E. The Commission Should Clarify That An ILEC May Not Use DLC Or Other Remote Terminal Configurations To Undermine Loop Unbundling Or Interconnection.

Remote terminal loop configurations, including digital loop carrier ("DLC"), are not only a more efficient means of providing voice-grade service for many loops, they can also facilitate much higher data transmission speeds. Not surprisingly, an ever-increasing number of loops are configured using remote terminals. Unfortunately, the use of remote terminals may introduce unbundling complications. Nevertheless, unbundling of these loops is both possible and mandated by the Commission's existing rules.[115] As the Commission explained in its Local Competition Order: "If we did not require ILECs to unbundle IDLC-delivered loops, end users served by such technologies would not have the same choice of competing providers as end users served by other loop types."[116] For the same reasons, state commissions have also required unbundling of a wide range of loops, including IDLC and loops capable of supporting advanced services.[117]

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[115] See Local Competition Order ¶ 383 ("incumbent LECs must provide competitors with access to unbundled loops regardless of whether the incumbent LEC uses integrated digital loop carrier technology, or similar remote concentration devices, for the particular loop sought by the competitor. IDLC technology allows a carrier to aggregate and multiplex loop traffic at a remote concentration point and to deliver that multiplexed traffic directly into the switch without first de-multiplexing the individual loops").

[116] Local Competition Order, ¶ 383.

[117] See, e.g., Petition of AT&T of the Mountain States, Inc. Pursuant to 47 U.S.C. Section 252(b) for Arbitration of Rates, Terms and Conditions of Interconnection with U S WEST Communications Inc., Arbitration Decision and Order, at 29 (Montana PSC, Mar. 20, 1997); TCG Colorado Petition for Arbitration Pursuant to the Telecommunications Act of 1996 to Establish an Interconnection Agreement with U S WEST, Docket No.96A-329T, Decision Regarding Petition for Arbitration, at 46 (Colorado Public Utilities Commission, November 5, 1996); MFS Communications Company, Inc., Petition for

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The Commission should reiterate in this proceeding that ILECs cannot use remote terminal deployment of transmission enhancing or multiplexing equipment to justify limits on loop

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Arbitration with Southwestern Bell Telephone Company, Case No. TO-97-23, Arbitration Order, at 5 (Missouri PSC, November 6, 1996); AT&T Communications of the Pacific Northwest, Inc. and MCI Metro Access Transmission Services, Inc., Petitions for Arbitration with U S WEST Communications, Inc., Arbitrator's Decision, Appendix A at 11 (Oregon PUC, December 6, 1996), aff'd, AT&T Communications of the Pacific Northwest, Inc. for Arbitration of Interconnection Rates, Terms, and Conditions Pursuant to 47 U.S.C. Sec. 252(b) of the Telecommunications Act of 1996, Commission Decision, at 3 (Oregon PUC, issued January 6, 1997); Arbitration by the Public Service Commission of an Interconnection Agreement between U S WEST Communications Inc., and AT&T Communications of the Mountain States, Inc., Under 47 USC § 252, Arbitration Order, at 86 (Wyoming Pub. Serv. Comm'n April 23, 1997); Petition of AT&T Communications of Ohio, Inc. for Arbitration of Interconnection Rates, Terms, and Conditions and Related Arrangements with GTE North, Case No. 96-832-TP-ARB, Arbitration Panel Report, at 18 (Ohio PUC Nov. 19, 1996), aff'd, Petition of AT&T Communications of Ohio for Arbitration of Interconnection Rates, Terms, and Conditions and Related Arrangements with GTE North Inc., Case No. 96-832-TP-ARB, Arbitration Award, at 14 (Ohio PUC Dec. 24, 1996); Application of AT&T Communications of Pennsylvania, Docket No. A-310125F000, Agreement for Withdrawal and Modification of Arbitration Issues, at 16 (Penn. PUC Sept. 20, 1996), aff'd, Petition of AT&T Communications of Pennsylvania, Inc. for Arbitration of Its Interconnection Request to Bell Atlantic-PA, Inc., Opinion and Order, at 3 (Pennsylvania PUC, issued November 25, 1996); AT&T Communications of the South Central States, Inc. Petition for Arbitration with GTE South, Incorporated and Contel of the South, Inc., Docket 25704, Arbitration Report and Recommendation, at 27 (Alabama Public Service Commission, January 31, 1997); Petition of MCI Telecomm. Corp. Pursuant to Section 252(b) of the Telecommunications Act of 1996 to Establish an Interconnection Agreement with Ameritech Ohio, Case No. 96-888-TP-ARB, Arbitration Award, at 11-12 (Ohio P.U.C., Jan. 9, 1997), aff'd, Arbitration Panel Report, at 8-9 (Ohio P.U.C., Dec. 2, 1997); Interconnection Agreement Negotiations Between AT&T Communications of the South Central States, Inc., and BellSouth Telecommunications, Inc., Docket No. 96-AD-0559, Arbitrator's Report, at 17 (Miss. Pub. Serv. Comm'n Mar. 7, 1997), aff'd, Interconnection Agreement Negotiations Between AT&T Communications of the South Central States, Inc., and BellSouth Telecomm., Inc., Docket No. 96-AD-0559, Order Approving Arbitrated Interconnection Agreement, at 10 (Miss. Pub. Serv. Comm'n May 8, 1997).

functionality or refusals to deliver unbundled loops. Indeed, failure to stringently enforce this requirement "would encourage incumbent LECs to 'hide' loops from competitors through the use of IDLC technology."[118] Instead of using remote terminals to enhance service quality, ILECs could use them to forestall competition. If ILECs were permitted to do so, many rural customers (who are located far from ILEC central offices, and therefore are increasingly being served through remote terminal-configured loops) would never have a choice of service providers. And as DLC becomes the dominant loop configuration, most customers may find themselves permanently dependent on ILECs (or their affiliates) to deliver advanced services.[119]

The Commission also should clarify that unbundling xDSL equipped loops is technically feasible even where equipment providing DSLAM-type functionality is deployed in a remote terminal and then subsequently multiplexed onto separate channels (data and voice) of a transmission system carrying the communications back to the central office.[120] As with IDLC and configurations where a DSLAM is installed in the central office, network equipment is currently

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118 Local Competition Order, ¶ 383.

119 Suburban and urban customers also may fall victim to loop hiding, as they increasingly are served by DLC-configured loops. See BellCore, "Role of RDTs in Supporting xDSL," at 7 (July 30, 1998) ("BellCore estimates that 27 million loops (19% of all loops) are being served by DLC, and that 50-70% of new loops are served by DLC.").

120 The Commission further should establish a presumption that if an ILEC deploys a DSLAM in a remote terminal, it is technically feasible for CLECs to deploy DSLAMs in the ILEC's remote terminals as well. Moreover, if an ILEC affiliate either deploys a DSLAM (or acquires such equipment through an asset transfer), and CLECs cannot reasonably collocate in a nondiscriminatory manner, then the advanced services affiliate should be treated as an ILEC and be required to make unbundled xDSL equipped loop available to requesting carriers.

manufactured that allows for separation of a particular carrier's traffic.[121] And the same competitive benefits the Commission identified with respect to IDLC configured loop unbundling apply with equal or greater force to xDSL equipped loops, regardless of whether the transmission enhancing equipment is located in the central office or a remote terminal.

Even with a clear requirement to deliver unbundled loops, however, competition-endangering disputes over how unbundling is to be accomplished will invariably arise absent additional Commission guidance. Both the Commission and the Eighth Circuit already have properly held that an incumbent must take whatever steps are necessary to meet its statutory obligation to provide nondiscriminatory access to network elements, even if that requires modifications to existing facilities.[122] In the DLC context, depending upon the particular circumstances (including, particularly, loop length, facility availability and where the entrant seeks to interconnect), the incumbent may be able to meet this requirement through a number of means. These include: (i) unbundling an xDSL capable "home run" copper loop;[123] (ii) unbundling an

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121 As with DSLAM deployment in the central office, a "nailed-up" virtual circuit could also be created in the ILEC's packet switch to allow for carrier-specific traffic identification when the DSLAM is deployed in a remote terminal. Id.

122 See Iowa Utils. Bd. v. FCC, 120 F.3d at 813, n.33.

123 Even when DLC equipment is deployed in a remote terminal, it may be possible to unbundle an xDSL capable loop using current technology and thereby gain access to the facilities necessary to deploy xDSL services. The loop feeder portion of "home run" copper pairs are often left in place when IDLC is deployed. At a CLEC's request, then, the ILEC could recondition the loop to provide voice or data services in part by reconnecting the loop distribution and loop feeder portions of the original "home run" copper pair. The ability of a CLEC to obtain an unbundled "home run" copper loop, however, does not ensure nondiscriminatory access. For example, prior to deployment of IDLC, the loop might have been 20,000 feet long and included load coils. Obviously, even if an xDSL service could be supported by a loop of that length, it would not be

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xDSL equipped loop;[124] and (iii) unbundling a basic loop.[125] The touchstone of the ILEC's decision in this regard must, however, be equality. Thus, for example, if an analog "home run" loop, because of its length, cannot provide comparable data transmission speeds, the incumbent should be required to unbundle an xDSL equipped loop. Further, the Commission should make clear that, regardless of the incumbent's preferences, any method of provisioning advanced services, voice service, or both on a loop passing through a remote terminal (or any other loop configuration) made available to an ILEC (or its affiliate) must be made available to CLECs in the same time interval and under the same terms and conditions.[126]

In addition, if the CLEC so desires, it should be permitted to interconnect at or near the remote terminal, through either fiber or copper transmission cables, and install its own

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competitive with an incumbent xDSL service that is offered over an IDLC loop with only 3,000 feet of copper between the DSLAM and the customer premises.

124 An xDSL equipped loop can be unbundled even when the incumbent has placed the DSLAM-type equipment in the remote terminal. The voice traffic could be handled like an unbundled basic loop, while data traffic could be routed through the deployment of a simple data switch between the loop and the ILEC's data switch, in the remote terminal or in the central office. Alternatively, a nailed-up virtual connection in the ILEC's data switch could be used to separate the CLEC's data traffic. See supra n.121.

125 Unbundling a basic loop could be accomplished in several ways. First, a "home run" copper pair or a UDLC facility may be available for unbundling. As with IDLC replacement of "home run" copper pairs, when ILECs replace UDLC with IDLC facilities, they often leave the UDLC facilities in-place, but unconnected. Second, as the Commission has previously found, the voice traffic could be de-multiplexed in the central office and separated by carrier. See Local Competition Order ¶ 383. Third, the CLEC could request that the incumbent deploy next generation IDLC equipment that allows for identification of carrier specific voice traffic.

126 See NPRM, ¶ 172.

transmission enhancing equipment (such as DSLAM functionality, DLC equipment, or both).[127] Indeed, loop "hiding" is of great concern when the ILEC's separate affiliate deploys a DSLAM in the remote terminal. An ILEC could offer up to 50 Mbps service on a 3,000 foot loop, but then "hide" the loop from the CLEC by claiming that the xDSL capable or equipped loop could not be unbundled, thereby forcing the entrant to offer a much slower speed service (over a copper loop) or no data service at all. If CLECs do not have the same access to remote terminal space as the incumbent's affiliate and the incumbent is not required to make its affiliate's DSLAM capability available to its competitors, then CLECs would not be able to deploy their own DSLAMs in the remote terminal or lease an xDSL equipped loop.

Remote terminal interconnection may require some collocation of CLEC equipment at the incumbent's remote terminal, a location where space is likely to be very limited. Consequently, the Commission must establish strict nondiscrimination rules regarding remote terminal collocation. First, because space is at a premium, the Commission should find that "cageless" collocation is the only practical solution. Indeed, most remote terminals could not accommodate a cage. Second, the ILEC (or its separate affiliate) should be required to remove any obsolete or out-of-service equipment from its remote terminals in order to maximize the available space. See infra Section III.E. Third, the Commission should consider limiting an ILEC's separate affiliate use of remote terminal space to 25% of the available space or a percentage equal to that afforded other requesting CLECs if more than three CLECs have space

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127 In many instances, interconnection at the remote terminal using copper cables will promote more efficient use of central office and remote terminal collocation space.

requests pending. At a minimum, such a limitation would promote nondiscriminatory access by ensuring that when the separate affiliate can collocate in a remote terminal, on average three other CLECs will have access to the same amount of collocation space at that remote terminal. Under this approach, where insufficient space is available for four carriers to collocate in the remote terminal, the ILEC, not its separate affiliate, would deploy any transmission enhancing equipment such as a DSLAM, making it possible for a CLEC to obtain an xDSL equipped loop.

In all events, if the ILEC's separate affiliate has deployed transmission enhancing equipment in a remote terminal and a CLEC cannot obtain the remote terminal collocation space it needs to offer competitive advanced services, then the transmission enhancing equipment should be subject to the Act's § 251 requirements regardless whether the incumbent has deployed that equipment as an incumbent or as a "separate affiliate."[128] This treatment of transmission enhancing equipment will help ensure that entrants can offer advanced services in those instances when essential remote terminal space is not available.

III. THE COMMISSION SHOULD ADOPT ADDITIONAL COLLOCATION REQUIREMENTS TO PROMOTE COMPETITION AMONG PROVIDERS OF ADVANCED SERVICES.

The Commission seeks comment on a number of issues relating to collocation. Specifically, the Commission asks whether it should (1) create national collocation standards; (2) enlarge upon the categories of equipment permitted in collocation spaces; (3) expand the types of collocation arrangements allowed; and (4) adopt any other new collocation requirements.[129]

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128 See supra Section I.C.

129 NPRM, ¶¶ 118-150. The Local Competition Order expressly "reserve[d] the right to reexamine" the Commission's collocation policies "if it appears that such action would

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Reform of the Commission's collocation policies will not only promote the development of advanced services, but also will help stimulate local competition generally. Having now had some experience with collocation, it is apparent to AT&T that the current practices and standards that the ILECs have developed for collocation have produced a process that is inefficient, frustrating, contentious, and needlessly complicated and expensive. In addition, the ILEC practices are extraordinarily and unnecessarily "space intensive" -- the ILEC approach to physical collocation consumes far more floor space than other possible alternatives. Given that collocators are increasingly being told that central office collocation space is scarce, these inefficiencies cannot be accepted if advanced data service competition is to flourish. AT&T offers several practical suggestions as to ways that collocation can be managed in a more cost-effective and space-effective manner.

A. National Collocation Standards Are Appropriate And Necessary.

AT&T agrees with the broad principle that competition for advanced services can be enhanced if the Commission adopts additional national standards that can be used to establish a "floor" on collocation requirements, which standards may be improved upon (but not diminished) by the states.[130] Obviously the value of that "floor" is entirely dependent on the content and effectiveness of the new rules that the Commission elects to adopt, and AT&T below discusses its views on the appropriate standards that should be adopted. Moreover, any new rules adopted by

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further achievement of the 1996 Act's procompetitive goals." Local Competition Order, ¶ 581.

130 NPRM, ¶¶ 123-125

this Commission will be of little value if ILECs can successfully evade them by playing state and federal rules off against one another,[131] and thus the Commission must ensure that its rules are not easily evaded.

The Commission should require, as a minimum standard, that any collocation arrangements and processes offered by any ILEC are presumed to be feasible for any other similarly situated ILEC, absent a clear showing that the practices being followed by the other ILEC are not possible in the second ILEC's offices. In this way, the best collocation arrangements available in the industry can become widespread. For example, the Commission could rely on ILEC "best practices" to establish requirements governing the time that an ILEC should take to (1) respond to a request for collocation; (2) process an application for collocation; (3) prepare a space for collocation; or (4) supply floor plans and other documentation in support of any refusal to collocate.

B. The Commission Should Expand The Types Of Equipment That May Be Collocated

The Commission tentatively concludes that ILECs "should not be permitted to impede competing carriers from offering advanced services by imposing unnecessary restrictions on the type of equipment that competing carriers may collocate."[132] The Commission observes

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131 For example, one RBOC informed AT&T's local services affiliate Teleport Communications Group Inc. ("TCG") that it would not be allowed to order unbundled elements to be terminated into a collocation space ordered pursuant to an FCC tariff. In the RBOC's view unbundled elements, ordered under an interconnection agreement, could only be provided through a collocation arrangement ordered pursuant to a state interconnection agreement. While the RBOC eventually relented and permitted the services to be ordered, TCG was needlessly delayed in providing services.

132 NPRM, ¶ 126.

that § 251(c)(6) requires ILECs to permit collocation of "equipment necessary for interconnection or access to unbundled network elements," and that its Local Competition Order only required collocation of equipment used for (1) interconnection for the transmission and routing of telephone exchange service and exchange access pursuant to § 251(c)(2); and (2) access to unbundled network elements for the provision of a telecommunications service pursuant to § 251(c)(3).[133] The Commission asks whether it should expand the list of eligible equipment to include devices which include switching functionality. The Commission also observes (as it must) that ILECs are obligated to allow competitors to collocate any equipment that a separate subsidiary is permitted to collocate.

In its Local Competition Order, the Commission observed that technology has "tended to blur the line between switching equipment and multiplexing equipment."[134] In the more than two years since the Commission issued that Order, the line between circuit switching and multiplexing has become increasingly cloudy, as new generations of DLC and other systems have broadened the ability of carriers to connect subscriber line facilities seamlessly to devices with switching capabilities. The line grows even more indistinct when discussing advanced services, where an explosion in new devices for IP protocol, ATM, frame relay, and other technologies makes any attempt to draw definitional distinctions between functions a futile exercise. The variety of devices that can be "used and useful" in obtaining access to unbundled elements and interconnection to the ILEC's network continues to grow.

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133 Id., ¶ 126.

134 Local Competition Order ¶ 581.

Were there no limits on collocation space, collocators could be left relatively free of restrictions on the type of equipment they wish to locate in a collocation space. Collocation space has been the most expensive form of real estate a carrier can utilize, and thus a competitor would only utilize that space where it makes sound economic and engineering sense. The difficulty, of course, is that physical collocation space is finite, and already AT&T has encountered a number of instances in which ILECs have claimed that there is no physical collocation space available in a central office. Accordingly, the Commission cannot be completely indifferent to the uses made of collocation space, and some reasonable limits on the types of equipment that can be placed in collocation spaces are appropriate. The Commission must also consider the complications introduced by the presence of an ILEC's advanced services affiliate, whose incentives in the use of collocation space differ from those of an unaffiliated entity.

AT&T has sought in numerous state interconnection arbitrations to expand on the categories of equipment that can be placed in a collocation space. In addition to ordinary circuit termination equipment, AT&T has sought the right to collocate remote switching modules ("RSMs") in many of its interconnection arbitrations.[135] There are a number of circumstances in which the use of an RSM may be more cost- and space-efficient than the use of multiplexing

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[135] RSMs provide circuit termination, multiplexing and switching functions. RSMs can switch calls among the lines that terminate at the RSM; however, an RSM cannot function as a "stand-alone" switch, and is dependent on the host switch for more complex functions such as out of band signaling, recording and maintenance diagnostics.

equipment alone.[136] Allowing the use of RSMs permits CLECs to take advantage of such efficiencies.[137]

In over two-thirds of AT&T's arbitration cases, the state commissions determined that AT&T should be allowed to collocate an RSM.[138] In some of those situations, the sate commission, over AT&T's strong objections, found that AT&T could only collocate an RSM if it disabled the RSM's switching function. Clearly, if there is an alternate basis to locate an RSM in the central office, disabling an embedded switching function makes no sense whatsoever.

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136 For example, in instances where collocation is being used to access subscriber lines, an RSM may provide a lower capital cost solution compared, for example, to the use of a DLC system with all switching handled at a distant switch. An RSM becomes an attractive solution once lines reach a few thousand, and modern RSM type devices can handle even larger line volumes. One important advantage of using RSMs in collocation arrangements is their ability to switch "intraoffice" calls directly, without the need to backhaul the traffic to a remote host switch. This improves the efficiency of the collocator's trunking facilities and can lower overall costs, which is one of the reasons that RSMs are used widely in ILEC networks.

137 The use of an RSM in a collocation space does not allow a CLEC to provide a full range of local services without operating a separate host switch at a separate location. Thus, there is no reason to fear that a CLEC can provide all of its switching functions through use of an RSM. Moreover, the higher initial or start-up cost of RSMs compared to standard transmission equipment makes it economically impractical to collocate an RSM unless the CLEC has or expects the line volumes necessary to support such an installation. Thus, there is no reason for concern that RSMs would unnecessarily or gratuitously occupy collocated space.

138 AT&T won the right to collocate RSMs in Arizona, Iowa, Kansas, Massachusetts, Maine, Maryland, Montana, North Dakota, Nebraska, New Mexico, Nevada, New York, Oregon, Pennsylvania, South Dakota, and Washington, among others. The United States District Court for the Western District of Washington, in affirming the Washington Utilities and Transportation Commission decision to permit collocation of RSMs, noted that the term "necessary" did not mean "indispensable" but "used and useful." U S West Communications, Inc. v. AT&T Communications of the Pacific Northwest, Case No. C97-1320 R, Order Granting in Part and Denying in Part Cross-Motions for Summary Judgment, July 21, 1998, p. 4.

Accordingly, it would be appropriate as a first step for the Commission to adopt a rule that expressly permits collocators to place RSMs in collocation arrangements, and that prohibits any limitations or restrictions on the use of the RSM's capabilities.

AT&T similarly recommends adoption of a Commission rule permitting the collocation of equipment used and useful for advanced services, such as packet switching devices. Given the variety and speed of development of these devices, it would be unwise for the Commission to attempt generically to list all possible varieties of such equipment. Instead, the Commission should permit the collocation of any advanced data equipment that is directly connected to unbundled elements, or is used directly to interconnect with the network of the ILEC.

AT&T recognizes that it is appropriate to require collocators to comply with reasonable safety requirements. However, such requirements should be focused solely upon protecting the networks and personnel of the incumbent and other interconnected carriers from harm. Thus, no equipment performance reliability standards, NEBS-compliant or otherwise, should be used to limit a competitor's ability to collocate specific equipment in an incumbent's central office. Performance reliability issues affect the quality of a CLEC's services, not safety. Together with price, performance is a key part of the competitive marketplace, and ILECs should not be able to control the performance of their competitors' equipment.

The Commission should, therefore, limit the equipment qualification standards that can be applied by ILECs to collocator equipment.[139] The Commission should make clear that a CLEC may collocate equipment that conforms to NEBS safety standards, irrespective of whether it also meets NEBS performance reliability standards, or whether the ILEC happens to use that equipment itself. An ILEC should also permit a collocator to collocate equipment that is not compliant with applicable NEBS safety standards if it is used by the incumbent, its affiliate, or in any other collocation arrangement in the ILEC's network.[140] Finally, if the equipment is not NEBS-compliant and is not already being used by the ILEC, its affiliate or another collocator, placement in the ILEC central office should still be permitted, provided that the CLEC demonstrates to the ILEC that the equipment will not cause a significant risk of harm to interconnected networks or ILEC personnel

C. Adoption Of Additional Types Of Collocation Arrangements Is Necessary To Support Competition.

The Commission, recognizing that space in ILEC premises is limited, tentatively concludes that ILECs should offer collocation arrangements that more efficiently use central office space. Among the alternatives noted by the Commission are the use of shared collocation

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139 The Commission should establish an equipment registration program, similar to Part 68, to qualify equipment that can be placed in a central office collocation arrangement. Such a program would eliminate disputes over the equipment that can properly be placed in central offices.

140 In order to facilitate the implementation of such a rule, incumbents should be required to publicly disclose (through a web page or similar method) all approved equipment and all equipment in use. This will help CLECs to make decisions regarding which equipment to collocate and will head off unnecessary disputes

cages, the option to request collocation cages of any size without any minimum requirement, and "cageless" collocation.

Adoption of additional forms of collocation will have clear pro-competitive benefits. It will increase the availability of collocation space, reduce the costs of collocation, increase collocation efficiency, and increase the speed of collocation deployment. Accordingly, AT&T strongly supports the adoption of new forms of collocation.

1. ILECs should not be permitted to require use of individual collocation cages.

The current "cage-based" collocation approach practiced by the ILECs has the effect, if not the intention, of seriously limiting the amount of available collocation space, and forcing what little space there is available to be used in a very inefficient manner. For example, the ILEC insistence on ten by ten foot "cages" is clearly inefficient. A ten by ten cage can only accommodate six bays of equipment (in two three bay rows), since so much of the area must be left open to provide doorway access and walkways around the equipment. The construction of the individual cages themselves and other "common areas" around the cages also substantially reduces the number of bays of equipment that could otherwise be placed in a given area. Looking only at the utilization of the "caged" area itself, placement of six bays in 100 square feet means that each bay consumes 16.67 square feet of the caged space. It is self evident that in a cageless situation the utilization of space would be much higher, since the "lineups" of bays can be continuous across the room, rather than interrupted every three bays as in the caged collocation

arrangement.[141] The ILEC "caged" collocation model also involves substantial up front expenses.[142]

The requirement that physical collocation areas must be discrete and reachable only by separate entrances also reduces the number of places within a given central office that can be considered for collocation. For example, if space is available on a floor but it is too far from a point where a separate entrance can be constructed, many ILECs will consider that there is no space available.

The insistence on caging competitors leads to many other undesirable consequences. Because of the need to construct cages and separate entrances, the first party seeking collocation faces delays of many months before it can locate its first piece of equipment in the collocation space. Even later collocators still face delays of a few months before they can be operational in an office. Such delays are unnecessary given the very limited objectives of the collocator -- after all, the collocator simply wants to locate one or more bays of equipment in a central office that is already configured to accept such bays. Under ordinary circumstances,

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141 Allowing customers to order cages in units smaller than 100 square feet would not improve the utilization of space. In fact, allowing such arrangements would only decrease the efficiency of the collocation arrangement. For example, a 25 square foot cage would only permit the placement of a single bay of equipment, given the need for clearance and walkways within that small space. A ten by ten cage requires 16.67 square feet per bay, while cageless collocation is even more efficient. Accordingly, smaller individual cages will only exacerbate the shortage of collocation space.

142 Site preparation and related initial costs can be a significant barrier to entry if the first competitor is obligated to bear the entire amount. Accordingly, plans that share those costs will encourage collocation and greater competition. For example, it would be reasonable to require that a first collocator who asks for 200 square feet of space only pay

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installing a few bays of equipment is something that the ILEC can do for itself in days, not months, and at modest cost. The ILEC insistence that the collocator must first construct a whole new infrastructure in its office means that the competitor can never match the speed to market of the ILEC at that central office, or its cost of equipment deployment.

These problems become especially acute in smaller central offices. Because of the space constraints and substantial costs associated with building this caged infrastructure, competitors are unable to deploy their equipment in smaller central office locations. First, it may simply not be physically possible to build cages -- particularly cages with separate entrances -- in many smaller central offices. Second, even if space is available, economics may preclude construction. Given that some ILECs have demanded up front payments of $500,000 or more for physical collocation arrangements, and even the more "reasonable" among them demand $50,000 and up, the competitor can only consider serving customers where the potential market is large enough to recoup these high initial costs. These basic economics -- made necessary by the ILEC preference for cages -- has the effect of fencing off the many ILEC customers served by smaller central offices from the availability of competitive choice. Since many of these smaller offices are in sparsely populated areas, ILEC collocation policies will make it difficult to bring the benefits of even simple circuit switched voice competition, let alone advanced services competition, to substantial numbers of Americans.

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20% of the start up costs if those costs are being incurred to prepare a 1,000 square foot area.

2. ILEC "POT" bay requirements should be abolished.

A number of ILECs insist on the use of "Point of Termination" bays, which decrease the efficiency of collocation space utilization.[143] Not only do these POT bays replicate the function that is already performed by the ILEC's Main Distribution Frame, but they cause a further inefficiency in the use of equipment. By insisting on the use of POT bays, the ILEC is consuming the space otherwise available for collocation with additional and redundant bays. Roughly one POT bay is required for every two to three bays of collocator equipment in a typical collocation installation, which means that the ILEC POT bay requirement is decreasing the efficiency of physical collocation by 33% to 50%. The Commission could immediately improve the efficiency of collocation by declaring that ILECs cannot require the use of POT bays in the future.[144]

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143 A "POT" bay provides terminal blocks for the connection of the collocator's circuits to the ILEC's circuits. A POT bay cannot be used as a test point, and is not used by the ILEC itself in making connections between its equipment in the central office. AT&T's experience is also that the POT bay is often a source of trouble reports, since it provides another location in the network where mis-wiring of circuits can (and does) occur.

144 The Commission investigated the legitimacy of POT bays. See Local Exchange Carriers' Rates, Terms, And Conditions For Expanded Interconnection Through Physical Collocation For Special Access And Switched Transport, 12 FCC Rcd 18730, 18779-18783 (1997).

The Commission has stopped short of banning POT bays despite collocator requests that it do so. However, not all ILECs require POT bays, and ILECs do not use POT bays for their own equipment, which indicates that POT bays are not necessary. And while ILEC proposals that allow the collocator to build the POT bay within its own collocation space do reduce the excess costs imposed by POT bays somewhat, that proposal does nothing to improve the efficiency of the utilization of collocation space. Requiring the construction of POT bays inside the ten by ten foot collocation cages further reduces the efficiency of

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3. Alternative approaches to collocation should be adopted.

While elimination of POT bay requirements will free up some space in those ILEC central offices where that requirement applies, this offers only a minor improvement. So long as ILECs insist on individual cages for their competitors, little can be done to increase the available space, decrease the costs and delays, and increase the efficiency and practicality of collocation. Accordingly, the NPRM offers two models for "communal" collocation. The first is the "shared cage" situation,[145] in which the ILEC provides a single large cage and a number of competitors collocate their equipment in that facility.[146] The second is "cageless" collocation.

a. Shared cage collocation

The shared cage model has a number of advantages over the single cage model.[147] First, it can permit more efficient utilization of space, since bays can be placed side by side as in a

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the collocator's space, by taking up space on its six bays with equipment that is demonstrably unnecessary.

145 The term "shared cage" is also used by some ILECs to describe a situation in which a collocator is permitted to "sublease" portions of its individual cage to other parties. As used herein, "shared cage" refers to a large common cage area built by the ILEC to serve multiple collocators.

146 As noted in the NPRM, Southwestern Bell's tariff offers shared collocation. See NPRM, ¶139. Additionally, TCG's Interconnection Agreement with Pacific Bell also permits the use of shared collocation arrangements in certain circumstances.

147 The only potential disadvantage of a shared cage is the reduced security for the equipment located within the shared area, versus equipment that is placed in a collocation cage that is used exclusively by one party. Such concerns may, however, be more hypothetical than real. TCG has offered shared collocation arrangements within its small central office facilities for some time, and has not encountered any significant security problems. Additionally, in a shared arrangement, parties are free to place locked cabinets around

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normal central office environment, and presumably a shared cage of a sufficient size can approach the efficiency of cageless collocation. Second, use of a shared cage promises some improvement in costs, since a single large cage can presumably be developed less expensively than a number of smaller ones.[148] Third, use of a shared cage introduces roughly the same amount of delay for the first collocator, although later collocators can presumably be served more quickly since individual cages are not needed. Accordingly, the shared cage offers some improvement. However, assuming that the ILEC continues to insist on a separate entrance, the shared cage concept would not appear to offer much hope of enlarging the total "footprint" of space available for collocation in a given central office. The "shared cage" is therefore an incremental improvement in the collocation product line, but not the best option to meet the industry's future needs.

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their equipment if they so desire. Moreover, individual cages do not totally protect the collocator's operations in any event. For example, Bell Atlantic North requires the use of POT bays, which are typically located in the "common areas" of the collocation space and are thus accessible to any person entering the space. Since all of the collocator's connections to Bell Atlantic North's network pass through the POT bay, other collocator employees entering the common space, as well as Bell Atlantic North employees, have access to the collocator's network facilities even though they are within an individual cage.

148 A shared cage would, however, typically represent a higher initial installation cost than a single ten by ten foot cage. If the ILEC applies cost recovery approaches that make the initial installation of a shared cage prohibitively expensive, that will have the effect of discouraging the efficient use of shared collocation space, even though the shared arrangement is superior in the long term. Accordingly, the Commission should establish limits on the recovery of non-recurring costs of shared collocation installations that reflect the long term efficiencies of the arrangement

b. "Cageless" collocation.

The most promising alternative suggested in the NPRM is the option of "cageless collocation." Cageless collocation is available today in U S West's territory.[149] Cageless collocation allows collocators to place their equipment anywhere in a central office where there is available space, without the need to build a cage or similar enclosure, or install a separate entrance. This form of collocation allows competitors to utilize any unused conditioned space in the central office, and therefore is the only option that will substantially increase the total available space for collocation. Cageless collocation is also the only form of collocation that is likely to have any applicability in remote ILEC facilities, such as controlled environmental vaults ("CEVs"), where space limitations would presumably make caged collocation impractical. In a cageless collocation arrangement, separate entrances to a confined collocation area are not used.[150] The rationale for separate entrances -- to permit collocators to enter a caged-off area dedicated to their exclusive use -- simply does not apply where space is shared.[151]

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149 AT&T has negotiated a number of cageless collocation arrangements with U S West, and in fact has a total of more than twenty shared collocation arrangements either in operation or in process, many of them "cageless "

150 It would be reasonable for an ILEC to require collocators to use a separate or designated entrance to the central office as a security measure, so long as they have free access to their equipment once they are within the office

151 U S West does not require separate entrances, escorts, or special arrangements in its cageless arrangements, but permits the CLEC's technicians to work side by side with its technicians. In fact, in some U S West offices, CLEC technicians walk through U S West's equipment areas to get to their collocation cages, so the removal of the collocation cage requirement does not introduce any new persons into the U S West area.

Cageless collocation offers a number of substantial advantages over any "caged" alternative. Obviously, the "build out" costs of cageless collocation are a tiny fraction of what might be required for a caged collocation arrangement. Cageless collocation also reduces concerns about the availability of collocation space in a central office. Since any available bay space in an office can be used to serve a collocator in a cageless collocation situation, the collocators will not run out of space unless the ILEC runs out of space itself. Moreover, cageless collocation should reduce the number of situations in which "raw" or unconditioned floor space must be upgraded to provide the power and environmental controls necessary for the placement of equipment. The ILEC can, in the first instance, utilize conditioned but unused space before having to undertake the construction work necessary to upgrade other space in the central office.

Security issues should not stand in the way of cageless collocation. Not only has U S West been able to adopt cageless collocation, but the Internet offers a compelling example of a cageless collocation arrangement that has successfully operated without intrusive security measures. The Internet is linked through a number of Network Access Points or NAPs, such as "MAE East" and "MAE West." These NAPs are comparable to central offices, since multiple parties locate equipment in these centers and interconnect. Typically, these NAPs are organized as cageless collocation arrangements, with each company's equipment located side-by-side in a completely open environment. These NAP sites handle vast amounts of both U.S. and worldwide Internet traffic, and are critical links in interstate and international commerce. Despite these facts, its operators have never insisted on cages for one another.

Rather than allowing purported security concerns to become impediments to cageless collocation, the Commission should adopt reasonable and common sense security measures. U S West, for example, requires that collocator technicians be registered, have photo

identification cards taken, and utilize "smart" pass cards that track when they arrive at the facility.[152] This provides an accurate record of what employees are in the facility at a given time.[153] It would also be appropriate to require that all parties with equipment in common areas of the central office provide prominently visible labels to clearly identify their equipment and thereby reduce the chances of technician error. Escorted access should be unnecessary in such cases, and certainly is the least desirable alternative. Escorted access roughly doubles the collocator's costs of operation. Escort requirements also present problems to collocators who need to correct emergency situations or who need access to unmanned offices but cannot get in the building for critical minutes -- if not hours -- while waiting for the ILEC's escort to arrive. Moreover, ILECs permit a number of "non-ILEC" persons into their central office facilities every day, including equipment vendor technicians, contractors, maintenance workers, and temporary employees, among others. For these reasons the Commission should not permit ILECs to require escorts.

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152 While for fire safety purposes it may not be possible to insist on the use of pass cards to exit the ILEC facility, it would not be unreasonable to require, as a policy matter, that collocator technicians "swipe" their pass cards as they leave to provide the ILEC with a complete record of all individuals present in a facility at a given time.

153 Because virtually all network equipment is remotely monitored and alarmed, any problems that would occur can be tracked and the exact time the incident occurred can be determined. Accordingly, if any errors or mistakes occur in the maintenance of equipment in a central office, a pass card system will indicate what individuals were in the facility at the time the problem occurred.

D. The Allocation Of Collocation Space Must Be Handled In A Fair And Competitively Neutral Manner

Two of the reasons for the scarcity in collocation space today are the inefficient utilization of space inherent in the use of separate cages, and the limitations on the location of collocation facilities because of the insistence on separate entrances. Elimination of the POT bay requirement, together with the adoption of cageless collocation, should improve -- perhaps substantially -- the availability of collocation space.

Even with these improvements, however, it is possible that collocation shortages will develop. Accordingly, the Commission should require that ILECs take all reasonable steps to maximize the amount of space available for collocation. Specifically, the Commission should require incumbents to remove obsolete or out-of-service equipment[154] and non-network related functions that are using up scarce space in ILEC central office buildings. The Commission should also hold that ILECs are not permitted to reserve space for their own use more than one year prior to the date they expect to use it, if they have present demands from other parties to use that space for collocation.[155]

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154 Indeed, the ILEC's depreciation reserve should have already accumulated the necessary funds to pay for the removal of retired equipment, and accordingly the ILEC should not be allowed to assess any charge for the removal of obsolete material and equipment.

155 Additionally, BOCs should not be allowed to reserve any space in their central offices for future interLATA toll equipment, since they have no current legal right to offer such services.

The Commission's authority to issue such rules is found in § 251(c)(6) itself, which requires ILECs to make physical collocation available unless it is "not practical for technical reasons or because of space limitations." This portion of the statute should be interpreted to mean that an incumbent may not deny a request for physical collocation under this section unless it shows that:

(1) it has removed all obsolete and unused equipment from the premises;

(2) all non-network operations functions in the building have been eliminated and moved elsewhere; and

(3) it cannot reconfigure the equipment in its office within a reasonable time to accommodate additional collocation requests.[156]

The Commission both can and should require incumbents to take such actions, in order to maximize the availability of space for collocation. In particular, the ILEC should be required to inventory its space in each central office to track what space is being used for administrative rather than network purposes.[157] The ILEC should be required to provide the prospective collocator with a detailed floor plan of the central office in any situation in which the

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156 Even if an incumbent cannot make space available in time to meet the specific request of a particular carrier, it should have an ongoing duty to apply reasonable space management techniques to make additional space available for future collocation requests.

157 ILECs must also be required to seek a physical collocation exemption when they first learn that they have no space available, rather than wait until the "next" collocator arrives with the request. AT&T has encountered a number of circumstances in which ILECs advise AT&T that they have no collocation space but have not received any state exemption from providing collocation, since AT&T is supposedly the first carrier to ask for space and be turned down. The ILECs should receive the exemption in advance as required by the state statute. The Commission should also require ILECs to maintain a publicly and conveniently accessible list of the offices where physical collocation is available and where it is not.