lead to enhanced efficiency, increased innovation, increased usage, and reduced prices, just as it has in other telecommunications markets. Moreover, because all other telecommunications markets ultimately depend on the local exchange, effective competition there would magnify the forces of competition throughout the telecommunications industry.

The Commission's number portability policy should therefore be established in the context of an overall plan to test and promote local competition. Without number portability, customers will be more reluctant to sample service offerings of alternative carriers that seek to compete with an incumbent local exchange carrier. Studies show that more than half of existing local exchange customers will not change local exchange carriers if they are required to change telephone numbers, assuming there is

⁴ Based on Commission figures for 1993, AT&T estimates that exchange service revenues totaled \$73 billion; and exchange access revenues, totaled \$25 billion, in 1994. By contrast, interexchange revenues in 1994 equaled \$36 billion. See Federal Communications Commission TRS Fund Worksheet, 1993, report released December 29, 1994.

no difference in the price of competing services.⁵ This reluctance appears even more pronounced for business customers.⁶ Thus, the current non-portability of customers' telephone numbers is almost certainly a significant barrier to potential local exchange competition. The Commission must act decisively to address this issue, if it is to allow competition in the local exchange to be tested.

Preliminarily, the Commission has authority to select and ensure the implementation of a uniform number portability solution. As the Notice indicates (paras. 29-31), the Commission has a significant interest in the use of numbering resources. Several of the current number portability arrangements consume multiple North American Numbering Plan numbers and may further contribute to number exhaustion. The conservation of numbering resources (such as NPAs and NXXs) may also be significantly affected by the nature of portability arrangements or solutions that are

⁵ Consumer research indicates that, at price parity, 53% of customers are unwilling to change local service providers if they must change their telephone numbers.

⁶ See, e.g., "The Importance to Customers of Retaining Their Current Telephone Numbers When Switching Telecommunications Companies," Contribution of MFS Intelenet, Inc. to the Industry Numbering Committee ("INC") Portability Workshop, PORT-64 (April 5, 1995) (indicating that 81% of business customers believe themselves not very likely or not at all likely to change service providers offering comparable or superior service if they must change their telephone numbers).

implemented in the future. The Commission can and should adopt and implement policies to ensure that telephone numbers essential to providing new and existing telecommunications services are made available to all carriers and customers, and that portability of these numbers is implemented and administered in an efficient and non-discriminatory manner.⁷

The Commission has an equally compelling interest in number portability to promote robust local exchange service.⁸ The local exchange affects interstate telecommunications in the most fundamental way: without local exchange and exchange access services at both the originating and terminating locations, interstate calls cannot be placed. Exchange services can thus significantly deter or promote interstate telecommunication and use of the interstate network. For this reason, the Commission has

⁷ See NANP Report and Order, p. 4.

⁸ Commission leadership in this area in no way requires regulatory conflict with states. Individual states should be encouraged to continue number portability inquiries and trials in order to provide information until such time as the Commission adopts and implements a permanent solution. The Illinois Commerce Commission ("ICC"), for example, is currently conducting innovative and productive number portability workshops. On September 8, 1995, the ICC Number Portability Task Force recommended, by consensus, that AT&T's Location Routing Number ("LRN") proposal, see discussion Section II, be adopted as the permanent number portability solution in Illinois.

taken an active role in regulating exchange facilities of local exchange carriers, and has regularly established policies that favor competition in the provision of interstate access.⁹

The Notice also seeks comment (paras. 25, 26) on location and service portability.¹⁰ These types of portability are not critical to tests of local competition and may present implementation problems not associated with "service provider" (or number) portability. Location portability, in particular, presents several potential problems. Customers have come to rely on NPAs and NXXs to assess whether calls are local, toll, or interexchange, and regularly make decisions based on these assessments. Location portability threatens to deny customers the "value"

⁹ See, e.g., Expanded Interconnection with Local Telephone Company Facilities, Transport Phase II, Third Report and Order, 9 F.C.C. Rcd. 2718 (1994); Expanded Interconnection with Local Telephone Company Facilities, Memorandum and Order, 9 F.C.C. Rcd. 5154 (1994), appeal docketed sub nom. Southwestern Bell Telephone Co. v. F.C.C., No. 94-1547 (D.C. Cir., filed Aug. 10, 1994); Expanded Interconnection with Local Telephone Company Facilities, Second Report and Order and Third Notice of Proposed Rulemaking, 8 F.C.C. Rcd. 7374 (1993), pet. for review pending sub nom. Bell Atlantic v. F.C.C., No. 93-1743 (D.C. Cir., filed Nov. 12, 1993).

¹⁰ A customer's ability to retain his telephone number when changing services (e.g., from plain old telephone service to ISDN service) is often referred to as service portability. A customer's ability to retain his telephone number when changing locations is often referred to as location portability.

of geographic NPAs and could result in significant customer confusion. For example, calls that were once toll-free could become toll calls; calls that once required only seven-digit dialing could suddenly require customers to dial ten or eleven digits.¹¹ Further, unlike number portability, location portability presents policy and technical issues that have not yet been fully addressed and that may prolong the period necessary for its implementation.

Moreover, absent discriminatory availability of these features, neither the lack of location portability nor of service portability affects alternative carriers substantially more than incumbents. For these reasons, the Commission should evaluate service provider portability

¹¹ For similar reasons, AT&T believes that the Commission should initially implement and deploy service provider portability in such a manner that customers may "port" their numbers only within an exchange. To the extent that customers desire the ability to be reached "any time, anywhere," emerging PCS services will likely provide this capability and afford dialing customers notice that the call may be routed and terminated to distant locations.

before addressing other types of portability,¹² just as the INC did.¹³

The Commission should move forward decisively and act to develop and implement a permanent number portability solution. As the following comments demonstrate in greater detail, the Commission should address the inadequacy of current number portability arrangements by (i) promptly collecting information concerning various number portability proposals and solutions pursuant to this Notice, (ii) directing the industry, through an industry forum or fora, to recommend to the Commission permanent and interim number portability solutions, and present a detailed implementation plan for each solution by early 1996, (iii) directing existing industry groups promptly to develop specifications and an implementation plan for a Service Management System ("SMS"), to be approved by the Commission, that will support both interim and permanent number

¹² For the same reasons, the Commission should address number portability opportunities for wireline carriers in the near term, but should not preclude such opportunities for wireless carriers to participate in the future as evolving technologies transform the wireless services industry.

¹³ The INC is a standing committee of the Industry Carriers Compatibility Forum ("ICCF"), and has received input from a number of industry participants as it has explored several number portability issues. See NANP Report and Order, p. 8.

portability solutions by early 1996, (iv) considering the recommendations of these industry groups and selecting interim and permanent number portability solutions based on principles that will maximize customer benefits and opportunities for exchange and exchange access competition, (v) ensuring that the industry implements the interim database solution selected the Commission by mid-1996 and implements the permanent solution selected by the Commission as soon as possible, and (vi) overseeing and ensuring the implementation and deployment of the permanent portability solution on a uniform, nationwide basis.

I. CURRENT NUMBER PORTABILITY ARRANGEMENTS DO NOT PROMOTE EFFECTIVE LOCAL COMPETITION

Several states have attempted to provide for some form of number portability through "interim" arrangements to encourage local competition until a true portability solution can be implemented.¹⁴ Although these efforts are commendable, the current "interim" methods of number portability are seriously flawed, because they do not afford

¹⁴ These states include California, Connecticut, Florida, Illinois, Maryland, and New York, among others. The Commission refers to these arrangements as "interim." AT&T describes these arrangements as "current interim" arrangements to distinguish them from "interim database" solutions that would serve as a more suitable transition to a permanent number portability solution.

alternative local exchange carriers a meaningful opportunity to compete. As the Commission notes (para. 56), there are two predominant current "interim" arrangements: remote call forwarding ("RCF") and flexible direct inward dialing ("Flex DID"). Neither of these arrangements is adequate to test or promote local exchange competition.

The RCF portability arrangement uses end office features of incumbent local exchange carriers to forward to a new carrier calls that have been placed to a number previously served by the incumbent. Under this arrangement, a call to a customer who has changed service providers (i.e., "ported" his number) will be routed to the end office of the local exchange carrier that previously served him; the dialed number will be translated to a second number assigned to the new service provider, and the call will be forwarded to the end office switch of the new carrier serving that number.

RCF has serious deficiencies. Foremost, RCF requires all calls placed to "ported" customers to be routed first to the incumbent exchange carrier's network, effectively keeping the incumbent monopoly in the path of calls to alternative carrier customers. This seriously constrains the ability of alternative carriers to efficiently route and terminate calls and, by requiring additional transport over incumbent facilities, increases

the costs of call completion, increases post-dialing delay, and diminishes network reliability, transmission quality, and network maintenance capabilities. In addition, because RCF relies on number translation, RCF disables certain "vertical" features such as custom local area signaling services ("CLASS") features.¹⁵ Reliance on number translation also means that two North American Numbering Plan numbers are required for every "ported" customer, placing undue strain on numbering resources and exacerbating number exhaust. Finally, RCF is of limited utility to many business customers, because it limits the number of calls that may be placed simultaneously to a single "ported" number.¹⁶

The Flex DID arrangement provides a form of portability by causing an incumbent carrier's end office switch to treat an alternative exchange carrier switch as if

¹⁵ Because of number translation, the calling party number generally is not transmitted as the "Caller Identification" number when the "ported" customer originates a call. Other CLASS features that depend on the calling party number, such as Selective Call Acceptance, are also generally disabled. In addition, CLASS features such as Automatic Recall and Automatic Callback, cannot be used by subscribers who have just called, or been called by, a "ported" number.

¹⁶ RCF allows no more than 99 calls to a customer number at any one time. Indeed, the Bellcore recommended limit on simultaneous calls for RCF is 32. This constraint makes RCF unsuitable for customers using a single number for customer service, call center, or similar functions.

it were a private branch exchange connected to the incumbent exchange carrier's network. Under this arrangement, a call to a "ported" customer is routed to the end office switch of the incumbent exchange carrier that previously served that customer. The incumbent's switch will recognize that the dialed number is now served by the alternative carrier's switch, seize a trunk to that switch, and forward the call to it.

Flex DID suffers from many of the same deficiencies as RCF. Like RCF, Flex DID requires that calls be routed through the incumbent's network, and similarly results in routing inefficiency, increased transport costs, increased post-dialing delay, and diminished transmission quality and network reliability for alternative exchange carriers. Indeed, because Flex DID requires that alternative carrier switches supporting "ported" customers be directly trunked to incumbent end offices, it constrains engineering of alternative carrier networks to an even greater degree than RCF.¹⁷ Moreover, Flex DID does not allow the calling party number to be delivered to the

¹⁷ PBX interfaces such as those between the incumbent and alternative carrier end offices typically require direct trunking. The constraint imposed by Flex DID is especially harmful to alternative carriers, which will likely require significant tandem interconnection to the incumbent's network to begin to offer local exchange services.

alternative carrier's switch, preventing alternative exchange carriers from providing vertical features such as Caller Identification to their customers.¹⁸

Local competition cannot be fully or substantially promoted by these current portability arrangements, or their derivatives.¹⁹ Both RCF and Flex DID force alternative carriers to route terminating calls through the incumbent exchange carrier's network, creating in effect another routing "bottleneck." This routing requirement artificially constrains and distorts the design of alternative carrier networks and their interconnection to interexchange and toll carriers, and increases costs for alternative carriers. The current arrangements also magnify transmission quality, network reliability, and network maintenance issues that

¹⁸ Flex DID cannot provide the calling party number because, among other things, it relies on in-band, rather than SS-7, signaling. In addition, Flex-DID makes Automatic Number Identification unavailable, causing problems for interexchange carriers seeking to bill long-distance calls.

¹⁹ Other current "interim" arrangements also do not promote competition. Enhanced Remote Call Forwarding does not consume two North American Numbering Plan numbers, but still requires all calls terminating to alternative carriers to pass through the incumbent carrier's network. Route index/Portability hub and Hub Routing with Advanced Intelligent Network arrangements similarly require routing through the incumbent's network. Notice, para. 61 n.56.

will be of particular concern to customers sampling the service of alternative carriers.

Of even greater concern, in several states, significant costs have been imposed on alternative carriers seeking to use current portability arrangements.²⁰ Potentially exorbitant charges like these, exacted by incumbent providers who interpose themselves in the path of fledgling competitors, cannot be justified on the basis of cost or squared with sound public policy favoring competition.²¹

II. THE LOCATION ROUTING NUMBER PROPOSAL IS THE BEST CHOICE FOR A PERMANENT NUMBER PORTABILITY SOLUTION

In order to promote exchange and exchange access competition, the permanent number portability solution

²⁰ NYNEX's current charges, for example, are \$4.00 per line per month for "ported" business numbers and \$2.00 per line per month for "ported" residential numbers. In Illinois, Ameritech has proposed to charge \$3.00 per line per month in addition to other substantial recurring and non-recurring charges.

²¹ The Commission should instead adopt a suitable "interim" portability solution. To the extent, however, that the Commission finds it necessary to use existing number portability arrangements, the competitive disadvantages imposed on alternative carriers by them should be mitigated. More specifically, the Commission should require that these current arrangements be offered at rates that give incumbent carriers sufficient incentive to offer improved routing arrangements, or more accurately reflect the inferior quality and true economic costs of these current arrangements.

selected by the Commission should meet a fundamental set of requirements.

First, the solution should provide the capability for all service providers to efficiently receive and route terminating calls and control costs of providing and supporting number portability, without requiring reliance on incumbent networks. Second, the solution should not subject alternative carriers to degradation of transmission quality, increased transport costs, or significantly increased call processing time, and should support the continued availability to local exchange customers of all vertical and advanced features and services. Third, the solution should support operator and emergency services and include administrative support functions that provide an efficient means for the "porting" of telephone numbers from one carrier to another. Fourth, consistent with Commission objectives, the solution should conserve scarce numbering plan resources. Fifth, the solution should allow all carriers to properly bill and rate all types of calls. Finally, the solution should be administered in a neutral manner that best promotes competition.²²

²² This issue of administration is discussed more fully in Section IV.

Experience with 800 number portability, and coordinated industry effort on number portability issues, has resulted in a consensus that these objectives can best be achieved through a number portability architecture that employs a database or databases containing information that associates customer telephone numbers with local service providers and provides routing information necessary to complete calls. In general terms, this architecture would resemble the 800 number portability solution, and would be based on an industry-supported service management system ("SMS"), into which local exchange carriers would load subscriber telephone numbers and associated network address information. Individual toll and exchange carriers could then download this information into routing systems associated with their own networks, which they could access as necessary to complete calls. Unlike the 800 SMS, however, the number portability SMS would be deployed on a regional, rather than national, basis.

There is further consensus that a permanent number portability solution requires modification of current routing systems in which geographic telephone numbers serve as both customer identification and network addresses. In a true number portability environment, the dialed number will

will launch a common channel (SS-7) signaling query to a number portability database chosen by that carrier. The database will respond to the querying carrier's network with the Location Routing Number that identifies the appropriate end office of the local exchange carrier that will terminate the call. The querying carrier will then route the call to the end office based on the LRN.²⁴ When the terminating end office receives the call, it will use the LRN to confirm that the call has been correctly routed, and use the original dialed number to route the call to the appropriate subscriber line.²⁵

²⁴ Generally, this routing query will be performed by the next-to-last ("N-1") carrier to ensure maximum efficiency in call termination. On a local call, the originating carrier will perform this query as the N-1 carrier. On interexchange and toll calls, this query will be performed by the toll carrier.

²⁵ AT&T's LRN solution will employ existing parameters in the SS-7 signaling Initial Address Message ("IAM"), which is used for call set-up. Specifically, the LRN will be populated in the called number parameter ("CdPN"), and the original dialed customer number will be populated in the generic address parameter ("GAP"). The end office of the terminating carrier will inspect the CdPN parameter to confirm that it is the correct terminating address, take the original dialed number from the GAP parameter and re-place it in the CdPN parameter, determine the correct subscriber line to which to route the call, and then terminate the call. This call processing flow assumes that the customer has "ported" his number. On calls to customers who have not changed local carriers, the portability database will respond to the querying carrier with a signaling message indicating that the number has not been "ported." The parameters of the SS-7 signaling message will also be populated to indicate that

(footnote continued on following page)