

Affidavit of John P. Lube

PACIFIC BELL TELEPHONE COMPANY

December 8, 2000

**LUBE AFFIDAVIT**

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## **INTRODUCTION AND PURPOSE**

1. My name is John P. Lube. My business address is 308 S. Akard, Dallas, Texas 75202. I am General Manager-Network Regulatory for SBC Operations, Inc., a subsidiary of SBC Communications Inc. ("SBC"). My current responsibilities include representing the planning, engineering, and operations of Pacific Bell Telephone Company's ("Pacific's") network before federal and state regulatory bodies.
2. I have a Bachelor of Science - Electrical Engineering degree from the University of Houston in Houston, Texas. Also, I have completed company training and external training related to network planning and engineering, network technology, accounting, and telecommunications policy and regulation. In addition, I am a Registered Professional Engineer in the State of Texas.
3. I have over 30 years experience with SBC. From 1969 through 1997, I held numerous positions with Southwestern Bell Telephone Company ("SWBT") responsible for network planning, switching and transmission equipment engineering, transmission facility design, trunk and special services circuit design, plant cost allocation, plant valuation, plant depreciation, and the standardization of all outside plant and transmission equipment. In 1997, I held a position with SBC Long Distance (SBC's long distance affiliate) and was responsible for all regulatory matters in

SWBT territory. I assumed my present title and duties in June 1999.

4. Pursuant to the Assigned Commissioner's Ruling dated December 1, 2000, the purpose of my affidavit is to respond to the comments of other parties in this proceeding filed on October 13, 2000. In doing so, my affidavit will explain several aspects of Pacific's Project Pronto deployment, as follows:

- First, I explain the Project Pronto network architecture, showing that it is an overlay network.
- Second, I explain Pacific's Broadband Service offering, which utilizes the Project Pronto architecture, showing how this offering gives competitive local exchange carriers ("CLECs") an additional choice for providing digital subscriber line ("DSL") services to their end users.
- Third, regarding the CLECs' claims that Project Pronto should be unbundled, I explain that (a) the Project Pronto network architecture is not able to be unbundled; (b) Project Pronto need not be unbundled based upon the Federal Communications Commission's ("FCC's") unbundling rules; and (c) this Commission cannot unbundle Project Pronto without performing the "necessary and impair" analysis required by the 1996 Telecommunications Act ("Act").
- Fourth, I explain that Pacific will incorporate new features and functions into the Project Pronto

architecture whenever possible, utilizing industry collaborative processes.

- Fifth, I show that Project Pronto is not line sharing, as defined and required by the FCC.
- Finally, I show that Pacific provides CLECs with viable means to access copper subloops at remote terminal ("RT") sites.

### **PROJECT PRONTO ARCHITECTURE**

5. Project Pronto is Pacific's deployment of an overlay loop network capable of supporting both voice and broadband services. The broadband capabilities of this new network architecture will allow Pacific to offer new wholesale broadband services and will allow CLECs to offer DSL services to more consumers and businesses than can be reached today directly with central office DSL access multiplexers ("DSLAMs") over full copper loops.
6. The new Project Pronto architecture consists of the following network components:
  - copper feeder pairs between a serving area interface("SAI")<sup>1</sup> and a Project Pronto RT;
  - next generation digital loop carrier ("NGDLC") RTs used for both voice (i.e., POTS) and data (i.e., DSL)<sup>2</sup> services;

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<sup>1</sup> The SAI is the subloop access point in the loop where copper feeder pairs from the central office, or DLC-derived feeder pairs from the remote terminal can be cross-connected to copper distribution pairs that serve the end users' premises.

- separate fibers for voice and data between each RT and its central office;<sup>3</sup>
  - optical concentration devices ("OCDs") in the central offices used for data; and
  - NGDLC central office terminals ("COTs") used for voice.
7. The components of the Project Pronto architecture that represent new technology are the NGDLC and the OCD.
8. The NGDLC technology is analogous to existing, older digital loop carrier ("DLC") deployed in Pacific's network. The significant difference, from a Project Pronto perspective, is that the NGDLC has the ability to support the higher bandwidths of DSL services. The previously-deployed types of DLC, including those that are fiber-fed, do not have this bandwidth capability, and therefore, cannot be used for DSL services.
9. The OCD is a central office device that essentially serves as a router and aggregator for data signals. The inbound ports on the OCD receive the OC-3c optical signals from all of the Project Pronto RT sites served out of that central office. All of these OC-3c optical signals contain the data signals from numerous end users, each of which is served by the CLEC of their choice. The OCD routes each end user's data signal to the appropriate outbound port on the OCD for delivery to that end user's chosen CLEC. All such data

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<sup>2</sup> While the term "data" can refer to many different types of high-bandwidth services, that term is used throughout this affidavit to refer only to DSL-type services.

<sup>3</sup> The majority of Pacific's Project Pronto RTs will be Alcatel Litespan 2000 equipment that utilizes separate fibers for voice and data transmission.

signals bound for a particular CLEC are aggregated to the OCD's outbound port specific to that CLEC.<sup>4</sup>

#### Project Pronto As An Overlay Network

10. ORA and IP Communications ("IP") contend Pacific is replacing copper loops with NGDLC.<sup>5</sup> As an overlay architecture, Project Pronto will not displace (i.e., remove) any existing copper loops; that is, Project Pronto overlays existing copper loops where they exist today in Pacific's network. Pacific has no current plans nor plans under development to retire copper loop plant as a result of the Project Pronto deployment. This is confirmed by SBC's voluntary commitments, which the FCC adopted and appended to the Project Pronto Order granting SBC's request for its ILECs to be allowed to own certain pieces of Project Pronto equipment.<sup>6</sup>
11. Under these FCC-adopted commitments and the Project Pronto Order, Pacific will continue to follow its established copper retirement policy. For example, if a section of copper cable becomes damaged or defective, Pacific will evaluate the costs to repair the copper cable. Based on the evaluation, Pacific will either replace the damaged or

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<sup>4</sup> In this context, the terms "inbound" and "outbound" reflect the perspective of upstream DSL traffic from the end user. In reality, DSL is a bi-directional service. Therefore, the ports connected to both the CLECs and the RTs are actually both inbound and outbound.

<sup>5</sup> ORA Reply Comments, p. 4; IP Reply Comments, pp. 19-20.

<sup>6</sup> 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's Rules, CC Dkt. No. 98-141, Second Memorandum Opinion and Order, FCC No. 00-336 (rel. Sep. 8, 2000) ("Project Pronto Order"), Appendix A, para. 7.



defective cable with new copper cable, or retire the copper cable and replace it with new fiber facilities.

12. Other situations falling under this copper retirement policy include (1) cables that cannot continue to provide adequate levels of service, (2) cables that have become uneconomical to maintain, (3) cables that are affected by public requirements (e.g., relocations, zoning restrictions), (4) exhaust of conduit duct space, and (5) acts of God or other catastrophic cable failures. Decisions to remove copper cable in situations such as these are not affected by the deployment of the Project Pronto network overlay. Such decisions also will not be affected by the current users of these copper facilities, whether Pacific's retail customers, affiliated telecommunications carriers, or unaffiliated telecommunications carriers.
13. Even under the retirement policy described above, these commitments require Pacific not to retire, through September 2001, any central office-terminated copper loops overlaid by the Project Pronto architecture, except as required by acts of God. Also, under the commitments, the use of this retirement policy through September 2003 will result in the retirement of no more than 5% of the SBC ILECs' total central office-terminated copper loops in service as of September 1, 2000.
14. Additionally, the issue of retiring existing copper loops is still before this Commission, as noted in the Final

Arbitrator's Report in the California Interim Line Sharing proceeding:

The FCC does not restrict the ILECs ability to decommission old plant. (FCC Line Sharing Order, ¶ 80.) During the interim period, however, until the issue of transport over fiber DLC plant is resolved (i.e., Issue 3), ILECs should not decommission plant when to do so unreasonably terminates a CLC's ability to offer, or to continue to provide, data service.<sup>7</sup>

15. Because Project Pronto will support POTS and some types of DSL service simultaneously to the same end user (such as with Asymmetric DSL, or "ADSL"), this architecture will free up copper feeder pairs currently used for existing POTS-only end users. This occurs when an existing POTS-only end user requests the addition of ADSL service over the same copper pair into the end user's premises, and the end user's CLEC chooses to utilize Pacific's Broadband Service (described below) to provide that ADSL service.
16. However, the deployment of Project Pronto will not cause Pacific to proactively migrate existing POTS-only end users from copper loops to the Project Pronto architecture.

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<sup>7</sup> Final Arbitrator's Report in Line-Sharing Phase of OANAD (R.93-04-003/I.93-04-002), dated May 26, 2000, p. 83.

### CLECS' OPPORTUNITIES TO OFFER DSL SERVICES

17. IP Communications ("IP") characterizes Pacific's Broadband Service, provided over the Project Pronto architecture, as discriminating against the CLECs' ability to provide competitive DSL services.<sup>8</sup> This is not true. In this section of my affidavit, I describe the Broadband Service, and then outline the choices available to the CLECs for providing DSL, including Pacific's Broadband Service.

#### Pacific's Broadband Service

18. Pacific's Broadband Service is a wholesale, end-to-end service (i.e., from the central office to the end user's premises) which utilizes the various components of the Project Pronto architecture (described above) and Pacific's existing copper distribution pairs. All of these network components work in conjunction with one another to provide the end-to-end Broadband Service capable of supporting CLECs' retail DSL services.

19. Pacific offers the CLECs two basic configurations of the wholesale Broadband Service.<sup>9</sup> The first is the "data service" configuration. The "data service" configuration supports two possible scenarios. The first of these is a "data-only" scenario where a CLEC provides only DSL service over an end user's loop and that loop is not used to provide

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<sup>8</sup> IP Reply Comments, pp. 17-18.

<sup>9</sup> See Affidavit of Carol Chapman, Attachment 2 (Sep. 29, 2000).

POTS to that end user. The diagram included in Attachment JPL-1 to my affidavit shows this scenario.

20. The second scenario of the data service configuration is a "data with line-shared subloop" scenario. The diagram included in Attachment JPL-2 to my affidavit illustrates this second scenario. As this diagram shows, the CLEC may provide DSL service to a Pacific POTS customer over the same, single copper distribution pair. However, I will explain later (paragraphs 72-78) in my affidavit why the end-to-end "data with line-shared subloop" Broadband Service scenario is, indeed, different from the line sharing required by the FCC.
21. The second configuration of the wholesale Broadband Service is the "combined voice and data" service configuration. The diagram included in Attachment JPL-3 to this affidavit shows this configuration. In this configuration, the same CLEC provides both the POTS and the DSL service. A new accessible letter announcing the availability of the "combined voice and data" service configuration will be released during the first full week of December, in accordance with the FCC's Project Pronto Order.<sup>10</sup>

#### CLECs' Choices For Providing DSL Services

22. Contrary to IP's allegations referenced above,<sup>11</sup> Pacific's Project Pronto deployment does not eliminate any of the

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<sup>10</sup> Project Pronto Order, Appendix A, para. 3.

<sup>11</sup> IP Reply Comments, pp. 17-18.

CLECs' current choices for offering DSL services; in fact, this deployment enhances these alternatives as explained below.

23. CLECs have several options for providing DSL services.

First, there are multiple ways CLECs may utilize Pacific's pre-existing copper network with their own DSLAMs. As explained above, Project Pronto does not remove any of the pre-existing copper loop network.

24. A CLEC may utilize its own DSLAMs as follows:

- The CLEC may collocate its DSLAM in a Pacific central office and provide DSL services to its end users over Pacific's full copper loops.
- The CLEC may collocate its DSLAM in a remote location and provide DSL services to its end users over Pacific's copper distribution subloops.

25. If the CLEC chooses to remotely locate its DSLAM, it has multiple choices for (a) the location of the DSLAM, (b) the means to connect the DSLAM to its own data network, and (c) the means to extend the DSLAM to Pacific's copper subloops.

26. Regarding the placement of a remotely-located DSLAM, the CLEC could use its own remote site, or collocate the DSLAM at a Pacific RT site. Pacific has enhanced a CLEC's ability to collocate the DSLAM in a Pacific RT site. As outlined in SBC's voluntary commitments adopted by the FCC in its Project Pronto Order, Pacific will increase the size of new controlled environmental vaults and huts; and increase the

size of new cabinets or place new adjacent cabinet structures for CLEC use.<sup>12</sup>

27. Regarding the CLEC's connection of a remotely-located DSLAM to its data network, the CLEC may utilize Pacific's unbundled dark fiber (where available), its own fiber facilities, third-party-owned fiber facilities, or Pacific's unbundled DS3 or optical subloops (where available).<sup>13</sup>
28. Extension of the CLEC's remotely-located DSLAM to Pacific's copper subloops is explained later (paragraph 83) in my affidavit.
29. As an alternative to utilizing its own DSLAM, CLECs may choose to take advantage of Pacific's Broadband Service offering described above. In other words, Pacific's wholesale Broadband Service provides CLECs another option to the use of Pacific's pre-existing copper loop network.
30. Even though the end-to-end wholesale Broadband Service that Pacific offers utilizes an existing copper subloop from the SAI to the end user's premises, none of these copper subloops are pre-dedicated to the Broadband Service (i.e., none of these copper subloops are pre-wired to the new Project Pronto architecture). A copper subloop to an end user's premises becomes a part of the end-to-end Broadband Service only when a CLEC chooses to utilize the Broadband

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<sup>12</sup> Project Pronto Order, Appendix A, paras. 5(b), 5(c).

<sup>13</sup> If Pacific has placed a stand-alone SONET multiplexer in a RT site for other purposes, and if spare capacity is available in that multiplexer, the CLEC may obtain an unbundled DS-3 or OC-n subloop from Pacific. The other end of this high-capacity subloop would connect to the CLEC's collocation arrangement in the Pacific central office.

Service to provide DSL service to that end user. Otherwise, all of the copper distribution pairs between the SAI and the end users' premises are available to be used by the CLEC as an unbundled subloop or as part of a full unbundled loop.

31. To the extent that Pacific's Broadband Service offering does not currently support all of the types of DSL that the CLECs would like to offer their end users, Pacific has committed to make additional types of DSL available with the Project Pronto architecture and associated Broadband Service.
32. IP alleges that the decision to serve a new area with DLC is based upon Pacific's intent on limiting the availability of copper pairs.<sup>14</sup> Pacific acknowledges copper feeder pairs are sometimes not available from the central office to the SAI. For example, when Pacific provides the feeder facility to a new serving area such as a new residential development, it determines the type of feeder facility (i.e., copper versus DLC) based upon economics. This economic choice is based upon the relative costs of copper versus DLC, the amount of customer demand, and the different types of customer demand (e.g., POTS, high capacity digital services, DSL). Pacific has made this type of economic determination for new serving areas since the 1980s (i.e., long before the passage of the Act, and long before SBC's announcement of Project Pronto). If DLC, including the Project Pronto NGDLC, is the most economic facility to serve a new area, it would be inappropriate and unnecessary for Pacific

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<sup>14</sup> IP Reply Comments, pp. 19-20.

additionally to provide parallel copper facilities to that same area.

33. IP also alleges that where Project Pronto and Pacific's copper infrastructure coexist, the CLEC's own DSL service on full copper loops would not be equal in quality to the DSL services provided over Project Pronto.<sup>15</sup> IP's claims relate to the potential for interference within Pacific's copper distribution subloops between a DSL service using a central office DSLAM and a DSL service using the Project Pronto architecture. IP fails to acknowledge that this same potential for interference exists where any CLEC has remotely located a DSLAM. In other words, the DSL signal transmitted by a CLEC's remotely-located DSLAM would introduce the same power level into Pacific's copper distribution subloops as the DSL signal transmitted by the Project Pronto NGDLC. Additionally, the FCC has clearly acknowledged that CLECs' central office DSLAMs, CLECs' remotely-located DSLAMs, and Project Pronto would coexist in the same copper plant, as evidenced by all three of these configurations being addressed in its Project Pronto Order.<sup>16</sup> Finally, this is an industry-wide issue that is currently being evaluated in industry standards bodies.

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<sup>15</sup> Id. at 20-21.

<sup>16</sup> Project Pronto Order; e.g., paras. 39-40 (retention of copper for use with central-office DSLAMs); paras. 28, 34 (collocation space for remotely-located DSLAMs); paras. 1, 10 (Project Pronto).



## UNBUNDLING PROJECT PRONTO

34. IP, ORA, and the CLEC Coalition contend that Pacific's Project Pronto and the associated Broadband Service must be unbundled.<sup>17</sup> Pacific cannot unbundle and should not be required to unbundle Project Pronto or the associated wholesale Broadband Service. First, the Project Pronto network architecture cannot be unbundled for a CLEC's dedicated use in the manner that the FCC has unbundled network elements. Second, even if there appeared to be some compelling reason (which there is not) to unbundle this network architecture, it would not be appropriate to do so. This is because the Project Pronto architecture includes components that fit the FCC's definition of packet switching,<sup>18</sup> which the FCC declined to unbundle in its UNE Remand Order, except in extremely limited circumstances that do not apply to Pacific.<sup>19</sup> Finally, even if the FCC had not already spoken conclusively on the issue, any CLEC effort to unbundle the Project Pronto architecture or the associated Broadband Service would have to be supported by an analysis that satisfies the "necessary and impair" standards required by the Act for such unbundling.<sup>20</sup>

## Unbundling Project Pronto Is Not Feasible

<sup>17</sup> IP Reply Comments, pp. 15-22; ORA Reply Comments, pp. 3-4; CLEC Coalition Reply Comments, pp. 39-40.

<sup>18</sup> Affidavit of Curt Hopfinger (Aug. 23, 2000), paras. 39-41.

<sup>19</sup> In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, CC Docket No. 96-98, Third Report and Order and Fourth Further Notice of Proposed Rulemaking, FCC No. 99-238 (rel. Nov. 5, 1999) ("UNE Remand Order"), para. 306.

<sup>20</sup> § 251(d)(2)(A), (B).

35. It is not physically possible to unbundle the Project Pronto network architecture because of the manner in which the components of the architecture interconnect and interact with one another. For example, a single end user's DSL service does not occupy an accessible, physical, end-to-end path through the architecture. In addition, the physical parts of this architecture used by the CLEC, through the Broadband Service offering, to provide DSL service to an end user do not bear a one-to-one correspondence throughout the DSL service's path. As a consequence, Pacific offers the CLECs an end-to-end wholesale Broadband Service, from the end user's premises to Pacific's central office, for incorporation into the CLECs' own DSL services for their individual end users.
36. For a CLEC to provide DSL service to a single end user with the Broadband Service, the path through the various network components would include:
- a copper pair from the end user's premises through the SAI to the NGDLC RT;
  - a port on a multi-port line card in the NGDLC RT;
  - a virtual circuit established within the NGDLC RT;
  - a virtual circuit established in the OC-3c signal riding over the fibers between the NGDLC RT and the OCD; and
  - a virtual circuit established through the OCD to a CLEC's high-capacity port on a multi-port OCD card.
37. As this list demonstrates, a single end user's DSL service does not occupy an accessible, physical, end-to-end path

through these various network components. This list also shows that the physical network components used by the CLEC do not bear a one-to-one correspondence throughout a DSL service's path. For instance, a CLEC uses a copper pair at one end (which carries a single end user's DSL service), yet an OCD port at the other end (which carries numerous end users' DSL services).

38. This is best understood by comparing the end-to-end Broadband Service to unbundled network elements ("UNEs") established by the FCC. Consider UNEs such as unbundled dedicated transport ("UDT") and unbundled high-capacity loops. Each of these UNEs represents and provides the CLEC with a specific and constant amount of total bandwidth within the ILEC's underlying facility (e.g., a SONET transport facility). In addition, each of these UNEs is accessible at both end-points of the UNE with the same interface specifications (i.e., bandwidth, signal characteristics, and physical connection). Pacific's end-to-end wholesale Broadband Service does neither of these things.
39. As a clear example of this difference, DS-3 UDT occupies a fixed piece of bandwidth (approximately 45 Mbps) within a higher-bandwidth, underlying transport facility. In some instances, this UNE may traverse more than one such facility connected in tandem between the two end-points of the UNE. The bandwidth of this UDT is constant throughout the entire length of the UNE. In addition, the UDT's bandwidth

occupies an unchanging position within the digital multiplexing hierarchy of an underlying transport facility. This UDT is also accessible at each end with the same DS-3 bandwidth, same electrical signal characteristics, and same physical coaxial connection.

40. Unlike the UDT described in the paragraph above, the virtual circuits established for DSL services through the Project Pronto NGDLC RT, OC-3c data transport fibers, and OCD do not occupy a specific and fixed piece of bandwidth. In other words, while these virtual circuits do share the same Project Pronto equipment and transport facility, they do so only in a statistical (i.e., variable) manner, not as specific, fixed amounts of bandwidth for each virtual circuit. Therefore, various CLECs' end user circuits literally share the very same bandwidth in the Project Pronto architecture, and even then, only virtually, not physically.
41. In addition, these virtual circuits do not have the same interface characteristics at each end. At one end, the virtual circuit for one DSL end user can only be physically accessed as a two-wire metallic DSL-formatted interface that connects to the copper pair extending to that end user's premises. At the other end, the virtual circuit for that same end user exists only within the ATM-formatted high-bandwidth signal delivered to a port on the OCD, which contains not one but many virtual circuits for different end users' DSL services. In contrast, as described above, UDT

can be accessed on a circuit-by-circuit basis with the same bandwidth and interface specifications at both ends. Therefore, the dissimilar interfaces at the ends of the Project Pronto architecture and the related wholesale Broadband Service do not allow this configuration to be unbundled as discrete network elements for a CLEC's use.

#### Project Pronto and Packet Switching

42. In its Project Pronto Order, the FCC found that the Project Pronto NGDLC RT is functionally equivalent to a DSLAM,<sup>21</sup> and that the Project Pronto OCD is ATM switching equipment.<sup>22</sup> The FCC found in its UNE Remand Order that this type of equipment is packet switching equipment.<sup>23</sup> The FCC decided against a general requirement to unbundle packet switching, stating in its UNE Remand Order that "given the nascent nature of the advanced services marketplace, we will not order unbundling of the packet switching functionality as a general matter."<sup>24</sup> The FCC went on to say:

the record in this proceeding, and our findings in the *706 Report*, establish that advanced services providers are actively deploying facilities to offer advanced services such as xDSL across the country. . . . [C]arriers have been able to secure the necessary inputs to provide advanced services to end users in accordance with their business plans. This evidence indicates that carriers are deploying advanced services to

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<sup>21</sup> Project Pronto Order, para. 14.

<sup>22</sup> Id. at para. 18.

<sup>23</sup> UNE Remand Order, paras. 177, 302-303.

<sup>24</sup> Id. at para. 306.

the business market initially as well as the residential and small business markets.<sup>25</sup>

43. The FCC's UNE Remand Order defines the limited circumstances under which packet switching must be unbundled.<sup>26</sup>

Specifically, the FCC's rules provide that,

An incumbent LEC shall be required to provide nondiscriminatory access to unbundled packet switching capability only where each of the following conditions are satisfied:

(i) The incumbent LEC has deployed digital loop carrier systems, including but not limited to, integrated digital loop carrier or universal digital loop carrier systems; or has deployed any other system in which fiber optic facilities replace copper facilities in the distribution section (e.g., end office to remote terminal, pedestal or environmentally controlled vault);

(ii) There are no spare copper loops capable of supporting the xDSL services the requesting carrier seeks to offer;

(iii) The incumbent LEC has not permitted a requesting carrier to deploy a Digital Subscriber Line Access Multiplexer at the remote terminal, pedestal or environmentally controlled vault or other interconnection point, nor has the requesting carrier obtained a virtual collocation arrangement at these subloop interconnection points as defined by § 51.319(b); and

(iv) The incumbent LEC has deployed packet switching capability for its own use.<sup>27</sup>

44. Two aspects of these FCC rules warrant emphasis. The requirement to unbundle the packet switching equipment described in the fourth condition is (1) dependent on the

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<sup>25</sup> Id. at para. 307.

<sup>26</sup> Id. at para. 313.

<sup>27</sup> 47 C.F.R. § 51.319(c)(5) (emphasis added).

simultaneous existence of all four of these conditions in a particular service area, and (2) determined on an RT site by RT site basis.

45. These four conditions will not exist together with the deployment of Project Pronto. The first condition involves the presence of DLC or the replacement of copper loops with fiber. DLC already exists in many serving areas; also, Project Pronto deploys NGDLC in many serving areas. However, Project Pronto does not result in the replacement of copper loops with fiber, as explained previously in my testimony.
46. The second condition concerns the availability of copper loops. Copper loops will be available to the CLECs in most serving areas. As I explained above, the deployment of Project Pronto does not displace any existing copper loops, and, in fact, will usually free up working copper loops for future CLEC use.
47. The third condition concerns the ability of a CLEC to remotely locate its DSLAM equipment at Pacific's RT site. Despite IP's allegation that only a small amount of space will be available in cabinets installed after September 15, 2000,<sup>28</sup> a CLEC has an enhanced opportunity to remotely-locate its DSLAMs. First, Pacific does permit a CLEC to collocate its DSLAM equipment in a RT site where space and other environmental factors allow. In addition, SBC's voluntary commitments enhance the CLEC's opportunity to

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<sup>28</sup> IP Reply Comments, p. 19.

collocate its own DSLAMs at or near Pacific's RT sites. Specifically, Pacific will, upon a CLEC's request and payment under a special construction arrangement ("SCA"), either increase the size of future RT structures or provide the CLEC with an adjacent cabinet structure.<sup>29</sup>

48. The fourth condition involves Pacific's deployment of packet switching for its own use. With Project Pronto, Pacific is not deploying this packet switching equipment for its own use. The DSL-capable portion of the Project Pronto NGDLC RT and the OCD equipment are being deployed by Pacific only for CLECs' use in provisioning their own retail DSL services to end users.
49. IP's allegations not only fail to acknowledge the limited circumstances under which the FCC requires the unbundling of packet switching, but also fail to demonstrate that these circumstances apply to Pacific.<sup>30</sup> In fact, as just shown above, the Pacific's network does not meet the requirements established for the unbundling of packet switching in the FCC's rules.

#### Necessary and Impair Analysis

50. In determining which network elements should be made available to CLECs on an unbundled basis, the Act requires an evaluation of whether:

(A) access to such network elements as are proprietary in nature is necessary; and

<sup>29</sup> Project Pronto Order, Appendix A, paras. 5(b)(1), 5(b)(2), 5(c).

<sup>30</sup> IP Reply Comments, pp. 18-19.



(B) the failure to provide access to such network elements would impair the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer.<sup>31</sup>

As explained below, the Project Pronto architecture does not satisfy this test.

51. The Project Pronto architecture and the associated wholesale Broadband Service are not proprietary to a CLEC. That is, a CLEC can interconnect and utilize the Broadband Service to its own data network.
52. However, each manufacturer's equipment used in the Project Pronto architecture is proprietary to that manufacturer. That is, another manufacturer's equipment (e.g., plug-in cards) cannot be used within these pieces of equipment. For instance, only line cards manufactured by Alcatel can be used in the Alcatel Litespan NGDLC equipment.
53. The FCC has found in its UNE Remand Order that the proprietary nature of these manufacturers' individual items of equipment does not relate to the "necessary" standard set out by the Act.<sup>32</sup>
54. In order for the Project Pronto architecture or the Broadband Service to be unbundled, it would, however, have to satisfy the "impair" test. But neither the Project Pronto architecture nor the associated wholesale Broadband Service offering have to be unbundled for CLECS to be able to provide DSL services to their end users. First, absent the voluntary deployment of SBC's Project Pronto initiative,

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<sup>31</sup> § 251(d)(2)(A), (B).

<sup>32</sup> UNE Remand Order, para. 38.

the CLECs would still have the ability to provide DSL services to end users, using either their own central office-based DSLAMs and Pacific's full copper loops (as stand-alone UNE loops or the related HFPL UNEs), or their own remotely-located DSLAMs and Pacific's copper subloops (as stand-alone UNE subloops or the related HFPL UNEs). Most importantly, these options would be the same for any CLEC, including Pacific's advanced services affiliate.

55. Second, assume for a moment that SBC had never voluntarily initiated the Project Pronto deployment. Certainly, CLECs could not be impaired without unbundled access to a non-existent broadband network (i.e., a broadband network that SBC had never deployed in California). However, Pacific is voluntarily deploying Project Pronto, and is offering its end-to-end wholesale Broadband Service over this new architecture to all CLECs. As I explained previously, this Broadband Service provides CLECs with an additional option for offering DSL services to their end users, above and beyond the pre-existing network options available to the CLECs.

56. As a result, all of the CLECs have a completely equal opportunity to utilize yet another option to provide DSL services. Therefore, no CLEC is impaired without unbundled access to Project Pronto and/or the associated Broadband Service.

#### **NEW FEATURES AND FUNCTIONS**

57. IP and the CLEC Coalition contend their ability to offer different DSL services is limited by the Broadband Services Offering.<sup>33</sup> This section of my affidavit addresses those concerns by addressing new features and functions in the Project Pronto NGDLC. These include the ability to provide different types of DSL services, and the ability to provide DSL services with different ATM Quality of Service ("QoS") classes.

#### Different Types Of DSL

58. The Project Pronto architecture currently supports only ADSL.<sup>34</sup> The reasons for this are very clear. First, SBC has always portrayed Project Pronto as a means to extend broadband capabilities to the "mass market" (i.e., residential and small business customers), a segment of the public historically unable to obtain broadband services. In contrast, other business customers generally have had access to broadband capabilities for many years. Today, this mass market generally wants broadband capabilities for high-speed Internet access. The bandwidth needed for Internet access is generally asymmetric (i.e., large bandwidth downstream toward the end user, and smaller bandwidth upstream toward the Internet). In addition, these end users often want the same lines into their premises for both POTS and Internet access. Similarly, many CLECs want to use the POTS line into an end user's premises to be able to offer DSL service

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<sup>33</sup> IP Reply Comments, p. 21; CLEC Coalition Reply Comments, pp. 18-19.

<sup>34</sup> The Alcatel ADSL Digital Line Unit ("ADLU") card is used in the NGDLC to provide ADSL.

more quickly. ADSL is the form of DSL that provides the best match for these criteria, and is more readily available in NGDLC equipment (i.e., the ADLU line card is currently available from Pacific's NGDLC manufacturers). Therefore, this choice allows all CLECs the ability to offer DSL services to these end-users more rapidly.

59. In response to CLECs' requests, Pacific has committed to making another type of DSL, G.lite,<sup>35</sup> available on an RT-by-RT basis starting within six months after development and commercial availability from the NGDLC manufacturer.<sup>36</sup>
60. Other types of DSL services are not yet supported by Pacific's Project Pronto NGDLC manufacturers. And, even if other manufacturers' plug-in line cards can support other types of DSL, those other manufacturers' line cards cannot be utilized in the Project Pronto NGDLC equipment. The line card and the rest of the NGDLC equipment must be made by the same manufacturer because these NGDLC systems are software-driven, and each manufacturer's software is proprietary.
61. However, Pacific will work collaboratively in the future with individual CLECs, groups of CLECs, and the industry at large to introduce additional types of DSL into the Project Pronto architecture, subject to the criteria outlined in the FCC's Project Pronto Order.<sup>37</sup>

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<sup>35</sup> G.lite is a form of asymmetrical DSL similar to ADSL, but with lower speeds and splitters at the end users' premises that can be installed by the end users.

<sup>36</sup> Project Pronto Order, Appendix A, para. 4.

<sup>37</sup> Id. at Appendix A, paras. 4(a), 4(b), 8.

62. One of these criteria is that the introduction of an additional type of DSL into this architecture cannot impair the capacity of the deployed Project Pronto RTs. It would be completely unreasonable for Pacific to be forced to introduce such a new capability into its network if doing so would strand any part of Pacific's considerable investment in Project Pronto RTs, or otherwise impair other present and future end users from receiving advanced services and POTS through these RTs.
- 63 Another criterion is that such introductions are technologically and operationally feasible in Pacific's network architecture. Additional criteria include the existence of a reasonable market or CLEC commitment for the new capability, and a willingness by the CLEC(s) to pay for Pacific's reasonable costs for that new capability.

#### Other ATM QoS Classes

64. With digital services, the quality of the service may be defined in terms of specific error conditions. For example, QoS parameters (such as Cell Delay Variation and Cell Loss Ratio) have been defined for ATM technology.<sup>38</sup> Further, ATM QoS classes have been defined based upon factors such as these QoS parameters, traffic parameters (such Peak Cell

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<sup>38</sup> ATM, or "Asynchronous Transfer Mode," is a technology where information is divided into a series of "cells" of fixed byte-length, and routed across a network from the originating point to the termination point via transmission links connected by ATM switches. Cells are allocated to a specific service based upon demand and priority.

Rate), and end user application (such as Internet access or full-motion video).

65. The ATM QoS classes are:

- Constant Bit Rate ("CBR") - a constant bandwidth allocation, typically used for voice traffic, videoconferencing, and television;
- Variable Bit Rate ("VBR") - a statistical (average) bandwidth allocation, typically used for interactive compressed video and multimedia services;
- Available Bit Rate ("ABR") - a bandwidth allocation based upon network availability, primarily for data traffic such as file transfers; and,
- Unspecified Bit Rate ("UBR") - a best-effort bandwidth allocation, ideal for bursty<sup>39</sup> traffic such as Internet access.

66. ATM QoS classes relate to Project Pronto because this architecture utilizes an ATM-type of digital transmission for DSL services.

67. Through its wholesale Broadband Service, Pacific currently offers the UBR ATM QoS class. This is based upon the following factors. First, as explained above in discussing the types of DSL supported by Project Pronto, SBC's intent with Project Pronto is to extend the reach of DSL to more of the general public than can otherwise receive such services today. Second, the data needs for these end users are

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<sup>39</sup> As defined in Newton's Telecom Dictionary, "bursty" refers to data transmitted in short, uneven spurts.

generally bursty asymmetric Internet connections, which is best satisfied by the UBR QoS class.

68. Pacific's Project Pronto network architecture currently cannot support all ATM QoS classes. Therefore, it is simply not possible for these classes to be provided by Pacific over Project Pronto.
69. In addition, the use of other ATM QoS classes in Pacific's Project Pronto architecture must be carefully studied because of the serious impact they can have on the capacity of the architecture and the performance of other DSL services carried over the architecture. In other words, the use of other QoS classes can result in significant portions of the total bandwidth capacity of the NGDLC RT and data transport being allocated to some DSL end users, and therefore, less of the total bandwidth capacity being available for the remainder of the DSL end users. Therefore, offering these other QoS classes requires consideration of the capacity of the Project Pronto architecture and the effect on the quality of other end users' DSL services.
70. As an example, in one typical RT configuration, the Project Pronto NGDLC RT equipment can accommodate 672 separate DSL end users. This is based upon using the UBR QoS class, and a nominal downstream DSL bandwidth of 1.5 Mbps. As explained above, the UBR QoS class provides all end users the same opportunity to vie for and statistically share the available bandwidth in this architecture. If the CBR QoS

class were offered to these end users instead, two things would happen. First, with the CBR QoS class, each CBR DSL end user is guaranteed a set amount of bandwidth, leaving less bandwidth available for all of the UBR end users to share. This will create poorer service performance for all of those UBR end users. In addition, if every DSL end user had a CBR QoS class with 1.5 Mbps, the capacity of this architecture would be approximately 100 end users, representing only about 15% of the physical DSL end user capacity (i.e., 672) of the NGDLC RT equipment. In other words, the effective DSL capacity of the RT would be reduced by approximately 85%. This is a serious concern that must be evaluated by Pacific, the CLECs, and equipment vendors in the industry collaborative sessions committed to by SBC before additional QoS classes are deployed as part of Project Pronto. Without such an evaluation, this Commission should not require Pacific to deploy these other QoS classes.

71. Just as described above for different types of DSL, Pacific will work collaboratively in the future with individual CLECs, groups of CLECs, and the industry at large to introduce additional capabilities such as other QoS classes into the Project Pronto architecture, subject to the criteria also described above.

#### **PROJECT PRONTO VERSUS FCC-REQUIRED LINE SHARING**



72. The CLEC Coalition alleges Project Pronto should be unbundled by comparing Project Pronto to the high frequency portion of a copper loop ("HFPL").<sup>40</sup> First, Pacific cannot and need not unbundle the Project Pronto architecture for the reasons explained previously in my affidavit. Second, for the reasons explained below, Pacific is not required to unbundle the fiber portion of the Project Pronto architecture in a manner equivalent to the unbundled high frequency portion of the loop established by the FCC in its Line Sharing Order.<sup>41</sup> The Commission likewise found that "the line sharing UNE occurs on the copper, but not the fiber optic, portion of the local loop."<sup>42</sup>

73. Several citations directly from the FCC's Line Sharing Order provide a very clear picture of the line sharing defined by and required by the FCC. First, the FCC order provides a very basic definition of line sharing as follows:

Line sharing generally describes the ability of two different service providers to offer two services over the same line, with each provider employing different frequencies to transport voice or data over that line.<sup>43</sup>

The order then clarifies that this line sharing occurs only over copper loops (i.e., not fiber facilities), stating:

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<sup>40</sup> CLEC Coalition Reply Comments, p. 16.

<sup>41</sup> See, e.g., 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 Dkt. Nos. 98-1478, 96-98, Third Report and Order in CC Docket No. 98-147 [and] Fourth Report and Order in Docket No. 96-98, FCC No. 99-355 (rel. Dec. 9, 1999), para. 25.

<sup>42</sup> D.00-09-074, pp. 2, 7 (Sep. 21, 2000).

<sup>43</sup> Line Sharing Order, para. 17 (citations omitted).

Line sharing through the simultaneous use of discrete electromagnetic frequencies on a single wire pair to provide separate communications services, is the only form of line sharing considered in this Order, and is only possible on metallic loops. Thus, fiber-based transmission systems are not considered in this Order ....<sup>44</sup> (emphases added).

Next, the FCC order defines a new UNE, the high frequency portion of the loop ("HFPL"), as follows:

... we conclude that access to the high frequency spectrum of a local loop meets the statutory definition of a network element and satisfies the requirements of sections 251(d)(2) and (c)(3). It is technically feasible for an incumbent LEC to provide a competitive LEC with access to the high frequency portion of the local loop as an unbundled network element.<sup>45</sup>

The FCC order then re-emphasizes that its required line sharing relates only to copper loops by clarifying that the HFPL UNE exists only on copper loops, stating:

We define the high frequency spectrum network element to be the frequency range above the voiceband on a copper loop facility used to carry analog circuit-switched voiceband transmissions.<sup>46</sup> (emphasis added).

Last, the FCC order limits line sharing to those situations where the incumbent LEC (e.g., Pacific) provides the POTS over the copper pair, stating:

As stated previously, line sharing contemplates that the incumbent LEC continues to provide POTS services on the lower frequencies while another carrier provides data services on higher frequencies. The record does not support

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<sup>44</sup> Id. at fn. 27.

<sup>45</sup> Id. at para. 25.

<sup>46</sup> Id. at para. 26.

extending line sharing requirements to loops that do not meet the prerequisite condition that an incumbent LEC be providing voiceband service on that loop for a competitive LEC to obtain access to the high frequency portion. Accordingly, we conclude that incumbent LECs must make available to competitive carriers only the high frequency portion of the loop network element on loops on which the incumbent LEC is also providing analog voice service ....<sup>47</sup> (emphases added).

74. The diagram shown in my Attachment JPL-4 demonstrates how a CLEC can line share over a full copper loop (i.e., a loop that is copper all the way from the central office to the end user's premises). As demonstrated by the thick line in this diagram, both the Pacific POTS and the CLEC DSL service co-exist on the same copper loop from the end user's premises to the central office splitter. The splitter is essentially a filter that separates the POTS' low-frequency signal from the DSL service's high-frequency signal. Once separated, the POTS travels over a copper path to the Pacific local switch, and the DSL service travels over a separate copper path to the CLEC's DSLAM located in the

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<sup>47</sup> Id. at para. 72.

CLEC's central office collocation arrangement. In this diagram, the splitter is provided by the CLEC.

75. FCC-required line sharing involves only Pacific's copper subloops when DLC is present. When DLC is present, a CLEC can only line share over the copper subloop between the serving area interface ("SAI") and the end user's premises. The diagram shown in my Attachment JPL-5 illustrates how a CLEC would line share over a copper subloop. As demonstrated by the thick line in this diagram, both the Pacific POTS and the CLEC DSL service co-exist on the same copper distribution subloop from the end user's premises to the SAI, and on the CLEC's cabling from the SAI to its remotely-located splitter.<sup>48</sup> Again, the splitter is essentially a filter that separates the POTS' low-frequency signal from the DSL service's high-frequency signal. Once separated, the POTS travels over a copper path to the Pacific DLC RT for transport back to its local switch, and the DSL service travels over a separate copper path to the CLEC's remotely-located DSLAM.
76. The FCC's line sharing rules contemplate the situation where a CLEC line shares over just the copper subloop. Section 51.319(h)(6) of the FCC's line sharing rules states:

Digital Loop Carrier Systems. Incumbent LECs must provide to requesting carriers unbundled access to the high frequency portion of the loop at the

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<sup>48</sup> Pacific offers CLECs a more economical and convenient means of accessing copper subloops at multiple SAIs from a single point within or near a Pacific RT site, referred to as an engineering controlled splice ("ECS"), described later in my affidavit.

remote terminal as well as the central office, pursuant to section 51.319(a)(2) and section 51.319(h)(1).<sup>49</sup> (The title of this rule is underlined in the FCC's rules; the remaining underlining has been added here for emphasis.)

The underlined portion of this rule refers to two other FCC rules. These other two rules, taken together, explain that, where DLC has been deployed, line sharing can occur only over the copper distribution subloop. In other words, in this situation, a CLEC must access the copper distribution subloop to line share because the DLC portion of the loop cannot pass the DSL service's high-frequency signal back to the central office for access by the CLEC. Specifically, the first of these other two FCC rules, Section 51.319(a)(2), defines the subloop and subloop access as:

*Subloop.* The subloop network element is defined as any portion of the loop that is technically feasible to access at terminals in the incumbent LEC's outside plant, including inside wire. An accessible terminal is any point on the loop where technicians can access the wire or fiber within the cable without removing a splice case to reach the wire or fiber within. Such points may include, but are not limited to, the pole or pedestal, the network interface device, the minimum point of entry, the single point of interconnection, the main distribution frame, the remote terminal, and the feeder/distribution interface.<sup>50</sup>

More importantly, however, the second of these other two FCC rules, Section 51.319(h)(1), limits line sharing in DLC

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<sup>49</sup> Although the FCC uses the term "remote terminal" in this rule, there is generally no access to subloops at a remote terminal site. The next paragraph in my affidavit cites FCC Rule 51.319(a)(2), which clarifies the conditions for subloop access.

<sup>50</sup> The "feeder/distribution interface" is another term for the SAI.

situations to only the copper subloop (i.e., not also the DLC portion of the loop), stating:

The high frequency portion of the loop network element is defined as the frequency range above the voiceband on a copper loop facility that is being used to carry analog circuit-switched voiceband transmissions. (emphasis added).

77. Pacific's Project Pronto has no impact on the line sharing scenarios illustrated in both Attachment JPL-4 and Attachment JPL-5 because Project Pronto is an overlay network architecture. This means that the existing copper loops and copper subloops in Pacific's network are not replaced by Project Pronto, as explained previously in my affidavit. In other words, Project Pronto has no impact on the availability of copper loops or copper subloops to a CLEC for line sharing in accordance with the FCC's Line Sharing Order.
78. In fact, as also previously explained, the "data with line-shared subloop" scenario of the wholesale Broadband Service offers CLECs an additional option for providing advanced services to a Pacific POTS end user (i.e., achieving the same functional result as the FCC's required line sharing).

#### **ACCESS TO SUBLOOPS AT REMOTE TERMINALS**

79. IP and the CLEC Coalition suggest that Pacific limits or refuses CLEC access to the subloops at the Project Pronto RT

site.<sup>51</sup> These allegations are unfounded, as I explain below.

80. The FCC in the UNE Remand Order, defined a subloop as follows:

We define subloops as portions of the loop that can be accessed at terminals in the incumbent's outside plant. An accessible terminal is a point on the loop where technicians can access the wire of fiber within the cable without removing a splice case to reach the wire of fiber within.<sup>52</sup>

81. Based upon the FCC's UNE Remand Order, Pacific offered the following unbundled subloops:

- main distributing frame ("MDF") to feeder-distribution interface ("FDI")
- MDF to service terminal<sup>53</sup>
- FDI to service terminal
- FDI to network interface device ("NID")<sup>54</sup>
- service terminal to NID

82. Access to subloops generally does not exist at Pacific RT sites. In other words, DLC equipment located at RT sites is generally hardwired to copper pairs that extend from the RT site to the SAI. There are several reasons why Pacific hardwires these copper pairs at the RT. This configuration

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<sup>51</sup> IP Reply Comments, pp. 19-20, 23; CLEC Coalition Reply Comments, p. 39.

<sup>52</sup> UNE Remand Order, para. 206. This FCC statement is further clarified by footnote 395 in the UNE Remand Order, which states "Accessible terminals contain cables and their respective wire pairs that terminate on screw posts. This allows technicians to affix cross connects between binding posts of terminals collocated at the same point."

<sup>53</sup> The service terminal is the cross-connect terminal where the drop wire to the end user's premises is connected to the distribution cable.

<sup>54</sup> The network interface device is the access point at the end user's premises between the drop wire and the inside wire.

eliminates the need for the Pacific technician to stop at the RT to run an additional cross-connect on a service order-by-service order basis. This configuration also avoids the increased cost associated with inventorying a cross-connect point at the RT site. In addition, savings are realized by not increasing the size of the RT structure to house the additional cross-connect device. In sum, this configuration minimizes the cost and time required to install end user services provisioned over DLC.

83. SBC's voluntary commitments adopted by the FCC in its Project Pronto Order include another opportunity for CLEC access to Pacific's subloops. Upon a CLEC's request and via a special construction arrangement, Pacific will provide this additional access point to subloops at or near each Project Pronto RT, utilizing an engineering controlled splice ("ECS").<sup>55</sup>
84. With the ECS, a CLEC will have the ability to access all SAIs served by an RT site, thus eliminating the need for the CLEC to place its own copper facilities between a remotely-located DSLAM and every SAI, or to place its DSLAMs at every SAI.
85. The following is a list of the new (i.e., additional) subloops that IP or any other CLEC may now access through an ECS, thus eliminating the need for CLECs to collocated at every SAI, as IP erroneously alleges<sup>56</sup> it must do:

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<sup>55</sup> Project Pronto Order, Appendix A, para. 5(d).

<sup>56</sup> IP Reply Comments, p. 23.



- MDF to ECS
- ECS to FDI
- ECS to service terminal
- ECS to NID

86. Accessible Letter CLEC00-230, dated September 15, 2000, (Attachment JPL-6) offers the ECS to requesting CLECs, under a special construction arrangement, at all Pacific RT sites, not just those that contain Project Pronto NGDLC equipment.
87. This concludes my affidavit.

**[SIGNATURE PAGE FOLLOWS]**

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge, information and belief.

Executed in Plano, Texas this 7th day of December 2000.

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John P. Lube

LUBE AFFIDAVIT  
Attachment 1

LUBE AFFIDAVIT  
Attachment 2

LUBE AFFIDAVIT  
Attachment 3

LUBE AFFIDAVIT  
Attachment 4

LUBE AFFIDAVIT  
Attachment 5

LUBE AFFIDAVIT  
Attachment 6