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

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In the Matters of	)	
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Deployment of Wireline Services Offering Advanced Telecommunications Capability	)	CC Docket No. 98-147
	)	
and	)	
	)	
Implementation of the Local Competition Provisions of the Telecommunications Act of 1996	)	CC Docket No. 96-98

COMMENTS OF
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SUMMARY

Technology has drastically changed the topology of the telecommunications network. What was once a network characterized by simple home-run copper loops is now a mixed network of copper and next generation digital loop carrier ("NGDLC") loops. These loops which once provided simple POTS, now provide a myriad of advanced services. What was once a network of lines running from central offices to end-user premises is now a network populated with remote terminals that extend and expand the reach of telecommunications services. Soon a farmer in Iowa and a businessperson in Manhattan will be able to partake of a similar dizzying array of telecommunications services bringing a variety of media into their home through the same loop that a few years ago just provided dial tone and POTS.

This technology has also drastically changed the dynamic of being a telecommunications carrier. Services which once demanded the use of numerous pieces of large immobile equipment can now be provided through networks fueled by line cards and multi-functional equipment. Soon the very loop which once transmitted services to a single customer will be divided into various bandwidths and rates of transmission such that a multitude of customers will be able to receive a multitude of services over the same simple loop.

One would anticipate that this technology would have a liberating effect on the marketplace benefiting all concerned. Yet competitive local exchange carriers have seen their network access options, and their ability to partake of such developments, actually diminish since 1996. For years, CLECs have struggled to gain access to DLC facilities; such access being impeded by a combination to technical limitations to unbundling DLC facilities and ILEC practices that effectively segregated these loops. The harm of such segregation was mitigated by

the availability of copper facilities that CLECs could use to provide the services they sought to provide. Recently, however, the ILECs have sought to take advantage of the next generation of DLC technology by deploying NGDLC loops and remote terminals throughout their network. Project Pronto is merely the first step of this roll-out which is sure to dominate the industry for the next few years. This roll-out of NGDLC facilities, however, imperils copper facilities as ILECs no longer have need for such facilities and may seek to retire them.

This loss of copper facilities is compounded by two other factors. One is the lack of collocation space at what has become the de facto central office of the new NGDLC network – the remote terminal. Without this collocation space, CLECs will not be able to collocate their equipment in these remote terminals and thereby will effectively be precluded from accessing customers served by these remote terminals. As deployment of remote terminals increases, this will mean more and more customers rendered unavailable to CLECs. Even if the CLEC gains access to the remote terminal, ILEC deployment of equipment at these terminals also limits the types of services that a CLEC can provide to its customers. For instance, the type of line cards deployed by the ILEC will dictate what types of xDSL service may be provided.

The other factor is ILEC attempts to limit the type of equipment that may be collocated at their premises. ILECs have continually sought to limit the types of equipment a CLEC is able to collocate at its premises. If ILECs are given the opportunity to seize upon a restrictive definition of what equipment is necessary for interconnection or access to unbundled network elements, then CLECs will be able to only collocate equipment with limited functionality while ILECs will be able to take advantage of multi-functional equipment that reduces their cost of providing service and increases the array of services that can be provided.

These factors have all conspired to limit CLEC access to the facility that the

Telecommunications Act of 1996 was designed to promote access to – the loop. The Commission was prescient to combine consideration of collocation issues with consideration of NGDLC issues because they both are central to the continued ability of a CLEC to be able to access the full facility and functionality of the loop. A restrictive definition of what types of equipment CLECs may collocate, combined with allowing ILEC NGDLC deployment to go unchecked, combined with allowing ILECs to retire spare copper facilities, will imperil CLEC access to the loop facility and its ability to provide a full variety of services to its customers.

The Project Pronto deployment encapsulates this phenomenon. SBC's deployment of NGDLC has greatly altered, and will continue to alter, its loop network architecture. The deployment will impact millions of customers. This deployment has been fraught with problems for CLECs, however. SBC maintained that many of these terminals did not have space for CLECs to collocate. Even if the terminals did have space, SBC claimed that only one type of line card could be collocated, which was, of course, the type of line cards they were deploying. These line cards were limited to providing the type xDSL service SBC sought to provide. SBC also maintained that it had the autonomy to retire its copper facilities as it saw fit. If you couple these developments with restrictions on a CLEC's ability to collocate, one can easily see how a CLEC's ability to access customers and provide services will be imperiled.

Luckily the potential for these harms was mitigated by the commitments from SBC exacted by this Commission in the *Project Pronto* proceeding. The potential for such harm exists in other ILEC territories, however. In fact, the potential continues to exist in SBC/Ameritech territory as these are only commitments exacted through merger conditions and, thus, limited in duration. The commitments made by SBC, and the recent commitments made by Qwest Communications to expand competitive access to its networks, are good first steps. These

commitments demonstrate the recognition on the part of the ILECs that measures need to be taken to ensure continued competitive access to their facilities, and demonstrate that such actions are feasible. The Commission needs to exercise its statutory authority to promulgate pro-competitive rules that formalize and build upon these commitments to ensure continued CLEC access to the full variety of loop facilities and enables CLECs to continue to provide a full array of services. In these comments, DSLnet Communications, LLC ("DSLnet") will provide an overview of the various issues invoked by the Commission's NPRMs and advocate specific pro-competitive rules that best address these issues. Among the actions DSLnet urges are the following:

- The maintenance of spare copper facilities;
- A redefinition of the loop and transport UNEs to incorporate advanced services electronics;
- The designation of new unbundled network elements to account for new technological advancements;
- The implementation of competitive parity in regard to collocation at both central offices and remote terminals;
- A definition of equipment necessary for interconnection or access to unbundled network elements that will allow a CLEC to collocate multi-functional equipment;
- A requirement that ILECs permit CLECs to self-provision cross-connections between collocators in ILEC central offices;
- The re-establishment of reasonable general collocation provisioning standards;
- The establishment of minimum provisioning intervals for the full range of collocation arrangements;
- That CLECs be allowed to collocate line cards and DSLAMs, and other equipment

necessary for interconnection or access to unbundled network elements at remote terminals;

- That ILECs be required to provide sufficient space at remote terminals;
- The implementation of a national space reservation policy for both central offices and remote terminals;
- A modification of collocation rules to facilitate line sharing.

These rules will ensure that CLECs have continued access to all types of loop facilities – copper, DLC, or dark fiber. These rules will also promote the provisioning of the full array of services made possible by technological developments, and, thus, unleash the full potential of telecommunications equipment and facilities. If the Commission does not take such actions then only ILECs and their customers will be able to take advantage of the technological developments. Among other things, the 1996 Act was designed to promote the deployment of advanced services by promoting competition in the local services marketplace. This Commission must act promptly and forcefully to fulfill this statutory mandate.

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COMMENTS OF
DSLnet COMMUNICATIONS, LLC

DSLnet Communications, LLC ("DSLnet") submits these comments in response to the Commission's notices of proposed rulemaking[1] in the above-captioned proceedings concerning issues raised on remand[2] of the *Collocation Order*[3] and concerning the need for revision of the

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[1] *In the Matters of Deployment of Wireline Services Offering Advanced Telecommunications Capability and Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket Nos. 98-147, 96-98, Order on Reconsideration and Second Further Notice of Proposed Rulemaking in CC Docket No. 98-147, and Fifth Further Notice of Proposed Rulemaking in CC Docket No. 96-98, FCC 00-297 (August 10, 2000)("*Collocation Reconsideration Order and NPRM*").

[2] *GTE Service Corp v. FCC*, 205 F.3d 416 (D.C. Cir. 2000)("*GTE v. FCC*").

[3] *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, First Report and Order and Further Notice of Proposed Rulemaking, CC Docket No. 98-147, 14 FCC Rcd 4761 (1999)("*Collocation Order*"), *aff'd in part and remanded in part sub. nom. GTE v. FCC, supra.*

Commission's local competition rules in light of deployment of next generation network architecture by incumbent local exchange carriers ('ILECs").

I. COPPER LOOPS MUST BE MAINTAINED

The Commission seeks comment on the impact the ILEC deployment of next generation digital loop carrier architecture ("NGDLC") will have on copper facilities, *i.e.*, what will happen to these copper facilities when the NGDLC is deployed as an overlay of existing copper facilities. The Commission needs to ensure that these copper facilities are maintained in such a manner that they provide a viable alternate source of CLEC access to customers. The importance of these facilities has been by no means lessened by the NGDLC architecture, and in some cases, their importance has been heightened, particularly to those CLECs whose business plans are focused on the use of copper facilities. Many CLECs who have entered the local exchange market did so on the assumption that copper facilities will be available for the foreseeable future. These CLECs have tailored their product offerings to the use of copper facilities.

One of the main reasons this Commission unbundled the subloop element was to facilitate CLEC access to customers in an DLC environment.[4] While, as shown below, technology has provided more ways for CLECs to access DLC customers,[5] ILEC deployment of the NGDLC architecture, and the restrictions the ILECs have imposed, ensure that CLECs will still have difficulties accessing their customers under the NGDLC architecture. Maintaining existing copper facilities in the subloop will give CLECs more options in providing such access.

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[4] *In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, FCC 99-238, ¶ 213 (1999)("*UNE Remand Order*"). At that time CLEC access to the IDLC loop at the central office was not technically feasible, so the CLEC needed to access the loop at the remote terminal. *Id.* at ¶ 217.

As discussed below, the lack of collocation space for CLEC DSLAMs in many NGDLC remote terminals coupled with interoperability issues with line cards could effectively preclude a CLEC's ability even to access its customers, much less to provide the services it seeks to offer to its customers. The ILECs and their vendors have trumpeted the continued availability of copper facilities as a solution.[6] For copper to remain a viable alternative to the CLECs, the spare copper facilities need to be maintained.

The concerns of the CLECs over their ability to access customers in the NGDLC environment have been well-documented in Docket 98-141 and other dockets. These are not idle concerns. SBC states that it plans to move "'many customers from the existing copper network to a new fiber network' and that it may shorten the useful life of its existing facilities after migrating customers to its new network architecture."[7]

In addition to addressing the CLEC access issues, the continued use of copper facilities will be beneficial from a network perspective basis as well. Copper remains the most economical medium for the distribution portion of the loop, particularly given the high cost of

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[5] *See, e.g.,* CC Docket 98-141, Reply Comments of Alcatel USA at p. 2 (March 10, 2000)("*Alcatel Reply Comments*").

[6] CC Docket 98-141, Reply Comments of SBC Communications, Inc. In Support of a Determination that SBC Incumbent LECs May Own Combination Plug/Cards and Optical Concentration Devices at p. 15 (March 10, 2000)("*SBC Reply Comments*"); *Alcatel Reply Comments* at p. 5.

[7] *In the Matter of Ameritech Corp., Transferor, and SBC Communications, Inc., Transferee, 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 Rules*, CC Docket No. 98-141, ASD File No. 99-49, Second Memorandum Opinion and Order, FCC 00-336, ¶ 38, n. 112 (Sept. 8, 2000)("*Project Pronto Order*").

fiber-to-the-curb technology.[8] In addition, many of the technological advances described in regard to fiber technology are occurring with copper as well. ILECs recognize the huge investment they have made in the copper infrastructure and are looking to develop their fiber networks while at the same time getting more out of copper pairs.[9] Thus, for the near future, at least, copper and fiber will co-exist in ILEC networks.

This explains why, despite ILEC exhortations on the need to protect their control over the network, there is a surprising underlying consensus on the need to preserve copper facilities. As one observer notes:

> [S]imilarly, despite reservations in filings before the Commission in other contexts, SBC notes that maintaining copper loops is essential to preserve competitive options, especially in light of flourishing technological advances in delivering copper-based DSL services on home-run copper ("These all-copper loops may become even more useful for provisioning DSL-based services because new forms of DSL with longer reach on all copper loops may evolve." ¶ 31)[10]

This consensus is reflected in the "voluntary commitment" made by SBC in regard to spare copper facilities. SBC has stated that (1) it has no current plans, or plans under consideration to retire "mainframe terminated" copper facilities with NGDLC deployment;[11] (2) it will follow its established copper retirement policy in a non-discriminatory manner; (3) if it does retire copper

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[8] Vincent Ryan, *Life on the Edge*, Telephony, May 15, 2000.("*Ryan Article*").

[9] *Ryan Article.* For instance, many ILECs plan to use ADSL technology to deploy multiple lines of voice on a single copper pair. *Id.*

[10] *Response to SBC's Requests for Interpretation, Waiver or Suspension of Merger Conditions Affecting the Ownership of Plugs/Cards and OCDs*, CC Docket 98-141, *Ex Parte* Letter from NorthPoint Communications, Covad Communications, and Rhythms NetConnections to Carol Mattey at p. 4 (May 31, 2000)("*NorthPoint Letter*")(emphasis in original).

[11] As AT&T notes, "mainframe terminated" copper facilities needs to be clearly defined. CC Docket No. 98-141, Letter from James L. Casserly, Counsel for AT&T Corporation, to Magalie R. Salas, Secretary of the FCC, at p. 4 (August 23, 2000)("*AT&T Letter*").

facilities pursuant to its NGDLC deployment, it will give six months' notice of such retirement via Internet posting and offer to sell such facilities to unaffiliated parties; and (4) the application of its copper retirement policy during the next three years will result in the retirement of no more that 5% of its total mainframe copper facilities in service as of September 1, 2000.[12]

The requirement of the Project Pronto Order that SBC may not retire copper for three years is inadequate.[13] This needs to be modified in light of the comments raised in Docket 98-141, and it needs to be made mandatory for all ILECs. In particular, ILECs should be required to maintain copper facilities for at least ten years. CLECs need that time horizon in order to adequately, finance, and implement business plans. In this connection, it is worth noting that ILECs in their own TELRIC studies for UNE loop prices have assumed an economic life for copper loops of less than 15 years. Traditional ratebase rate-of-return analyses have generally assumed a useful life to 25-30 years for copper loops. Therefore, there is little prospect that requiring ILECs to maintain copper loops for ten is unrealistic.

In addition, an ILEC should be precluded from focusing its retirement efforts on particular central office(s) such that it could effectively retire the copper loops in an entire area. Otherwise the ILEC could target its retirement plans to areas in which competition is thriving, thereby thwarting such competition, and promoting the interests of the ILEC's advanced services affiliate.

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[12] *Project Pronto Order* at ¶¶ 38-40; CC Docket No. 98-141, Letter from Priscilla Hill-Ardoin, Senior Vice President SBC Telecommunications, Inc. to Magalie R. Salas, Secretary of the FCC, SBC Voluntary Commitment Number 7 (August 2, 2000)("*SBC Commitments Letter*")

[13] *Project Pronto Order* at ¶ 39.

II. LOCAL COMPETITION RULES SHOULD BE UPDATED IN LIGHT OF NEXT GENERATION NETWORK ARCHITECTURES

A. "Project Pronto" Demonstrates the Need For New Local Competition Rules to Govern ILEC Deployment of Next Generation Network Architectures

In the *Collocation Reconsideration Order and NPRM*, the Commission seeks comment on whether the deployment of new architecture and electronics by ILECs requires the Commission to revisit its local competition rules, particularly its rules on unbundling. In light of ILECs' deployment of so-called next generation network technologies, the Commission's inquiry could not come at a more crucial time. Indeed, it would be hard to imagine ILEC network deployments that would more dramatically show the need for revised Commission rules that will assure that CLECs are able to compete in the local telecommunications market. SBC in Project Pronto has proposed network deployments that would permit that incumbent carrier to determine the pace and scope of competition in provision of advanced services.

DSLnet is very concerned that "ILECs will extend their monopoly power over local telephony to advanced services by operating and controlling next-generation networks in a manner that ensures that only the ILECs (and their data affiliates) will be able to recognize the full benefits of new network technology and architecture."[14] To ensure that the full benefits of this new architecture and technology extend to customers of CLECs and ILECs alike, the

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[14] *In the Matters of Deployment of Wireline Services Offering Advanced Telecommunications Capability; Implementation of the Local Competition Provisions of the Telecommunications Act of 1996; Application for Consent to the Transfer of Control of Licenses and Section 214 Authorizations from Ameritech Corporation, Transferor to SBC Communications, Inc., Transferee; Common Carrier Bureau and Office of Technology Announce Public Forum on Competitive Access to Next-Generation Remote Terminals*, CC Docket Nos.

Commission should (1) revisit its local competition rules to assure that advanced services electronics and capabilities are included in the definition of UNEs, (2) establish new UNEs, and (3) require complete disclosure of ILEC network capabilities.

B. The Commission Should Redefine Loop and Transport UNEs to Include Advanced Services Electronics

A network element is defined under the Act as a "facility or equipment used in the provision of a telecommunication service" which includes the "features, functions, and capabilities that are provided by means of such facility."[15] The loop was initially defined by the Commission as "a transmission facility between a distribution frame, or its equivalent, in an incumbent LEC central office, and the network interface device at the customer premises."[16] In its *UNE Remand Order*, the Commission modified its definition of the loop network element to include "all features, functions and capabilities of the transmission facilities, including dark fiber and attached electronics (except those used for the provision of advanced services, such as DSLAMs) owned by the incumbent LEC, between an incumbent LEC's central office and the loop demarcation at the customer premises."[17] The Commission has sought to ensure that its definition of the loop will apply to "new as well as current technologies."[18]

SBC's request for waiver of the SBC/Ameritech merger conditions to authorize the

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98-147, 96-98, 98-141, and NSD-L-00-48, Reply Comments of AT&T Corp. at p. 12 (July 10, 2000)("*AT&T ALTS Petition Reply Comments*").

[15] 47 U.S.C. § 153(29).

[16] *In the Matter of the Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket No. 96-98, FCC 96-325, First Report and Order, 11 FCC Rcd. at 15499 at ¶ 380 (1996)("*Local Competition Order*").

[17] *In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, FCC 99-238, ¶ 167 (1999)("*UNE Remand Order*").

SBC/Ameritech incumbent LEC to own combinations POTS/ADSL plugs/cards located in remote terminals as well as optical concentration devices ("OCDs") located in central offices demonstrates the unworkability of excluding line cards and OCDs from the definition of the loop UNE.[19] As discussed below, the Commission should redefine the loop UNE to include both line cards and OCDs employed as part of DLC systems deployed by ILECs.

1. Line Cards.

The Commission should include combination card/plugs within the definition of a loop. By SBC's own definition the combination unit equipment is "an integrated piece of technology having both POTS and DSLAM capabilities as well as the 'splitter' functionality."[20] Line cards, unlike DSLAMs, are not used solely for the provision of advanced services, but are "deployed where there are multiple service requirements (*i.e.*, voice and data)."[21] Thus, the basis for excluding DSLAMs from the definition of the loop is not present with the combination cards. They are integrated, multi-functional equipment that play a vital role in the transmission of non-advanced, as well as advanced, services. The Commission noted in its *UNE Remand Order* that:

> [S]ome loops, such as integrated digital loop carrier (IDLC), are equipped with

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[18] *Id.*

[19] *Applications for Consent to Transfer Control of Licenses and Section 214 Authorizations from Ameritech Corporation, Transferor, to SBC Communications, Inc., Transferee,* CC Docket No. 98-141, Request for Interpretation, Waiver or Suspension of Merger Conditions Affecting the Ownership of Plugs/Cards and OCDs (Feb. 15, 2000).

[20] CC Docket No. 98-141, Letter from Paul K. Mancini, SBC Vice President and Assistant General Counsel to Lawrence Strickling, Common Carrier Bureau at p. 4 (February 15, 2000)(*"SBC Letter"*).

[21] *See also* CC Docket 98-141, Comments of Alcatel USA at p. 2 (March 2, 2000)(*Alcatel Comments*) SBC argues that the cards are not advanced services equipment, and notes the majority of the cards will be used to provide POTS service, at least initially. *SBC Letter* at p. 4; *see also*, *SBC Reply Comments* at p. 7.

> multiplexing devices, without which they cannot be used to provide service to end users. Because excluding such equipment from the definition of the loop would limit the functionality of the loop, we include the attached electronics (with the exception of DSLAMs) within the loop definition.[22]

Likewise, these integrated cards must be included in the definition of the loop because excluding them would limit the functionality of the loop. The new equipment being produced by vendors today provides such integrated functionality so that the line between implementing advanced and implementing non-advanced services is blurred. The Commission should rethink its exclusion of equipment used in the provision of advanced services from the definition of the loop. Such a bright line distinction is no longer tenable given the technology advances that have resulted in integrated equipment. Imprecise application of such a non-existent distinction would exclude equipment that is crucial to the functionality of the loop.

DSLnet recognizes that the Commission defined these cards as "advanced services equipment" in the *Project Pronto Order*.[23] In that proceeding, the Commission was applying the definition of "advanced services equipment" from the SBC/Ameritech Merger Conditions.[24] DSLnet urges the Commission to re-visit its definition of "advanced services equipment" and, in particular, its treatment of ADLU cards based on the record of this proceeding. The plug-in cards have a functionality that goes beyond that of a DSLAM. As noted above, the cards have POTS capabilities and splitter functionality. A recent arbitration award by the Texas Public Utility Commission noted a distinction between DSLAMs and splitters.[25] The ruling deemed that the

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[22] *UNE Remand Order* at ¶ 175.

[23] *Project Pronto Order* at ¶ 16.

[24] The Commission emphasized in the *Project Pronto Order* that it was not pre-judging the regulatory classification of plug-in ADLU cards or similar multi-functional equipment in any other context. *Project Pronto Order* at ¶ 16, n. 46.

[25] *Petition of Southwestern Bell Telephone Company for Arbitration with AT&T*

splitter functionality should be included in the definition of a loop.[26] The arbitrators noted:

> The Arbitrators recognize that the FCC specifically rejected DSLAMs as part of the "attached electronics" of the loop because of its determination that DSLAMs are used solely to provide advanced services. Accordingly, the Arbitrators believe it would be inaccurate from a technical standpoint to analogize splitters to DSLAMs. As noted above, a splitter is a passive device necessary to access both the voice and data portions of the loop in order to provide an end user with both voice and xDSL service. By contrast a DSLAM is used primarily for the routing and packetizing of data. The Arbitrators note that adding a splitter to the UNE-loop is no different than adding a circuit-enhancing device to the loop at the central office.[27]

The plug-in cards not only have the splitter functionality, but POTS capability as well. Thus, the cards should be considered to be integral components of the loop.

The main reason that the Commission defined these cards as advanced services equipment was to give SBC an incentive to provide more collocation space. The Commission noted:

> [a]llowing SBC's incumbent LECs to own and operate the ADLU cards would eliminate any need for SBC's Advanced Services Affiliate to collocate in either remote terminals or central offices, and thereby eliminate SBC's incentive to improve its collocation processes. In light of the foregoing, we find that the plug-in ADLU cards is properly classified as Advanced Services Equipment under the *Merger Conditions*, so that SBC's incumbent LECs are not permitted to own and operate the ADLU Cards after November 8, 1999.[28]

Almost as quickly as it rendered this pronouncement, the Commission had to grant a waiver of the Merger Conditions to allow ownership of these cards to facilitate the roll-out of DSL service

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Communications of Texas, L.P., TCG Dallas, Teleport Communications, Inc. Pursuant to Section 252(B)(1) of the Federal Communications Act of 1996, Public Utility Commission of Texas Docket No. 22315, Arbitration Award at p. 17 (September 13, 2000)("*Texas Line Sharing Arbitration*").

[26] *Id.*

[27] *Id.*

[28] *Project Pronto Order* at ¶ 16.

in the SBC area.[29] Thus, CLEC access to this vital equipment is at the whim of "voluntary" commitments that SBC has made in the *Project Pronto Order*.

The Commission needs to properly classify this equipment as part of the loop so that CLECs will have unbundled access to this equipment pursuant to the terms of the Act. Such an approach would be true to the nature of the equipment, and would ensure for CLECs non-discriminatory access to the features and functionality of the cards at terms that are just and reasonable.[30] CLECs should also be given the option of collocating their own cards as argued below.[31]

2. OCDs

OCDs, which are essentially ATM switches, separate each CLEC's ATM packetized bitstream from the common ATM packetized bitstream coming from the remote terminals, and hand off the appropriate packetized bitstream to each CLEC and ILEC advanced services affiliate.[32] Under SBC's proposed network configuration in Project Pronto, the ATM switches are "the only means by which the ADSL-based traffic of multiple CLECs can be aggregated and disaggregated."[33] Thus, the OCD will be the only feasible point at which CLECs can get access

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[29] *Project Pronto Order* at ¶ 23.

[30] The Commission did not reach the issue of whether plug-in cards and/or OCDs should be classified as unbundled network elements in its *Project Pronto Order*. *Project Pronto Order* at ¶ 20.

[31] This approach would be consistent with prior Commission approaches. For instance, in regard to subloops, the Commission allows CLECs both to have access to the subloop as an unbundled network element and to collocate equipment to access the subloop.

[32] CC Docket 98-141, *Ex Parte* Letter from DSL Access Telecommunications Alliance to Carol Mattey at p. 4 (April 11, 2000)("*DATA Letter*").

[33] *Id.* The placement of the OCDs in the central office is an indication of SBC's failure to consider more economical alternatives, such as allowing CLECs to access the bitstream at the DLC, which would preclude the need for a central-office based ATM switch, including the need for a multiport DLC at the CO, and allow for the deployment of fewer ATM switches. *Id.* The

to the ATM's bit streams coming from their customers.[34] Therefore, the Commission should define the loop UNE as including OCDs where such devices are deployed. This will enable CLECs to access the OCD functionality as part of the loop UNE.

C. CLECS Must Be Permitted to Deploy Their Own Line Cards

The plug/cards in the Project Pronto system are multi-functional, *i.e.*, they provide DSL functionality, DSLAM functionality, and splitter functionality.[35] SBC describes the combination card/plug as "an integrated piece of technology having both POTS and DSLAM capabilities as well as the "splitter" functionality."[36] SBC has threatened to prohibit the collocation of CLEC DSLAMs within most remote terminals because of alleged lack of space.[37] As will be shown below, the Commission should require ILECs to provide additional collocation space at remote terminals. Therefore, lack of space should not be a sufficient reason for denying collocation at

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failure to implement a cost-effective architecture will surely lead to higher proposed cost-recovery from SBC for use of this functionality. *Id*

[34] *Id.*

[35] *Petition of Covad Communications Company for an Arbitration Award Against Bell Atlantic Pennsylvania, Inc., Implementing the Line Sharing Unbundled Network Element; Petition of Rhythms Links, Inc. for an Expedited Arbitration Award Implementing Line Sharing*, PA PUC Docket Nos. A-310696F0002 and A-310698F0002, Recommended Decision at p. 36 (June 28, 2000)("*PA ALJ Order*")

[36] *SBC Letter* at p. 4.

[37] *In the Matter of SBC Communications, Inc., et al., for Provision of In-Region InterLATA Services in Texas*, CC Docket No. 00-65, Supplemental Comments of AT&T Corp. at p. 24 (April 26, 2000); *Response to SBC's Requests for Interpretation, Waiver or Suspension of Merger Conditions Affecting the Ownership of Plugs/Cards and OCDs*, CC Docket 98-141, *Ex Parte* Letter from DSL Access Telecommunications Alliance to Carol Mattey at p. 3 (April 11, 2000)("*DATA Letter*").

remote terminals. [38] However, to the extent space is an issue at remote terminals, plug-in cards provide a solution. The line cards provide an "efficient, convenient and less capital intensive means" for the CLEC to access the subloop.[39]

The problem is that the particular line cards utilized by SBC, and made by Alcatel USA, limit the type of xDSL "flavors" a carrier may provide. For instance, the line cards would not support SDSL service.[40] For CLECs desiring to provide xDSL services, other than those Alcatel's equipment supports, Alcatel suggests that these carriers deploy their own DSLAMs.[41] This is not a viable option for CLECs because the level of concentration present at a particular remote terminal may not justify the cost of collocation.[42] One solution would be to allow CLECs to provide their own line cards tailored to the particular class of service they seek to offer and to have SBC install said line cards. SBC objects to this option. SBC argued that it is under no legal obligation to allow CLECs to reconfigure SBC's equipment, and it also argues that this option is technically infeasible.[43] Thus, SBC's position was that CLECs should be limited in the provision

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[38] *See also* CC Docket 98-141, Comments of Alcatel USA at p. 4 (March 2, 2000); *SBC Letter* at p. 2.

[39] *SBC Letter* at p. 3.

[40] CC Docket 98-141, Reply Comments of Alcatel USA at p. 2 (March 10, 2000)("*Alcatel Reply Comments*").

[41] *Id.*

[42] *Petitions of Covad Communications Company and Rhythms Links, Inc. for Arbitration Pursuant to Section 252(b) of the Telecommunications Act of 1996 to Establish an Amendment for Line Sharing to the Interconnection Agreement with Illinois Bell Telephone Company d/b/a Ameritech Illinois, and for an Expedited Arbitration on Certain Core Issues*, Illinois Commerce Commission Docket Nos. 00-0312 and 00-0313, Arbitration Decision at p. 29 (August 17, 2000)("*Illinois Line Sharing Order*").

[43] *SBC Reply Comments* at p. 15. Ironically, one of the initial proposals SBC considered making to the Commission was to allow CLECs to own their cards and SBC would install the cards. *SBC Letter* at p. 3.

of their xDSL services to the type of service that is supported by the ILEC's line cards. Equally troubling is SBC's position that at any time it may transfer the line cards to its Advanced Service affiliate, and that "the obligations that would travel to the affiliate with such equipment would be evaluated on a case-by-case basis."[44] Unfortunately, the Commission's recent *Project Pronto Order* does not directly provide that CLECs may provision their own line cards.[45]

In order to address these issues, CLECs must be permitted to provision line cards, both at remote terminals and in the central office, that would support the types of services they wish to offer. The Illinois Commerce Commission recently required:

> Ameritech to install plug-in cards which support all DSL-based services requested by the CLECs. If Covad's or Rhythms' business plan calls for a particular DSL service that requires a plug-in card that Ameritech does not provide itself, the burden of proof will lie with Ameritech to prove that the plug-in card is incompatible with Project Pronto technology.[46]

This Commission should go a step further and permit CLECs to provision their own line cards in order to permit CLECs to access the full functionality and capability of the loops they purchase. Requiring ILECs to offer access to the full features, functions, and capabilities of the ILEC-provisioned line cards at just, reasonable, and non-discriminatory rates, terms, and conditions, as the Commission required of SBC in the *Project Pronto Order*, is a good first step. SBC's

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[44] *SBC Reply Comments*, p. 8. Also troubling is SBC's apparent view that it can "fund its affiliate such that the affiliate, itself, could construct new remote terminals and install DSLAM equipment without subjecting the affiliate or the incumbent to the conditions proposed by the DSL CLECs or even the unbundling requirements of the Act." *Response to SBC's Requests for Interpretation, Waiver or Suspension of Merger Conditions Affecting the Ownership of Plugs/Cards and OCDs*, CC Docket 98-141, *Ex Parte* Letter from NorthPoint Communications, Covad Communications, and Rhythms NetConnections to Carol Mattey at p. 3 (May 31, 2000)("*NorthPoint Letter*")

[45] *Project Pronto Order* at ¶ 23.

[46] *Id.*

commitment, however, only extends to plug-in cards developed by its manufacturers.[47] The ILEC manufacturers will, however, only cater to the needs of the ILECs. There is no financial incentive for them to develop features, functions or capabilities that the ILEC will not utilize; in fact, there is a disincentive, because if such capabilities are included the CLECs may request access to those capabilities.[48] Allowing CLECs the option of provisioning their own cards would create true competition in the line card marketplace which would fuel the development of more innovative services. This is an indication of how letting the market dictate technology will promote competition and the provisioning of a diversity of services.

D. The Commission Should Designate New UNEs.

1. DWDM Wavelengths

Dense wave division multiplexing ("DWDM") technology, multiplies the capacity of an optical fiber by simultaneously operating at more than one wavelength, thereby allowing multiple information streams to be transmitted simultaneously over the fiber.[49] This is an expensive option, but it gives a carrier growing capacity and intelligent provisioning of bandwidth, and is perhaps the best long-term strategy for promoting capacity in a network.[50] Verizon is using this technology in its large metropolitan areas, and such technology may help promote its fiber-to-the-

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[47] *Project Pronto Order* at ¶ 46, n. 133.

[48] For instance, for months, Alcatel claimed the line cards used in the Project Pronto deployment could not support CBR service, but now this service is included as an option in the commitments. *See* Letter from @Link Networks, Inc. to Carol Mattey, Deputy Chief, Common Carrier Bureau, at p. 2 (August 11, 2000).

[49] *Collocation Reconsideration Order and NPRM* at ¶ 120, n. 253.

[50] *Ryan Article.*

curb deployments.[51]

The effect of such technology on the loop could be revolutionary. The technology will allow network carriers "to sell or lease the individual streams of light in fiber-optic networks that transport voice, video, or image traffic."[52] Customers, "such as ISPs, will be able to purchase only the network bandwidth they want, when they want it."[53] It will provide carriers with new revenue streams and allow companies to "boost sales by packaging wavelengths with Internet services and lift efficiency by leasing or trading network bandwidth as needed."[54] As one analyst notes:

> [O]ptical wavelengths are the building blocks of the next-generation service provider networks. We anticipate that optical wavelengths will be the unit of commerce for all service provider networks.[55]

The Commission should require ILECs to offer optical wavelengths as separate UNEs. The Commission has already taken this approach with line sharing in unbundling the electrical high frequency portion of copper loops. Just as the frequency of a copper loop is part of its "capability,"[56] so to is the wavelength of a fiber loop or subloop. Carriers should be allowed either to access unbundled loop functionalities such as wavelength, separate from other loop

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51 *Id.*

52 *Nortel Shows Off Fiber Breakthrough*, Reuters, August 29, 2000. ("*Nortel Article*") <<http://www.techweb.com//wire/story/reuters/REU20000829S0002>>

53 *Id.*

54 *Id.*

55 *Id. quoting* Ron Steele, Chief Technology Officer of NEON Systems, Inc.

56 *In the Matters of Deployment of Wireline Services Offering Advanced Telecommunications Capability and Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket Nos. 98-147 and 96-98, Third Report and Order in CC Docket No. 98-147 and Fourth Report and Order in CC Docket No. 96-98, FCC 99-355, at ¶ 17. ("*Line Sharing Order*").