

equipment;¹⁵¹ and the effect of digital loop carrier (DLC) facilities on xDSL service.¹⁵²

b) Discussion

70. As described in detail below, we require incumbent LECs to provide access to this network element to a single requesting carrier, on loops that carry the incumbent's traditional POTS, to the extent that the xDSL technology deployed by the competitive LEC does not interfere with the analog voiceband transmissions.¹⁵³ By imposing these limitations, we do not limit the availability of line sharing to any particular technology, but only seek to preserve the analog voice channel from significant degradation.¹⁵⁴ We note that in adopting unbundling requirements based on a presumption of acceptability for deployment, we do not limit the availability of the high frequency portion of the local loop to competitive carriers providing only data services utilizing ADSL technology. Instead, we require that competitive LECs seeking to line share may deploy only xDSL-based services that conform with our criteria supporting a presumption of acceptability for deployment to ensure that these services will not interfere with analog voice frequencies.

71. Voice-Compatible Forms of xDSL. We require incumbent LECs to provide unbundled access to the high frequency portion of the loop to any carrier that seeks to deploy any version of xDSL that is presumed to be acceptable for shared-line deployment in accordance with our rules.¹⁵⁵ xDSL technologies that meet this presumption include ADSL, as well as Rate-Adaptive DSL and Multiple Virtual Lines (MVL) transmission systems, all of which reserve the voiceband frequency range for non-DSL traffic.¹⁵⁶ Among these, ADSL is the most widely

¹⁵¹ *Advanced Services First Report and Order and FNPRM*, 14 FCC Rcd at 4811, para. 105.

¹⁵² *Id.* at para. 104. Digital loop carrier (DLC) systems digitally encode an individual voice channel into a 64 kilobit per second (kbps) digital signal, and aggregate, or "multiplex," the traffic from up to 24 subscriber lines into DS1 or higher signals to improve transmission efficiency and range. DS1 channels carry 1.544 megabits per second (Mbps) of data, the digital equivalent of 24 x 64 kbps analog voice channels. In a DLC system, analog signals are carried from the customer's premises to a remote terminal (RT), at which they are converted to digital information, multiplexed with other signals, and transported, generally through fiber facilities, to the LEC central office. Integrated digital loop carrier (IDLC) systems, a specific type of DLC system, establish a direct, digital interface with the LEC central office switch, making it difficult, if not impossible, for requesting carriers to access individual loops at that location.

¹⁵³ *See infra* Section V.B.3.

¹⁵⁴ *See @Link Reply Comments at 2; NorthPoint Comments at 18-19; Rhythms Reply Comments at 16.*

¹⁵⁵ *See infra* Section V.B.3. *See also* NorthPoint Reply Comments at 21; SBC Comments at 27; Bell South Comments at 27.

¹⁵⁶ *See* Covad Comments at 5. *See also Paradyne Order*, 14 FCC Rcd. 4496; *Nortel Order*, 16 Communications Reg. (P&F) 1143. The relatively new Universal ADSL Working Group (UAWG) "G.Lite" standard may meet the criteria for the presumption of acceptability for deployment as well. We note that, although it is successfully deployed, MVL is a proprietary technology that is not compliant with the T1.413 Annex E splitter. *See* Network and Customer Installation Interfaces - Asymmetric Digital Subscriber Line (ADSL) Metallic Interface (ANSI T1.413-1995) (ANSI T1.413) (ANSI T1.413 standard presents the electrical and other characteristics of the ADSL signals appearing at the network interface).

deployed version of xDSL that is currently presumed acceptable for deployment on a shared line.¹⁵⁷ Because line sharing as contemplated by this Order can occur only on lines that carry traditional analog voiceband service, lines that are not used for these services could not be shared.¹⁵⁸ We conclude, therefore, that incumbent LEC arguments that we should not require unbundling of the high frequency portion of the loop because not all forms of xDSL technology are compatible with a line sharing arrangement are misplaced. Our rules ensure that xDSL technologies deployed in line sharing arrangements will not cause substantial interference to simultaneous voiceband services.

72. Incumbent Remains the Voice Carrier. Incumbents are not required to provide unbundled access to carriers seeking just the data portion of an otherwise unoccupied loop (often referred to as a “dry loop.”)¹⁵⁹ As stated previously, line sharing contemplates that the incumbent LEC continues to provide POTS services on the lower frequencies while another carrier provides data services on higher frequencies.¹⁶⁰ The record does not support extending line sharing requirements to loops that do not meet the prerequisite condition that an incumbent LEC be providing voiceband service on that loop for a competitive LEC to obtain access to the high frequency portion. Accordingly, we conclude that incumbent LECs must make available to competitive carriers only the high frequency portion of the loop network element on loops on which the incumbent LEC is also providing analog voice service (often referred to as a “wet loop”). We note that in the event that the customer terminates its incumbent LEC provided voice service, for whatever reason, the competitive data LEC is required to purchase the full stand-alone loop network element if it wishes to continue providing xDSL service. Similarly, incumbent carriers are not required to provide line sharing to requesting carriers that are purchasing a combination of network elements known as the platform.¹⁶¹ In that circumstance, the incumbent no longer is the voice provider to the customer.

73. GTE requests that we clarify that an incumbent carrier can disconnect a shared line if a customer does not pay its local voice telephone bill.¹⁶² If the incumbent carrier has disconnected the customer’s voice service in compliance with applicable federal, state and local

¹⁵⁷ See ANSI T1.413.

¹⁵⁸ NorthPoint Comments at 19; NorthPoint Reply Comments at 16. See generally *supra* Section IV.B.2.

¹⁵⁹ We do not, however, preclude carriers from providing “dry loops” on a wholesale basis. For example, it may be in the incumbent LEC’s interest to continue to provide access to the high frequency portion of local loops on which it is not providing voice service, such as where voice service has been switched to a fiber technology such as DLC, but the incumbent wants to continue to recover income from its extant copper plant.

¹⁶⁰ As previously discussed, we do not find impairment where the incumbent LEC is not providing voice service on the customer’s loop, or where the competitive LEC is seeking to deploy a form of xDSL that is not compatible with voice service provided on a shared line. See *supra* Section IV.B.2

¹⁶¹ The platform refers to combinations of loop, switching and transport unbundled network elements used to provide circuit-switched voice service. See *Local Competition Third Report and Order*, at para. 12.

¹⁶² GTE Comments at 30.

law, then there is no longer an incumbent voiceband service with which the competitive LEC can share the loop. The same holds true if the customer voluntarily cancels incumbent LEC provided voiceband services on the shared loop. In those situations, in order to continue to provide data services to that customer, the competitive LEC must purchase the entire unbundled loop and must pay the incumbent LEC the forward looking cost for that unbundled network element.¹⁶³ We would find it unacceptable, and potentially discriminatory under section 201 or a violation of section 251 obligations, however, for the incumbent to cause or require any interruption of the competitive LEC's service in order to execute such a loop access status change.¹⁶⁴

74. Single Requesting Carrier, One Customer Per Loop. We agree with both incumbent and competitive LECs that the unbundling obligations should be defined to permit only a single competitor to share the line with the incumbent.¹⁶⁵ The record indicates significant support for two-carrier line sharing arrangements, with an incumbent LEC providing analog, circuit-switched voice service and a competitive LEC providing data service. It is clear from the record that the complexities involved with implementing line sharing dramatically increase where more than two service providers share a single loop.¹⁶⁶ We believe that serving multiple customers would be very costly, time consuming, and would lead to complex operational difficulties. Moreover, the record does not sufficiently support the establishment of multiple customer line sharing requirements.

75. While we recognize that technology exists that will support more than two services on a single copper loop, we do not believe that requiring LECs to contemplate and accommodate more complex, but unlikely, multi-carrier or multi-service line sharing arrangements will benefit the public interest at this time. Indeed, the record does not support the need for multiple customer or multiple service line sharing.¹⁶⁷ Thus, we have tailored our line

¹⁶³ We do not, however, preclude incumbent carriers from providing, as an alternative, loop access on a wholesale basis. Moreover, we note that if the customer switches its voice provider from the incumbent LEC to a competitive LEC that provides voice services, the xDSL-providing competitive LEC may enter into a voluntary line sharing agreement with the voice-providing competitive LEC. NorthPoint Reply Comments at 17.

¹⁶⁴ We envision that a loop access status change can be accomplished by manipulating the connections to the splitter serving the customer line at the central office. Changes to the voice circuit on the carrier side of the splitter should not affect the competitor's continuing xDSL connection to the splitter.

¹⁶⁵ SBC Comments at 28-29; NorthPoint Reply Comments at 14-16.

¹⁶⁶ Although incumbent LECs state that provisioning xDSL through shared lines to multiple customers would be unduly complex, these commenters did not provide an example of a multiple customer scenario. We assume that one such possible scenario would involve several customers sharing a single xDSL connection in a single geographic location, such as an office building. We do not find that line sharing necessarily is required to prevent a competitor from being impaired in that type of situation, and note that the record does not indicate that such situation is likely. Thus, we do not require incumbents to preemptively prepare for such occurrence. See SBC Comments at 28-29; BellSouth Comments at 16.

¹⁶⁷ We note that multiple customer installations, such as office buildings, generally utilize completely digital services, such as T-1 lines or HDSL. In this proceeding we do not consider competitive impairment with respect to these high-capacity, non-line sharing compatible services. See *supra* section IV.B.2 for a discussion of competitive parity in business-oriented xDSL services.

sharing rules to avoid needlessly burdening the industry with requirements that far exceed the needs stated by the parties. Our intent in requiring incumbent LECs to provide unbundled access to the high frequency loop spectrum is to facilitate the deployment of advanced services to customers that seek both a data and a voice service on a single line. These customers typically are residential and small business customers. We believe that defining the unbundling obligation as described in this section will further that goal without imposing unreasonably burdensome, unnecessary, or excessive requirements upon incumbent LECs.

76. Control of the Loop and Splitter Functionality. We conclude that, subject to certain obligations, incumbent LECs may maintain control over the loop and splitter equipment and functions. In fact, both the incumbents and the competitive LECs agree that subject to certain obligations, the incumbent LEC may maintain control over the loop and the splitter functionality if desired.¹⁶⁸ Incumbent LECs and competitive LECs both argue reasonably for the right to control the splitter and to choose to isolate the splitter or incorporate it into the DSLAM. Incumbent LECs are concerned that passing incumbent LEC voiceband traffic through competitive LEC facilities could lead to voiceband service degradation.¹⁶⁹ Competitive LECs have similar concerns with regard to xDSL service degradation caused by the incumbent LEC. Competitive LECs are amenable, however, to incumbent LEC ownership and control over the splitter, but they are concerned that the incumbent LEC's ownership and control of the splitter will permit the incumbent LEC to limit the competitive LEC's ability to deploy competitive services.¹⁷⁰

77. We find that an incumbent LEC seeking to maintain control of the splitter must promptly accommodate, in response to a competitive LEC request to do so, any line sharing technology that meets the deployment criteria established in this proceeding.¹⁷¹ Specifically, we expect that in response to such a request, the incumbent LEC will not delay its actions to procure the necessary equipment, and will inform the requesting carrier of what action it takes, and when the equipment can be installed. We also expect that it should take no longer to obtain and install

¹⁶⁸ SBC Comments at 27, NorthPoint Reply Comments at 17-18. *But see* Letter from Kent D. Bressie, Counsel for Paradyne, to Magalie Roman Salas, Secretary, Federal Communications (filed Nov. 12, 1999) (Paradyne Nov. 12 *Ex Parte*) (arguing that xDSL provider should control splitter in order to ensure future innovation).

¹⁶⁹ *Aug. 31 Technical Forum*; Letter from Kathleen B. Levitz, Vice President – Federal Regulatory, BellSouth, to Magalie Roman Salas, Secretary, Federal Communications Commission (filed Aug. 31, 1999) (BellSouth Aug. 31 *Ex Parte*) (arguing that permitting the competitive LEC to own the splitter would create issues regarding management of circuit terminations); Letter from Kathleen B. Levitz, Vice President – Federal Regulatory, BellSouth, to Magalie Roman Salas, Secretary, Federal Communications Commission, Attach. at 4 (filed Nov. 3, 1999) (BellSouth Nov. 3 *Ex Parte*) (arguing that competitive LEC ownership of splitters eliminates incumbent LEC's ability to properly police data services).

¹⁷⁰ *See* NorthPoint Comments at 22; NorthPoint Reply Comments at 17-18; Sprint Comments at 12.

¹⁷¹ We note, moreover, that the incumbent and requesting carrier may reach a voluntary agreement pursuant to which the competitive LEC will either purchase and collocate its own splitter, whether or not incorporated into the DSLAM, or purchase a splitter that complies with the deployment standards adopted herein and transfer that splitter to the incumbent. *See infra* Section IV.E.2.

such equipment in response to a competitive LEC's request than it would take the incumbent to procure and install the same equipment for itself. Any failure to make this accommodation in a reasonably prompt manner would constitute a violation of the incumbent LEC's section 251 unbundling obligations.

78. As described by NorthPoint, the passive splitter called for in the T1E1.413 ADSL standard directs the voice and data traffic to the appropriate transmission equipment and is available from an array of vendors.¹⁷² These splitters are generally located at or adjacent to the main distribution frame (MDF) at an incumbent's central office. That configuration permits the incumbent to easily control the local loop and the splitter functions and reduces the possibility of signal attenuation.¹⁷³ Allowing the incumbents to maintain control over the loop and the splitter addresses concerns that the competitive LEC might be able to use its control over the splitter to degrade the incumbent LEC's voice signal or to disconnect the customer without regard for the customer's voice service.¹⁷⁴ This decision also addresses the incumbent's concern that the competitive LEC would be able to violate the privacy of an end user's voice communications when the end user's loop goes through a competitive LEC DSLAM.¹⁷⁵

79. If a state commission finds that an incumbent has unreasonably refused to accommodate the competitive LEC's preferred technology or requested equipment upgrades in a prompt fashion, the state commission may authorize the competitive LEC to purchase and collocate its own splitter, whether or not incorporated into the DSLAM. The incumbent LEC would then receive the voiceband signal by connecting to the competitive LEC's collocated splitter. Alternatively, the state commission may authorize the competitive LEC to purchase a splitter that complies with the deployment standards we adopt in this Order, and transfer that splitter to the incumbent.¹⁷⁶ Where the competitive LEC obtains some degree of control over the splitter, the state commission should ensure that the integrity of the incumbent LEC's voice transmission's passing through the competitive LEC's equipment and do not interfere with the performance of the incumbent LEC's central office and network equipment.¹⁷⁷

80. Line Sharing Does Not Impede Incumbent LECs' Ability to Manage the Loop

¹⁷² NorthPoint Reply Comments at 18.

¹⁷³ The further from the MDF the splitter is installed, the more likely the signal will experience some attenuation. See Appendix 2. See also NorthPoint Reply Comments at n.50 (citing <http://www.cisco.com/univercd/cc/td/doc/product/dsl_prod/6200/copots.htm> installation instructions for Cisco POTS splitter chassis).

¹⁷⁴ SBC Comments at 24. See also Covad Reply Comments at 6-7.

¹⁷⁵ SBC Comments at 22.

¹⁷⁶ Letter from Charles W. Logan, Counsel for NorthPoint, to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket No. 98-147, at 4-5 (filed Oct. 8, 1999) (NorthPoint Oct. 8 *Ex Parte*).

¹⁷⁷ We expect that incumbents and competitors will resolve issues and disputes relating to splitter deployment in the context of the collaborative process we discuss below. See *infra* Section IV.D.4.

Plant. We are not persuaded by incumbent LEC claims that they would be unable to manage properly their loop plant if required to provide unbundled access to the high frequency portion of the loop.¹⁷⁸ When an incumbent LEC upgrades its loop plant from copper to fiber, the incumbent LEC rarely removes the existing copper, but instead lays the fiber along the existing copper routes.¹⁷⁹ We believe that this practice allows the incumbent LEC to upgrade its plant by laying fiber, while allowing the competitive LEC to retain access to copper loops, including line-shared loops, they are currently leasing from the incumbents to offer xDSL-based services to end-users. We do not intend, however, to prevent incumbent LECs from constructing new facilities or decommissioning old facilities. We note that the incumbent LEC is not restrained, in the course of normal loop plant maintenance and improvement activities, from migrating customers from copper to fiber loop facilities. Where such activity takes place, however, the competitor may be required to forego access to only the high frequency portion of the loop serving that customer, and may have to obtain access to the entire unbundled copper loop or find another alternative to maintain service.¹⁸⁰ We expect that incumbent and competitive LECs will be able to resolve these issues in the course of section 252 arbitration and negotiation proceedings.¹⁸¹ We also note that the Commission has previously defined the specific rights and responsibilities of each party in similar situations.¹⁸² Moreover, the retail xDSL service currently being offered by the incumbents themselves requires the same loop plant that CLECs require to offer shared line xDSL. Accordingly, we believe that the spectrum unbundling requirements we establish in this Order will not infringe the incumbents' ability to rearrange or replace their loop plant in an equitable and pro-competitive manner.

¹⁷⁸ AT&T Comments at 18; Ameritech Comments at 7,10; Bell Atlantic Comments at 5 and Jackson Stmt. at para. 13; BellSouth Comments at 18-19; SBC Comments at 24,27; USTA Comments at 21-24; US WEST Comments at 14-15.

¹⁷⁹ See NorthPoint Reply Comments at 19.

¹⁸⁰ See *infra* Section IV.D.3 for a discussion of digital loop carrier systems.

¹⁸¹ 47 U.S.C. § 252.

¹⁸² In the *Local Competition First Report and Order*, we discussed the parties' duty to negotiate in good faith in accordance with section 252 imposed on incumbents by section 251(c)(1). We also established rules, in section 51.301 governing the duty to negotiate, and we interpret these rules in this Order to ensure that line sharing negotiations will proceed in good faith and for mutual advantage. See *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, First Report and Order, 11 FCC Rcd 15499, 15569-15578 (1996) (*Local Competition First Report and Order*), *aff'd* in part and vacated in part sub nom., *Competitive Telecommunications Ass'n v. FCC*, 117 F.3d 1068 (8th Cir. 1997) and *Iowa Utilities Bd. v. FCC*, 120 F.3d 753 (8th Cir. 1997), petition for cert. granted, Nos. 97-826, 97-829, 97-830, 97-831, 97-1075, 97-1087, 97-1099, and 97-1141 (U.S. Jan. 26, 1998) (collectively *Iowa Utils. Bd. v. FCC*), *aff'd* in part and remanded, *AT&T Corp., et al. v. Iowa Utils. Bd. et al.*, 119 S.Ct 721 (1999); Order on Reconsideration, 11 FCC Rcd 13042 (1996), Second Order on Reconsideration, 11 FCC Rcd 19738 (1996), Third Order on Reconsideration and Further Notice of Proposed Rulemaking, FCC 97-295 (rel. August 18, 1997), further recons. pending. See also 47 C.F.R. § 51.301.

2. Loop Conditioning

a) Background

81. In the *Advanced Services FNPRM*, we tentatively concluded that, although there might be circumstances where loop conditioning activities such as the removal of loading coils and repeaters to enable the transmission of high frequency, non-voiceband signals would diminish voice service quality, such situations are isolated and can be remedied. We tentatively concluded, therefore, that loop conditioning should not interfere with the incumbent LEC's general obligation to share the line with requesting carriers.¹⁸³ We also tentatively concluded that when an incumbent LEC can demonstrate to the state commission that digital loop conditioning would interfere with the analog voice service of the line, line sharing should not be considered technically feasible on that particular line, and line sharing obligations would not apply.¹⁸⁴ Finally, we tentatively concluded that incumbent LECs would be required to perform other types of loop conditioning activities, such as removing bridge taps and cleaning up splices, that would not interfere with analog voiceband transmissions.¹⁸⁵

82. In the *Local Competition Third Report and Order* we clarified that incumbent LECs are required to condition loops to enable requesting carriers to offer advanced services, wherever a competitor requests, even if the incumbent LEC itself is not offering xDSL services to the customer on that loop. We explained that a conditioned loop describes a copper loop from which bridge taps, low-pass filters, range extenders, and similar devices that carriers use to improve voice transmission capability have been removed.¹⁸⁶ We found that because competitors cannot access all of the loop's native "features, functions, and capabilities" unless it has been stripped of all accreted devices, loop conditioning falls within the definition of the loop network element.¹⁸⁷ Moreover, we concluded that although loops of 18,000 feet or shorter normally should not require voice-transmission enhancing devices, these devices are sometimes present on such loops and the incumbent LEC should be able to charge for conditioning such loops.¹⁸⁸

b) Discussion

83. We conclude that, except in specific circumstances, incumbent LECs must condition loops to enable requesting carriers to provide xDSL-based services on the same loops the incumbent is providing analog voice service, regardless of loop length. We emphasize that shared line xDSL service deployed according to national standards will not impair voice services.

¹⁸³ *Advanced Services First Report and Order and FNPRM*, 14 FCC Rcd at 4811, para. 104.

¹⁸⁴ *Id.*, 14 FCC Rcd at 4811, para. 104.

¹⁸⁵ *Id.*

¹⁸⁶ *Local Competition Third Report and Order*, at para. 172.

¹⁸⁷ *Id.*, at para. 173.

¹⁸⁸ *Id.*, at para. 193. Where the incumbent LEC has previously agreed, or is obligated, not to charge for line conditioning, this Order does not authorize or require the incumbent LEC to impose line conditioning charges.

The record indicates that the presence of loading coils, bridge taps, and other voiceband transmission enhancing equipment on a particular loop generally precludes the deployment of xDSL either on a stand-alone basis or in conjunction with voice service to the customer served by that loop.¹⁸⁹ Commenters attest, however, that it is rare, particularly on loops that extend less than 18,000 feet from the central office, that such equipment is required to enhance voice transmission, or that the removal of such equipment will have a negative effect on voiceband services.¹⁹⁰ In these instances, consistent with our conclusion in the *Local Competition Third Report and Order*, we require incumbent LECs to provide loops with all their capabilities intact whenever the competitive carrier requests access to the high frequency portion of the loop, even if the incumbent itself is not offering xDSL-based services to the customer on that loop.¹⁹¹ Specifically, the incumbent LEC is required to remove bridge taps, filters, range extenders, and similar devices where a competitive carrier requests unbundled access to the high frequency portion of the local loop.

84. Until recently, lines over 18,000 feet were not considered amenable to xDSL transmission.¹⁹² Commenters state, however, that these very long length loops are now compatible with certain xDSL transmission technologies, and represent an opportunity for further xDSL product development.¹⁹³ Thus, we require incumbent LECs to condition loops of any length for which competing carriers have requested line sharing, unless conditioning of that loop will significantly degrade the incumbent's voice service as described below. We believe that this requirement is technology-neutral and supports the further development and deployment of xDSL-based services.

85. We conclude, however, that if conditioning a particular loop for shared-line xDSL will significantly degrade that customer's analog voice service, incumbent LECs are not required to condition that loop for shared-line xDSL. We recognize that in certain circumstances network architecture may necessitate the use of equipment such as loading coils on a particular line, and that the removal of that equipment would cause degradation of the voiceband already on that line.¹⁹⁴ In such cases, we do not require the incumbent LEC to modify its network architecture in

¹⁸⁹ NorthPoint Comments at 20.

¹⁹⁰ NorthPoint Comments at 20; NorthPoint Reply Comments at 21; Rhythms Reply Comments at 10. *See Local Competition Third Report and Order*, at paras. 190-195.

¹⁹¹ *Local Competition Third Report and Order*, at para. 173. *See* 47 C.F.R. § 51.319(a). We note that although the incumbent LEC need not be providing xDSL services over the specific loop, the incumbent must be providing analog voice service on that loop in order for incumbent LEC to be required to provide access to the high frequency loop spectrum network element.

¹⁹² *See* Letter from Frank S. Simone, Government Affairs Director, AT&T, to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket No. 98-147, Attachment Lee L. Selwyn, Scott C. Lundquist and Scott A. Coleman, "Bringing Broadband to Rural America: Investment and Innovation in the Wake of the Telecom Act," Sept. 1999 at 10 (filed Sept. 10, 1999) (*Broadband to Rural America*). *See also* SBC Comments at 27.

¹⁹³ *See Broadband to Rural America*.

¹⁹⁴ Loading coils are generally required to provide voiceband service only on lines over 18,000 feet. *See* NorthPoint

a way that will significantly degrade a customer's existing voiceband service.¹⁹⁵

86. We will require that the incumbent refusing a competitive carrier's request to condition a loop make an affirmative showing to the relevant state commission that conditioning the specific loop in question will significantly degrade voiceband services.¹⁹⁶ The incumbent LEC must also show that there is no adjacent or alternative loop available that can be conditioned or to which the customer's service can be moved to enable line sharing.¹⁹⁷ We believe an incumbent LEC will rarely, if ever, be able to demonstrate a valid basis for refusing to condition a loop under 18,000 feet. In addition, if an incumbent LEC claims that a loop cannot be conditioned without degrading the voiceband service, the incumbent LEC cannot then or subsequently condition that loop and provide xDSL service itself without first making available to any requesting carrier the high frequency portion of the newly-conditioned loop.¹⁹⁸ We strongly support state commission actions to deter incumbent LECs from misusing these measures for anti-competitive purposes.

87. Finally, consistent with our conclusion in the *Local Competition Third Report and Order*, we conclude that incumbent LECs should be able to charge for conditioning loops when competitors request the high frequency portion of the loop. The conditioning charges for shared lines, however, should never exceed the charges incumbent LECs are permitted to recover for similar conditioning on stand-alone loops for xDSL services.¹⁹⁹ Accordingly, we conclude that if the incumbent LEC seeks compensation from the requesting carrier for line conditioning activities, or such activity will cause substantial loop provisioning delays, the requesting carrier has the option of refusing, in whole, or in part, to have the line conditioned. A requesting carrier refusing some or all aspects of line conditioning will not, however, lose its right of access to the high frequency portion of the loop.²⁰⁰

Comments at 20; SBC Comments at 25, 27.

¹⁹⁵ See *infra* Section V.B.3 (defining significantly degrade).

¹⁹⁶ NorthPoint Comments at 20; NorthPoint Reply Comments at 20-21.

¹⁹⁷ NorthPoint Comments at 20. See also Oklahoma CC Comments at 15 (incumbent must "be held to specific set of standards in demonstrating its case").

¹⁹⁸ See NorthPoint Comments at 20-21 n.28; NorthPoint Reply Comments at 20-21.

¹⁹⁹ See *infra* Section IV.E.2.

²⁰⁰ Thus, where the incumbent LEC indicates that the particular loop requested by a competitor must be conditioned, the competitor has the option of declining to have that loop conditioned. The incumbent LEC may independently decide to condition that loop, but may not then require the competitive LEC to pay for loop conditioning, and may not adversely affect or otherwise interfere with the competitive LEC's service provision on that loop. We envision that these issues will be resolved in the course of ordering and provisioning the high frequency portion of the local loop. See *infra* Section IV.F.3.

3. Digital Loop Carrier Systems

a) Background

88. In the *Advanced Services FNPRM*, we noted that in some circumstances advanced services cannot share a line with analog voice service, and sought additional comment to inform us of those situations.²⁰¹ Some commenters argue that many rural areas are served by digital loop carrier (DLC) systems,²⁰² and competitive LECs will not be able to provision xDSL services through DLC systems.²⁰³

89. In the *Local Competition Third Report and Order*, we found that lack of access to subloop elements would preclude competitors from offering some broadband services to a significant market segment. Accordingly, we concluded that incumbent LECs must provide unbundled access to subloops, wherever technically feasible.²⁰⁴ In that order, we defined subloops as portions of the loop that can be accessed at terminals in the incumbent's outside plant.²⁰⁵ An accessible terminal is a point in the loop where technicians can access the wire or fiber within a cable without removing a splice case to reach the wire or fiber within.²⁰⁶

90. In the *Local Competition Third Report and Order*, we specifically noted that requesting carriers are functionally precluded from deploying xDSL services where incumbent carriers have deployed DLC systems unless the requesting carrier can otherwise obtain access to the customer's copper loop before the traffic is multiplexed at the incumbent's remote terminal.²⁰⁷ We also observed that competitors seeking to offer services using xDSL technology need to access the copper wire portion of the loop and, moreover, that most currently available xDSL technologies require that the location of the DSLAM be within 18,000 feet of the customer.²⁰⁸ In both of these situations, a requesting carrier needs access to unbundled subloops

²⁰¹ *Advanced Services First Report and Order and FNPRM*, 14 FCC Rcd at 4811, para. 104.

²⁰² DLC systems digitally encode and aggregate, i.e. "multiplex," the traffic from subscriber's loops into DS1 signals or higher for more efficient transmission or extended range beyond that traditionally permitted by copper loops. The analog signals are carried from the customer premises to a remote terminal (RT) where they are converted to digital signals, multiplexed with other signals, and carried, generally over fiber, to the LEC central office. Integrated Digital Loop Carriers (IDLC) establish a direct digital interface with the switch at the LEC central office, making it difficult or impossible for competitors to access individual loops at that location.

²⁰³ RTC Comments at 14-15.

²⁰⁴ *Local Competition Third Report and Order*, at para. 205.

²⁰⁵ *Id.*, at para. 206.

²⁰⁶ We also distinguished terminals from splice cases, which we previously deemed inaccessible because splice cases must be breached to access the wire or fiber within. *Local Competition Third Report and Order*, at para. 206 n.395.

²⁰⁷ *Local Competition Third Report and Order*, at para. 206.

²⁰⁸ See SBC Comments at 25-27.

to provide service to its customers.

b) Discussion

91. We conclude that incumbents must provide unbundled access to the high frequency portion of the loop at the remote terminal as well as the central office. Our subloop unbundling rules and presumptions allow requesting carriers to access copper wire relatively close to the subscriber, which is critical for a competitive carrier to offer services using xDSL technology over the high frequency network element.²⁰⁹ For the same reasons, we conclude that incumbent LECs are required to unbundle the high frequency portion of the local loop even where the incumbent LEC's voice customer is served by DLC facilities.

92. We note, however, that the functionality required to accomplish line sharing on DLC systems may not be available by the effective date of our spectrum unbundling rules. We, therefore, apply the same rebuttable presumption that we established in the *Local Competition Third Report and Order*, that for carriers requesting unbundled access to the high frequency portion of the loop, the subloop can be unbundled at any accessible terminal in the outside loop plant.²¹⁰ Where the parties are unable to forge an agreement to facilitate line sharing where the customer is served by a loop passing through a DLC, the incumbent carrier bears the burden of demonstrating to the relevant state commission, in the course of a section 252 proceeding, that it is not technically feasible to unbundle the subloop to provide access to the high frequency portion of the loop.²¹¹

4. Operational Support Systems

a) Background

93. In the *Advanced Services FNPRM*, we asked commenters to provide additional feedback on operational concerns associated with line sharing.²¹² In particular, we asked to what extent LEC operations support systems (OSS) need to be modified in order to permit competitors to have access to the high frequency portion of the loop.²¹³ We also asked who would be responsible for matters such as line testing, maintenance and repair, and how would incumbent

²⁰⁹ *Local Competition Third Report and Order*, at paras. 207, 217-18.

²¹⁰ *Id.*, at para. 218.

²¹¹ *Id.*, at para. 223. See also 47 U.S.C. § 252(b).

²¹² *Advanced Services First Report and Order and FNPRM*, 14 FCC Rcd at 4811, para. 104.

²¹³ Incumbent LECs maintain a variety of computer databases and "back-office" systems that are used to provide service to customers. We collectively refer to these computer databases and systems as operations support systems, or OSS. These systems enable a LEC's employees to process more efficiently customer orders for telecommunications services, provide the requested services to their customers, maintain and repair network facilities, and render bills. To provide these services efficiently to their customers, competitive LECs must have access to the incumbent LEC's OSSs.

and competitive LECs allocate customer service responsibilities.²¹⁴

94. In response, incumbent LECs state that to provide unbundled access to the high frequency portion of the loop, they will have to undertake extensive OSS modifications to provide service ordering,²¹⁵ provisioning,²¹⁶ and billing functions for the network element. They also state that they will need to undertake significant OSS modifications in order to provide electronic interfaces to requesting carriers that seek access to this network element.²¹⁷ The incumbent LECs also state that these OSS changes will be exorbitantly expensive, complicated, and time-consuming.²¹⁸ Moreover, incumbent LECs claim that the provision of unbundled access to the high frequency portion of the loop will complicate customer service functions, including line testing, maintenance and repair.²¹⁹

95. Competitive LECs, however, respond that the incumbent LECs can implement quick and relatively inexpensive temporary arrangements and workarounds to permit the provision of unbundled access to the high frequency portion of the loop to requesting carriers within weeks of adoption of an order mandating provision of this unbundled network element.²²⁰ Moreover, the competitive LECs argue that automated OSS changes would not be unreasonably expensive or difficult to implement.²²¹ Competitive LECs also argue that many of these OSS and customer service modifications are already required to facilitate the incumbents' own xDSL-based services and for the provision of unbundled network elements pursuant to the *Local*

²¹⁴ *Advanced Services First Report and Order and FNPRM*, 14 FCC Rcd at 4811, para. 105.

²¹⁵ Ordering systems include customer request and service order systems. See Letter from Melissa Newman, US WEST, Inc., to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket No. 98-147 at Attach. 3, p. 14 (filed Oct. 7, 1999) (US WEST Oct. 7 *Ex Parte*).

²¹⁶ Provisioning system functions include loop assignment and technician dispatch. See *id.*

²¹⁷ Electronic interfaces include the Graphical User Interface (GUI), the Electronic Data Interface (EDI) and Electronic Bonding – Trouble Administration interface (EB-TA). See *id.* at Attach. 3, p.4.

²¹⁸ BellSouth Comments at 16-17, 21-22; Bell Atlantic Comments, Declaration of Robert Crandall at 4-11 (Bell Atlantic Crandall Decl.) and Statement of Dr. Charles Jackson at 8-11 (Bell Atlantic Jackson Stmt.).

²¹⁹ Repair system functions include repair call handling and technician dispatch. See USTA Comments at 18-20, 23-24; BellSouth Comments at 8; GTE Comments at 29-30; Bell Atlantic Reply Comments, Declaration of Alfred Khan at 10-13 (Bell Atlantic Reply Khan Decl.); US WEST Oct. 7 *Ex Parte*, Attach. 4, p.14.

²²⁰ “The [incumbent LECs] have raised several OSS issues they say are directly related to [line sharing]. . . . In virtually every instance an immediate work around is available to address the issues raised within 2 to 4 weeks required for implementation and training of [incumbent LEC] staff. In the few instances requiring a more permanent solution, such as ordering, formalization should take less than 12 months. Letter from Michael E. Olsen, NorthPoint Communications, Inc., to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket No. 98-147, at 13, 38 & 39 (filed Sept. 30, 1999) (Combined Data CLEC Sept. 30 *Ex Parte*).

²²¹ See, e.g., Covad Comments at 11-12; ALTS Reply Comments at 8; MCI Reply Comments at 17; Rhythms Reply Comments at 17-18; Combined Data CLEC Sept. 30 *Ex Parte* at 13.

*Competition Third Report and Order.*²²²**b) Discussion**

96. We conclude that incumbent LECs have the capability to accommodate the provisioning of the high frequency portion of the loop as a network element. Where incumbent LECs provide shared-loop xDSL services to their voice customers, either through their own subsidiaries or in cooperation with an unaffiliated ISP, the incumbent must resolve many of the same problems that they claim stand in the way of providing competitors with access to the high frequency portion of the loop.²²³ We therefore conclude that incumbent LEC arguments that operational issues will take at least 12 months to resolve sufficiently to provide unbundled access to the high frequency portion of the loop are significantly overstated.²²⁴

97. Current Incumbent LEC OSSs. Incumbent LECs carry out pre-ordering, ordering, service provisioning, billing, and repair and maintenance functions using a set of OSSs that share a common baseline functionality, although each company's legacy systems vary from one another. As described below, these OSSs already support the xDSL-based services currently offered by incumbent LECs, and will be affected by the provision of unbundled access to the high frequency portion of the loop network element.

98. Incumbent LECs use both electronic and manual processes to provide unbundled network elements today, including local loops. These electronic interfaces may include electronic exchange of data (EDI) gateways that incumbents use to receive orders from requesting carriers,²²⁵ and graphical user interfaces (GUIs) for the receipt of orders individually input by requesting carriers.²²⁶ Requesting carriers may also submit orders by fax that the incumbent's personnel manually enter in to the incumbent's OSS.²²⁷

99. Service Ordering. We conclude that the type of effort required for incumbent LECs to establish appropriate line sharing ordering practices is incremental in nature, and does

²²² See, e.g., Covad Comments at 4; Rhythms Comments at 8; Sprint Comments at 9-10; ALTS Reply Comments at 8; MCI Reply Comments at 16; Combined Data CLEC Sept. 30 *Ex Parte*.

²²³ See CIX Comments at 9; Covad Comments at 12; NAS Comments at 7-8; NorthPoint Comments at 22; Rhythms Comments at 11; ALTS Reply Comments at 8; CompTel Reply Comments at 9.

²²⁴ See SBC Comments at 20-26; SBC Reply Comments at 4 (projecting 12-24 months for OSS development and implementation); Ameritech Comments at 8-9. See also Sprint Reply Comments at 7-8; CompTel Reply Comments at 9; NAS Comments at 7; Covad Comments at 7-14; NorthPoint Comments at 18, 21-23. *But see* BellSouth Nov. 3 *Ex Parte*, Attach. at 7, (stating that manual processes with minimal necessary system modifications can be made in 6 months).

²²⁵ See, e.g., Combined Data CLEC Sept. 30 *Ex Parte* at 11.

²²⁶ *Id.* at 12. See also Letter from Ruth Milkman, Counsel for NorthPoint, to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket No. 98-147 at 2 (filed Oct. 19, 1999) (MTG Oct. 19 *Ex Parte*).

²²⁷ Combined Data CLEC Sept. 30 *Ex Parte* at 12; MTG Oct. 19 *Ex Parte* at 2.

not require a major development initiative.²²⁸ Incumbent LECs already accommodate orders for the advanced services, such as ADSL, that they deploy on lines shared with their own voice services. There are substantial operational similarities between the line sharing situation involving a competitive and an incumbent LEC, and the deployment of shared line xDSL provided by an incumbent LEC or an ISP.²²⁹ The OSS capabilities required for incumbent LEC provision of shared-line xDSL services are substantially similar to the OSS capabilities required for competitive LEC provision of shared-line xDSL services, and could be easily adapted to support unbundled access to the high frequency portion of the loop network element.²³⁰

100. We are not persuaded by arguments that a new ordering standard would have to be adopted by the Order and Billing Forum (OBF) before line sharing could be implemented.²³¹ The record shows that while changes to the existing fields on the UNE order form/electronic order formats may appropriately involve the OBF for coordination and standardization, incumbents already have made interim modifications to accommodate their own ADSL products.²³² Incumbent LECs argue, however, that competitive LECs will not be satisfied with such workarounds, and will require that automated OSS interfaces must become available immediately. We note that the specific temporary arrangements and workarounds we discuss in this section were largely identified and analyzed by a group of competitive LECs.²³³ Consequently, we see no reason to assume that these competitive LECs would complain if

²²⁸ Combined Data CLEC Sept. 30 *Ex Parte* at 17; MTG Oct. 19, 1999 *Ex Parte* at 2.

²²⁹ Combined Data CLEC Sept. 30 *Ex Parte* at 16, citing America's Network, Aug. 18, 1999, <www.americasnetwork.com/news/9908to9912/19990824015318.htm> ("US WEST is adding 500 new ADSL subscribers every day and its total ADSL customer base represents 40% of the xDSL lines in the [United States] today. . . . Clearly, at those volumes and with that embedded base of customers, capabilities exist within US WEST to process [requesting carriers'] line sharing orders."). See Oklahoma CC Comments at 17-18; Rhythms Comments at 10-11; NorthPoint Comments at 17, 22-23; Covad Comments at 10-12; CIX Comments at 9; NAS Comments at 7-8.

²³⁰ See Combined Data CLEC Sept. 30 *Ex Parte* at 16; ALTS Comments at 2-3; Covad Comments at 12-14; NorthPoint Comments at 22; ALTS Reply Comments at 8; MTG Oct. 19, 1999 *Ex Parte* at 2. *But c.f.* Letter from Joseph Mulieri, Director, Government Relations – FCC, Bell Atlantic, to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket No. 98-147 at 11 (filed Oct. 19, 1999) (Bell Atlantic Oct. 19 *Ex Parte*). Letter from Louise L. M. Tucker, Senior Counsel, Telcordia, to Magalie Roman Salas, Secretary, Federal Communications Commission, at 1 (filed Oct. 21, 1999) (Telcordia Oct. 21 *Ex Parte*) (stating that many of the OSS changes that are required to provide competitors with unbundled access to the high frequency portion of the loop have been well understood and can be integrated with OSS software updates that will be implemented to accommodate competitor's access to other unbundled network elements.).

²³¹ Bell Atlantic argues that manual workarounds are simply not feasible, and that modifications to mechanized ordering must be made in sync with Bell Atlantic's Line Sharing Service development, which would take approximately 9 months. See Bell Atlantic Oct. 18 *Ex Parte* at 11; Combined Data CLEC Sept. 30 *Ex Parte* at 12.

²³² See Covad Comments at 10; NorthPoint Comments at 18; Technical Forum; MTG Oct. 19 *Ex Parte* at 2.

²³³ The competitive LECs jointly contributing the Combined Data CLEC Sept. 30 *Ex Parte* are: Bluestar Communications Inc., Covad Communications Company, HarvardNet Inc., Network Access Solutions Corp., NorthPoint Communications, Inc., and Rhythms NetConnections, Inc. Combined Data CLEC Sept. 30 *Ex Parte* at 1.

incumbent LECs quickly implement these workarounds in a manner that affords the competitors nondiscriminatory access to the high frequency portion of the loop on a reasonable and timely basis.²³⁴ Thus, we conclude that the interim arrangements that the incumbents use for themselves can be extended to competitive carriers as well.

101. A key ordering system function is establishing the records necessary for customer service, trouble management, billing, and inventory functions.²³⁵ For the purposes of our analysis, we observe that the incumbent LECs already use two circuit or service numbers to track their own shared-line xDSL services: (1) the existing telephone number to identify the voice service; and (2) a circuit number to identify the xDSL service sharing the line.²³⁶ Based on the record before us, we conclude that incumbent LECs can extend this practice to accommodate two-carrier shared line access to the high frequency portion of the loop network element. Specifically, incumbent LECs can identify a line shared with a competitive LEC by cross-referencing a circuit number with the POTS telephone number. Possible methods for establishing this cross-reference include embedding the telephone number in the incumbent-assigned circuit number or the customer-assigned circuit number, adding it as a cross-reference to the existing account number, making a notation in the remarks field, or by establishing a new field and field identifier (FID).²³⁷ An incumbent LEC could create two internal orders from a competitive LEC's order for access to the high frequency portion of the local loop submitted using the incumbent's UNE ordering process.²³⁸ In that case, one order would be used to establish the requesting carrier's access to the high frequency loop spectrum, and the other would be a record-type order to add line sharing indicators to the customer's analog voice service account and records. This system resembles those used for "from" and "to" orders to accommodate customers that change their address but want to retain the same telephone number, as well as the system that incumbents employ to respond to a customer's change to a competitive local service provider.²³⁹

²³⁴ The Combined Data CLECs state that US WEST's Interconnect & Resale Resource Guide (IRRG) provides a detailed explanation of standard UNE ordering procedures, and that these procedures will suffice for during the initial rollout of shared line access to the high frequency loop spectrum network element. Combined Data CLEC Sept. 30 *Ex Parte* at 16. We expect that incumbent LECs will be able to provide automated OSS interfaces in approximately the same time frame that they require to provide similar functionality for their own uses. We note that it is not, per se discriminatory for the incumbent to use, on an interim basis, a less automated OSS methodology. See *infra* Section IV.F.

²³⁵ Combined Data CLEC Sept. 30 *Ex Parte* at 16, 17.

²³⁶ *Id.* at 17 (citing US WEST Comments in FCC 98-188, Affidavit of Mark D. Schmidt at para. 12 (dated Sept. 24, 1998)).

²³⁷ *Id.* at 17.

²³⁸ *Id.*

²³⁹ In that case, the incumbent uses the order to simultaneously establish the competitor's service, and to remove the voice service formerly provided by the incumbent LEC to the customer. Combined Data CLEC Sept. 30 *Ex Parte* at 17. See also MTG Oct. 19 *Ex Parte* at 2.

102. Provisioning. As previously discussed, we do not in this Order require incumbents to provide access to the high frequency portion of the loop for multiple competitive carriers. Incumbent LECs do not dispute that additional functionality to provision a second service on a line does not require a massive redesign of the incumbent's inventory system.²⁴⁰ The record shows that incumbents will use much the same inventory functionality to inventory unbundled access to the high frequency portion of the loop whether for the purposes of providing access to that network element to their competitors, or for themselves.²⁴¹ Otherwise, incumbents would have to undertake substantial rebuilds to accommodate their own shared-line xDSL service offerings.²⁴²

103. Incumbent LECs OSSs already perform inventory and assignment of individual cable and pair loops, digital added main lines (DAMLs), integrated services digital network (ISDN), and xDSL lines. These involve inventorying multiple services on a single loop and are substantially similar functions to those necessary for line sharing.²⁴³ We are persuaded by the record that the capabilities already exist in the Loop Facilities and Assignment Control System (LFACS) to inventory and assign two services on one loop, and that with minor modifications, incumbent LECs can easily use existing capabilities to inventory services on a shared line.²⁴⁴

104. Competitive LECs with collocation arrangements are assigned terminations on the incumbent LEC's MDF to terminate the tie cables running to splitters or to the DSLAMs within the collocation space. Incumbent LECs inventory and assign MDF locations using an OSS. When a competitive LEC orders a new UNE loop, it specifies the MDF termination on which the incumbent LEC should deliver the UNE loop. Incumbent LECs generally use one of two methods to cable the splitters connected to loops. The first approach is to cable the high frequency band directly to the DSLAM, and the second is to cable it to another MDF location (or to an intermediate distribution frame (IDF) location,) and then on to the DSLAM.

105. The second approach facilitates easy customer moves and changes as well as

²⁴⁰ Combined Data CLEC Sept. 30 *Ex Parte* at 19. *See, e.g.*, ALTS Comments at 2-3; Covad Comments at 12-14; NorthPoint Comments at 22; ALTS Reply Comments at 8; MTG Oct. 19 *Ex Parte* at 2.

²⁴¹ Combined Data CLEC Sept. 30 *Ex Parte* at 19. *Cf.* Telcordia Oct. 21 *Ex Parte* at 1 (stating that the solutions developed by Telcordia for xDSL involve numerous OSS products already used by the incumbents, but that line sharing will require significant additional functionality). *See also* ALTS Comments at 2-3; Covad Comments at 12-14; NorthPoint Comments at 22; ALTS Reply Comments at 8; MTG Oct. 19 *Ex Parte* at 2.

²⁴² Combined Data CLEC Sept. 30 *Ex Parte* at 18. *See generally*, Aug. 31 *Technical Forum*.

²⁴³ Bell Atlantic states that existing assignment systems, such as LFACS, cannot accommodate line sharing without enhancement to establish a Meet Point and to leave the voice line intact. *See* Bell Atlantic Oct. 18 *Ex Parte* at 11. We believe that Bell Atlantic and the other incumbent LECs can accommodate modifications such as this through their change management process by the time that they must make access to the high frequency portion of the loop available to competitive LECs.

²⁴⁴ Competitive LECs note, however, that some effort may be required to assign new codes to properly describe the shared line discretely from other similar services and create the logical record holders for the two services. Combined Data CLEC Sept. 30 *Ex Parte* at 20.

changes in the customer's service providers and services. In this situation, the splitter has three connections to the MDF – one to terminate the loop, a second to terminate the voiceband signal and a third to terminate the high frequency loop spectrum. Incumbent LEC OSSs such as the Computer System for Mainframe Operations (COSMOS) and SWITCH²⁴⁵ can be used to track these connections. Competitive LECs claim that these OSSs could also be used to further cross-reference competitive LEC-owned DSLAM equipment to splitters.²⁴⁶

106. We find that, in light of the apparent availability of OSS modifications that will satisfy incumbent LEC inventory needs, there is no justification to withhold requesting carrier's access to the high frequency portion of the loop while OSS modifications are implemented to allow carriers to order line sharing through electronic interfaces. We expect that incumbent LECs may decide to develop new OSSs to accommodate their inventory needs as their product and service offerings increase, or to seek increased OSS efficiency. We find, however, that further incumbent LEC OSS development is not likely to be solely driven by unbundling requirements. Consequently, we urge the state commissions not to permit incumbent LECs to delay the availability of access to the high frequency portion of the loop while they implement automated OSS solutions, nor will we permit incumbent LECs to attribute an unreasonable portion of their OSS development costs to our spectrum unbundling requirements.²⁴⁷ We expressly make no judgment, however, that such non-automated measures would constitute nondiscriminatory access to OSS interfaces for the purposes of section 271 of the Act.

107. We expect that incumbent LECs will work with competitive LECs on an ongoing basis to design, implement, and maintain efficient and effective OSS interfaces that will support ongoing line sharing requirements. Specifically, we expect that incumbent LECs will implement ordering and provisioning mechanisms and interfaces that provide competitive LECs with the ability to obtain access to the high frequency portion of the loop in the same ordering and provisioning time intervals that the incumbent provides for its own xDSL-based service.²⁴⁸ We note that a failure to implement OSS modifications within the time frame we contemplate in this Order could be grounds for finding that a BOC is not providing nondiscriminatory access to unbundled network elements under section 271 of the Act.²⁴⁹

108. Billing. We also are not persuaded by the incumbent LECs' arguments that implementation of line sharing would require a major overhaul of their billing systems.²⁵⁰ We

²⁴⁵ SWITCH inventories and assigns end office facilities that connect the outside plant facilities to the switch. SWITCH is a replacement for COSMOS. See US WEST Oct. 7 *Ex Parte*, at Attach. 3, p.16.

²⁴⁶ Combined Data CLEC Sept. 30 *Ex Parte* at 21.

²⁴⁷ See *infra* Section IV.E.2.

²⁴⁸ Historically, the Commission has held that most UNEs do not have a retail analog. xDSL may be different, however, in that the incumbent LEC is newly provisioning xDSL to its own customer, which permits a more direct comparison to the provisioning of a new UNE.

²⁴⁹ See 47 U.S.C. § 271.

²⁵⁰ Bell Atlantic Jackson Stmt. at para. 14; US WEST Reply Comments at 26. See also Combined Data CLEC Sept.

believe, based on the evidence in the record regarding the range of capabilities present in the incumbent LECs' billing systems, there is likely to be little, if any, billing system impact resulting from the provision of unbundled access to the high frequency portion of the loop. Indeed, incumbent LECs have already implemented changes to their billing systems to bill customers for their own xDSL-based services. The incumbent LECs' expanded billing capabilities include the ability to provide billing services for not only their own customers, but also on behalf of other service providers.²⁵¹ Thus, we conclude that the billing system modifications necessary to support unbundled access to the high frequency loop spectrum network element are relatively minor compared to the "major overhauls" alluded to by US WEST.²⁵²

109. Maintenance, Repair, and Testing. We conclude that current industry methods and procedures for customer service, line maintenance, and service quality assurance can largely accommodate the demands of line sharing between competitive LECs and incumbent LECs.²⁵³ Loop plant maintenance is largely a function of adequate testing, repair, and customer service activities. In the following discussion, we examine each of these functions and find that the incumbent's concerns regarding testing, maintenance, and repair are mitigated by the availability of adequate methods and procedures for problem resolution. We also find that, in general, both incumbents and competitors have a significant interest in ensuring that the local loop plant remains fully functional and in good repair.²⁵⁴ We believe that cooperation and communication among incumbent and competitive LECs are the keys to preserving the vitality of the PSTN and the successful deployment of line sharing.

110. Incumbents contend that testing the metallic loop for one service on a shared line

30 *Ex Parte* at 33.

²⁵¹ Competitive LECs maintain that most incumbent LEC billing systems employ Classes of Service codes, USOCs, FIDs, and logical rules to associate a customer of record (COR) with the products and services for which the COR should be billed, and that this functionality could be utilized to handle the billing of shared loops. Specifically, competitive LECs reason that as the service order moves through processing, the information identifying the two CORs (the customer and the competitive LEC) on the shared line can be propagated into other systems as required. When the new order completes, a double posting process can update both customer records with the xDSL shared line indication and cross-reference the telephone number and Circuit ID. Then, as the billing cycle runs, the combination of Class of Service codes and USOCs will result in proper billing of both the POTS and competitive LEC customers by the incumbent LEC. Combined Data CLEC Sept. 30 *Ex Parte* at 34.

²⁵² US WEST Oct. 7 *Ex Parte* at Attach. 3, pp. 19 & 22. See Combined Data CLEC Sept. 30 *Ex Parte* at 19; ALTS Comments at 2-3; Covad Comments at 12-14; NorthPoint Comments at 22; ALTS Reply Comments at 8; MTG Oct. 19 *Ex Parte* at 2.

²⁵³ ALTS Reply Comments at 8; MCI Comments at 12. See also MTG Oct. 19, 1999 *Ex Parte* at Table 1.

²⁵⁴ For example, NorthPoint states that it recognizes the business realities and maintenance requirements of the local loop plant and will cooperate with incumbent LECs to permit reasonable line testing, maintenance, and repair activities that accord with industry standards, even when such activities temporary impact NorthPoint's shared-line xDSL service. NorthPoint Comments at 18-22. See also CIX Comments at 9; Covad Comments at 10-12; Rhythms Comments at 8.

with traditional test systems will cause a temporary disruption and possibly lead to more serious problems with the other services sharing that line.²⁵⁵ In addition, the potential for service disruption is highest during installation, maintenance and repair activities relating to any service sharing the loop with other services, regardless of whether one or both of the services sharing the loop is provided by the incumbent LEC.²⁵⁶ Thus, commenters express a legitimate concern with regard to the establishment of equitable and nondiscriminatory testing access rights and responsibilities among service providers sharing a loop that will enable each carrier to perform testing without disturbing the other carrier's service.²⁵⁷

111. Loop Testing. Both incumbent and competitive LECs perform tests to support installation, repair, and maintenance processes. Incumbent LECs generally perform automated mechanized loop tests (MLTs) to diagnose loop performance for the lower, voiceband frequencies. Competitive LECs perform similar tests to ascertain the transmission performance of UNE loops when they order a second line to provide xDSL-based services.²⁵⁸ To perform loop tests, incumbent LECs generally gain access to the line through the voice switch at the central office. Competitive LECs, however, generally access the line at test points near their DSLAMs, which are usually located in the collocation space at the end office.

112. Competitive LECs state that there are two major loop testing issues that arise with shared line access to the unbundled high frequency portion of the loop.²⁵⁹ First, the customer must be informed that testing on one of their services will impact the other service sharing the customer's line. We are persuaded that either the incumbent or competitive LEC's customer

²⁵⁵ See Ameritech Comments at 11 (“...performing a simple, routine loop-back test on a shared loop could unavoidably disrupt service to other carrier's customers using that loop.”); Bell Atlantic Jackson Stmt. at para. 12 (“the test equipment for [Bell Atlantic's] copper loop ADSL systems is partially integrated with [Bell Atlantic's] ADSL DSLAMs. Testing of the xDSL portion, when provided by a party other than the party providing other services over that same loop[,] could not be done with Bell Atlantic's current test equipment.”); GTE Comments at 27 (“...in a unbundled spectrum environment neither carrier will have the ability to isolate or remotely test their services.”); Sprint Comments at 11 (“...current automated test systems cannot perform POTS testing in line sharing applications.”); US WEST Reply Comments at 27 (“...routine metallic loop tests, which require disabling ADSL service, could not be accomplished where the competitive LEC's DSLAM powers the data service.”). See also Combined Data CLEC Sept. 30 *Ex Parte* at 26.

²⁵⁶ See *id.* at 27.

²⁵⁷ Ameritech Comments at 11; AT&T Comments at 16; Bell Atlantic Comments at 11-13; BellSouth Comments at 24; US WEST Comments at 15-16. See NorthPoint Reply Comments at 26. We also note that both AT&T and US WEST raise operational arguments relating to testing in the context of “mandatory” spectrum unbundling, but not against “voluntary” spectrum unbundling. See AT&T Comments at 17-18; US WEST Comments at 24.

²⁵⁸ Competitive LECs use these tests to determine if the incumbent LEC has delivered the loop on the firm order commitment (FOC) date and to diagnose any obvious line impairments such as the presence of load coils, excessive noise, bad splices, unacceptable loop length, or unacceptable bridge taps. See Combined Data CLEC Sept. 30 *Ex Parte* at 26.

²⁵⁹ See Combined Data CLEC Sept. 30 *Ex Parte* at 27.

service operations can provide sufficient customer education on this issue.²⁶⁰ Competitive LECs note that bringing the customer into the coordination process avoids the potential for conflicts and customer confusion.²⁶¹ Doing so would require only minor modifications to existing customer care processes and procedures.²⁶²

113. The second loop testing issue, however, is more complex. Specifically, both the incumbent and competitive LEC must have access to the shared loop facility for testing, maintenance, and repair activities.²⁶³ Assuming that the competitive LEC owns the DSLAM and installs it in its collocation space in the incumbent LEC end office or remote terminal, a splitter is required to isolate and direct the voice service to the incumbent LEC voice switch and the xDSL service to the competitive LEC's DSLAM.²⁶⁴ This splitter will likely be installed between the MDF and the other central office equipment. In this configuration, the incumbent LEC retains testing access to the outside part of the loop through the voice switch. The competitive LEC, however, can only access the high frequency portion of the loop at its DSLAM. This precludes the competitive LEC from engaging in certain important types of loop testing that require the competitive LEC to access the loop's whole frequency range.²⁶⁵ The ability to perform this type of loop testing is important for installation, maintenance, and repair activities in both shared and non-shared line situations.

114. Competitive LECs state that they have invested in automated industry-standard testing capabilities to support their xDSL OSSs, and that these testing capabilities are comparable to those used by incumbent LECs offering their own xDSL-based services.²⁶⁶ Competitive LECs argue that their access to the voiceband frequency must meet three minimum requirements to facilitate their access to the high frequency portion of the loop. First, competitive LECs claim that they require physical access on the loop side of the splitter for

²⁶⁰ For example, when a carrier wants to test a line, or when an end user customer calls a service provider in response to a problem, whether incumbent or competitive, the carrier's OSS system will notify the customer service representative that the customer is receiving service over a shared line. The customer service representative, using the appropriate script, can then inform the customer of the testing impact on both services and obtain permission to conduct the test in order to isolate and repair the trouble. *Id.*

²⁶¹ *Id.*

²⁶² Competitive LECs state that training of customer service representatives on new customer education procedures and developing new scripts represents minor effort. Incorporating the scripts into the customer care systems is also routine in nature and not major development. *Id.*

²⁶³ *Id.*

²⁶⁴ See *supra* Section IV.D.1. See also Combined Data Sept. 30 *Ex Parte* at 27; Letter from Ruth Milkman, Counsel for NorthPoint, to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket No. 98-147, Attachment at 3 (filed July 29, 1999) (NorthPoint July 29 *Ex Parte*).

²⁶⁵ See Combined Data CLEC Sept. 30 *Ex Parte* at 27.

²⁶⁶ *Id.*

comprehensive loop testing.²⁶⁷ In addition, competitive LECs argue that such access should be of a type that is suitable for integration into their OSS applications.²⁶⁸ Finally, competitive LECs state that they require testing access at any incumbent LEC end office where competitive LECs collocate and/or access the high frequency portion of the loop.²⁶⁹

115. Competitive LECs state that physical testing access will enable competitive LEC OSSs to access the loop for testing purposes as required. Competitive LECs also note that regardless of the ability of competitors to access the loop for testing, the incumbent LEC retains its access via the voice switch or via the testing access point at the splitter.²⁷⁰ The competitive LECs suggest that, assuming the splitter is controlled by the incumbent LEC and located between the MDF and the other central office equipment, there are several possible ways to provide testing access to the local loop. First, the incumbent LEC could provide physical test access points to the competitive LEC at the splitter through a cross-connection to the competitor's collocation space.²⁷¹ Competitive LECs note that this option is efficient for both the competitive and incumbent LEC because each service provider retains direct loop access and uses its own OSS.²⁷²

116. The competitive LECs also suggest that their OSS could interface directly with an incumbent LEC OSS through a standardized interface designed to provide physical access for testing purposes.²⁷³ Competitive LECs claim that this interface can be created through the creative use of a test access server that could be shared by multiple competitive LECs while providing appropriate security controls.²⁷⁴ This testing server could be owned, controlled, and maintained by either the incumbent LEC or the competitive LECs.²⁷⁵

117. Finally, competitive LECs state that they could submit testing requests to the

²⁶⁷ *Id.*

²⁶⁸ *Id.*

²⁶⁹ *Id.* at 28. See also NorthPoint July 29 *Ex Parte* at 1; Letter from Raymond L. Strassburger, Director, Government Relations – Telecom, Internet, and Advanced Technology Policy, Nortel Networks, to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket No. 98-147, Attachment at 2 (filed June 3, 1999). (Nortel June 3 *Ex Parte*).

²⁷⁰ Combined Data CLEC Sept. 30 *Ex Parte* at 28.

²⁷¹ *Id.*

²⁷² *Id.*

²⁷³ *Id.*

²⁷⁴ *Id.* See also NorthPoint July 29 *Ex Parte* at 1.

²⁷⁵ Combined Data CLEC Sept. 30 *Ex Parte* at 28.

incumbent LEC for processing by the incumbent LEC.²⁷⁶ We do not support this practice, as it is less efficient from the perspective of the requesting carrier, and creates an opportunity for discriminatory incumbent LEC activity, such as the imposition of artificial delays and requirements for unnecessary and costly manual intervention by either the competitive LEC or incumbent LEC.²⁷⁷

118. Based on the record before us, we agree with the competitive LECs that a relatively low level of incumbent LEC effort is required to ensure that competitive LECs have access to appropriate loop testing access points.²⁷⁸ Thus, we require that incumbent LECs must provide requesting carriers with access to the loop facility for testing, maintenance, and repair activities. We require that, at a minimum, incumbents must provide requesting carriers with loop access either through a cross-connection at the competitor's collocation space, or through a standardized interface designed for to provide physical access for testing purposes. Such access must be provided in a reasonable and nondiscriminatory manner. An incumbent seeking to utilize an alternative physical access methodology may request approval to do so from the state commission, but must show that the proposed alternative method is reasonable, nondiscriminatory, and will not disadvantage a requesting carrier's ability to perform loop or service testing, maintenance, or repair. We stress that incumbents may not use their control over loop testing access points and mechanisms for anti-competitive or discriminatory purposes, and that we will remain attentive and ready to respond to any reported anti-competitive incidents relating to competitive LEC access to loop testing mechanisms.

119. Customer Service, Troubleshooting, and Repair. The incumbent LECs raise a number of general concerns relating to the customer service, troubleshooting, and repair impact of providing access to the high frequency portion of the loop to competitive LECs. In particular, BellSouth states that it is uncertain how ownership will be established for trouble isolation and maintenance of the individual services sharing a line.²⁷⁹ Bell Atlantic and SBC indicate that there may be significant operational problems, potentially leading to "finger-pointing" in which each organization asserts that the problem is due to the actions of the other organization."²⁸⁰ Bell Atlantic also argues that "cross-firm testing" of xDSL and voice services and the possibility of "finger-pointing" between the incumbent LEC and competitive LEC are potential sources of disagreement and customer confusion.²⁸¹ SBC indicates that trouble resolution and testing will become more complicated, because incumbent LECs may lack testing equipment or training to

²⁷⁶ *Id.*

²⁷⁷ *Id.*

²⁷⁸ We note that the incumbent LECs do not refute these testing requirements.

²⁷⁹ BellSouth Comments at 24.

²⁸⁰ Bell Atlantic Jackson Stmt. at paras. 10-11; SBC Comments at 23-24.

²⁸¹ Bell Atlantic Comments at 12; NorthPoint Comments at 25-26 (quoting Bell Atlantic Jackson Stmt. at paras. 10-12, 15).

test all of the technologies that competitive LECs may deploy.²⁸²

120. U S WEST states that it would need to redesign its repair and maintenance systems because its current systems do not allow two providers to service a single facility.²⁸³ US WEST also indicates that service providers “would need to develop new processes to avoid the issuance of two repair tickets for a single problem.”²⁸⁴ Although we recognize that the carriers will have to address these service and maintenance issues, we note that incumbent LECs have successfully deployed cooperative arrangements with ISPs, such as America On Line (AOL), that implicate many of the same issues that arise with competitive LEC line sharing arrangements.²⁸⁵ Bell Atlantic argues, however, that line sharing between and incumbent and competitive LEC is substantially different from the incumbent’s retail ADSL services, as well as their unbundled network element-related OSSs.²⁸⁶ As illustrated in the preceding discussion, we recognize that existing OSSs will have to be modified to support the provision of access to the high frequency portion of the local loop. The record indicates, however, that these modifications will build upon existing incumbent LEC OSSs and practices.²⁸⁷ As more fully discussed below, the record also indicates that incumbent LECs can implement these modifications within a period of months.²⁸⁸

121. Under some incumbent LEC tariffs for bulk xDSL service sold to ISPs, ISPs purchase the incumbent’s xDSL. In those arrangements, the ISP, not the incumbent LEC, provides a high-speed Internet service package that includes xDSL service.²⁸⁹ These arrangements require that the incumbent LEC’s OSS be able to recognize and administer the provision of multiple services on a single local loop. Competitive LECs also state that in a typical non-line sharing situation, the competitive LEC or its ISP partner is responsible for customer service when an xDSL customer served by a competitive LEC using a UNE loop from the incumbent LEC experiences a service difficulty.²⁹⁰ If the competitive LEC or ISP determines

²⁸² SBC Comments at 23-24.

²⁸³ US WEST states that it would need new processes to manage trouble tickets in a single repair flow, because there are currently two repair flows: “POTS” and “design” services, and competitive LECs as a group presently can be assigned only to one or the other. US WEST July 22 *Ex Parte* at 26.

²⁸⁴ *Id.*

²⁸⁵ See Combined Data CLEC Sept. 30 *Ex Parte* at 28. See also ALTS Comments at 2-3; Covad Comments at 12-14; NorthPoint Comments at 22; ALTS Reply Comments at 8; MTG Oct. 19 *Ex Parte* at 2.

²⁸⁶ Bell Atlantic Oct. 19 *Ex Parte* at 3-6.

²⁸⁷ See Combined Data CLEC Sept. 30 *Ex Parte* at 28. See also ALTS Comments at 2-3; Covad Comments at 12-14; NorthPoint Comments at 22; ALTS Reply Comments at 8; MTG Oct. 19 *Ex Parte* at 2.

²⁸⁸ See *infra* Section V.E.1.

²⁸⁹ See *Advanced Services Second Report and Order*, at paras. 14-19.

²⁹⁰ See Combined Data CLEC Sept. 30 *Ex Parte* at 28.

that there is a problem on the UNE loop, the competitive LEC opens a trouble ticket with the incumbent LEC and the two (or three in the case of an ISP) entities cooperate to restore the end user's loop and advanced service.²⁹¹

122. We conclude that the same would be true where the incumbent provides the high frequency portion of the loop as an unbundled network element because, just as the ISP is the competitive LEC's customer, the competitive LEC is the incumbent LEC's customer, and the end user is a customer of all three. If the problem encountered appears to impact primarily the xDSL service, the end user should call the ISP or the competitive LEC, depending on the customer service relationship between the two entities. If the problem impacts primarily the voice service, the end user should call the incumbent LEC. If both services are impaired, the recipient of the call should coordinate with the other service provider(s). We agree that each service provider has a responsibility to educate the end user regarding which service provider should be called for problems with their respective service offerings.²⁹² Furthermore, we believe that current incumbent LEC trouble management OSSs have the capability to analyze and correlate multiple related trouble tickets. When related trouble tickets occur today, the incumbent LECs' OSS creates a master trouble ticket and associates the duplicate tickets with the master in a parent/child relationship.²⁹³

123. Bell Atlantic also states that it will not be able to use its own equipment to test the data portion of the shared line, making Bell Atlantic's ability to maintain those competitors' xDSL services "more difficult."²⁹⁴ The record does not indicate, nor do we foresee, that incumbent LECs such as Bell Atlantic would have occasion to test a competitive LEC's xDSL equipment or products. The quality of the service that a competitive LEC provides to its customer is not the incumbent's responsibility, so long as the incumbent is providing sufficient quality of service to the requesting carrier. We agree with commenters that if they are provided with access to the high frequency portion of the loop that is of sufficient quality, competitive LECs have ample capability and incentive to ensure the quality of the services they offer to their customers, and the performance of their own equipment.²⁹⁵

²⁹¹ *Id.*

²⁹² The competitive LECs project that since an end user is likely to call only one of the service providers to initiate repair on a shared line rather than calling both, the number of trouble tickets opened by the incumbent LEC could possibly decline, although they allow that it is more likely that there would be no substantial difference in the volume of trouble tickets handled by an incumbent LEC OSS in line sharing versus UNE scenarios. See Combined Data CLEC Sept. 30 *Ex Parte* at 29.

²⁹³ Some systems also analyze the various related trouble conditions to assist in pinpointing the problem and isolating the fault for repair. See Combined Data CLEC Sept. 30 *Ex Parte* at 29.

²⁹⁴ Bell Atlantic Jackson Stmt. at para.12.

²⁹⁵ Furthermore, we understand that incumbent LECs coordinate line testing with alarm companies that procure "alarm loops." See Aug. 31 Technical Forum. We are confident that incumbent LECs are capable of coordinating maintenance, testing, and repair activities with competitive LECs as well as they currently do with alarm companies. See NorthPoint Comments at 27. See also Combined Data CLEC Sept. 30 *Ex Parte* at 26.

124. We envision that incumbent LECs will retain primary responsibility over the loop facility for voiceband trouble tickets and testing of the local loop facilities. We also expect that the incumbent LEC will remain responsible for any problems associated with the voiceband service it sells to the customer - where there is a problem reported with the customer's voiceband service, the incumbent LEC will remain responsible for resolving that problem. If there is a problem with the xDSL service, then we expect that the competitive LEC will resolve that problem. Should the customer become disenchanted with the complexity of obtaining incumbent LEC voiceband and competitive LEC xDSL-based services over the same line, the customer can always opt to procure both from the incumbent LEC, or purchase from an ISP an integrated xDSL and Internet access service package.

125. Furthermore, we find that maintenance, repair, and testing concerns can be handled by utilizing similar methods and procedures to those that incumbent LECs are implementing for the ordering and provisioning of the unbundled network elements identified in the *Local Competition Third Report and Order*. Specifically, the record indicates that incumbent LECs already have methods and procedures in place for the cooperative resolution of trouble and testing problems that arise with competitive LECs.²⁹⁶ The record also indicates that these methods and procedures can easily be modified to include provisions for escalating shared line trouble issues in a manner that minimizes customer confusion.²⁹⁷ We note that SBC and Ameritech, through their separate subsidiary proposal, provide an example of how cooperative planning can facilitate customer service, whether among separate affiliates or unaffiliated competitive LECs.²⁹⁸

126. Resolution of Operational Issues. Incumbents have voiced a number of concerns regarding the "back-office" processes that will be affected by providing competitors with access to the unbundled high frequency portion of the local loop.²⁹⁹ The record shows that these problems are not substantially unique, and that the process modifications required to resolve these issues are already supported by existing incumbent LEC OSS functionality, processes and procedures. The record also shows that incumbent LECs can implement suitable OSS modifications within the time frame we establish for implementation of this obligation.³⁰⁰ We

²⁹⁶ NorthPoint Reply Comments at 25-29.

²⁹⁷ See NorthPoint Reply Comments at 27.

²⁹⁸ Applications of Ameritech Corp. and SBC Communications Inc., For Consent to Transfer Control of Corporations Holding Commission Licenses and Lines Pursuant to Sections 214 and 310(d) of the Communications Act and Parts 5, 22, 24, 25, 63, 90, 95 and 101 of the Commission's Rules, CC Docket No. 98-141, Memorandum Opinion and Order, FCC No. 99-279, Appendix C at 12-13, para. 4(j) (rel. October 8, 1999) (establishing procedures for resolution of trouble reports in a nondiscriminatory manner). See also NorthPoint Comments at 25.

²⁹⁹ Ameritech Comments at 9-11; Bell Atlantic Comments at 11-13; BellSouth Comments at 5, 21; GTE Comments at 5, 30; SBC Comments at 20-24, USTA Comments at 23-27.

³⁰⁰ See Combined Data CLEC Sept. 30 *Ex Parte* at 32. As discussed in detail below, the record shows that incumbent LECs should be able to implement system changes necessary to provide requesting carriers with nondiscriminatory access to the high frequency portion of the local loop within 180 days from release of this Order.

believe that any remaining implementation or OSS problems are best remedied through the cooperative development of standard business practices and regular communications between the two service providers sharing a loop.³⁰¹ We note, as an example of the potential for cooperation, that incumbent LEC and competitive LEC technicians currently perform co-operative testing for acceptance purposes, when the incumbent LEC technician is at the customer premise installing the UNE line to the demarcation point.³⁰² We note, moreover, that carriers could address issues such as whether a service provider has an obligation to notify a customer before tests impacting both voice and xDSL services are conducted, contact information, and complementary customer services script on a collaborative basis. In addition, these tasks do not appear to be significantly different from the coordination activities that regularly occur among other service providers that share the PSTN.

127. The record indicates that incumbent LECs have already modified their OSS systems to accommodate their own xDSL products, and that those modifications and those required for line sharing are substantially similar.³⁰³ We believe that incumbent LECs can adapt expediently existing incumbent OSS systems to handle line sharing with a single requesting carrier.³⁰⁴ The record also indicates that incumbent LECs can perform the incremental modifications to the existing ordering processes required to provide competitive LECs with access to the high frequency portion of the loop in an expedient manner and at modest expense. The record also shows that in the absence of fully automated OSS interfaces, incumbent LECs have a variety of means available with which they can accommodate competitive LEC orders for the unbundled high frequency portion of the local loop, including the use of manual overrides of their current UNE ordering methods and procedures.³⁰⁵

128. We recognize that unless incumbent and competitive LECs collaborate to establish OSS interfaces, regularized processes, and business practices for ordering, provisioning, billing, testing, maintenance, and repair responsibilities, disputes among incumbent and competitive LECs sharing the same local loops are likely to arise. We are concerned that these disputes may lead to delays and consumer confusion, frustrating the pro-competitive effect of providing unbundled access to the high frequency portion of the local loop. Accordingly, we

³⁰¹ For instance, we note that NorthPoint has proposed that incumbent LECs and competitive LECs establish methods and procedures for "warm transfers" of customer service calls, which it claims to be similar to those that incumbent LECs use to provide wholesale shared line xDSL to companies such as America Online. *See* NorthPoint Comments at 27.

³⁰² These co-operative tests are to further assure that the UNE loop meets typical voice standards and usually include a test that shorts the tip and ring to take advantage of the technician's presence at the premise to make a far end test. *See* Combined Data CLEC Sept. 30 *Ex Parte* at 26.

³⁰³ CIX Comments at 9; Covad Comments at 12; NAS Comments at 7-8; NorthPoint Comments at 22; Rhythms Comments at 11; ALTS Reply Comments at 8; CompTel Reply Comments at 9.

³⁰⁴ Telcordia has commenced development of OSS solutions for providing access to the high frequency portion of the loop, including central office and DSLAM support. Telcordia Oct. 21 *Ex Parte* at 1.

³⁰⁵ *See* Combined Data CLEC Sept. 30 *Ex Parte* at 17-18.

urge requesting carriers and incumbent LECs to engage in a collaborative process at the regional level to develop solutions to incumbent LEC provision of shared line access. We believe that a publicly available plan of record that identifies a collaborative mechanism or forum wherein competitive and incumbent LECs will interface to solve problems that arise in the course of providing access to the high frequency portion of the local loop to competitive LECs will assist all entities by centralizing communications and reducing administrative costs.³⁰⁶ Accordingly, we urge incumbent LECs to post their collaboration plan, OSS interface information, and related methods and procedures on their Internet sites, and to modify and update this information on a regular basis to ensure that it remains accurate. We believe this public posting would benefit small entities and small incumbent LECs in particular by enabling multiple carriers to join in a single, region-wide, collaborative process.

129. We suggest that the plan include specific details of the process including, a timeline outlining how the collaborative effort will proceed, with milestones for resolution of issues, and the names and all necessary contact information for the employee who will be responsible for addressing business complaints that arise in the collaboration process and during the negotiation of the relevant interconnection agreements or amendments.³⁰⁷ We expect that these plans will form the basis for collaboration among the incumbent and competitive LECs on the establishment of common OSS interfaces as well as testing, maintenance, and repair responsibilities and procedures.

130. We do not identify or require incumbent LECs to make specific OSS methods and procedures, or facilities changes, and we do not prejudge whether specific OSS functionalities are necessary to fulfill an incumbent LEC's nondiscrimination duty. The record clearly shows that incumbent LECs have a number of process alternatives through which they can make line sharing available to requesting carriers in accordance with our rules. The record indicates that incumbent LECs should be able to develop and implement the majority of systems modifications necessary to provide access to the higher frequency portion of the loop 180 days from release of this order.³⁰⁸ As discussed in detail above, the record also indicates that there are alternatives, to those system modifications that can not be implemented in 180 days, and that these alternatives

³⁰⁶ We note that the Minnesota PUC requires a similar effort from US WEST. Minnesota requires US WEST and competitive LECs interested in obtaining line sharing to work together "collectively and on a carrier-to-carrier basis," to develop the terms and conditions under which US WEST will provide line sharing to competitive LECs. Minnesota also requires the incumbent and competitive LECs to "work with each other on this project in good faith and [guided by the understanding that US WEST should] provide line sharing to the [competitive LECs] on the same terms and conditions . . . that it provides to itself." See *Commission Initiated Investigation into the Practices of Incumbent Local Exchange Companies Regarding Shared Line Access*, Order Requiring Technical Trials, Good Faith Resolution of Operational Issues, and a Resulting Report, Docket No. P-999/CI-99-678, (Minnesota Public Utilities Commission, Issued October 8, 1999) at 6 (*Minnesota Line Sharing Order*).

³⁰⁷ As an additional measure of protection, we encourage the incumbents to include in the plans the names and contact information for at least two levels of complaint escalation contacts, at least one of who has region-wide responsibility.

³⁰⁸ See BellSouth Nov. 3 *Ex Parte*, Attach. at 7. Cf. Combined Data CLEC Sept. 30 *Ex Parte* at 5 (stating that "[t]he few minor incremental upgrades, primarily for ordering, could be formally completed over the next 3 to 12 months").

can be deployed in six months. Thus, the record shows that incumbent LECs should be able to implement system changes necessary to provide requesting carriers with nondiscriminatory access to the high frequency portion of the local loop within 180 days from release of this order.

E. Economic, Pricing Methodology, and Cost Allocation Issues

1. Background

131. In the *Advanced Services FNPRM*, we requested comment on the economic, pricing, and cost allocation issues that may arise from line sharing.³⁰⁹ Specifically, we asked how line sharing might affect federal and state access charge regimes and universal service mechanisms.³¹⁰ We requested comment on the pricing consequences of requiring line sharing, and asked, among other things, whether the entire cost of the loop should be allocated to the voice channel or divided equally or otherwise between the two services sharing the facility.³¹¹ In addition, we requested comment on the cost allocation issues, if any, that are raised by line sharing.³¹²

132. In this Order, we establish guidelines to assist the states in applying our unbundled network element pricing rules to line sharing when they arbitrate modifications to interconnection agreements or otherwise adopt permanent prices for this unbundled network element. These guidelines either follow directly from the Total Element Long Run Incremental Cost (TELRIC) methodology that the Commission set forth in the *Local Competition First Report and Order*³¹³ to govern interconnection and unbundled network element pricing, or, if not a direct outgrowth of those principles, are consistent with them in the context of this particular unbundled network element. We note, in this regard, that virtually all states have already adopted the TELRIC methodology in setting prices for other unbundled network elements.

2. Discussion

133. The impetus behind ordering line sharing is the need to expedite the deployment of xDSL-based advanced services while simultaneously fostering meaningful competition in the provision of those services.³¹⁴ In the current environment, competitive LECs must purchase access to additional lines in order to offer xDSL-based services, while the incumbent LECs use their own voice loops to offer these same services. The incumbent LECs' xDSL services are, in fact, sharing the local loop facility with their voice services. In setting prices for interstate xDSL services, moreover, incumbent LECs currently attribute little or no loop cost to those services.

³⁰⁹ *Advanced Services First Report and Order and FNPRM*, 14 FCC Rcd at 4812, para. 106.

³¹⁰ *Id.*

³¹¹ *Id.*

³¹² *Id.*

³¹³ *Local Competition First Report and Order*, 11 FCC Rcd at 15814-15868, at paras. 625-727.

³¹⁴ *See* 47 U.S.C. § 251.

The competitive LECs, on the other hand, are forced to purchase access to a second line, and pay the related unbundled network element rates for an entire loop. This puts competitive LECs at a severe competitive disadvantage when they offer xDSL-based services to the public. In some cases, the unbundled network element rate for a loop is so close to the rate the incumbent LEC charges for its xDSL-based services that it is not possible for the competitive LEC to offer service at a competitive price.³¹⁵ Even if line sharing is made available to competitive LECs, however, it will not promote competition unless it is priced in a way that permits competitive LECs to enjoy the same economies of scale and scope as the incumbent LECs.³¹⁶

134. The Telecommunications Act of 1996 requires the states to set prices for unbundled network elements that are cost-based and nondiscriminatory, and that may include a reasonable profit.³¹⁷ The Commission concluded in the *Local Competition First Report and Order* that the state commissions should set arbitrated rates for interconnection and access to unbundled network elements pursuant to a forward-looking economic pricing methodology, known as TELRIC, that sets prices for unbundled network elements based on “the forward-looking costs directly attributable to the specified element, as well as a reasonable allocation of forward-looking common costs.”³¹⁸ As the Commission anticipated, the states now conduct cost studies and apply an economic costing methodology consistent with the TELRIC methodology in arbitrating interconnection disputes and setting unbundled network element rates.³¹⁹

135. By requiring line sharing, we are creating a new unbundled network element. We conclude that, when arbitration is necessary, the price of this new element should be set by states in the same manner as they set the price for other unbundled network elements. We further conclude that offering the state commissions guidance to assist in pricing this new unbundled network element will facilitate consistency among the states and ensure that our line sharing guidelines do, in fact, promote competition in the provisioning of xDSL-based services. We note in this regard that California urged us to establish costing and pricing rules to further this purpose.³²⁰

136. Based on the record, we find that there are five types of direct costs that an incumbent LEC potentially could incur to provide access to line sharing: (1) loops; (2) OSS; (3) cross connects; (4) splitters; and (5) line conditioning. We discuss each of these costs and their pricing methodology below.

³¹⁵ Letter from Jason Oxman, Covad Communications Company, to Carol Matthey, Chief, Policy and Program Planning Division, Common Carrier Bureau, Federal Communications Commission, CC Docket No. 98-147 (filed October 13, 1999) (Covad Oct. 13 *Ex Parte*).

³¹⁶ *Local Competition First Report and Order*, 11 FCC Rcd at 15846, para. 679.

³¹⁷ 47 U.S.C. 252(d)(1).

³¹⁸ *Local Competition First Report and Order*, 11 FCC Rcd at 15813, para. 682. *See also id.*, at para. 620.

³¹⁹ *See, e.g.*, Covad Oct 5 *Ex Parte* (providing state commission-set local loop rates for five states).

³²⁰ California PUC Comments at 6.

(1) Local Loop

137. The parties to this proceeding have suggested several approaches for pricing the loop facility over which line sharing will be provided. Several competitive LECs argue that we should permit the incumbent LECs to charge the competitive LECs whatever the incumbent LECs calculate the loop costs to be when they offer the same services. If an incumbent LEC allocates zero loop costs to xDSL service when it offers such services over a voice line, then it cannot charge the competitive LECs any loop cost for access to a line for the purpose of offering those same xDSL services. This approach, it is argued, would give the incumbent LECs the incentive to allocate those costs more reasonably.³²¹ Parties supporting this approach also contend that, regardless of the precise allocation of costs between the incumbent voice services and the line sharing network element provided to the competitive LEC, incumbent LECs will still recover the full embedded cost of the local loop.³²² Full recovery of local loop costs through voice services would leave the incumbent LEC whole even if the competitive LEC had access to the shared loop facility at a price that included no loop costs at all.³²³ On the other hand, there could be a double recovery if the incumbent LEC recovered the full cost of the loop from its voice and related services while, recovering an additional amount for loop costs from a competitive LEC for access to that same loop.

138. We note that the TELRIC methodology that the Commission adopted in the *Local Competition First Report and Order* does not directly address this issue. More specifically, the Commission in that order noted that the TELRIC methodology was designed to price “discrete network elements or facilities,” rather than services.³²⁴ In the case of line sharing, however, the facility in question is, by definition, also used for two incumbent LEC services (local exchange service and interstate access service). We are thus presented with the question of how to establish the forward looking economic cost of unbundled bandwidth on a transmission facility when the full embedded cost of that facility is already being recovered through charges for jurisdictional services. Accordingly, we must extend the TELRIC methodology to this situation and adopt a reasonable method for dividing the shared loop costs.

139. We conclude that, in arbitrations and in setting interim prices, states may require that incumbent LECs charge no more to competitive LECs for access to shared local loops than the amount of loop costs the incumbent LEC allocated to ADSL services when it established its interstate retail rates for those services. This is a straightforward and practical approach for establishing rates consistent with the general pro-competitive purpose underlying the TELRIC

³²¹ @Link Comments at 7. @Link adds that, under no circumstances should the amount allocated to the competitive carrier be greater than 50 percent of the cost of the shared equipment. *Id.*

³²² NorthPoint Comments at 28.

³²³ *Id.* at 28. We note, however, that the Federal-State Joint Board on Separations is considering the question of how to allocate local loop plant between voice and data services for purposes of jurisdictional separations in CC Docket No. 80-286. *GTE Telephone Operating Cos. GTOC Transmittal No. 1148*, CC Docket No. 98-79, FCC No. 99-41, Memorandum Opinion and Order, 1999 WL 98039, para 9 (rel. Feb. 26, 1999).

³²⁴ *Local Competition First Report and Order*, 11 FCC Rcd at 15845-46, para. 678.

principles. We find that establishing the TELRIC of the shared line in this manner does not violate the prohibition in section 51.505(d)(1) of our rules against considering embedded cost in the calculation of the forward looking economic cost of an unbundled network element.³²⁵ We also note that this approach was recently approved by the Minnesota PUC.³²⁶

140. We find it reasonable to presume that the costs attributed by LECs in the interstate tariff filings to the high-frequency portion of the loop cover the incremental costs of providing xDSL on a loop already in use for voice services. Under the price cap rules for new access services, the recurring charges for such services may not be set below the direct costs of providing the service, which are comparable to incremental costs. The rates the incumbent LECs set for their special access xDSL services should cover those costs. The incumbent LECs filed their cost support for their own special access DSL services before we issued the notice giving rise to this Order compelling line sharing, and they have defended their cost support when challenged in petitions to reject or suspend their tariff filings.³²⁷ Since the incremental loop cost of the high-frequency portion of the loop should be similar to the incremental loop cost of the incumbent LEC's xDSL special access service, this approach should result in the recovery of the incremental loop cost of the high-frequency portion of the loop.

141. This approach also helps alleviate any potential price squeeze. A price squeeze may occur when incumbent LECs allocate little or no loop costs to their xDSL services, while competitive LECs, when offering xDSL service, must purchase access to a second line and pay for the related unbundled network element rates, which includes a loop cost for an entire loop. This difference in the cost of offering xDSL services leaves the competitive LECs at a significant competitive disadvantage. By requiring incumbent LECs to provide access to the shared local loops for no more than they allocate to their own xDSL services, the price squeeze may be redressed by ensuring competitive LECs and ILECs incur the same cost for access to the bandwidth required to provide xDSL services.

(2) OSS

142. Incumbent LECs use OSS systems that carry out pre-ordering, ordering, service provisioning, billing, repair and maintenance functions for their current products and services. Although the OSS systems vary among incumbent LECs, they share a common functionality. Competitive LECs exchange information with incumbent LECs through Electronic Exchange of Data gateways, Web GUIs, or via paper fax transmissions. There is no dispute either that incumbent LECs will need to modify their OSS systems somewhat in order to implement line sharing, or that they will incur costs in doing so. The question here is what the incumbent LECs

³²⁵ 47 CFR § 51.505 (d)(1); *See also Local Competition First Report and Order*, 11 FCC Rcd at 15857-59, paras. 704-707.

³²⁶ Specifically, the Minnesota PUC held that it was "not presently concerned with how [US West] resolves the pricing issue, so long as the Company charges data CLECs the same loop rate that the Company presently imputes to its own DSL services." *Minnesota Line Sharing Order* at 5.

³²⁷ *See, e.g., Bell Atlantic Telephone Companies Amendments to Tariff F.C.C. Nos. 1 and 11*, CC Docket No. 99-201, Reply of Bell Atlantic to Petitions to Reject and Investigate at 7 (filed May 28, 1999).

should be permitted to charge competitive LECs for those required modifications.

143. Estimates from the incumbent LECs vary from a low of three and a half to five and a half million dollars,³²⁸ to a high of hundreds of millions of dollars.³²⁹ Bell Atlantic's range of estimates runs from five to twenty-five million dollars.³³⁰ Competitive LECs contend that, because most of the necessary functionality already exists in the incumbent LECs' OSS systems, the costs of modifying OSS systems for line sharing nationwide are no more than GTE's estimate of five million dollars across GTE's entire service territory.³³¹ A joint *ex parte* filed on behalf of several competitive LECs maintains that the incremental changes needed in OSS to support line sharing would be minimal, and that manual work arounds, where necessary, would be sufficient to implement xDSL line sharing.³³²

144. We find that incumbent LECs should recover in their line sharing charges those reasonable incremental costs of OSS modification that are caused by the obligation to provide line sharing as an unbundled network element. We believe that this guideline is consistent with the principle set forth in the *Local Competition First Report and Order* that incumbent LECs cannot recover nonrecurring costs twice.³³³ We also reaffirm the conclusions in the *Local Competition First Report and Order*, that the states may require incumbent LECs in an arbitrated agreement to recover such nonrecurring costs such as these incremental OSS modification costs through recurring charges over a reasonable period of time; and that nonrecurring charges must be imposed in an equitable manner among entrants.³³⁴

(3) Cross Connects

145. Cross connections will be required to connect the competitive LECs' xDSL equipment to the incumbent LECs' facilities in order for the competitive LEC to be able to provide xDSL services via line sharing. The incumbent LECs currently provide cross connects to interconnect loops with the collocated facilities of competitive LECs installed in incumbent LEC offices, and the states are setting prices for the cross connects using the TELRIC

³²⁸ US West Oct. 7, 1999 *Ex Parte*. Note, this is the lower end of US West's estimate.

³²⁹ SBC Comments at 21.

³³⁰ Bell Atlantic Oct. 19 *Ex Parte*.

³³¹ Combined Data CLEC Sept. 30 *Ex Parte*. See also GTE Comments at 28-29.

³³² Combined Data CLEC Sept. 30 *Ex Parte*. This *Ex Parte* was jointly submitted by Bluestar Communications, Inc., Covad Communications Company, HarvardNet, Inc., Network Access Solutions Corp., NorthPoint Communications, Inc., and Rhythms NetConnections, Inc. This *Ex Parte* was jointly submitted by Bluestar Communications, Inc., Covad Communications Company, HarvardNet, Inc., Network Access Solutions Corp., NorthPoint Communications, Inc., and Rhythms NetConnections, Inc.

³³³ *Local Competition First Report and Order*, 11 FCC Rcd at 15875, para. 749.

³³⁴ *Id.*, 11 FCC Rcd at 15875 at paras. 749-50.

methodology. We would expect that the costs of installing cross connects for xDSL services in general would be the same as for cross connecting loops to the competitive LECs' collocated facilities, particularly where the splitter is located within the incumbent LEC's MDF. Accordingly, we find it reasonable to establish a presumption that, where the splitter is located within the incumbent LECs' MDF, the cost for a cross connect for entire loops and for the high frequency portions of loops should be the same. We would expect the states to examine carefully any assessment of costs for cross connections for xDSL services that are in excess of the costs of connecting loops to a competitive LECs' collocated facilities where the splitter is located within the MDF. If the splitter is not located within the incumbent LEC's MDF, however, then we would expect the states to allow the incumbent LEC to adjust the charge for cross connecting the competitive LEC's xDSL equipment to the incumbent LECs' facilities to reflect any cost differences arising from the different location of the splitter, compared to the MDF. We would expect that this amount would be only minimally higher than for cross connecting a splitter located within the MDF to the competitive LEC's xDSL equipment.

(4) Splitters

146. We concluded *supra*, that incumbent LECs must either provide splitters or allow competitive LECs to purchase comparable splitters as part of this new unbundled network element.³³⁵ The issue here is the price that incumbent LECs should be allowed to charge for such a device. We note, in this regard, that incumbent LECs do not currently provide access to a splitter as part of an existing unbundled network element offering or as part of a tariffed interstate service.

147. We conclude that, if the incumbent LEC purchases for a competitive LEC the same splitter that it uses itself for providing xDSL services, then a state may require that it only assess the competitive LEC the same amount that it itself pays for a delivered splitter. This guideline is reasonable and consistent with TELRIC principles, because it means that the incumbent LEC will recover the incremental cost it incurred in purchasing the splitter. We further conclude that a competitive LEC, at its option, should be allowed to purchase a splitter that complies with industry standards, and transfer it to the incumbent LEC, in the event that the competitive LEC can complete the transaction more expeditiously or cost effectively than the incumbent LEC. A state may also allow the incumbent LEC to include in its rate structure a charge to recover the cost of installing the splitters.

(5) Line Conditioning

148. Finally, we consider the appropriate price an incumbent LEC may charge a competitive LEC to perform line conditioning, where such conditioning is necessary for the provision of shared-line DSL service. In order to prevent incumbent LECs from charging an excessive price for line conditioning, states may require that the conditioning charges for shared lines not exceed the charges the incumbent LECs are permitted to recover for similar conditioning of stand-alone loops for xDSL services. Furthermore, if the incumbent LEC is providing, or has already provided, xDSL service over a particular shared loop, a competitive

³³⁵ See *supra* Section IV.D.1.

LEC should not be charged with any line conditioning costs if it wins that customer and seeks access to that shared loop for providing xDSL service.

149. On a more general note, the incumbent LECs argue that pricing this new unbundled network element using the TELRIC methodology would discourage investment in new advanced services and technologies. Their argument is two pronged. First, if incumbent LECs must offer line sharing to competitive LECs at TELRIC rates, then the competitive LECs would be less likely to invest in alternative technologies, such as those using terrestrial wireless or satellite circuits.³³⁶ Secondly, if line sharing is mandated everywhere, it will reduce the ability of the incumbent LECs to recover any future fixed costs of developing advanced services which, in turn, will reduce the incumbent LECs' incentives to develop such services.³³⁷

150. The argument that TELRIC pricing of line sharing will reduce the incentive of competitive LECs to invest in alternative technologies is inconsistent with the Commission's conclusions in the *Local Competition First Report and Order*. In that order, the Commission concluded that setting unbundled network element prices based on TELRIC would encourage efficient levels of investment and entry by competitive LECs.³³⁸ There is no evidence in this record to cause us to alter the Commission's conclusion that pricing unbundled network elements on the basis of TELRIC will not discourage efficient levels of investment and entry by competitive LECs. We also reject the argument that applying TELRIC principles to line sharing will reduce the incentives of incumbent LECs to develop advanced services. To the contrary, we find that the increased competitive pressures caused by the deployment of xDSL-based services by competitive LECs and of cable modem service by cable companies should increase the incentive of incumbent LECs to invest in advanced services.

151. Bell Atlantic argues that, if the Commission sets the price of the high-frequency portion of the loop at its long-run incremental cost (LRIC),³³⁹ this would deprive incumbent LECs of revenues needed to support voice services. Bell Atlantic explains that, if the price of voice service is set below cost,³⁴⁰ and the price of other services provided over the local loop are

³³⁶ Bell Atlantic Crandall Decl. at 3.

³³⁷ *Id.*

³³⁸ The Commission further concluded that setting prices based on embedded cost would distort the entry and investment decisions of competitive LECs. *Local Competition First Report and Order*, 11 FCC Rcd 15813, at para. 620.

³³⁹ Where two services are provided over common facilities, the LRIC of the first service equals the difference between the stand-alone cost of providing the second service and the cost of providing both services together. See, e.g., *Telephone Company-Cable Television Cross-Ownership Rules*, Section 63.54-63.58, Memorandum Opinion and Order on Reconsideration and Third Further Notice of Proposed Rulemaking, 10 FCC Rcd 244 (1994) (*Videodialtone Reconsideration Order*). If common costs are large relative to total costs, then the incremental cost of individual services will be low, and possibly zero.

³⁴⁰ When Bell Atlantic states that the price of voice services is below cost, it appears to mean the total cost of the common facilities, including the loop.

set at incremental cost, then the incumbent LEC may be unable to recover the common costs of the network, including the cost of the loop.

152. We reject Bell Atlantic's argument. To the contrary, we conclude that requiring line sharing and pricing it on the basis of TELRIC should not affect the ability of the incumbent LEC to recover costs associated with providing voice service. Currently, incumbent LECs are recovering the full embedded cost of their loops through revenues received from intrastate business and residential voice services, interstate access charges, and intrastate access charges. Nothing we do today affects the ability of incumbent LECs to continue to receive revenues from those services. Furthermore, the TELRIC methodology allows states to include in the price of an unbundled network element a reasonable allocation of forward-looking common costs. We anticipate, therefore, that states will set interim or arbitrated prices for line sharing to include forward-looking common costs as well as the directly-attributable costs discussed above. States should assign forward looking common costs to this new unbundled network element in the same way that they have assigned such costs to other unbundled network elements. Thus, we see no reason to depart from the use of the TELRIC-based methodology adopted in the *Local Competition First Report and Order* for this new unbundled network element.

153. We note that US WEST and Covad suggested a different method for setting the price of the line sharing unbundled network element as a fixed percentage of the TELRIC-based unbundled loop rate set by a state commission, or possibly as a percentage of the loop proxy ceilings contained in section 51.513 of our Rules.³⁴¹ Covad argued that the price should be ten percent of the unbundled network element rate or the loop proxy.³⁴² US WEST, in contrast, argued that 50 percent of the state-determined unbundled network element loop rate was a reasonable approximation of the value of the shared lines to the competitive LEC.³⁴³ Both proposals dealt with a scenario in which we would set forth interim pricing measures. Since we are not doing so in this Order, these proposals are moot.

154. US WEST further argues that, by requiring line sharing of the local loop we are, in effect, forcing the incumbent LECs to sell the entire local loop to the competitive LEC,³⁴⁴ and then to buy back that portion of the loop that the competitive LEC does not use. In other words, US WEST argues that competitive LECs seek to purchase an unbundled loop, extend the loop into their collocated space on the incumbent's property, attach their own preferred xDSL electronics, and then force the incumbent LECs to buy back whatever unused spectrum the competitive LEC chooses to let the incumbent use for voice telephony. US WEST then argues that line sharing requires them to bear the risk that its voice channel will not be adversely affected by the competitive LECs' xDSL services. According to US WEST then, the real question is what rebate should the competitive LEC receive for returning the voice channel to the

³⁴¹ 47 C.F.R. § 51.513.

³⁴² Covad Oct. 5 *Ex Parte*.

³⁴³ See US West Oct. 7 *Ex Parte*.

³⁴⁴ US West Comments at 2.

incumbent LEC.³⁴⁵

155. We do not see the issue in that manner, as we are not ordering the incumbent LECs to sell the entire loop, and do not agree with US WEST's characterization of what we are ordering. Incumbent LECs already provide voice and xDSL-based services over a shared line. In fact, the Internet sites of these companies would lead one to believe that sharing one's local loop with both voice and xDSL services has no ill effects upon one's voice communications at all.³⁴⁶ Moreover, we have provided sufficient measures in this Order to ensure that the integrity of the voice component is not compromised. Further, we do not force the incumbent LECs to sell the entire local loop to a competitive LEC for xDSL services by our decision here. The incumbent LEC retains ownership and control of the loop at all times. In light of this conclusion, the rebate question need not be addressed.

156. US WEST also argues that any price set for the higher frequencies in the local loop should reflect the "tremendous value that a [competitive LEC] would obtain by acquiring the loop's data-transmission potential."³⁴⁷ US WEST contends that the ability to offer voice and data over a single loop is also a function of technological efficiency, and allowing a competitive LEC access to share this efficiency without having to offer voice service could reduce the efficiencies enjoyed by the incumbent LECs, as they would be left with just the voice component and no xDSL component.³⁴⁸ If the incumbent LECs lose this efficiency, US WEST argues, then, that competitive LECs should pay a premium for acquiring the loop's data-transmission potential.³⁴⁹

157. We reject US WEST's value-based pricing methodology. As we stated in the *Local Competition First Report and Order*, the price for unbundled network elements should be based on forward-looking costs. Setting the price for an unbundled network element based upon the competitive value that the facility confers upon another party does not conform with the TELRIC principles set forth both in this Order and in the *Local Competition First Report and Order*.

F. Implementation of Unbundling Obligation

158. As the Commission has continually recognized, the states will play a critical role

³⁴⁵ *Id.* at 25.

³⁴⁶ See, e.g., Bell Atlantic's Infospeed Internet Website at <<http://www.ba.com/nr/1998/Oct/19981005001.html>>.

³⁴⁷ US West Comments at 26.

³⁴⁸ *Id.* at 26. US West's argument regarding a loss of efficiencies is primarily based on the fact that this new unbundled network element will occupy a greater frequency spectrum than voice service occupies over the same loop. It is the loss of that capacity, if offered separately, to which US West objects. US West Oct. 7 *Ex Parte*.

³⁴⁹ US West Comments at 26. See also US West Oct. 7 *Ex Parte*.

in promoting local competition.³⁵⁰ Moreover, this Commission shares with the states a commitment towards ensuring the deployment of advanced services to all Americans.³⁵¹ We reiterate here our conclusion in the *Local Competition First Report and Order* that state arbitration of interconnection agreements will be expedited and simplified by a clear statement of terms that must be included in every arbitrated agreement, absent mutual consent to different terms.³⁵² Based on the states' role and our mutual commitment to expeditious and broad-based deployment of advanced services, we have established in this order uniform, national rules for the unbundling of the high frequency portion of the loop. These rules include the specific parameters, set out in section IV.D.1 above, that incumbents and competitive carriers must follow when providing service on a shared loop. We also announce pricing guidelines that we urge the states to apply when they arbitrate modifications to interconnection agreements or adopt permanent prices for this unbundled network element. We expect that these rules and guidelines will allow parties promptly to reach mutually agreeable terms and conditions for shared line access. These rules and guidelines will also assist the states in arbitrating and reviewing agreements under section 252. We believe that the rules and guidelines set out in this order are consistent with Congress' vision of the complementary roles for the Commission and the states with respect to access to unbundled network elements under section 251 of the Act and the deployment of advanced services under section 706 of the 1996 Act.

159. We recognize, however, that while voluntary carrier-to-carrier negotiations will be expedited by the promulgation of these national rules and guidelines, there may be some instances where the parties seek arbitration of unresolved issues pursuant to section 252(b)(1). We urge the states to complete the arbitration on a timely basis and to set minimum requirements for the provision of line sharing in their arbitration awards, including provisioning intervals and penalties for failure to comply. We note that states are free to impose additional, pro-competitive requirements consistent with the national framework established in this order.

160. In addition, as explained in more detail below, we strongly encourage the states to issue interim arbitration awards setting out the necessary rates, terms, and conditions for access to this unbundled network element, with any unresolved issues subject to a true-up when the state commission completes its arbitration.³⁵³ We urge states to issue these awards as quickly as possible after a party petitions the state for arbitration under section 252(b)(1) so that competitive carriers are actually able to begin providing advanced services on a shared loop within 180 days of release of this order.

1. Effective Date of New Rules

161. We firmly believe that any delay in the provision of the high frequency portion of

³⁵⁰ *Local Competition First Report and Order*, 11 FCC Rcd at 15566, para. 133.

³⁵¹ 47 U.S.C. § 157(a). Federal-State Joint Conference on Advanced Telecommunications Services, CC Docket No. 99-294, Order, FCC 99-293 (rel. Oct. 8, 1999) (*Joint Conference on Advanced Services*).

³⁵² *Local Competition First Report and Order*, 11 FCC Rcd at 15528, para. 56.

³⁵³ NorthPoint Nov. 9 *Ex Parte* at 4.

the loop will have a significant adverse impact on competition in the provision of advanced services to customers that want both voice and data services on a single line, especially in residential and small business markets. Moreover, as stated above, we conclude that incumbent LECs should be able to implement OSS and other loop facility modifications within 180 days of the Commission's release of this order to accommodate requests for access to this new network element. We believe that there may be interim measures that will allow competitive carriers to begin obtaining some form of access to this unbundled network element even before 180 days. Therefore, our rules requiring the unbundling of the high frequency portion of the loop will become effective 30 days from publication of this Order in the Federal Register.

2. States' Role in Fostering Local Competition Under Sections 251 and 252

162. Because we have addressed with specificity the relevant issues necessary to enable the provision of line sharing, parties should be able to negotiate amendments to their interconnection agreements to include line sharing no later than 180 days of release of this order. Although we recognize the right to pursue arbitration under section 252, we are hopeful that parties will not need to do so to obtain interconnection agreements providing for line sharing.

163. If parties seek arbitration, however, modifications to existing interconnection agreements to actually provision this new unbundled network element could take up to nine months from the date that an incumbent LEC receives a competitor's request to commence negotiation.³⁵⁴ We find that a nine-month delay seriously impairs the rapid introduction of competition in the provision of xDSL-based services on a shared line, especially to residential and small business consumers. If they do not reach an agreement, either party may invoke arbitration in the period from day 135 to day 160, and the state is required to complete the arbitration within nine months from the date of the competing carrier's request.³⁵⁵

164. We strongly encourage states to issue binding interim arbitration awards that would require the incumbent to begin provisioning this unbundled network element on interim arbitration terms and conditions within 180 days of release of this order. As detailed throughout this order, we have provided specific guidance for the states regarding arbitration awards. We believe that this is consistent with our goal of federal-state cooperation in facilitating the widespread deployment of advanced services.³⁵⁶ The state interim arbitration award would remain in effect until such time as the state issues a final award. We believe that such interim arbitration awards will reduce delays and enable swift market entry by new competitors, thereby furthering our joint goal of ensuring deployment of advanced services to all Americans.

165. We expect that such interim arbitration awards would incorporate the rules we adopt in this order and be sufficiently detailed to permit the incumbent LECs to begin providing this new unbundled network element immediately upon the effective date of the interim order. The interim arbitration awards, like final arbitration awards, should include the price of the high

³⁵⁴ See 47 U.S.C. § 252(b)(4)(C).

³⁵⁵ 47 U.S.C. § 252(b).

³⁵⁶ See 47 U.S.C. § 157(a). See also *Jt. Conference on Advanced Services* at para. 6.

frequency portion of the loop based on the pricing guidelines we set out in this order. We encourage the states, when issuing their interim arbitration awards, to set the price for the unbundled high frequency portion of the loop at the amount that the incumbent assesses in establishing interstate rates for its own competing services. Moreover, we recommend that the states adopt provisioning intervals to be included in both the interim award and the final arbitration award. As discussed below, to the extent that states do not adopt their own provisioning intervals, we adopt guidelines that the states can follow in establishing these provisioning intervals.

166. We believe that interim arbitration awards, to the extent necessary, promote the policy established in section 7 of the Act: “to encourage the provision of new technologies and services to the public,” and comports as well with section 706 of the 1996 Act, by “encourag[ing] the deployment . . . of advanced telecommunications capability to all Americans. . . .”³⁵⁷ Both the states and this Commission share the objective of promoting competition among xDSL providers, particularly for residential and small business consumers. This shared objective supports state adoption of binding interim arbitration awards that will expedite market competition. Because incumbent LECs are the only carriers currently able to provide advanced and voice services on a single line, delaying the availability of this unbundled network element to competitive LECs until after the section 252-negotiation/arbitration process is complete could deny mass market consumer access to competitively offered advanced services for nine months or more. If the incumbent is able to exploit its unique control over local loops to dominate the market for single line voice-data applications in the next year, we will have lost a unique opportunity to promote a competitive marketplace for advanced services. Thus, we find that delayed implementation will severely undermine the potentially pro-competitive effects of line sharing between incumbent and competitive LECs.

167. In addition to arrangements reached through section 252-negotiation and arbitration procedures, Bell Operating Companies (BOCs) may prepare and file with a state commission a statement of generally available terms and conditions (SGAT) that they offer to comply with the requirements of section 251.³⁵⁸ Given the importance of certain and prompt implementation of line sharing to broadband competition, especially in the residential and small business markets, we encourage the BOCs expeditiously to amend their SGATs setting out the terms and conditions pursuant to which they will offer access to shared loops in compliance with the requirements set out in this order. We note that pursuant to section 251(i), competitive carriers will be able to obtain access to the high frequency portion of the loop at the same rates, terms, and conditions offered in any approved interconnection agreement, as well as the BOCs’ SGATs.³⁵⁹ Finally, we note that in the event that a state commission fails to take action in an arbitration proceeding within the nine months prescribed by Congress, we are prepared to act promptly, pursuant to section 252(e)(5) and our implementing rules,³⁶⁰ to issue an order

³⁵⁷ 47 U.S.C. § 157(a).

³⁵⁸ 47 U.S.C. § 252(f)(1).

³⁵⁹ 47 U.S.C. § 252(i).

³⁶⁰ See 47 U.S.C. § 252(e)(5); 47 C.F.R. §§ 51.801 et seq.

“preempting the State commission’s jurisdiction of that proceeding or matter” and thereafter to bring the arbitration to an orderly, expeditious conclusion.

168. We note that a few states have already taken significant steps toward requiring incumbent LECs in their jurisdiction to offer line sharing.³⁶¹ Clearly, the Commission’s requirement that line sharing be made available on a nationwide basis should not interfere with or delay the laudable efforts of individual states to make residential xDSL competition a reality more expeditiously. Rather, the timetable outlined above for implementing line sharing should be viewed as a maximum period for states that have not yet taken any actions to make line sharing available, either through the exercise of their authority under section 251-252 or pursuant to their authority under state law. We do not intend to constrain states that have undertaken such initiatives that likely will result in delivering the benefits of line sharing to their residential consumers more quickly.

3. Duty to Negotiate in Good Faith

169. The Commission concluded in the *Local Competition First Report and Order*, that the unbundling obligations of section 251 seek to reduce the incumbent LECs ability to leverage their dominant position in the local market into a nascent market, in this instance, the data market.³⁶² The Commission adopted rules in the *Local Competition First Report and Order* identifying factors or practices that constitute failure to negotiate in good faith.³⁶³

170. In the *Local Competition First Report and Order*, we found if that a party causes significant delay by refusing throughout the negotiation process to designate a representative with authority to make binding decisions, such an action would constitute failure to negotiate in good faith.³⁶⁴ Consistent with this conclusion, upon commencement of the negotiation process we expect the incumbent LEC immediately to make available a representative who has region-wide decision-making authority to meet with the requesting carrier and any other competitive carriers seeking shared line access in the incumbent LEC’s region at issue.

4. Guidelines for State Arbitration Awards

171. Incumbent LEC implementation of Commission rules designed to facilitate local competition is likely to be pursued more quickly and diligently if the incumbent LECs have an incentive to comply with these rules, and if compliance is swiftly enforced.³⁶⁵ Accordingly, as

³⁶¹ See *Minnesota Line Sharing Order*; Letter from Harris N. Miller, President, Information Technology Association of America (ITAA) to the Honorable Louis J Papan, California State Assembly, Apr. 6, 1999 (supporting Calif. AB 991 promoting xDSL deployment through line sharing), <<http://www.ita.org/isec/archive/papan.htm>>.

³⁶² *Local Competition First Report and Order*, 11 FCC Rcd at 15570, para. 141.

³⁶³ *Id.*, 11 FCC Rcd at 15574-15578, paras. 148-156.

³⁶⁴ *Id.*, 11 FCC Rcd at 15577, para. 154. We have also stated that we would impose penalties pursuant to sections 501, 502 and 103 of the Act on parties who fail to negotiate in good faith. *Id.*, 11 FCC Rcd at 15571, para. 143.

³⁶⁵ As we noted in the *Local Competition First Report and Order*, the section 252-negotiation process bears little resemblance to a typical commercial negotiation. The competitive carrier that seeks access to a shared loop has

discussed above, we conclude that offering to the state commissions guidelines to assist in pricing this new unbundled network element will facilitate consistency between the states and ensure that our line sharing rules, in fact, do level the competitive playing field. We further conclude that, when arbitration is necessary, the price of this new element should be set by states in the same manner as they set the price for other unbundled network elements. In addition to the pricing guidelines we set forth herein for use by the states in establishing a price for the high frequency portion of the loop, we also encourage the states to adopt performance measurements to include in their arbitration awards and to establish penalties for incumbent LEC failure to comply with their obligation to provide unbundled access to the high frequency portion of the loop. We set out below a presumption for the state commissions to use if necessary to establish performance standards for incumbent LEC provision of this unbundled network element. We also suggest that the states consider the imposition of forfeiture penalties on any incumbent LEC that fails to comply with the line sharing rules articulated in this order.

172. Statutory Standard. Section 251(c)(3) requires an incumbent LEC to "provide, to any requesting telecommunications carrier . . . nondiscriminatory access to network elements on an unbundled basis at any technically feasible point on rates, terms and conditions that are just, reasonable, and nondiscriminatory."³⁶⁶ In the *Local Competition First Report and Order*, the Commission concluded that the provision of access to OSS functions falls squarely within an incumbent LEC's duty under section 251(c)(3) to provide unbundled network elements under terms and conditions that are nondiscriminatory and just and reasonable. The Commission observed that if competing carriers are unable to perform the functions of pre-ordering, ordering, provisioning, maintenance and repair, and billing for network elements in substantially the same time and manner as the incumbent can for itself, competing carriers will be severely disadvantaged, if not precluded altogether, from fairly competing.³⁶⁷ For OSS functions that have no retail analogue – namely, the ordering and provisioning of unbundled network elements – an incumbent must offer access sufficient to allow an efficient competitor a meaningful opportunity to compete.³⁶⁸

173. As a general matter, the nondiscrimination obligation requires incumbent LECs to provide to requesting carriers access to the high frequency portion of the loop that is equal to that access the incumbent provides to itself for retail DSL service its customers or its affiliates, in terms of quality, accuracy and timeliness. Thus, we encourage states to require, in arbitration proceedings, incumbent LECs to fulfill requests for line sharing within the same interval the incumbent provision xDSL to its own retail or wholesale customers, regardless of whether the

little, if nothing, to offer the incumbent in a negotiation. The incumbent, however, has control over the critical element the competitive LEC needs to compete. *Local Competition First Report and Order*, 11 FCC Rcd at 15566, para. 134.

³⁶⁶ 47 U.S.C. 251(c)(3).

³⁶⁷ *Local Competition First Report and Order*, 11 FCC Rcd at 15763-15764, para. 518.

³⁶⁸ *Local Competition Second Reconsideration Order*, 11 FCC Rcd at 19742.

incumbent uses an automated or manual process.³⁶⁹

174. Provisioning Interval. We urge states to adopt provisioning intervals for this unbundled network element as part of any arbitration award. Because there are currently no state-required provisioning intervals for the high frequency portion of the loop network element, we urge states to consider a standard based on the time required to provision xDSL capable loops. We believe that this is the most accurate analogue that exists currently. We note that the Texas Commission requires that the incumbent LEC provision 95 percent of xDSL orders within 3 business days (for 1-10 loops), 7 business days (11-20 loops) and 10 business days (20+ loops).³⁷⁰ In Texas, this provisioning interval runs from the application date to completion date for new, terminating, and change orders. The application date is the day that the requesting carrier authorizes the incumbent to provision the xDSL capable loop based on the loop qualification.³⁷¹ The completion date is the day that the incumbent completes the service order activity.³⁷²

175. Where the incumbent LEC is already providing shared line xDSL service to a particular customer, however, the provisioning interval should be significantly shorter, requiring only that the incumbent perform a simple cross-connect. We emphasize that states are free, and indeed, are encouraged to adopt more accurate provisioning standards for the high frequency portion of the loop for inclusion in their section 252 arbitration awards.

176. Penalties and Enforcement. We encourage states to establish penalties for failure to meet provisioning intervals as part of any arbitration award. The state could use the provisioning intervals it establishes as a measure to determine whether the incumbent LEC has failed to comply with its line sharing obligations. For instance, the states could impose penalties on the incumbent LEC each time an incumbent LEC fails to comply with its section 251(c)(3) unbundling obligations, even if the state has already taken action on prior violations by the same incumbent LEC, with respect to the same central office or the same competing carrier. We encourage states to consider adoption of self-executing remedies to minimize litigation in this area. Given the importance of these obligations, we emphasize that, in addition to whatever actions the states may take, we intend to monitor carefully incumbent LEC practices in this area, and to take strong enforcement action in appropriate cases. We also note that carriers may utilize the complaint provisions of section 208 of the Act in the case of disputes regarding the

³⁶⁹ We do not determine herein whether providing the unbundled high frequency portion of the loop utilizing manual processes meets the nondiscrimination obligations of the incumbent LEC.

³⁷⁰ SWBT Performance Measurements and Business Rules, Version 1.6, Measurement #55.1, Average Provisioning Intervals for Unbundled Network Elements, at 65 and 69, Installation Interval - DSL.

³⁷¹ In the event that the loop qualification determines that no conditioning is required, the day that the loop qualification is returned from the incumbent engineering staff will be the application date. If conditioning is required, the requesting carrier must notify the incumbent of the appropriate action to take. If the requesting carrier supplements the request to order the shared loop, the application date becomes the date that the incumbent receives the supplement. See SWBT Performance Measurements and Business Rules, Version 1.6, at 65.

³⁷² *Id.*

incumbent's obligations to provide the high frequency portion of the loop and our rules implementing line sharing.³⁷³

177. **Implementation Schedule:** Section 252(c)(3) requires a state commission, in resolving an arbitration proceeding to “provide a schedule for implementation of the terms and conditions of the parties to the agreement.”³⁷⁴ In light of our conclusion above that parties should be able to resolve all outstanding operational issues in six months or less, we strongly urge the states to adopt an implementation schedule that requires an incumbent to begin provisioning this network element to requesting carriers no later than 45 days after the issuance of an arbitration award. This should provide sufficient time for the parties to the arbitration to submit an interconnection agreement to the state commission for approval, and for the state commission to have an opportunity to act on that agreement as provided for in section 252(e)(4).³⁷⁵

V. SPECTRUM POLICY

A. Background

178. In this section, we address two broad and interrelated network issues: spectrum compatibility and spectrum management. Spectrum compatibility refers generally to the ability of a loop technology to reside and operate in the same or an adjacent “binder group” as another loop technology.³⁷⁶ As we explained in the *First Advanced Services Report and Order and FNPRM*,³⁷⁷ the continuing development of spectrum compatibility standards should help to minimize crosstalk, the noise caused by extraneous signals combining with the intended signal. This noise can result in the degradation of the intended signal. Spectrum compatibility is

³⁷³ The Commission, for example, has authority under section 503(b)(1)(B) of the Act, to impose forfeiture penalties and, if such a situation was before it properly, would consider imposing penalties on any incumbent LEC that fails to comply with the line sharing rules articulated in this order. Pursuant to section 503(b)(2)(B) of the Act (47 U.S.C. 503(b)(2)(B)) and section 1.80 of the Commission’s rules (47 C.F.R. 1.80), the amount of the forfeiture would not exceed \$110,000 for each violation or each day of a continuing violation up to a total of \$1,100,000. We would be prepared to take action each time an incumbent LEC fails to comply with its section 251(c)(3) unbundling obligations, even if we have already taken action on prior violations by the same incumbent LEC, with respect to the same central office or the same competing carrier. See *Local Competition First Report and Order*, 11 FCC Rcd at 15564, para. 127 (ruling that an aggrieved party could file a section 208 complaint with the Commission alleging that the incumbent LEC has failed to comply with the requirements of sections 251 and 252).

³⁷⁴ 47 U.S.C. § 252(c)(3).

³⁷⁵ Section 252(e)(4) requires that the agreement will be deemed approved if the state commission does not act to approve or reject the agreement within 90 days from submission by the parties of an agreement adopted by negotiation under subsection 252(a), or within 30 days from submission by the parties of an agreement adopted by arbitration under subsection 252(b). The provision also states that no state court shall have jurisdiction to review the action of a state commission in approving or rejecting an agreement under section 252. 47 U.S.C. §252(e).

³⁷⁶ *Advanced Services First Report and Order and FNPRM*, 14 FCC Rcd at 4794, para. 61. A binder group generally consists of 25, 50 or 100 copper pairs bundled together.

³⁷⁷ *Id.*

achieved when energy that transfers into a loop pair, from services and transmission system technologies on other pairs in the same cable, does not cause an unacceptable degradation of performance. Spectrum management refers to loop plant administration, such as binder group management,³⁷⁸ and other deployment practices that are designed to result in spectrum compatibility, preventing harmful interference between services and technologies that use pairs in the same cable.³⁷⁹

179. Spectrum compatibility and management become a significant concern with the introduction of new high-speed services in a multiple provider environment.³⁸⁰ Incumbent LECs generally take the position that they have the right to determine unilaterally whether particular xDSL-based or other advanced services may be deployed on the network side of the demarcation point, regardless of whether they or competitive LECs are seeking the deployment.³⁸¹ Moreover, to the extent that incumbent LECs have deferred to industry standards-setting bodies for development of spectrum compatibility standards and spectrum management practices, such standards-setting bodies have been slow to respond and their processes have been skewed towards the interests of incumbent LECs. These circumstances have undermined the deployment of the technology to provide competitive deployment of xDSL services, contrary to Congress's goals in section 706 of the 1996 Act that the Commission "encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans."³⁸²

³⁷⁸ *Id.*, 14 FCC Rcd at 4799, para. 71. Binder group management refers to choices concerning which technologies are deployed over which pairs. Ideally, binder group management is aimed towards preventing interference and maximizing service deployment.

³⁷⁹ See Committee T1 LB 785, T1E1.4/99-002R4, at 1, § 1.1. Though we conceded in the *Advanced Services First Report and Order* that the terms "spectrum compatibility" and "spectrum management" often are used interchangeably, we drew the further distinction that the former refers to a service provider's general right to deploy a particular technology, while the latter refers to the provider's right to deploy a technology in a particular situation. *Id.*, 14 FCC Rcd at 4794 n.151. Of course, in the latter situation, the provider also has a responsibility to administer the loop plant to achieve spectrum compatibility.

³⁸⁰ The policies and rules that we set forth in this section concerning spectrum compatibility and management address the coexistence of various loop technologies on different loops within the same or adjacent binder groups. In contrast, the policies and rules that we set forth herein concerning line sharing address the ability of two different service providers to offer service over the same line, with each provider employing different underlying frequencies to transport voice or data over that line. *Id.*, 14 FCC Rcd at 4805, para. 92. While we use the term "spectrum compatibility" in this order solely in the context of analyzing the coexistence of various loop technologies on different loops, the general concept of compatibility between loop technologies also is essential in order to implement line sharing successfully. See, e.g., ALTS July 29 *Ex Parte* ("To avoid problems with service quality arising from potentially incompatible equipment and xDSL technologies, line sharing should be required whenever the applicable standard includes capability for shared provision of voice/data on [a] single loop"); Covad Sept. 1 *Ex Parte* (countering the "myth" that line sharing will cause interference with analog voice services); Letter from Lincoln E. Brown, Director – Federal Regulatory, SBC Telecommunications, Inc., to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket No. 98-147, Attach. (filed July 28, 1999) (SBC July 28 *Ex Parte*) (arguing that line sharing is infeasible in some situations, such as when technology used by competitive LECs is not compatible with voice services).

³⁸¹ See *Advanced Services First Report and Order and FNPRM*, 14 FCC Rcd at 4798, para. 70.

³⁸² See 47 U.S.C. § 157.