FCC 96-286

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

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

FIRST REPORT AND ORDER AND FURTHER NOTICE OF PROPOSED RULEMAKING

Adopted: June 27, 1996 Released: July 2, 1996

Comment Date: August 16, 1996
Reply Comment Date: September 16, 1996

By the Commission:

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I. INTRODUCTION

1. We initiated this proceeding on July 13, 1995, when we adopted a Notice of Proposed Rulemaking seeking comment on a wide variety of policy and technical issues related to telephone number portability.[1] Since our adoption of the Notice, the Telecommunications Act of 1996 became law.[2] Section 251, added by the 1996 Act, requires all local exchange carriers (LECs), both incumbents and new entrants, to offer number portability in accordance with requirements prescribed by the Commission.[3] On March 14, 1996, the Common Carrier Bureau released a Public Notice seeking comment on how the passage of the 1996 Act may have affected the issues raised in the Notice.[4] Comments in response to the Public Notice were received on March 29, 1996, and reply comments were filed on April 5, 1996. In addition, efforts to implement number portability at the state level have progressed since adoption of the Notice.

[1] Telephone Number Portability, CC Docket No. 95-116, 10 FCC Rcd 12350 (1995) (Notice). A list of parties filing comments and reply comments in response to the Notice is attached below as Appendix A.

[2] Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996) (1996 Act).

[3] 47 U.S.C. § 251(b)(2).

[4] Further Comments: Telephone Number Portability, Public Notice, CC Docket No. 95-116, DA 96-358, 61 Fed. Reg. 11,174 (1996) (Public Notice). A list of parties filing comments and reply comments in response to the Public Notice is included in Appendix A, below.

2. The Telecommunications Act of 1996 establishes "a pro-competitive, de-regulatory national policy framework" that is intended to "promote competition and reduce regulation . . . to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies."[5] The statute imposes obligations and responsibilities on telecommunications carriers, particularly incumbent local exchange carriers, that are designed to open monopoly telecommunications markets to competitive entry and to promote competition in markets that already are open to new competitors.[6] In particular, section 251(b) imposes specific obligations on all local exchange carriers to open their networks to competitors. The Act envisions that removing legal and regulatory barriers to entry and reducing economic impediments to entry will enable competitors to enter markets freely, encourage technological development, and ensure that a firm's prowess in satisfying consumer demand will determine its success or failure in the marketplace. In implementing the statute, the Commission has the responsibility to adopt the rules that will implement most quickly and effectively the national telecommunications policy embodied in the 1996 Act. Number portability is one of the obligations that Congress imposed on all local exchange carriers, both incumbents and new entrants, in order to promote the pro-competitive, deregulatory markets it envisioned. Congress has recognized that number portability will lower barriers to entry and promote competition in the local exchange marketplace. In its report, the Senate Committee on Commerce, Science, and Transportation concluded that the "minimum requirements [for interconnection set forth in new section 251(b), including number portability,] are necessary for opening the local exchange market to competition."[7] Likewise, the House of Representatives Committee on Commerce determined that "the ability to change service providers is only meaningful if a customer can retain his or her local telephone number."[8]

3. In this Order, we promulgate rules and regulations implementing this congressional directive. Although we decline to choose a particular technology for providing number portability, we establish in this First Report and Order performance criteria that any long-term number portability method selected by a LEC must meet. Pursuant to the statutory requirement in section 251 to provide number portability, we require all LECs to begin to

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[5] S. Conf. Rep. No. 230, 104th Cong., 2d Sess. 1 (1996).

[6] According to Senator Larry Pressler, "[t]he more open access takes hold, the less other government intervention is needed to protect competition. Open access is the principle establishing a fair method to move local phone monopolies and the oligopolistic long distance industry into full competition with one another." 141 Cong. Rec. S7889 (daily ed. June 7, 1995) (statement of Sen. Pressler). Senator Ernest F. Hollings has said, "[c]ompetition is the best regulator of the marketplace. But until that competition exists, until the markets are opened, monopoly-provided services must not be able to exploit the monopoly power to the consumers' disadvantage. Competitors are ready and willing to enter the new markets as soon as they are opened." Id. at S7984 (statement of Sen. Hollings).

[7] Senate Comm. on Commerce, Science, and Transportation Report on S. 652 at 19-20 (Mar. 30, 1995) (Senate Report).

[8] House of Rep. Comm. on Commerce Report on H.R. 1555 at 72 (July 24, 1995) (House Report).

implement a long-term service provider portability solution that meets our performance criteria in the 100 largest Metropolitan Statistical Areas (MSAs) no later than October 1, 1997, and to complete deployment in those MSAs by December 31, 1998, in accordance with a phased schedule set forth below. Number portability must be provided in these areas by all LECs to all telecommunications carriers, including commercial mobile radio services (CMRS) providers.

4. The statute explicitly excludes CMRS providers from the definition of local exchange carriers, and therefore from the section 251(b) obligations to provide number portability, unless the Commission concludes that they should be included in the definition of local exchange carrier.[9] Our recent Notice of Proposed Rulemaking on interconnection issues raised by the 1996 Act sought comment generally on whether, and to what extent, CMRS providers should be classified as LECs.[10] Because we conclude that we have independent authority under sections 1, 2, 4(i), and 332 of the Communications Act of 1934, as amended,[11] to require cellular providers, broadband personal communications services (PCS), and covered Specialized Mobile Radio (SMR) providers[12] to provide long-term service provider portability, we need not decide here whether CMRS providers must provide number portability as local exchange carriers under section 251(b). We require all cellular, broadband PCS, and covered SMR providers to have the capability of delivering calls from their networks to ported numbers anywhere in the country by December 31, 1998, and to offer service provider portability, including the ability to support roaming, throughout their networks by June 30, 1999.

5. We conclude that a system of regional databases that are managed by an independent administrator will serve the public interest. We direct the North American Numbering Council (NANC) to provide initial oversight of this regional database system. We direct the NANC to determine the number and location of the regional databases and to select one or more administrators responsible for deploying the database system. Any state that prefers to develop its own statewide database rather than participate in a regionally-deployed database, however, may opt out of its designated regional database and implement a state-specific database. We will retain authority to override a state's decision to develop a statewide database if an affected carrier can demonstrate that the state's proposal would significantly delay deployment of a long-term method or impose unreasonable costs on affected carriers.

6. Until long-term service provider portability is available, we require LECs to

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9 See 47 U.S.C. § 153(26).

10 Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Notice of Proposed Rulemaking, CC Docket No. 96-98, FCC 96-182, ¶ 195 (rel. Apr. 19, 1996) (Interconnection NPRM).

11 47 U.S.C. §§ 151, 152, 154, 332.

12 For an explanation of "covered SMR providers," see infra note **Error! Bookmark not defined.**.

provide currently available number portability measures, such as Remote Call Forwarding (RCF) and Direct Inward Dialing (DID), upon specific request from another carrier. We conclude, however, that commercial mobile radio service providers need not provide such measures due to technical considerations specific to the CMRS industry. We enunciate principles that ensure that the costs of currently available measures are borne by all telecommunications carriers on a competitively neutral basis, and we conclude that states may utilize various cost recovery mechanisms, so long as they are consistent with these statutory requirements. We decline at this time to require the provision of either service or location portability. We conclude that, while the statute requires LECs to implement 500 and 900 number portability, there is insufficient record evidence to determine whether LEC provision of portability for 500 and 900 numbers is technically feasible. As a result, we refer the issue to the Industry Numbering Committee (INC), which must report its findings to the Commission within 12 months of the effective date of this Order. Finally, we adopt a Further Notice of Proposed Rulemaking regarding cost recovery for long-term number portability.

II. BACKGROUND

A. Telecommunications Act of 1996

7. New section 251(b)(2) of the Communications Act of 1934, as added by the 1996 Act, directs each local exchange carrier "to provide, to the extent technically feasible, number portability in accordance with requirements prescribed by the Commission."[13] The 1996 Act defines the term "local exchange carrier" as:

> any person that is engaged in the provision of telephone exchange service or exchange access. Such term does not include a [commercial mobile service provider,] as defined under section 332(c), except to the extent that the Commission finds that such provider should be included in the definition of such term.[14]

The 1996 Act defines "number portability" as "the ability of users of telecommunications services to retain, at the same location, existing telecommunications numbers without impairment of quality, reliability, or convenience when switching from one telecommunications carrier to another."[15]

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13 47 U.S.C. § 251(b)(2).

14 See 47 U.S.C. § 153(26).

15 See 47 U.S.C. § 153(30). In our Notice, we defined three types of number portability: (1) service provider - the ability to retain one's number when changing service providers; (2) service - the ability to retain one's number when changing services; and (3) location - the ability to retain one's number when changing physical locations. Notice, 10 FCC Rcd at 12355-56.

8. The 1996 Act defines the term "telecommunications carrier" as "any provider of telecommunications services, except that such term does not include aggregators of telecommunications services (as defined in section 226)."[16] The term "telecommunications service" is defined by the 1996 Act as "the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used."[17] Because the 1996 Act's definition of number portability requires LECs to provide number portability when customers switch from any telecommunications carrier to any other,[18] the statutory obligation of LECs to provide number portability runs to other telecommunications carriers. Because CMRS falls within the statutory definition of telecommunications service, CMRS carriers are telecommunications carriers under the 1996 Act. As a result, LECs are obligated under the statute to provide number portability to customers seeking to switch to CMRS carriers.

9. In addition to the duties imposed by section 251(b) on all LECs, section 251(c)(1) imposes upon incumbent LECs, inter alia, the "duty to negotiate in good faith . . . the terms and conditions of agreements to fulfill" the section 251(b) obligations, including the duty to provide number portability.[19] An incumbent LEC is defined as a carrier that was providing exchange access service in a particular area on February 8, 1996, and was a member of the National Exchange Carrier Association (NECA) pursuant to section 69.601(b) of the Commission's regulations.[20] The 1996 Act creates an exemption from the obligations of section 251(c) for rural telephone companies,[21] and allows LECs with fewer than two percent of the nation's subscriber lines to petition a state commission for suspension or modification of the application of sections 251(b) and (c).[22]

10. Section 251(e)(1) reinforces the Commission's authority over matters relating

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16 See 47 U.S.C. § 153(44).

17 See 47 U.S.C. § 153(46). The term "telecommunications" means "the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received." 47 U.S.C. § 153(43).

18 See 47 U.S.C. § 153(30).

19 See 47 U.S.C. § 251(c)(1).

20 47 U.S.C. § 251(h)(1); 47 C.F.R. § 69.601(b).

21 A "rural telephone company" is a LEC that "(A) provides common carrier service to any local exchange carrier study area that does not include either -- (i) any incorporated place of 10,000 inhabitants or more, or any part thereof, based on the most recently available population statistics of the Bureau of the Census; or (ii) any territory, incorporated or unincorporated, included in an urbanized area, as defined by the Bureau of the Census as of August 10, 1993; (B) provides telephone exchange service, including exchange access, to fewer than 50,000 access lines; (C) provides telephone exchange service to any local exchange carrier study area with fewer than 100,000 access lines; or (D) has less than 15 percent of its access lines in communities of more than 50,000 on [February 8, 1996]." See 47 U.S.C. § 153(37).

22 See 47 U.S.C. § 251(f)(1)-(2).

to the administration of numbering resources by giving the Commission exclusive jurisdiction over those portions of the North American Numbering Plan (NANP) that pertain to the United States.[23] This subsection also requires the Commission to "create or designate one or more impartial entities to administer telecommunications numbering and to make such numbers available on an equitable basis."[24] Moreover, section 251(e)(2) provides that the cost of "number portability shall be borne by all telecommunications carriers on a competitively neutral basis as determined by the Commission."[25]

11. Finally, new section 271(c)(2)(B) establishes a "competitive checklist" of requirements that the Bell Operating Companies (BOCs) must meet to provide in-region interLATA services.[26] One of the requirements that the BOCs must satisfy is the provision of "interim number portability through remote call forwarding, direct inward dialing trunks, or other comparable arrangements, with as little impairment of functioning, quality, reliability, and convenience as possible" until the Commission issues regulations pursuant to section 251 to implement the statute's number portability requirements. Section 271(c)(2)(B)(xi) directs the BOCs to comply fully with the regulations implemented by the Commission.[27]

B. Proposed Number Portability Methods

12. Because most telephone numbers within the NANP are associated with a particular switch operated by a particular service provider, they currently cannot be transferred outside the service area of a particular switch or between switches operated by different service providers without technical changes to the switch or network.[28] Several methods exist, or are being developed, to provide telephone number portability. These

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[23] See 47 U.S.C. § 251(e)(1). Section 251(e)(1) further states that the provision does not preclude the Commission from delegating jurisdiction to the states or other entities. Id. Under the 1996 Act, the term "United States," "means the several States and Territories, the District of Columbia, and the possessions of the United States, but does not include the Canal Zone." See 47 U.S.C. § 153(50).

[24] 47 U.S.C. § 251(e)(1).

[25] See 47 U.S.C. § 251(e)(2).

[26] See 47 U.S.C. § 271(c)(2)(B). "InterLATA service" means telecommunications between a point located in a local access and transport area (LATA) and a point located outside such area. 47 U.S.C. § 153(21). The term "in-region" means an area in which a BOC or any of its affiliates was authorized to provide wireline telephone exchange service pursuant to the reorganization plan approved under the AT&T Consent Decree, as in effect on the day before the date of enactment of the 1996 Act. 47 U.S.C. § 271(i)(1).

[27] See 47 U.S.C. § 271(c)(2)(B)(xi).

[28] Under the NANP, telephone numbers consist of ten digits in the form NPA-NXX-XXXX, where N may be any number from 2 to 9 and X may be any number from 0 to 9. Numbering plan areas (or NPAs) are known commonly as area codes. The second three digits of a telephone number are known as the NXX code. Typically, the NXX code identifies the central office switch to which the telephone number had been assigned or central office code (CO). Administration of the North American Numbering Plan, Report and Order, 11 FCC Rcd 2588, 2593-94 (1995) (Numbering Plan Order).

methods generally consist of two types: database and non-database methods.[29]

1. Database methods

13. Several industry participants have proposed methods for providing service provider portability that use databases containing the customer routing information necessary to route telephone calls to the proper terminating locations. All these methods depend on Intelligent Network (IN) or Advanced Intelligent Network (AIN) capabilities.[30] Before the release of our Notice, AT&T proposed a Location Routing Number (LRN) method to the Industry Numbering Committee (INC), an industry body that provides an open forum to address and resolve industry-wide issues associated with the non-policy-related planning, administration, allocation, assignment, and use of numbering resources within the NANP area. Since it proposed LRN to the INC, AT&T has continued to develop and refine this method.[31] Essentially, LRN assigns a unique 10-digit telephone number to each switch in a defined geographic area. The location routing number serves as a network address. Carriers routing telephone calls to customers that have transferred their telephone numbers from one carrier to another perform a database query to obtain the location routing number that corresponds to the dialed telephone number. The database query is performed for all calls to switches from which at least one number has been ported.[32] The carrier then would route the call to the new carrier based on the location routing number.[33]

14. MCI, DSC Communications, Nortel, Tandem Computers, and Siemens Stromberg-Carlson have developed a method referred to as the Carrier Portability Code (CPC) method.[34] This method operates in a similar manner to LRN. Under CPC, however, the database associates the dialed telephone number with a 3-digit carrier portability code identifying the particular carrier to whom the dialed number has been transferred, rather than

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29 For a more detailed description of these methods, see infra app. E.

30 See generally Intelligent Networks, Notice of Proposed Rulemaking, 8 FCC Rcd 6813 (1993). IN refers to a general call processing architecture in which a centralized database performs some aspect of call setup. Databases supporting IN services are built to support a specific call processing application. AIN describes a specific model of IN developed by Bellcore in which the database is a general purpose platform capable of supporting multiple call processing services.

31 See Notice, 10 FCC Rcd at 12364. See also AT&T Comments at 18-23.

32 We use the term "ported" in this context to mean the transfer of a telephone number from one carrier's switch to another carrier's switch, which enables a customer to retain his or her number when transferring from one carrier to another.

33 GTE and Pacific Bell refer to LRN as an addressing scheme which assigns a routing number that uniquely identifies a ported number in network routing databases. See GTE Further Reply Comments at 6; Pacific Bell Further Comments at 3. Other parties refer to LRN as the addressing scheme and triggering mechanism which determines under what circumstances a database query should be executed. See AT&T Comments at 18-19; MCI Comments at 15-16.

34 See Notice, 10 FCC Rcd at 12363-64. See also MCI Comments at 10-15.

a particular switch. As described below, many of the parties in this proceeding and staff of some state commissions consider the CPC method to be an interim database solution.[35]

15. Stratus Computer and US Intelco have developed another database method commonly referred to as Local Area Number Portability (LANP).[36] This method uses two "domains" of 10-digit numbers to route telephone calls to customers that have transferred their numbers to new carriers or new geographic locations. Specifically, LANP assigns a ten-digit customer number address (CNA) to each end user; this is the number that callers would dial to place telephone calls to the particular end user. It also assigns each customer a 10-digit network node address (NNA) that identifies where in the telephone network to reach the particular end user. Both the CNA and the NNA are stored in routing databases so that carriers can determine from the dialed telephone number where in the network to reach the called party.

16. GTE has proposed both on the record in this proceeding and before the INC what it refers to as the Non-Geographic Number (NGN) method.[37] While this method uses a database, it operates in a fundamentally different manner from CPC, LRN, and LANP. The NGN method would provide service provider and location portability to end users by assigning them non-geographic telephone numbers, such as an INPA (interchangeable numbering plan area) code that has been assigned for non-geographic numbers.[38] Telephone calls to such end users would be routed in much the same way as toll free calls are today, by performing a database query to determine the geographic telephone number corresponding to the dialed non-geographic telephone number, and routing the call to the appropriate geographic number.

17. Pacific Bell has proposed a triggering mechanism which operates in conjunction with the same addressing scheme utilized in AT&T's LRN method. This mechanism, called Query on Release (QOR) or Look Ahead, determines under what circumstances a database query is performed.[39] Under QOR, the signalling used to set up a telephone call is routed to the end office switch to which the dialed telephone number was originally assigned (the release switch), i.e., according to the NPA-NXX of the dialed number. If the dialed number has been transferred to another carrier's switch, the previous switch in the call path queries the database to obtain the routing information. The call is then completed to the new carrier's switch.

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35 See infra ¶ , app. E.

36 See Notice, 10 FCC Rcd at 12364-65. See also US Intelco Comments at 1-2, 6.

37 See Notice, 10 FCC Rcd at 12365. See also GTE Comments at 14-18.

38 See Industry Numbering Committee, Number Portability (Proposed Final Draft) at 104, filed June 19, 1996 in CC Docket No. 95-116 (INC Report). An INPA, also known as an interchangeable area code, is an area code in which the second digit is not 0 or 1. Numbering Plan Order, 11 FCC Rcd at 2593.

39 See Pacific Bell Further Comments at 3-4.

18. Another number portability method triggering mechanism that is similar to QOR is Release-to-Pivot (RTP).[40] RTP differs from QOR in that when a number has been ported from the release switch, the release switch -- rather than the previous switch in the call path -- returns the address information necessary for routing the call. The information regarding where to route the telephone call, if the number has been transferred, may be contained either in the release switch or an external database.

2. Non-database methods

19. In our Notice, we discussed two currently available methods of providing service provider portability that do not use databases: Remote Call Forwarding and Flexible Direct Inward Dialing.[41] These methods are commonly referred to as "interim measures." While most LECs currently are able to port numbers to other service providers using these methods, they suffer from certain limitations that make them unsuitable for long-term number portability.[42] RCF redirects calls to telephone numbers that have been transferred by essentially placing a second telephone call to the new network location. DID routes the second call over a dedicated facility to the new service provider's switch, instead of translating the dialed number to a new number.

20. In the Notice, we also discussed three derivative methods of RCF and DID (enhanced remote call forwarding, route index/portability hub, and hub routing with AIN), all of which require routing incoming calls to the terminating switch identified by the NPA-NXX code of the dialed phone number. Unlike RCF and DID, they use LEC tandem switches to aggregate calls to a particular competing service provider before those calls are routed to that provider.[43] In addition, LECs in several states reportedly are providing Directory Number Route Indexing (DNRI), which first routes incoming calls to the switch to which the NPA-NXX code was originally assigned, then routes ported calls to the new service provider either through a direct trunk or by attaching a pseudo NPA to the number and using a tandem, depending on availability.[44]

C. Current State Efforts

1. State Task Forces and Implementation

21. Parties to this proceeding report that several states have established task forces

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40 See Pacific Bell Comments at 19.

41 See Notice, 10 FCC Rcd at 12369.

42 See id. at 12368-71; infra app. E.

43 See Notice, 10 FCC Rcd at 12370.

44 USTA Ex Parte Letter at 2, from Mary McDermott, to William Caton, FCC, CC Docket No. 95-116, filed Apr. 4, 1996 (USTA April 4, 1996 Ex Parte Letter); see also infra app. E.

of industry participants or are otherwise beginning to investigate the development and implementation of long-term number portability methods. Those states include: Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois, Indiana, Kansas, Maryland, Michigan, Minnesota, New York, Ohio, Oregon, Texas, Utah, Virginia, Washington, Wisconsin, and Wyoming. Of these states, the task forces in Colorado, Florida, Georgia, Illinois, Maryland, and New York have all selected AT&T's Location Routing Number method for implementing service provider number portability in areas within their states' boundaries.[45] In addition, the state commissions of Colorado, Georgia, Illinois, Maryland, New York, and Ohio have adopted the recommendation of their staff and task forces to implement LRN.[46] Parties to this proceeding assert, moreover, that state task forces or commissions in other states, such as Indiana, Michigan, and Wisconsin, as well as in Canada, are utilizing the results of the Illinois task force's efforts in the area of number portability.[47]

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45 Ameritech Ex Parte Presentation at 5, 30, CC Docket No. 95-116, filed Feb. 21, 1996 (Ameritech February 21, 1996 Ex Parte Filing); AT&T Ex Parte Letter at 1, from R. Gerard Salemme, to Regina Keeney, FCC, CC Docket No. 95-116, filed Mar. 12, 1996 (AT&T March 12, 1996 Ex Parte Letter); AT&T Ex Parte Presentation at 12, CC Docket No. 95-116, filed Feb. 6, 1996 (AT&T February 6, 1996 Ex Parte Filing); CA Public Utilities Commission, California Local Number Portability Task Force Report, R.95-04-043 & I.95-04-044, filed June 19, 1996 in CC Docket No. 95-116, at 1-4 (rel. Feb. 29, 1996) (CA LNP Task Force Report); Colorado Public Utilities Commission, Order Approving Location Routing Number as the Long Term Database Solution to Local Number Portability, Docket No. 96A-196T, at 2 (rel. May 31, 1996) (CO PUC LNP Order); Georgia Public Service Commission, Local Telephone Number Portability Under Section 2 of the Telecommunications Competition and Development Act of 1995, Docket No. 5840-U, filed June 19, 1996 in CC Docket No. 95-116, at 5 (rel. Feb. 20, 1996); (GA PSC Portability Order); Illinois Commerce Commission, Joint petition for approval of Stipulation and Agreement relating to the implementation of Local Number Portability, Order, No. 96-0089, at 2-4, (rel. Mar. 13, 1996) (ICC LNP Order), submitted in Ameritech Further Comments at Attachment A; Public Service Commission of Maryland, Commission's Investigation into Long-Term Solutions to Number Portability in Maryland, Order, Case No. 8704 at 1-3 (rel. June 24, 1996) (MD PSC Portability Order); Michigan Public Service Commission, On the Commission's own motion, to establish permanent interconnection arrangements between basic local exchange service providers, Opinion and Order, Case No. U-10860, filed June 19, 1996 in CC Docket No. 95-116, at 18-29, 43-44 (adopted June 5, 1996) (MI PSC Interconnection Order); State of New York Department of Public Service, Proceeding on Motion of the Commission to Examine Issues Related to the Continuing Provision of Universal Service and to Develop a Framework for the Transition to Competition in the Local Exchange Market; Number Portability Trial - Progress Report, Case 94-C-0095, at 2, Attachment at 2 (rel. Jan. 23, 1996) (NY DPS Portability Trial Report), submitted in AT&T Ex Parte Presentation, CC Docket No. 95-116, filed Feb. 28, 1996 (AT&T February 28, 1996 Ex Parte Filing); Competition -- The State Experience, vol. 1, at 32, 86, submitted as NARUC Ex Parte Filing at Attachment 1, CC Docket No. 95-116, filed Apr. 17, 1996 (NARUC April 17, 1996 Ex Parte Filing); Ohio PUC Reply Comments at 2; Ohio Public Utilities Commission, Commission Investigation Relative to the Establishment of Local Exchange Competition and Other Competitive Issues, Finding and Order, Case No. 95-845-TP-COI, filed June 19, 1996 in CC Docket No. 95-116, at section XIV (rel. June 12, 1996) (Ohio PUC Competition Order); Time Warner Holdings Ex Parte Presentation at 5, CC Docket No. 95-116, filed Feb. 12, 1996 (Time Warner Holdings February 12, 1996 Ex Parte Filing).

46 GA PSC Portability Order at 5; CO PUC LNP Order at 2; ICC Portability Order at 2-4; MD PSC Portability Order at 1, 6, 8; NY DPS Portability Trial Report at 2; Ohio PUC Competition Order at section XIV.

47 Ameritech February 21, 1996 Ex Parte Filing at 5.

22. Several states have set implementation schedules for the portability methods they have selected. Switch vendors have committed to make available LRN software to carriers in Illinois in the second quarter of 1997.[48] Colorado, Illinois, and Georgia plan to begin deploying LRN in mid-1997.[49] New York also expects LRN to be generally available for installation in that state in mid-1997, though deployment in certain AT&T switches is expected to begin earlier.[50] Maryland plans to begin implementing LRN by no later than the third quarter of 1997.[51] According to NARUC, Colorado similarly expects LRN availability in the second quarter of 1997 (but plans to monitor switch vendor progress and reevaluate this time frame in the third quarter of 1996).[52] Ohio will use a LRN number portability workshop, to be established within 120 days of the issuance of its June 12, 1996 Order, to establish the time frame and manner of the implementation of LRN in Ohio.[53] Michigan has ordered that implementation of long-term number portability in Michigan start at the same time that implementation begins in Illinois.[54] The Illinois and Maryland task forces are examining various implementation issues, including a deployment schedule, cost recovery, billing and rating, and service management system (SMS) administration.[55] The Illinois task force selected an SMS provider in April 1996.[56] The Maryland and Colorado task forces have been planning to release their requests for proposals for their SMS administrators in the

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48 See Ameritech February 21, 1996 Ex Parte Filing at 54; AT&T Further Comments at 6; Lucent Technologies Ex Parte Letter at 1, from Carol Wilner, to Jeannie Su, FCC, CC Docket No. 95-116, filed May 20, 1996 (Lucent May 20, 1996 Ex Parte Letter); Nortel Ex Parte Letter at 1-2, from Raymond L. Strassburger, to Mindy Littell, FCC, CC Docket No. 95-116, filed May 29, 1996 (Nortel May 29, 1996 Ex Parte Letter); Siemens Stromberg-Carlson Ex Parte Letter at 1, from Terry Jennings, to Mindy Littell, FCC, CC Docket No. 95-116, filed May 20, 1996 (Siemens May 20, 1996 Ex Parte Letter); Ericsson Ex Parte Letter at 1, from David C. Jatlow, to William F. Caton, FCC, CC Docket No. 95-116, filed May 21, 1996 (Ericsson May 21, 1996 Ex Parte Letter). See also infra ¶ .

49 Colorado Public Utilities Commission May 29, 1996 News Release, PUC Approves Long-Term Number Portability Solution, filed June 19, 1996 (CO PUC May 29, 1996 News Release); Ameritech February 21, 1996 Ex Parte Filing at 12, 54; Time Warner Holdings February 12, 1996 Ex Parte Filing at 5; GA PSC Portability Order at 5-7; AT&T Further Comments at 4 n.5, 7.

50 NY DPS Portability Trial Report at 4 ,6, 7, Attachment at 2; AT&T Further Comments at 6 n.10.

51 MD PSC Portability Order at 1.

52 NARUC April 17, 1996 Ex Parte Filing at 32.

53 Ohio PUC Competition Order at section XIV.

54 MI PSC Interconnection Order at 43.

55 AT&T February 6, 1996 Ex Parte Presentation at 13; Staff of the Public Service Commission of Maryland, Commission's Investigation into Long Term Solutions to Number Portability in Maryland, Second Quarterly Report of the Maryland Number Portability Consortium, Case No. 8704, filed June 19, 1996 in CC Docket No. 95-116, at 6-23 (rel. Apr. 1996) (MD PSC Report).

56 Ameritech Ex Parte Presentation at 3, CC Docket No. 95-116, filed May 15, 1996 (Ameritech May 15, 1996 Ex Parte Filing); Time Warner Holdings February 12, 1996 Ex Parte Filing at 5.

second quarter of 1996.[57]

[57] MD PSC Report at app. 1 at 17; Colorado Public Utilities Commission May 9, 1996 News Release, Task Force to Seek Bids for Number Portability Administrator, filed June 19, 1996 in CC Docket No. 95-116 (CO PUC May 9, 1996 News Release); CO PUC May 29, 1996 News Release.

2. State Trials

23. Two states have conducted or are conducting number portability trials. As we described in the Notice, ten companies, working with the New York Department of Public Service (NY DPS), jointly initiated two number portability trials, one in Rochester and another in Manhattan.[58] The companies originally planned to test the LANP method of Stratus Computers and US Intelco in Rochester, but that trial was canceled. The Manhattan trial, testing the CPC method, began in early February of this year. The New York DPS, however, now considers CPC to be, at best, an interim method and has changed the trial's emphasis from the technical aspects of the method to the operational and administrative aspects of the intercompany procedures that are required to change a customer from one local exchange provider to another.[59] MCI, one of the original proponents of CPC, no longer views CPC as a viable long-term method.[60]

24. A group of telecommunications service providers conducted a technical trial of the LANP method in Seattle, Washington, during 1995. That trial ended in December 1995.[61] The objective of the technical trial was to identify the technical, operational, and administrative issues that arise when a telephone number is not associated with a specific geographic location. Because the trial revealed certain technical and operational difficulties with the LANP technology, the Washington task force on number portability declined to adopt LANP. The Washington Utilities and Transportation Commission has not adopted LANP, and the companies involved in the trial have ceased advocating LANP.

3. State Interim Measures

25. Carriers are providing interim portability measures in a number of states, either voluntarily or pursuant to state commission orders. According to NARUC and other parties to the proceeding, LECs are providing RCF, DID, and/or other comparable arrangements in Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois, Indiana, Iowa, Louisiana, Maryland, Massachusetts, Michigan, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Tennessee, Texas, Virginia, Washington, Wisconsin, and Wyoming.[62]

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58 Notice, 10 FCC Rcd at 12356 & n.20, 12357. See also NY DPS Portability Trial Report at 3-4. The ten companies are: AT&T, Cellular One/Genesee Telephone Company, LOCATE, MCI, MFS Intelenet, NYNEX, Rochester Telephone, Sprint Communications Company, Teleport Communications Group, and Time Warner Communications.

59 NY DPS Portability Trial Report at 6-7.

60 See MCI Further Comments at 3.

61 The participants included: US Intelco, Electric Lightwave Inc., US West, Stratus Computer, Teleport Communications Group, GTE-INS, and ITN. Notice, 10 FCC Rcd at 12357 & n.23.

62 NARUC April 17, 1996 Ex Parte Filing at 4, 29, 59, 72, 74, 77, 86, 100, 114, 118, 130, 135, 139; USTA Ex Parte Letter at 2, from Mary McDermott, to William Caton, FCC, CC Docket No. 95-116, filed Mar. 25, 1996 (USTA March 25, 1996 Ex Parte Letter). See also Ameritech February 21, 1996 Ex Parte Filing at 23; Texas PUC Comments at 4.

According to USTA, Alabama and Minnesota are considering interim portability requirements, while North Carolina requires carriers to negotiate interim portability as part of their interconnection agreements.[63]

III. REPORT AND ORDER

A. Importance of Service Provider Number Portability

1. Background

26. In the Notice, we tentatively concluded that number portability benefits consumers of telecommunications services and would contribute to the development of competition among alternative providers of local telephone and other telecommunications services.[64] With respect to service provider portability, we sought comment on the effects that local number portability, or lack thereof, would have on the local exchange marketplace. Specifically, we sought comment on the value consumers place on their telephone numbers, the deterrent effect that a lack of number portability would have on consumer decisions to change service providers, and any resultant effect on competition between incumbent local service providers and new competitors in local markets.[65]

2. Discussion

27. Since we adopted the Notice, Congress passed the 1996 Act, which requires all LECs to "provide, to the extent technically feasible, number portability in accordance with requirements prescribed by the Commission."[66] The 1996 Act defines number portability as "the ability of users of telecommunications services to retain, at the same location, existing telecommunications numbers without impairment of quality, reliability, or convenience when switching from one telecommunications carrier to another."[67] Accordingly, we hereby modify our proposed definition of number portability to conform to the statutory definition of number portability and note that the statutory definition of this term is synonymous with the Notice's definition of "service provider portability."[68]

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63 USTA March 25, 1996 Ex Parte Letter at 2.

64 Notice, 10 FCC Rcd at 12358-61.

65 Id. at 12358.

66 47 U.S.C. § 251(b)(2).

67 47 U.S.C. § 153(30).

68 For description of service and location number portability, see infra ¶¶ 172, 174.

28. Although some incumbent LECs assert that local exchange market competition will develop without number portability,[69] the record developed in this proceeding confirms the congressional findings that number portability is essential to meaningful competition in the provision of local exchange services.[70] Several state commissions have also recognized the significant role that number portability will play in the development of local exchange competition.[71] We, therefore, affirm our tentative conclusion that number portability provides consumers flexibility in the way they use their telecommunications services and promotes the development of competition among alternative providers of telephone and other telecommunications services.

29. We note that several studies described in the record demonstrate the reluctance of both business and residential customers to switch carriers if they must change numbers. For example, MCI has stated that, based on a nationwide Gallup survey, 83 percent of business customers and 80 percent of residential customers would be unlikely to change local service providers if they had to change their telephone numbers.[72] Time Warner Holdings states that consumers are 40 percent less likely to change service providers if a number change is required.[73] Citizens Utilities notes that approximately 85 percent of the discussions that its subsidiary, ELI, has with potential customers about switching providers end when those potential customers learn that they must change their telephone numbers.[74] The study commissioned by Pacific Bell concludes that, without portability, new entrants would be forced to discount their local exchange service and other competing offerings by at least 12 percent below the incumbent LECs' prices in order to induce customers to switch carriers due to customers' resistance to changing numbers.[75]

30. The ability of end users to retain their telephone numbers when changing service providers gives customers flexibility in the quality, price, and variety of telecommunications services they can choose to purchase. Number portability promotes competition between telecommunications service providers by, among other things, allowing

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69 Pacific Bell Comments at 6; NYNEX Reply Comments at 11-12; USTA Comments at 1.

70 See, e.g., ALTS Comments at 2-6; Missouri PSC Comments at 2-3; Michigan PSC Staff Reply Comments at 4; NARUC Comments at 4; NCTA Comments at 4-5; Ohio PUC Comments at 3; CompTel Comments at 1, 3-4.

71 See supra ¶¶ -. For instance, the New York DPS, in its recent Order adopting LRN, determined that number portability is essential to the development of vigorous local telephone service competition. See NY DPS Portability Trial Report at 2. See also Florida PSC Comments at 1, 4; Maryland PSC Reply Comments at 2; Pennsylvania PUC Reply Comments at 2.

72 MCI Comments at 2-3. See also Notice, 10 FCC Rcd at 12358; MFS Comments at 2-3, app. A.

73 Time Warner Holdings Comments at 6.

74 Citizens Utilities Comments at 3-4.

75 See, e.g., MCI Comments at 3 n.3; MFS Reply Comments at 1-2; Pacific Bell Comments at 3-4, 6-8; TRA Reply Comments at 3-4.

customers to respond to price and service changes without changing their telephone numbers. The resulting competition will benefit all users of telecommunications services. Indeed, competition should foster lower local telephone prices and, consequently, stimulate demand for telecommunications services and increase economic growth.

31. Conversely, the record demonstrates that a lack of number portability likely would deter entry by competitive providers of local service because of the value customers place on retaining their telephone numbers.[76] Business customers, in particular, may be reluctant to incur the administrative, marketing, and goodwill costs associated with changing telephone numbers. As indicated above, several studies show that customers are reluctant to switch carriers if they are required to change telephone numbers.[77] To the extent that customers are reluctant to change service providers due to the absence of number portability, demand for services provided by new entrants will be depressed. This could well discourage entry by new service providers and thereby frustrate the pro-competitive goals of the 1996 Act.

B. The Commission's Role

1. Background

32. In the Notice, we tentatively concluded that the Commission has a significant interest in promoting the nationwide availability of number portability due to its impact on interstate telecommunications.[78] We based this interest on four grounds: (1) our obligation to promote an efficient and fair telecommunications system;[79] (2) the inability to separate the impact of number portability between intrastate and interstate telecommunications;[80] (3) the likely adverse impact deploying different number portability solutions across the country would have on the provision of interstate telecommunications services;[81] and (4) the impact that number portability could have on the use of the numbering resource,[82] that is, ensuring that the use of numbers is efficient and does not contribute to area code exhaust.

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76 See, e.g., Notice, 10 FCC Rcd at 12358-59; Cablevision Lightpath Reply Comments at 4; Maryland PSC Reply Comments at 2; Omnipoint Comments at 1-3.

77 See supra ¶ .

78 Notice, 10 FCC Rcd at 12361-62.

79 See 47 U.S.C. § 151 (requiring the Commission to make available to all people of the United States "a rapid, efficient, Nation-wide, and world-wide wire and radio communication service"); 47 U.S.C. § 202 (requiring that the charges, practices, classifications, regulations, facilities, and services of common carriers not be unreasonably discriminatory).

80 Notice, 10 FCC Rcd at 12361 & n.34.

81 Id. at 12363.

82 Id. at 12361-62.

33. In the 1996 Act, Congress expressly assigned to the Commission exclusive jurisdiction over that portion of the NANP that pertains to the United States.[83] Moreover, Congress directed the Commission to prescribe regulations for LEC provision of number portability: section 251(b)(2) requires carriers "to provide, to the extent technically feasible, number portability in accordance with the requirements prescribed by the Commission."[84]

2. Positions of the Parties

34. Prior to passage of the 1996 Act, some LECs asserted that the Commission should neither adopt, nor direct the adoption of, number portability without performing a thorough cost/benefit analysis.[85] Most parties, however, now agree that the 1996 Act clearly directs this Commission to implement long-term number portability.[86] Moreover, some parties contend that this mandate reflects the fact that Congress has weighed the costs and benefits of implementing number portability.[87] USTA adds, however, that the Commission may consider economic efficiencies in determining what rules to implement.[88]

35. Several commenters, while agreeing that the Commission should take a leadership role, urge us to leave certain implementation issues to the states.[89] USTA advocates allowing the states to determine their own deployment schedules.[90] The California PUC asserts that the Commission's jurisdiction over number portability is not exclusive, and that states must be allowed to implement number portability methods that are most compatible with local exchange competition in each state.[91]

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83 See 47 U.S.C. § 251(e)(1).

84 47 U.S.C. § 251(b)(2).

85 Bell Atlantic Comments at 18-19; NYNEX Comments at 15-16; NYNEX Reply Comments at 14; SBC Communications Comments at 10.

86 See, e.g., Bell Atlantic Further Comments at 2; NCTA Further Comments at 2; Omnipoint Further Comments at 2. See also BellSouth Further Comments at 4 (Act represents congressional declaration of Commission's exclusive occupation of regulatory field of number resources); MFS Further Comments at 2, 8-9 (section 251(e)(1) gives Commission exclusive jurisdiction over number portability issues, but allows Commission to delegate that authority to states).

87 Omnipoint Further Comments at 7; Time Warner Holdings Further Comments at 1, 3.

88 USTA Further Reply Comments at 2-3.

89 California PUC Further Reply Comments at 2; Florida PSC Comments at 2; Michigan PSC Staff Reply Comments at 2; NARUC Reply Comments at 1-2; Ohio PUC Comments at 2; USTA Further Reply Comments at 1, 6-7.

90 USTA Further Reply Comments at 6-7 (asserting that this is consistent with section 251(f)(2), which allows LECs with less than 2% of the nation's access lines to petition the states for suspension or modification of sections 251(b) or 251(c)).

3. Discussion

36. We believe that Congress has determined that this Commission should develop a national number portability policy and has specifically directed us to prescribe the requirements that all local exchange carriers, both incumbents and others, must meet to satisfy their statutory obligations.[92] Section 251(b)(2) requires LECs "to provide, to the extent technically feasible, number portability in accordance with the requirements prescribed by the Commission."[93] Moreover, section 251(e)(1)'s assignment to the Commission of exclusive jurisdiction over that portion of the NANP that pertains to the United States gives us authority over the implementation of number portability to the extent that such implementation will affect the NANP.[94] Consistent with the role assigned to the Commission by the 1996 Act, the record developed in this proceeding overwhelmingly indicates that the Commission should take a leadership role with respect to number portability.[95] We, therefore, affirm our conclusion that we should take a leadership role in developing a national number portability policy. We further note that, in light of Congress's mandate to us to prescribe requirements for number portability, it is not necessary to engage in a cost/benefit analysis as to whether to adopt rules that require LECs to provide number portability in the first instance. We may consider economic and other factors, however, when determining the specific requirements in such rules.

37. The 1996 Act directs this Commission to adopt regulations to implement number portability,[96] and we believe it is important that we adopt uniform national rules regarding number portability implementation and deployment to ensure efficient and consistent use of number portability methods and numbering resources on a nationwide basis. Implementation of number portability, and its effect on numbering resources, will have an impact on interstate, as well as local, telecommunications services. Ensuring the interoperability of networks is essential for deployment of a national number portability regime, and for the prevention of adverse impacts on the provision of interstate telecommunications services or on the use of the numbering resource. We believe that allowing number portability to develop on a state-by-state basis could potentially thwart the intentions of Congress in mandating a national number portability policy, and could retard the development of competition in the provision of telecommunications services.

C. Performance Criteria for Long-Term Number Portability

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91 California PUC Further Reply Comments at 2.

92 See 47 U.S.C § 251(b)(2), (d).

93 47 U.S.C § 251(b)(2).

94 See 47 U.S.C. § 251(e)(1).

95 See, e.g., General Communication Comments at 1; Pacific Bell Comments at 9; Texas PUC Comments at 2; US Airwaves Comments at 1.

96 47 U.S.C. § 251(d)(1).

1. Background

38. In the Notice, we sought comment on what long-term number portability methods would be in the public interest. Specifically, we sought comment on various number portability proposals offered by different industry participants, including proposals by AT&T, MCI Metro, Stratus Computer and US Intelco, and GTE.[97] We also sought comment on the extent to which these proposals would support certain services that we deemed important. We tentatively concluded that any method should support operator services and emergency services because they are critical to public safety and are important features of the public switched network.[98] We also tentatively concluded that any number portability proposal should efficiently use telephone numbers.[99] In addition, we discussed and sought comment on which of three call processing scenarios (i.e., which carrier performs the database query in a database method), or any alternative, would best serve the public interest.[100] We sought comment on whether telephone numbers should be portable within local calling areas, throughout a particular area code, state-wide, regionally, nationwide, or on some other basis, and how the geographic scope of portability would impact different types of carriers and their billing systems. We also asked whether number portability could be provided nationwide without significant network modifications.[101]

2. Positions of the Parties

39. Performance criteria versus selection of architecture. Commenting parties differ on whether the Commission should establish performance criteria or guidelines that any number portability method must meet, or require the implementation of one national portability method. Many parties, including several state regulatory agencies, cable interests, and LECs, favor establishment of broad guidelines and interoperability criteria for implementing a long-term portability method.[102] NYNEX maintains that this approach would encourage cooperative industry resolutions for a true number portability method and would properly account for legitimate state interests in the deployment of number portability. NYNEX further claims that guidelines would allow the Commission to ensure the implementation of compatible methods, with seamless call flows and service operation, without expending scarce resources by focusing on the detailed implementation of every

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97 Notice, 10 FCC Rcd at 12363-65.

98 Id. at 12365.

99 Id.

100 Id. at 12365-66. For descriptions of these scenarios, see infra ¶ .

101 Notice, 10 FCC Rcd at 12367.

102 See, e.g., Cablevision Lightpath Reply Comments at 6; Missouri PSC Comments at 3; Pacific Bell Comments at 9. See also Ericsson Comments at 3 (asserting that there may be other long-term methods the Commission and industry have not yet identified).

method in each region of the country.[103] The California Department of Consumer Affairs contends that the 1996 Act's pro-competitive policies mandate that the portability method adopted be flexible and allow for future innovation.[104] GTE urges the Commission to determine the type of routing information to be employed, but leave selection of the triggering mechanism to the individual carriers.[105] SBC Communications asserts that section 251(d)(1) only requires the Commission to outline principles for a long-term method within six months of enactment of the 1996 Act, not to adopt a specific method.[106]

40. Conversely, some parties contend that requiring a single, national method would avoid the implementation of numerous inconsistent and inefficient approaches, and the need for carriers to adapt to different requirements in different states.[107] Jones Intercable argues that allowing number portability to develop state-by-state would give the incumbent LECs the opportunity to delay development of local exchange competition.[108] BellSouth and Nortel argue that a single long-term method is necessary to minimize the costs of implementation, operation, and maintenance; to protect billing systems against problems created by use of differing SS7 parameters; and to foster network integrity.[109] PCIA claims that a state-regulated market would inhibit development of a nationwide wireless network.[110] Arch/AirTouch Paging adds that deployment of different portability methods would adversely impact interstate telecommunications.[111] Bell Atlantic and PCIA argue that a national method is more likely to conserve scarce numbering resources.[112] Bell Atlantic further claims, however, that each individual carrier should be allowed the flexibility to utilize whatever architecture or technology within its own network best enables that carrier to implement whatever national method is selected.[113] Moreover, some parties urge the

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103 NYNEX Comments at 15, 17. See also Pacific Bell Comments at 13-14; USTA Comments at 7.

104 CA Consumer Affairs Further Reply Comments at 2, 4.

105 GTE Further Reply Comments at 6; see also Pacific Bell Further Reply Comments at 6.

106 SBC Communications Further Reply Comments at 5; see also USTA Further Reply Comments at 5.

107 See, e.g., ACTA Comments at 6-7; PCIA Comments at 8; Telecommunications Resellers Comments at 1, 14-15.

108 Jones Intercable Comments at 2-3; Jones Intercable Reply Comments at 5; PCIA Comments at 8.

109 BellSouth Comments at 34; Nortel Reply Comments at 2-3.

110 PCIA Comments at 8 n.23.

111 Arch/AirTouch Paging Comments at 8-9.

112 Bell Atlantic Comments at 10; PCIA Comments at 8.

113 Bell Atlantic Comments at 10-11; Bell Atlantic Further Comments at 2; see also Ameritech Further Comments at 9.

Commission to select a particular method to be implemented nationwide,[114] while others advocate allowing the industry to select the specific method.[115]

41. Commenting parties suggest numerous performance criteria with which any long-term number portability method must comply. These include: (1) the ability to support emergency services, i.e., 911 and enhanced 911 (E911) services;[116] (2) the ability to support existing network services and capabilities, (e.g., operator and directory services, vertical and advanced services, custom local area signaling services (also known as "CLASS"), toll free and pay-per-call services, and intercept capabilities);[117] (3) efficient use of numbering resources;[118] (4) no initial change of telephone numbers;[119] (5) no reliance on network facilities of, or services provided by, other service providers (e.g., incumbent LECs) in order to route calls;[120] (6) no degradation in service quality or network reliability (e.g., no significant increase in call set-up time);[121] (7) reliance on existing network infrastructure and functionalities to the extent possible;[122] (8) equal application to both incumbents and new entrants (i.e., carriers who receive ported numbers must also provide portability);[123] (9) no

[114] See, e.g., AT&T Further Reply Comments at 7; MCI Ex Parte Letter at 1, from Donald F. Evans, to Richard Metzger, FCC, CC Docket No. 95-116, filed June 19, 1996 (MCI June 19, 1996 Ex Parte Letter).

[115] See, e.g., Bell Atlantic Reply Comments at 1-5; BellSouth Comments at 35-36.

[116] See, e.g., Arch/AirTouch Paging Reply Comments at 8, 16, Attachment at 12-13 (911 and E911 services are particularly critical for wireless networks); California PUC Comments at 9; NENA Reply Comments at 1-2 (service provider portability will not necessarily affect E911 services, but location portability will); NENA Further Comments at 2-3 (asserting that statutory definition of "number portability" requires supporting emergency services).

[117] See, e.g., Bell Atlantic Comments at 12; Competitive Carriers Comments at 7, 23; GO Communications Comments at 6.

[118] See, e.g., California PUC Comments at 9; General Communication Comments at 4; US West Comments at 15-19.

[119] See, e.g., CCTA Reply Comments at 7-8; GO Communications Comments at 6; New York DPS Comments at 8.

[120] See, e.g., AT&T Comments at 15-16; CCTA Reply Comments at 8 (noting that RTP displaces the routing and addressing preferences of new entrants by requiring the use of routing and addressing schemes developed and implemented by incumbent LECs); Sprint Comments at 3, 15-16.

[121] See, e.g., AT&T Comments at 15-16; Bell Atlantic Comments at 12; Teleport Comments at 11. Cincinnati Bell urges that a method that minimizes database queries would best protect system reliability, impairment of which is prohibited by the 1996 Act. Cincinnati Bell Further Reply Comments at 2. Pacific Bell maintains that reasonable differences in delay or variation in treatment between ported and non-ported numbers are permitted by the 1996 Act. Pacific Bell Further Reply Comments at 5 (citing statutory definition of telecommunications service).

[122] See, e.g., BellSouth Comments at 24, 34; ITN Comments at 3-4; MCI Comments at 7-8. Cf. ACTA Comments at 11.

[123] See, e.g., BellSouth Reply Comments at 17-18; Illinois Commerce Commission Comments at 2;

proprietary interests or licensing fees;[124] (10) the ability to migrate to location and service portability;[125] and (11) no adverse impact in areas where portability has not been deployed.[126]

42. Call processing scenarios. In the Notice, we discussed three call processing scenarios. They were: (1) the terminating "access" provider (TAP) scenario, under which the database query is performed by the terminating access provider (usually the incumbent LEC, who recovers interstate access charges from interexchange carriers (IXCs) for terminating traffic under our existing access charge regime); (2) the originating service provider (OSP) scenario, under which the originating service provider performs the database query; and (3) the "N minus 1" (N-1) scenario, under which the carrier immediately prior to the terminating service provider performs the database query or dip.[127] In addition, ITN suggests a "first-switch-that-can" approach, under which the first switch that handles the call and has the capability to do the database dip performs the query.[128]

43. Pacific Bell and Bell Atlantic recommend that carriers should be permitted to choose a call processing scenario to enable them to implement the QOR triggering mechanism in addition to LRN.[129] These parties assert that QOR would eliminate unnecessary database queries, thereby decreasing the number of databases necessary to provide number portability and the transmission capacity between switches and databases.[130] In contrast, AT&T argues against allowing carriers to choose a call processing scenario, such as QOR, because doing so would delay deployment of a long-term number portability method and would result in significant network interoperability issues.[131] MCI opposes implementation of QOR because it forces competitive LECs to rely on the incumbent LEC's

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Omnipoint Reply Comments at 6-8. But see Time Warner Holdings Further Comments at 2 n.3 (asserting that Commission is authorized to forbear from imposing duty to provide portability on non-incumbent LECs).

[124] See, e.g., Ameritech February 21, 1996 Ex Parte Filing at 8; MCI Comments at 7-8; MFS Comments at 10-11.

[125] See, e.g., GTE Comments at 23; ITN Reply Comments at 2; MCI Comments at 7-8. Cf. USTA Comments at 9-10 (asserting that equipment costs for service portability would redirect capital away from deployment of services and create upward pressure on service prices).

[126] See, e.g., ITN Comments at 3-4.

[127] Notice, 10 FCC Rcd at 12365-66.

[128] ITN Comments at 1; ITN Reply Comments at 1, 4.

[129] See Bell Atlantic Ex Parte Letter at 3, from Patricia E. Koch, to William Caton, FCC, CC Docket No. 95-116, filed May 13, 1996 (Bell Atlantic May 13, 1996 Ex Parte Letter); Pacific Bell Further Comments at 3-4.

[130] Bell Atlantic May 13, 1996 Ex Parte Letter at 3; Pacific Bell Further Comments at 7-8.

[131] AT&T Ex Parte Letter at 3-5, from Betsy J. Brady, to Jason Karp, FCC, CC Docket No. 95-116, filed Apr. 24, 1996 (AT&T April 24, 1996 Ex Parte Letter).

network and results in inefficient routing.[132] AT&T and MCI also argue against use of the RTP or QOR triggering mechanisms because they treat transferred and non-transferred numbers differently,[133] and significantly increase post-dial delay and the potential for call blocking.[134]

44. Most of the parties that favor the Commission's selection of a particular call processing scenario prefer the N-1 scenario because they believe it allows database queries to be made at the most efficient points in the process of routing telephone calls.[135] In contrast, ITN states that use of the N-1 scenario may hinder the evolution from localized to national number portability environments.[136] BellSouth contends that the Commission need not select a particular scenario because all four triggering mechanisms (OSP, TAP, N-1, and Look-Ahead) could exist simultaneously through engineering and business arrangements.[137] Citizens Utilities and NCTA oppose the TAP scenario because it requires routing most calls to the incumbent LEC networks, thus denying terminating access charges to competitive providers.[138]

45. Rating and billing. Several LECs, MCI, and MFS contend that any long-term method should preserve existing rating and billing systems to minimize costs and impact.[139] Conversely, AT&T and Florida PSC argue that any long-term method should permit flexible rating and billing schemes.[140] Pacific Bell, US West, and BellSouth also argue that the Commission must in this proceeding address billing problems, including issues relating to proper mileage, rating, calling cards, and billing format.[141]

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132 MCI Ex Parte Letter at 2-4, from Donald F. Evans, to Richard Metzger, FCC, CC Docket No. 95-116, filed Apr. 23, 1996 (MCI April 23, 1996 Ex Parte Letter).

133 AT&T Ex Parte Presentation at 11, CC Docket No. 95-116, filed May 22, 1996 (AT&T May 22, 1996 Ex Parte Filing); MCI April 23, 1996 Ex Parte Letter at 3.

134 AT&T Further Reply Comments at 6; MCI Further Reply Comments at 3-5.

135 See, e.g., MCI Comments at 18; New York DPS Comments at 9; Time Warner Holdings Comment at 17.

136 ITN Reply Comments at 1, 4.

137 BellSouth Comments at 26-27.

138 NCTA Comments at 10; Citizens Utilities Comments at 12. Cf. Florida PSC Comments at 8 (arguing that the TAP scenario limits the number of carriers that have access to the database and reduces implementation costs by limiting the method to areas where competition is developing).

139 See, e.g., MCI Comments at 7-8; MFS Comments at 10-11; USTA Comments at 7.

140 AT&T Comments at 15-16; Florida PSC Comments at 7.

141 BellSouth Comments at 24-25; Pacific Bell Comments at 18; US West Comments at 24.

3. Discussion

46. Performance criteria versus selection of architecture. We conclude that establishing performance criteria that a LEC's number portability architecture must meet would better serve the public interest than choosing a particular technology or specific architecture. First, we believe that to date there appears to be sufficient momentum to deploy compatible methods, if not an identical method, nationwide. Every state that has selected a particular architecture for implementation within its state boundaries has selected the same method, LRN, and numerous states are reportedly following suit.[142] With the exception of some of the incumbent LECs, most parties that advocate selection of a particular method at this time are also supporting the LRN method.[143] Under these circumstances, mandating the implementation of a particular number portability architecture, or mandating that the same architecture be deployed nationwide, appears unnecessary. Second, such a mandate might actually delay the implementation of number portability. We are reluctant, based on the record in this proceeding, to select one of the proposed long-term methods. According to a number of parties, none of the currently supported methods, including LRN, has been tested or described in sufficient detail to permit the Commission to select the particular architecture without further consultation with the industry.[144] If, however, we were to direct an industry body to recommend a specific number portability architecture, it would likely delay the implementation of number portability that already is underway in several states, and would create significant uncertainty for those switch vendors currently modifying switch software to accommodate LRN. Third, dictating implementation of a particular method could foreclose the ability of carriers to improve on those methods already being deployed or to implement hybrid (but compatible) methods.

47. We believe that our establishment of criteria for long-term number portability methods, however, will ensure an appropriate level of national uniformity, while maintaining flexibility to accommodate innovation and improvement. The deployment of a uniform number portability architecture nationwide will be important to the efficient functioning of the public switched telephone network and will reduce the costs of implementing number portability nationwide by allowing switch vendors to spread the costs of development over more customers. Moreover, a uniform deployment will allow switch manufacturers to work toward a single standard, thus avoiding the situation where different manufacturers partition the market among different methods.

48. Performance Criteria. We thus adopt the following minimum criteria. Any

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142 See supra ¶¶ -.

143 See, e.g., Ameritech, AT&T, Central Telephone Co. of Illinois, MCI, MFS, Teleport, Time Warner Holdings, and Sprint Joint Ex Parte Letter at 1, to Regina Keeney, FCC, CC Docket No. 95-116, filed May 8, 1996 (Ameritech et al. May 8, 1996 Joint Ex Parte Letter).

144 See GTE Ex Parte Presentation at 2, CC Docket No. 95-116, filed Feb. 7, 1996 (GTE February 7, 1996 Ex Parte Filing); GTE Ex Parte Presentation at 3-4, CC Docket No. 95-116, filed Mar. 27, 1996 (GTE March 27, 1996 Ex Parte Filing); Pacific Bell Comments at 15-17; NYNEX Reply Comments at 5.

long-term number portability method, including call processing scenarios or triggering, must:

(1) support existing network services, features, and capabilities;

(2) efficiently use numbering resources;

(3) not require end users to change their telecommunications numbers;

(4) not require telecommunications carriers to rely on databases, other network facilities, or services provided by other telecommunications carriers in order to route calls to the proper termination point;

(5) not result in unreasonable degradation in service quality or network reliability when implemented;

(6) not result in any degradation of service quality or network reliability when customers switch carriers;

(7) not result in a carrier having a proprietary interest;

(8) be able to accommodate location and service portability in the future; and

(9) have no significant adverse impact outside the areas where number portability is deployed.

We discuss each of these performance criteria in turn below.

49. First, we require that any long-term method support existing network services, features, or capabilities, such as emergency services, CLASS features, operator and directory assistance services, and intercept capabilities. The 1996 Act requires that consumers be able to retain their numbers "without impairment of quality, reliability, or convenience when switching from one telecommunications carrier to another."[145] Moreover, customers are not likely to switch carriers and retain their telephone numbers if they are required to forego services and features to which they have become accustomed. Thus, any long-term method that precludes the provision of existing services and features would place competing service providers at a competitive disadvantage.[146]

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145 See 47 U.S.C. § 153(30).

146 Moreover, we have found that the provision of some services, such as caller ID and emergency services, is in the public interest. For example, our rules require passage of calling party information because national availability of caller ID enables a multitude of services, efficiency gains, and additional choices for consumers. See Rules and Policies Regarding Calling Number Identification Service - Caller ID, Report and Order and Further Notice of Proposed Rulemaking, 9 FCC Rcd 1764, 1765-66 (1994), aff'd, Public Util. Comm'n of California v. FCC, 75 F.3d 1350 (9th Cir. 1996).

50. The public interest also requires that service provider portability not impair the provision of network capabilities that are important to public safety, such as emergency services and intercept capabilities. In our proposal to ensure that PBXs and CMRS providers support enhanced 911 services, we reaffirmed that 911 services enable telephone users to receive fast response to emergency situations, and that broad availability of 911 and E911 services best promotes "safety of life and property through the use of wire and radio communication."[147] In addition, the Communications Assistance for Law Enforcement Act requires telecommunications carriers generally to provide capabilities that enable secure, reliable, and non-intrusive law enforcement interception of call setup information and call content so that law enforcement agencies can intercept and monitor calls when necessary.[148]

51. Second, we require that any long-term method efficiently use numbering resources. Telephone numbers are the means by which commercial and residential consumers gain access to, and reap the benefits of, the public switched telephone network.[149] In recent years, the explosive growth of wireless services has caused an equally dramatic increase in the consumption of telephone numbers.[150] Indeed, in January 1995, carriers began to deploy interchangeable NPA (INPA) codes because all NPA codes had been exhausted.[151] The anticipated shortage of numbers has prompted several BOCs to propose the use of area code overlays.[152] The increased use of overlays and area code splits has resulted in both industry and consumer inconvenience and confusion. The consumption rate of NANP

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147 Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, Notice of Proposed Rulemaking, 9 FCC Rcd 6170, 6171-72 (1994) (quoting 47 U.S.C. § 151).

148 Communications Assistance for Law Enforcement Act (CALEA), Pub. L. No. 103-414, 108 Stat. 4279 (1994), 47 U.S.C. §§ 1001 et seq. Under CALEA, the term "telecommunications carrier" means a person or entity that is engaged in the transmission or switching of wire or electronic communications as a common carrier. The term includes commercial mobile service providers, as well as providers of wire or electronic communication switching or transmission service if the Commission finds that such service substantially replaces local telephone exchange service. The requirements of CALEA do not extend to information service providers or any class or category of telecommunications carriers that the Commission exempts by rule. 47 U.S.C. § 1001(8).

149 Numbering Plan Order, 11 FCC Rcd at 2591.

150 Two out of three new telephone numbers go to wireless subscribers. See CTIA Ex Parte Letter at 1, from Robert F. Roche, to Mindy Littell, FCC, CC Docket No. 95-116, filed June 3, 1996 (CTIA June 3, 1996 Ex Parte Letter). The total number of cellular subscribers more than doubled between 1993 and 1995. In December 1993, there were 16,009,461 cellular subscribers, and, in December 1995, cellular subscribers totalled 33,785,661. Trends in Telephone Service, Industry Analysis Division, Common Carrier Bureau, Federal Communications Commission, at 63 (May 1996).

151 Numbering Plan Order, 11 FCC Rcd at 2593. NPA codes, commonly known as area codes, have historically been of the format N 0/1 X, where N may be any number from 2 to 9, 0/1 is either 0 or 1, and X may be any number from 0 to 9. INPAs have the format NXX. Id.

152 See, e.g., Proposed 708 Relief Plan and 630 Numbering Plan Area Code by Ameritech - Illinois, Declaratory Ruling and Order, 10 FCC Rcd 4596, 4598 (1995).

resources is likely to accelerate with the entry of new wireline and wireless carriers.[153] Thus, we conclude that deploying a long-term number portability method that rapidly depletes numbering resources would undermine the efforts of the industry, the states, and the Commission to ensure sufficient numbering resources.

52. Third, deployment of a long-term method should not require customers to make any telecommunications number change. The 1996 Act mandates that end users be able "to retain . . . existing telecommunications numbers . . . when switching from one telecommunications carrier to another."[154] Requiring any number change would contravene this basic requirement. Congress noted that the ability to switch service providers is only meaningful if customers can retain their telephone numbers.[155]

53. Fourth, we require that any long-term method ensure that carriers have the ability to route telephone calls and provide services to their customers independently from the networks of other carriers. Requiring carriers to rely on the networks of their competitors in order to route calls can have several undesirable effects. For example, dependence on the original service provider's network to provide services to a customer that has switched carriers contravenes the choice made by that customer to change service providers. In addition, such dependence creates the potential for call blocking by the original service provider and may make available to the original service provider proprietary customer information. Moreover, methods which first route the call through the original service provider's network in order to determine whether the call is to a ported number, and then perform a query only if the call is to be ported, would treat ported numbers differently than non-ported numbers, resulting in ported calls taking longer to complete than unported calls. This differential in efficiency would disadvantage the carrier to whom the call was ported and impair that carrier's ability to compete effectively against the original service provider.[156] Finally, dependence on another carrier's network also reduces the new service provider's ability to control the routing of telephone calls to its customers, thus inhibiting its ability to control the costs of such routing. For these reasons, a long-term number portability method should not require dependency on another carrier's network. We note that this criterion does not prevent individual carriers from determining among themselves how to process calls, including a method by which a carrier voluntarily agrees to use the original service provider's network.[157]

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153 See Numbering Plan Order, 11 FCC Rcd at 2595, 2617, 2629.

154 47 U.S.C. § 153(30).

155 H.R. Rep. No. 204, 104th Cong., 1st Sess., pt. 1, at 72 (1995).

156 AT&T April 24, 1996 Ex Parte Letter at 7-8 (increased call completion time on calls to alternative carriers' networks will likely be incorrectly perceived as reflecting an inferior quality of service, and incumbent carriers may seek to exploit call completion differentials); MCI April 23, 1996 Ex Parte Letter at 1-4 (in interexchange market, competitors can and will use "imperceptible" differences in post dial delay to their marketing advantage).

157 See infra ¶ .

54. We recognize that this criterion will effectively preclude carriers from implementing QOR. Those carriers that oppose QOR argue that it would treat ported and non-ported numbers differently, force reliance on the incumbent LEC's network, increase post-dial delay and the potential for call blocking, result in inefficient routing, create significant network interoperability issues, and delay deployment of a long-term number portability method.[158] There is little evidence in the record to support the claim that allowing carriers to implement QOR would result in significant cost savings. Pacific Bell submitted summary figures indicating that it would save approximately $14.2 million per year assuming that 20 percent of subscribers port their numbers if it implemented QOR.[159] These savings, which represent less than 0.2 percent of Pacific Bell's total annual operating revenues, appear insignificant in relation to the potential economic and non-economic costs to competitors if QOR is used. According to AT&T, using QOR on Lucent switches is more cost effective only if less than 12 percent of subscribers have ported their numbers. Similarly, AT&T asserts that using QOR on Siemens switches is more cost effective only if less than 23 percent of subscribers have ported their numbers.[160] In addition, because carriers using QOR may be required to send a QOR message to another carrier's switch to determine if a customer has transferred the number, the second carrier must have the ability to recognize and respond to the QOR message, which also may increase its costs.[161] Based on the record before us, we conclude that the competitive benefits of ensuring that calls are not routed through the original carrier's network outweigh any cost savings that QOR may bring in the immediate future.

55. Fifth, as a general matter, we require that the implementation of any long-term method not unreasonably degrade existing service quality or network reliability. Consumers, both business and residential, rely on the public switched telephone network for their livelihood, health and safety. Jeopardizing the reliability of the network would stifle business growth and economic development, and endanger individuals' personal safety and convenience. Consumers, both business and residential, have also come to expect a certain level of quality and convenience in using basic telecommunications services. We note that this Commission has repeatedly affirmed its commitment to maintaining service quality and network reliability.[162] We, therefore, require that any long-term method of providing number

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158 See, e.g., AT&T April 24, 1996 Ex Parte Letter at 3-5; MCI April 23, 1996 Ex Parte Letter at 2-4; AT&T May 22, 1996 Ex Parte Filing; AT&T Further Reply Comments at 6; MCI Further Reply Comments at 3-5.

159 Pacific Bell Ex Parte Letter at 7, from Alan F. Ciamporcero, to William Caton, FCC, CC Docket No. 95-116, filed June 6, 1996 (Pacific Bell June 6, 1996 Ex Parte Letter). According to the estimates submitted by Pacific Bell, higher levels of penetration would result in lower levels of cost savings.

160 AT&T Ex Parte Presentation at 4, CC Docket No. 95-116, filed May 30, 1996 (AT&T May 30, 1996 Ex Parte Filing).

161 AT&T May 22, 1996 Ex Parte Filing at 10.

162 See Expanded Interconnection with Local Telephone Company Facilities, Report and Order and

portability not cause any unreasonable degradation to the network or the quality of existing services. This requirement extends to degradation that affects carriers operating, and end users obtaining services, outside as well as within the area of portability.

56. Sixth, once long-term number portability is implemented, we require that customers not experience any degradation of service quality or network reliability when they port their numbers to other carriers. We reiterate that the 1996 Act requires that consumers be able to retain their numbers "without impairment of quality, reliability, or convenience when switching from one telecommunications carrier to another."[163] We interpret this mandate to mean, at a minimum, that when a customer switches carriers, that customer must not experience a greater dialing delay or call set up time, poorer transmission quality, or a loss of services (such as CLASS features) due to number portability compared to when the customer was with the original carrier.[164]

57. Seventh, we require that no carrier have a proprietary interest in any long term method. A telecommunications carrier may not own rights to, or have a proprietary interest in, number portability technology. We believe that the requirement in the 1996 Act that the costs of number portability be borne on a competitively neutral basis precludes carrier ownership of the long-term method, and their collection of licensing or other fees for use of the method.[165] In addition, it would be competitively unfair if a LEC providing portability were to benefit directly, through licensing fees or a proprietary interest, from its competitors' use of portability. We note that one of the first criteria required by the Illinois task force in selecting a number portability method was that it be non-proprietary.[166]

58. Eighth, we require that any long-term method be able to accommodate service and location portability in the future. Although we do not at this time mandate provision of service or location portability, we recognize that service and location portability have certain

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Notice of Proposed Rulemaking, 7 FCC Rcd 7369, 7380 & n.38 (1992); Intelligent Networks, Notice of Proposed Rulemaking, 8 FCC Rcd 6813, 6814 (1993); Network Reliability: A Report to the Nation, Compendium of Technical Papers, presented by the Federal Communications Commission's Network Reliability Council (June 1993) (NRC Report); Policy and Rules Concerning Rates for Dominant Carriers, Second Report and Order, 5 FCC Rcd 6786, 6829-32 (1990); Reform for Local Exchange Carriers Subject to Rate of Return Regulation, 58 Fed. Reg. 36,145 (1993) (to be codified at 47 C.F.R. pts. 61, 65, 69); Provision of Access for 800 Service, Memorandum Opinion and Order on Reconsideration and Second Supplemental Notice of Proposed Rulemaking, 6 FCC Rcd 5421, 5425-26 (1991).

163 47 U.S.C. § 153(30).

164 See AT&T April 24, 1996 Ex Parte Letter at 7 (arguing that method that imposes incremental post-dial delay on calls to ported numbers and not on calls to non-ported numbers violates 47 U.S.C. § 153(30)); MCI April 23, 1996 Ex Parte Letter at 3 (same).

165 We note that AT&T and its former technology division, Lucent Technologies, have forsworn any proprietary interest in LRN. See AT&T Ex Parte Letter at 2, from Gerard Salemme, to Regina Keeney, FCC, CC Docket No. 95-116, filed March 12, 1996 (AT&T March 12, 1996 Ex Parte Letter).

166 Illinois Commerce Commission Ex Parte Presentation at 11, CC Docket No. 95-116, filed June 19, 1996 (ICC June 19, 1996 Ex Parte Filing).

benefits, and we may take steps to implement them in the future if demand for these services develops.[167] As our society becomes increasingly mobile, the importance that consumers attribute to the geographic identity of their telephone numbers may change.[168] It is, therefore, in the public interest to take steps now to ensure that we do not foreclose realization of future economies of scope.

59. Finally, we require that any long-term method not have a significant adverse impact on carriers operating, and end users obtaining services, outside the area of number portability. We believe it is fundamentally unfair to impose any new or different obligations on carriers and customers that do not benefit from service provider portability. Indeed, we are adopting a phased approach to implementation so that number portability is available only in the most populous local markets where competition already has begun to develop or is likely to develop in the near term.[169]

60. We do not believe it is necessary to require that a long-term method utilize existing network infrastructure and functionalities to the extent possible, as some commenting parties have suggested.[170] Minimizing the costs of implementing a long-term method should be in the best interests of all the parties involved in such implementation. This conclusion is also consistent with our tentative conclusion that the carrier-specific costs that are not directly related to number portability must be borne by the individual carriers.[171] Thus, existing local service providers have an incentive to minimize the extent of the necessary modifications and upgrades, as well as the costs of implementing number portability-specific software. Moreover, while new entrants may not need to modify existing networks, they must deploy and build networks with at least the same capabilities as those of the incumbents if they are to provide number portability.

61. We also decline to require carriers that receive ported numbers also to provide portability because we believe the 1996 Act renders such a requirement unnecessary. Specifically, section 251(b)(2) imposes a duty to provide number portability on all LECs -- incumbents as well as new entrants.[172] In light of the fact that the 1996 Act applies this duty across all LECs, establishing a reciprocity performance criterion would be needlessly redundant.

62. Call processing scenarios. We decline to specify the carrier that must perform

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167 See infra ¶¶ -, .

168 See infra ¶ .

169 See infra ¶ .

170 See supra note **Error! Bookmark not defined.**.

171 See infra ¶ .

172 47 U.S.C. § 251(b)(2).

the database query in a database method, because we recognize that individual carriers may wish to determine among themselves how to process calls under alternative scenarios.[173] We therefore leave to local exchange carriers the flexibility to choose and negotiate the scenario that best suits their networks and business plans, as long as they act consistently with the requirements established by this Order. While our criterion requiring carriers to be able to route calls and provide service independently from other carriers' networks may preclude unilateral use of the TAP scenario by a particular carrier, there may be instances where carriers agree to use the TAP scenario, or where the terminating provider is the only carrier capable of performing the database query. In those instances, our performance criterion would not preclude use of the TAP scenario.

63. Rating and billing. Finally, we decline to regulate the rating and billing of local wireline calls to end users in connection with a long-term number portability method. Traditionally, the billing and rating of local wireline calls -- including the establishment of mileage standards, procedures for calling cards, and billing format -- have been left to the purview of the states and the carriers themselves. While several parties have raised rating and billing questions with regard to number portability, we believe that such issues are more properly addressed by the states.[174]

D. Mandate of Number Portability

1. Background

64. In the Notice, we sought comment on the estimated time to design, build, and deploy a long-term service provider number portability system.[175] We also requested that parties address what network and other modifications would be necessary to effect the transition to portability.[176] The 1996 Act mandates that all LECs "provide, to the extent technically feasible, number portability in accordance with requirements prescribed by the Commission."[177]

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173 For explanations of the call processing scenarios, see supra ¶ .

174 This does not limit the Commission's ability to take action with regard to rate centers, however, as rate center issues may affect the efficient administration of numbering resources. Rate centers are defined by the local exchange carrier and approved by the state utility commission. Billing between rate centers is calculated based on the distance between the center points in the rate centers. Because each carrier must have a unique NXX in each rate center in a calling area, a carrier's ability to establish rate centers potentially could contribute to number exhaust.

175 Notice, 10 FCC Rcd at 12371.

176 Id.

177 47 U.S.C. § 251(b)(2).

2. Position of the Parties

65. Mandate Implementation By A Date Certain. The competitive local exchange providers generally contend that the Commission should mandate the availability of number portability by a date certain.[178] The incumbent LECs, however, caution the Commission not to act with undue haste by mandating the implementation of number portability by a date certain.[179] Indeed, BellSouth claims that the 1996 Act's omission of a deadline for implementation indicates Congress's intent not to require a date certain at this time.[180] It adds that the industry must first give careful attention to developing an implementation checklist that will ensure that the necessary tasks for the implementation are properly identified and performed.[181] Instead of establishing a mandatory implementation date, some LECs contend that the Commission should direct an industry body, such as the INC, to determine the most appropriate schedule for deployment of a long-term solution.[182] Other commenters argue that the implementation schedule should be determined by state regulatory bodies.[183] Pacific Bell warns that a Commission-mandated solution at this time would be premature and cites a late proposal introduced by ITN as an illustration that the optimal solution may not yet have been introduced.[184]

66. The wireless industry offers various implementation plans. For instance, PageNet urges the Commission to establish federal guidelines for number portability, and at a specified time in the future, to evaluate the industry's standards using the guidelines through a notice and comment proceeding.[185] However, Omnipoint believes the Commission should act more aggressively in mandating service provider portability by a date certain.[186]

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178 See, e.g., CompTel Comments at 8-9; Jones Intercable Reply Comments at 5, 7; Teleport Comments at 12.

179 See, e.g., BellSouth Reply Comments at 5; NYNEX Comments at 10; SBC Communications Comments at 10; GTE Further Comments at 2, 7-10. See also Cincinnati Bell Comments at 6.

180 BellSouth Further Reply Comments at 4-5.

181 BellSouth Comments at 54-55.

182 See, e.g., id. at 47; NYNEX Comments at 10-11.

183 See e.g., Ameritech Reply Comments at 8; USTA Comments at 6.

184 Pacific Bell Reply Comments at 8. In its comments, ITN proposed a three-stage number portability method which utilizes AIN triggering to query one or more databases which contain customer "profile" information, such as Preferred IXC Carrier identification codes and customer network addresses. ITN Comments at 4-14. ITN's method was proposed for the first time in mid-1995 after a number of other methods had been proposed, and has garnered little industry support, according to the record.

185 PageNet Comments at 5-7.

186 Omnipoint Reply Comments at 9-10.

67. Time Estimates for Deployment. Parties differ on their estimates for deployment. AT&T asserts that virtually all of the equipment vendors participating in the Illinois number portability task force indicate that they can provide most upgrades necessary to implement LRN by the second quarter of 1997.[187] As noted above, Illinois, Georgia, and Colorado plan to deploy LRN in mid-1997.[188] New York also expects to deploy LRN in mid-1997, though deployment in certain AT&T switches is expected to begin earlier.[189] Michigan has ordered that implementation of long-term number portability in Michigan start at the same time that implementation begins in Illinois.[190] BellSouth, however, estimates that three to five years are required to deploy a number portability system that addresses all the necessary issues.[191]

68. Parties also differ on the interpretation of "technically feasible" as that term is used in section 251(b)(2) of the 1996 Act. GTE argues that the term should not be equated with "technically possible" because cost and timing considerations cannot be separated from the concept of technical feasibility.[192] GTE also maintains that no long-term solution proposed is currently technically feasible, since they all require further information on costs, operation, and reliability.[193] Bell Atlantic contends that deploying a system that is technically feasible, but inefficient, may not be consistent with Congress's goal of a "rapid, efficient" telecommunications system.[194] Bell Atlantic and BellSouth also claim that LRN is merely a call handling protocol, as opposed to a technical solution for number portability.[195]

69. In contrast, Time Warner Holdings and Cox argue that "feasible" must be given common dictionary meaning -- "capable of being done, executed or effected" -- and

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187 See, e.g., AT&T Reply Comments at 24; AT&T Further Comments at 6; Sprint Further Comments at 2.

188 CO PUC LNP Order at 2; Ameritech February 21, 1996 Ex Parte Filing at 12, 54; GA PSC Portability Order at 5-7; AT&T Further Comments at 4 n.5, 7; GA PSC Portability Order at 5-7; NARUC April 17, 1996 Ex Parte Filing at 32; Time Warner Holdings February 12, 1996 Ex Parte Filing at 5.

189 NY DPS Portability Trial Report at 4, 6, 7, Attachment at 2.

190 MI PSC Interconnection Order at 43.

191 BellSouth Comments at 54.

192 GTE Further Comments at 4-5; see also Cincinnati Bell Further Reply Comments at 4.

193 GTE Further Reply Comments at 1-5. See also Pacific Bell Further Reply Comments at 2-4; SBC Communications Further Reply Comments at 4.

194 Bell Atlantic Further Reply Comments at 4 (quoting 47 U.S.C. § 151).

195 Id. at 3; BellSouth Further Reply Comments at 3-6. But see ALTS Further Reply Comments at 7-8 (criticizing characterization of LRN as mere addressing scheme or separation of number portability into triggering and routing functions as attempts to increase unnecessarily involvement of incumbent LECs' networks in LRN implementation).

does not mean "commercially available."[196] Time Warner Holdings points out that equal access and 800 number portability proved to be technically feasible even when they were not commercially available.[197] Time Warner Holdings claims, moreover, that LECs control commercial availability because vendors will not develop and manufacture portability methods until LECs demand them.[198] Similarly, Sprint argues that technically feasible does not mean that every operational and regulatory issue must be resolved before any decision on national number portability can be made.[199] Sprint further claims that Congress's use of the phrase "technically feasible" precludes any consideration of economic feasibility.[200] AT&T and MCI argue that LRN is technically feasible, although they do not explicitly address the precise meaning of the statutory language.[201]

70. Phased Implementation. Most parties addressing the implementation of number portability caution against a flash-cut approach (i.e., deployment nationwide simultaneously).[202] USTA argues that because section 251(b)(2) only requires provision of number portability, not deployment of the necessary software and network upgrades, LECs need only deploy portability upon a bona fide request.[203] Most parties, however, recommend that service provider portability be deployed on a per-market basis within a period of time specified by the Commission.[204] For example, Competitive Carriers proposes that service provider portability be implemented in the 100 largest MSAs within 24 months of this Order.[205] Similarly, Sprint proposes that the Commission adopt a phased approach requiring local service providers to deploy a long-term solution upon receipt of a bona fide request from a certified carrier: (1) in the top 100 MSAs by the end of fourth quarter 1997; (2) in the next 135 MSAs, within 3-4 years after this Order is issued; and (3) within any remaining areas, beginning in the fifth year after this Order is issued.[206] Omnipoint maintains that service provider portability should be made available in the top 100 MSAs between October

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196 Time Warner Holdings Further Comments at 4-5 (quoting American Textile Manufacturers Institute v. Donovan, 452 U.S. 490, 509 (1981)); Cox Further Reply Comments at 2 (same).

197 Time Warner Holdings Further Comments at 5. But see Bell Atlantic Further Reply Comments at 2 & n.4 (asserting that (1) AT&T agreed to make equal access available as part of its consent decree arrangement and (2) 800 number portability was commercially in use before the Commission ordered its deployment).

198 Time Warner Holdings Further Comments at 5.

199 Sprint Further Reply Comments at 3-4.

200 Id. at 5-6; see also ALTS Further Reply Comments at 2-3.

201 AT&T Further Reply Comments at 3; MCI Further Reply Comments at 2-3.

202 See, e.g., US West Comments at 22; Illinois Commerce Commission Comments at 9; GTE Further Comments at 8.

203 USTA Further Reply Comments at 7 & n.4.

204 See, e.g., Citizens Utilities Comments at 8, 17; Nextel Comments at 5.

205 Competitive Carriers Comments at 15. See also Jones Intercable Reply Comments at 7-8.

of 1997 and October of 1998,[207] while GO Communications proposes implementation of service provider portability in the major metropolitan areas by early 1997.[208] MFS supports a final cut-over in the 100 largest MSAs by October 1997, with an initial cut-over in the top 35 MSAs on March 31, 1997.[209] It adds that, in order to deploy this capability as competition develops in specific markets, number portability should be implemented by LECs within 18 months of activation of an NXX code in the Local Exchange Routing Guide (LERG) and assignment to a competitor.[210] AT&T has indicated that LRN deployment could begin in the third quarter of 1997 in one MSA in each of the seven BOC regions, followed by deployment in at least three additional MSAs per region during both fourth quarter 1997 and first quarter 1998.[211] Once this initial phase is completed, AT&T suggests that the Commission could require LRN to be deployed in at least four additional MSAs during both second and third quarters 1998, or 105 MSAs total.[212] AT&T's proposed plan would result in deployment of LRN software in a total of 7 MSAs in third quarter 1997, 21 additional MSAs in fourth quarter 1997, 21 additional MSAs in first quarter 1998, 28 additional MSAs in second quarter 1998, and 28 additional MSAs in third quarter 1998.[213] AT&T further asserts that its proposed schedule would require major switch manufacturers to update switch software at a rate of 53 switches per week, and that one major switch manufacturer has claimed that it alone can update 50 switches per week.[214] MCI urges that number portability be deployed in the top 100 MSAs, by population, over a 10 month period beginning no later than June 30, 1997.[215] After implementation is complete in the initial 100 MSAs, MCI recommends that the remaining MSAs be converted based on written requests from carriers filed with the Commission, which may order implementation in a particular MSA to be completed within six months of the request.[216] MCI and Time Warner Holdings also support the notion of requiring number portability implementation within six months of a request of a

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206 Sprint Comments at 11-12; Sprint Reply Comments at 5; Sprint Further Comments at 5, 6. See also Teleport Comments at 12.

207 Omnipoint Reply Comments at 9.

208 GO Communications Reply Comments at 6-7.

209 MFS Comments at 8-9.

210 MFS Further Reply Comments at 4.

211 AT&T April 24, 1996 Ex Parte Letter at 2.

212 Id.

213 Id.

214 AT&T May 30, 1996 Ex Parte Filing at 3.

215 MCI June 19, 1996 Ex Parte Letter at 1. MCI recommends a schedule requiring implementation in particular MSAs each month. See id. at 1.

216 Id. at 1.

telecommunications carrier.[217] Finally, Ameritech argues it is premature to set a deployment schedule for LRN because there are several operational issues yet to be resolved.[218] It further argues that schedules proposed by various carriers are too aggressive and exceed the resources of the industry.[219]

71. Switch vendors assert that LRN software will be generally available for service providers to deploy in 1997. Lucent Technologies plans general availability of LRN software for March 21, 1997, for its 1A ESS switch; March 31, 1997, for its 5ESS-2000 switch; and May 1, 1997, for its 4ESS switch.[220] Lucent asserts that, after the new software becomes generally available, it will be able to support up to 50 software release updates per week for the 5ESS and 1A ESS switches for North America (each release update upgrades the software for one switch).[221] Nortel states that its LRN software will be available in the second quarter of 1997 for its DMS-100, DMS-200, and DMS-500 switches, and will be available in the third quarter of 1997 for its DMS-10 and TOPS switches.[222] Siemens Stromberg-Carlson asserts that its LRN software will be available for testing on its EWSD switch in its Release 14.E generic in October 1996, and will be generally available in the first quarter of 1997.[223] Siemens further claims that upgrades to EWSD switches deployed within the top 100 MSAs can be completed within five months of the date of general availability.[224] Ericsson asserts that its LRN software for Ericsson SCPs[225] will be generally available in the second quarter of 1997, and that its LRN software for Ericsson SSPs[226] will be generally available in the third quarter of 1997.[227] Ericsson expects that 6-7 switch upgrades can be accomplished each week, with each upgrade taking 3-4 days.[228]

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217 See id. (arguing for requiring provision of number portability in areas outside of 100 largest MSAs within six months of a request); Time Warner Holdings Comments at 14-16 (arguing for requirement that number portability be provided within six months after request of another telecommunications carrier); Time Warner Holdings Ex Parte Presentation at 3, CC Docket No. 95-116, filed February 26, 1996 (Time Warner Holdings Feb. 26, 1996 Ex Parte Filing).

218 Ameritech Further Reply Comments at 3-4.

219 Id. at 4-5.

220 Lucent May 20, 1996 Ex Parte Letter at 1.

221 Id. at 2.

222 Nortel May 29, 1996 Ex Parte Letter at 1-2.

223 Siemens May 20, 1996 Ex Parte Letter at 1.

224 Id. at 2.

225 For a definition of SCP, see infra note **Error! Bookmark not defined.**.

226 A service switching point (SSP) is a stored-program controlled switching system that has the functional capability to differentiate intelligent network calls and interact with SCPs.

227 Ericsson May 21, 1996 Ex Parte Letter at 1.

72. The Illinois Commerce Commission argues that a phased approach -- implementing number portability in those areas where local competition is developing -- may be more cost-effective and more feasible technically than a nationwide uniform deadline.[229] Similarly, US West contends that a nationwide uniform deadline for service provider portability is neither practical nor necessary due to differing levels of competition.[230] Sprint asserts that a phased implementation will accommodate the concerns of the small LECs, arguing that a phased approach best balances the need for rapid deployment with the capital constraints facing individual carriers.[231] Nextel asserts that a phased approach is more efficient because it results in the introduction of number portability where the demand for service provider portability is greatest.[232] Bell Atlantic and US West contend that state agencies should determine when and where service provider portability should be introduced within their respective jurisdictions. Alternatively, US West suggests that the Commission could use the same approach to implementing service provider portability that it adopted in implementing equal access for independent LECs.[233]

73. Rural and Small LEC Exemption. In comments filed prior to passage of the 1996 Act, GVNW, TDS Telecom, NECA, and OPASTCO argue that, if the Commission mandates the implementation of number portability, it should exempt small and rural LECs from such a mandate.[234] GNVW, NECA, and NTCA claim that the demand for service provider portability is significantly less in areas served by rural and small LECs because local exchange competition is not likely to develop there soon, if at all.[235]

3. Discussion

74. Section 251(b) requires that all local exchange carriers, as defined by section 153(26), "provide, to the extent technically feasible, number portability in accordance with requirements prescribed by the Commission."[236] We believe that requiring implementation of long-term number portability by a date certain is consistent with the 1996 Act's requirement

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228 Id.

229 Illinois Commerce Commission Comments at 9.

230 US West Comments at 22-23.

231 Sprint Comments at 12.

232 Nextel Comments at 5. See also Pacific Bell Comments at 25.

233 Bell Atlantic Comments at 11; US West Comments at 23.

234 See GVNW Comments at 7; OPASTCO Comments at 10; NECA Comments at 2; TDS Telecom Comments at 2-3, 5, 9 (arguing that the Commission must be able to point to nationwide public benefits stemming from number portability before rural, residential, and small business customers are burdened with the costs of portability).

235 See, e.g., GVNW Comments at 2; NECA Comments at 2; NTCA Comments at 1-2.

236 47 U.S.C. §§ 153(26), 251(b)(2).

that LECs provide number portability as soon as they can do so and will advance the 1996 Act's goal of encouraging competition in the local exchange market.[237] The record indicates that at least one long-term method will be available for deployment in mid-1997.

75. We decline the suggestion of some parties that we direct an industry body to determine an appropriate implementation plan. The INC has been analyzing the issues surrounding number portability for over two years. Delegating responsibility for number portability implementation to an industry group such as the INC would unnecessarily delay implementation of number portability. Similarly, we reject BellSouth's arguments in favor of delaying implementation for three to five years. We believe such a delay is inconsistent with the 1996 Act's requirement that LECs make number portability available when doing so is technically feasible, as well as with the pro-competitive goals of the 1996 Act, and would not serve the public interest.

76. Carriers filing comments in this proceeding have suggested various deployment schedules, with most suggesting deployment within two years of a Commission order or sooner.[238] According to current schedules in Illinois, Georgia, Colorado, Maryland, and New York, AT&T's LRN method is scheduled for deployment (most likely excluding necessary field testing) beginning in mid-1997.[239] Thus, the record indicates that one method for providing number portability will be available in mid-1997.

77. Pursuant to our statutory authority under the 1996 Act, we require local exchange carriers operating in the 100 largest MSAs to offer long-term service provider portability commencing on October 1, 1997, and concluding by December 31, 1998, according to the deployment schedule set forth in Appendix F.[240] We require deployment in one MSA in each of the seven BOC regions by the end of fourth quarter 1997, 16 additional MSAs by the end of first quarter 1998, 22 additional MSAs by the end of second quarter 1998, 25 additional MSAs by the end of third quarter 1998, and 30 additional MSAs by the end of fourth quarter 1998.[241] As a practical matter, this obligation requires LECs to provide number portability to other telecommunications carriers providing local exchange or exchange access service within the same MSA. This schedule is consistent with switch vendor estimates that software for at least one long-term number portability method will be generally available for deployment by carriers around mid-1997, and with the schedule

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237 47 U.S.C. § 251(b)(2).

238 See, e.g., AT&T April 24, 1996 Ex Parte Letter at 2; Citizens Utilities Comments at 8, 17; Competitive Carriers Comments at 15; GO Communications Reply Comments at 6-7; Jones Intercable Reply Comments at 7-8; MCI June 19, 1996 Ex Parte Letter; MFS Comments at 8-9; Omnipoint Reply Comments at 9-10; Teleport Comments at 12.

239 See supra ¶ .

240 See infra app. D for list of 100 largest MSAs.

241 See infra app. F.

proposed by AT&T.[242] One major switch manufacturer has claimed that it alone can support the deployment of number portability software in 50 switches per week.[243] We conclude that a schedule consistent with AT&T's proposed schedule, which would require all of the major switch manufacturers collectively to update switch software at a total rate of 53 switches per week, appears workable.

78. We note that, in establishing this schedule, we have relied upon representations of switch vendors concerning the dates by which the necessary switching software will be generally available.[244] As a result, our deployment schedule depends directly upon the accuracy of those estimates and the absence of any significant technical problems in deployment. We delegate authority to the Chief, Common Carrier Bureau, to monitor the progress of local exchange carriers implementing number portability, and to direct such carriers to take any actions necessary to ensure compliance with this deployment schedule. We expect that the industry will work together to resolve any outstanding issues, technical or otherwise, which are involved with providing long-term number portability in accordance with our requirements and deployment schedule. We note that while we prescribe the time constraints within which LECs must implement number portability, we strongly encourage carriers to provide such portability before the Commission-imposed deadlines.

79. In addition, we direct the carriers that are members of the Illinois Local Number Portability Workshop to conduct a field test of LRN or another technically feasible long-term number portability method that comports with our performance criteria concluding no later than August 31, 1997.[245] We select the Chicago area for the field test because the record indicates that the Illinois workshop was responsible for drafting requirements for switching software currently being developed by switch manufacturers. Because of the significant work which has been done on behalf of the Illinois workshop, we believe the Chicago area is the best site within which to conduct a field test. The field test should encompass both network capability and billing and ordering systems, as well as maintenance arrangements. We delegate authority to the Chief, Common Carrier Bureau, to monitor developments during the field test. We further direct that the carriers participating in the test jointly file with the Bureau a report of their findings within 30 days following completion of the test. While we do not routinely order field testing of telecommunications technologies as part of rulemaking proceedings, we have a significant interest in ensuring the integrity of the public switched network as number portability is deployed nationwide. We believe a field

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242 See supra ¶ ; AT&T April 24, 1996 Ex Parte Letter at 2.

243 See AT&T May 30, 1996 Ex Parte Letter at 3; Lucent May 20, 1996 Ex Parte Letter at 2.

244 See supra ¶ .

245 We note that the following carriers are currently members of the Illinois Local Number Portability Workshop: Ameritech-Illinois, GTE North, GTE South, Central Telephone Company of Illinois, AT&T Communications, MCI Telecommunications, Sprint Communications, MCI Metro Transmission Services, MFS Intelenet of Illinois, Teleport Communications Group, and Southwestern Bell Mobile Systems. See Ameritech et al. May 8, 1996 Joint Ex Parte Letter at 1 n.2. This directive would also apply to any carrier that joins the workshop after release of this Order.

test will help to identify technical problems in advance of widespread deployment, thereby safeguarding the network.

80. After December 31, 1998, each LEC must make long-term number portability available in smaller MSAs within six months after a specific request by another telecommunications carrier in the areas in which the requesting carrier is operating or plans to operate. Telecommunications carriers may file requests for number portability beginning January 1, 1999. Such requests should specifically request long-term number portability, identify the discrete geographic area covered by the request, and provide a tentative date six or more months in the future when the carrier expects to need number portability in order to port prospective customers.

81. We believe that this deployment schedule is consistent with the requirements of sections 251(b)(2) and (d), which give the Commission responsibility for establishing regulations regarding the provision of number portability to the extent technically feasible.[246] As the record indicates, long-term number portability requires the use of one or more databases.[247] Such databases have yet to be deployed. As indicated above, the methods for providing long-term number portability that would satisfy our criteria require the development of new switching software that is not currently available, but is under development. The record indicates, however, that at least one method of long-term number portability will be technically feasible by mid-1997. Requiring number portability to be fully operational in the largest 100 MSAs by December 31, 1998, would allow a reasonable amount of time to install the appropriate generic and application software in the relevant switches.[248] Moreover, such a phased deployment is preferable to implementing nationwide number portability simultaneously in all markets (or implementing this service in multiple large MSAs at the same time) because a phased deployment would be less likely to impose a significant burden on those carriers serving multiple regions of the country.[249] Specifically, our phased approach spreads the implementation over 15 months, thus easing the burden on carriers serving multiple regions by limiting the number of MSAs in which implementation is required during a particular calendar quarter. In addition, the burden on such carriers should be less than that upon carriers in smaller markets because the latter may be required to undertake hardware upgrades whereas larger carriers may already have upgraded their switches. Our phased approach would also avoid the potential strain on vendors caused by implementation in all the largest 100 MSAs on or around a single date, as well as help to safeguard the integrity of the public switched telephone network.

82. In addition, we believe that our phased implementation of long-term number portability is in the public interest and supported by the record. Our phased deployment

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246 47 U.S.C. § 251(b)(2), (d).

247 See infra ¶ .

248 See supra ¶ .

249 See US West Comments at 22; Illinois Commerce Commission Comments at 9.

schedule takes in account the differing levels of local exchange competition that are likely to emerge in the different geographic areas throughout the country. Thus, our deployment schedule is designed to ensure that number portability will be made available in those regions where competing service providers are likely to offer alternative services. We believe that competitive local service providers are likely to be providing service in the major metropolitan areas soon.[250] In those areas beyond the 100 largest MSAs, however, the actual pace of competitive entry into local markets should determine the need for service provider portability. We therefore agree with those parties that argue that, in markets outside of the 100 largest MSAs, long-term number portability should be deployed within six months of a specific request from another telecommunications provider.[251] We believe a six-month interval is appropriate given the more significant network upgrades that may be necessary for carriers operating in these smaller areas.

83. We note that the 1996 Act exempts rural telephone companies from the "duty to negotiate . . . the particular terms and conditions of agreements to fulfill the [interconnection] duties" created by the 1996 Act, including the provision of number portability, and that carriers satisfying the statutory criteria contained in section 251(f) may be exempt from the obligations to provide number portability as set forth herein.[252] In addition, section 251(f)(2) permits a LEC with fewer than two percent of the country's total installed subscriber lines to petition a state commission for suspension or modification of the requirements of section 251.[253] In our recent notice of proposed rulemaking implementing sections 251 and 252 of the Communications Act, we address the application of this statutory exemption, and we believe that specific application of such provisions is best addressed in that proceeding.[254] We intend to establish regulations to implement these provisions by early August 1996, consistent with the requirements of section 251(d).[255]

84. In our Second Further Notice of Proposed Rulemaking on Billed Party

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250 Competition has already begun in several MSAs. See Teleport Ex Parte Letter at 1-4, from Paul Kouroupas, to William Caton, FCC, CC Docket No. 95-116, filed Mar. 29, 1996 (Teleport March 29, 1996 Ex Parte Letter). AT&T has applied for certification in all 50 states. AT&T Ex Parte Letter at 2, from Frank Simone, to William F. Caton, FCC, CC Docket No. 95-116, filed Mar. 29, 1996 (AT&T March 29, 1996 Ex Parte Letter).

251 See MCI June 19, 1996 Ex Parte Letter (arguing in favor of requiring provision of number portability in areas outside of 100 largest MSAs within six months of a request); Time Warner Holdings Comments at 14-16 (arguing in favor of requirement that number portability be provided within six months after request of another telecommunications carrier); Time Warner Holdings February 26, 1996 Ex Parte Filing at 3.

252 See 47 U.S.C. § 251(c), (f).

253 47 U.S.C. § 251(f)(2).

254 Interconnection NPRM at ¶¶ 260-261.

255 47 U.S.C. § 251(d)(1) (mandating that Commission implement requirements of section 251 within six months of enactment of 1996 Act).

Preference (BPP), we stated that the Commission would further consider the feasibility of implementing BPP in the upcoming proceeding to implement the 1996 Act's local number portability requirements in section 251(b)(2).[256] We recognize that our deployment schedule may have implications for the provision of BPP, the ability of a customer to designate in advance which Operator Service Provider (OSP) should be billed when that customer makes a call from a pay telephone. This capability may involve querying a database, similar to the proposed long-term number portability methods. In the BPP Second Further Notice, we noted that the record indicated that the cost of BPP would likely be substantial, and we sought comment on the costs of requiring OSPs to disclose their rates for 0+ calls in a variety of circumstances. In that Notice, we reaffirmed our belief that BPP would generate significant benefits for consumers, but stated that, at this time, unless local exchange providers were required to install the facilities needed to perform database queries for number portability purposes, the incremental cost to query the database for the customer's preferred OSP would outweigh the potential incremental benefits that BPP would provide.[257] While we continue to recognize the benefits that could be achieved through such an approach, we note that creating the capability for all LECs to query OSP databases would require a uniform deadline to nationwide number portability which, for the reasons discussed above, is not in the public interest. Nonetheless, as indicated by our deployment schedule, LECs in the 100 largest MSAs will be required to install the capability to query number portability databases by December 31, 1998, which could then potentially be utilized for BPP in those markets.

85. Finally, we delegate to the Chief, Common Carrier Bureau, the authority to waive or stay any of the dates in the implementation schedule, as the Chief determines is necessary to ensure the efficient development of number portability, for a period not to exceed 9 months (i.e., no later than September 30, 1999). In the event a carrier is unable to meet our deadlines for implementing a long-term number portability method, it may file with the Commission, at least 60 days in advance of the deadline, a petition to extend the time by which implementation in its network will be completed. We emphasize, however, that carriers are expected to meet the prescribed deadlines, and a carrier seeking relief must present extraordinary circumstances beyond its control in order to obtain an extension of time. A carrier seeking such relief must demonstrate through substantial, credible evidence the basis for its contention that it is unable to comply with our deployment schedule. Such requests must set forth: (1) the facts that demonstrate why the carrier is unable to meet our 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) 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.

E. Database Architecture and Administration

256 Billed Party Preference for InterLATA 0+ Calls, Second Further Notice of Proposed Rulemaking, CC Docket No. 92-77, FCC 96-253, ¶ 4 (rel. June 6, 1996) (BPP Second Further Notice).

257 Id.

1. Background

86. In the Notice, we sought comment on the type of database architecture that would best serve the public interest and the technical feasibility of deploying a single national database or a series of regionally distributed databases.[258] We also sought comment on the type of information that should be contained within such database(s) and who should have access to such database(s).[259] Finally, we sought comment on administration of the number portability database(s), i.e., who should administer and maintain the database(s), how should they be funded, how should the administrator(s) be selected, and what responsibilities should the administrator(s) be given.[260]

2. Position of the Parties

87. Many parties assert that any long-term number portability solution will require the use of one or more databases.[261] Jones Intercable states that use of a database solution: (1) makes numbering information available to numerous competing carriers; (2) provides the platform to offer other types of number portability; and (3) permits the deployment of other advanced services.[262] ACTA, AT&T, and Citizens Utilities assert that the database architecture of a long-term solution should resemble the architecture used for the toll free database, but with databases distributed on a regional basis.[263] US Intelco and MCI note that multiple, regional databases, rather than one national database, will be necessary to process the data for all portable geographic numbers.[264] Only Scherers Communications claims that a single national database will be able to accommodate all portable numbers, geographic and non-geographic, and will ensure consistency and cost efficiency.[265]

88. AT&T and several BOCs support the ability of individual carriers to download information from the regional databases to routing systems associated with their own

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258 Notice, 10 FCC Rcd at 12367.

259 Id.

260 Id. at 12367-68.

261 ACTA Comments at 10; General Communication Comments at 5; GO Communications Comments at 6. See also Seattle LANP Trial Comments at 3.

262 Jones Intercable Reply Comments at 8.

263 ACTA Comments at 10; AT&T Comments at 17; Citizens Utilities Comments at 14.

264 MCI Comments at 19; US Intelco Comments at 6. See also Citizen Utilities Comments at 14 (adding that it is not feasible to expand the 800 database or its architecture to include local number portability given the magnitude of such an undertaking).

265 Scherers Communications Comments at 2.

networks, i.e., downstream databases.[266] Several other parties add that access to the regional databases must be open, and carriers, individually or collectively, must be permitted to develop routing databases that obtain information from the regional databases.[267] ITN contends that an architecture of regionally-deployed SCPs which correspond to blocks of NPA-NXXs would give carriers the option of maintaining their own customer records or having a third party provider perform such functions.[268] It adds that such openness in data management will help ensure number portability to all service providers, including providers of service to end users and various other intelligent network service providers.[269]

89. Almost all parties, incumbent LECs and new entrants, support administration of the database(s) by a neutral third party.[270] MFS adds that the operator of a number portability database must not be able to gain a competitive advantage by manipulating the data or controlling access to the database.[271] ACTA urges that the database administrator be a non-profit organization selected through a competitive bidding process that excludes LECs and IXCs, with responsibilities established by the North American Numbering Plan Administrator (NANPA).[272]

90. Competitive Carriers assert that the database(s) should include only service provider portability-specific information, and that the carriers using the database should be responsible for the integrity of these data.[273] Teleport claims that an industry group should determine the contents of any distributed databases, subject to the Commission's criteria.[274] The Texas Advisory Commission also asserts that the database(s) should easily integrate with 911 databases.[275]

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266 See, e.g., AT&T Comments at 17; BellSouth Reply Comments at 17; Pacific Bell Comments at 11. For definitions of SMS and SCP, see infra note **Error! Bookmark not defined.**.

267 See, e.g., General Communication Comments at 5; MCI Comments at 17; NCTA Comments at 11.

268 ITN Comments at 18-20.

269 Id.

270 See, e.g., AT&T Comments at 34; Omnipoint Reply Comments at 8; SBC Communications Comments at 23.

271 MFS Comments at 13.

272 ACTA Comments at 11-12. See also BellSouth Reply Comments at 20-21.

273 Competitive Carriers Comments at 18. See also General Communication Comments at 5.

274 Teleport Comments at 9.

275 Texas Advisory Commission Comments at 3.

3. Discussion

91. Section 251(b) directs the Commission to establish requirements governing the provision of number portability without specifically addressing the appropriate database architecture necessary for long-term number portability.[276] We find that an architecture that uses regionally-deployed databases best serves the public interest and is supported by the record.[277] The deployment of multiple regional databases will facilitate the ability of LECs to provide number portability by reducing the distance that such carriers will have to transmit carrier routing information. This, in turn, should reduce the costs of routing telephone calls based on such data. Moreover, a nationwide system of regional databases would relieve individual carriers of the burden of deploying multiple number portability databases over various geographic areas. A regionally-deployed database system will ensure that carriers have the number portability routing information necessary to route telephone calls between carriers' networks, and will also promote uniformity in the provision of such number portability data. We agree with those parties arguing that one national number portability database is not feasible. The potential amount of information that such a database would be required to process would, according to parties in this proceeding, likely become overwhelming as number portability is deployed nationwide.[278]

92. We also conclude that it is in the public interest for the number portability databases to be administered by one or more neutral third parties. Both the record and the Commission's recent decision to reorganize the administration of telephone numbers under the NANP support neutral third party administration of these facilities.[279] We also note that section 251(e)(1) requires the Commission to "create or designate one or more impartial entities to administer telecommunications numbering and to make such numbers available on an equitable basis."[280] Neutral third party administration of the databases containing carrier routing information will facilitate entry into the communications marketplace by making numbering resources available to new service providers on an efficient basis. It will also facilitate the ability of local service providers to transfer new customers by ensuring open and efficient access for purposes of updating customer records. As we stated above, the ability to transfer customers from one carrier to another, which includes access to the data necessary to perform that transfer, is important to entities that wish to compete in the local telecommunications market.[281] Neutral third party administration of the carrier routing information also ensures the equal treatment of all carriers and avoids any appearance of

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276 See 47 U.S.C. § 251(b)(2).

277 See, e.g., ACTA Comments at 10; AT&T Comments at 17; US Intelco Comments at 6.

278 See MCI Comments at 19; US Intelco Comments at 6.

279 See, e.g., ACTA Comments at 11-12; MFS Comments at 13; Omnipoint Reply Comments at 8; Numbering Plan Order, 11 FCC Rcd at 2596, 2604, 2609, 2613.

280 47 U.S.C. § 251(e)(1).

281 See supra ¶¶ -.

impropriety or anti-competitive conduct.[282] Such administration facilitates consumers' access to the public switched network by preventing any one carrier from interfering with interconnection to the database(s) or the processing of routing and customer information. Neutral third party administration would thus ensure consistency of the data and interoperability of number portability facilities, thereby minimizing any anti-competitive impacts.[283]

93. We hereby direct the NANC to select as a local number portability administrator(s) (LNPA(s)) one or more independent, non-governmental entities that are not aligned with any particular telecommunications industry segment within seven months of the initial meeting of the NANC.[284] Selection of the LNPA(s) falls within the duties we established for the NANC in the Numbering Plan Order and the NANC Charter.[285] The NANC charter describes the scope the NANC's activities:

> The purpose of the [NANC] is to advise the [Commission] and to make recommendations, reached through consensus, that foster efficient and impartial number administration. The [NANC] will develop policy on numbering issues, initially resolve disputes, and select and provide guidance to the North American Numbering Plan Administrator.[286]

The fundamental purpose of the NANC is to act as an oversight committee with the technical and operational expertise to advise the Commission on numbering issues.[287] The Commission has already directed the NANC to select a NANPA. We believe the designation of a centralized entity to select and oversee the LNPA(s) is preferable to ensure consistency and to provide a national perspective on number portability issues, as well as to reduce the costs of implementing a national number portability plan.

94. We believe that the NANC is especially well-situated to handle matters relating to local number portability administration because of its similarity to the administration of central office codes. Both functions rely heavily on the use of databases, and both involve administration of NANP resources, only at different levels. Administration of number portability data is essentially the administration of telephone numbers (as opposed to NXX codes) between different carriers.

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282 Numbering Plan Order, 11 FCC Rcd at 2595-96; Proposed 708 Relief Plan and 630 Numbering Plan Area Code by Ameritech - Illinois, 10 FCC Rcd 4596, 4604, recon. pending (1995).

283 Numbering Plan Order, 11 FCC Rcd at 2595-96.

284 Only the United States participants in the NANC shall be involved in the selection of the LNPA(s).

285 Numbering Plan Order, 11 FCC Rcd at 2609.

286 Charter of the North American Numbering Council, approved Oct. 5, 1995, on file with Network Services Division, Common Carrier Bureau, FCC. See also FCC Requests Nominations for Membership on the North American Numbering Council Advisory Committee, 10 FCC Rcd 9991 (1995).

287 Numbering Plan Order, 11 FCC Rcd at 2609.

95. We believe that the NANC should determine, in the first instance, whether one or multiple administrators should be selected, whether LNPA(s) can be the same entity selected to be the NANPA, how the LNPA(s) should be selected, the specific duties of the LNPA(s), and the geographic coverage of the regional databases. Once the NANC has selected the LNPA(s) and determined the locations of the regional databases, it must report its decisions to the Commission. The NANC should also determine the technical interoperability and operational standards, the user interface between telecommunications carriers and the LNPA(s), and the network interface between the SMS and the downstream databases. Finally, the NANC should develop the technical specifications for the regional databases, e.g., whether a regional database should consist of a service management system (SMS) or an SMS/SCP pair.[288] In reaching its decisions, the NANC should consider the most cost-effective way of accomplishing number portability. We note that it will be essential for the NANPA to keep track of information regarding the porting of numbers between and among carriers. We thus believe it necessary for the NANC to set guidelines and standards by which the NANPA and LNPA(s) share numbering information so that both entities can efficiently and effectively administer the assignment of the numbering resource. For example, the NANC might require that the databases easily integrate with 911 databases.

96. We recognize that authorizing the NANC to select a LNPA(s) may have an impact on Illinois's April 1996 selection of Lockheed-Martin as the administrator of the Illinois SMS, as well as the Maryland and Colorado task forces' plans to release their RFPs for their SMS administrators in the second quarter of 1996.[289] Therefore, in light of these and other ongoing efforts by state commissions, we conclude that any state that prefers to develop its own statewide database rather than participate in a regionally-deployed database may opt out of its designated regional database and implement a state-specific database.[290] We direct the Chief, Common Carrier Bureau, to issue a Public Notice that identifies the administrator selected by the NANC and the proposed locations of the regional databases. A state will have 60 days from the release date of the Public Notice to notify the Common Carrier Bureau and NANC that the state does not wish to participate in the regional database system for number portability. Carriers may challenge a state's decision to opt out of the regional database system by filing a petition with the Commission. Relief will be granted if the petitioner can

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[288] An SMS is a database or computer system not part of the public switched network that, among other things: (1) interconnects to an SCP and sends to that SCP the information and call processing instructions needed for a network switch to process and complete a telephone call; and (2) provides telecommunications carriers with the capability of entering and storing data regarding the processing and completing of a telephone call.

An SCP is a database in the public switched network which contains information and call processing instructions needed to process and complete a telephone call. The network switches access an SCP to obtain such information. Typically, the information contained in an SCP is obtained from the SMS.

[289] See Ameritech May 15, 1996 Ex Parte Filing at 3; MD PSC Report at app. 1 at 17; CO PUC May 9, 1996 News Release; CO PUC May 29, 1996 News Release.

[290] See 47 U.S.C. § 251(d)(3).

demonstrate that the state decision to opt out would significantly delay deployment of permanent number portability or result in excessive costs to carriers. We note that state databases would have to meet the national requirements and operational standards recommended by the NANC and adopted by this Commission. In addition, such state databases must be technically compatible with the regional system of databases and must not interfere with the scheduled implementation of the regional databases.

97. We further note that any administrator selected by a state prior to the release of this Order that wishes to bid for administration of one of the regional databases must submit a new proposal in accordance with the guidelines established by the NANC. We emphasize that nothing in this section affects any other action that the Commission may take regarding the delegation and transfer of functions related to number administration. We delegate authority to the Chief, Common Carrier Bureau, to monitor the progress of the NANC in selecting the LNPA(s) and in developing and implementing the database architecture described above.

98. We believe that telecommunications carriers should have open access to all regional databases. Just as we conclude all carriers must have equal access to any long-term number portability method, and that no portion of a long-term number portability method should be proprietary to any carrier, we further conclude that all carriers must have equal and open access to all regionally-deployed databases containing number portability-specific data. Allowing particular carriers access to the databases over others would be inherently discriminatory and anti-competitive. All carriers providing number portability need to have access to all relevant information to be able to provide customers with this important capability. We thus conclude that the 1996 Act, in addition to general rules of equity and competitive neutrality, requires equal and open access to all regionally-deployed databases for all carriers wishing to interconnect.

99. We believe that, at this time, the information contained in the number portability regional databases should be limited to the information necessary to route telephone calls to the appropriate service providers. The NANC should determine the specific information necessary to provide number portability. To include, for example, the information necessary to provide E911 services or proprietary customer-specific information would complicate the functions of the number portability databases and impose requirements that may have varied impacts on different localities.[291] For instance, because different localities have adopted different emergency response systems, the regional databases would have to be configured in such a fashion as to provision the appropriate emergency information to each locality's particular system. Similarly, special systems would need to be developed to restrict access to proprietary customer-specific information. In either instance, the necessary programming to add such capabilities to the regional databases would complicate the functionality of those databases.

100. Because we require open access to the regional databases, it would be

[291] Marion County Comments at 1-2; NENA Reply Comments at 1-3; US West Comments at 18.

inequitable to require carriers to disseminate, by means of those databases, proprietary or customer-specific information. We therefore contemplate that the regional deployment of databases will permit individual carriers to own and operate their own downstream databases. These carrier-specific databases will allow individual carriers to provide number portability in conjunction with other functions and services. To the extent that individual carriers wish to mix information, proprietary or otherwise, necessary to provide other services or functions with the number portability data, they are free to do so at their downstream databases. We reiterate, however, that a carrier may not withhold any information necessary to provide number portability on the grounds that such data are combined with other information in its downstream database; it must furnish all information necessary to provide number portability to the regional databases as well as to its own downstream database.

101. Carriers that choose not to access directly the regional databases or deploy their own downstream databases can seek access to the carrier-specific databases deployed by other carriers. The provision of access to network elements and facilities of incumbent LECs is addressed in our proceeding implementing section 251 of the Communications Act.[292] We believe the issue of access to incumbent LECs' carrier-specific databases by other carriers for purposes of number portability is best addressed in that proceeding. Parties may negotiate third-party access to non-incumbent LECs' carrier-specific databases on an individual basis.

102. In the Numbering Plan Order, we concluded that the Commission should invoke its statutory authority to recover its costs for regulating numbering activities, including costs incurred from the establishment, oversight of, and participation in the NANC.[293] The Commission is required to institute a rulemaking proceeding annually to adjust the schedule of regulatory fees to reflect its performance of activities relating to enforcement, policy and rulemaking, user information services, and international activities, pursuant to the relevant appropriations legislation.[294] Therefore, we intend to include the additional costs incurred by the Commission related to NANC and regulating number portability in the fiscal 1997 adjustment of the schedule of regulatory fees. In that proceeding, we will assess the nature and amount of the additional burdens imposed by the activities authorized here, and all interested parties will be afforded an opportunity to comment.

F. Currently Available Number Portability Measures

1. Background

103. In the Notice, we discussed certain currently available number portability measures that LECs can use to provide service provider number portability. We focused on

292 Interconnection NPRM at ¶¶ 107-16; see generally id. at II.B.2.c.

293 47 U.S.C. § 152; Numbering Plan Order, 11 FCC Rcd at 2623.

294 47 U.S.C. § 159(b)(2).

RCF and DID and acknowledged that the use of either method for number portability has significant limitations.[295] We sought comment on the costs of implementing these measures, and on their limitations and disadvantages.[296] We also requested that parties discuss whether these currently available measures can be improved so that they are workable, long-term solutions, and if so, at what cost.[297] Finally, we sought comment on how the costs of providing service provider portability using RCF and DID should be recovered.[298]

2. Implementation of Currently Available Number Portability Measures

a. Positions of the Parties

104. Commenting parties, with the exception of several of the incumbent LECs, generally agree that the technical limitations described in the Notice render the interim measures unacceptable in the long term.[299] Indeed, many parties point out additional disadvantages of RCF and DID, such as: longer call set-up times, incumbent access to competitors' proprietary information, complicated resolution of customer complaints, increased potential for call blocking, and substantial costs to new entrants.[300] Bell Atlantic counters that calls forwarded by RCF in its network can support CLASS features if the co-carrier has modern digital switching equipment and common channel signalling, and it adds that there is no limit on the number of calls RCF can handle simultaneously.[301]

105. Many of the new entrants, nevertheless, urge the Commission to require

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295 Notice, 10 FCC Rcd at 12369-70. The limitations of RCF described in the Notice include: (1) significant strain on number plan administration and contribution to area code exhaustion; (2) failure to support several custom local area signalling services and other vertical features, and possible degradation of transmission quality; (3) limits on the number of calls to customers of the same competing service provider that can be handled at any one time; (4) preclusion of efficient routing of calls by competing networks since the incumbent LEC is always involved in the routing of calls even to a customer who has chosen to change to another provider; and (5) recovery of interstate access charges from IXCs by the LEC instead of the competing local service provider. Id. at 12369. DID has many of the same limitations as RCF, such as the inability to support certain CLASS features, the possible degradation of transmission quality, and limits on how many calls can be processed at any one time. Id. at 12369-70.

296 Id. at 12370.

297 Id.

298 Id. at 12371.

299 See, e.g., Cablevision Lightpath Reply Comments at 8-10; Competitive Carriers Comments at 18-19; General Communications Comments at 4. Cf. Bell Atlantic Comments at 5-7; NYNEX Comments at 7, 9.

300 See, e.g., Cablevision Lightpath Reply Comments at 10; Teleport Comments at 7; MCI Comments at 22.

301 Bell Atlantic Comments at 5-7.

incumbent LECs to provide interim measures until a long-term solution is implemented.[302] These carriers generally caution that use of interim solutions should not delay implementation of a permanent solution.[303] While acknowledging that RCF and DID are already technically feasible and generally available, several LECs argue that the Commission need not take action on interim measures.[304] They generally focus, instead, on phasing in a long-term solution.[305]

106. AT&T and MCI initially argued for using a medium-term database solution, namely, the Carrier Portability Code (CPC) method,[306] because of its advantages over RCF or DID,[307] but subsequently favored implementing LRN as soon as possible.[308] NYNEX and SBC Communications claim that adopting CPC as an interim solution would result in wasted and duplicative efforts. They note that CPC fails to support certain services, such as ISDN calls, pay phone calls, and CLASS features when customers place a call into an NXX from which a number has been transferred to a different service provider, and that CPC may prevent an operator from identifying the switch serving a "ported" number, thereby interfering with busy line verification of that line.[309]

107. Potential new entrants into the local exchange market generally contend that

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302 See, e.g., NCTA Comments at 12; MCI Reply Comments at 13; Telecommunications Resellers Comments at 16. See also Competitive Carriers Comments at 19 (urging Commission to endorse certain improvements to interim measures).

303 See, e.g., Ad Hoc Telecommunications Users Committee Reply Comments at 5; NCTA Comments at 12-13; GSA Reply Comments at 6.

304 See, e.g., Ameritech Further Comments at 6-7 (Act confirms appropriateness of RCF and DID as interim methods); Bell Atlantic Further Reply Comments at 6-7 (asserting that section 252 and interconnection agreements sufficiently guarantee provision of interim measures); NYNEX Comments at 7; USTA Further Comments at 2.

305 See, e.g., Ameritech Comments at 5; Bell Atlantic Comments at 19-20; BellSouth Comments at 46-47. But see GTE Further Comments at 8 (short time frame for implementation mandated by Act compels Commission to impose temporary instead of permanent method).

306 CPC is a database number portability method originally proposed by MCI, DSC Communications, Nortel, Tandem Computers, and Siemens Stromberg-Carlson. See supra ¶ .

307 AT&T Comments at 31-32 (CPC is compatible with LRN, supports an N-1 call processing scenario, avoids routing calls through incumbent LEC networks, permits carriers to own or provide for their own routing databases, and supports vertical features); MCI Comments at 10-14. See also ACTA Reply Comments at 9, 12 (CPC: (1) does not require development of switching systems; (2) does not impact billing systems; (3) can be implemented with minimum service/feature interaction; (4) can be rolled out on a regional basis; (5) does not affect LIDB, operator functions, or the format of the called-party number; and (6) can evolve into AT&T's LRN solution).

308 See generally AT&T February 6, 1996 Ex Parte Filing; MCI Ex Parte Letter, from Donald F. Evans, to Regina Keeney, FCC, CC Docket No. 95-116, filed Mar. 15, 1996 (MCI March 15, 1996 Ex Parte Letter).

309 NYNEX Reply Comments at 3, 6-7; SBC Reply Comments at 10, 11 n.17, 15.

requiring interim number portability is consistent with the 1996 Act.[310] Indeed, MFS maintains that the 1996 Act requires immediate implementation of interim measures until long-term portability is implemented.[311] Teleport notes that the Bell Operating Companies, at least, are required to provide interim number portability as a condition of entry into the interLATA[312] market.[313] MCI agrees that interim measures should be made available until long-term portability is implemented, and argues that section 4(i) of the Communications Act authorizes the Commission to perform any acts "necessary and proper" to execute section 251(b)(2), and that such authority is pre-existing and remains in effect.[314] ALTS contends that Congress clearly contemplated that the Commission should require interim measures until long-term portability is available because otherwise BOCs could satisfy the competitive checklist of section 271(c)(2)(B)(xi) for entry in interLATA services without providing any form of number portability.[315] AT&T argues that interim arrangements are incapable of preserving the functionality for long-term number portability required by the 1996 Act, but should be provided until long-term number portability can be deployed.[316]

108. US West, in contrast, asserts that the Commission's jurisdiction over interim measures is unclear because sections 153(30) and 251(b)(2), giving the Commission jurisdiction over number portability, appear to include only permanent portability.[317] Cox and NCTA claim that the interim measures do not satisfy the "without impairment of quality, reliability, or convenience" standard in the definition of number portability in 47 U.S.C. section 153(30).[318]

109. Several of the cable interests argue that, although section 271(c)(2)(B)(xi) allows the BOCs initially to satisfy the competitive checklist for entry into interLATA

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310 The Texas Advisory Commission urges the Commission to clarify that states may include public health and safety requirements, such as Automatic Location Information (ALI) retrieval of the directory number, for interim measures based on section 253(b). According to the Texas Advisory Commission, this section allows states to impose requirements to protect the public safety and welfare. Texas Advisory Commission Further Reply Comments at 3 (citing 47 U.S.C. § 253(b)).

311 MFS Further Comments at 1-4, 7-8.

312 For purposes of this proceeding, we define the terms "local access and transport area" or "LATA" and "interLATA service" as defined in 47 U.S.C. §§ 153(25) and 153(21), respectively.

313 Teleport Further Comments at 2.

314 MCI Further Comments at 8 & n.15; MCI Ex Parte Letter, from Leonard S. Sawicki, to Matthew Harthun, FCC, CC Docket No. 95-116, filed Mar. 29, 1996 (MCI March 29, 1996 Ex Parte Letter).

315 ALTS Further Comments at 4-5.

316 AT&T Further Comments at 9, 10 & n.20.

317 US West Further Reply Comments at 9 & n.10.

318 Cox Further Comments at 6; NCTA Further Comments at 4.

services by providing only interim measures, the BOCs are also required to provide long-term portability to fulfill the checklist requirements. Moreover, Cox and Time Warner Holdings warn that the Commission will lose its leverage to encourage prompt implementation of long-term portability once the BOCs are permitted to provide in-region interLATA services pursuant to section 271.[319] NCTA asserts that, since section 271(c)(2)(B)(xi) distinguishes between "interim" measures and "regulations pursuant to section 251 to require number portability," the portability required by section 251 is long-term number portability.[320] CCTA urges the Commission to review and require BOC progress toward deployment of a long-term method when BOCs apply for in-region interLATA market entry, and to deny a BOC application if the BOC tries to delay implementation of long-term portability.[321] Cox goes further and argues that, after the Commission adopts number portability rules, BOCs must implement long-term service provider portability, not just interim measures, before they can obtain interexchange and manufacturing relief under section 271 because interim measures do not satisfy section 251.[322] In response, Ameritech contends that provision of interim measures, and later compliance with the Commission's portability rules, satisfies the BOC checklist and notes that section 271(d)(4) directs the Commission not to limit or extend the checklist terms.[323]

b. Discussion

110. The 1996 Act requires that carriers "provide, to the extent technically feasible, number portability in accordance with the requirements prescribed by the Commission."[324] Number portability is defined in the 1996 Act as "the ability of users of telecommunications services to retain, at the same location, existing telecommunications numbers without impairment of quality, reliability, or convenience when switching from one telecommunications carrier to another."[325] The record indicates that currently technically feasible methods of providing number portability, such as RCF and DID, may impair to some degree either the quality, reliability, or convenience of telecommunications services when customers switch between carriers.[326] Because of these drawbacks, some may argue that the

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319 Cox Further Comments at 7; Time Warner Holdings Further Comments at 8 n.19.

320 NCTA Further Comments at 5 n.11.

321 CCTA Further Comments at 3, 8-9.

322 Cox Further Comments at 5-7.

323 Ameritech Further Reply Comments at 6. See also BellSouth Further Reply Comments at 2 n.5, 5; NYNEX Further Reply Comments at 6.

324 See 47 U.S.C. § 251(b)(2).

325 See 47 U.S.C. § 153(30).

326 See, e.g., AT&T Further Comments at 9; Cox Further Comments at 6; NCTA Further Comments at 4.

use of RCF and DID methods for providing number portability would not satisfy the requirements of sections 3(30) and 251(b)(2). We disagree. Section 251(b)(2) specifically requires carriers to provide number portability, as defined in section 3(30), "to the extent technically feasible." Thus, because currently RCF and DID are the only methods technically feasible, we believe that use of these methods, in fact, comports with the requirements of the statute. We believe that the 1996 Act contemplates a dynamic, not static, definition of technically feasible number portability methods. Under this view, LECs are required to offer number portability through RCF, DID, and other comparable methods because they are the only methods that currently are technically feasible. LECs are required by this Order to begin the deployment of a long-term number portability solution by October 1, 1997, because, based on the evidence of record, such methods will be technically feasible by that date. We believe that this conclusion is consistent with Congress's goal of developing a national number portability framework, as well as the general purpose of the Act to "promote competition . . . in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new technologies."[327]

111. This interpretation finds further support in section 271(c)(2)(B)(xi), which sets forth the competitive checklist for BOC entry into in-region interLATA services. That section requires the BOCs wishing to enter the in-region interLATA market: (1) to provide interim number portability through RCF, DID, and other comparable arrangements "until the date by which the Commission issues regulations pursuant to section 251 to require number portability," and then (2) to comply with the Commission's regulations.[328] There will necessarily be a significant time period between the adoption date of these rules and the availability of long-term number portability measures. Therefore, were the Commission to promulgate rules providing only for the provision of long-term number portability, during this time period the BOCs could satisfy the competitive checklist without providing any form of number portability. This could be true even if they had been providing interim number portability pursuant to the checklist prior to the effective date of the Commission's regulations. We do not believe that Congress could have intended this result. We, therefore, agree with MFS, ALTS, MCI, and AT&T that Congress intended that currently available number portability measures be provided until a long-term number portability method is technically feasible and available.

112. We conclude that we had authority to require the provision of currently available methods of service provider portability prior to passage of the 1996 Act. In the Notice, we tentatively concluded that sections 1 and 202 of the Communications Act establish a federal interest in the provision of number portability.[329] Specifically, we

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327 See 1996 Act, 110 Stat. 56 (statement of 1996 Act's purpose).

328 See 47 U.S.C. § 271(c)(2)(B)(xi).

329 See Notice, 10 FCC Rcd at 12361-62 (citing 47 U.S.C. § 151 -- requiring the Commission to make available to all people of the United States "a rapid, efficient, nation-wide, and world-wide wire and radio communications service;" 47 U.S.C. § 202 -- requiring that the charges, practices, classifications, regulations, facilities, and services of common carriers not be unreasonably discriminatory; Proposed 708

concluded in the Notice that such interest arises from: (1) our obligation to promote an efficient and fair telecommunications system;[330] (2) the inability to separate the impact of number portability between intrastate and interstate telecommunications;[331] (3) the potential adverse impact deploying different number portability solutions across the country would have on the provision of interstate telecommunications services;[332] and (4) the impact number portability could have on the use of the numbering resource,[333] that is, ensuring that the use of numbers is efficient and does not contribute to area code exhaust. We now affirm these tentative conclusions and conclude that we have jurisdiction to require the provision of currently available number portability methods, independent of the statutory changes adopted in the 1996 Act.

113. There are also substantial policy reasons that support our requiring LECs to provide currently available number portability measures. The ability of customers to keep their telephone numbers when changing carriers, even with some impairment in call set-up time or vertical service offerings, is critical to opening the local marketplace to competition.[334] By facilitating entry of new carriers into the local market, currently available number portability measures will increase competition in local markets which will result in lower prices and higher service quality for telecommunications services consistent with the goals of the 1996 Act. Several parties to this proceeding likewise advocate that such measures are necessary for the development of effective local exchange competition.[335]

114. We note that sections 251(b)(2) and 251(d) give to the Commission the authority to prescribe requirements for the provision of number portability. Pursuant to that authority, we mandate the provision of currently available number portability measures as soon as reasonably possible upon receipt of a specific request from another telecommunications carrier, including from wireless service providers.[336] By conditioning the obligation to provide currently available number portability measures upon a specific request, number portability will be offered only in those areas where a competing local exchange carrier seeks to provide service. Thus, it avoids the imposition of number portability implementation costs on carriers (and end users) in areas where no competitor is operating.

Relief Plan and 630 Numbering Plan Area Code by Ameritech - Illinois, Declaratory Ruling and Order, 10 FCC Rcd 4596, 4601-02 (1995)).

330 Notice, 10 FCC Rcd at 12361-62.

331 Id. at 12361 & n.34.

332 Id. at 12362.

333 Id.

334 See supra ¶¶ -32.

335 See, e.g., Cablevision Lightpath Reply Comments at 8-9; Jones Intercable Comments at 4.

336 See 47 U.S.C. § 251(b)(2), (d).

115. We agree with the many parties who claim that the technical limitations described in the Notice that handicap all currently available measures for providing number portability render them unacceptable as long-term solutions. Despite Bell Atlantic's claims to the contrary for its own network,[337] the record indicates that currently available number portability measures are inferior to LRN portability or any other method that meets our performance criteria. The 1996 Act, and particularly the BOC checklist in section 271, clearly contemplates that these methods should serve as only temporary measures until long-term number portability is implemented.[338] As indicated above, the 1996 Act requires that number portability be provided, to the extent technically feasible, without impairment of quality, reliability, and convenience.[339] Therefore, when a number portability method that better satisfies the requirements of section 251(b)(2) than currently available measures becomes technically feasible, LECs must provide number portability by means of such method. In addition, we find that the existing measures fail to satisfy our criteria set forth for any long-term solution; for example, they depend on the original service provider's network, may result in the degradation of service quality, and are wasteful of the numbering resource. For these reasons, we do not believe that long-term use of the currently available measures is in the public interest. We emphasize that we encourage all LECs to implement a long-term solution that meets our technical standards as soon as possible. We also note that BOCs must comply with the requirements set forth in this Order, including the requirement to provide currently available measures, in order to satisfy the BOC competitive checklist.[340] Upon the date on which long-term portability must be implemented according to our deployment schedule, BOCs must provide long-term number portability and will be subject to an enforcement action under section 271(d)(6) if they fail to do so.[341]

116. We decline to require a "medium-term" or short-term database solution such as CPC. The increased costs of implementing this approach are unwarranted given the imminent implementation of a long-term solution that meets our criteria. In addition, devoting resources to implement a medium-term database solution, which is currently not available, may delay implementation of a long-term database solution.[342] We note that the Colorado, Georgia, Illinois, and Ohio state commissions have declined to adopt, and the California and Maryland task forces have declined to recommend, CPC as an interim

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337 Bell Atlantic Comments at 5-7.

338 See, e.g., AT&T Further Comments at 9-10.

339 See 47 U.S.C. §§ 153(30), 251(b)(2).

340 See 47 U.S.C. § 271(c)(2)(B)(xi).

341 47 U.S.C. § 271(d)(6) (allowing Commission, among other sanctions, to suspend or revoke approval of BOC application to provide interLATA services).

342 See Time Warner Holdings Comments at 13 & n.16 (implementation of CPC would take approximately six months).

solution,[343] while the emphasis on New York's CPC trial has shifted in favor of concentrating on the adoption of LRN.[344] We also note that several parties originally advocating CPC have since retreated from that view and now instead support implementing a long-term database solution as soon as possible.[345] To the extent carriers wish to provide a medium-term database solution, such as CPC, however, we do not prevent them from doing so.

3. Cost Recovery for Currently Available Number Portability Measures

a. Positions of the Parties

117. In comments filed before passage of the 1996 Act, Cablevision Lightpath argues that all carriers should pay incremental, cost-based rates for interim measures and suggests, as an example, an annual surcharge based on the product of the incremental cost of switching and minutes of traffic forwarded.[346] AT&T and MCI agree with Cablevision Lightpath and endorse the formula used by the New York Department of Public Service, which allocates the costs of providing interim measures across all carriers based on the product of switching and transport costs, and minutes of forwarded traffic.[347] Cablevision Lightpath urges, however, the Commission to ban incumbent LECs from treating the costs of currently available number portability as exogenous adjustments to their interstate price cap indices.[348] GSA, Jones Intercable, and the Users Committee point out that the short-term incremental costs of providing interim measures are low.[349]

118. Many of the new entrants advocate placing much of the burden of cost-recovery for interim measures on the incumbent LECs. Jones Intercable, along with several other cable interests, argues that the incumbent LECs and new LECs should recover the costs of interim measures under a "bill and keep" system, under which incumbent LECs and new entrants would not charge each other for interim number portability arrangements that require

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343 See CA LNP Task Force Report at 44-46; CO PUC LNP Order; CO PUC Proposed Rules Regarding Local Number Portability, Decision Adopting Rules, Docket No. 95R-554T, at attachment A at 4 (adopted Feb. 7, 1996); ICC LNP Order; GA PSC Portability Order at 6; MD PSC Report; Ohio PUC Competition Order at section XIV.

344 NY DPS Portability Trial Report at 6-7.

345 Time Warner Holdings February 12, 1996 Ex Parte Filing; AT&T February 28, 1996 Ex Parte Filing.

346 Cablevision Lightpath Reply Comments at 11-13.

347 MCI March 29, 1996 Ex Parte Filing; AT&T Further Reply Comments at 8 n.30; MCI March 15, 1996 Ex Parte Filing; MCI Further Reply Comments at 9-10.

348 Cablevision Lightpath Reply Comments at 13.

349 GSA Reply Comments at 5; Jones Intercable Comments at 5; Users Committee Comments at 4.

them to forward calls of customers who have changed service providers.[350] In the alternative, Jones Intercable contends that incumbent LECs' charges for interim number portability services should be equal to or less than the LECs' incremental cost of providing those services.[351] Teleport also supports the provision of interim portability measures with no intercarrier usage charges.[352]

119. Several commenters propose large discounts comparable to those mandated for non-equal access during the transition to equal access.[353] Competitive Carriers assert that allowing LECs to charge retail prices would discourage provision of long-term number portability.[354] MCI argues that portability is a network function, not a service, and proposes that all local carriers share the costs or at least that incumbent LECs not be allowed to recover more than the incremental costs.[355] AT&T and MFS argue that any interim measures should be provided at rates that encourage incumbents to offer the most efficient routing available, or reflect these measures' inferior quality and true costs.[356] ALTS and MFS further argue that competitive local exchange carriers should be entitled to retain all terminating access charges.[357] Similarly, MCI and NCTA argue that the terminating access charges paid by IXCs should be shared with the competitor that actually completes calls forwarded to it.[358]

120. AT&T and MCI argue that the 1996 Act requires that the costs of providing interim number portability measures be borne by all telecommunications carriers on a competitively neutral basis.[359] MFS argues that interim measures should be provided at no cost or in the alternative, allocated on revenues net of payments to intermediaries.[360] Several LECs, in contrast, claim that the competitively neutral standard prohibits requiring incumbent

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350 See, e.g., Jones Intercable Comments at 5; Jones Intercable Reply Comments at 11-12; NCTA Comments at 13; Time Warner Holdings Comments at 21-22. See also Competitive Carriers Comments at 12.

351 Jones Intercable Reply Comments at 12.

352 Teleport Comments at 15-16; Teleport Reply Comments at 16. See also MFS Further Comments at 8.

353 Competitive Carriers Comments at 12. See also General Communication Reply Comments at 5; Time Warner Holdings Comments at 21-22.

354 Competitive Carriers Comments at 20.

355 MCI Reply Comments at 14-16. MCI adds that state commissions must review the cost bases for the tariffs implementing RCF and DID. Id. at 16.

356 AT&T Comments at 15 n.21; MFS Further Reply Comments at 8-9.

357 ALTS Further Comments at 7; MFS Further Reply Comments at 9.

358 MCI Ex Parte Letter, from Donald F. Evans, to Regina Keeney, FCC, CC Docket No. 95-116, filed May 28, 1996 (MCI May 28, 1996 Ex Parte Letter); NCTA Comments at 13.

359 AT&T Further Comments at 10 & n.20; MCI Further Comments at 8.

LECs to subsidize their competitors by providing interim measures for free or at deeply discounted rates.[361] Ameritech asserts that section 251(e)(2)'s "competitively neutral" standard for cost recovery does not apply to interim portability at all. It asserts that interim portability is addressed in section 271(c)(2)(B)(xi), and therefore the Commission is not authorized under the BOC checklist to eliminate or discount interim portability rates below levels that state commissions have already judged reasonable.[362] Similarly, BellSouth argues that Congress's endorsement of interim RCF and DID arrangements in the BOC checklist, and the 1996 Act's structure of requiring state-approved carrier negotiations for interconnection agreements, compel the conclusion that RCF and DID cost recovery issues be left to the states.[363]

b. Discussion

121. In light of our statutory mandate that local exchange carriers provide number portability through RCF, DID, or other comparable arrangements until a long-term number portability approach is implemented, we must adopt cost recovery principles for currently available number portability that satisfy the 1996 Act. We emphasize that the cost recovery principles set forth below will apply only until a long-term number portability method can be deployed. As we have indicated, deployment of long-term number portability should begin no later than October 1997, so currently available number portability arrangements, and the associated cost recovery mechanism, should be in place for a relatively short period.

122. It is also important to recognize that the costs of currently available number portability are incurred in a substantially different fashion than the costs of long-term number portability arrangements. First, the capability to provide number portability through currently available methods, such as RCF and DID, already exists in most of today's networks, and no additional network upgrades are necessary. In contrast, long-term, or database, number portability methods require significant network upgrades, including installation of number portability-specific switch software, implementation of SS7 and IN or AIN capability, and the construction of multiple number portability databases. Second, the costs of providing number portability in the immediate term are incurred solely by the carrier providing the forwarding service. Long-term number portability, in contrast, will require all carriers to incur costs associated with the installation of number portability-specific software and the construction of the number portability databases. Those costs will have to be apportioned in some fashion among all carriers. Finally, we note that, initially, the costs of providing currently available number portability will be incurred primarily by the incumbent LEC network because most customers will be forwarding numbers from the incumbents to the new

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360 MFS Further Reply Comments at 9.

361 See, e.g., Bell Atlantic Further Reply Comments at 7; GTE Further Reply Comments at 6-7; Pacific Bell Further Reply Comments at 8 n.16.

362 Ameritech Further Reply Comments at 8.

363 BellSouth Further Reply Comments at 8.

entrants.

123. Parties have advanced a wide range of methods for recovering the costs of currently available number portability measures, including arrangements whereby neither carrier charges the other for provision of such measures and incremental, cost-based pricing schemes. In addition, several states have adopted different cost recovery mechanisms. For example, in Florida, carriers have negotiated appropriate rates for currently available measures. The Louisiana PSC has adopted a two-tiered approach to pricing of currently available measures. In the first instance, carriers are permitted to negotiate an appropriate rate. If the parties cannot agree upon a rate, the PSC will determine the appropriate rate that can be charged by the forwarding carrier based on cost studies filed by the carriers. These rates are not required to be set at long-run incremental costs (LRIC) or total service long-run incremental costs (TSLRIC), however.[364]

124. In addition, incumbents and new entrants have voluntarily negotiated a variety of cost recovery methods. Carriers in Rochester, New York, for example, are voluntarily using a formula that allocates the incremental costs of currently available number portability measures, through an annual surcharge assessed by the carrier from which the number is transferred. The charge assessed on each carrier is the product of the total number of forwarded minutes and the incremental per-minute costs of switching and transport, multiplied by the ratio of a particular carrier's forwarded telephone numbers relative to total working numbers in the area. In addition, Rochester Telephone has agreed not to charge competitors for the first $1 million of the cost of number portability.[365] The New York DPS has adopted this formula for the New York Metropolitan area as well.[366] Ameritech and MFS recently entered into an agreement for Ameritech's five-state region under which MFS will pay Ameritech $3 per line per month for interim measures. MFS plans to seek regulatory approval to allocate that cost under a formula that would require MFS to pay a portion of the $3 charge equal to the ratio of MFS's gross telecommunications service revenues, net of its payments to other carriers, to Ameritech's gross telecommunications revenues, net of payments to other carriers.[367]

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364 Louisiana PSC Regulations for Competition in the Local Telecommunications Market, General Order, Docket No. U-20883, at section 801, Part D (Mar. 15, 1996).

365 NYNEX Ex Parte Filing, CC Docket No. 95-116, filed Mar. 22, 1996 (NYNEX March 22, 1996 Ex Parte Filing).

366 NY PSC Order Clarifying March 8, 1995 Number Portability Order, Case No. 94-C-0095, at 3-4 & n.1 (issued and effective Mar. 8, 1995), submitted in NARUC April 17 Ex Parte Filing at vol. 1-A at 32.

367 Interconnection Agreement under Sections 251 and 252 of the Telecommunications Act of 1996, dated as of May 17, 1996, by and between Ameritech Information Industry Services, a division of Ameritech Services, Inc. on behalf of Ameritech Illinois and MFS Intelenet of Illinois, Inc.; MFS White Paper Number

Portability Requirements of the Telecommunications Act of 1996, April 30, 1996 (MFS White Paper, 1996).

125. Our cost recovery principles for currently available methods, of course, must comply with the statutory requirements of the 1996 Act. In addition, consistent with the pro-competitive objectives of the 1996 Act, we seek to create incentives for LECs, both incumbents and new entrants, to implement long-term number portability at the earliest possible date, since, as we have noted, long-term number portability is clearly preferable to existing number portability methods. The principles we adopt should also mitigate any anti-competitive effects that may arise if a carrier falsely inflates the cost of currently available number portability.

126. In our interconnection proceeding, we have sought comment on our tentative conclusion that the 1996 Act authorizes us to set pricing principles to ensure that rates for interconnection, unbundled network elements, and collocation are just, reasonable, and nondiscriminatory.[368] We need not, however, reach in this proceeding the issue of whether section 251 generally gives us authority over pricing for interconnection because the statute sets forth the standard for the recovery of number portability costs and grants the Commission the express authority to implement this standard. Specifically, section 251(e)(2) requires that the costs of "number portability be borne by all telecommunications carriers on a competitively neutral basis as determined by the Commission."[369] We therefore conclude that section 251(e)(2) gives us specific authority to prescribe pricing principles that ensure that the costs of number portability are allocated on a "competitively neutral" basis.

127. In exercising our authority under section 251(e)(2), we conclude that we should adopt guidelines that the states must follow in mandating cost recovery mechanisms for currently available number portability methods. To date, the state commissions have adopted different cost recovery methods. We seek to articulate general criteria that conform to the statutory requirements, but give the states some flexibility during this interim period to continue using a variety of approaches that are consistent with the statutory mandate. The states are also free, if they so choose, to require that tariffs for the provision of currently available number portability measures be filed by the carriers.

128. In establishing the standard for number portability cost recovery, section 251(e)(2) sets forth three specific elements, which we must interpret. First, we must determine the meaning of number portability "costs;" second, we must interpret the phrase "all telecommunications carriers;" and third, we must construe the meaning of the phrase "competitively neutral."

129. The costs of currently available number portability are the incremental costs incurred by a LEC to transfer numbers initially and subsequently forward calls to new service providers using existing RCF, DID, or other comparable measures. According to the record, the costs of RCF differ depending on where the call originates in a carrier's network. Calls that originate on the switch from which a number has been forwarded (intraoffice calls) result

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368 Interconnection NPRM at ¶ 117.

369 See 47 U.S.C. § 251(e)(2).

in fewer costs than calls that originate from other switches (interoffice calls). This is because fewer transport and switching costs are incurred in the forwarding of an intraoffice call. The BOCs claim, for example, that there are essentially three costs incurred in the provision of RCF for an intraoffice call: (1) switching costs incurred by the original switch in determining that the number is no longer resident; (2) switching costs incurred in performing the RCF translation, which identifies the address of the receiving switch; and (3) switching costs incurred in redirecting the call from the original switch to the switch to which the number has been forwarded.[370] The BOCs further assert that the additional costs incurred for an interoffice call include: (1) the transport costs incurred in directing the call from the tandem or end office to the office from which the number was transferred and back to the tandem or end office; and (2) remote tandem or end office switching costs.[371] There is conflicting evidence in the record on whether these costs are incurred on a per-minute, per-call, or some fixed basis.[372] State commissions in some states have set cost-based rates for currently available number portability measures. In order to do so, states have used different methods of identifying costs, including LRIC, TSLRIC, and direct embedded cost studies. In California and Illinois, the state commissions set cost-based fixed monthly rates for RCF, while in New York and Maryland, the commissions set cost-based rates for minutes of use.[373] In addition, there is some evidence in the record that carriers incur some non-recurring costs in the provision of currently available methods of number portability.[374] Several states, such as California, Illinois, and Maryland, have permitted the carrier forwarding a number to recover such non-recurring costs as a one-time, non-recurring charge.[375]

130. Section 251(e)(2) of the Communications Act requires that the costs of providing number portability be borne by "all telecommunications carriers."[376] No party commented on the meaning of the term "all telecommunications carriers." Read literally, the statutory language "all telecommunications carriers" would appear to include any provider of telecommunications services. Section 3 of the Communications Act defines telecommunications services to mean "the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of facilities used."[377] Under this reading, states may require all

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370 Ameritech Ex Parte Filing at 2, CC Docket No. 95-116, filed Feb. 20, 1996 (Ameritech February 20, 1996 Ex Parte Filing); Bell Atlantic Ex Parte Filing at 1 & 3, CC Docket No. 95-116, filed June 19, 1996 (Bell Atlantic June 19, 1996 Ex Parte Filing); BellSouth Ex Parte Filing, CC Docket No. 95-116, filed Mar. 21, 1996 (BellSouth March 21, 1996 Ex Parte Filing).

371 Ameritech February 20, 1996 Ex Parte Filing at 2.

372 See Ameritech Ex Parte Filing at 2-3, CC Docket No. 95-116, filed Mar. 26, 1996 (Ameritech March

373 Bell Atlantic March 22, 1996 Ex Parte Filing at 2; NYNEX March 22, 1996 Ex Parte Filing at 1-2.

374 See Ameritech March 26, 1996 Ex Parte Filing at 2; BellSouth March 21, 1996 Ex Parte Filing at 2; US West Ex Parte Filing at 6, CC Docket No. 95-116, filed June 19, 1996 (US West June 19, 1996 Ex Parte

375 AT&T Ex Parte Presentation at 1, CC Docket No. 95-116 filed Mar. 13, 1996 (AT&T March 13, 1996,

376 47 U.S.C. § 251(e)(2).

377 47 U.S.C. § 153(44), (46).

telecommunications carriers -- including incumbent LECs, new LECs, CMRS providers, and IXCs -- to share the costs incurred in the provision of currently available number portability arrangements. As discussed in greater detail below, states may apportion the incremental costs of currently available measures among relevant carriers by using competitively neutral allocators, such as gross telecommunications revenues, number of lines, or number of active telephone numbers.

131. Section 251(e)(2) of the Act states that the costs of number portability are to be "borne by all telecommunications carriers on a competitively neutral basis as determined by the Commission." We interpret "on a competitively neutral basis" to mean that the cost of number portability borne by each carrier does not affect significantly any carrier's ability to compete with other carriers for customers in the marketplace. Congress mandated the use of number portability so that customers could change carriers with as little difficulty as possible. Our interpretation of "borne . . . on a competitively neutral basis" reflects the belief that Congress's intent should not be thwarted by a cost recovery mechanism that makes it economically infeasible for some carriers to utilize number portability when competing for customers served by other carriers. Ordinarily the Commission follows cost causation principles, under which the purchaser of a service would be required to pay at least the incremental cost incurred in providing that service. With respect to number portability, Congress has directed that we depart from cost causation principles if necessary in order to adopt a "competitively neutral" standard, because number portability is a network function that is required for a carrier to compete with the carrier that is already serving a customer. Depending on the technology used, to price number portability on a cost causative basis could defeat the purpose for which it was mandated. We emphasize, however, that this statutory mandate constitutes a rare exception to the general principle, long recognized by the Commission, that the cost-causer should pay for the costs that he or she incurs.

132. Our interpretation suggests that a "competitively neutral" cost recovery mechanism should satisfy the following two criteria. First, a "competitively neutral" cost recovery mechanism should not give one service provider an appreciable, incremental cost advantage over another service provider, when competing for a specific subscriber. In other words, the recovery mechanism should not have a disparate effect on the incremental costs of competing carriers seeking to serve the same customer. The cost of number portability borne by a facilities-based new entrant that wins a customer away from an incumbent LEC is the payment that the new entrant must make to the incumbent LEC. The higher this payment, the higher the price the new entrant must charge to a customer to serve that customer profitably, which will put the new entrant at a competitive disadvantage.[378] We thus interpret our first

[378] We recognize that the incumbent LEC and new entrant, when competing for a customer, will take into account not only the incremental cost of winning the customer, but also the incremental cost of losing a customer. The cost to an incumbent LEC of losing a customer who ports his or her number to a new entrant is the incremental cost of porting that number to the new entrant, less any payments made by the new entrant to the incumbent LEC. In theory, the higher the incremental costs of losing customers, the greater the incentive an incumbent LEC would have to offer a customer a low price to prevent a customer from porting his or her number, which would allow the incumbent LEC to avoid the number portability cost. For the interim period, however, we expect that the number of customers that will port their number will be small relative to the total number of customers an incumbent LEC serves. Since

criterion as meaning that the incremental payment made by a new entrant for winning a customer that ports his number cannot put the new entrant at an appreciable cost disadvantage relative to any other carrier that could serve that customer.

133. An example illustrates the application of this criteria. When a facilities-based carrier that competes against an incumbent LEC for a customer, the incumbent LEC incurs no cost of number portability if it retains the customer. If the facilities-based carrier wins the customer, an incremental cost of number portability is generated. The share of this incremental cost borne by the new entrant that wins the customer cannot be so high as to put it at an appreciable cost disadvantage relative to the cost the incumbent LEC would incur if it retained the customer. Thus, the incremental payment by the new entrant if it wins a customer would have to be close to zero, to approximate the incremental number portability cost borne by the incumbent LEC if it retains the customer.[379]

134. A couple of additional examples may further clarify and illustrate this criterion. On the one hand, a cost recovery mechanism that imposes the entire incremental cost of currently available number portability on a facilities-based new entrant would violate this criterion. This cost recovery mechanism would impose an incremental cost on a facilities-based entrant that neither the incumbent, nor an entrant that merely resold the incumbent's service, would have to bear, because neither the incumbent nor the reseller would have to use currently available number portability measures in order for the prospective customer to keep his or her existing number. On the other hand, a cost recovery mechanism that recovers the cost of currently available number portability through a uniform assessment on the revenues of all telecommunications carriers, less any charges paid to other carriers, would satisfy this criterion.[380] This approach does not disparately affect the incremental cost of winning a specific customer or group of customers, because a LEC with a small share of the market's revenue would pay a percentage of the incremental cost of number portability that will be small enough to have no appreciable affect on the new entrant's ability to compete for that customer.

135. The second criterion for a "competitively neutral" cost recovery mechanism is that it should not have a disparate effect on the ability of competing service providers to earn

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incumbent LECs offer local service on a tariffed basis to all customers, the incentive for an incumbent LEC to lower its price to all customers in order to avoid the cost of porting a small number of numbers will be small enough to be inconsequential in determining the incumbent LEC's price.

379 Carriers taking unbundled elements or reselling services do not generate a cost of number portability. Thus, a low incremental payment by a facilities-based carrier is necessary in order not to disadvantage it relative to such resellers.

380 If a state adopts this cost recovery mechanism, we require that a state's calculation of gross revenues for IXCs should include only those revenues generated in the state in which the charges are being assessed, on both an interstate and intrastate basis. This ensures that a carrier's bill reflects the level of its activities in a particular state and will prevent a carrier's being charged several times on the same revenues. Cf. Assessment and Collection of Regulatory Fees for Fiscal Year 1995, Price Cap Treatment of Regulatory Fees Imposed by Section 9 of the Act, Report and Order, 10 FCC Rcd 13512, 13558-59 (1995) (adopting gross revenues less carrier charges for recovering regulatory fees).

normal returns on their investment. If, for example, the total costs of currently available number portability are to be divided equally among four competing local exchange carriers, including both the incumbent LEC and three new entrants, within a specific service area, the new entrant's share of the cost may be so large, relative to its expected profits, that the entrant would decide not to enter the market. In contrast, recovering the costs of currently available number portability from all carriers based on each local exchange carrier's relative number of active telephone numbers would not violate this criterion, since the amount to be recovered from each carrier would increase with the carrier's size, measured in terms of active telephone numbers or some other measure of carrier size. In addition, allocating currently available number portability costs based on active telephone numbers results in approximately equal per-customer costs to each carrier. We also believe that assessing costs on a per-telephone number basis should give no carrier an advantage, relative to its competitors. An alternative mechanism that would also satisfy our competitive neutrality requirement would be to recover currently available number portability costs from all carriers, including local exchange, interexchange, and CMRS carriers, based on their relative number of presubscribed customers.

136. We conclude that a variety of approaches currently in use today essentially comply with our competitive neutrality criteria. One example is the formula voluntarily being used by carriers in Rochester, NY, and adopted by the NY DPS in the New York metropolitan area.[381] Specifically, this mechanism allocates the incremental costs of currently available number portability measures, through an annual surcharge assessed by the incumbent LEC from which the number is transferred. This surcharge is based on each carrier's number of ported telephone numbers relative to the total number of active telephone numbers in the local service area.[382] Similarly, as noted above, a cost recovery mechanism that allocates number portability costs based on a carrier's number of active telephone numbers (or lines) relative to the total number of active telephone numbers (or lines) in a service area would also satisfy the two criteria for competitive neutrality. As noted above, MFS in Illinois plans to seek regulatory approval for a similar formula that would allocate the costs of currently available measures between it and Ameritech based on each carrier's gross telecommunications revenues net of charges to other carriers.[383] A third competitively neutral

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381 NYNEX March 22, 1996 Ex Parte Filing.

382 The formula as filed in the NYNEX tariff is:

$$\frac{\text{Total Ported Minutes} * (\text{Switching} + \text{Transport Costs})}{\text{Total Working Telephone Numbers (TNs) Provided by the Telephone Company}} = \text{Charge per Working TN}$$

1

$$\text{Charge per Working TN} * \text{Number of Ported TNs Used by the CLEC} = \text{Charge per CLEC}$$

2

NYNEX March 22, 1996 Ex Parte Filing.

383 The formula proposed by MFS is:

$3 (Incremental Costs of Number Portability in Illinois) * Market share based on gross

cost recovery mechanism would be to assess a uniform percentage assessment on a carrier's gross revenues less charges paid to other carriers.[384] Finally, we believe that a mechanism that requires each carrier to pay for its own costs of currently available number portability measures would also be permissible.

137. The cost recovery mechanisms described in the preceding paragraphs define payments made by new entrants to incumbent LECs for providing number portability. We recognize that incumbent LECs must make payments to new entrants if the incumbent LEC wins a customer of the new entrant that wants to port its number. To be competitively neutral, the incumbent LEC would have a reciprocal compensation arrangement with each new entrant. That is, the incumbent LEC would pay to the new entrant a rate for number portability that was equal to the rate that the new entrant pays the incumbent LEC.

138. In contrast, requiring the new entrants to bear all of the costs, measured on the basis of incremental costs of currently available number portability methods, would not comply with the statutory requirements of section 251(e)(2). Imposing the full incremental cost of number portability solely on new entrants would contravene the statutory mandate that all carriers share the cost of number portability. Moreover, as discussed above, incremental cost-based charges would not meet the first criterion for "competitive neutrality" because a new facilities-based carrier would be placed at an appreciable, incremental cost disadvantage relative to another service provider, when competing for the same customer. Rates for interim number portability would also not meet the second criterion if they approximate the retail price of local service. New entrants may effectively be precluded from entering the local exchange market if they are required to bear all the costs of currently available number portability measures.[385] Retail rates for call forwarding, to the extent they are set above incremental costs, would also not meet the principles of competitive neutrality for the same reasons that incremental cost-based rates would not. Finally, placing the full cost burden of number portability on new entrants would also deter customers of incumbent carriers from transferring to a new service provider to the extent that the entrant passes on the cost of currently available number portability, in the form of higher prices for customers. In addition, if incumbent LECs were not required to bear a portion of the incremental costs of currently available number portability measures, they would have an incentive to delay implementation of a long-term number portability method.

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telecommunications revenues net of payments to other carriers.

MFS White Paper, 1996 at 6, 12.

384 Cf. Assessment and Collection of Regulatory Fees for Fiscal Year 1995, Price Cap Treatment of Regulatory Fees Imposed by Section 9 of the Act, Report and Order, 10 FCC Rcd 13512, 13558-59 (1995) (adopting gross revenues less carrier charges for recovering regulatory fees).

385 See NYNEX March 22, 1996 Ex Parte Filing. NYNEX reports switching and transport costs of interim number portability of $0.01 per minute, and charges of $0.106 for a five minute local call during business hours, the period with the highest rates. The charge of $0.106 results from retail charges of $0.08 for the first three minutes and $0.013 per additional minute, as determined from its local tariffs on file with the NY PSC.

139. A carrier has a number of options for seeking relief if it believes that the pricing provisions for number portability offered by a LEC violate the statutory standard in section 251(e)(2), the rules we set forth in this order, or state-mandated cost recovery mechanisms. First, it may bring action against the carrier in federal district court pursuant to section 207 for damages or file a section 208 complaint against another carrier alleging a violation of the Act or the Commission's rules.[386] Alternatively, the carrier may file a request for declaratory ruling with the Commission, seeking our view on whether the statute and our rules have been properly applied.[387] Finally, carriers in many instances will be able to pursue existing avenues before their state commission if a dispute arises regarding recovery of currently available number portability costs.

140. Finally, in response to questions concerning the appropriate treatment of terminating access charges in the interim number portability context, we conclude that the meet-point billing arrangements between neighboring incumbent LECs provide the appropriate model for the proper access billing arrangement for interim number portability. We decline to require that all of the terminating interstate access charges paid by IXCs on calls forwarded as a result of RCF or other comparable number portability measures be paid to the competing local service provider. On the other hand, we believe that to permit incumbent LECs to retain all terminating access charges would be equally inappropriate. Neither the forwarding carrier, nor the terminating carrier, provides all the facilities when a call is ported to the other carrier. Therefore, we direct forwarding carriers and terminating carriers to assess on IXCs charges for terminating access through meet-point billing arrangements. The overarching principle is that the carriers are to share in the access revenues received for a ported call. It is up to the carriers whether they each issue a bill for access on a ported call, or whether one of them issues a bill to the IXCs covering all of the transferred calls and shares the correct portion of the revenues with the other carriers involved. If the terminating carrier is unable to identify the particular IXC carrying a forwarded call for purposes of assessing access charges, the forwarding carrier shall provide the terminating carrier with the necessary information to permit the terminating carrier to issue a bill. This may include sharing percentage interstate usage (PIU) data and may require the terminating entity to issue a bill based on allocated interstate minutes per IXC as derived from data provided by the forwarding carrier.

G. Number Portability by CMRS Providers

1. Background

141. In our Notice, we sought comment and other information on the competitive significance of service provider portability for the development of competition between

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386 See 47 U.S.C. § 252(e)(6).

387 We will be initiating a proceeding to adopt expedited procedures regarding such complaints.

CMRS and wireline service providers.[388] We also sought comment on the current, and estimated future, demand of commercial mobile radio service customers for portable wireless telephone numbers when they change their service provider either to another CMRS provider or to a wireline service provider.[389] Finally, we sought comment on whether the burdens of implementing service provider portability (1) between CMRS carriers, and (2) between CMRS and wireline carriers are similar to the burdens of implementing service provider portability between wireline carriers.[390]

2. Position of the Parties

142. Parties commenting on CMRS issues generally fall into three groups. One group consists of the providers of Personal Communications Services (PCS). The PCS providers are just beginning to build advanced wireless networks to enter the market. Their successful market entry depends largely upon convincing consumers of other commercial mobile radio services, e.g., cellular, to switch to PCS. The PCS providers therefore want number portability to be implemented as soon as technically possible. A second group is composed primarily of cellular providers, along with paging and messaging service providers. Parties in this category are generally incumbent service providers with relatively less sophisticated systems. These parties generally claim that number portability is unnecessary in the CMRS marketplace and oppose being required to upgrade their networks for such capabilities at allegedly great expense. A third group includes parties, such as Ameritech and AT&T Wireless, that support implementation of number portability by CMRS providers, but on a later deployment schedule than wireline portability so as to allow time for technical issues specific to CMRS to be resolved.[391]

143. Authority to Require CMRS Providers To Provide Number Portability. SBC Communications argues that CMRS providers have no obligation to provide number portability under the 1996 Act, since the 1996 Act's imposes that duty only on LECs, and the definition of LEC specifically excludes CMRS providers. As a result, SBC Communications claims, the Commission should examine CMRS portability separately from wireline portability.[392] Similarly, Bell Atlantic NYNEX Mobile, Arch/AirTouch Paging, and MobileMedia argue that the 1996 Act and its legislative history demonstrate that the number portability obligation of section 251(b)(2) was not intended to apply to CMRS providers.[393] BellSouth further argues that CMRS providers should not be required to offer portability until

388 Notice, 10 FCC Rcd at 12359-60.

389 Id.

390 Id. at 12371.

391 See Ameritech May 15, 1996 Ex Parte Presentation at 14 (noting that wireless industry participation in Illinois Commerce Commission number portability workshop is not scheduled to begin until July 1996); AT&T Wireless Services, Inc. Ex Parte Presentation at 11, CC Docket No. 95-116, filed May 24, 1996 (AT&T Wireless May 24, 1996 Ex Parte Filing).

392 SBC Communications Further Comments at 3.

they compete directly with a LEC.[394] Moreover, Bell Atlantic NYNEX Mobile asserts that section 332 of the Communications Act only subjects CMRS providers to limited regulation, where there is a "clear cut need" for doing so.[395]

144. Importance of Number Portability to CMRS Providers. Most PCS providers maintain that number portability is important in the CMRS industry because it will promote competition between different types of CMRS providers.[396] PCIA supports long-term number portability solutions for broadband PCS systems when they are technically feasible, and urges the Commission to set a consistent long-term nationwide policy for number portability.[397] Omnipoint, a winner of several licenses in the broadband PCS C Block auction, explains that the success of PCS entry depends on whether PCS providers can attract a significant share of embedded cellular customers.[398]

145. PCIA maintains that number portability is of considerable competitive importance to the broadband CMRS market because the advantages of portability will be a significant factor in consumers' decisions to change providers even though they must endure the inconvenience of changing equipment to do so.[399] PCS Primeco claims that arguments made by incumbent cellular companies that downplay the importance of CMRS number portability are based on the fact that current cellular subscribers usually do not make their numbers widely known because, under existing cellular pricing plans, subscribers typically pay for both inbound and outbound calls. PCS Primeco contends that, since cellular and other CMRS customers do not distribute their numbers widely, such customers currently may not regard number portability as an important factor in deciding whether to switch CMRS providers. PCS Primeco asserts that in the future, as CMRS providers compete to become a substitute for wireline service, they will not assess charges on inbound calls, and CMRS customers will assign the same importance to number portability as wireline subscribers do

393 Arch/AirTouch Paging Further Comments at 3-4 & n.8; Bell Atlantic NYNEX Mobile Further Comments at 2; MobileMedia Further Comments at 3-5 (arguing that original House and Senate proposals (H.R. Rep. No. 204, 104th Cong., 1st Sess. 71-72 (1995); S. Rep. No. 23, 104th Cong., 1st Sess. 19-20 (1995)) specified that focus of section 251(b)(2) was to develop competition in local exchange market, not any other competitive markets).

394 BellSouth Further Comments at 6; see also US West Further Reply Comments at 9-10.

395 Bell Atlantic NYNEX Mobile Further Comments at 3 n.3 (quoting Petition of the Connecticut Dep't of Pub. Util. Control to Retain Regulatory Control of the Rates of Wholesale Cellular Service Providers, Report and Order, 10 FCC Rcd 7025, 7031 (1995) (Petition of CT DPUC, Order), aff'd, Dep't of Pub. Util. Control v. FCC, 78 F.3d 842 (2d Cir. 1996)).

396 See, e.g., Omnipoint Comments at 3; Omnipoint Reply Comments at 12; PCIA Comments at 3-5.

397 PCIA Ex Parte Presentation, CC Docket No. 95-116, filed May 23, 1996 (PCIA May 23, 1996 Ex Parte Filing).

398 Omnipoint Comments at 3; Omnipoint Reply Comments at 9, 12 (urging implementation of service provider portability in 100 largest MSAs between October 1997 and October 1998). See also MCI Comments at 3-4.

399 PCIA Reply Comments at 12-14.

today.[400] PCIA argues similarly that portability will facilitate the convergence of and competition between CMRS and wireline services, which will likely result in cellular customers publishing their telephone numbers.[401] PCIA adds that the ability to transfer telephone numbers between wireline and CMRS carriers ameliorates "number exhaustion" concerns.[402] The Illinois Commerce Commission also considers number portability between wireline and CMRS providers important.[403]

146. CTIA maintains that the CMRS industry supports the goal of full number portability for all telecommunications providers, including CMRS providers, but claims that the Commission should not delay implementation of service provider portability in the wireline networks while awaiting network solutions for CMRS carriers.[404] Most of the commenting cellular providers believe that number portability is not as important to CMRS providers as it is to wireline service providers because there is little current demand for CMRS number portability and because of the unique technical problems involved.[405] AT&T asserts that, while number portability is more important in the wireline market than the CMRS market, the Commission should not preclude such portability for CMRS carriers.[406] Parties opposing CMRS portability generally argue that the benefits of CMRS portability are diminished by the following factors: (1) substantial competition already exists in the CMRS market since CMRS customers already may choose from multiple competitive carriers;[407] (2) CMRS customers place less value on their numbers, as indicated by the fact that they do not publish them, do not often make them available through directory assistance, and more frequently change their telephone numbers due to competition and a variety of non-competitive reasons;[408] (3) number portability would impair the ability of a carrier to identify immediately the validity of a customer's number and thereby prevent fraudulent use of

400 PCS Primeco Reply Comments at 1-2; see also Pacific Bell Comments at 8.

401 PCIA Reply Comments at 13. See also Omnipoint Reply Comments at 12 & nn.18, 19.

402 PCIA Comments at 5. "Number exhaustion" refers to a situation in which all numbers allotted for a particular function or region have been assigned. For example, in January 1995 there were no more available NPA codes (i.e., area codes) of the N 0/1 X format (e.g., 202 for the Washington, DC area) because all CO codes of the form NNX (i.e., the second three digits of a ten-digit telephone number) within each of those NPA codes had been assigned. See Numbering Plan Order, 11 FCC Rcd at 2593.

403 Illinois Commerce Commission Comments at 3.

404 CTIA Comments at 2-5; CTIA Reply Comments at 2; CTIA Further Reply Comments at 6.

405 See, e.g., Bell Atlantic NYNEX Mobile Comments at 1; Bell Atlantic NYNEX Mobile Reply Comments at 1; AirTouch/US West New Vector Reply Comments at 3-6.

406 AT&T Comments at 9 n.12.

407 See, e.g., AirTouch/US West New Vector Reply Comments at 3; Bell Atlantic NYNEX Mobile Comments at 2.

408 AirTouch/US West New Vector Reply Comments at 4; CTIA Comments at 9, 10 & n.15; Bell Atlantic NYNEX Mobile Comments at 2-3.

numbers;[409] (4) customers will have a disincentive to switch carriers because broadband PCS will require equipment that is not compatible with incumbent cellular equipment;[410] (5) number portability would adversely affect roaming capabilities because cellular carriers rely on the ability to identify a roaming cellular customer's "home carrier" by the NPA/NXX;[411] (6) service provider portability would require CMRS carriers to expand significantly the capacity of their roaming databases to provide additional information about each subscriber and his or her current service provider;[412] and (7) CMRS uses different signalling protocols than wireline carriers, which will make implementation of number portability more difficult.[413]

147. Paging providers similarly oppose being required to provide number portability. Arch/AirTouch Paging claims that the recent proliferation of new area codes, the introduction of a variety of competing services, and the availability of 800 and 888 numbers (and possibly of portable 500 and 900 numbers) have reduced in general the importance of number portability for all carriers.[414] Arch/AirTouch Paging further argues against the imposition of number portability on CMRS providers because it believes competition will continue to develop without number portability.[415] It maintains that various factors, such as price, service quality, coverage area, equipment functions, customer service, and enhanced service options can overcome the reluctance of customers to change carriers.[416] PageNet argues that paging and messaging service providers should not be required to provide number portability because these services are already competitive, as no single carrier controls more than 12 percent of any paging market, and that markets, on average, have five competing carriers.[417]

148. Deployment of Long-Term Solutions by CMRS Carriers. The PCS providers generally assert that CMRS providers will face technical burdens comparable to wireline carriers in updating their networks, and argue that there is no reason to treat CMRS providers

409 Bell Atlantic NYNEX Mobile Comments at 4.

410 CTIA Comments at 9.

411 AirTouch/US West New Vector Reply Comments at 9. See also Bell Atlantic NYNEX Mobile Comments at 3 (imposing wireless number portability is inadvisable because the Commission is considering multiple, related issues, such as interconnection, roaming, and resale, that would directly affect consideration of number portability); SBC Communications Comments at 6, 15, app. F.

412 Bell Atlantic NYNEX Mobile Comments at 4.

413 Bell Atlantic NYNEX Mobile Reply Comments at 4.

414 Arch/AirTouch Paging Comments at 5-6.

415 Id. at 5.

416 Arch/AirTouch Paging Reply Comments at 9-10.

417 PageNet Reply Comments at 5.

differently from wireline carriers.[418] Some CMRS parties indicate that it is technically possible to update cellular and PCS networks to accommodate long-term number portability.[419] PCIA acknowledges that implementation of number portability by CMRS providers presents technical difficulties specific to CMRS, but argues that such difficulties can be overcome.[420] PCIA asserts that most broadband carriers already plan to deploy the components necessary to implement LRN (i.e., SS7 signaling, AIN/IN to do database queries and responses, and AIN triggers).[421] Omnipoint contends that implementation deadlines for number portability should apply equally to wireless and wireline carriers, and proposes implementation in the top 100 MSAs between October 1997 and October 1998.[422] Competitive Carriers argues that the Commission's number portability rules should be technology-neutral, and favors requiring implementation of number portability within 24 months of the issuance of our Order throughout the top 100 MSAs.[423]

149. In contrast, several cellular interests claim that upgrading cellular networks to handle number portability will require greater time and effort than adapting wireline networks, primarily because relatively few cellular networks have IN or AIN capabilities, and because the current six-digit-based screening used to validate customer information and handle billing will have to be adapted to ten-digit-based screening.[424] These parties claim that the necessary standards for functions such as ten-digit-based screening have yet to be developed.[425]

150. Several parties caution that implementing number portability for CMRS providers will require more time than for wireline service providers because to date, industry efforts aimed at developing number portability have focused on wireline carriers. For example, CMRS carriers did not participate in the Illinois number portability workshop and CMRS carriers generally have not participated in technical trials of number portability.[426] PCIA estimates that it will be four to five years before CMRS networks are capable of

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418 See, e.g., PCS Primeco Comments at 5; Pacific Bell Comments at 9; PCIA Reply Comments at 12.

419 See, e.g., Competitive Carriers Reply Comments at 7-8; PCIA Ex Parte Presentation at 1-2, CC Docket No. 95-116, filed Feb. 28, 1996 (PCIA February 28, 1996 Ex Parte Filing).

420 PCIA Reply Comments at 12, 14. See also Competitive Carriers Reply Comments at 7-8.

421 PCIA Ex Parte Letter at 3, from Mark J. Golden, to William F. Caton, FCC, CC Docket No. 95-116,

422 Omnipoint Reply Comments at 9-11.

423 Competitive Carriers Comments at 13, 15; Competitive Carriers Reply Comments at 7-9.

424 See AirTouch Cellular Ex Parte Presentation at 10-17, CC Docket No. 95-116, filed May 15, 1996 (AirTouch Cellular May 15, 1996 Ex Parte Filing); CTIA Ex Parte Presentation at 25-29, CC Docket No. 95-116, filed Apr. 18, 1996 (CTIA April 18, 1996 Ex Parte Filing); CTIA Further Comments at 4-6.

425 See AirTouch Cellular May 15, 1996 Ex Parte Filing at 15-17; CTIA April 18, 1996 Ex Parte Filing at 28-29; CTIA Further Comments at 4-6.

426 See Ameritech May 15, 1996 Ex Parte Filing at 14 (noting that wireless industry participation in Illinois Commerce Commission number portability workshop is not scheduled to begin until July 1996); PCIA March 12, 1996 Ex Parte Letter at 2.

implementing long-term number portability.[427] Similarly, AT&T Wireless argues that CMRS carriers must follow a different implementation schedule than wireline.[428]

151. Interim Number Portability Measures. Many of the CMRS carriers oppose requiring CMRS carriers to provide measures such as RCF and DID.[429] PCIA and Arch/AirTouch Paging claim that requiring interim measures would divert resources from, and thus delay implementation of, a long-term method.[430] The paging service providers, in particular, oppose interim measures as not cost-justified and unnecessary for the already competitive paging industry.[431] According to PCIA, RCF and DID currently cannot be provided by mobile telephone switching offices and would be more problematic and expensive to deploy in a CMRS network than in a wireline network.[432] For example, PCIA claims that RCF requires carriers to maintain a point of interconnection within each NPA in which it intends to provide such service, and that, currently, many broadband CMRS carriers' switches do not interconnect at all such points.[433] In addition, PCIA asserts that most new broadband carriers are already planning to deploy the components necessary to implement a long-term database method as part of their initial network designs.[434] Consequently, those new broadband carriers might have to spend as much or more to upgrade their networks to support interim measures as they would to upgrade to support a long-term database method. Because substantial resources would have to be devoted to modifying CMRS networks to support interim measures, and thus diverted away from modifying CMRS networks to support long-term number portability, requiring implementation of interim measures now might delay future implementation of the long-term method.[435] Other CMRS carriers make claims of technical inefficiencies, but acknowledge that RCF and DID are technically possible for CMRS providers today.[436]

3. Discussion

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427 PCIA May 23, 1996 Ex Parte Filing.

428 AT&T Wireless May 24, 1996 Ex Parte Filing at 11.

429 See, e.g., Arch/AirTouch Paging Comments at 12; Bell Atlantic NYNEX Mobile Reply Comments at 5; Nextel Comments at 5.

430 See PCIA March 12, 1996 Ex Parte Letter at 2; Arch/AirTouch Paging Comments at 14-15.

431 Arch/AirTouch Paging Comments at 14-15; PageNet Comments at 8-9; PageNet Reply Comments at 6; see also PCIA Ex Parte Letter at 1-2, from Mark J. Golden, to William F. Caton, FCC, CC Docket No. 95-116, filed Mar. 28, 1996 (PCIA March 28, 1996 Ex Parte Letter).

432 PCIA March 12, 1996 Ex Parte Letter at 2-3.

433 See id. at 3.

434 Id.

435 See id. at 2-3.

436 See, e.g., Nextel Comments at 5; PageNet Reply Comments at 6.

152. Authority to Require CMRS Providers to Provide Number Portability. Section 251(b) requires local exchange carriers to provide number portability to all telecommunications carriers, and thus to CMRS providers as well as wireline service providers. The statute, however, explicitly excludes commercial mobile service providers from the definition of local exchange carrier, and therefore from the section 251(b) obligation to provide number portability, unless the Commission concludes that they should be included in the definition of local exchange carrier.[437] Our recent NPRM on interconnection issues raised by the 1996 Act seeks comment on whether, and to what extent, CMRS providers should be classified as LECs.[438] Because we conclude that we have independent bases of jurisdiction over commercial mobile service providers, we need not decide here whether CMRS providers must provide number portability as local exchange carriers under section 251(b).

153. We possess independent authority under sections 1, 2, 4(i), and 332 of the Communications Act of 1934, as amended, to require CMRS providers to provide number portability as we deem appropriate. Ensuring that the portability of telephone numbers within the United States is handled efficiently and fairly is within our jurisdiction under these other provisions of the Communications Act.[439] Sections 2 and 332(c)(1) of the Act give the Commission authority to regulate commercial mobile service providers as common carriers, except for the provisions of Title II that we specify are inapplicable.[440] Section 1 of the Act requires the Commission to make available to all people of the United States "a rapid, efficient, Nation-wide, and world-wide wire and radio communication service."[441] The Commission's interest in number portability is bolstered by the potential deployment of different number portability solutions across the country, which would significantly impact the provision of interstate telecommunications services.[442] Section 1 also creates a significant federal interest in the efficient and uniform treatment of numbering because such a system is essential to the efficient delivery of interstate and international telecommunications.[443] Implementation of long-term service provider portability by CMRS carriers will have an

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437 See 47 U.S.C. § 153(26).

438 Interconnection NPRM at ¶ 195.

439 47 U.S.C. § 151.

440 47 U.S.C. §§ 152, 332. Section 332 provides that "[a] person engaged in the provision of a service that is a commercial mobile service shall, insofar as such person is so engaged, be treated as a common carrier for purposes of this Act, except for such provisions of title II as the Commission may specify by regulation as inapplicable to that service or person." 47 U.S.C. § 332(c)(1)(A).

441 47 U.S.C. § 151.

442 See, e.g., ACTA Comments at 6-7; Florida PSC Comments at 6; Omnipoint Comments at 5.

443 See Proposed 708 Relief Plan and 630 Numbering Plan Area Code by Ameritech - Illinois, Declaratory Ruling and Order, 10 FCC Rcd 4596, 4602 (1995).

impact on the efficient use and uniform administration of the numbering resource. Section 4(i) grants the Commission authority to "perform any and all acts, make such rules and regulations, and issue such orders, not inconsistent with [the Communications Act of 1934, as amended], as may be necessary in the execution of its functions."[444] We conclude that the public interest is served by requiring the provision of number portability by CMRS providers because number portability will promote competition between providers of local telephone services and thereby promote competition between providers of interstate access services.[445]

154. Bell Atlantic NYNEX Mobile cites the CT DPUC Petition in support of its argument that the Commission can only regulate CMRS providers under section 332 to the extent clearly necessary, and that regulation of number portability is not clearly necessary in the CMRS market.[446] We conclude, however, that the CT DPUC Petition does not limit our authority to require CMRS providers to provide number portability to other CMRS or wireline carriers because that proceeding did not address the Commission's authority to require CMRS providers to provide number portability. That proceeding related solely to state authority to regulate rates of CMRS providers.[447] We believe that imposing number portability obligations on CMRS providers will foster increased competition in the CMRS marketplace, and furthers our CMRS regulatory policy of establishing moderate, symmetrical regulation of all services, and a preference for curing market imperfections by lowering barriers to entry in order to encourage competition.[448]

155. Importance of Number Portability to CMRS Providers. We require cellular, broadband PCS, and covered specialized mobile radio (SMR) providers (as defined in the First Report and Order in CC Docket 94-54),[449] which are the CMRS providers that are expected to compete in the local exchange market, to offer number portability. This mandate is in the public interest because it will promote competition among cellular, broadband PCS, and covered SMR carriers, as well as among CMRS and wireline providers. We therefore include those carriers in our mandate to provide long-term service provider portability, under the Commission-mandated performance criteria set forth above, pursuant to our authority

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444 47 U.S.C. § 154(i).

445 See Notice, 10 FCC Rcd at 12362; Expanded Interconnection with Local Telephone Company

446 Bell Atlantic NYNEX Mobile Further Comments at 3 n.3 (citing Petition of CT DPUC, Order, 10 FCC Rcd at 7031).

447 Petition of CT DPUC, Order, 10 FCC Rcd at 7025, 7032-33.

448 See Petition of CT DPUC, Order, 10 FCC Rcd at 7033-34 (concluding that Omnibus Budget Reconciliation Act of 1993 validates the Commission's CMRS regulatory approach).

449 Interconnection and Resale Obligations Pertaining to Commercial Mobile Radio Services, First Report and Order, CC Docket 94-54, FCC 96-263 (adopted June 12, 1996).

under sections 1, 2, 4(i), and 332 of the Communications Act of 1934.[450] This mandate applies when switching among wireline service providers and broadband CMRS providers, as well as among broadband CMRS providers, even if the broadband CMRS and wireline service providers or the two broadband CMRS providers are affiliated. We base this conclusion on our view, as discussed in the following paragraphs, that cellular, broadband PCS, and covered SMR providers will compete directly with one another, and potentially will compete in the future with wireline carriers.

156. We specifically exclude at this time paging and other messaging services,[451] and the following CMRS providers as listed in Part 20 of our rules: Private Paging, Business Radio Services, Land Mobile Systems on 220-222 MHz, Public Coast Stations, Public Land Mobile Service, 800 MHz Air-Ground Radio-Telephone Service, Offshore Radio Service, Mobile Satellite Services, Narrowband PCS Services.[452] We do so because such services currently will have little competitive impact on competition between providers of wireless telephony service or between wireless and wireline carriers. Because local SMR licensees offering mainly dispatch services to specialized customers in a non-cellular system configuration do not compete substantially with cellular and broadband PCS providers, we also exclude them from the number portability requirements we adopt today. For similar reasons, we also specifically exclude at this time Local Multipoint Distribution Service (LMDS). If, however, any of these services begins to compete in the local exchange market, or if there are other public interest reasons to require them to provide number portability, we will reassess the exclusion of these services from the requirement to provide number portability.

157. Service provider portability between cellular, broadband PCS, and covered SMR providers is important because customers of those carriers, like customers of wireline providers, cannot now change carriers without also changing their telephone numbers. While we recognize that customers may need to purchase new equipment when switching among such CMRS providers,[453] the inability of customers to keep their telephone numbers when switching carriers also hinders the successful entrance of new service providers into the cellular, broadband PCS, and SMR markets.[454] We believe, therefore, that service provider portability, by eliminating one major disincentive to switch carriers, will ameliorate

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450 For performance criteria, see supra ¶ .

451 Because of the technical hurdles faced by paging and other messaging service providers, the minimal impact that paging and other messaging services have on local exchange competition, and the competitive nature of paging and within the paging industry, we conclude that the costs to paging companies to upgrade their networks to accommodate either interim or long-term number portability solutions, estimated at $30 million by one carrier, outweigh the competitive benefits derived from service provider portability. See, e.g., PCIA Comments at 5 n.17; PCIA Comments at 5; PCIA Reply Comments at 15-16; Arch/Airtouch Paging Comments at 14.

452 See 47 C.F.R. § 20.9.

453 See CTIA Comments at 9.

454 See, e.g., Nextel Comments at 3-4; Omnipoint Comments at 3-4.

customers' disincentive to switch carriers if they must purchase new equipment. We believe service provider portability will promote competition between existing cellular carriers, as well as facilitate the viable entry of new providers of innovative service offerings, such as PCS and covered SMR providers.[455]

158. With the recent and expected future entry of new PCS providers,[456] and the growth of existing CMRS generally,[457] we believe it important that service provider portability for cellular, broadband PCS, and covered SMR providers be made available so as to remove barriers to competition among such providers. Removing barriers, such as the requirement of changing telephone numbers when changing providers, will likely stimulate the development of new services and technologies, and create incentives for carriers to lower prices and costs. We find unpersuasive arguments that number portability is unimportant because the CMRS market is already substantially competitive since CMRS customers already may choose from multiple competitive carriers.[458] Most CMRS customers today subscribe to cellular service because broadband PCS has been offered for a very short time, SMR service has typically been used for communications among mobile units of the same business subscriber (e.g., taxi dispatch), and mobile satellite services have typically been used only in rural areas.[459] The possibility of entry by new competitors can constrain monopolistic, or in this case, duopolistic, conduct by incumbent providers and thus serve the public interest by potentially lowering prices, improving service quality, and encouraging innovation.[460] We note that while the cellular industry, with two facilities-based carriers offering service in each market area, is more competitive than traditional monopoly telephone

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455 As of 1995, CMRS encompassed approximately 25 million cellular subscribers, 25 million pagers, and 2 million SMR transmitters. See Implementation of Section 6002(B) of the Omnibus Reconciliation Act of 1993, First Report, 10 FCC Rcd 8844, 8847 n.9 (1995) (First Report on CMRS).

456 The Commission has awarded or will award a total of 2074 broadband PCS licenses. The A and B Blocks are licensed within 51 Major Trading Areas (MTAs), and the C, D, E, and F Blocks are licensed within 493 Basic Trading Areas (BTAs). Ultimately, six broadband PCS providers will operate in each market. Amendment of the Commission's Rules to Establish New Personal Communications Services, Memorandum Opinion and Order, 9 FCC Rcd 4957, 4963 (1994).

457 The cellular industry has approached or exceeded 50% growth rates in each of the last 10 years. Double-digit growth rates for CMRS are anticipated during the next several years. First Report on CMRS, 10 FCC Rcd at 8846, 8848, 8855-56.

458 See, e.g., AirTouch/US West New Vector Reply Comments at 3; Bell Atlantic NYNEX Mobile Comments at 2.

459 See First Report on CMRS, 10 FCC Rcd at 8855-61. We have recognized that covered SMR service providers have the potential to compete with cellular and broadband PCS carriers. See Interconnection and Resale Obligations Pertaining to Commercial Mobile Radio Services, First Report and Order, CC Docket No. 94-54, FCC 96-263 (adopted June 12, 1996).

460 First Report on CMRS, 10 FCC Rcd at 8871 (citing United States v. Waste Management, Inc., 743 F.2d 976, 982-83 (2d Cir. 1984); American Bar Association, I Antitrust Law Developments at 307-11 (3d ed. 1992)).

markets, it is far from perfectly competitive. The United States Government Accounting Office, the Department of Justice, and the Commission have determined that only limited competition currently exists in the cellular market.[461]

159. We conclude that number portability will facilitate the entry of new service providers, such as PCS and covered SMR providers, into CMRS markets currently dominated by cellular carriers, and thus provide incentives for incumbent cellular carriers to lower prices and increase service choice and quality. Indeed, we noted recently that competition from PCS, alone, is expected to reduce cellular prices by as much as 40% over the next two years.[462] We believe that such pro-competitive effects will be enhanced by eliminating the need for customers to change telephone numbers when switching providers of cellular services, broadband PCS, and covered SMR services.

160. We further conclude that number portability will promote competition between CMRS and wireline service providers as CMRS providers offer comparable local exchange and fixed commercial mobile radio services.[463] The Commission has recognized on several occasions that CMRS providers, such as broadband PCS and cellular, will compete in the local exchange marketplace.[464] For example, the Commission permitted Southwestern Bell Mobile Systems, Inc. to own local exchange facilities outside of Southwestern Bell's service area in order to "promote significant Commission objectives by encouraging local loop competition. The development of CMRS is one of several potential sources of competition that we have identified to bring market forces to bear on the existing LECs."[465] The Commission also adopted an auction licensing mechanism to speed deployment of PCS

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461 First Report on CMRS, 10 FCC Rcd at 8866-67 (citing Memorandum of the United States in Response to the Bell Companies' Motions for Generic Wireless Waivers at 14-18, United States v. Western Electric Co., 158 F.R.D. 211 (D.D.C. 1994), Civ. Action No. 82-0192, filed July 25, 1994; July 1992 Gen. Acct'g Off. Rep., Telecommunications: Concerns About Competition in the Cellular Telephone Service Industry, GAO/RCED-92-220 at 2).

462 First Report on CMRS, 10 FCC Rcd at 8871.

463 See Amendment of the Commission's Rules to Permit Flexible Service Offerings in the Commercial Mobile Radio Services, Notice of Proposed Rulemaking, 11 FCC Rcd 2445 (1996) (Fixed CMRS Notice). See also Implementation of Section 3(n) and 332 of the Communications Act, Regulatory Treatment of Mobile Services, Second Report and Order, 9 FCC Rcd 1411, 1422 (1994) (Second CMRS Report and Order).

464 See, e.g., Fixed CMRS Notice, 11 FCC Rcd at 2447 (quoting Rule Making to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5 - 29.5 GHz Frequency Band, to Reallocate the 29.5 - 30.0 GHz Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, Third Notice of Proposed Rulemaking and Supplemental Tentative Decision, 11 FCC Rcd 53, 64 (rel. July 28, 1995) (Rule Making to Amend Parts 1, 2, 21, and 25)); First Report on CMRS, 10 FCC Rcd at 8869-70; Omnipoint Reply Comments at 12. See also Southwestern Bell Mobile Systems, Inc., Memorandum Opinion and Order, 11 FCC Rcd 3386, 3395 (1995); Implementation of Section 309(j) of the Communications Act - Competitive Bidding, Second Report and Order, 9 FCC Rcd 2348, 2350 (1994); Sprint Corporation, 11 FCC Rcd 1850, 1863 (1996).

465 Southwestern Bell Mobile Systems, Inc., 11 FCC Rcd at 3395 (1995) (footnote omitted).

and thereby "create competition for existing wireline and wireless services."[466] In addition, the Commission decided to permit foreign investment in Sprint Corporation based, in part, on a finding that a portion of that investment would be used to fund PCS competition with wireline local exchange providers in the U.S. market.[467] Finally, in the Fixed CMRS Notice, the Commission tentatively concluded that PCS and cellular providers will provide fixed CMRS local loop services, and that such carriers will directly compete with traditional wireline local exchange carriers.[468] We believe, for the reasons stated above, that service provider portability will encourage CMRS-wireline competition, creating incentives for carriers to reduce prices for telecommunications services and to invest in innovative technologies, and enhancing flexibility for users of telecommunications services.[469]

161. We find unpersuasive commenters' arguments that number portability is not a competitive issue for CMRS providers because consumers are not interested in retaining their CMRS numbers.[470] We recognize that currently customers of cellular, broadband PCS, and covered SMR providers may generally initiate more calls than they receive, and are reluctant to distribute their CMRS telephone numbers. We agree with the argument advanced by PCS Primeco that this reluctance generally is caused by the current cellular carrier pricing structures, under which customers pay for incoming calls, rather than lack of attachment to CMRS telephone numbers.[471] Several parties have indicated that at least some CMRS providers intend to compete with wireline carriers in the local exchange market.[472] To do so effectively, CMRS carriers are likely to change their pricing structures to resemble more closely wireline pricing structures.[473] As broadband CMRS pricing structures are modified as a likely result of increased competition, and cellular, broadband PCS, and covered SMR become integrated and less functionally distinguishable from wireline services, customers may be more likely to make their CMRS telephone numbers known, and utilize numbering

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466 Implementation of Section 309(j) of the Communications Act - Competitive Bidding, 9 FCC Rcd at 2350.

467 Sprint Corporation, 11 FCC Rcd at 1863.

468 Fixed CMRS Notice, 11 FCC Rcd at 2447 (quoting Rule Making to Amend Parts 1, 2, 21, and 25,

469 See Expanded Interconnection with Local Telephone Company Facilities, 9 FCC Rcd at 5155.

470 See AirTouch/US West New Vector Reply Comments at 4; CTIA Comments at 9, 10 & n.15; Bell Atlantic NYNEX Mobile Comments at 2-3.

471 See Pacific Bell Comments at 8; PCS Primeco Reply Comments at 1-2.

472 See, e.g., AT&T Wireless Services, Inc. Ex Parte Letter at 2, from Cathleen A. Massey, to William F. Caton, FCC, CC Docket No. 95-116, filed May 28, 1996 (AT&T Wireless May 28, 1996 Ex Parte Letter); Competitive Carriers Comments at 13; Competitive Carriers Reply Comments at 8; Omnipoint Reply Comments at 12. See also PCIA Reply Comments at 13; PCS Primeco Reply Comments at 1-2.

473 See PCS Primeco Reply Comments at 1-2 ("if wireless service is to more nearly ressemble [sic] plain old telephone service, 'calling party pays' will have to become the rule rather than the exception for wireless service").

resources in a manner more comparable with that of the current wireline market.[474] We, therefore, conclude that requiring number portability for cellular, broadband PCS, and covered SMR providers will enhance the development of competition among those providers and among CMRS and wireline service providers.

162. Deployment of Long-Term Solutions by CMRS Carriers. The record of this proceeding suggests that cellular, broadband PCS, and covered SMR providers will face burdens comparable to wireline carriers in modifying their networks to implement number portability, and that any technical issues that are unique to those carriers can be resolved.[475] While a number of parties have raised CMRS-specific issues that must be resolved before CMRS carriers can effectively provide number portability, we conclude that the record demonstrates that none of these difficulties are insurmountable.[476] Several parties claim that CMRS networks can be updated to accommodate long-term number portability.[477] In addition, the report on number portability recently released by the INC indicates that broadband CMRS roaming systems, including mobile station registration and call delivery, switches, protocols, and wireline interconnection arrangements can be updated to accommodate number portability.[478] PCIA asserts that most broadband carriers already plan to deploy the components necessary to implement LRN (i.e., SS7 signaling, IN/AIN to do database queries and responses, and AIN triggers).[479] Omnipoint argues that the cellular industry has failed to demonstrate why CMRS-specific technical issues cannot be worked out within the same time as wireline technical issues.[480]

163. A number of commenters, however, also suggest that implementation of service provider portability for broadband CMRS would necessitate more time than deployment of wireline methods. For instance, several cellular interests claim that upgrading cellular networks to handle number portability will require greater time and effort than adapting wireline networks, primarily because relatively few cellular networks have IN or AIN capabilities, and because the current six-digit-based screening used to provide roaming, validate customer information, and handle billing will have to be adapted to ten-digit-based

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474 See id. at 2.

475 See, e.g., Competitive Carriers Reply Comments at 8; Pacific Bell Comments at 9; PCIA February 28, 1996 Ex Parte Filing at 1-2; PCS Primeco Comments at 5.

476 See supra ¶ .

477 See, e.g., Competitive Carriers Comments at 13; Competitive Carriers Reply Comments at 7-8; PCIA Ex Parte Presentation at 1-2, CC Docket No. 95-116, filed Feb. 28, 1996 (PCIA February 28, 1996 Ex Parte Filing).

478 INC Report at 41-43.

479 PCIA March 12, 1996 Ex Parte Letter at 3.

480 Omnipoint Reply Comments at 11.

screening.[481] These parties claim that the necessary standards for functions such as ten-digit-based screening have yet to be developed.[482]

164. It appears that while the wireline industry has already developed many of the standards and protocols necessary for wireline carriers to provide number portability, the CMRS industry is only beginning to address the additional standards and protocols specific to the provision of portability by CMRS carriers. The technical requirements for broadband CMRS portability have been given comparatively little attention compared to those for wireline. Initial state efforts have generally not addressed CMRS issues; for example, the Illinois Number Portability Workshop, which began studying wireline portability in April 1995, only plans to begin addressing CMRS portability in July 1996.[483] Moreover, cellular, broadband PCS, and covered SMR providers face technical burdens unique to the provision of seamless roaming on their networks, and standards and protocols will have to be developed to overcome these difficulties. Therefore, based on the record, and the technical evidence presented both by the parties in this proceeding and the INC Report, we conclude that cellular, broadband PCS, and covered SMR providers should implement long-term service provider portability based on the following schedule.

165. We require all cellular, broadband PCS, and covered SMR carriers to have the capability of querying appropriate number portability database systems in order to deliver calls from their networks to ported numbers anywhere in the country by December 31, 1998, the date by which wireline carriers must complete implementation of number portability in the largest 100 MSAs. This schedule will ensure that cellular, broadband PCS, and covered SMR providers will have the ability to route calls from their customers to a wireline customer who has ported his or her number, by the time a substantial number of wireline customers have the ability to port their numbers between wireline carriers.[484] This capability to access a database for routing information can be accomplished in either of two ways. First, the carrier may implement hardware and software upgrades (e.g., IN/AIN capabilities) similar to those needed in wireline networks. Since these upgrades do not require development of the standards and protocols necessary to support roaming, we believe that cellular, broadband PCS, and covered SMR carriers should be able to complete these upgrades by the date by which wireline carriers must complete implementation of number portability in the largest 100 MSAs. Second, the carrier may make arrangements with other carriers that are capable of performing database queries. Cellular, broadband PCS, and covered SMR carriers

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481 See AirTouch Cellular May 15, 1996 Ex Parte Filing at 10-17; CTIA April 18, 1996 Ex Parte Filing at 25-29; CTIA Further Comments at 4-6.

482 See AirTouch Cellular May 15, 1996 Ex Parte Filing at 15-17; CTIA April 18, 1996 Ex Parte Filing at 28-29; CTIA Further Comments at 4-6.

483 Ameritech May 15, 1996 Ex Parte Filing at 13-14; Nortel Ex Parte Presentation at 7, CC Docket No. 95-116, filed May 21, 1996 (Nortel May 21, 1996 Ex Parte Filing).

484 See CTIA April 18, 1996 Ex Parte Filing at 20-21 (asserting that even if number portability is limited to the wireline network, CMRS service providers must still modify their method of routing calls from their CMRS customers to wireline customers who have ported their numbers).

operating in areas outside the largest 100 MSAs thus would need to make arrangements with other CMRS providers that have the capability to query databases, or with wireline carriers in the largest 100 MSAs, which will have completed deployment of number portability by December 31, 1998.

166. We require all cellular, broadband PCS, and covered SMR carriers to offer service provider portability throughout their networks, including the ability to support roaming, by June 30, 1999.[485] The record indicates that additional time is needed to develop standards and protocols, such as ten-digit-based screening, to overcome the technical burdens unique to the provision of seamless roaming on cellular, broadband PCS, and covered SMR networks.[486] Individual carriers, of course, may implement number portability sooner, and we expect that some carriers will do so based on individual technical, economic, and marketing considerations. We believe a nationwide implementation date for number portability for cellular, broadband PCS, and covered SMR providers is necessary to ensure that validation necessary for roaming can be maintained.[487] We delegate authority to the Chief, Wireless Telecommunications Bureau, to establish reporting requirements in order to monitor the progress of cellular, broadband PCS, and covered SMR providers implementing number portability, and to direct such carriers to take any actions necessary to ensure compliance with this deployment schedule. We believe it necessary to establish reporting requirements for CMRS to ensure timely resolution of the standards issues unique to CMRS number portability, particularly roaming.

167. We recognize, however, that additional technical issues may arise as the industry begins to focus on provision of portability by CMRS carriers. We therefore delegate authority to the Chief, Wireless Telecommunications Bureau, to waive or stay any of the dates in the implementation schedule, as the Chief determines is necessary to ensure the efficient development of number portability, for a period not to exceed 9 months (i.e., no later than September 30, 1999, for the first deadline, and no later than March 31, 2000, for the second deadline).

168. In the event a carrier is unable to meet our deadlines for implementing a long-term number portability solution, it may file with the Commission at least 60 days in advance of the deadline a petition to extend the time by which implementation in its network will be

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485 See Interconnection and Resale Obligations Pertaining to Commercial Mobile Radio Services, Second Report and Order and Third Notice of Proposed Rulemaking, CC Docket No. 94-54, FCC 96-284 (adopted June 27, 1996) (imposing manual roaming non-discrimination requirements). We recognize that customers may not be able to roam into some systems due to technical incompatibilities (e.g. different air interface technologies) between the system and the customer's handset. Nothing in this Order should be interpreted as requiring such capability.

486 See, e.g., AirTouch Cellular May 15, 1996 Ex Parte Filing at 15-17; CTIA April 18, 1996 Ex Parte Filing at 28-29; CTIA Further Comments at 4-6.

487 See AirTouch Cellular May 15, 1996 Ex Parte Filing at 10-17; CTIA April 18, 1996 Ex Parte Filing at 25-29; Nortel May 21, 1996 Ex Parte Filing at 5-7.

completed. We emphasize, however, that carriers are expected to meet the prescribed deadlines, and a carrier seeking relief must present extraordinary circumstances beyond its control in order to obtain an extension of time. Carriers seeking such relief must demonstrate through substantial, credible evidence the basis for its contention that it is unable to comply with our deployment schedule. Such requests must set forth: (1) the facts that demonstrate why the carrier is unable to meet our 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) 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.

169. Interim Number Portability Measures. We do not require CMRS providers to provide RCF, DID, or comparable measures. Different treatment of CMRS and wireline carriers in this instance is justified by their differing circumstances. According to the record, RCF and DID currently cannot be provided by mobile telephone switching offices.[488] Due to the different nature of CMRS networks and wireline networks, implementation of RCF or DID capability in a CMRS network appears far more problematic and expensive than in a wireline network.[489] For example, PCIA claims that RCF requires carriers to maintain a point of interconnection within each NPA in which it intends to provide such service, and that currently, many broadband CMRS carriers' switches do not interconnect at all such points.[490] Moreover, cellular roaming systems would have to be modified to account for the fact that, under RCF, a number different than the one dialed is used to route the call. As a result, alternative means will have to be developed to enable CMRS carriers to validate mobile subscribers who have roamed out of their service areas.[491] Broadband carriers may also have to purchase new switches in order to provide RCF and DID. Moreover, most new broadband carriers are already planning to deploy the components necessary to implement a long-term database method as part of their initial network designs.[492] Consequently, those new broadband carriers might have to spend as much or more to upgrade their networks to support interim measures as they would spend to upgrade to support a long-term database method, and requiring implementation of both might delay implementation of the long-term method.[493] We also find it significant that, while the wireline parties advocating full portability generally support interim measures, the CMRS parties advocating full portability

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488 PCIA March 12, 1996 Ex Parte Letter at 2-3; PCIA February 28, 1996 Ex Parte Filing at 1-2.

489 See generally PCIA March 12, 1996 Ex Parte Letter; PCIA March 28, 1996 Ex Parte Letter.

490 See PCIA March 12, 1996 Ex Parte Letter at 3.

491 See AT&T Wireless, Inc. Ex Parte Letter, from Cathleen A. Massey, to William Caton, FCC, CC Docket No. 95-116, filed May 24, 1996 (AT&T May 24, 1996 Ex Parte Letter).

492 PCIA March 12, 1996 Ex Parte Letter at 3.

493 Id. at 2-3.

generally oppose interim measures.[494]

170. We therefore conclude that it would be counterproductive to require CMRS carriers to provide interim measures since they can provide long-term portability comporting with our standards just as quickly and less expensively. We believe that relieving cellular, broadband PCS, and covered SMR carriers of the burden of providing interim measures will allow them to devote their full resources toward implementing a long-term method and thus enhance their ability to provide long-term portability on the same schedule as wireline carriers.[495] We note that CMRS carriers are, of course, free to provide interim number portability, if they choose to do so.

171. Number Transferability. A few parties raise the issue of number transferability, the ability of a reseller to transfer telephone numbers from one facilities-based carrier to another in order to permit the reseller's end user customers to retain their existing telephone numbers.[496] Because the record does not establish any relationship between number transferability and number portability, and does not identify the technical issues involved in providing number transferability, we decline to address the provision of number transferability in this proceeding. We note that this issue has been raised in the Second CMRS Interconnection NPRM, and will be addressed in CC Docket No. 94-54.[497]

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494 See, e.g., id.; PCIA February 28, 1996 Ex Parte Filing at 1-2.

495 PCIA March 12, 1996 Ex Parte Letter at 2.

496 See, e.g., AirTouch/US West New Vector Reply Comments at 8; CTIA Comments at 2; CTIA Reply Comments at 4-5 (asserting that approximately 13.2% of cellular customers change carriers annually); Time Warner Telecom Reply Comments at 7, Exhibit (supporting obligation of cellular licensees to provide number transferability). See also Notice, 10 FCC Rcd at 12360 n.31.

497 See Interconnection and Resale Obligations Pertaining to Commercial Mobile Radio Services, Second Notice of Proposed Rulemaking, 10 FCC Rcd 10666 (1995).

H. Service and Location Portability

1. Background

172. While service provider portability refers to the ability of end users to retain the same telephone numbers as they change from one service provider to another, service portability refers to the ability of users of telecommunications services to retain existing telecommunications numbers without impairment of quality, reliability, or convenience when switching from one telecommunications service to another service provided by the same telecommunications carrier. We regard switching among wireline service providers and broadband CMRS providers, or among broadband CMRS providers, as changing service providers, not changing services, even if the broadband CMRS and wireline service providers or the two broadband CMRS providers are affiliated. We base this conclusion on our view that CMRS providers, such as cellular, broadband PCS, and covered SMR providers, compete directly with one another, and broadband CMRS providers potentially will compete in the future with wireline carriers.[498]

173. Today, telephone subscribers must change their telephone number when they change telephone service (e.g., from Plain Old Telephone Services (POTS) to Integrated Services Digital Network (ISDN)) because a particular service may be available only through a particular switch. In our Notice, we sought comment on the demand for service portability and the extent to which a lack of service portability inhibits the growth of new services, such as ISDN.[499] We requested information on the relative importance of service portability to the decisions of end users when considering whether to switch from one service to another. We also sought comment on what public interest objectives would be served by encouraging (or possibly mandating) implementation of service portability, and how the Commission could encourage service portability.[500]

174. Location portability refers to the ability of users of telecommunications services to retain existing telecommunications numbers without impairment of quality, reliability, or convenience when moving from one physical location to another.[501] Today, telephone subscribers must change their telephone numbers when they move outside the area served by their current central office. In our Notice, we sought comment on the demand for location portability and the geographic area in which portability might be desired by consumers. We asked what federal policy objectives would be served by encouraging (or possibly mandating) implementation of location portability, and how such objectives could be attained.[502] We sought comment on the potential impact that location portability for wireline telephone numbers and the development of the 500 personal communications services

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498 See supra ¶¶ -.

499 Notice, 10 FCC Rcd at 12360.

500 Id.

501 Id.

market, which permits customers to be reached through a single telephone number regardless of their location, may have on each other.[503]

2. Position of the Parties

175. Most parties agree that location portability and service portability do not have the same potential impact on consumer choice and on the development of local competition as service provider portability.[504] Pacific Bell and the Missouri PSC argue that the availability of service portability will be driven by market forces, and that product differentiation will stimulate customers to change their telecommunications services.[505] Ameritech and SBC Communications note that since the 1996 Act addresses only service provider portability, the Commission should not adopt rules mandating service and location portability.[506] OPASTCO claims that requiring service portability would strain the limited abilities of small LECs, and thus delay deployment of rural infrastructure.[507] The Missouri PSC and New York DPS argue that there currently is not enough demand for ISDN to warrant requiring service portability.[508] The Florida PSC, on the other hand, maintains that, in many cases, service portability is already available, as long as the switch has the needed functionality.[509]

176. Most parties agree that implementation of location portability poses many problems, including: (1) loss of geographic identity of one's telephone number;[510] (2) lack of industry consensus as to the proper geographic scope of location portability;[511] (3) substantial

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502 Id.

503 The geographic mobility offered through 500 number services requires customers to change their existing telephone numbers to 500 numbers.

504 See, e.g., ACTA Comments at 4-6; California PUC Comments at 5; Pacific Bell Comments at 11-12, 26.

505 Missouri PSC Comments at 1-2; Pacific Bell Comments at 25-26. See also ACTA Comments at 5.

506 Ameritech Further Comments at 1; SBC Communications Further Comments at 2. See also NYNEX Further Reply Comments at 4-6.

507 OPASTCO Comments at 14.

508 Missouri PSC Comments at 1-2; New York DPS Comments at 5.

509 Florida PSC Comments at 4.

510 See, e.g., AT&T Comments at 7-8; GVNW Comments at 5-6; Illinois Commerce Commission Comments at 13.

511 SBC Communications Comments at 6-7; PCIA Comments at 4, 6. See also AT&T Comments at 8 n.11 (advocating location portability within each exchange); Ameritech Reply Comments at 11-12 (advocating location portability on an NPA basis); PCS Primeco Comments at 5 (same).

modification of billing systems and the consumer confusion regarding charges for calls;[512] (4) loss of the ability to use 7-digit dialing schemes;[513] (5) the need to restructure directory assistance and operator services;[514] (6) coordination of number assignments for both customer and network identification;[515] (7) network and switching modifications to handle a two-tiered numbering system;[516] (8) development and implementation of systems to replace 1+ as toll identification;[517] and (9) possible adverse impact on E911 services.[518]

177. Several BOCs maintain that the Commission should require location portability immediately because currently new entrants can serve larger geographic areas with a single switch.[519] Some of these parties maintain that the ability of competing carriers to serve larger geographic areas from a single wire center may increase consumer demand for location portability, thus giving competing carriers an advantage over incumbent LECs.[520] MCI, SBC Communications, Nextel, and Arch/AirTouch Paging argue that, if location portability is implemented, it should be limited to the local calling area of a wireline carrier.[521] MCI further maintains that allowing numbers to be transferred across NPA or state boundaries would negatively affect the numbering resource because individuals could remove numbers from the NPA by taking such numbers to other areas of the country.[522] In contrast, GSA believes that the greater the geographic scope of location portability, the more meaningful the consumer benefits.[523]

178. While many parties believe location portability has some value, most parties maintain that its implementation should not delay implementation of service provider portability.[524] At the same time, numerous parties, including incumbents, new entrants, and state commissions, argue that any number portability method adopted by the Commission

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512 See, e.g., New York DPS Comments at 3-4; Pacific Bell Comments at 27; SBC Communications Comments at 7.

513 GVNW Comments at 9-10; US Airwaves Comments at 3.

514 GVNW Comments at 9-10; Pacific Bell Comments at 28.

515 GVNW Comments at 9-10.

516 Id.; ACTA Comments at 6.

517 GVNW Comments at 9-10.

518 NENA Reply Comments at 2.

519 BellSouth Comments at 8; NYNEX Comments at 18 n.19; GTE Reply Comments at 13.

520 BellSouth Comments at 8; NYNEX Comments at 18 n.19; SBC Communications Reply Comments at 6-7.

521 MCI Comments at 23; SBC Communications Comments at 6; SBC Communications Reply Comments at 7; Nextel Comments at 5; Arch/AirTouch Paging Reply Comments at 18 n.63.

522 MCI Comments at 23.

523 GSA Reply Comments at 7.

524 See, e.g., MCI Comments at 22; Teleport Comments at 6; Time Warner Holdings Comments at 8-9.

should be capable of expanding to encompass location portability if such demand arises.[525] GSA, Nortel, and Bell Atlantic argue that a long-term portability method should eventually encompass service and location portability.[526] The National Emergency Numbering Association (NENA) contends the statutory definition of "number portability" in its broadest interpretation would limit any requirement to provide location portability to the area served by the same central office.[527]

179. Pacific Bell and Time Warner Holdings argue that market forces should drive the development of location portability.[528] Florida PSC, Missouri PSC, ACTA, Pacific Bell, BellSouth, and Sprint maintain that current market demand for location portability is mixed, and depends on such factors as the geographic scope of location portability and costs of implementation.[529] GSA, on the other hand, claims that demand for location portability is reflected in the increase in demand for 800 services and by the demand for 500 services.[530] A number of wireless parties argue that wireless carriers already provide significant location portability.[531] Finally, the New York DPS maintains that location portability, if limited to a rate center, will avoid the problems of customer confusion, and that the 1996 Act does not prohibit provision of location portability within that limitation.[532]

180. OPASTCO, SBC Communications, and Nextel argue that location portability should only be provided through use of non-geographic numbers, such as 500 services.[533] GTE argues that its survey illustrates that customers are not adverse to a one-time number change to a non-geographic number in order to have number portability.[534] Florida PSC maintains, however, that location portability and 500 services serve different purposes, with

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525 See, e.g., BellSouth Comments at 8; US West Comments at 4-5; Teleport Comments at 6; Florida PSC Comments at 5-6; Illinois Commerce Commission Comments at 14; Ohio PUC Comments at 3-4.

526 Bell Atlantic Comments at 12; GSA Comments at 5-7; Nortel Reply Comments at 1.

527 NENA Further Comments at 2. See also 47 U.S.C. § 153(46).

528 Pacific Bell Comments at 3; Time Warner Holdings Comments at 7; Time Warner Holdings Reply Comments at 7.

529 Florida PSC Comments at 5; Missouri PSC Comments at 1, 3-4; ACTA Comments at 4; Pacific Bell Comments at 11-12, 26; BellSouth Comments at 7-8; Sprint Comments at 19.

530 GSA Comments at 6.

531 AirTouch/US West New Vector Reply Comments at 7; CTIA Comments at 8-9; Bell Atlantic NYNEX Mobile Comments at 3.

532 New York DPS Further Comments at 2.

533 OPASTCO Comments at 15-16; SBC Communications Comments at 7-8; Nextel Comments at 4; Nextel Reply Comments at 3. See also Missouri PSC Comments at 6 (customers who wish to lose the geographic significance of their telephone number may use a service-specific NPA).

534 GTE Reply Comments at 3.

location portability providing the ability to take a phone number when a customer changes premises, and 500 services providing the ability to take a telephone number to different locations during the day, week, or month.[535]

3. Discussion

181. We decline at this time to require LECs to provide either service or location portability. This decision is not inconsistent with the 1996 Act, which mandates the provision of service provider portability, but does not address explicitly service or location portability. The 1996 Act's requirement to provide number portability is limited to situations when users remain "at the same location," and "switch[ ] from one telecommunications carrier to another," and thus does not include service and location portability.[536]

182. While the 1996 Act does not require LECs to offer service and location portability, it does not preclude this Commission from mandating provision of these features if it would be in the public interest, nor does it prevent carriers from providing service and location portability, consistent with this Order, if they so choose. We believe, however, that requiring service or location portability now would not be in the public interest. As the record indicates, service provider portability is critical to the development of competition, but service and location portability have not been demonstrated to be as important to the development of competition.[537]

183. Consistent with the result advocated by most parties commenting on this issue, we believe that a mandate for service portability is unnecessary for several reasons. First, and most importantly, requiring carriers to make the necessary switch and network modifications to accommodate service portability as well as service provider portability may delay implementation of the latter. Second, consumer demand for service portability is unclear. The record indicates that the benefits of service portability are limited because the current unavailability of this capability affects only customers who wish to change their current service to Centrex and ISDN services or vice versa. Since most non-basic services offered by incumbent LECs are purchased in addition to (not in lieu of) basic services, implementation of service portability may actually lower demand for the alternate services if it raises their prices.[538] Third, our requirement to provide service provider portability does not preclude carriers from offering service portability where they perceive a demand for it. In fact, our mandate will likely facilitate carriers' ability to provide service portability. Service provider portability will naturally drive the provision of service portability because if a user can receive a different service and keep the same number simply by switching carriers, service providers will have an incentive to offer service portability to keep those customers.

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535 Florida PSC Comments at 5.

536 See 47 U.S.C. § 153(30).

537 See supra ¶¶ .

538 See SBC Communications Comments at 8.

Finally, carrier attempts to differentiate their products from those of other carriers will stimulate changes in services by customers, regardless of service portability.

184. We also believe that, at this time, the disadvantages of mandating location portability outweigh the benefits. Our chief concern is that users currently associate area codes with geographic areas and assume that the charges they incur will be in accordance with the calling rates to that area. Location portability would create consumer confusion and result in consumers inadvertently making, and being billed for, toll calls. Consumers would be forced to dial ten, rather than seven, digits to place local calls to locations beyond existing rate centers. In order to avoid this customer confusion, carriers, and ultimately consumers, would incur the additional costs of modifying carriers' billing systems, replacing 1+ as a toll indicator, and increasing the burden on directory, operator, and emergency services to accommodate 10-digit dialing and the loss of geographic identity.

185. In addition to the disadvantages, the demand for location portability is currently unclear. There is no consensus on the preferred geographic scope of location portability. Also, users who strongly desire location portability can use non-geographic numbers by subscribing to a 500 or toll free number. Finally, whereas having to change numbers deters users from switching service providers, we believe that a customer's decision to move to a new residential or business location generally would not be influenced significantly by the availability of number portability. Therefore, location portability will not foster the development of competition to the same extent as service provider portability.

186. We recognize that new entrants will be able to offer a greater range of location portability per switch due to their network architecture and because they will generally have fewer customers in the area covered by a switch.[539] To avoid the consumer confusion and other disadvantages inherent in requiring location portability, however, we believe state regulatory bodies should determine, consistent with this Order, whether to require carriers to provide location portability. We believe the states should address this issue because we recognize that "rate centers" and local calling areas have been created by individual state commissions, and may vary from state to state. To the extent rate centers and/or local calling areas vary from state to state, the degree of location portability possible without causing consumer confusion may also vary. We therefore expect state regulatory bodies to consider the particular circumstances in their respective locales in determining whether to require carriers to implement location portability.

187. We recognize that location portability would promote consumer flexibility and mobility and potentially promote competition by allowing carriers to offer different levels of location portability in a competitive manner. Also, the importance that consumers attribute to

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[539] We anticipate that a new entrant will employ equipment capable of serving a larger area per switch, and serve fewer customers in each area served by one switch, than incumbent LECs do presently. As a result, one switch of a new entrant could serve all customers in a certain area, while the incumbent LEC must use two or more switches to serve all customers in that area. Thus, the new entrant's network would be capable of geographically transferring telephone numbers across rate centers of incumbent LECs.

the geographic identity of their telephone numbers may change, and our concerns regarding customer confusion may no longer hold true. For these reasons, we require any long-term method to have the capability of accommodating location and service portability if, in the future, demand increases or the burdens decrease.[540]

I. 500 and 900 Number Portability

1. Background

188. Currently, consumers can purchase 500 or 900 services from either local exchange or interexchange carriers. A consumer subscribing to 500 service receives a 500 "area code" number that can be programmed to deliver calls wherever the consumer travels in the United States and in many locations around the world. 900 service is a calling service providing businesses with a method to deliver information, advice, or consultations quickly and conveniently by telephone. Individuals calling 500 or 900 subscribers dial 500 or 900 plus a 7-digit number (NXX-XXXX). When a call is placed to a 500 or 900 service telephone number, the originating LEC uses the NXX of the dialed number to identify the carrier serving either the owner of the 500 number, or the business operating the 900 number service. The LEC then routes the call over the appropriate carrier's network.[541]

189. In the Notice, we tentatively concluded that service provider portability for 500 and 900 numbers is beneficial for customers of those services.[542] We sought comment on this tentative conclusion and on the costs (monetary and nonmonetary) of making such portability available.[543] With respect to 500 service provider portability, we sought comment on the estimated costs of deploying and operating a database solution, and whether it would be technically feasible to upgrade the existing 800 database and associated software to accommodate PCS N00 numbers.[544] We also sought comment on whether it is feasible (both technically and economically) to provide PCS N00 service provider portability in a switch-based translation environment.[545] Further, we sought comment on the following issues raised by the Industry Numbering Committee's (INC's) PCS N00 report: (1) who would be the

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[540] See supra ¶ .

[541] See Ameritech Operating Companies et al. Petitions for Waiver of Sections 69.4(b) and 69.106 of Part 69 of the Commission's Rules, 9 FCC Rcd 7873 (Com. Car. Bur. 1994) (500 Access Order); AT&T Ex Parte Letter at 1, from Betsy J. Brady, to Jason Karp, FCC, CC Docket No. 95-116, filed May 17, 1996 (AT&T May 17, 1996 Ex Parte Letter).

[542] Notice, 10 FCC Rcd at 12372.

[543] Id.

[544] Id. at 12375. The term "PCS" refers to a set of capabilities that allows some combination of personal mobility, terminal mobility and service profile management. In the number portability context, "PCS N00" is used by the INC to include both 500 and other NPA codes. Id. at 12372 & n.57.

[545] Id.

owner/operator of an SMS administering a PCS N00 database; (2) how would that administrator be selected; (3) how would the costs of providing PCS N00 portability be recovered; and (4) by what date should PCS N00 portability be deployed.[546] Finally, we sought comment on the ability of 900 number portability to lower prices and stimulate demand for 900 services, and on the costs of deploying and operating the necessary database.[547]

2. Positions of the Parties

190. In comments filed prior to passage of the 1996 Act, a majority of parties argue that consideration of 500 and 900 number portability is premature, as the current costs of implementation outweigh any benefits.[548] Indeed, several LECs maintain that the Commission should establish a separate docket to address the unique issues raised by 500 and 900 service provider portability.[549]

191. In contrast, MCI, Citizens Utilities, Competitive Carriers, Florida Public Service Commission, and some CMRS providers contend that 500 and 900 number portability would benefit consumers, and that service provider portability for 500 and 900 numbers should be developed, as long as the costs are not prohibitive.[550] The information service providers generally agree that 900 portability should be mandated by the Commission as soon as possible to increase competition for information service provider traffic among IXCs, and to offer a more efficient and broader range of information services.[551]

192. Interactive Services, MCI, and Teleservices maintain that the toll free database can be modified to include 900 numbers at relatively modest cost, and that the implementation and administration of toll free number portability would provide a model for 500 and 900 number portability.[552] Both Interactive Services and MCI note that parties have failed to provide relevant cost and benefit data in the record of this proceeding, and urge the Commission to require parties to submit data concerning the total costs of implementation

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546 Id. at 12375-76

547 Id. at 12374.

548 See, e.g., Ameritech Comments at 13; AT&T Comments at 39-40; Ohio PUC Reply Comments at 8; Telemation Comments at 2-3 (900 number portability is inconsistent with Telephone Disclosure and Dispute Resolution Act).

549 See, e.g., Ameritech Comments at 13; Bell Atlantic Comments at 23-24; USTA Reply Comments at 12.

550 See, e.g., MCI Comments at 24; Citizens Utilities Comments at 18; Competitive Carriers Comments at 23; Florida PSC Comments at 9; Arch/AirTouch Paging Comments at 6 & n.9, 17-18.

551 Interactive Services Comments at 2-3; Interactive Services Reply Comments at 1, 6; MCI Comments at 24; Teleservices Comments at 5.

552 Interactive Services Reply Comments at 3-4; MCI Comments at 27-28; Teleservices Comments at 7-9.

and operation.[553]

193. Ameritech states that updating the existing toll free platform to support 900 numbers is technically possible, but would require extensive systems modifications.[554] Ameritech also states that it would be technically and economically infeasible to provide PCS N00 portability in a switch-based translation environment due to the memory capacity limitations and the operational issues associated with updating the routing tables.[555] Bell Atlantic states that it may be technically feasible to upgrade the existing toll free database to accommodate 500 and 900 numbers, but this would require extensive system changes.[556] NYNEX supports implementation of service provider portability for 500 numbers as proposed in the INC Report on PCS N00 Portability, which sets forth a four-year implementation schedule.[557] USTA argues that 500 number portability can best be provided through a national, centralized database, similar to the toll free database, and notes that a 900 number portability solution may not be able to utilize the same platform as that contemplated for 500 number portability because of the differing structures of the services associated with 900 number services.[558]

194. Only two parties addressed the issue of 500 or 900 portability in comments filed after passage of the 1996 Act. Interactive Services asserts that the 1996 Act requires LECs to provide service provider portability for 900 numbers when technically feasible, and that the record in this proceeding demonstrates that long-term service provider portability for 900 numbers is technically feasible.[559] Interactive Services did not comment on whether service provider portability for 500 numbers is technically feasible. BellSouth states that the 1996 Act is silent with respect to the portability of non-geographic numbers.[560]

3. Discussion

195. Section 251(b)(2) of the 1996 Act requires all LECs "to provide, to the extent

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553 MCI Comments at 31-32; Interactive Services Reply Comments at 4.

554 Ameritech Comments at 15.

555 Id. See also NYNEX Comments at 19 (existing switched-based solution that provides 900 service today is not easily transferable to a portable architecture).

556 Bell Atlantic Comments at 23.

557 NYNEX Comments at 19. See also Pacific Bell Comments at 23 (implementation of network to support 500 portability will require additional work as detailed in INC Report on PCS N00 Portability).

558 USTA Comments at 11-12.

559 Interactive Services Further Comments at 2-4.

560 BellSouth Further Comments at 3.

technically feasible, number portability in accordance with requirements prescribed by the Commission."[561] Section 3, in turn, defines number portability as "the ability of users of telecommunications services to retain, at the same location, existing telephone numbers . . . when switching from one telecommunications carrier to another."[562]

196. While both LECs and interexchange carriers are able to provide 500 and 900 services, such services are more frequently provided by IXCs.[563] LECs, to date, have offered relatively few 500 and 900 services because the Bell Operating Companies, which serve over 76 percent of the nation's access lines, were precluded from offering interLATA services under the Modification of Final Judgment,[564] and therefore could offer 500 and 900 services only on an intraLATA basis.[565] Conversely, 500 and 900 interLATA services, which account for most of the 500 and 900 numbers, have, up until now, been exclusively provided by IXCs. Thus, most users of 500 and 900 services obtain their numbers from IXCs, and not from LECs.

197. Although the statute does not define specifically the numbers that must be portable, the statute on its face imposes an obligation to provide number portability only on LECs.[566] Because the statute's directive to provide number portability applies only to LECs, IXCs are not obligated under the 1996 Act to participate in making their numbers portable when their customers wish to move their numbers to another IXC or any other carrier offering 500 or 900 service.[567] In the case of 900 service, the "user" of the telecommunications service that wants to keep its number when switching carriers is the business that is offering a 900 service, not the end user that is purchasing the information service from the 900 service provider. A 900 service provider typically purchases transport from an IXC and uses a 900 number assigned to that IXC to offer its service. As a

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561 47 U.S.C. § 251(b)(2).

562 47 U.S.C. § 153(30).

563 See Long Distance Carrier Code Assignments, Industry Analysis Division, Common Carrier Bureau, Federal Communications Commission (Jan. 1996) at 23, 43 (as of September 30, 1995, the BOCs, in the aggregate, were assigned 37 central office codes for 900 numbers, while interexchange carriers were assigned 321. Similarly, the BOCs were assigned 26 central office codes for 500 numbers, while all other American carriers, in the aggregate, were assigned 372).

564 See United States v. Western Elec. Co., 552 F. Supp. 131 (D.D.C. 1982), aff'd sub nom. Maryland v. United States, 460 U.S. 1001 (1983); United States v. Western Elec. Co., 569 F. Supp. 1057 (D.D.C. 1983) (Plan of Reorganization), aff'd sub nom. California v. United States, 464 U.S. 1013 (1983); see also United States v. Western Elec. Co., Civil Action No. 82-0192 (D.D.C. Apr. 11, 1996) (vacating the MFJ).

565 Under the 1996 Act, BOCs now may provide interLATA services that originate outside of their in-region states, and may in the future provide in-region interLATA services upon our finding that they have met the requirements of section 271.

566 See 47 U.S.C. § 251(b)(2).

567 As noted in the 500 Access Order, 500 service providers may include IXCs, cellular companies, enhanced service providers, and possibly even LECs. 9 FCC Rcd at 7873.

consequence, if a 900 service provider wishes to retain its number when switching from one carrier to another, the IXC (and not the LEC that provides exchange access to the IXC) is the party that would have to release the management of the number in question. Likewise, 500 service today is offered exclusively by IXCs, which have blocks of 500 numbers assigned to them for this purpose. When a 500 customer wishes to switch from one carrier to another, the IXC providing the 500 service (and not the LEC that provides exchange access to the 500 service provider) would have to relinquish the number in question to the competing carrier. Thus, as a practical matter, portability for the vast majority of 500 and 900 numbers can occur only if the IXC releases to the new carrier management of the assigned 500 or 900 number that is to be ported.

198. We recognize, however, that LECs increasingly may offer 500 and 900 services themselves in the future. To the extent they do, we conclude that those LECs would be obligated under the 1996 Act to offer number portability for their own 500 and 900 numbers to the extent "technically feasible." We believe we have insufficient evidence in this record to determine whether it is technically feasible for LECs to provide portability for their own 500 and 900 numbers. Neither the INC nor state number portability task forces have addressed the issue of 500 and 900 number portability.[568] The record developed on this issue largely predates passage of the 1996 Act,[569] and as a consequence, few parties have focused on this issue. No party to this proceeding has suggested that any of the currently available methods, such as RCF or DID, or any of the long term methods currently under consideration, such as LRN, could be used to provide portability for non-geographic numbers. Instead, the parties that addressed this issue suggest that the current toll free database potentially could be modified to accommodate 500 and 900 numbers, but note that a host of major technical issues would need to be resolved.[570] The only party to this proceeding that argues that the Commission is required under the 1996 Act to mandate service provider portability for 900 numbers, Interactive Services, fails to address the fact that the statutory obligation to offer number portability falls only on LECs, and not on other carriers that offer 900 services. No party has addressed the technical feasibility of modifying the existing toll free database to make only those 500 and 900 numbers that are assigned to LECs portable. We, therefore, direct the INC to examine this issue, and file a report with this Commission within twelve months of the effective date of this order addressing the technical feasibility of requiring LECs to make their assigned 500 and 900 numbers portable, whether it be through modifying the existing toll free database or through another system. Upon receipt of this report, we will take appropriate action under the 1996 Act.

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568 See, e.g., INC Report; CA LNP Task Force Report.

569 Only two parties that filed comments in response to the Bureau's March 1996 Public Notice addressed the issue of 500 or 900 portability. See BellSouth Further Comments at 3; Interactive Services Further Comments at 2-4.

570 See, e.g., Ameritech Comments at 15; Bell Atlantic Comments at 23; NYNEX Comments at 19; Pacific Bell Comments at 23-24; USTA Comments at 12.

IV. FURTHER NOTICE OF PROPOSED RULEMAKING

A. Long-Term Number Portability - Costs and Cost Recovery

1. Background

199. In the Notice, we requested comment on appropriate cost recovery mechanisms regarding long-term number portability.[571] We also sought comment, data, studies, and other information on the costs associated with designing, building, and deploying long-term number portability.[572] Section 251(e)(2) of the 1996 Act requires, inter alia, that the costs of number portability be borne by all telecommunications carriers on a competitively neutral basis.[573]

2. Positions of the Parties

200. In response to the July Notice, many parties assert that the costs of number portability cannot be estimated until the industry adopts a particular architecture.[574] While the incumbent LECs generally urge the Commission to continue to gather information concerning the potential costs and impacts on existing networks from ongoing state activities, a few parties offer rough estimates regarding the costs of implementing long-term number portability. We note that many of these estimates assume a significant level of location portability.[575]

201. The incumbent LECs generally assert that the costs of providing long-term number portability should be borne on a "competitively neutral" basis by those carriers that cause or benefit from number portability.[576] They assert that specific cost recovery mechanisms cannot be established until a better understanding is developed regarding how number portability should be provided.[577] Ameritech, however, proposes a cost recovery

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571 Notice, 10 FCC Rcd at 12367-68.

572 Id. at 12368.

573 See 47 U.S.C. § 251(e)(2).

574 See, e.g., Bell Atlantic Comments at 16; MCI Comments at 19-20; Michigan PSC Staff Reply Comments at 3.

575 See, e.g., Cincinnati Bell Comments at 9 (citing Ameritech's testimony before Michigan PSC estimating $50-60 million for the Chicago LATA); GTE Comments at Attachment A (estimating $1.65 billion to implement method such as LRN nationwide).

576 See, e.g., Bell Atlantic Comments at 21; Cincinnati Bell Comments at 10; NYNEX Comments at 21-22.

577 BellSouth Comments at 55-56; BellSouth Reply Comments at 21; Pacific Bell Comments at 14.

structure with three categories of costs: (1) administrative and overhead costs for SMS/databases -- to be recovered from all providers; (2) costs directly assignable to number portability deployment -- to be recovered from all LECs, both incumbents and new entrants, in proportion to the amount of telephone numbers that each has transferred to its switches; and (3) costs incurred to increase the capacity of existing infrastructure -- to be borne mostly by incumbent LECs.[578] Some incumbent LECs also contend that the costs of deploying long-term number portability should be allocated between state and federal jurisdictions.[579]

202. Most other parties generally contend that all telecommunications carriers and their customers should bear the costs of long-term number portability because they all benefit from the service and price competition stimulated by portability.[580] Non-LEC parties generally contend that carrier-specific costs incurred in adapting existing systems to long-term number portability should be recovered, like other network upgrades such as AIN and SS7, through tariff and contract mechanisms.[581] Sprint and AT&T advocate implementing portability on a region-by-region basis (with costs amortized over several years) to minimize incumbent carriers' greater burdens for upgrading existing networks.[582] Several parties also contend that the external costs of long-term number portability, i.e., the costs of designing, deploying, and operating facilities common to all carriers, should be shared equitably among all affected carriers.[583] Parties offer several different methods of allocating costs among the relevant carriers.[584]

203. After passage of the 1996 Act, and in response to the March Public Notice, several parties addressed the meaning of the statutory language "competitively neutral" as set forth in section 251(e)(2). Ameritech asserts that this standard requires that all costs be allocated to all telecommunications carriers on a basis that is independent of who incurred the

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578 Ameritech Reply Comments at 5-7; Ameritech February 21, 1996 Ex Parte Filing at 17.

579 Ameritech Comments at 6; USTA Comments at 13.

580 See, e.g., Florida PSC Comments at 7; PCIA Comments at 10; Users Committee Reply Comments at 4.

581 See, e.g., Competitive Carriers Comments at 21; General Communication Comments at 5-6; GO Communications Reply Comments at 8-9. See also Teleport Reply Comments at 8-9 (arguing that requiring carriers to bear their own internal costs would encourage them to minimize costs).

582 Sprint Comments at 12-13; AT&T Reply Comments at 23.

583 Citizens Utilities Comments at 10-11; SBC Communications Comments at 24; PageNet Comments at 13.

584 See, e.g., Ameritech Reply Comments at 7 (per-query basis); US Airwaves Comments at 7 (charges in proportion to size of carrier's customer base); GO Communications Reply Comments at 8-9 (transaction or per-query basis); MFS Comments at 13 (surcharge assessed per active telephone); NYNEX Comments at 21 (costs allocated based on differing benefits derived from portability); Scherers Communications Comments at 3 (database costs distributed based on usage, like toll free database); Teleport Reply Comments at 9-10 (surcharge per local access line, assessed monthly or annually); USTA Comments at 15 (one-time per-line charge to switch carriers plus per-query charge for database access).

cost or who uses portability, and that gives no competitor an advantage.[585] Ameritech criticizes proposals that would limit or exclude recovery of costs incurred by incumbent LECs or allocate costs based on lines.[586] BellSouth urges the Commission to consider the types of infrastructure costs that all classes of carriers will bear in implementing number portability, not just incumbent LECs, in order to avoid imposing large financial burdens on any particular class of carriers, especially those not required to participate in portability.[587] GTE and Pacific Bell argue that requiring each carrier to bear its own costs would result in incumbent LECs paying most of the implementation costs, which is not competitively neutral.[588]

204. In contrast, ALTS, Omnipoint, and Cox maintain that competitive neutrality requires each carrier to bear its own costs, and that no carrier should be required to pay for upgrades to another carrier's network.[589] Moreover, Cox argues that incumbent LEC proposals to require that the new entrants bear all number portability costs are not competitively neutral because it would unreasonably burden those carriers.[590] In addition, Cox asserts that, because new entrants will begin providing service at different times, it would be difficult to allocate costs on a competitively neutral basis unless each carrier bears its own costs of implementation.[591] Omnipoint asserts that requiring carriers to compensate other carriers with less efficient systems and networks is competitively unfair.[592]

205. US West advocates permitting LECs to recover their costs using a per-line surcharge, claiming that all carriers are entitled to recover their implementation costs under the 1996 Act.[593] GTE suggests establishment of a "cost pool," under which each subscriber would be assessed an amount, regardless of which carrier it used.[594] Bell Atlantic claims that allowing incumbent LECs to recover their costs only from their customers, and not from

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585 Ameritech Further Reply Comments at 7-8. See also Pacific Bell Further Reply Comments at 8.

586 Ameritech Further Reply Comments at 7 & n.18.

587 BellSouth Further Reply Comments at 8.

588 GTE Further Reply Comments at 7; Pacific Bell Further Reply Comments at 8. See also USTA Further Reply Comments at 8-9 & n.5 (also noting that Section 252(d) contemplates that CLECs may pay

589 ALTS Further Comments at 6-7; Cox Further Reply Comments at 5-6; Omnipoint Further Comments at 8.

590 Cox Further Reply Comments at 5, 6.

591 Cox Further Comments at 5-6 & n.5 (Cox also notes that the new entrant's cost per customer to upgrade to support number portability is likely to be higher than an incumbent's because the software and much of the hardware will cost the same amount regardless of how many customers are being served).

592 Omnipoint Reply Comments at 8; Omnipoint Further Comments at 8.

593 US West Further Reply Comments at 7-8. See also Pacific Bell Further Reply Comments at 8-9 (asserting that the Commission need only adopt the basic contours of the cost recovery mechanism by August 8, 1996, to discharge its section 251(e)(2) obligations).

other providers, is not competitively neutral because costs would be recovered only from those end users who do not use or benefit from portability, and higher incumbent LEC rates would encourage their customers to switch providers.[595] USTA cautions that not permitting carriers to recover their costs through separate charges for number portability will result in an across-the-board increase in local rates, which, for incumbent LECs, must be approved by state regulators.[596]

206. In contrast, MFS maintains that the competitive neutrality requirement does not apply to end users at all, but rather requires an analysis of charges assessed to other, competing telecommunications carriers.[597] Teleport argues that number portability costs should not be recovered from customers through a number portability surcharge, as such charges would deter customers from transferring their numbers.[598] Cox asserts that GTE's pooling argument is not competitively neutral because it would create incentives for incumbents to inflate costs.[599]

207. MFS argues that the competitive neutrality standard in the 1996 Act requires that only the shared/common costs be borne by all telecommunications carriers, and that such allocation should be done based on net revenues.[600] It notes that all telecommunications users should not be interpreted to mean only a segment of the market, a single class of carriers, or a single class of customers.[601] MFS further argues that the shared/common costs could be recovered from each carrier's customer base, but not from other carriers in the form of increased charges.[602] TRA contends that section 251(e)(2) contemplates a competitively fair distribution of the common costs associated with number portability among only those carriers engaged in the provision of local exchange/exchange access services, not a general levy on all telecommunications providers.[603] Teleport and Time Warner Holdings propose

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[594] GTE Further Reply Comments at 8.

[595] Bell Atlantic Further Reply Comments at 5.

[596] USTA Further Reply Comments at 9.

[597] MFS Further Reply Comments at 6.

[598] Teleport Further Comments at 5.

[599] Cox Further Reply Comments at 6 (also noting that incumbents will be able to reduce costs by taking advantage of unused capacity, while new entrants will have to build their networks from scratch).

[600] MFS Further Comments at 4-5. See also Omnipoint Further Comments at 9 (asserting that common costs should be shared by competitors). But see Bell Atlantic Further Reply Comments at 6 (asserting that while revenues should include payments from consumers, they should not exclude any payments that carriers pay out to other carriers).

[601] MFS Further Comments at 5.

[602] Id. at 7.

[603] TRA Further Reply Comments at 7-8.

similar cost recovery mechanisms to MFS, but argue that the shared costs should be allocated based on the number of lines served, rather than net revenues.[604] ALTS argues that, in order to expedite the implementation of number portability, shared/common costs (e.g., costs associated with the number portability database(s)) should be recovered by a third party from all carriers on a per line basis, but notes that there is considerable economic logic in recovering such costs according to net revenues.[605]

3. Discussion

208. We tentatively conclude that three types of costs are involved in providing long-term service provider portability: (1) costs incurred by the industry as a whole, such as those incurred by the third-party administrator to build, operate, and maintain the databases needed to provide number portability; (2) carrier-specific costs directly related to providing number portability (e.g., the costs to purchase the switch software implementing number portability); and (3) carrier-specific costs not directly related to number portability (e.g., the costs of network upgrades necessary to implement a database method). We seek comment on this tentative conclusion and ask whether other types of costs are involved in the provision of long-term service provider number portability.

209. New section 251(e)(2) of the Communications Act requires that the costs of establishing "number portability be borne by all telecommunications carriers on a competitively neutral basis as determined by the Commission."[606] We tentatively conclude that the "competitively neutral" standard in section 251(e)(2) applies only to number portability costs, and not to cost recovery of carrier-specific, non-number portability-specific costs, such as upgrades to SS7 or AIN technologies. This interpretation is borne out by the plain language of the statute, which only requires that telecommunications carriers bear the costs of number portability. We also tentatively conclude that section 251(e)(2) does not address recovery of those costs from consumers, but only the allocation of such costs among carriers. We seek comment on these tentative conclusions. We also seek comment on the meaning of the statutory language "all telecommunications carriers" as that term is used in section 251(e)(2). We further seek comment on whether the Commission has authority to exclude certain groups of telecommunications carriers from the cost recovery mechanisms for number portability, and, if so, which carriers should be excluded.

210. In determining the cost recovery mechanism for currently available number portability measures, we set forth principles with which any competitively neutral cost recovery mechanism should comply. Specifically, we required that (1) a competitively neutral cost recovery mechanism should not give one service provider an appreciable, incremental cost advantage over another service provider, when competing for a specific subscriber; and (2) a competitively neutral cost recovery mechanism should not have a

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604 Teleport Further Comments at 6; Time Warner Holdings Further Comments at 9.
605 ALTS Further Comments at 7 n.5.
606 47 U.S.C. § 251(e)(2).

disparate effect on the ability of competing service providers to earn a normal return.[607] As in the case of currently available number portability measures, we believe that these principles equally apply to the allocation of costs incurred due to the implementation of long-term number portability. We, therefore, tentatively conclude that any long-term cost recovery method should comply with these principles. We seek comment on this tentative conclusion.

211. In the above Report and Order, we conclude that any state that prefers to develop its own statewide number portability database rather than participate in a regionally deployed database may "opt out" of the national database plan and implement a state-specific database. Pursuant to the requirement of section 251(e)(2) that number portability costs be borne by all telecommunications carriers on a competitively neutral basis as determined by this Commission, we must establish pricing principles that are applied consistently to all carriers. Consequently, we tentatively conclude that the pricing for state-specific databases should be governed by the pricing principles established in this proceeding. We believe the use of our pricing mechanism -- even in states that opt out of the regional database system -- will help to maintain consistency between states, thereby improving the likelihood that competition will develop nationwide.

a. Costs of Facilities Shared by All Carriers for the Provision of Number Portability

212. The costs of facilities shared by all telecommunications carriers for providing long-term number portability include, for example, the costs of building and administering regional databases. We seek comment on whether the database administrator(s) selected through the NANC should recover the costs of facilities shared by all telecommunications carriers for the provision of long-term number portability through a charge assessed only on those carriers using the databases or on all carriers whether or not they use the databases. We note that if a regional database consists only of the SMS, usage would consist of uploading and downloading number portability routing information. However, to the extent a database architecture is chosen that utilizes an SMS/SCP pair, usage additionally may include carrier queries to the regional SCP for purposes of providing routing instructions to carriers for individual calls. We seek comment on whether such costs, if recovered from all carriers, should be recovered on a nationwide or regional basis, and how they should be recovered on such bases. To the extent such costs are recovered on a nationwide basis, and multiple entities are selected to administer the regional databases, we seek comment on whether either one of the neutral third-party administrators or a separate entity should be designated to allocate the aggregate costs among each telecommunications carrier and determine the method by which such payments should be made.

213. With regard to those carriers responsible for bearing the costs of the shared facilities, we tentatively conclude that the recovery of the costs associated with these databases should be allocated in proportion to each telecommunications carrier's total gross telecommunications revenues minus charges paid to other carriers. We believe that the use of

607 See supra ¶¶ 131-135.

gross telecommunications revenues to allocate costs best comports with our principles for competitively neutral cost recovery set forth above. As we indicated in our discussion of currently available number portability measures, such allocator would not give any provider an appreciable, incremental cost advantage over another service provider, nor have a disparate effect on the ability of competing service providers to earn a normal return.[608] In addition, gross telecommunications revenues are the least distortionary, among practical applications, of allocating costs across telecommunications carriers.[609] We also believe it is appropriate to subtract out charges paid to other carriers, such as access charges, when determining the relevant amount of each carrier's telecommunications revenues for purposes of cost allocation. This is because the revenues attributable to such charges effectively would be counted twice in determining the relative number portability costs each carrier should pay -- once for the carrier paying such charges and once for the carrier receiving them.[610] As we concluded in the above Report and Order, and as Congress has determined in the 1996 Act, number portability will benefit all telecommunications carriers and users of telecommunications services through increased competition.[611] We believe that a reasonable, equitable, and competitively neutral measure of such benefit is each telecommunications carrier's gross telecommunications revenues minus charges to other telecommunications carriers. We seek comment on whether this proposal for recovery of the costs associated with regional databases comports with the standard set forth in section 251(e)(2), and whether there exist alternative ways of allocating this type of cost among the relevant carriers.

214. We currently require the NANPA to recover the costs of administering the NANP, and operating databases to perform such administration, from all telecommunications carriers. The recovery of these costs is allocated among all telecommunications carriers based on the carriers' gross revenues.[612] In our recent Interconnection NPRM, we tentatively concluded that we need not take any further action to comply with section 251(e)(2)'s mandate that the cost of establishing telecommunications numbering administration arrangements be borne by all telecommunications carriers on a competitively neutral basis, in light of the action taken in the Numbering Plan Order.[613]

215. With the implementation of long-term number portability measures, all carriers, including currently regulated incumbent LECs, will incur costs specific to the

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608 Id.

609 The best method of allocating costs across carriers is economic profits. However, economic profits are not the same as accounting profits and as a practical matter are not measured. The second best alternative is gross revenues. David N. Hyman, Public Finance: A Contemporary Application of Theory

610 Cf. Assessment and Collection of Regulatory Fees for Fiscal Year 1995, Price Cap Treatment of Regulatory Fees Imposed by Section 9 of the Act, Report and Order, 10 FCC Rcd 13512, 13558-59 (1995)

611 See supra section III.A.2; Senate Report at 19-20; House Report at 72; see also 47 U.S.C §§ 153(30),

612 See Numbering Plan Order, 11 FCC Rcd at 2627.

613 See Interconnection NPRM at ¶ 252.

deployment and usage of number portability databases. Therefore, we seek comment on whether incumbent LECs should be able to recover their portion of the costs of facilities shared by all carriers in providing long-term number portability from their end users or from other carriers, and whether the Commission should prescribe the particular cost recovery mechanism. To the extent parties argue that such costs should be recovered from other carriers, we seek comment on whether such carriers should include all telecommunications carriers, such as other local exchange providers, CMRS providers, IXCs, and resellers, or only those carriers that have received ported numbers. In addition, assuming that we prescribe a particular recovery mechanism, we ask parties to identify alternative ways carriers may recover this type of cost from carriers (or end users).

216. We tentatively conclude the number portability costs of facilities shared by all carriers fall into three subcategories: (a) non-recurring costs, including the development and implementation of the hardware and software for the database; (b) recurring (monthly or annually) costs, such as the maintenance, operation, security, administration, and physical property associated with the database; and (c) costs for uploading, downloading, and querying number portability database information. We seek comment on this tentative conclusion and ask whether there are other types of costs associated with the facilities that will be shared by all carriers.

217. We seek comment on whether the first two subcategories, non-recurring and recurring costs, should be recovered through monthly charges to the individual carriers using the database, allocated in proportion to each carrier's gross telecommunications revenues net of payments to other carriers, or from all carriers operating in areas where number portability is offered. We note that non-recurring charges could be recovered in a one-time payment or over time.

218. We believe that there are at least two methods for recovering the third subcategory of shared costs, i.e., the costs of uploading, downloading, or querying the database. First, these costs could be recovered through usage charges assessed on those carriers that either access the database to upload number portability routing information, download such information, or directly query the database. Those carriers, including IXCs, could then either recover such costs from their own customer base, or choose not to recover such costs.

219. Second, the upload, download, and/or per-query costs could be folded into the monthly charges assessed on the carriers using the databases, which would be allocated in proportion to each carrier's gross telecommunications revenues. We believe this approach is most appropriate in those instances where it is not practical to determine the cost causer of the usage costs, e.g., per-query costs. Under current database approaches, there is no direct correlation between the number of queries made and the number of telephone numbers that have been forwarded because queries will be performed on all calls to a particular switch once any single number has been transferred from that switch. We invite commenting parties to provide credible, substantiated estimates of the amount of the usage costs, including upload, download, and per-query costs, to the extent applicable, and whether such costs will

be incurred on a per-minute, per-call, or other basis. We also seek comment on these and alternative methods for recovering per-query costs. Parties are asked to state with specificity the advantages and disadvantages of each.

220. In accordance with the 1996 Act, the costs of number portability are to be recovered from all telecommunications carriers on a competitively neutral basis. We seek comment on what steps we need to take to ensure that this requirement is satisfied for all shared industry costs. For instance, we seek comment on whether it is necessary for the Commission to establish a mechanism to ensure that the LNPA(s) recovers its costs in a competitively neutral fashion. We also seek comment on what mechanism(s), e.g., federal tariffs, periodic reports, etc., should be utilized to ensure compliance with the statutory requirement and under what authority the Commission can impose such obligations. We note that section 251(e)(1) requires the Commission to create or designate one or more impartial entities to administer telecommunications numbering, and provides the Commission with exclusive jurisdiction over the NANP, and section 251(e)(2) gives the Commission the authority to establish rules by which carriers must bear the costs of telecommunications numbering administration and number portability.[614] We seek comment on the relevance of these provisions to the Commission's authority to impose obligations on the LNPA(s).

b. Direct Carrier-Specific Costs to Implement Number Portability

221. Carrier-specific costs directly related to number portability include, for example, the costs of purchasing the switch software necessary to implement a long-term number portability solution. There are at least two ways of allocating these carrier-specific costs. First, we could require individual carriers to bear their own costs of deploying number portability in their networks. Second, we could require all carriers in a given region to pool their number portability costs, which then would be spread across all carriers providing and using number portability based on some allocator, such as gross telecommunications revenues or number of subscriber lines. We seek comment on whether this proposal comports with the standard set forth in section 251(e)(2), and whether there exist alternative ways of allocating this type of cost among the relevant carriers.

222. We seek comment on whether we can and should mandate a mechanism by which incumbent LECs or others then may recover these costs, from either end users or other carriers (such as other local exchange service providers, CMRS providers, IXCs, and resellers), and ask that parties identify the jurisdictional basis for such authority.

223. If the Commission were to permit costs to be recovered from consumers, there are at least two options. One option would be to allow carriers the flexibility to recover their number portability-specific costs from their customers in whatever manner the carrier chooses. A second option would be to require carriers to recover their number portability-specific costs through a number portability charge assessed on their end user customers

[614] See 47 U.S.C. § 251(e)(1), (2).

located in areas where number portability is available. We seek comment on the advantages and disadvantages of these proposals and any alternative mechanisms for recovering these costs from consumers. Parties favoring a specific option should comment on whether their preferred approach is consistent with principles of competitive neutrality.

224. We note that several additional issues are raised if the carrier-specific, number portability-specific costs are to be passed on to consumers. Therefore, we seek comment on whether, under any cost recovery mechanism, the cost to consumers should: (1) vary among carriers in a given geographic region; (2) remain constant among all carriers in a given geographic region; or (3) vary among different geographic regions, e.g., states or LATAs (while remaining constant within that region, i.e., state or LATA). For each of these approaches, we ask whether the costs to consumers should be permitted to change, for example, on a monthly or annual basis. We also seek comment on whether carriers should charge their customers a single, one-time charge, a monthly fee, or some percentage of the customer's monthly bill, to recover their carrier-specific number portability-specific costs. To the extent this Commission permits carriers to recover their costs through use of a number portability charge, we seek comment on whether such a charge should be specifically identified on consumer bills from those carriers as a separate line item. We seek comment on whether any such charge should be filed as a tariff at either the federal or state level.

225. Finally, we seek comment on whether carriers should be permitted to recover carrier-specific, number portability-specific costs from other carriers, through increases in charges for regulated services. Parties that advocate increases in charges for regulated services are asked to specify which charges should be increased and under what jurisdictional authority the Commission can prescribe such increases.

c. Indirect Carrier-Specific Costs to Implement Number Portability

226. We tentatively conclude that carrier-specific costs not directly related to number portability should be borne by individual carriers as network upgrades. As such, carrier-specific costs not directly related to number portability are not subject to the requirements set forth in section 251. We seek comment on this tentative conclusion and on alternative methods for recovering this type of cost.

227. Carrier-specific costs that are not directly related to the provision of number portability include, for example, the costs of upgrading SS7 capabilities or adding intelligent network (IN) or advanced intelligent network (AIN) capabilities. These costs are associated with the provision of a wide variety of services unrelated to the provision of number portability, such as CLASS features. Provision of these services will facilitate the ability of incumbent carriers to compete with the offerings of new entrants.

228. Incumbent LECs, as well as new entrants, will be required to incur these costs to support the provision of number portability and other services. While some incumbent LECs may have to upgrade existing networks and infrastructure, new entrants will need to

design their networks from the outset to include these capabilities. Many incumbent LECs, though, may already have the necessary network capabilities to support the provision of long-term number portability, thus minimizing the need to incur upgrade costs. By limiting the deployment of long-term portability to those geographic areas where carriers are already offering, or are likely to offer, competing telephone exchange and exchange access services, we limit these expenditures and their recovery to areas where the incumbent carriers would, solely for competitive reasons, likely upgrade their networks. We note that this approach is also consistent with that taken in implementing 800 number portability, where LECs recovered the core costs of deploying SS7 capabilities as network upgrades from all end users.[615]

229. We seek comment on whether we should specify a particular recovery mechanism for carrier-specific costs not directly related to number portability, and on alternative methods of recovering such costs from consumers or other carriers. In addition, we believe that due to the inevitable implementation of switch and other network upgrades to support long-term number portability and other AIN capabilities, networks will operate with greater efficiencies, resulting in increased productivity. We seek comment on whether such future network design modifications should be considered in determining the extent to which carriers may recover carrier specific, non-number portability-specific costs, and if so, how they should be considered.

d. Price Cap Treatment

230. If this Commission were to specify a particular method of cost recovery from end users, such requirement would include companies that are subject to price cap treatment. Price cap regulation may affect carriers' ability to recover their costs under the methods described above, or other possible methods, because it restricts the flexibility with which price cap carriers may price various services. We tentatively conclude that price cap carriers should be permitted to treat as an exogenous cost any carrier-specific, number portability-specific costs they incur, but that such carriers should not be permitted to treat as an exogenous cost any carrier-specific, non-number portability-specific costs. These conclusions are consistent with our 800 Access proceeding where costs specific to 800 access were accorded exogenous cost treatment, while core SS7 costs were treated as general network upgrades.[616] We, therefore, seek comment specifically on how price cap companies should be permitted to recover costs for facilities shared by all carriers; carrier-specific, number portability-specific costs; and carrier-specific, non-number portability-specific costs. In particular, we seek comment on whether price cap companies should be permitted to treat exogenously any of the above number portability-specific cost categories. We also seek comment on whether these costs, alternatively, should be placed in a new price cap basket or an existing basket. If parties recommend that such costs are to be placed in an existing basket, we ask parties to identify which basket would be most appropriate.

615 See, e.g., Provision of Access for 800 Service, Report and Order, 4 FCC Rcd 2824, 2832 (1989), modified on recon., 6 FCC Rcd 5421, 5429 (1991).

616 See Provision of Access for 800 Service, Second Report and Order, 8 FCC Rcd 907, 911 (1993).

B. Procedural Matters

1. Ex Parte

231. This is a non-restricted notice and comment rulemaking. Ex parte presentations are permitted, except during the Sunshine period, provided they are disclosed as provided in the Commission's rules.[617]

2. Regulatory Flexibility Act

232. As required by section 603 of the Regulatory Flexibility Act, 5 U.S.C. § 601 et seq. (1981), the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the expected impact on small entities resulting from the policies and proposals set forth in this Further Notice. The IRFA is contained in Appendix C to this Notice. The Secretary shall cause a copy of this Notice, including the IRFA, to be sent to the Chief Counsel for Advocacy of the Small Business Administration in accordance with section 603(a) of the Regulatory Flexibility Act.

3. Notice and Comment Provision

233. Pursuant to applicable procedures set forth in sections 1.415 and 1.419 of the Commission's Rules, 47 C.F.R. §§ 1.415 and 1.419, interested parties may file comments on this Further Notice of Proposed Rulemaking (FNPRM) on or before August 16, 1996, and reply comments on or before September 16, 1996. To file formally in this proceeding, parties must file an original and twelve copies of all comments, reply comments, and supporting comments. Parties wanting each Commissioner to receive a personal copy of their comments must file an original plus sixteen copies. Comments and reply comments should be sent to the Office of the Secretary, Federal Communications Commission, 1919 M Street, N.W., Room 222, Washington, D.C. 20554. In addition, parties should file two copies of any such pleadings with the Competitive Pricing Division, Common Carrier Bureau, Room 518, 1919 M Street, N.W., Washington, D.C. 20554. Parties should also file one copy of any documents filed in this docket with the Commission's copy contractor, International Transcription Services, Inc. (ITS, Inc.), 2100 M Street, N.W., Suite 140, Washington, D.C. 20037 (202/857-3800). Comments and reply comments will be available for public inspection during regular business hours in the FCC Reference Center, Room 239, 1919 M Street, N.W., Washington, D.C., 20554.

234. In order to facilitate review of comments and reply comments, both by parties and by Commission staff, we require that comments be no longer than forty (40) pages and reply comments be no longer than twenty five (25) pages. Empirical economic studies, copies of relevant state orders, and proposed rule text will not be counted against these page

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617 See generally 47 C.F.R. §§ 1.1202, 1.1203, 1.1206(a).

limits. Specific rule proposals should be filed as an appendix to a party's comments or reply comments. Such appendices may include only proposed text for rules that would implement proposals set forth in the parties' comments and reply comments in this proceeding, and may not include any comments or arguments. Proposed rules should be provided in the format used for rules in the Code of Federal Regulations and should otherwise conform to the Comment Filing Procedures set forth in this order. Comments and reply comments must include a short and concise summary of the substantive arguments raised in the pleading.[618] Comments and reply comments also must clearly identify the specific portion of this Further Notice of Proposed Rulemaking to which a particular comment or set of comments is responsive. Parties will not be permitted to file more than a total of ten (10) pages of ex parte submissions, excluding cover letters, except in response to direct requests from Commission staff. This would not include written ex parte filings made solely to disclose an oral ex parte contact. Ex parte filings in excess of this limit will not be considered as part of the record in this proceeding.

235. Parties also are asked to submit comments and reply comments on diskette. Such diskette submissions would be in addition to and not a substitute for the formal filing requirements addressed above. Parties submitting diskettes should submit them to Wanda M. Harris, Competitive Pricing Division of the Common Carrier Bureau, 1919 M Street, N.W., Room 518, Washington, D.C., 20554. Such a submission should be on a 3.5 inch diskette formatted in an IBM compatible form using MS DOS 5.0 and WordPerfect 5.1 software. The diskette should be submitted in "read only" mode. The diskette should be clearly labelled with the party's name, proceeding, type of pleading (comment or reply comments) and date of submission. The diskette should be accompanied by a cover letter.

V. ORDERING CLAUSES

236. Accordingly, IT IS ORDERED that, pursuant to the authority contained in sections 1, 4(i), 4(j), 201-205, 218, 251, and 332 of the Communications Act as amended, 47 U.S.C. §§ 151, 154(i), 154(j), 201-205, 218, 251 and 332, Part 20 of the Commission's rules, 47 C.F.R. § 20, is AMENDED, and Part 52 of the Commission's rules, 47 C.F.R. § 52, is ADDED as set forth in Appendix B hereto.

237. IT IS FURTHER ORDERED that the policies, rules, and requirements set forth herein ARE ADOPTED, effective 30 days after publication of this Order in the Federal Register, except for collections of information subject to approval by the Office of Management and Budget (OMB), which are effective 150 days following publication in the Federal Register.

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618. Comments and reply comments also must comply with section 1.49 and all other applicable sections of the Commission's Rules. See 47 C.F.R. § 1.49. However, we require here that a summary be included with all comments and reply comments, regardless of length. The summary may be paginated separately from the rest of the pleading (e.g., as "i, ii"). See 47 C.F.R. § 1.49.

238. IT IS FURTHER ORDERED that, pursuant to the authority contained in sections 1, 4(i), 4(j), 201-205, 218, 251, and 332 of the Communications Act as amended, 47 U.S.C. §§ 151, 154(i), 154(j), 201-205, 218, 251, and 332, a FURTHER NOTICE OF PROPOSED RULEMAKING IS HEREBY ADOPTED.

239. IT IS FURTHER ORDERED that BellSouth's Motion to Accept Late Filed Comments IS GRANTED.

240. IT IS FURTHER ORDERED that authority is delegated to the Chief, Common Carrier Bureau, as set forth supra in ¶¶ , , , , and to the Chief, Wireless Telecommunications Bureau, as set forth supra in ¶¶ , .

FEDERAL COMMUNICATIONS COMMISSION

William F. Caton
Acting Secretary

APPENDIX A - LIST OF PARTIES

Comments: (filed on or before September 12, 1995)

Ad Hoc Coalition of Competitive Carriers (Competitive Carriers)
Arch Communications Group & AirTouch Paging, jointly (Arch/AirTouch Paging)
Association for Local Telecommunications Services (ALTS)
Americas Carriers Telecommunication Association (ACTA)
Ameritech
Association of Public-Safety Communications Officials-International (APCO)
AT&T Corp. (AT&T)
Bell Atlantic Telephone Companies (Bell Atlantic)
Bell Atlantic NYNEX Mobile, Inc. (Bell Atlantic NYNEX Mobile)
California Cable Television Association (CCTA)
Cellular Telecommunications Industry Association (CTIA)
Cincinnati Bell Telephone (Cincinnati Bell)
Citizens Utilities Company (Citizens Utilities)
Competitive Telecommunications Association (CompTel)
The Ericsson Corporation (Ericsson)
Florida Public Service Commission (Florida PSC)
General Communication, Inc. (General Communication)
General Services Administration (GSA)
GO Communications Corporation (GO Communications)
GTE Service Corporation (GTE)
GVNW Inc./Management (GVNW)
Illinois Commerce Commission
Independent Telecommunications Network (ITN)
Interactive Services Association (Interactive Services)
Jones Intercable, Inc. (Jones Intercable)
Kahn, David L. (David Kahn)
LDDS WorldCom
Marion County, Florida (Marion County)
MCI Telecommunications Corporation (MCI)
MFS Communications Company (MFS)
Missouri Public Service Commission (Missouri PSC)
National Association of Regulatory Utility Commissioners (NARUC)
National Cable Television Association (NCTA)
National Exchange Carrier Association (NECA)
National Emergency Number Association (NENA)
National Telephone Cooperative Association (NTCA)
National Wireless Resellers Association (Wireless Resellers)
New York State Department of Public Service (New York DPS)
Nextel Communications (Nextel)
NYNEX Telephone Companies (NYNEX)
Omnipoint Corporation (Omnipoint)

Organization for the Protection and Advancement of
Small Telephone Companies (OPASTCO)
Pacific Bell
Paging Network, Inc. (PageNet)
PCS Primeco, L.P. (PCS Primeco)
Personal Communications Industry Association (PCIA)
Public Utilities Commission of Ohio (Ohio PUC)
Public Utilities Commission of the State of California (California PUC)
Public Utility Commission of Texas (Texas PUC)
SBC Communications, Inc. (SBC Communications)
Scherers Communications Group (Scherers Communications)
Seattle Local Area Number Portability Trial (Seattle LANP Trial)
Sprint Corporation (Sprint)
TDS Telecommunications Corp. (TDS Telecom)
Telecommunications Resellers Association (TRA)
Teleport Communications Group (Teleport)
Telemation International, Inc. (Telemation)
Teleservices Industry Association (Teleservices)
Texas Advisory Commission on
State Emergency Communications (Texas Advisory Commission)
Time Warner Communications Holdings (Time Warner Holdings)
U.S. Airwaves, Inc. (US Airwaves)
US Intelco Networks, Inc. (US Intelco)
US West
United States Small Business Administration,
Chief Counsel for Advocacy (Small Business Administration)
United States Telephone Association (USTA)
Yellow Pages Publishers Association (Yellow Pages)

Late filed Comments:

BellSouth Corporation and BellSouth Telecommunications (BellSouth) (filed Sept. 13, 1995)

Replies: (filed on or before October 12, 1995)

ACTA
Competitive Carriers
Ad Hoc Telecommunications Users Committee (Users Committee)
AirTouch Communications & US West NewVector Group (jointly) (AirTouch/US West NewVector)
Arch/AirTouch Paging
ALTS
Ameritech
AT&T
Bell Atlantic
Bell Atlantic NYNEX Mobile
BellSouth
Cablevision Lightpath, Inc. (Cablevision Lightpath)
CCTA
California PUC
Cincinnati Bell
CTIA
General Communication
GO Communications
GSA
GTE
Interactive Services
ITN
Jones Intercable
David L. Kahn
MCI
MFS
Michigan Public Service Commission Staff (Michigan PSC Staff)
NARUC
NENA
Nextel
Niagara Telephone Co. (Niagara Telephone) (filed Sept. 22, 1995)
Nortel
NYNEX
Ohio PUC
Omnipoint
Pacific Bell
PageNet
PCIA
PCS Primeco
Pennsylvania Public Utility Commission (Pennsylvania PUC)
SBC Communications
Sprint

TRA
Teleport
Texas Advisory Commission
Time Warner Holdings
Time Warner TeleCommunications (Time Warner Telecom)
US Intelco
USTA

Late Filed Reply Comments:

Maryland Public Service Commission (Maryland PSC) (filed October 13, 1995)

Further Comments: (filed on or before March 29, 1996)

Arch/AirTouch Paging
ALTS
Ameritech
AT&T
Bell Atlantic
Bell Atlantic NYNEX Mobile
BellSouth
CCTA
Cox Enterprises (Cox)
GTE
Interactive Services
MCI
MFS
MobileMedia Communications (MobileMedia)
NARUC
NCTA
NENA
New York DPS
NYNEX
Omnipoint
OPASTCO
Pacific Bell
PCIA
SBC Communications
Sprint
TRA
Teleport
Time Warner Holdings
USTA

Late Filed Further Comments:

Georgia Public Service Commission (Georgia PSC) (filed April 1, 1996)
Hillborough County, Florida (filed April 1, 1996)

Further Reply Comments: (filed on or before April 5, 1996)

Arch/AirTouch Paging
Ameritech
ALTS
AT&T
Bell Atlantic
BellSouth
California Department of Consumer Affairs (CA Consumer Affairs)
California PUC
Cincinnati Bell
CTIA
Cox
GTE
MCI
MFS
MobileMedia
NYNEX
Pacific Bell
SBC Communications
Sprint
TRA
Texas Advisory Commission
Time Warner Holdings
US West
USTA

APPENDIX B - Final Rules

AMENDMENTS TO THE CODE OF FEDERAL REGULATIONS

PART 20 -- COMMERCIAL MOBILE RADIO SERVICES

Part 20 of Title 47 of the Code of Federal Regulations (C.F.R.) is amended as follows:

1. The authority citation for Part 20 continues to read as follows:

AUTHORITY: Secs. 4, 303, and 332, 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303, and 332, unless otherwise noted.

2. Section 20.15 is amended by adding paragraph (e) to read as follows:

§ 20.15 Requirements under Title II of the Communications Act

(e) For obligations of commercial mobile radio service providers to provide local number portability, see 47 CFR § 52.11.

PART 52 -- NUMBERING

Part 52 of Title 47 of the Code of Federal Regulations (C.F.R.) is added to read as follows:

1. The authority citation for Part 52 is added to read as follows:

AUTHORITY: Section 4, 48 Stat. 1066, as amended; 47 U.S.C. 154, unless otherwise noted. Interpret or apply sec. 153, 154, 201-04, 218, 225-7, 251-2, 271, 48 Stat. 1070, as amended, 1077; 47 U.S.C. 201-04, 218, 225-7, 251-2, 271 unless otherwise noted.

2. The table of contents for Part 52 is added to read as follows:

Subpart B - Local Number Portability.

§§ 52.12 - 52.99 [Reserved]

3. Part 52 is added to read as follows:

Subpart B - Local Number Portability.

§ 52.1 Definitions.

As used in this subpart:

(a) The term *broadband PCS* has the same meaning as that term is defined in section 24.5 of this chapter, 47 CFR § 24.5.

(b) The term *cellular service* has the same meaning as that term is defined in section 22.99 of this chapter, 47 CFR § 22.9.

(c) The term *database method* means a number portability method that utilizes one or more external databases for providing called party routing information.

(d) The term *downstream database* means a database owned and operated by an individual carrier for the purpose of providing number portability in conjunction with other functions and services.

(e) The term *incumbent local exchange carrier* means, with respect to an area, the local exchange carrier that -- (1) on February 8, 1996, provided telephone exchange service in such area; and (2) (i) on February 8, 1996, was deemed to be a member of the exchange carrier association pursuant to section 69.601(b) of the Commission's regulations (47 CFR 69.901(b)); or (ii) is a person or entity that, on or after February 8, 1996, became a successor or assign of a member described in clause (i).

(f) The term *local exchange carrier* means any person that is engaged in the provision of telephone exchange service or exchange access. For purposes of this subpart, such term does not include a person insofar as such person is engaged in the provision of a commercial mobile service under 47 U.S.C. § 332(c).

(g) The term *local number portability administrator (LNPA)* means an independent, non-governmental entity, not aligned with any particular telecommunications industry segment, whose duties are determined by the NANC.

(h) The term *location portability* means the ability of users of telecommunications services to retain existing telecommunications numbers without impairment of quality, reliability, or convenience when moving from one physical location to another.

(i) The term *long-term database method* means a database method that complies with the performance criteria set forth in section 52.3(a) of this chapter, 47 CFR § 52.3(a).

(j) The term *North American Numbering Council (NANC)* means an advisory committee created under the Federal Advisory Committee Act, 5 U.S.C., App (1988), to advise the Commission and to make recommendations, reached through consensus, that foster efficient and impartial number administration.

(k) The term *number portability* means the ability of users of telecommunications services to retain, at the same location, existing telecommunications numbers without impairment of quality, reliability, or convenience when switching from one telecommunications carrier to another.

(l) The term *regional database* means an SMS database or an SMS/SCP pair that contains information necessary for carriers to provide number portability in a region as determined by the NANC.

(m) The term *service control point* (SCP) means a database in the public switched network which contains information and call processing instructions needed to process and complete a telephone call. The network switches access an SCP to obtain such information. Typically, the information contained in an SCP is obtained from the SMS.

(n) The term *service management system* (SMS) means a database or computer system not part of the public switched network that, among other things: (1) interconnects to an SCP and sends to that SCP the information and call processing instructions needed for a network switch to process and complete a telephone call; and (2) provides telecommunications carriers with the capability of entering and storing data regarding the processing and completing of a telephone call.

(o) The term *service portability* means the ability of users of telecommunications services to retain existing telecommunications numbers without impairment of quality, reliability, or convenience when switching from one telecommunications service to another, without switching from one telecommunications carrier to another.

(p) The term *service provider portability* means the ability of users of telecommunications services to retain, at the same location, existing telecommunications numbers without impairment of quality, reliability, or convenience when switching from one telecommunications carrier to another.

(q) The term *telecommunications* means the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received.

(r) The term *telecommunications carrier* means any provider of telecommunications services, except that such term does not include aggregators of telecommunications services (as defined in 47 U.S.C. § 226(a)(2)).

(s) The term *telecommunications service* means the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used.

(t) The term *transitional measure* means a method such as Remote Call Forwarding (RCF), Flexible Direct Inward Dialing (DID), or other comparable and technically feasible arrangement that allows one local exchange carrier to transfer telephone numbers from its network to the network of another telecommunications carrier, but does not comply with the performance criteria set forth in section 52.3(a) of this chapter, 47 CFR § 52.3(a).

§ 52.3 Deployment of Long-Term Database Methods for Number Portability by LECs.

(a) Subject to subsections (b) and (c), all local exchange carriers (LECs) must provide number portability in compliance with the following performance criteria:

(1) supports network services, features, and capabilities existing at the time number portability is implemented, including but not limited to emergency services, CLASS features, operator and directory assistance services, and intercept capabilities;

(2) efficiently uses numbering resources;

(3) does not require end users to change their telecommunications numbers;

(4) does not require telecommunications carriers to rely on databases, other network facilities, or services provided by other telecommunications carriers in order to route calls to the proper termination point;

(5) does not result in unreasonable degradation in service quality or network reliability when implemented;

(6) does not result in any degradation in service quality or network reliability when customers switch carriers;

(7) does not result in a carrier having a proprietary interest;

(8) is able to migrate to location and service portability; and

(9) has no significant adverse impact outside the areas where number portability is deployed.

(b) All LECs must provide a long-term database method for number portability in the 100 largest Metropolitan Statistical Areas (MSAs) by December 31, 1998, in accordance with the deployment schedule set forth in Appendix A to Part 52 of this chapter.

(c) Beginning January 1, 1999, all LECs must make a long-term database method for number portability available within six months after a specific request by another telecommunications carrier in areas in which that telecommunications carrier is operating or plans to operate.

(d) The Chief, Common Carrier Bureau, may waive or stay any of the dates in the implementation schedule, as the Chief determines is necessary to ensure the efficient development of number portability, for a period not to exceed 9 months (i.e., no later than September 30, 1999).

(e) In the event a LEC is unable to meet the Commission's deadlines for implementing a long-term database method for number portability, it may file with the Commission at least 60 days in advance of the deadline a petition to extend the time by which implementation in its network will be completed. A LEC seeking such relief must demonstrate through substantial, credible evidence the basis for its contention that it is unable to comply with the deployment schedule set forth in Appendix A to Part 52 of this chapter. Such requests must set forth: (1) the facts that demonstrate why the carrier is unable to meet the Commission's 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) 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.

(f) The Chief, Common Carrier Bureau, shall monitor the progress of local exchange carriers implementing number portability, and may direct such carriers to take any actions necessary to ensure compliance with the deployment schedule set forth in Appendix A to Part 52 of this chapter.

(g) Carriers that are members of the Illinois Local Number Portability Workshop must conduct a field test of any technically feasible long-term database method for number portability in the Chicago, Illinois, area concluding no later than August 31, 1997. The carriers participating in the test must jointly file with the Common Carrier Bureau a report of their findings within 30 days following completion of the test. The Chief, Common Carrier Bureau, shall monitor developments during the field test.

§ 52.5 Database Architecture and Administration.

(a) The North American Numbering Council (NANC) shall direct establishment of a

nationwide system of regional SMS databases for the provision of long-term database methods for number portability.

(b) All telecommunications carriers shall have equal and open access to the regional databases.

(c) The NANC shall select a local number portability administrator(s) (LNPA(s)) to administer the regional databases within seven months of the initial meeting of the NANC.

(d) The NANC shall determine whether one or multiple administrator(s) should be selected, whether the LNPA(s) can be the same entity selected to be the North American Numbering Plan Administrator, how the LNPA(s) should be selected, the specific duties of the LNPA(s), the geographic coverage of the regional databases, the technical interoperability and operational standards, the user interface between telecommunications carriers and the LNPA(s), the network interface between the SMS and the downstream databases, and the technical specifications for the regional databases.

(e) Once the NANC has selected the LNPA(s) and determined the locations of the regional databases, it must report its decisions to the Commission.

(f) The information contained in the regional databases shall be limited to the information necessary to route telephone calls to the appropriate telecommunications carriers. The NANC shall determine what specific information is necessary.

(g) Any state may opt out of its designated regional database and implement a state-specific database. A state must notify the Common Carrier Bureau and NANC that it plans to implement a state-specific database within 60 days from the release date of the Public Notice issued by the Chief, Common Carrier Bureau, identifying the administrator selected by the NANC and the proposed locations of the regional databases. Carriers may challenge a state's decision to opt out of the regional database system by filing a petition with the Commission.

(h) Individual state databases must meet the national requirements and operational standards recommended by the NANC and adopted by the Commission. In addition, such state databases must be technically compatible with the regional system of databases and must not interfere with the scheduled implementation of the regional databases.

(i) Individual carriers may download information necessary to provide number portability from the regional databases into their own downstream databases. Individual carriers may mix information needed to provide other services or functions with the information downloaded from the regional databases at their own downstream databases. Carriers may not withhold any information necessary to provide number portability from the regional databases on the grounds that such data has been combined with other information in its downstream database.

§ 52.7 Deployment of Transitional Measures for Number Portability.

(a) All LECs shall provide transitional measures, which may consist of Remote Call Forwarding (RCF), Flexible Direct Inward Dialing (DID), or any other comparable and technically feasible method, as soon as reasonably possible upon receipt of a specific request from another telecommunications carrier, until such time as the LEC implements a long-term database method for number portability in that area.

§ 52.9 Cost Recovery for Transitional Measures for Number Portability.

(a) Any cost recovery mechanism for the provision of number portability pursuant to section 52.7(a) of this chapter, 47 CFR § 52.7(a), that is adopted by a state commission must not:

(1) give one telecommunications carrier an appreciable, incremental cost advantage over another telecommunications carrier, when competing for a specific subscriber (i.e., the recovery mechanism may not have a disparate effect on the incremental costs of competing carriers seeking to serve the same customer); or

(2) have a disparate effect on the ability of competing telecommunications carriers to earn a normal return on their investment.

§ 52.11 Deployment of Long-Term Database Methods for Number Portability by CMRS Providers.

(a) By June 30, 1999, all cellular, broadband PCS, and covered SMR providers must provide a long-term database method for number portability, including the ability to support roaming, in compliance with the performance criteria set forth in section 52.3(a) of this chapter, 47 CFR § 52.3.

(b) By December 31, 1998, all cellular, broadband PCS, and covered SMR providers (as defined in Interconnection and Resale Obligations Pertaining to Commercial Mobile Radio Services, First Report and Order, CC Docket 94-54, FCC 96-263 (adopted June 12, 1996)) must have the capability to obtain routing information, either by querying the appropriate database themselves or by making arrangements with other carriers that are capable of performing database queries, so that they can deliver calls from their networks to any party that has retained its number after switching from one telecommunications carrier to another.

(c) The Chief, Wireless Telecommunications Bureau, may waive or stay any of the dates in the implementation schedule, as the Chief determines is necessary to ensure the efficient development of number portability, for a period not to exceed 9 months (i.e., no later than September 30, 1999, for the deadline in subsection (b), and no later than March

31, 2000, for the deadline in subsection (a)).

(d) In the event a carrier subject to subsections (a) and (b) is unable to meet the Commission's deadlines for implementing a long-term number portability method, it may file with the Commission at least 60 days in advance of the deadline a petition to extend the time by which implementation in its network will be completed. A carrier seeking such relief must demonstrate through substantial, credible evidence the basis for its contention that it is unable to comply with subsections (a) and (b). Such requests must set forth: (1) the facts that demonstrate why the carrier is unable to meet our 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) 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.

(e) The Chief, Wireless Telecommunications Bureau, may establish reporting requirements in order to monitor the progress of cellular, broadband PCS, and covered SMR providers implementing number portability, and may direct such carriers to take any actions necessary to ensure compliance with this deployment schedule.

§§ 52.12 - 52.99 [Reserved]

APPENDIX A to Part 52 -- Deployment Schedule
for Long-Term Database Methods for Local Number Portability

Implementation must be completed by the carriers in the relevant MSAs during the periods specified below:

10/97-12/97		1/98-3/98		4/98-6/98	
Chicago, IL	3	Detroit, MI	6	Indianapolis, IN	34
		Akron, OH	20	Milwaukee, WI	35
				Columbus, OH	38
Philadelphia, PA	4	Washington, DC	5	Pittsburgh, PA	19
		Baltimore, MD	18	Newark, NJ	25
				Norfolk, VA	32
Atlanta, GA	8	Miami, FL	24	New Orleans, LA	41
		Fort Lauderdale, FL	39	Charlotte, NC	43
		Orlando, FL	40	Greensboro, NC	48
				Nashville, TN	51
				Las Vegas, NV	50
		Cincinnati, OH	30		
		Tampa, FL	23		
New York, NY	2	Boston, MA	9	Nassau, NY	13
				Buffalo, NY	44
Los Angeles, CA	1	Riverside, CA	10	Orange Co, CA	15
		San Diego, CA	14	Oakland, CA	21
				San Francisco, CA	29
				Rochester, NY	49
Houston, TX	7	Dallas, TX	11	Kansas City, KS	28
		St. Louis, MO	16	Fort Worth, TX	33
				Hartford, CT	46
Minneapolis, MN	12	Phoenix, AZ	17	Denver, CO	26
		Seattle, WA	22	Portland, OR	27

7/98-9/98		10/98-12/98	
Grand Rapids, MI	56	Toledo, OH	81
Dayton, OH	61	Youngstown, OH	85
Cleveland, OH	73	Ann Arbor, MI	95
Gary, IN	80	Fort Wayne, IN	100
Bergen, NJ 42		Scranton, PA	78
Middlesex, NJ	52	Allentown, PA	82
Monmouth, NJ	54	Harrisburg, PA	83
Richmond, VA	63	Jersey City, NJ	88
		Wilmington, DE	89
Memphis, TN	53	Greenville, SC	67
Louisville, KY	57	Knoxville, KY	79
Jacksonville, FL	58	Baton Rouge, LA	87
Raleigh, NC	59	Charleston, SC	92
West Palm Beach, FL	62	Sarasota, FL	93
Birmingham, AL	66	Mobile, AL	96
		Columbia, SC	98
Honolulu, HI	65	Tulsa, OK	70
Providence, RI	47	Syracuse, NY	69
Albany, NY	64	Springfield, MA	86
San Jose, CA	31	Ventura, CA	72
Sacramento, CA	36	Bakersfield, CA	84
Fresno, CA	68	Stockton, CA	94
		Vallejo, CA	99
San Antonio, TX	37	El Paso, TX	74
Oklahoma City, OK	55	Little Rock, AR	90
Austin, TX	60	Wichita, KS	97
		New Haven, CT	91
Salt Lake City, UT	45	Omaha, NE	75
Tucson, AZ	71	Albuquerque, NM	76
		Tacoma, WA	77

APPENDIX C - Regulatory Flexibility Act Analysis

A. Final Analysis of First Report and Order

1. As required by Section 603 of the Regulatory Flexibility Act, 5 U.S.C. § 603 (RFA), an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the Notice. The Commission sought written public comments on the proposals in the Notice, including the Initial Regulatory Flexibility Analysis. The Commission's Final Regulatory Flexibility Analysis (FRFA)[619] in this First Report and Order is as follows:

2. Need for and Objectives of Rules: The Commission, in compliance with sections 251(b)(2) and 251(d)(1) of the Communications Act of 1934, as amended by the Telecommunications Act of 1996 (the Act), adopts rules and procedures intended to ensure the prompt implementation of telephone number portability with the minimum regulatory and administrative burden on telecommunications carriers. These rules are necessary to implement the provision in the Telecommunications Act of 1996 (1996 Act) requiring local exchange carriers (LECs) to offer number portability, if technically feasible. In implementing the statute, the Commission has the responsibility to adopt rules that will implement most quickly and effectively the national telecommunications policy embodied in the Act and to promote the pro-competitive, deregulatory markets envisioned by Congress. Congress has recognized that number portability will lower barriers to entry and promote competition in the local exchange marketplace.

3. Summary of Significant Issues Raised by the Public in Response to the IRFA: There were no comments submitted in response to the Initial Regulatory Flexibility Analysis. The Chief Counsel for Advocacy of the United States Small Business Administration filed comments on the Notice which generally support the actions we take in this First Report and Order. However, in their general comments, some commenters suggested a course of action which may result in less of an impact on small entities. Specifically, prior to passage of the 1996 Act, some LECs asserted that the Commission should neither adopt, nor direct the adoption of, number portability without performing a thorough cost/benefit analysis.[620] Most parties, however, now agree that the 1996 Act clearly directs the Commission to implement long-term number portability.[621] In the Report and Order, we concluded that Congress has determined that the Commission should develop a national number portability policy and has specifically directed us to prescribe the requirements that all local exchange carriers, both incumbents and

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619 Our final analysis conforms to the RFA, as amended by the Contract With America Advancement Act of 1996, P.L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Subtitle II of CWAAA is "The Small Business Regulatory Enforcement Fairness Act of 1996" (SBREFA).

620 Bell Atlantic Comments at 18-19; NYNEX Comments at 15-16; NYNEX Reply Comments at 14; SBC Communications Comments at 10.

621 See, e.g., Bell Atlantic Further Comments at 2; NCTA Further Comments at 2; Omnipoint Further Comments at 2.

others, must meet to satisfy their statutory obligations.[622] Moreover, section 251(e)(1)'s assignment to the Commission of exclusive jurisdiction over that portion of the North American Numbering Plan (NANP) that pertains to the United States gives us authority over the implementation of number portability to the extent that such implementation will affect the NANP.[623]

4. Description and Estimate of Number of Small Businesses to Which Rules Will Apply: The Regulatory Flexibility Act generally defines the term "small business" as having the same meaning as the term "small business concern" under the Small Business Act, 15 U.S.C. § 632. A small business concern is one which (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA). Id. According to the SBA's regulations, entities engaged in the provision of telephone service may have a maximum of 1,500 employees in order to qualify as a small business concern. 13 C.F.R. § 121.201. This standard also applies in determining whether an entity is a small business for purposes of the Regulatory Flexibility Act.

5. Our rules governing long-term number portability apply to all LECs, including incumbent LECs as well as new LEC entrants, and also apply to cellular, broadband PCS, and covered SMR providers. According to the SBA definition, incumbent LECs do not qualify as small businesses because they are dominant in their field of operation. Accordingly, we will not address the impact of these rules on incumbent LECs.

6. However, our rules may have a significant economic impact on a substantial number of small businesses insofar as they apply to telecommunications carriers other than incumbent LECs. The rules may have such an impact upon new entrant LECs, as well as cellular, broadband PCS, and covered SMR providers. Based upon data contained in the most recent census and a report by the Commission's Common Carrier Bureau, we estimate that 2,100 carriers could be affected. We have derived this estimate based on the following analysis:

7. According to the 1992 Census of Transportation, Communications, and Utilities, there were approximately 3,469 firms with under 1,000 employees operating under the Standard Industrial Classification (SIC) category 481 -- Telephone. See U.S. Dept. of Commerce, Bureau of the Census, 1992 Census of Transportation, Communications, and Utilities (issued May 1995). Many of these firms are the incumbent LECs and, as noted above, would not satisfy the SBA definition of a small business because of their market dominance. There were approximately 1,350 LECs in 1995. Industry Analysis Division, FCC, Carrier Locator: Interstate Service Providers at Table 1 (Number of Carriers Reporting by Type of Carrier and Type of Revenue) (December 1995). Subtracting this number from the total number of firms leaves approximately 2,119 entities which potentially are small businesses which may be affected. This number contains various categories of carriers, including competitive access providers, cellular carriers, interexchange carriers, mobile service carriers, operator service providers, pay telephone

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622 See 47 U.S.C. § 251(b)(2), (d).

623 See 47 U.S.C. § 251(e)(1).

operators, PCS providers, covered SMR providers, and resellers. Some of these carriers -- although not dominant -- may not meet the other requirement of the definition of a small business because they are not "independently owned and operated." See 15 U.S.C. § 632. For example, a PCS provider which is affiliated with a long distance company with more than 1,000 employees would be disqualified from being considered a small business. Another example would be if a cellular provider is affiliated with a dominant LEC. Thus, a reasonable estimate of the number of "small businesses" affected by this Order would be approximately 2,100.

8. Description of Projected Reporting, Recordkeeping and Other Compliance Requirements of the Rules: There are several reporting requirements imposed by the Report and Order. It is likely that the entities filing the reports will require the services of persons with technical expertise to prepare the reports. First, carriers participating in a field test in the Chicago, Illinois, area are required to file with the Commission a report of their findings within 30 days after completion of the test. At this time, it is not clear how many carriers will be participating, but it is likely to include several new entrant LECs and the dominant incumbent LEC in the region. Second, after December 31, 1998, long-term number portability must be provided by LECs outside of the 100 largest MSAs within six months after a specific request by another telecommunications carrier in which the requesting carrier is operating or plans to operate. The request specifically must request long-term number portability, identify the discrete geographic area covered by the request, and provide a tentative date six or more months in the future when the carrier expects to need number portability in order to port prospective customers. Third, state regulatory commissions must file with the Commission a notification if they opt to develop a state-specific database in lieu of participating in a regional database system. Carriers that object to a state decision to opt out of the regional database system may file with the Commission a petition for relief. Fourth, the item requires any administrator selected by a state prior to the release of the Report and Order, that wishes to bid for administration of one of the regional databases, must submit a new proposal in accordance with the guidelines established by the NANC. We expect that only one entity, Lockheed Martin, will be subject to this requirement since it is the only administrator which has been selected by a state to date. Fifth, the Report and Order requires carriers that are unable to meet the deadlines for implementing a long-term number portability solution to file with the Commission at least 60 days in advance of the deadline a petition to extend the time by which implementation in its network will be completed. Finally, we require an industry body known as the Industry Numbering Committee (INC) to file a report with the Commission on the portability of non-geographic numbers assigned to LECs within 12 months after the effective date of the Report and Order.[624]

9. Steps Taken to Minimize Impact on Small Entities Consistent with Stated Objectives: The Commission's actions in this Report and Order will benefit small entities by facilitating their entry into the local exchange market. The record in this proceeding indicates

[624] In the Report and Order, the Commission delegates authority to the Wireless Telecommunications Bureau to require reports from cellular, PCS, and covered SMR providers in order to monitor the progress of these providers toward implementing long-term number portability. These reporting requirements are not defined in sufficient detail in the Report and Order to obtain approval from the Office of Management and Budget. Separate approval will be requested when the specific requirements are imposed by the Wireless Telecommunications Bureau.

that the lack of number portability would deter entry by competitive providers of local service because of the value customers place on retaining their telephone numbers.[625] These competitive providers, many of which may be small entities, may find it easier to enter the market as a result of number portability which will eliminate this barrier to entry.[626]

10. In general, we have attempted to keep burdens on local exchange carriers to a minimum. For example, we have adopted a phased deployment schedule which requires long-term number portability to be implemented initially in the 100 largest MSAs, and then elsewhere upon a carrier's request. The provision of currently available measures is conditioned upon request only. In addition, we have attempted to minimize the impact of our rules upon cellular, broadband PCS, and covered SMR providers, which may be small businesses, by not requiring such carriers to offer currently available number portability measures. Similarly, paging and messaging service providers, which may be small entities, are required to provide neither currently available measures nor long-term number portability under our rules. The regulatory burdens we have imposed are necessary to ensure that the public receives the benefit of the expeditious provision of service provider number portability in accordance with the statutory requirements.

B. Initial Analysis of Further Notice of Proposed Rulemaking

11. Pursuant to section 603 of the Regulatory Flexibility Act, 5 U.S.C. § 603, the Commission has prepared the following Initial Regulatory Flexibility Analysis (IRFA) of the expected impact on small entities of the policies and rules proposed in the Further Notice of Proposed Rulemaking (Further Notice). Written public comments are requested on the IRFA. These comments must be filed in accordance with the same filing deadlines as comments on the remainder of the Further Notice, but they must have a separate and distinct heading designating them as responses to the regulatory flexibility analysis. The Secretary shall cause a copy of the Further Notice, including the IRFA, to be sent to the Chief Counsel for Advocacy of the Small Business Administration in accordance with section 603(a) of the Regulatory Flexibility Act.

12. Reason for Action: The Commission, in compliance with sections 251(b)(2) and 251(d)(1) of the Act, proposes rules and procedures intended to ensure the prompt implementation of telephone number portability with the minimum regulatory and administrative burden on telecommunications carriers. The rules proposed in the Further Notice are necessary to implement section 251(e)(2) of the Act, which requires that the costs of number portability be borne by all telecommunications carriers on a competitively neutral basis.

13. Objectives and Legal Basis for Proposed Rules: The Commission's objective in issuing the Further Notice is to propose and seek comment on rules establishing a cost recovery mechanism for carriers to use in implementing a long-term number portability method pursuant to the Act and in accordance with our Report and Order in this proceeding. Specifically, our goal

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625 See First Report and Order and Further Notice of Proposed Rulemaking, CC Docket No. 95-116, FCC 96-286 at ¶ 31 (rel. July 2, 1996).

626 See id. at ¶¶ 28-30.

is to propose rules which implement section 251(e)(2) of the Act, requiring that the cost of "number portability be borne by all telecommunications carriers on a competitively neutral basis as determined by the Commission." 47 U.S.C. § 251(e)(2). The legal basis for action as proposed in the Further Notice is contained in sections 1, 4(i), 4(j), 201-205, 218, 251(b), 251(e), and 332 of the Communications Act of 1934, as amended. 47 U.S.C. §§ 151, 154(i), 154(j), 201-205, 218, 251(b), 251(d), 251(e), 332.

14. Description and Estimated Number of Small Entities Affected: As discussed above in the Final Regulatory Flexibility Act Analysis for the Report and Order, our rules governing long-term number portability apply to all LECs, including incumbent LECs as well as new LEC entrants, and also apply to cellular, broadband PCS, and covered SMR providers. According to the SBA definition, incumbent LECs do not qualify as small businesses because they are dominant in their field of operation. Accordingly, we will not address the impact of these rules on incumbent LECs.

15. However, our rules may have a significant economic impact on a substantial number of small businesses insofar as they apply to telecommunications carriers other than incumbent LECs. The rules may have such an impact upon new entrant LECs as well as cellular, broadband PCS, and covered SMR providers. Based upon data contained in the most recent census and a report by the Commission's Common Carrier Bureau, we estimate that 2,100 carriers could be affected. See supra ¶¶ 4-7 (discussion of estimated number of small businesses affected). We request comment on this estimate. These entities could include various categories of carriers, including competitive access providers, cellular carriers, interexchange carriers, mobile service carriers, operator service providers, pay telephone operators, PCS providers, covered SMR providers, and resellers. The SIC codes which describe these groups are 4812 and 4813.

16. Reporting, Recordkeeping and Other Compliance Requirements: The Further Notice requests comment on the appropriate method by which the costs of long-term number portability should be recovered. One possible cost recovery method would be based upon a percentage of a carrier's gross revenues. Such a rule, if promulgated, would not impose a reporting requirement on LECs because they already file information about gross revenues with the Commission for other purposes. There are no other reporting requirements contemplated by the Further Notice.

17. Federal Rules Which Overlap, Duplicate or Conflict with these Rules: None.

APPENDIX D - 100 LARGEST METROPOLITAN STATISTICAL AREAS (MSAs) AND THEIR POPULATIONS

1. Los Angeles, CA	9,150,000	40. Orlando, FL	1,361,000
2. New York, NY	8,584,000	41. New Orleans, LA	1,309,000
3. Chicago, IL	7,668,000	42. Bergen, NJ	1,304,000
		43. Charlotte, NC	1,260,000
4. Philadelphia, PA	4,949,000	44. Buffalo, NY	1,189,000
5. Washington, DC	4,474,000	45. Salt Lake City, UT	1,178,000
6. Detroit, MI	4,307,000	46. Hartford, CT*	1,156,000
7. Houston, TX	3,653,000	47. Providence, RI*	1,131,000
8. Atlanta, GA	3,331,000	48. Greensboro, NC	1,107,000
9. Boston, MA*	3,211,000	49. Rochester, NY	1,090,000
10. Riverside, CA	2,907,000	50. Las Vegas, NV	1,076,000
11. Dallas, TX	2,898,000	51. Nashville, TN	1,070,000
12. Minneapolis, MN	2,688,000	52. Middlesex, NJ	1,069,000
13. Nassau, NY	2,651,000	53. Memphis, TN	1,056,000
14. San Diego, CA	2,621,000	54. Monmouth, NJ	1,035,000
15. Orange Co., CA	2,543,000	55. Oklahoma City, OK	1,007,000
16. St. Louis, MO	2,536,000	56. Grand Rapids, MI	985,000
17. Phoenix, AZ	2,473,000	57. Louisville, KY	981,000
18. Baltimore, MD	2,458,000	58. Jacksonville, FL	972,000
19. Pittsburgh, PA	2,402,000	59. Raleigh, NC	965,000
20. Akron, OH	2,222,000	60. Austin, TX	964,000
21. Oakland, CA	2,182,000	61. Dayton, OH	956,000
22. Seattle, WA	2,180,000	62. West Palm Beach, FL	955,000
23. Tampa, FL	2,157,000	63. Richmond, VA	917,000
24. Miami, FL	2,025,000	64. Albany, NY	875,000
25. Newark, NJ	1,934,000	65. Honolulu, HI	874,000
26. Denver, CO	1,796,000	66. Birmingham, AL	872,000
27. Portland, OR	1,676,000	67. Greenville, SC	837,000
28. Kansas City, KS	1,647,000	68. Fresno, CA	835,000
29. San Francisco, CA	1,646,000	69. Syracuse, NY	754,000
30. Cincinnati, OH	1,581,000	70. Tulsa, OK	743,000
31. San Jose, CA	1,557,000	71. Tucson, AZ	732,000
32. Norfolk, VA	1,529,000	72. Ventura, CA	703,000
33. Fort Worth, TX	1,464,000	73. Cleveland, OH	677,000
34. Indianapolis, IN	1,462,000	74. El Paso, TX	665,000
35. Milwaukee, WI	1,456,000	75. Omaha, NE	663,000
36. Sacramento, CA	1,441,000	76. Albuquerque, NM	646,000
37. San Antonio, TX	1,437,000	77. Tacoma, WA	638,000
38. Columbus, OH	1,423,000	78. Scranton, PA	637,000
39. Fort Lauderdale, FL	1,383,000	79. Knoxville, TN	631,000

80.	Gary, IN	620,000
81.	Toledo, OH	614,000
82.	Allentown, PA	612,000
83.	Harrisburg, PA	610,000
84.	Bakersfield, CA	609,000
85.	Youngstown, OH	604,000
86.	Springfield, MA*	584,000
87.	Baton Rouge, LA	558,000
88.	Jersey City, NJ	552,000
89.	Wilmington, DE	539,000
90.	Little Rock, AR	538,000
91.	New Haven, CT*	527,000
92.	Charleston, SC	522,000
93.	Sarasota, FL	518,000
94.	Stockton, CA	518,000
95.	Ann Arbor, MI	515,000
96.	Mobile, AL	512,000
97.	Wichita, KS	507,000
98.	Columbia, SC	486,000
99.	Vallejo, CA	483,000
100.	Fort Wayne, IN	469,000

* Population figures for New England's city and town based MSAs are for 1992, while others are for 1994.

APPENDIX E - DESCRIPTION OF NUMBER PORTABILITY METHODS

1. Database methods

1. Location Routing Number (LRN). Under AT&T's LRN proposal, a carrier seeking to route a call to a ported number queries or "dips" an external routing database, obtains a ten-digit location routing number for the ported number, and uses that location routing number to route the call to the end office switch which serves the called party.[627] The carrier dipping the database may be the originating carrier, the terminating carrier, or the N-1 carrier (the carrier prior to the terminating carrier). Under the LRN method, a unique location routing number is assigned to each switch. For example, a local service provider receiving a 7-digit local call, such as 887-1234, would examine the dialed number to determine if the NPA-NXX is a portable code.[628] If so, the 7 digit dialed number would be prefixed with the NPA and a 10-digit query (e.g., 679-887-1234) would be launched to the routing database. The routing database then would return the LRN (e.g., 679-267-0000) associated with the dialed number which the local service provider uses to route the call to the appropriate switch. The local service provider then would formulate an SS7 call set up message with a generic address parameter, along with the forward call indicator set to indicate that the query has been performed, and route the call to the local service provider's tandem for forwarding.[629]

2. LRN is a "single-number solution" because only one number (i.e., the number dialed by the calling party) is used to identify the customer in the serving switch.[630] Each switch has one network address -- the location routing number. The record and the Industry Numbering Committee (INC) indicate that LRN supports custom local area signalling services (CLASS), emergency services, and operator and directory services, but may result in some additional post-dial delay.[631] LRN can support location and service as well as service provider portability.[632] Finally, LRN supports wireless-wireline and wireless-wireless service provider portability.[633]

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627 See Notice, 10 FCC Rcd at 12364. See also AT&T Comments at 18-23; AT&T February 6, 1996 Ex Parte Filing at 6-9.

628 An NXX code, or central office code, is the second three digits of a ten digit telephone number and identifies the service provider switch that serves a specific customer location. See Notice, 10 FCC Rcd at 12354.

629 This description of call flow employing the LRN method was adapted from the Proposed Final Draft on number portability produced by the Industry Numbering Committee. See INC Report at 49-51.

630 AT&T Comments at 20; CA LNP Task Force Report at 5; INC Report at 45.

631 INC Report at 45.

632 Id. at 46.

633 Id. at 45-58; CA LNP Task Force Report at 5-9.

3. Carrier Portability Code (CPC). Under CPC, each local service provider within a given area would be assigned a three-digit Carrier Portability Code (CPC).[634] The database serving that area would contain all the telephone numbers that have been transferred from one carrier to another and their corresponding CPCs. A carrier querying the database for purposes of routing a call to a customer that has transferred his or her telephone number would know from the NXX code of the dialed number that the telephone number may have been transferred to another local service provider. The carrier would query a database serving that area, which would return to the carrier a three-digit CPC corresponding to the service provider serving the dialed number.[635] The carrier then would route the call according to the carrier portability code and the dialed NXX code. For example, an IXC delivering a call to the 301 NPA would query the database serving the 301 area code. In return, that database would transmit back to the IXC a ten-digit number consisting of the three-digit NPA replaced with the CPC for the LEC serving that customer, plus the customer's seven-digit telephone number. The IXC then would route the call to the location pre-designated by the terminating carrier based on the six-digit CPC-NXX. Similarly, carriers providing service within the area would query the same database to identify the local service provider responsible for handling specific local calls.[636]

4. AT&T asserts that CPC is compatible with LRN by permitting adoption of switch trigger mechanisms, switch interfaces, signalling translations, and the development of an SMS to an LRN environment.[637] CPC supports an N-1 call processing scenario, avoids routing calls through incumbent LEC networks, permits carriers to own or provide for their own routing databases, and supports vertical features.[638] On the other hand, the CPC method essentially uses two NPA codes, and therefore precludes use of the second NPA code for other purposes.[639] CPC supports location portability to a limited extent.[640] It is not clear how operator services, such as busy line verification, collect calls, calling card calls, and third-party billing, would be handled under this proposal.[641] Routing telephone calls based on carrier portability codes likely will require, among other things, that the software be modified in each network switch located in the

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634 CPC was developed by MCI Metro and its multi-vendor task forces, which included Siemens, Nortel, DSC, and Tandem. INC Report at 80. See also Notice, 10 FCC Rcd at 12363-64; MCI Comments at 10-15.

635 Carrier portability codes would identify competing providers of local telephone services within each NPA. The same codes could be used to represent the same company or a different company in other NPAs. INC Report at 80-97. See also CA LNP Task Force Report at 13-14; Notice, 10 FCC Rcd at 12363-64.

636 This description of call flow employing the CPC method was adapted from the Proposed Final Draft on number portability produced by the Industry Numbering Committee. See INC Report at 83.

637 AT&T Comments at 31-32.

638 Id. at 31; INC Report at 81.

639 This is so because MCI Metro's method would replace the dialed NPA code with the three-digit CPC, which effectively removes that code from the pool of available NPA codes. Bell Atlantic Comments at 13-15; CA LNP Task Force Report at 14; INC Report at 82.

640 Compare GTE Comments at 19 (CPC does not support location portability) with INC Report at 81 (CPC supports location portability within a rate center).

NPA within which this system is deployed. It also would require modification to the Local Exchange Routing Guide (LERG) on the same NPA-basis so that the LERG contains routing data based on carrier portability codes.

5. Release-to-Pivot (RTP). Carriers using RTP attempt to complete all calls as they presently do to a switch that is assigned a given NPA-NXX. If the dialed number has not been ported, the call will be completed exactly as it is currently. If the dialed number has been ported from the switch (the "release" switch), the call will be released back to a previous switch (the "pivot" switch) in the call path along with rerouting information (RI). The pivot switch uses the RI to reroute the call to the new switch. For example, a switch with pivot capabilities would determine whether a particular call should proceed to a release capable switch. The pivot switch would formulate an initial address message (IAM) containing a capability indicator informing the release switch that the call can be released back to the pivot switch. Once the release switch receives the call, it would use a translation table to determine whether the called number has been ported. If it has, the switch then would formulate a release message containing a cause value (RTP) and an LRN for delivery back to the pivot switch. The LRN would be included in the release message as a redirection number. The pivot switch then would access a translation table and determine routing based on the first six digits of the LRN. A new IAM then would be formulated and the call redirected to the appropriate switch.[642]

6. RTP must traverse the existing LEC network by means of switches equipped with release and pivot functionality and an internal database for call setup.[643] RTP using the location routing number to route calls is a single-number solution.[644] RTP does not involve the assignment of "pseudo numbers," which minimizes number exhaust.[645] RTP should not interfere with emergency services or operator and directory services, but may increase call setup time and post-dial delay.[646] RTP can support service as well as service provider portability, but it is unclear to what extent RTP can support location portability.[647] Finally, RTP supports portability between wireless carriers, but it is unclear whether it can support wireless-wireline portability.[648] Some parties believe that RTP is not appropriate for long-term implementation of service provider

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641 NYNEX Reply Comments at 6-7; SBC Communications Reply Comments at 15; MCI Comments at 14. See also INC Report at 92-93.

642 This description of call flow employing the RTP method was adapted from the Proposed Final Draft on number portability produced by the Industry Numbering Committee. See INC Report at 98-99.

643 Id. at 98; CA LNP Task Force Report at 10. See also AT&T Reply Comments at 13-14.

644 CA LNP Task Force Report at 11.

645 Pacific Bell Comments at 19.

646 CA LNP Task Force Report at 11; INC Report at 100-03.

647 CA LNP Task Force Report at 11; INC Report at 100.

648 CA LNP Task Force Report at 11.

portability because of its reliance on the networks of incumbent LECs, the potential for post-dial delay, and its inefficient use of signaling links.[649]

7. Query on Release (QOR). Also known as "Look Ahead," QOR is similar to RTP in that queries are performed only for calls to ported numbers.[650] However, QOR is different in several respects. Prior to querying a routing database, the switch from which the call originates reserves the appropriate call path through the SS7 network and attempts to complete a call to the switch where the NPA-NXX of the dialed number resides. If the number is ported, the call is released back to a previous switch in the call path, which performs a query to determine the LRN of the new serving switch. The call then is routed to the serving switch. This method differs from RTP in that when a number has been ported from the Release switch, the previous switch in the call path will query the database to obtain the routing information instead of that information being supplied by the Release switch. In other words, the switch that redirects the call also performs the query, thus eliminating the need for the carrier to which the number was originally assigned to provide routing information.[651] Pacific Bell indicates that QOR can support both location and service portability, since any call can be released back and routed through a non-incumbent provider's network.[652]

8. Local Area Number Portability (LANP). Under this proposal, each customer is assigned a ten-digit customer number address (CNA) which is mapped to a unique ten-digit network node address (NNA), both of which are stored in routing databases.[653] A service provider receives the called number (the CNA), queries a routing database, translates the called number from its CNA to its associated NNA, uses the NNA to route the call, and passes the NNA to the serving end office which, based on the NNA, terminates the call to the appropriate line or trunk. Unlike LRN, which assigns a unique location routing number to each switch, LANP requires a separate NNA for each CNA. The California Local Number Portability Task Force indicates that LANP does not result in post-dial delay or require changes in the wireless networks.[654] In addition, LANP supports service provider, service, and unrestricted location portability.[655] Moreover, the CNA can be disassociated from the switches and moved to a common pool of numbers for reassignment.[656] However, LANP may impact emergency services, as the information displayed at the Public Safety Answering Point (PSAP) will initially be the

649 AT&T Reply Comments at 13-14; CCTA Further Comments at 5.

650 Pacific Bell Further Comments at 4 n.10.

651 Id. at 4 & n.10.

652 Id. at 7 n.18.

653 See Notice, 10 FCC Rcd at 12364-65; U.S. Intelco Comments at 6-8.

654 CA LNP Task Force Report at 16.

655 Id.

656 Id.; INC Report at 65-66; Notice, 10 FCC Rcd at 12364-65.

NNA rather than the CNA.[657] Some parties and state commissions believe that the LANP method is not a viable option for long-term number portability because it is too complicated to implement.[658]

9. Non-Geographic Number (NGN). Under this approach, which overlays the existing LEC network, a ported subscriber is assigned a non-geographic number (NGN) and a geographic number (GN) that indicates the customer's physical location and the serving central office. If the customer moves or changes local service providers, the GN -- but not the NGN -- changes, similar to 800 service. When the NGN is dialed, the NGN is translated into the GN through a database query, and the call is routed based on the GN as is done today. All other calls are processed as they are currently. A database dip is required only for calls to ported numbers.[659] Ported calls will experience longer call setup delay and post-dial delay.[660] Emergency and operator and directory services are not affected.[661] This approach supports service provider, service, and unlimited location portability.[662] On the other hand, NGN strains numbering resources by forcing all ported customers to limited non-geographic numbers, requires a nationwide cut-over, and requires an initial change of telephone numbers to obtain portability.[663]

2. Non-database methods

657 CA LNP Task Force Report at 15.

658 AT&T Comments at 26; Bell Atlantic Comments at 14-15; BellSouth Comments at 30-31.

659 GTE Comments at 9-12; CA LNP Task Force Report at 17.

660 GTE Comments at 10, 16; INC Report at 104, 107.

661 GTE Comments at 13, 18; INC Report at 109.

662 GTE Comments at 16-17; INC Report at 111.

663 AT&T Comments at 27-28; AT&T Reply Comments at 16-17; MCI Reply Comments at 16-17.

10. Remote Call Forwarding (RCF). RCF is an existing LEC service that redirects calls in the telephone network and can be adapted to provide a semblance of service provider number portability.[664] If a customer transfers his or her existing telephone number from Carrier A to Carrier B, any call to that customer is routed to the central office switch operated by Carrier A that is designated by the NXX code of the customer's telephone number. Carrier A's switch routes that call to Carrier B, translating the dialed number into a number with an NXX corresponding to a switch operated by Carrier B. Carrier B then completes the routing of the call to its customer. The change in terminating carriers is transparent to the calling party. Disadvantages of RCF include the following: (1) it requires the use of two, ten-digit telephone numbers and thus strains number plan administration and contributes to area code exhaust; (2) it generally does not support several custom local area signalling services (CLASS), such as caller ID, and may degrade transmission quality, because it actually places a second call to a transparent telephone number; (3) it can handle only a limited number of calls to customers of the same competing service provider at any one time; (4) it may result in longer call set-up times; (5) it requires the use of the incumbent LEC network for routing of calls; (6) it may enable incumbents to access competitors' proprietary information; (7) it may result in more complicated resolution of customer complaints; (8) the potential for call blocking may be increased; and (9) it may impose substantial costs upon new entrants.[665]

11. Flexible Direct Inward Dialing (DID). DID works similarly to RCF, except the original service provider routes calls to the dialed number over a dedicated facility to the new service provider's switch instead of translating the dialed number to a new number.[666] DID has many of the same limitations as RCF, although DID can process more simultaneous calls to a competing service provider.[667]

12. Other. We are aware of three derivatives of RCF and DID, all of which require routing of all incoming calls to the terminating switch identified by the NXX code of the dialed phone number, and involve the loss of CLASS functionalities. Unlike RCF and DID, they use LEC tandem switches to aggregate calls to a particular competing service provider before those calls are routed to that provider.[668] In addition, Cablevision Lightpath advocates use of Trunk

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664 See Notice, 10 FCC Rcd at 12369.

665 See id.; Sprint Comments at 17; AT&T Reply Comments at 11-12; Cablevision Lightpath Reply Comments at 10; Teleport Comments at 7; MCI Comments at 20-22; Ad Hoc Telecommunications Users Committee Reply Comments at 5.

666 See Notice, 10 FCC Rcd at 12369.

667 See id.; Sprint Comments at 17; AT&T Reply Comments at 12-14; Cablevision Lightpath Reply Comments at 10; Teleport Comments at 7; MCI Comments at 20-22; Ad Hoc Telecommunications Users Committee Reply Comments at 5.

668 See Notice, 10 FCC Rcd at 12370. Under the first RCF/DID derivative method, enhanced remote call forwarding (ERCF), a call is routed to the LEC switch corresponding to the NXX code of the dialed telephone number. The dialed number then is assigned an ERCF "translation" which consists of the same number preceded by a 10XXX prefix. The XXX is the carrier ID code assigned to the competitive exchange provider. This 12 to 15-digit number (telephone number with 10XXX prefix) is sent to a tandem switch that recognizes

Route Indexing (TRI), which it claims routes calls directly to the competitor's interconnection facilities and supports CLASS features.[669] Finally, Directory Number Route Indexing (DNRI) is a method which first routes incoming calls to the switch to which the NPA-NXX code originally was assigned.[670] DNRI then routes ported calls to the new service either through a direct trunk or by attaching a temporary "pseudo NPA" to the number and using a tandem, depending on availability.

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the 5-digit prefix, strips it out, and routes the call to the competitive exchange provider's switch.

A second derivative method, route index/portability hub, also requires the call to be routed to the LEC switch corresponding to the NXX code of the dialed number. The LEC switch inserts a 1XX prefix onto the front of the telephone number. This 1XX code identifies the competitive service provider to which the call will be routed. This 10 to 13-digit number (telephone number with the 1XX prefix) is transmitted to the LEC tandem switch to which the competitive exchange provider is connected. The tandem switch strips the 1XX prefix from the dialed number, and routes the call to the competitive exchange provider's switch, from where the routing of the call is terminated.

A third derivative method, hub routing with AIN, is similar to route index/portability hub, except that rather than the receiving LEC switch interpreting the routing information, the LEC switch interrogates a remote database that contains routing information. Having obtained this routing information from the database, the LEC switch routes the call via a tandem switch to the terminating competitive exchange provider's switch. This method may require that the LEC's tandem switch be equipped with the ability to interrogate a database. Id. at 12370 n.56.

669 Cablevision Lightpath Reply Comments at 7-8.

670 USTA April 4, 1996 Ex Parte Letter.

APPENDIX F - IMPLEMENTATION SCHEDULE

Implementation must be completed by the carriers in the relevant MSAs during the periods specified below:

10/97-12/97		1/98-3/98		4/98-6/98	
Chicago, IL	3	Detroit, MI	6	Indianapolis, IN	34
		Akron, OH	20	Milwaukee, WI	35
				Columbus, OH	38
Philadelphia, PA	4	Washington, DC	5	Pittsburgh, PA	19
		Baltimore, MD	18	Newark, NJ	25
				Norfolk, VA	32
Atlanta, GA	8	Miami, FL	24	New Orleans, LA	41
		Fort Lauderdale, FL	39	Charlotte, NC	43
		Orlando, FL	40	Greensboro, NC	48
				Nashville, TN	51
				Las Vegas, NV	50
		Cincinnati, OH	30		
		Tampa, FL	23		
New York, NY	2	Boston, MA	9	Nassau, NY	13
				Buffalo, NY	44
Los Angeles, CA	1	Riverside, CA	10	Orange Co, CA	15
		San Diego, CA	14	Oakland, CA	21
				San Francisco, CA	29
				Rochester, NY	49
Houston, TX	7	Dallas, TX	11	Kansas City, KS	28
		St. Louis, MO	16	Fort Worth, TX	33
				Hartford, CT	46
Minneapolis, MN	12	Phoenix, AZ	17	Denver, CO	26
		Seattle, WA	22	Portland, OR	27

7/98-9/98		10/98-12/98	
Grand Rapids, MI	56	Toledo, OH	81
Dayton, OH	61	Youngstown, OH	85
Cleveland, OH	73	Ann Arbor, MI	95
Gary, IN	80	Fort Wayne, IN	100
Bergen, NJ 42		Scranton, PA	78
Middlesex, NJ	52	Allentown, PA	82
Monmouth, NJ	54	Harrisburg, PA	83
Richmond, VA	63	Jersey City, NJ	88
		Wilmington, DE	89
Memphis, TN	53	Greenville, SC	67
Louisville, KY	57	Knoxville, KY	79
Jacksonville, FL	58	Baton Rouge, LA	87
Raleigh, NC	59	Charleston, SC	92
West Palm Beach, FL	62	Sarasota, FL	93
Birmingham, AL	66	Mobile, AL	96
		Columbia, SC	98
Honolulu, HI	65	Tulsa, OK	70
Providence, RI	47	Syracuse, NY	69
Albany, NY	64	Springfield, MA	86
San Jose, CA	31	Ventura, CA	72
Sacramento, CA	36	Bakersfield, CA	84
Fresno, CA	68	Stockton, CA	94
		Vallejo, CA	99
San Antonio, TX	37	El Paso, TX	74
Oklahoma City, OK	55	Little Rock, AR	90
Austin, TX	60	Wichita, KS	97
		New Haven, CT	91
Salt Lake City, UT	45	Omaha, NE	75
Tucson, AZ	71	Albuquerque, NM	76
		Tacoma, WA	77