

recovering from other carriers. For example, an incumbent LEC could redistribute its number portability costs to other carriers by seeking to recover them in increased access charges to IXCs. Therefore, we find that section 251(e)(2) requires the Commission to ensure that both the distribution and recovery of intrastate and interstate number portability costs occur on a competitively neutral basis.

40. The provisions of section 3 of the Act, when read together, define "all telecommunications carriers" as all persons or entities other than aggregators that charge to transmit information for the public without changing the form or content of the information, regardless of the facilities they use.¹⁴⁷ Thus, we reject the California commission's definition of "all telecommunications carriers" as carriers of record on an end-user's bill, as well as with its contention that the definition should be different for different categories of costs.¹⁴⁸ Applying the statutory definition to section 251(e)(2), we conclude that the way all telecommunications carriers bear the costs of providing number portability—including incumbent LECs, competitive LECs, CMRS providers, IXCs, and resellers—must be competitively neutral as determined by the Commission.

C. Competitive Neutrality

1. Background

41. The Commission noted in the *Order* that, in evaluating the costs and rates of telecommunications services, the Commission ordinarily applies principles of cost causation, under which the purchaser of a service pays at least the incremental cost of providing that service.¹⁴⁹ The Commission also recognized, however, that Congress intended number portability to remove the barrier to local competition created by end-user reluctance to change carriers when such a change requires obtaining a new telephone number.¹⁵⁰ Pricing number portability on a cost-causative basis could defeat this purpose because the nature of the costs involved with some number portability solutions might make it economically infeasible for some carriers to compete for a customer served by

¹⁴⁷ See 47 U.S.C. § 153(44) (defining "telecommunications carrier" as "any provider of telecommunications services, except that such term does not include aggregators of telecommunications services"), § 153(46) (defining "telecommunications service" 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"), § 153(43) (defining "telecommunications" as "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"). The Act defines "aggregator" as any person or entity "that, in the ordinary course of its operations, makes telephones available to the public or to transient users of its premises, for interstate telephone calls using a provider of operator services." 47 U.S.C. § 226(a)(2).

¹⁴⁸ See *supra* text accompanying note 130 for the California commission's argument.

¹⁴⁹ *Order & Further Notice*, 11 FCC Rcd. at 8419-20.

¹⁵⁰ See *id.* (stating that "Congress mandated the use of number portability so that customers could change carriers with as little difficulty as possible").

another carrier.¹⁵¹ Consequently, the Commission interpreted Congress's competitive neutrality mandate to require the Commission to depart from cost-causation principles when doing so is necessary to ensure "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."¹⁵²

42. The Commission observed in the *Order* that interim number portability costs arise only when an end-user calls a customer who has changed from a local service provider using one switch to another local service provider using another switch.¹⁵³ These interim costs are initially incurred primarily by the local carrier that loses the customer, because that carrier must provide services such as call-forwarding to route calls to the customer on the acquiring carrier's switch.¹⁵⁴ Observing that some states had already adopted cost recovery mechanisms for interim number portability,¹⁵⁵ the Commission specified that to be competitively neutral any state-designed allocators for sharing the incremental costs of interim number portability: (1) must not give one service provider an appreciable, incremental cost advantage over another service provider when competing for a specific subscriber, and (2) must not disparately affect the ability of competing service providers to earn a normal return.¹⁵⁶

43. The Commission explained in discussing the first of these two requirements that, if a facilities-based LEC wins another facility-based LEC's customer, an incremental cost of interim number portability is created that equals the cost of forwarding calls to that customer in the future.¹⁵⁷ At the outset, these incremental, interim number-portability costs will fall predominantly on incumbent LECs that lose customers to facilities-based entrants.¹⁵⁸ Shifting all these incremental costs to the competitive LEC would not be competitively neutral, however, because the competitive LEC could suffer a competitive disadvantage when competing with the incumbent LEC for that subscriber.¹⁵⁹ Thus, the Commission concluded that the first prong of the test should require that the costs of interim number portability not place any one carrier at an appreciable, incremental cost disadvantage when

¹⁵¹ *See id.*

¹⁵² *Id.*

¹⁵³ *Id.* at 8420.

¹⁵⁴ *Id.* at 8415-16.

¹⁵⁵ *Id.* at 8417.

¹⁵⁶ *Id.* at 8420-21. The Commission is currently considering a number of reconsideration petitions on this issue. *See, e.g., Bell South Petition for Reconsideration* (filed Aug. 26, 1996); *Cincinnati Bell Petition for Reconsideration* (filed Aug. 26, 1996); *MCI Petition for Clarification* (filed Aug. 26, 1996).

¹⁵⁷ *Order & Further Notice*, 11 FCC Rcd. at 8418-20.

¹⁵⁸ *Id.* at 8415-16.

¹⁵⁹ *Id.* at 8420-21.

competing for a subscriber.¹⁶⁰

44. The Commission stated in discussing the second prong of the test that, if a carrier's cost of providing number portability were too large in relation to its expected profits, it might choose not to participate in the local service market.¹⁶¹ For example, if an incumbent LEC and a new entrant were to be assessed the same amount of number portability costs, the small entrant's costs might be sufficiently large when compared to its projected profit to drive the entrant out of the market or even prevent it from entering in the first place. Thus, the Commission concluded that the second prong should require that the costs of interim number portability not disparately affect the ability of competing carriers to earn a normal return.¹⁶²

45. The Commission stated in the *Order* that, with regard to recovery of the incremental costs of interim portability, at least four allocation mechanisms would meet the two-part test: (a) assessing an annual charge based upon each carrier's number of ported telephone numbers, (b) allocating number portability costs based upon number of lines, (c) assessing a uniform percentage of carriers' gross revenues that do not include charges they pay to other carriers, and (d) requiring each carrier to pay its own costs.¹⁶³

46. The *Order* indicated that long-term number portability costs appear fundamentally different than interim number portability costs.¹⁶⁴ First, long-term number portability involves the cost of redesigning current networks to handle the database query system (e.g., the cost of creating the databases, upgrading switch software, and purchasing SCPs), as well as the incremental cost of winning a subscriber (e.g., the cost of uploading that customer's new LRN to the regional database and querying future calls from that customer to NXXs where number portability is available).¹⁶⁵ By contrast, because interim number portability solutions already exist in today's networks, the *Order* observed that they only give rise to the incremental cost of porting the next customer (i.e., the cost of forwarding future calls to the ported customer's new switch).¹⁶⁶ Second, long-term number portability requires large infrastructure investments.¹⁶⁷ The *Order* noted that interim number portability, on the

¹⁶⁰ *Id.* at 8420.

¹⁶¹ *Id.* at 8421.

¹⁶² *Id.*

¹⁶³ *Id.* at 8422.

¹⁶⁴ *Id.* at 8415-16.

¹⁶⁵ *Id.*

¹⁶⁶ *Id.*

¹⁶⁷ *Id.*

other hand, requires little infrastructure investment and involves relatively small costs.¹⁶⁸ Third, long-term number portability requires almost all carriers to incur porting and querying costs.¹⁶⁹ The *Order* pointed out that the costs of interim number portability will fall solely on carriers that lose local customers: such carriers must provide services such as call forwarding to route traffic to customers they lose to facilities-based competitors.¹⁷⁰ At the outset, the carriers losing customers will most often be incumbent LECs.¹⁷¹ In addition, long-term number portability requires N-1 carriers to incur query costs for all interswitch calls to an NXX once number portability is available for that NXX, whether or not the terminating customer has ported a number.¹⁷² By contrast, the *Order* indicated that the costs of interim number portability arise only when one customer calls another customer who has taken a number to a new carrier.¹⁷³

47. Because of the different nature of interim and long-term number portability costs, the *Order* applied the cost recovery principles only to interim number portability.¹⁷⁴ The Commission sought comment in the *Further Notice* on whether to apply the same principles to long-term number portability, and tentatively concluded that the same principles should apply.¹⁷⁵

48. The Commission chose in the *Order* to adopt uniform national rules regarding the implementation of number portability to ensure efficient and consistent nationwide use of number portability methods and numbering resources.¹⁷⁶ The Commission did, nonetheless, allow states to implement state-specific databases and "opt out" of the regional database plan for long-term number portability within sixty days from the release of a Public Notice by the Common Carrier Bureau identifying the LNPAs.¹⁷⁷ The Commission tentatively concluded in the *Further Notice* that the

¹⁶⁸ *Id.*

¹⁶⁹ *Id.*

¹⁷⁰ *Id.*

¹⁷¹ *Id.*

¹⁷² See *id.* at 8463. Carriers need not query calls that originate and terminate on the same switch. See NANC RECOMMENDATION, *supra* note 45, App. D (Architecture & Administrative Plan for Local Number Portability), ¶ 8 at 10 & fig. 2, scenarios 1 & 2.

¹⁷³ See *id.* at 8361-62, 8418-19.

¹⁷⁴ See *id.* at 8415-16.

¹⁷⁵ *Id.* at 8460.

¹⁷⁶ *Id.* at 8370-71.

¹⁷⁷ *Id.* at 8402-03.

competitive neutrality principles would still apply to states that opt out.¹⁷⁸

2. Positions of the Parties

49. MobileMedia Communications and PCIA explicitly agree with the Commission's tentative conclusion to apply to long-term number portability the interpretation that competitive neutrality requires that the costs of number portability not affect significantly any carrier's ability to compete for subscribers.¹⁷⁹ Although no commenters disagree with this definition, Cincinnati Bell and GTE argue that competitive neutrality also requires the Commission to provide carriers with an explicit mechanism to recover all their portability costs. They argue that leaving recovery of portability costs to rate increases would place incumbent LECs at a significant competitive disadvantage because competition and state regulation constrain the ability of incumbent LECs to raise their end-user rates,¹⁸⁰ and that failure to allow full cost recovery may result in an unconstitutional taking of property.¹⁸¹

50. Most commenters that address the issue also advocate applying to long-term number portability costs the Commission's two-part competitive neutrality test.¹⁸² A few commenters, however, propose additional criteria. AT&T argues that any allocation must also not shift one carrier's number portability costs to another carrier,¹⁸³ and must encourage carriers to minimize portability costs.¹⁸⁴ The California Department of Consumer Affairs, Cincinnati Bell, and GTE argue that any allocation must also not influence customer choice of service provider.¹⁸⁵

¹⁷⁸ *Id.* at 8460.

¹⁷⁹ MobileMedia Communications Reply at 3; PCIA Comments at 4.

¹⁸⁰ GTE Comments at 8-9.

¹⁸¹ Cincinnati Bell Comments at 6; GTE Comments 9-10.

¹⁸² AirTouch Communications Comments at 1, 2; ALTS Comments at 3; Ameritech Reply at 5; AT&T Comments at 6 n.5; Calif. Dep't Consumer Affairs Comments at 11; Calif. Pub. Utils. Comm'n Comments at 4-5; Cincinnati Bell Comments at 6; Colo. Pub. Utils. Comm'n Comments at 5-6; Fla Pub. Servs. Comm'n Comments at 2; GST Reply at 3-4; GTE Comments at 7; MCI Comments at 2; MFS Reply at 9-10; MobileMedia Reply at 3; NCTA Reply at 3-4; Ohio Pub. Utils. Comm'n Comments at 5; PCIA Comments at 4-5; Sprint Comments at 4; TRA Comments at 6; Teleport Comments at 3; Time Warner Comments at 6; Wash. Utils. Transp. Comm'n Reply at 3-4; WinStar Reply at 2-4.

¹⁸³ AT&T Comments at 6 n.5.

¹⁸⁴ *Id. Cf.* Ameritech Reply at 5-8 (arguing competitive neutrality requires minimizing pooling).

¹⁸⁵ Calif. Dep't Consumer Affairs Comments at i, 11-12 (arguing competitive neutrality from a consumer standpoint means that the amount of portability costs for one LEC's customers is not disproportionately higher than for another LEC's customers, and no customers can avoid their portion by changing providers); Cincinnati Bell Comments at 6; GTE Comments at 7.

51. BellSouth argues that the two-part test is inapplicable to the costs of long-term number portability because the Commission developed the test for the substantially different costs of interim number portability.¹⁸⁶ BellSouth also maintains that the "competing for a customer" part of the first prong does not coincide with the language of section 251(e)(2), which speaks of all telecommunications carriers, not just carriers that compete for customers.¹⁸⁷ Further, BellSouth contends that the "normal rate of return" language of the second prong "smacks of protectionist, rate of return regulation."¹⁸⁸ Instead, BellSouth argues that a competitively neutral mechanism must (1) equitably distribute among all carriers the shared costs and carrier-specific direct costs caused by the federal mandate, and not impose a disproportionately greater burden on any one telecommunications carrier relative to another; (2) not distort service prices so as to influence customer choice among alternative carriers; and (3) be characterized by administrative simplicity.¹⁸⁹ The United States Telephone Association (USTA) argues that the first prong should ensure that no service provider has an advantage based on *any* number portability costs, not just based on the incremental costs of serving a porting subscriber.¹⁹⁰

3. Discussion

52. We adopt the Commission's tentative conclusion to apply to long-term number portability the Order's definition of competitive neutrality as requiring 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."¹⁹¹ Applying this definition will ensure that the cost of implementing number portability does not undermine the goal of the 1996 Act to promote a competitive environment for the provision of local communications services.

53. We also adopt the Commission's tentative conclusion¹⁹² to apply to long-term number portability the two-part test the Commission developed to determine whether carriers will bear the interim costs of number portability on a competitively neutral basis. Under this test, the way carriers bear the costs of number portability: (1) must not give one service provider an appreciable, incremental cost advantage over another service provider when competing for a specific subscriber,

¹⁸⁶ BellSouth Comments at 2-3; BellSouth Reply at 2-4.

¹⁸⁷ BellSouth Comments at 3.

¹⁸⁸ *Id.* at 3-4. *Cf.* Fla. Pub. Servs. Comm'n Comments at 2 (arguing that a competitively neutral allocator could still affect the ability of less efficient carriers to earn a normal return).

¹⁸⁹ BellSouth Reply at 2-4; BellSouth Comments at 2-4.

¹⁹⁰ USTA Comments at 14-15.

¹⁹¹ *See supra* note 152 and accompanying text.

¹⁹² *See supra* text accompanying note 175.

and (2) must not disparately affect the ability of competing service providers to earn a normal return.¹⁹³

54. We find no merit in BellSouth's argument that the different nature of long-term number portability costs makes the two-part test inapplicable.¹⁹⁴ We see no reason why we should not use such a test to implement the single statutory competitive neutrality standard. Although the nature of the costs of long-term number portability differs from the nature of the costs of interim number portability, these differences do not alter Congress' competitive neutrality mandate. Thus, the analysis the Commission employed in the *Order & Further Notice* to develop the two-part test¹⁹⁵ is equally valid here, and we adopt the same competitive neutrality standards for the costs of long-term number portability as for the costs of interim number portability.

55. We disagree with USTA's proposal that the first prong of the competitive neutrality test should focus on all number portability costs, rather than just the incremental number portability costs of winning the next subscriber that ports a telephone number.¹⁹⁶ The second prong, which ensures that all portability costs do not disparately affect a carrier's ability to earn a normal return, addresses USTA's concern that the overall costs of number portability do not handicap certain carriers. The first prong ensures that the way costs are allocated does not disadvantage carriers when competing for a subscriber. Consequently, it appropriately focuses on the incremental cost of serving the next subscriber that ports a number.

56. We also disagree with BellSouth that the "normal return" prong of the two-part test somehow constitutes rate-of-return regulation.¹⁹⁷ The second prong does not guarantee any particular rate of return, but merely states that an allocator should not disparately affect a carrier's ability to earn a normal return. We further reject BellSouth's view that the "competing for a subscriber" part of the competitive neutrality test is invalid because section 251(e)(2) speaks of "all telecommunications carriers," rather than just carriers that compete for a subscriber.¹⁹⁸ Section 251(e)(2) requires the Commission to ensure that "[t]he costs of establishing ... number portability are borne by all telecommunications carriers on a competitively neutral basis." Thus, the statute requires us to ensure that the costs of number portability do not affect the ability of carriers to compete. Because the ability of a carrier to compete is measured largely by its ability to attract subscribers, we believe that the "competing for a customer" part of the competitive neutrality test is valid. Furthermore, we apply the "normal return" prong of the test to all carriers, not just carriers that compete for end-user customers.

¹⁹³ See *supra* text accompanying note 156.

¹⁹⁴ See *supra* text accompanying note 186 for BellSouth's argument.

¹⁹⁵ See *supra* text accompanying notes 157-162.

¹⁹⁶ See *supra* note 190 and accompanying text for USTA's argument.

¹⁹⁷ See *supra* text accompanying note 188 for BellSouth's argument.

¹⁹⁸ See *supra* text accompanying note 187 for BellSouth's argument.

57. We decline to adopt BellSouth's three-prong competitive neutrality test.¹⁹⁹ First, although we agree with BellSouth that number portability costs should not disproportionately burden one carrier over another, our test already ensures this by evaluating the effect on a carrier's abilities to compete and earn a normal return.²⁰⁰ Second, we agree with BellSouth that an allocator should not encourage or discourage end-users to change service providers, but this criterion is effectively embodied in the first prong of the test. Third, we agree with BellSouth that administrative simplicity is a valid objective, but not in derogation of the competitive neutrality requirement of the statute.

58. We disagree with AT&T that section 251(e)(2) prohibits a distribution mechanism that shifts costs among carriers.²⁰¹ To the contrary, section 251(e)(2) requires the distribution of number portability costs among carriers if necessary to ensure competitive neutrality. We also disagree with AT&T's contention that section 251(e)(2) requires that any allocator encourage carriers to minimize costs.²⁰² Although minimizing costs is preferable, it is not a goal that stems from, or takes precedence over, the statutory mandate of competitive neutrality. We agree with the California Department of Consumer Affairs, Cincinnati Bell, and GTE that any allocation should not influence customer choice of service provider.²⁰³ This is simply a restatement of the first prong of the test: that an allocator must not give one service provider an appreciable, incremental cost advantage over another service provider when competing for a specific subscriber.

59. We disagree with Cincinnati Bell and GTE that the "competitive neutrality" mandate requires the Commission to ensure that carriers recover all their number portability costs.²⁰⁴ Nothing in section 251(e)(2) states that the Commission must guarantee recovery of such costs.²⁰⁵ Instead, section 251(e)(2) requires that the Commission ensure that the way all carriers bear the costs of providing number portability is competitively neutral. Even if a carrier does not recover all its costs,

¹⁹⁹ See *supra* note 189 and accompanying text for BellSouth's test.

²⁰⁰ See GST Reply at 4-5 (arguing that the Commission's principles already address BellSouth's concerns); WinStar Reply at 3-4 (arguing that the Commission's principles already address the incumbent LECs' concerns).

²⁰¹ See *supra* text accompanying note 183 for BellSouth's argument.

²⁰² See *supra* text accompanying note 184 for AT&T's argument.

²⁰³ See *supra* text accompanying note 185 for their arguments.

²⁰⁴ See *supra* text accompanying notes 180-181 for their arguments.

²⁰⁵ A House amendment to S. 652 not adopted in conference would have required the Commission to establish regulations ensuring that LECs receive full compensation for the cost of providing number portability. See S. CONF. REP. 104-230, at 120-21 (1996) (stating that section 242(b)(4) of the House amendment "directs the Commission to establish regulations requiring full compensation to the LEC for costs of providing services related to ... number portability"); S. 652, 104th Cong., § 242(b)(4)(D) (1995) (as passed by the House and sent to conference Oct. 12, 1995), *reprinted in* 141 CONG. REC. H9954 (daily ed. Oct. 12, 1995) (requiring "that the costs that a carrier incurs in offering ... number portability ... shall be borne by the users of such ... number portability").

the Commission's rules will satisfy section 251(e)(2) so long as that carrier's ability to compete for subscribers is not significantly affected. Some parties have also raised Fifth Amendment concerns in connection with the inability of carriers to recover their costs.²⁰⁶ We address recovery of number portability costs and the Fifth Amendment in Part VI.

60. Accordingly, we adopt for purposes of long-term number portability the Order's definition of competitive neutrality as requiring "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."²⁰⁷ We also adopt the two-part test for determining whether this definition is met.²⁰⁸ We apply this interpretation of competitive neutrality to the shared costs of providing number portability in Part V. We find it unnecessary to address whether to apply our competitive neutrality principles to states that opt out of the regional database plan²⁰⁹ because no state elected to opt out by the July 1, 1997, deadline.²¹⁰ We apply the interpretation of competitive neutrality to the carrier-specific costs directly related to providing number portability in Part VI.

IV. CATEGORIZATION OF COSTS

A. Background

61. In the *Further Notice*, the Commission tentatively divided the costs raised in this proceeding into three categories: "costs incurred by the industry as a whole" (*i.e.* shared costs), "carrier-specific costs directly related to providing number portability," and "carrier-specific costs not directly related to number portability."²¹¹ The Commission tentatively defined shared costs as "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."²¹² The Commission subcategorized the number portability costs of facilities shared by all carriers into: "(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,

²⁰⁶ See notes 181, 425, and accompanying text.

²⁰⁷ See *supra* note 152 and accompanying text.

²⁰⁸ See *supra* paragraph 42 for the two-part test.

²⁰⁹ See *supra* text accompanying notes 176-178 for discussion of opting out.

²¹⁰ See *60 Day Time Period During Which States May Elect To Opt Out of Regional Database System Commences*, CC Docket No. 95-116, Public Notice, DA 97-916 (rel. May 2, 1997) (NANC Recommendations Phase Public Notice). A copy of the NANC Recommendations Phase Public Notice was published in the *Federal Register* on May 8, 1997. See 62 Fed. Reg. 25157 (1997).

²¹¹ *In re Telephone Number Portability*, First Report and Order & Further Notice of Proposed Rulemaking, 11 FCC Rcd. 8352, 8459 (1996) (Order & Further Notice).

²¹² *Id.* at 8459, 8461.

and physical property associated with the database; and (c) costs for uploading, downloading, and querying number portability database information."²¹³

62. The Commission tentatively defined carrier-specific costs directly related to providing number portability as costs such as "the costs of purchasing the switch software necessary to implement a long-term number portability solution."²¹⁴ The Commission tentatively defined carrier-specific costs not directly related to providing number portability as costs such as "the costs of network upgrades necessary to implement a database method."²¹⁵ The Commission listed as examples of costs not directly related to providing number portability "the costs of upgrading SS7 capabilities or adding intelligent network (IN) or advanced intelligent network (AIN) capabilities," and explained that "[t]hese costs are associated with the provision of a wide variety of services unrelated to the provision of number portability, such as custom local area signaling service (CLASS) features."²¹⁶ The Commission sought comment on all of its tentative definitions.²¹⁷

B. Positions of the Parties

63. Most incumbent LECs, competitive LECs, IXC's, and state commissions agree that the Commission should categorize the costs raised in this proceeding as shared costs, carrier-specific costs directly related to number portability, and carrier-specific costs not directly related to number portability, which they often designate as Type 1, Type 2, and Type 3 costs, respectively.²¹⁸ CTIA and CommNet Cellular, however, argue that determining whether the tripartite division of long-term number portability costs will work in the wireless context is difficult because the wireless industry is

²¹³ *Id.* at 8463.

²¹⁴ *Id.* at 8459, 8464.

²¹⁵ *Id.* at 8459.

²¹⁶ *Id.* at 8465. CLASS services take advantage of interoffice signalling to offer advanced features such as call forwarding, caller identification (caller ID), call waiting, and callback. See generally HARRY NEWTON, NEWTON'S TELECOM DICTIONARY 130-31 (11th ed. 1996).

²¹⁷ *Order & Further Notice*, 11 FCC Rcd. at 8459, 8463.

²¹⁸ Ameritech Comments at 3; AT&T Comments at 4-5; Bell Atlantic Comments at 2 & n.2; BellSouth Comments at 5-7; Calif. Dep't Consumer Affairs Comments at 8-9; Calif. Pub. Utils. Comm'n Comments at 4; Cincinnati Bell Comments at 1-2; Colo. Pub. Utils. Comm'n Comments at 4-5; Frontier Comments at 1; GSA Comments at 2; GTE Comments at 3-4; Iowa Network Servs. Reply at 3-4; MCI Comments at 2; NYNEX Comments at 3; Ohio Pub. Utils. Comm'n Comments at 3; PacTel Comments at 4; PCIA Comments at 7; SBC Comments at 9 n.15; Scherers Communications Group Comments at 1; Sprint Comments at 1-2; Time Warner Comments at 2; TRA Comments at 3-4; U S WEST Comments at 3.

still in the early stages of developing a number portability solution.²¹⁹

64. Most commenters that address the issue also agree with the Commission's tentative definition of shared costs,²²⁰ as well as with the Commission's proposed subcategorization of shared costs into nonrecurring costs and recurring costs, as well as upload, download, and query costs.²²¹ The Public Utilities Commission of Ohio, however, argues that the Commission should reclassify upload, download, and query costs as recurring shared costs because allocating the actual costs of carriers' uploads, downloads, and queries for a particular database does not appear necessary.²²² Other commenters argue that the costs of uploading, downloading, and querying are more appropriately considered carrier-specific costs directly related to number portability because these functions involve interaction with a carrier's network.²²³

65. U S WEST agrees with the Commission's tentative definition of shared costs, but argues that once portions of the shared costs are allocated to individual carriers, those portions should be treated as carrier-specific costs directly related to number portability. U S WEST reasons that once allocated, those costs become associated with specific carriers, and are no longer unattributable costs of the industry as a whole.²²⁴

66. Many commenters agree with the Commission's tentative definitions of carrier-specific

²¹⁹ CTIA Comments at 4-5 (arguing that the additional complexity of the wireless network is likely to blur the distinctions among categories, and that number portability may require CMRS providers to modify their existing network infrastructure in ways that will not enable them to provide additional service); CommNet Cellular Reply at 2-5.

²²⁰ Ameritech Comments at 3; ALTS Comments at 1-2; AT&T Comments at i-ii, 4-7; Bell Atlantic Comments at 2 & n.2; BellSouth Comments at 5-6; Calif. Dep't Consumer Affairs Comments at 8-9; Calif. Pub. Utils. Comm'n Comments at 1, 4; Cincinnati Bell Comments at i, 1-2; Colo. Pub. Utils. Comm'n Comments at 4-5; Frontier Comments at 1; GSA Comments at 2; GTE Comments at 4; Iowa Net. Servs. Reply at 3-4; MCI Comments at 2; Nextel Comments at 1-2; NYNEX Comments at 3-4 & n.4; Ohio Pub. Utils. Comm'n Comments at 3; PacTel Comments at 4-5; SBC Comments at 1, 9 n.14; Scherers Communications Group Comments at 1; Sprint Comments at iii, 1-2; TRA Comments at 3-4, 6; Teleport Comments at i, 1; Time Warner Comments at 1 n.2, 2; U S WEST Comments at 3-4, 9-10; USTA Comments at iii, 1-2, 10.

²²¹ ALTS Comments at 5; BellSouth Comments at 5-6; Cincinnati Bell Comments at 2; GST Reply at 8; Iowa Network Servs. Reply at 6-7; MCI Comments at 3; PacTel Comments at 4-5; PCIA Comments at 7; TRA Comments at 10; WinStar Reply at 10.

²²² Ohio Pub. Utils. Comm'n Comments at 7-8.

²²³ Ameritech Comments at 10; Calif. Dep't Consumer Affairs Comments at 16-17; Calif. Pub. Utils. Comm'n Comments at 8; Mo. Pub. Servs. Comm'n Comments at 3; Time Warner Comments at 10.

²²⁴ U S WEST Comments at 3-4, 10 n.19. Cf. Ameritech Reply at 6 (arguing that once the shared costs are allocated to specific carriers the carriers can recover them on the same basis as the carrier-specific costs directly related to number portability).

costs directly and not directly related to number portability.²²⁵ The California Department of Consumer Affairs, the California Public Utilities Commission, and Nextel, on the other hand, assert that the Commission should develop more precise definitions.²²⁶ Ameritech argues that carrier-specific costs directly related to number portability should include the costs of network upgrades that are necessary to implement number portability.²²⁷ Several incumbent LECs and Iowa Network Services contend that carrier-specific costs directly related to number portability should include both the costs of unplanned network upgrades that carriers would not have deployed but for number portability²²⁸ as well as the costs associated with portability-related acceleration of planned upgrades that carriers would not have deployed *as early* but for the Commission's schedule for deploying number portability.²²⁹ U S WEST and USTA would exclude the value of any nonportability-related benefits

²²⁵ AT&T Reply at 4-8 & n.9 (arguing that in the 800 number portability proceeding, the Commission defined SS7 upgrades as network upgrades not related to 800 number portability); Bell Atlantic Comments at 2 & n.2; Colo. Pub. Utils. Comm'n Comments at 4-5; GSA Comments at 2-3; MCI Comments at 2; Ohio Pub. Utils. Comm'n Comments at 3; SBC Comments at 9 n.15; Sprint Comments at 1-4; Teleport Comments at 7; 9; TRA Comments at 3-4 (but noting that it is difficult to draw a distinction between carrier-specific costs directly and not directly related to number portability).

²²⁶ Calif. Dep't Consumer Affairs Comments at 9 (suggesting that the Commission confer with technology experts to determine which, if any, technology upgrades should be treated as carrier-specific costs directly related to number portability); Calif. Pub. Utils. Comm'n Reply at 3-4 (cautioning that the Commission needs to scrutinize portability costs further before determining which are directly and not directly related to number portability); Nextel Communications Comments at 2 (requesting that the Commission develop more precise definitions of carrier-specific costs directly and not directly related to number portability so that carriers know how their various costs will be treated).

²²⁷ Ameritech Reply at 9-10 (characterizing as carrier-specific costs directly related to number portability any costs a carrier incurs to increase the capacity or enhance the capabilities of existing equipment, facilities, systems, and software to meet the demands of number portability).

²²⁸ Cincinnati Bell Reply at 2-3; GTE Reply at 9-12 (arguing that any cost to modify an existing network function that a LEC can demonstrate was not part of its historical planning horizon either should be considered direct, or the carrier should be granted a waiver of the section 251(b)(2) portability requirement on the grounds that portability is not technically feasible for the carrier absent the upgrade); Iowa Network Servs. Reply at 4-5; PacTel Comments at 8-9; U S WEST Comments at 10-11. *Cf.* USTA Comments at 2-3 (advocating creation of a Type 2a category for carrier-specific costs incurred solely because of portability by carriers with universal service obligations and less than two percent of the nation's access lines). *But see* Time Warner Reply at 13 n.34 (arguing that the "but for" position essentially advocates recovering carrier-specific costs not directly related to number portability from the industry as a whole).

²²⁹ BellSouth Comments at 6 (defining as a carrier-specific cost directly related to number portability the lost time-value of money associated with number portability-related advancements of planned network modifications); Cincinnati Bell Reply at 2-3 (defining as a carrier-specific cost directly related to number portability the opportunity cost or increase in net present value attributable to making an investment sooner than otherwise would have occurred); PacTel Comments at 8-9; U S WEST Comments at 10-11. *But see* Time Warner Reply at 9 (arguing that even if a carrier must make an upgrade sooner than planned, the fact that a carrier had planned the upgrade demonstrates that it would support functionalities other than number portability,

from the planned or accelerated upgrades.²³⁰

67. USTA also asks us to create a separate category for carrier-specific costs that carriers with universal service obligations and less than two percent of the nation's access lines incur solely because of the number portability mandate and for which no business case can be made.²³¹ USTA argues that creating such a category would recognize the expense that number portability will impose on many small and rural LECs in the 100 largest MSAs that would not deploy advanced intelligent network technology if they were not required to provide number portability.²³² USTA further suggests that we create a category for portability-related costs carriers incur to continue certain services—such as Extended Area Service into a metropolitan area—near areas where portability has been implemented.²³³ USTA argues that such a category would accommodate rural carriers not required to provide long-term number portability under the Commission's implementation schedule that may still incur "number portability costs" to continue services such as direct trunking to nearby areas where the Commission's implementation schedule does require long-term number portability.²³⁴

C. Discussion

68. We adopt the Commission's tentative conclusion to divide the costs raised by this proceeding into three categories: (1) shared costs; (2) carrier-specific costs directly related to providing number portability; and (3) carrier-specific costs not directly related to providing number portability. Most commenters support this categorization.²³⁵ The division of costs between shared costs and carrier-specific costs directly related to providing number portability recognizes that some costs of providing number portability are incurred by regional database administrators, while others are incurred by carriers in the first instance. The division between carrier-specific costs directly related to providing number portability and carrier-specific costs not directly related to providing number portability recognizes that some component of the costs carriers incur will provide carriers with benefits unrelated to number portability.

69. We adopt the Commission's tentative definition of shared costs as "costs incurred by the industry as a whole, such as those incurred by the third-party administrator to build, operate, and

and thus should be considered a carrier-specific cost not directly related to number portability).

²³⁰ U S WEST Comments at 10-11; USTA Comments at 5.

²³¹ USTA Comments at 2-3.

²³² *Id.* at 3-5.

²³³ *Id.* at 2, 6.

²³⁴ *Id.* at 6.

²³⁵ *See supra* text accompanying note 218 for the carriers' arguments.

maintain the databases needed to provide number portability."²³⁶ Almost all commenters agree that this is a workable definition that properly distinguishes costs that carriers incur individually in the first instance from costs that the third-party administrators incur. We also conclude that once the shared costs are allocated they are attributable to specific carriers, at which point we will treat them as carrier-specific costs directly related to providing number portability.

70. We also adopt the Commission's tentative subcategorization of the shared costs into nonrecurring costs, recurring costs, upload costs, and download costs.²³⁷ We clarify, however, that the shared upload and download costs include only the costs that the database administrators incur to process uploads and downloads; the costs that the carriers incur individually to process uploads and downloads are carrier-specific costs directly related to providing number portability. We disagree with the Public Utilities Commission of Ohio that the Commission should subsume upload and download costs into the recurring shared costs category.²³⁸ Although the Public Utilities Commission of Ohio is correct that upload and download costs recur in the sense that the database administrators incur them on an ongoing basis, we intend the recurring shared cost subcategory to refer to those periodic costs such as rent, utilities, payroll, repair, and replacement that the database administrators will incur to facilitate their provision of database services, rather than the costs of the actual uploading and downloading services themselves.²³⁹ We believe that maintaining this distinction is useful in conceptualizing and discussing the various types of costs associated with the shared databases.

71. We further conclude that query costs are not shared costs initially incurred by the regional database administrators, but are carrier-specific costs directly related to providing number portability. At the time of the *Further Notice*, the Commission's understanding had been that the regional administrators might perform queries for carriers.²⁴⁰ In that case, query costs might have constituted shared costs because the database administrators would have incurred costs for the industry as a whole, and the costs would need to be allocated among individual carriers. The industry has chosen, however, not to adopt this approach to number portability. Instead, the N-1 carrier will incur all querying costs individually in the first instance, either by querying its own copy of data downloaded from the regional databases, or by arranging for the querying of such a database copy maintained by another carrier or other third party. Because the regional database administrators will not perform queries on behalf of carriers, query costs are more appropriately considered carrier-specific costs directly related to providing number portability.

²³⁶ See *Order & Further Notice*, 11 FCC Rcd. at 8459, 8461.

²³⁷ See *supra* notes 211-213 and accompanying text for discussion of the tentative conclusions.

²³⁸ See *supra* text accompanying note 222 for the Ohio commission's argument.

²³⁹ See *Order & Further Notice*, 11 FCC Rcd. at 8463 (defining recurring costs as "recurring (monthly or annually) costs, such as maintenance, operation, security, administration, and physical property associated with the database").

²⁴⁰ See *id.* at 8461 (noting that if the industry uses an SMS/SCP pair, the regional database administrators might process carrier queries to provide routing instructions to carriers for individual calls).

72. We conclude that carrier-specific costs directly related to providing number portability are limited to costs carriers incur specifically in the provision of number portability services, such as for the querying of calls and the porting of telephone numbers from one carrier to another. Costs that carriers incur as an incidental consequence of number portability, however, are not costs directly related to providing number portability.

73. We reject the requests of some commenters that we classify the entire cost of an upgrade as a carrier-specific cost directly related to providing number portability just because some aspect of the upgrade relates to the provision of number portability. Carriers incur costs for software generics, switch hardware, and OSS, SS7 or AIN upgrades to provide a wide range of services and features. Consequently, only a portion of such joint costs are carrier-specific costs directly related to providing number portability. Thus, we will consider as subject to the competitive neutrality mandate of section 251(e)(2) all of a carrier's dedicated number portability costs, such as for number portability software and for the SCPs and STPs reserved exclusively for number portability. We will also consider as carrier-specific costs directly related to the provision of number portability that portion of a carrier's joint costs that is demonstrably an incremental cost carriers incur in the provision of long-term number portability. Apportioning costs in this way will further the goals of section 251(e)(2) by recognizing that providing number portability will cause some carriers, including small and rural LECs, to incur costs that they would not ordinarily have incurred in providing telecommunications service. At the same time, this approach recognizes that some upgrades will enhance carriers' services generally, and that at least some portion of such upgrade costs are not directly related to providing number portability.

74. Because carrier-specific costs directly related to providing number portability only include costs carriers incur specifically in the provision of number portability, carriers may not use general overhead loading factors in calculating such costs. Carriers already allocate general overhead costs to their rates for other services, and allowing general overhead loading factors for long-term number portability might lead to double recovery.²⁴¹ Instead, carriers may identify as carrier-specific costs directly related to providing long-term number portability only those incremental overheads that they can demonstrate they incurred specifically in the provision of long-term number portability.

75. As discussed below in Part VI, we are permitting incumbent LECs to recover their number portability costs in federally tariffed end-user charges and query services. To facilitate determination of the portion of joint costs carriers shall treat as carrier-specific costs directly related to providing number portability, and to facilitate evaluation of the cost support that carriers will file in their federal tariffs, we are requesting that carriers and interested parties file comments by August 3, 1998 proposing ways to apportion the different types of joint costs. Carriers and interested parties may file reply comments by September 16, 1998. We will delegate authority to the Chief, Common Carrier Bureau, to determine appropriate methods for apportioning joint costs among portability and nonportability services, and to issue any orders to provide guidance to carriers before they file their tariffs, which are to take effect no earlier than February 1, 1999.

76. We disagree with USTA that we should create special cost categories for the number

²⁴¹ See *In re 800 Database Access Tariffs*, Report and Order, 11 FCC Rcd. 15227, 15255-56 (1996).

portability costs of small and rural carriers.²⁴² The Commission's definitions of carrier-specific costs directly and not directly related to providing number portability will enable all carriers, including small and rural carriers, as well as carriers providing Extended Area Service, to identify the costs subject to section 251(e)(2). The three cost categories the Commission has created account for all potential number portability costs and provide workable distinctions for the purposes of implementing section 251(e)(2).

77. Creating unique cost categories for wireless carriers is also unnecessary at this time. The Commission's definitions are not tied to unique technological constraints of wireline communications, and nothing in the record leads us to conclude that the three cost categories are too narrow to apply to the number portability costs of wireless carriers. Wireless carriers, like wireline carriers, will depend upon the regional databases, and the record does not suggest that the costs of the regional databases are disproportionately affected by any one industry segment.

V. COSTS OF THE REGIONAL DATABASES

A. Background

78. The Commission sought comment in the *Further Notice* on whether the nonrecurring and recurring shared costs should be collected through monthly charges assessed only on carriers using the databases, or on all carriers.²⁴³ The Commission noted that the nonrecurring costs could be collected through a one-time payment or amortized.²⁴⁴ The Commission also asked whether the shared costs should be collected on a national basis or by region.²⁴⁵ If the costs are collected nationwide, the Commission asked whether one of the LNPAs or a separate entity should allocate the costs.²⁴⁶

79. The Commission sought comment on the appropriate method of distributing these costs, and tentatively concluded that they should be allocated in proportion to each telecommunications carrier's gross telecommunications revenues, less any charges that carrier pays to other carriers.²⁴⁷ The Commission explained that subtracting charges carriers pay to other carriers, such as for access and wholesale services, avoids counting those charges as revenues twice: once when the charging carrier collects from the charged carrier, and again when the charged carrier recovers these costs from its end-

²⁴² See *supra* notes 233-234 and accompanying text for USTA's argument.

²⁴³ *In re Telephone Number Portability*, First Report and Order & Further Notice of Proposed Rulemaking, 11 FCC Rcd 8352, 8461, 8463 (1996) (Order & Further Notice).

²⁴⁴ *Id.* at 8463.

²⁴⁵ *Id.* at 8461.

²⁴⁶ *Id.*

²⁴⁷ *Id.* at 8461-62.

user.²⁴⁸ The Commission also sought comment on whether the upload, download, and query costs should be collected through usage-based charges, or allocated among carriers in the same manner as the nonrecurring and recurring costs.²⁴⁹

80. The Commission also asked whether it may exclude certain carriers from these mechanisms,²⁵⁰ and whether it should create an enforcement mechanism, such as requiring tariffs or periodic reports, to ensure that carriers bear on a competitively neutral basis the shared costs of providing number portability.²⁵¹ The Commission also sought comment on whether incumbent LECs should be allowed to recover their portion of the shared costs from end-users or other carriers, whether the Commission should prescribe the recovery mechanism, and if so, what that mechanism should be.²⁵² If such costs are recovered from other carriers, the Commission sought comment on whether they should be recovered from all telecommunications carriers or just those that receive ported numbers.²⁵³ In addition, the Commission sought comment on whether price-cap carriers should be permitted to treat their portions of the shared costs as exogenous.²⁵⁴

B. Distribution of Shared Costs: Allocation v. Usage-Based Rates

1. Positions of the Parties

81. A number of incumbent LECs, competitive LECs, state commissions, and CMRS providers favor allocating all regional database costs, including the nonrecurring, recurring, upload, and download costs.²⁵⁵ These commenters contend that usage-based charges would impermissibly exclude those carriers that do not use the databases from having to pay some regional database costs.

²⁴⁸ *Id.*

²⁴⁹ *Id.* at 8463.

²⁵⁰ *Id.* at 8460.

²⁵¹ *Id.* at 8463-64.

²⁵² *Id.* at 8462.

²⁵³ *id.*

²⁵⁴ *Id.* at 8466.

²⁵⁵ Ameritech Comments at 1-2, 4-5; Bell Atlantic Reply at 1, 4; BellSouth Reply at 5; Calif. Pub. Utils. Comm'n Comments at 4-6; Colo. Pub. Utils. Comm'n Comments at 5; Frontier Comments at 3-4 & n.8; GST Reply at 8; Iowa Network Servs. Reply at 3; MFS Comments at 6; NARUC Reply at 1; NCTA Reply at 6; NYNEX Comments at 5-6; Ohio Pub. Utils. Comm'n Comments at 1, 3-5; Omnipoint Comments at 3; PacTel Comments at 3, 6-7; SBC Comments at 4-6; Teleport Comments at 2-4; U S WEST Reply at 12-14 & nn.33-35; USTA Reply at 4-5; Wash. Utils. Transp. Comm'n Reply at 3; WinStar Comments at 2-5.

in violation of the "all telecommunications carriers" language of section 251(e)(2),²⁵⁶ that the database costs are not discretionary, but necessary costs of doing business,²⁵⁷ and that the database costs are not demonstrably usage-sensitive.²⁵⁸

82. Other commenters advocate employing usage-based charges for some of the regional database costs and allocating the rest. Ameritech, the Association for Local Telephone Communications Services, the California Public Utilities Commission, Iowa Network Services, ITCs, the Missouri Public Service Commission, Pacific Telesis, TRA, and Time Warner, for example, favor allocating the nonrecurring and recurring costs, but prefer usage-based charges for upload, download, and query costs. They argue that upload, download, and query costs are usage sensitive because uploads, downloads, and queries will be transmitted to and from carriers' individual networks, and so should be collected through usage-based rates to encourage efficient use.²⁵⁹

83. AT&T, MCI, and Sprint advocate a series of rate elements similar to those the Commission adopted for the 800 number database.²⁶⁰ Thus, they suggest a one-time, service-establishment charge for carriers that upload or download database information, a monthly database access charge that varies with the type and speed of each database connection carriers maintain to upload or download information, and a charge for discretionary services such as customized reports that carriers might request.²⁶¹ AT&T and Sprint argue that because these services are attributable to a specific database subscriber, they should be charged to that subscriber to encourage efficiency and to avoid unfairly shifting costs to other carriers.²⁶² AT&T and Sprint also recommend a download charge, but would allocate the costs of uploads among all carriers that provide local service to avoid

²⁵⁶ See, e.g., Bell Atlantic Reply at 3-4; GST Reply at 10-11; MFS Comments at 6; NYNEX Reply at 7-8; U S WEST Reply at 12-14 & nn.33-35; USTA Reply at 4-5; WinStar Reply at 4-6.

²⁵⁷ Fla. Pub. Servs. Comm'n Comments at 3-4; GSA Comments at 4-6.

²⁵⁸ Ohio Pub. Utils. Comm'n Comments at 7-10 (advocating allocating all regional database costs absent a credible method for determining carriers' usage-based costs and an indication that those costs vary significantly among carriers).

²⁵⁹ Ameritech Comments at 9-11; ALTS Comments at 3-6 (preferring usage-based rates unless the transaction costs of such a mechanism are "unduly high"); Calif. Pub. Utils. Comm'n Comments at 6-9; Iowa Network Servs. Reply at 7; ITC Comments at 2-3; Mo. Pub. Servs. Comm'n Comments at 3-4; PacTel Comments at 2, 7; TRA Comments at 10-11; Time Warner Comments at 7-12.

²⁶⁰ See *In re Provision of Access for 800 Service*, Second Report and Order, 8 FCC Rcd. 907 (1993), *aff'd*, *Memorandum Opinion and Order on Reconsideration*, 11 FCC Rcd. 2014 (1995). Cf. Scherers Communications Group Comments at 2-3 (suggesting that the Commission tariff nonrecurring, recurring, and query charges because this was found to be the most efficient means of recovering the costs of the 800 number database).

²⁶¹ AT&T Comments at 6-9; MCI Comments at 3-5; Sprint Comments at 5-6.

²⁶² AT&T Comments at 6-9; Sprint Comments at 5-6.

penalizing carriers for porting.²⁶³ MCI favors allocating upload, download, and any remaining costs to carriers that port numbers.²⁶⁴

84. The California Department of Consumer Affairs argues that nonrecurring costs should be allocated because, as costs of establishing number portability, these costs must be distributed in a competitively neutral fashion.²⁶⁵ It argues that usage-based charges should be assessed, on the other hand, for recurring, upload, download, and query costs because as "ongoing" rather than "establishing" costs, they should be distributed to the specific carrier using the database rather than allocated among carriers.²⁶⁶ It also argues that some of the recurring costs should be distributed through a flat, minimum charge on all carriers serving the region because the database must be available to all carriers, regardless whether an individual carrier actually uses it.²⁶⁷

85. Another group of carriers advocates distributing all regional database costs through usage-based charges. The Colorado Public Utilities Commission prefers charging carriers the incremental costs of their downloads, but recommends collecting from carriers that upload information the costs of receiving, storing, and processing that information, as well as the administrators' common and overhead costs.²⁶⁸ Omnipoint advocates per-query fees that would incorporate the nonrecurring, recurring, and database information costs.²⁶⁹ Omnipoint argues that this is a more appropriate approach than allocation mechanisms, such as those based on revenues, because all calls require the same query and so all carriers should pay the same amount of shared costs per call.²⁷⁰

86. The Cellular Telecommunications Industry Association (CTIA) asks for additional time to analyze the implication of allocation- and usage-based mechanisms for wireless number portability. CTIA argues that wireless carriers do not yet know the amount and type of costs they will incur to deploy number portability because, pursuant to the Commission's later implementation schedule for wireless carriers, the industry is in the early stages of planning.²⁷¹

²⁶³ AT&T Comments at 8 & n.11; Sprint Comments at 5-6.

²⁶⁴ MCI Comments at 5-6.

²⁶⁵ Calif. Dep't Consumer Affairs Comments at ii, 14-16.

²⁶⁶ *Id.* at ii, 17-19.

²⁶⁷ *Id.* at ii, 17.

²⁶⁸ Colo. Pub. Utils. Comm'n Comments at 7.

²⁶⁹ Omnipoint Communications Reply at 2.

²⁷⁰ *Id.*

²⁷¹ CTIA Comments at 3-4.

2. Discussion

87. We require telecommunications carriers to pay for the database administrators' nonrecurring, recurring, upload, and download costs pursuant to an allocator, which we select in Part V.D, below, rather than on a usage-sensitive basis. We have used the two-prong competitive neutrality test to ensure that the allocator we choose distributes these costs on a competitively neutral basis. Once these shared costs are distributed to telecommunications carriers, we treat each carrier's portion of the costs as a carrier-specific cost directly related to providing number portability.²⁷² Because telecommunications carriers will recover these costs as carrier-specific costs directly related to providing number portability, which we discuss below in Part VI, we need not address their recovery here.

88. Distributing the shared costs among telecommunications carriers in proportion to database use would shift these costs to telecommunications carriers that win more customers because such carriers will perform more uploads.²⁷³ At the outset of number portability, these carriers are more likely to be competitive LECs. Consequently, usage-sensitive distribution of the shared costs could "give one service provider an appreciable, incremental cost advantage over another service provider when competing for a specific subscriber," as well as "disparately affect the ability of competing service providers to earn a normal return." Although the record does not show conclusively that usage-based charges would hamper materially a carrier's ability to compete for subscribers, we believe it prudent at this early stage in the deployment of number portability to minimize such risk.

89. Moreover, assessing shared costs on a usage-sensitive basis could discourage carriers from performing uploads and downloads, or at least penalize those carriers that do so more frequently. The entire industry benefits from the maintenance of reliable regional databases for providing number portability: unless carriers download data, they will be unable to terminate traffic to the appropriate end-user; unless carriers upload ported numbers to the databases, the databases will be inaccurate, making downloads useless for current and future database participants alike. Thus, all carriers that port telephone numbers and all carriers that terminate calls to portability-capable NXXs depend on the timely uploading and downloading of information to and from the regional databases to ensure an accurate database and the proper routing of telephone calls. Furthermore, all telecommunications carriers that depend on the availability of telephone numbers will benefit from number portability because it allows subscribers to retain their telephone numbers when changing local service providers, and because it facilitates the conservation of telephone numbers through number pooling.²⁷⁴

90. Because we conclude that allocation better ensures that carriers will bear the shared costs on a competitively neutral basis, we disagree with the California Department of Consumer Affairs that we should distribute the "ongoing" shared costs of providing number portability through

²⁷² See *supra* paragraphs 69, 87.

²⁷³ See *supra* text accompanying note 54.

²⁷⁴ For a brief discussion of number pooling, see note 472, *infra*.

usage-sensitive rates.²⁷⁵ We also disagree with AT&T, MCI, and Sprint that we should adopt rate elements similar to those used for the 800 number database.²⁷⁶ Provision of the 800 number database is not subject to a statutory competitive neutrality mandate. Consequently, the competitive neutrality concerns that usage-sensitive rates raise were not at issue.

91. We will not adopt a separate distribution methodology for wireless carriers. The record indicates that wireless carriers will use the regional databases in the same manner as wireline carriers. Consequently, we see no reason to treat wireless carriers differently than wireline carriers with respect to the distribution of the shared costs.

92. Notwithstanding that other costs of the regional databases will be allocated, we determine that regional database administrators may assess individual carriers and non-carrier third parties reasonable usage-based charges for discretionary services such as audits and reports. Because these services are elective to the parties requesting them, and not necessary for the provision of number portability, usage-based charges should not have a competitive impact.

C. The Allocator

i. Positions of the Parties

93. Commenters advocate two types of allocators for the shared costs: revenue-based, and nonrevenue-based. Among the revenue-based allocators, Bell Atlantic supports the use of gross telecommunications service revenues.²⁷⁷ TRA, the Florida Public Services Commission, small LECs, competitive LECs, and CMRS providers support share of gross telecommunications service revenues less charges carriers pay to other carriers.²⁷⁸ A number of incumbent LECs and USTA support share

²⁷⁵ See *supra* text accompanying notes 265-267 for the argument of the California Department of Consumer Affairs. Furthermore, as we explained in Part III.B, above, we disagree with the California Department of Consumer Affairs that the "ongoing" costs of number portability are not subject to the competitive neutrality mandate. See *supra* paragraph 38.

²⁷⁶ See *supra* paragraph 83 for their arguments.

²⁷⁷ Bell Atlantic Comments at 4-5 (preferring share of gross retail telecommunications service revenues, but supporting share of gross telecommunications revenues as well).

²⁷⁸ ALTS Comments at 4; Fla. Pub. Servs. Comm'n Comments at 3; Frontier Comments at 3-4; GST Reply at 12-13; Iowa Network Servs. Reply at 5; ITCs Comments at 2-3; MFS Comments at 7; NCTA Reply at 7; NTCA/OPASTCO Comments at 9; Nextel Comments at 2-3; TRA Comments at 7-8; Teleport Comments at 4-5; Time Warner Comments at 7-8; WinStar Comments at 5. Cf. Ohio Pub. Utils. Comm'n Comments at 6 (preferring allocation by share of access lines, but advocating gross revenues less charges carriers pay to other carriers if the Commission chooses a revenue-based allocator).

of gross retail telecommunications service revenues.²⁷⁹ BellSouth supports share of gross telecommunications service revenues less charges carriers pay to and receive from other carriers.²⁸⁰ Among the nonrevenue-based allocators, Arch Communications, BellSouth, MCI, MobileMedia Communications, the Public Utilities Commission of Ohio, SBC, and Sprint support line-derived allocators.²⁸¹ AirTouch Communications, AT&T, the California Public Utilities Commission, GSA, MCI, and Sprint also support number-based allocators.²⁸² AirTouch Communications further supports share of retail minutes of use.²⁸³

²⁷⁹ Ameritech Comments at 4-7; Bell Atlantic Comments at 4-5 (supporting share of gross telecommunications service revenues, but preferring share of gross retail telecommunications service revenues); NYNEX Comments at 8-9; U S WEST Reply at 14-15; USTA Reply at 7. *Cf.* BellSouth Reply at 7-9 (preferring share of elemental access lines over revenue-based allocators generally, but criticizing gross revenues less charges carriers pay to other carriers in favor of share of gross retail telecommunications service revenues or share of gross revenues less charges carriers pay to and receive from other carriers). For an explanation of elemental access lines, see *infra* text at notes 327-332.

²⁸⁰ BellSouth Reply at 7-9 (preferring share of elemental access lines over revenue-based allocators generally, but criticizing gross revenues less charges carriers pay to other carriers in favor of share of gross retail telecommunications service revenues or share of gross revenues less charges carriers pay to and receive from other carriers). For an explanation of elemental access lines, see *infra* text at notes 327-332.

²⁸¹ MCI Reply at 15 (advocating allocation by share of presubscribed lines, active telephone numbers, or local access lines); Ohio Pub. Utils. Comm'n Comments at 6 (supporting share of local access lines, less private lines, plus a trunk equivalency); Sprint Comments at 6 (advocating allocation by share of presubscribed local service lines). *Cf.* AirTouch Communications Reply at 4-6 (preferring share of retail minutes of use, but mentioning share of total access lines, share of total presubscribed lines, and share of end-user assigned numbers as reasonable alternatives because of their simpler calculation).

Arch Communications, BellSouth, MobileMedia Communications, and SBC support share of "elemental" access lines. Arch Communications Group Reply at 7; BellSouth Reply at 7; MobileMedia Communications Reply at 5; SBC Comments at 7. For an explanation of elemental access lines, see *infra* text at notes 327-332. See also SBC Comments at 7-9; SBC Reply at 12-13.

²⁸² AirTouch Communications Reply at 4-6 (preferring share of retail minutes of use, but mentioning share of total access lines, share of total presubscribed lines, and share of total end-user assigned numbers as reasonable alternatives because of their simpler calculation); AT&T Comments at 8 n.11 (arguing that if the master databases only include the telephone numbers of customers who have ported, carriers should bear upload costs by share of working telephone numbers in portability-capable NXXs); Calif. Pub. Utils. Comm'n Comments at 7 & n.3 (advocating allocation by share of active end-user assigned numbers); GSA Comments at i, 7; MCI Comments at 4-5 (advocating share of portable NXXs, or share of working telephone numbers in portable NXXs); Sprint Reply at 4 (advocating allocation by lines or working telephone numbers). See also MCI Reply at 15 (advocating allocation by share of presubscribed lines, active telephone numbers, or local access lines).

²⁸³ AirTouch Communications Reply at 4-6 (preferring share of retail minutes of use, but mentioning share of total access lines, share of total presubscribed lines, and share of total end-user assigned numbers as reasonable alternatives because of their simpler calculation).

i. Revenue-based allocators

94. Proponents of revenue-based allocators argue that a carrier's revenues approximate the benefit that the carrier and its subscribers derive from the increased competition that number portability creates,²⁸⁴ that such allocators assess costs on all carriers,²⁸⁵ that such allocators are relatively easy to administer,²⁸⁶ and that revenues most accurately reflect market share.²⁸⁷ Several commenters stress, however, that we must define precisely the telecommunications revenues that should be used to determine the allocator and create a mechanism to ensure that carriers do not shift or hide revenues through techniques such as attributing revenue to unregulated services.²⁸⁸

95. Some critics of revenue-based allocators contend that the costs and benefits of number portability are not directly related to revenues.²⁸⁹ Others contend that revenue-based allocators are

²⁸⁴ Timer Warner Comments at 7-9.

²⁸⁵ MFS Comments at 7; Time Warner Comments at 7-9. Cf. Frontier Comments at 3-4 (arguing that an allocator based on gross revenues less charges carriers pay to other carriers recognizes that number portability benefits all carriers). See also AirTouch Communications Reply at 2-3 (criticizing revenue-based allocators but acknowledging that they reach all carriers).

²⁸⁶ NCTA Reply at 7.

²⁸⁷ Fla. Pub. Servs. Comm'n Comments at 3 (arguing that an allocator based on gross revenues less charges carriers pay to other carriers accounts for both customer number and value); NCTA Reply at 7 (arguing that an allocator based on gross revenues less charges carriers pay to other carriers equitably distributes portability costs in proportion to carrier size); WinStar Comments at 5 (arguing that gross revenues are an appropriate starting point to calculate recoverable costs because gross-revenue-based allocators are least distortionary in that each carrier's revenues will approximate the amount of traffic that travels over its network).

²⁸⁸ NTCA/OPASTCO Comments at 9-10. Cf. Nextel Comments at 2-4 (arguing that the Commission must exclude revenues not relevant to number portability, such as funds generated by non-covered SMS service); TRA Comments at 7-8 (stressing that only revenues from local exchange service are relevant).

²⁸⁹ AirTouch Communications Reply at 2-3 (arguing that the costs and benefits of number portability are related to number of customers, not revenues); Calif. Dep't Consumer Affairs Comments at 15 n.10 (arguing that allocating by gross revenues imposes costs on carriers that are most efficient and successful, rather than by some factor related to the costs of long-term number portability); Calif. Pub. Utils. Comm'n Comments at 7 (arguing that carriers with high revenues do not necessarily use the databases more frequently than other carriers); GSA Comments at 7 (arguing that a gross revenue-based allocator distributes number portability costs to a carrier without regard to the amount of benefit that carrier receives from number portability); MCI Comments at 7-8 (arguing that customers benefit from number portability in proportion to the number of telephone numbers they use, not in proportion to the amount of money they spend on all telephone services); Sprint Reply at 3-4 (arguing that revenues-based allocators make no effort to identify the cost causers and do not necessarily reflect market share or use of the database).

administratively burdensome. They argue that determining the relevant revenues is difficult,²⁹⁰ that revenue shares would need continual updating,²⁹¹ that monitoring carriers' calculation and reporting methods would be necessary and expensive,²⁹² and that revenue figures are competitively sensitive, raising confidentiality concerns.²⁹³ Still other critics contend that revenue-based allocators discriminate against certain types of carriers. They argue that such allocators disadvantage carriers with higher revenues per customer, such as CMRS providers,²⁹⁴ carriers with lower profits per customer,²⁹⁵ regulated carriers as compared to unregulated entities, such as private branch exchange (PBX) providers, whose revenues are beyond the Commission's purview,²⁹⁶ and carriers that operate in multiple regions, particularly if some of those regions are high-cost.²⁹⁷ Other parties contend that revenue-based allocators send the wrong market signals. They argue that such allocators give carriers less incentive to use the database efficiently, because revenues would determine portability costs, rather than database use,²⁹⁸ that such allocators distort the market,²⁹⁹ and

²⁹⁰ AirTouch Communications Comments at 1-2, 6-7 (pointing to difficulties in segregating international and multi-regional carriers' revenues); AT&T Comments at 9-10 n 13 (pointing to difficulties in determining whether revenues from pure competitive access services, unswitched private-line services, and enhanced services should all count as telecommunications revenues for purposes of allocation); Cincinnati Bell Comments at 7 (arguing the Commission would have to determine what constitutes "telecommunications revenue"); GSA Comments at 6-7 & n.3 (arguing, for example, that whether the allocator would include revenues from deregulated Centrex loops is not clear); MCI Reply at 14 (arguing that the Commission would have to determine what constitutes "revenue"); SBC Reply at 11-12 (arguing that the Commission would have to address treatment of local and long-distance revenue, domestic and international revenue, as well as in-region and out-of-region revenue); Sprint Comments at 7 (arguing that regional revenue data, especially for national carriers, may be difficult to obtain).

²⁹¹ Cincinnati Bell Comments at 7-8; MCI Reply at 14.

²⁹² AirTouch Communications Comments at 1-2; BellSouth Reply at 8; MCI Reply at 14; Ohio Pub. Utils. Comm'n Comments at 6; Omnipoint Communications Comments at 4; SBC Reply at 9; Sprint Reply at 4-5.

²⁹³ Omnipoint Communications Comments at 4.

²⁹⁴ AirTouch Communications Comments at 2-3; Calif. Pub. Utils. Comm'n Comments at 7; GTE Reply at 4; Omnipoint Communications Comments at 2-3.

²⁹⁵ Arch Communications Group Reply at 6-7 (arguing that revenue-based allocators would make earning a normal return difficult for low-margin, high-volume carriers such as paging providers, which operate in a highly competitive market with significant economic pressures on price); MobileMedia Communications Reply at 5; PCIA Comments at 7.

²⁹⁶ GSA Comments at 6-7.

²⁹⁷ SBC Reply at 11-12.

²⁹⁸ AT&T Comments at 9-10; MCI Reply at 14.

that because revenue shares fluctuate, carriers would be uncertain of their share of the costs from month to month or year to year.³⁰⁰

96. Commenters that specifically support a gross telecommunications revenue allocator argue that the Commission adopted such an allocator to distribute the costs of telecommunications relay services, and that no one has suggested that doing so was competitively biased.³⁰¹ Opponents argue that such an allocator double counts revenues,³⁰² and that allocating the same portability costs to carriers with identical gross revenues disadvantages carriers with lower capital costs and higher operating costs, such as resellers, because their "normal return" on investment would be lower.³⁰³

97. Commenters that support an allocator based on share of gross revenues, less charges carriers paid to other carriers, argue that this method is necessary to avoid double counting,³⁰⁴ and that such an allocator takes into account carriers' ability to pay.³⁰⁵ Opponents argue that this approach discourages facilities-based investment by allocating facilities-based carriers more costs per dollar of retail sales than their nonfacilities-based competitors, which can subtract the rates they pay other carriers,³⁰⁶ that such an allocator disadvantages LECs as compared to IXCs,³⁰⁷ that the Commission rejected the double-counting argument in its 1993 consideration of telecommunications relay service

²⁹⁹ MCI Comments at 6-7 (arguing that the demand for telecommunications services is more elastic than the demand for telephone numbers, which are used mostly in fixed proportions with dial tone); MobileMedia Communications Reply at 5 (arguing that distortions are inherent in revenue-based allocation methods).

³⁰⁰ Cincinnati Bell Comments at 7-8 (arguing, also, that using current revenues would require incumbent LECs to bear the majority of costs even if their share of market revenues declines); MCI Reply at 14.

³⁰¹ Bell Atlantic Comments at 4-5 (preferring share of gross retail telecommunications service revenues, but supporting share of gross telecommunications revenues as well).

³⁰² Sprint Reply at 4; TRA Reply at 5-8; Time Warner Reply at 4-5.

³⁰³ AirTouch Communications Comments at 3-5, 7; SBC Reply at 10.

³⁰⁴ TRA Reply at 5-8; Teleport Comments at 6; Time Warner Comments at 8-9. *Cf.* WinStar Comments at 5-6 (arguing that charges for interconnection and access will be reflected in the underlying carrier's revenues, and that subtracting intercarrier charges ensures that carriers' are responsible for costs in proportion only to the traffic they carry, not to revenues from transfers between carriers).

³⁰⁵ Teleport Comments at 6.

³⁰⁶ Ameritech Comments at 5-6; Bell Atlantic Comments at 6-7; Cincinnati Bell Comments at 8; SBC Reply at 10-1; Sprint Reply at 4; U S WEST Reply at 15; USTA Reply at 7.

³⁰⁷ NYNEX Comments at 7-8 (arguing that such an allocator would place a disproportionate share of costs on incumbent LECs, and place them at a competitive disadvantage as IXCs enter the local and intraLATA toll markets); SBC Comments at 6; U S WEST Reply at 15 (arguing that such an allocator undercounts the retail customers of carriers that pay access charges, and understates their ability to spread number portability costs).