Exhibit 2

DOCKET NO. 20226

PETITION OF RHYTHMS LINKS, INC.	§	
FOR ARBITRATION TO ESTABLISH AN	§	**PUBLIC UTILITY COMMISSION**
INTERCONNECTION AGREEMENT	§	
WITH SOUTHWESTERN BELL	§	**OF TEXAS**
TELEPHONE COMPANY	§	

DOCKET NO. 20272

PETITION OF DIECA	§	
COMMUNICATIONS, INC., d/b/a COVAD	§	**PUBLIC UTILITY COMMISSION**
COMMUNICATIONS COMPANY FOR	§	
ARBITRATION OF INTERCONNECTION	§	**OF TEXAS**
RATES, TERMS, CONDITIONS AND	§	
RELATED ARRANGEMENTS WITH	§	
SOUTHWESTERN BELL TELEPHONE	§	
COMPANY	§	

ARBITRATION AWARD

Table of Contents

Page

I. Summary of Proceeding; Ruling on Disputed Issues 3

II. Policy, Terms and Conditions - DPL Issue Nos. 1-7, 9-10 5

III. Spectrum Management – DPL Issue Nos. 8, 11-14 36

IV. Provisioning – DPL Issue Nos. 15-22 56

V. Collocation – DPL Issue Nos. 33, 34, 36 82

VI. Costs, Rates and Prices – DPL Issue Nos. 26-32, 35 83

VII. Miscellaneous – DPL Issue Nos. 23-25, 37-39 104

VIII. Implementation Schedule 110

IX. Conclusion 112

Attachment A: DPL Issue Cross-Reference Sheet

Attachment B: Confidential References in Award (CONFIDENTIAL)

Attachment C: Revised Shielded Cross Connect Cost Study (CONFIDENTIAL)

Attachment D: Revised Conditioning Cost Study for xDSL Loops greater than 12,000 feet but less than 18,000 Feet in Length (CONFIDENTIAL)

Attachment E: Revised Conditioning Cost Study for xDSL Loops at or in Excess of 18,000 Feet in Length (CONFIDENTIAL)

I. SUMMARY OF PROCEEDINGS

On December 11, 1998, and December 21, 1998, Accelerated Communications, Inc. (Rhythms)[1] and DIECA Communications, Inc. d/b/a Covad Communications Company (Covad), respectively (collectively referred to as Petitioners), filed petitions[2] to establish interconnection agreements with Southwestern Bell Telephone Company (SWBT) pursuant to section 252(b) of the federal Telecommunications Act of 1996 (FTA).[3] In order to reduce administrative burdens, the two petitions were consolidated under FTA § 252(g). The hearing on the merits convened on April 14, 1999, and continued through April 16, 1999, at which time the Arbitrators recessed the hearing for six weeks to allow the Parties time to conduct further discovery after it was determined that SWBT had not fully responded to Petitioners' discovery requests.

Following the Arbitrators' decision to extend the discovery period, Petitioners requested an interim order requiring interconnection to prevent any delay in Petitioners' entry into the Texas xDSL market.[4] The Arbitrators issued an interim order,[5] which was subsequently appealed by SWBT.[6] At the May 20, 1999 open meeting, the Commission encouraged the Parties to come to a timely agreement in order to implement the interim order. SWBT and Petitioners implemented interim interconnection agreements on June 2, 1999.

---

[1] Accelerated Communications, Inc. (ACI) has since changed its name to Rhythms Links, Inc. (Rhythms), Letter to All Parties Re: Notice of Name Change to Rhythms Links (April 30, 1999); Order No. 24, Recognizing Name Change (Oct. 8, 1999). Throughout this Award, ACI will be referred to as Rhythms. References to pleadings shall reflect the actual name of the Party at the time they were filed.

[2] Petition of Accelerated Communications, Inc. for Arbitration to Establish an Interconnection Agreement with Southwestern Bell Telephone Company, Docket No. 20226 (Dec. 11, 1998); Petition of DIECA Communications, Inc., d/b/a Covad Communications Company for Arbitration of Interconnection Rates, Terms, Conditions and Related Arrangements with Southwestern Bell Telephone Company, Docket No. 20272 (Dec. 21, 1998).

[3] Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56, codified at 47 U.S.C. §§ 151 et seq. (FTA).

[4] ACI's Letter to Judges Farroba and Curry Regarding an Interim Order (April 16, 1999); List of Interim Steps the Commission Should Require SWBT to Implement to Prevent the Delay in the Arbitration from Further Delaying Covad's Ability to Bring Competitive DSL Services to Texas (April 21, 1999).

[5] Order No. 5, Interim Order (April 26, 1999).

[6] SWBT's Appeal of Order No. 5 Interim Order (May 11, 1999).

Following the six-week recess, the hearing on the merits reconvened on June 2, 1999, continuing until completed on June 5, 1999.

This arbitration proceeding has been conducted in accordance with P.U.C. PROC. R. 22.301 - 22.310. The scope of the issues addressed in this arbitration proceeding is limited to the decision point list (DPL)[7] developed by the Parties.

Ruling on Disputed Issues

The issues in the final DPL are grouped into the following six areas: (1) policy, terms and conditions; (2) spectrum management; (3) provisioning; (4) collocation; (5) costs, rates and prices; and (6) miscellaneous. In this Award, each DPL issue is restated, along with a brief summary of the Parties' positions, followed by the Arbitrators' ruling. As required by P.U.C. PROC. R. 22.305(s), an explanation of the Arbitrators' rationale for each of the rulings is provided.

The Arbitrators find that the following decisions and rates, terms and conditions imposed on the Parties by this Award meet the requirements of FTA § 251 and P.U.C. PROC. R. 22.301-22.310 and any applicable regulation prescribed by the Federal Communications Commission (FCC) pursuant to FTA § 251. This Award establishes terms and conditions, including rates, for interconnection, services, and network elements according to the standards set forth in FTA § 252(d). A schedule for implementation of the rates, terms and conditions of this Award is set forth in Section VIII.

---

[7] Revised Decision Point Matrix (DPL) (May 28, 1999).

I. Policy, Terms and Conditions

DPL Issue Nos. 1-7, 9-10

1. How should a 2-wire xDSL capable loop be defined?

Parties' Positions

Rhythms asserts that SWBT must be ordered to provide a single type of "clean copper" xDSL UNE loop, on which Rhythms can deploy any xDSL technology permitted by the *Advanced Services Order*[8] and/or any order of this Commission.[9] Rhythms' proposed DSL-capable loop is described as follows:[10]

- The loop should be a clean copper loop, with no load coils and a minimum of bridge taps of up to 2,500 feet;
- The loop may contain repeaters at Rhythms' option;
- For DSL services other than IDSL, the loop cannot be part of a digital loop carrier system ("DLC");
- The loop cannot have Digital Added Main Line ("DAML") technology;
- The loop cannot be "categorized" based on loop length in an attempt to impose an artificial restriction on service placed over the loop and artificial limitations cannot be placed on the length of DSL-capable UNE loops;
- The loop should be provisioned to meet basic metallic and electrical characteristics such as electrical conductivity and capacitive and resistance balance; and
- If SWBT is allowed to place limitations on the loop type and xDSL services, it must comply with existing or future national standards as articulated by the American National Standards Institute ("ANSI"), or other national forum, and SWBT cannot restrict Rhythms' use of the loop within these standards.

Rhythms' proposed definition of a 2-wire xDSL Capable Loop is:

---

[8] *In the Matter of Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket No. 98-147, First Report and Order and Further Notice of Proposed Rulemaking, FCC 98-48, (rel. Mar. 31, 1999) (*Advanced Services Order*).

[9] ACI Exhibit 1, Direct Testimony of Eric H. Geis at 14-18 (Feb. 19; 1999).

[10] *Id.* at 1718; ACI's Post-Hearing Brief at 17-26 (Aug. 17, 1999).

> A "2-wire xDSL Capable Loop" for purposes of this Section is a loop from a customer premises to a SWBT Central Office, provisioned using copper facilities from the customer premises to the SWBT Central Office. The loop will have no load coils, and minimal bridge tap up to 2,500 feet. The loop may contain repeaters at [Rhythms'] option. If a portion of the loop must be provisioned using fiber optic facilities due to the exhaustion of copper facilities, even after regrooming, [Rhythms] shall have the right to place appropriate equipment, such as digital subscriber line access multiplexing equipment, at the fiber/copper interface point in SWBT's loop plant. The Parties acknowledge that [Rhythms] may use a variety of xDSL technologies to provision services using a 2-wire xDSL-Capable Loop.[11]

According to Rhythms, this "one size fits all" clean copper loop will promote innovation and customer choice.[12] Rhythms objects to SWBT's proposed seven different xDSL-Capable loop offerings. Rhythms argues that SWBT's proposed language violates the *Advanced Services Order* because a single loop type for xDSL services is technically feasible.[13]

In addition to the disagreement regarding the provision of "one size fits all" xDSL loops, Rhythms opposes SWBT's inclusion of language regarding spectrum compatibility and management in the definition of the 2-Wire xDSL-Capable Loop.[14] Rhythms further argues that SWBT should be required to perform a "line and station transfer" in the event that a potential Rhythms customer is served on a loop that contains fiber optic facilities (DLC or DAML), in order to allow another copper pair, if available, to extend directly to the customer.

Covad's proposed definition is:

> A 2-wire xDSL capable loop (xDSL Loop) for purposes of this Section, is a loop which supports the transmission of Digital Subscriber Line (DSL) technologies. The loop is a transmission path from a customer premises to a SWBT Central office where a CLEC has located appropriate associated equipment, including a cross connect cable from the Main Distributing Frame (MDF) to the associated equipment point of termination. The loop is an upgrade to the Basic Link having

---

[11] First Amended Petition of ACI, Attachment 6 (Jan. 22, 1999).

[12] ACI's Post-Hearing Brief at 22 (Aug. 17, 1999).

[13] *Id.* at 24 (Aug. 17, 1999); ACI Exhibit 9, Rebuttal Testimony of Mike Kersh at 6-7 (April 8, 1999).

[14] ACI Exhibit 1, Direct Testimony of Eric H. Geis at 28-32 (Feb. 19, 1999); ACI Exhibit 3, Direct Testimony of Rand Kennedy at 20 (Feb. 19, 1999). Spectrum management and compatibility issues are discussed in Section III of this Award.

> no mid-span repeaters or other electronics and no greater loss than 38dB end-to-end measured at 40,000 Hz with 135 ohms at the central office POI and 135 ohms at the MPOE. This loop will not have any load coils or bridged taps within limits defined by the specification applicable to ISDN loops.[15]

Covad contends that in order to provision most of its xDSL services, including ADSL and SDSL, it "merely needs a clean copper loop that is not too long."[16] Currently, Covad requires loops that are less than 15,000 feet in length, unless providing IDSL, for which Covad can provision service over loops up to 40,000 feet in length.[17]

SWBT's amended proposed definition is:

> The term digital subscriber line ("DSL") describes various technologies and services. The "x" in xDSL is a place holder for the various types of DSL services, such as ADSL (asymmetric digital subscriber line), HDSL (high-speed digital subscriber line), UDSL (universal digital subscriber line), VDSL (very high-speed digital subscriber line), and RADSL (rate-adaptive digital subscriber line). The provision of DSL services is subject to a variety of important technical constraints, including subscriber loop length and the quality of the loop, which must be free of excessive bridged taps, loading coils, and other devices commonly used to aid in the provision of analog voice and data transmission, but which interfere with the provision of DSL services. In addition, clear spectral compatibility standards and spectrum management rules and practices are necessary both to foster competitive deployment of innovative technologies and to ensure the quality and reliability of the public telephone network. The Parties will comply with the FCC's rules on spectrum compatibility and management that enable the reasonable and safe deployment of advanced services prior to the development of industry standards.[18]

At the time the initial request for arbitration was filed, SWBT proposed a definition that Petitioners interpreted to limit them to the provision of only ADSL service over xDSL loops. On March 30, 1999, SWBT amended its proposed contract language, explaining that the xDSL loop

---

[15] *First Amended Petition of Covad, Proposed Contract Language* (Jan. 20, 1999).

[16] Covad Exhibit 4, Direct Testimony of Anjali Joshi at 5 (Feb. 19, 1999).

[17] *Id.* at 6.

[18] SWBT Exhibit 6, Rebuttal Testimony of Michael C. Auinbauh, Schedule 2, Section I (March 30, 1999).

offering was being expanded to allow competitive local exchange carriers (CLECs) to deliver a variety of high-speed data access options over SWBT's network.[19]

In addition to the basic proposed definition above, SWBT's revised contract language proposal contains seven different xDSL-Capable loop offerings, as follows:[20]

A. xDSL-Capable Loops used with xDSL Technology which complies with Existing Industry Standards.
   1. 2-Wire ADSL-Capable loop
   2. 2-Wire Very Low-band Symmetric Technology Capable Loop
   3. 2-Wire Mid-band Symmetric Technology Capable Loop
   4. 4-Wire Mid-band Symmetric Technology Capable Loop
   5. Other Industry Standard DSL-capable loops

B. Non-Standard DSL-Capable Loops.
   1. Approved or successfully deployed non-standard xDSL technologies
   2. Other Non-standard xDSL technologies

SWBT maintains that it must define these seven loop types in order to allow CLECs to efficiently obtain loops for chosen xDSL services while still allowing SWBT to meet its obligations to inventory and manage the network. SWBT opposes any attempt by a CLEC to obtain a universal xDSL "clean copper loop," asserting that such requests are simplistic and erroneous.[21] According to SWBT witness Mr. Deere, SWBT does not agree with Rhythms' definition of a clean copper loop, since SWBT believes "that the interference is a major component of providing a loop that is capable of providing services."[22]

SWBT disagrees with Petitioners' proposed loop definitions that allow Petitioners to place digital subscriber line access multiplexing (DSLAM) equipment outside of the central office, at the fiber/copper interface point. SWBT indicates that ADSL loops may be available out of remote terminal (RT) sites, but that SWBT will have to work with CLECs to identify

---

[19] *Id.* at 7.

[20] *Id.* at Schedule 2, Section II-A and II-B.

[21] SWBT Exhibit 5, Direct Testimony of V. Allen Samson at 5 (Feb. 19, 1999).

[22] Tr. at 72 (April 14, 1999).

crosstalk and interference issues associated with RTs.[23] This issue is further addressed in DPL Issue No. 6.

Award

To evaluate the definition of an xDSL-capable loop, the Arbitrators begin with the definition of a local loop UNE. In the 1996 *Local Competition First Report and Order*,[24] the FCC concluded that "the local loop element should be defined 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." The FCC further found that this definition "includes, for example, two-wire and four-wire analog voice-grade loops, and two-wire and four-wire loops that are conditioned to transmit the digital signals needed to provide services such as ISDN, ADSL, HDSL, and DS1-level signals."[25]

In ¶¶ 383 and 384 of the *Local Competition First Report and Order*, the FCC further found that it is technically feasible to unbundle IDLC-delivered loops. The FCC stated:

> . . . incumbent LECs must provide competitors with access to unbundled loop types regardless of whether the incumbent LEC uses integrated digital loop carrier technology, or similar remote concentration devices, for the particular loop sought by the competitor. . . . If we did note require incumbent LECs to unbundle IDLC-delivered loops, end users served by such technologies would not have the same choice of competing providers as end users served by other loop types. Further, such an exception would encourage incumbent LECs to "hide" loops from competitors through the use of IDLC technology.

In its recent *UNE Remand Order*,[26] the FCC described DSL-capable loops as "loops capable of providing high-speed data services," "basic loops stripped of accreted devices, *i.e.*,

---

[23] SWBT Exhibit 2, Direct Testimony of William C. Deere at 21 (Feb. 19, 1999); SWBT Exhibit 7, Rebuttal Testimony of William C. Deere at 18 (April 8, 1999).

[24] *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, First Report and Order, FCC 96-325 (rel. Aug. 8, 1996) (*Local Competition First Report and Order*).

[25] *Local Competition First Report and Order* at ¶ 380.

[26] *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 99-238 (rel. Nov. 5, 1999) (*UNE Remand Order*).

'conditioned' loops," "unencumbered copper wire," and "basic loops, with their full capacity preserved."[27]

The Arbitrators find that SWBT should not be allowed to limit the capabilities of xDSL services on an xDSL loop through unnecessarily complex definitions and restrictions. FTA § 706 requires the FCC and state commissions to "encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans ... by utilizing, in a manner consistent with the public interest, ... measures that promote competition in the local telecommunications market ... "[28] The competitive provisioning of xDSL services appears consistent with Congressional intent regarding innovation of advanced services. Arbitrary restrictions or restrictions unilaterally imposed by an ILEC should not be placed on the type of services that may be provisioned using copper loops. However, the Arbitrators find that the technologies deployed on copper loops must be in compliance with relevant national industry standards and/or requirements established during this Commission's § 271 proceeding, *e.g.*, standards set by the § 271 DSL Working Group.[29]

The Arbitrators find that SWBT provided no compelling evidence for its categorization of loop types, other than the distinction between 2-wire and 4-wire loops, which is not a disputed issue. SWBT bases its categorization on spectrum management issues, but provides no clear rebuttal to proposals that many types of xDSL technology can be placed on precisely the same "clean" copper pair. The Arbitrators do not believe that SWBT has demonstrated that Rhythms' "one size fits all" concept will not work, and find that a single xDSL capable UNE loop type is technically feasible, and is efficient both timewise and economically. The Arbitrators find that SWBT must offer a "2-wire xDSL loop" and a "4-wire xDSL loop" and cannot require the use of multiple xDSL-Capable loop offerings like the seven it proposed in these proceedings. In

---

[27] *UNE Remand Order* at ¶ 190.

[28] FTA § 706(a).

[29] *See* Project No. 16251, *Investigation of Southwestern Bell Telephone Company's Entry Into The Texas InterLATA Telecommunications Market*, Order No. 53, Approving Addition of DSL Attachment and Changes to Texas 271 Agreement (Sept. 22, 1999) ("T2A"). The § 271 DSL Working Group is referenced in Section 8.4 of Attachment 25 of the T2A. *See also* Project No. 16251, *Memorandum of Understanding*, filed by SWBT (Apr. 26, 1999) ("MOU").

addition, the Arbitrators find that the xDSL loop cannot be "categorized" based on loop length and limitations cannot be placed on the length of xDSL loops available to CLECs.

The Arbitrators find no reason to burden the definition of a "2-wire xDSL loop" with the complexities of spectrum compatibility and management. Nor should the definition of a "2-wire xDSL loop" include specifics regarding the issue of provisioning when fiber optic facilities are present, *e.g.*, remote placement of DSLAM equipment, "line and station transfers," sub-loop unbundling. Those issues are addressed separately in this Award, and the Parties should incorporate separately agreement language on those issues.

The Arbitrators, therefore, find that the definition of a "2-wire xDSL loop" shall be as follows:

> A 2-wire xDSL loop (xDSL Loop) for purposes of this section, is a loop that supports the transmission of Digital Subscriber Line (DSL) technologies. The loop is a dedicated transmission facility between a distribution frame, or its equivalent, in a SWBT central office and the network interface device at the customer premises. A copper loop used for such purposes will meet basic electrical standards such as metallic conductivity and capacitive and resistive balance, and will not include load coils or excessive bridged tap.[30] The loop may contain repeaters at [CLEC's] option. The loop cannot be "categorized" based on loop length and limitations cannot be placed on the length of xDSL loops. A portion of an xDSL loop may be provisioned using fiber optic facilities and necessary electronics to provide service in certain situations.

2(a). Can a clean copper loop support multiple xDSL technologies?

Parties' Positions

Rhythms contends that a clean copper loop can support many types of xDSL services, including ADSL, RADSL, SDSL, and HDSL technologies, and that IDSL can be deployed on copper or copper/fiber loop plant configurations.[31] Rhythms argues that there is no need for SWBT's elaborate binder group management (BGM) process, since xDSL technologies are

[30] Excessive bridged tap is defined as bridged tap in excess of 2,500 feet in length.

[31] ACI Exhibit 3, Direct Testimony of Rand Kennedy at 10-11 (Feb. 19, 1999).

designed to coexist with one another.[32] Rhythms contends that this has been proven in multiple jurisdictions, including California, Illinois, Massachusetts, and New York. Furthermore, Rhythms adds that deployment is imminent in New Jersey, Pennsylvania, Maryland, Virginia, and the District of Columbia.[33]

Rhythms insists that it does not seek a guarantee that the service it chooses to connect to the clean copper loop will work in all cases, or that it will be able to achieve a particular transmission rate. Rhythms seeks only a guarantee that the loop provided will be free of shorts, opens, or grounds, and that it will have acceptable metallic and electrical characteristics, including electrical conductivity and capacitive and resistive balance.[34]

Covad declares that it needs clean copper loops to deploy ADSL, SDSL, and IDSL in Texas.[35] Covad indicates that it is currently providing SDSL, IDSL, and ADSL services in Washington, California, New York, Massachusetts, Virginia, Maryland, Pennsylvania, New Jersey, Illinois, Michigan, and Washington, D.C.[36]

SWBT asserts that a "clean copper loop" is not a standard design facility in a traditional telephone network.[37] SWBT indicates that loops exist in a binder group within a cable, and while some binder groups could support one xDSL technology alongside other services, a different xDSL technology on the same pair in that same binder group may not be supportable. SWBT claims that the issue goes beyond the theoretical "clean cooper loop" but exists in a real world where multiple service providers share limited resources. Effective use of those resources, according to SWBT witness Mr. Deere, requires identification of the types of technologies

---

[32] ACI Exhibit 4, Direct Testimony of Philip Kyees at 7 (Feb. 19, 1999); ACI Exhibit 8, Rebuttal Testimony of Rand Kennedy at 6 (April 8, 1999).

[33] ACI Exhibit 1, Direct Testimony of Eric H. Geis at 12 (Feb. 19, 1999).

[34] ACI Exhibit 8, Rebuttal Testimony of Rand Kennedy at 8-9 (April 8, 1999); ACI Exhibit 4, Direct Testimony of Philip Kyees at 6 (Feb. 19, 1999).

[35] Covad Exhibit 4, Direct Testimony of Anjali Joshi at 5 (Feb. 19, 1999).

[36] Covad Exhibit 1, Direct Testimony of Charles A. Haas at 9 (Feb. 19, 1999); Tr. at 1169 (June 4, 1999).

[37] SWBT Exhibit 5, Direct Testimony of V. Allen Samson at 5 (Feb. 19, 1999).

supportable, the effect of those technologies, and then management of the outside plant to maximize service availability. It is SWBT's position that copper loops can be conditioned and managed to support multiple technologies only if those technologies are defined, inventoried separately, and managed according to appropriate spectrum guidelines.[38] SWBT therefore proposes that Petitioners be required to order from seven different xDSL loop types as defined by SWBT.

Award

The Arbitrators are not persuaded by SWBT's argument that various types of xDSL services cannot work on the same basic copper loop. SWBT's argument focuses instead on the categorization of services provided on these loops in order to manage spectrum and conditioning. Further, SWBT's categorization proposal is inefficient and unnecessary, and could lead to delays in and barriers to CLEC deployment of xDSL. Requiring Petitioners to order from seven different loop types as determined by SWBT has the potential to cause delay in the wholesale ordering and provisioning process.

The Arbitrators are concerned that SWBT has shown a clear tendency to oppose provision of multiple xDSL technologies provided by CLECs on SWBT's unbundled facilities. As an example, the following communication took place between SBC employees on March 16, 1998:

> *Message from C. Yackle to M. Russell, J. Thurwalker (Mar. 16, 1998, 10:58 a.m.):* Mark – Once again we may need some guidelines. We can't manage a million different technologies. We must unbundle what we offer not everything that anyone can think up. Today we use ISDN, HDSL and ADSL. We need guidelines for these. Jim – Can we maintain a position that we don't provide unbundled loops for technologies that we do not use?
>
> *Response from J. Thurwalker (March 16, 1998, 1:03 p.m.):* Cliff – Generally speaking, we've successfully defended our position of not providing unbundled loops for services which we did not provide under the argument that the technology issues have not been addressed, and as such we don't know what it will do to our network fabric.

[38] SWBT Exhibit 2, Direct Testimony of William C. Deere at 18 (Feb. 19, 1999).

> *Response from C. Yackle (March 16, 1998, 1:07 p.m.):* I suspect that we should begin to seriously consider how we are going to react as different CLECs want to utilize different technologies in our cable plant. I know that we are all fixing to get very busy but a consistent well thought out approach could avoid another problem like we face with Covad and others in California.[39]

Another example of SWBT's desire to limit CLEC services can be found in the July 21, 1998 minutes of the Network Evolution for Data Services (NERDS) committee. *See* Confidential Attachment B, Paragraph A.

Petitioners have demonstrated that clean copper loops are currently supporting multiple xDSL technologies in other jurisdictions.[40] Further, the FCC provides direction on this issue when describing methods to foster competitive deployment of innovative technologies for advanced services.[41] The evidence in this proceeding indicates that a clean copper loop (without load coils, excessive bridged tap, and within a specific design length) can support multiple xDSL technologies. The language adopted in the award for DPL Issue No. 1 is sufficient for the provision of xDSL services without SWBT's proposed categorizations.

2(b). If so, is SWBT required to provide a loop that can support more DSL technologies than ADSL, at the option of the CLEC?

Parties' Positions

Rhythms asserts that there is no technical basis on which SWBT can legitimately restrict Rhythms' use of a loop as SWBT has proposed, so long as Rhythms' deployment of xDSL technology complies with relevant national standards.[42] Rhythms states that SWBT's proposal to submit new xDSL products to a third-party laboratory for testing would serve only to delay introduction of new technologies and services.[43]

---

[39] Covad Exhibit 52.

[40] ACI Exhibit 1, Direct Testimony of Eric H. Geis at 12 (Feb. 19, 1999); Covad Exhibit 1, Direct Testimony of Charles A. Haas at 9 (Feb. 19, 1999); Tr. at 1169 (June 4, 1999).

[41] *Advanced Services Order* at ¶ 63.

[42] ACI Exhibit 3, Direct Testimony of Rand Kennedy at 20 (Feb. 19, 1999).

[43] ACI Exhibit 6, Rebuttal Testimony of Eric H. Geis at 12 (Apr. 8, 1999).

Covad contends that SWBT should not be able to limit the types of xDSL provided by a CLEC, except as determined by standards bodies. Covad provides examples of other ILECs that currently permit Covad to provide multiple xDSL services over clean copper loops.[44] Covad also indicates that the language of the *Advanced Services Order* supports its position. Covad points out that its interconnection agreement with SWBT affiliate Pacific Bell permits Covad to provide any kind of xDSL service over clean copper loops in Covad's California operations.[45] In addition, Covad indicates that it has never received a complaint regarding spectrum problems from Pacific Bell.[46]

SWBT asserts that its proposed interconnection language offers loops that support xDSL technologies other than ADSL.[47] SWBT contends that it must be informed of the particular type of xDSL technologies and/or services being provisioned over the network, and further needs assurance that the power and frequency being placed on a specific SWBT unbundled loop do not exceed standards for that particular service.[48] SWBT explains that it seeks only to appropriately test (by SWBT or a third party) different technologies until the industry standards bodies agree upon national standards. In the interim, SWBT indicates that its proposed language offers the option of testing and defining parameters with the CLEC for other technologies to be deployed and appropriately inventoried for spectrum management purposes in the network.[49]

Award

The Arbitrators find that SWBT must provide a loop that can support any xDSL technology that is "presumed acceptable for deployment," as described by the FCC or this Commission. The FCC has stated that a technology is "presumed acceptable for deployment" if it: (a) complies with existing industry standards; (b) has been successfully deployed by any

---

[44] Covad Exhibit 4, Direct Testimony of Anjali Joshi at 9-11 (Feb. 19, 1999).

[45] Covad Exhibit 2, Direct Testimony of Druv Khanna at 26-27 (Feb. 19, 1999).

[46] Covad Exhibit 4, Direct Testimony of Anjali Joshi at 11 (Feb. 19, 1999).

[47] SWBT Exhibit 6, Rebuttal Testimony of Michael C. Auinbauh at 7-8 (April 8, 1999).

[48] SWBT Exhibit 1, Direct Testimony of Michael C. Auinbauh at 5 (Feb. 19, 1999).

carrier in any state without significantly degrading the performance of other services; or (c) has been approved by the FCC, any state commission, or an industry standards body.[50] A "non-standard xDSL-based technology" is a loop technology that is not presumed acceptable for deployment as defined in the previous sentence.

The Arbitrators further find that SWBT must provide a loop that is capable of supporting a non-standard xDSL technology, consistent with the conditions outlined in Attachment 25 of the Texas 271 Agreement (T2A).[51] Under those conditions, a CLEC may order loops to support a non-standard xDSL technology, for the provision of service in Texas on a trial basis for the 12-month period following the approval of the T2A, without the need to make any showing to the Commission or SWBT. Each technology trial shall not be deemed successful until it has been deployed without significant degradation for 12 months or until national standards have been established, whichever occurs first.

SWBT's plan to use testing to help define parameters for other technologies is no longer needed when considering the 12-month trial period established in the T2A. Therefore, SWBT's plan to await third party testing and national standards would only serve to impede rapid implementation of competitive xDSL services, and is therefore rejected by the Arbitrators.

In addition, the Arbitrators find that the deployment language contained in Sections 4.3.1 through 4.4.2.2 of Attachment 25 of the T2A, as adapted below (and coupled with the definitions of "presumed acceptable for deployment" and "non-standard xDSL-based technology" stated above), provides reasonable details for this DPL issue, and find that the following language should be included in the resulting Interconnection Agreements.

---

[49] *Id.* at Schedule 2.

[50] *See Advanced Services Order* at ¶ 67.

[51] T2A, Attachment 25, Section 4.3 states:

> 4.3 For the 12-month period following the approval of this Agreement by the Commission, a CLEC may order loops other than those loop technologies presumed acceptable for deployment for the provision of service in Texas on a trial basis, without the need to make any showing to the Commission. Each technology trial will not be deemed successful until it has been deployed without significant degradation for 12 months or until national standards have been established, whichever occurs first.

4.3.1 CLEC's deployment of non-standard xDSL technologies during the 12 month trial period by itself shall not be deemed a successful deployment of the technology under the FCC's Order issued on March 31, 1999 in CC Docket No. 98-147, FCC 99-48.

4.3.2 If a loop technology is deployed without significant degradation for 12 months, or if national standards for the technology are established, whichever occurs first, the Parties should consider the technology to be presumed acceptable for deployment and treated accordingly. If there is dispute as to the successful deployment of the technology, either Party may submit the dispute for resolution to (1) the Public Utility Commission of Texas, (2) the FCC if or when it establishes dispute resolution procedures, or (3) alternative dispute resolution as may be agreed by the Parties.

4.4 Following expiration of the twelve month trial period, SWBT will not deny a requesting CLEC's right to deploy new xDSL technologies that do not conform to the national standards and have not yet been approved by a standards body (or otherwise authorized by the FCC, any state commission or which have not been successfully deployed by any carrier without significantly degrading the performance of other services) if the requesting CLEC can demonstrate to the Commission that the loop technology will not significantly degrade the performance of other advanced services or traditional voice band services.

4.4.1 Upon request by CLEC, SWBT will cooperate in the testing and deployment of new xDSL technologies or may direct the CLEC, at CLEC's expense, to a third party laboratory of CLEC's choice for such evaluation.

4.4.2 If it is demonstrated that the new xDSL technology will not significantly degrade the other advanced services or traditional voice based services, SWBT will provide a loop to support the new technology for CLEC as follows:

4.4.2.1 If the technology requires the use of a 2-Wire or 4-Wire xDSL loop [as defined in this Award], then SWBT will provide CLEC with the xDSL loop at the same rates listed for a 2-Wire or 4-Wire xDSL loop and associated loop conditioning as needed. SWBT's ordering procedures will remain the same for its 2-Wire or 4-Wire xDSL loop even though the xDSL loop is now capable of supporting a new xDSL technology.

4.4.2.2 In the unlikely event that a new xDSL technology requires a loop type that differs from that of a 2-Wire or 4-Wire xDSL loop [as defined in this Award], the Parties shall expend diligent efforts to arrive at an agreement as to the rates, terms and conditions for an unbundled loop capable of supporting the proposed xDSL technology. If negotiations fail, any dispute between the Parties concerning the rates, terms and conditions for an unbundled loop capable of supporting the proposed xDSL technology shall be resolved pursuant to the dispute resolution process provided for in this Agreement.

2(c). Should CLECs provisioning non standard technologies be obligated to indemnify and hold SWBT harmless for any claims arising due to any harm or degradation to any carrier or customer's service and/or to SWBT's or any third party's network or equipment.

Parties' Positions

Rhythms addresses this issue obliquely by maintaining that there is no evidence of any harm from xDSL deployment in other states, and that SWBT's proposed restrictions would only serve to limit customer choice and competitive activity.[52] Rhythms adds that it is also concerned about the integrity of its own services, as well as potential harm to the integrity of any carrier's network. Rhythms points out that it has been providing xDSL services in California since 1997, and is not aware of any interference problems caused by Rhythms' xDSL services.[53]

Covad argues that CLECs should not be responsible for such indemnification. According to Covad witness Mr. Khanna, the FCC's directive[54] regarding CLEC deployment of technology is unconditional.[55] If a CLEC wants to deploy a non-standard technology, the CLEC must meet the requirements of the *Advanced Services Order*.[56] If SWBT or a CLEC subsequently demonstrates that the deployment of any technology "significantly degrades"[57] the performance of another advanced service or voice-based service, then the carrier deploying that technology must stop and migrate its customers to technologies that do not cause such degradation.[58] Covad asserts that this is the only remedy available to SWBT for the deployment by CLECs of technology that otherwise meets the criteria of Paragraph 68 of the *Advanced Services Order*.

---

[52] ACI Exhibit 1, Direct Testimony of Eric H. Geis at 15 (Feb. 19, 1999).

[53] *Id.* at 16.

[54] *Advanced Services Order* at ¶ 67.

[55] Covad Exhibit 3, Rebuttal Testimony of Druv Khanna at 9-13 (Apr. 8, 1999).

[56] Covad Exhibit 3, Rebuttal Testimony of Druv Khanna at 9-10 (Apr. 8, 1999); *Advanced Services Order* at ¶ 69.

[57] The FCC has defined "significantly degrade" as an action that noticeably impairs a service from a user's perspective. *See Advanced Services Order* at n. 166.

[58] *Advanced Services Order* at ¶ 68.

Covad explains that all xDSL signals degrade other xDSL signals, but it is the degree of degradation that is at issue. According to Covad, SWBT's proposal for indemnification would always place liability on the "non-standard" service, even in a situation in which the carrier providing the "non-standard" service used prudent deployment rules, and the carrier providing the "standard" service did not use prudent deployment rules.[59]

SWBT's position is that CLECs should be responsible for any harm caused by the use of nonstandard technologies. On April 15, 1999, SWBT introduced a revised version of its proposed contract language regarding indemnification:

> Each Party agrees that should it cause any non-standard DSL technologies described in subsections II.B.1 and II.B.2 above to be deployed or used in connection with or on SWBT facilities, that Party ("the Indemnifying Party") will assume full and sole responsibility for any damage, service interruption or other telecommunications service degradation effects and will indemnify the other Party ("the Indemnified Party") for any damages to the Indemnified Party's facilities, as well as any other claims for damages, including but not limited to direct, indirect or consequential damages made upon the Indemnified Party by any provider of telecommunications services or telecommunications user (other than any claim for damages or losses alleged by an end-user of the Indemnified Party for which the Indemnified Party shall have sole responsibility and liability), when such arises out of, or results from, the use of such non-standard DSL technologies by the Indemnifying Party. Further, the Indemnifying Party agrees that it will undertake to defend the Indemnified Party against and assume payment for all costs or judgments arising out of any such claims made against the Indemnified Party.[60]

Award

The Arbitrators note that this issue has been recently addressed by this Commission in its adoption of the T2A. T2A Attachment 25, Sections 3.4 and 3.5, contain the liability and indemnification language shown below. In DPL Issue No. 2(b), the Arbitrators distinguished between technologies that are presumed acceptable for deployment and those that are considered non-standard. The Arbitrators find that the T2A language reasonably reflects the balance of liability required for the provision of non-standard xDSL services (*i.e.*, those not defined as

---

[59] DPL at 7 (May 28, 1999).

"presumed acceptable for deployment"). Therefore, the following language should be incorporated into the resulting Interconnection Agreements:

> Each Party, whether a CLEC or SWBT, agrees that should it cause any non-standard xDSL technologies to be deployed or used in connection with or on SWBT facilities, that Party ("Indemnifying Party") will pay all costs associated with any damage, service interruption or other telecommunications service degradation, or damage to the other Party's ("Indemnitee") facilities.
>
> CLEC's use of any SWBT network element, or of its own equipment or facilities in conjunction with any SWBT network element, will not materially interfere with or impair service over any facilities of SWBT, its affiliated companies or connecting and concurring carriers involved in SWBT services, cause damage to SWBT's plant, impair the privacy of any communications carried over SWBT's facilities or create hazards to employees or the public. Upon reasonable written notice and after a reasonable opportunity to cure, SWBT may discontinue or refuse service if CLEC violates this provision, provided that such termination of service will be limited to CLEC's use of the element(s) causing the violation. SWBT will not disconnect the elements causing the violation if, after receipt of written notice and opportunity to cure, the CLEC demonstrates that their use of the network element is not the cause of the network harm. If SWBT does not believe the CLEC has made the sufficient showing of harm, or if CLEC contests the basis for the disconnection, either Party must first submit the matter to dispute resolution. Any claims of network harm by SWBT must be supported with specific and verifiable supporting information.
>
> Indemnification
>
> Covered Claim: Indemnifying Party will indemnify, defend and hold harmless Indemnitee from any claim for damages, including but not limited to direct, indirect or consequential damages, made against Indemnitee by any telecommunications service provider or telecommunications user (other than claims for damages or other losses made by an end-user of Indemnitee for which Indemnitee has sole responsibility and liability), arising from, the use of such non-standard xDSL technologies by the Indemnifying Party.
>
> Indemnifying Party is permitted to fully control the defense or settlement of any Covered Claim, including the selection of defense counsel. Notwithstanding the foregoing, Indemnifying Party will consult with Indemnitee on the selection of defense counsel and consider any applicable conflicts of interest. Indemnifying Party is required to assume all costs of the defense and any damages resulting from the use of any non-standard xDSL technologies in connection with or on

[60] SWBT Exhibit No. 22, SWBT Proposal with Respect to the Application of Specific Indemnity Language in SWBT's Proposed Language (April 15, 1999); DPL at 16 (May 28, 1999).

Indemnitee's facilities and Indemnitee will bear no financial or legal responsibility whatsoever arising from such claims.

Indemnitee agrees to fully cooperate with the defense of any Covered Claim. Indemnitee will provide written notice to Indemnifying Party of any covered claim at the address for notice assigned herein within ten days of receipt, and, in the case of receipt of service of process, will deliver such process to Indemnifying Party not later than ten business days prior to the date for response to the process. Indemnitee will provide to Indemnifying Party reasonable access to or copies of any relevant physical and electronic documents or records related to the deployment of non-standard xDSL technologies used by Indemnitee in the area affected by the claim, all other documents or records determined to be discoverable, and all other relevant documents or records that defense counsel may reasonably request in preparation and defense of the claim. Indemnitee will further cooperate with Indemnifying Party's investigation and defense of the claim by responding to reasonable requests to make its employees with knowledge relevant to the claim available as witnesses for preparation and participation in discovery and trial during regular weekday business hours. Indemnitee will promptly notify Indemnifying Party of any settlement communications, offers or proposals received from claimants.

Indemnitee agrees that Indemnifying Party will have no indemnity obligation, and Indemnitee will reimburse Indemnifying Party's defense costs, in any case in which Indemnifying Party's technology is determined not to be the cause of any Indemnitee liability.

Claims Not Covered: No Party hereunder agrees to indemnify or defend any other Party against claims based on gross negligence or intentional misconduct.

3. Can SWBT be permitted to limit xDSL capable loops to the provision of ADSL?

Parties' Positions

See DPL Issue No. 2.

Award

The Arbitrators agree with Petitioners that the use of xDSL loops should not be limited to the provision of ADSL service. In its *Advanced Services Order* the FCC concluded, "any loop technology that complies with existing industry standards is presumed acceptable for

deployment."[61] Further, the FCC concluded that "a LEC may not deny a carrier's request to deploy technology that is presumed acceptable for deployment, unless the LEC demonstrates to the state commission that deployment of the particular technology within the LEC network will significantly degrade the performance of other advanced services or traditional voice band services."[62] In addition, under the T2A, CLECs may provision non standard xDSL services as well, subject to certain conditions.

In its recent *UNE Remand Order*, the FCC affirmed its earlier decisions regarding the provision of loops capable of providing high speed data services.

> Unbundling basic loops, with their full capacity preserved, allows competitors to provide xDSL services. This in turn will foster investment, innovation, and competition in the local telecommunications marketplace. Without access to these loops, competitors would be at a significant disadvantage, and the incumbent LEC, rather than the marketplace, would dictate the pace of the deployment of advanced services.[63]

The FCC further clarified that the ILEC is required to provide "loops with all their capabilities intact, that is, to provide conditioned loops, *wherever* a competitor requests, even if the incumbent is not itself offering xDSL to the end-user customer on that loop" and the ILEC "cannot refuse a competitive LEC's request for conditioned loops on the grounds that they themselves are not planning to offer xDSL to that customer."[64]

The Arbitrators perceive the current level of interest in xDSL technologies to be very beneficial to customers desiring data connections using existing copper facilities. Evidence in this case points to a proliferation of technologies that appear suited to the needs of individual customers. The competitive marketplace is poised to offer these new services, and should not be stifled in any way. Appropriate industry standards discussed elsewhere in this Award can

---

[61] *Advanced Services Order* at ¶ 67.

[62] *Id.* at ¶ 68.

[63] *UNE Remand Order* at ¶ 190.

[64] *Id.* at ¶ 191.

provide safeguards to protect the underlying network and other carriers' systems operating in the same cable complement or binder group. For all these reasons and the reasons stated under DPL Issue No. 2, the Arbitrators find that SWBT is not in any way permitted to limit xDSL capable loops to the provision of ADSL. *See* DPL Issue No. 2.

4(a). What is the physical makeup of a DSL capable loop that SWBT is required to provide?

4(b). Is SWBT required to provide a copper loop without interfering devices (load coils, bridge taps, and repeaters)?

Parties' Positions

Rhythms maintains that SWBT should be ordered to provide an xDSL loop that is capable of providing all xDSL technologies depending on reasonable limitations established within the contract language. (For example, requiring the CLEC to comply with national industry standards as articulated in ANSI or some other forum document.)[65] In addition, Rhythms argues that it should be allowed to change the type of xDSL technology used on the loop as its customer needs change. Further, Rhythms urges that SWBT not be allowed to place artificial limitations on the length of xDSL-capable loops. Rhythms also seeks the ability to have SWBT perform a "line and station transfer" in the event that a potential Rhythms customer is served on a loop that contains fiber optic facilities, in order to allow another copper pair, if available, to extend directly to the customer. Rhythms also argues that the loop should be provisioned to meet basic metallic and electrical characteristics such as electrical conductivity and capacitive and resistance balance. Finally, Rhythms want to be able to specify what type of conditioning or de-conditioning should be performed on the loop to allow the desired xDSL service to properly operate on the loop.[66]

Covad agrees with Rhythms' rationale, adding that their interconnection agreement with Pacific Bell, a SWBT affiliate, contains essentially the same definition of a xDSL loop Covad is

[65] ACI Exhibit 3, Direct Testimony of Rand Kennedy at 10, 16 (Feb. 19, 1999); ACI Exhibit 8, Rebuttal Testimony of Rand Kennedy at 8-9 (April 8, 1999).

[66] ACI Ex. 3, Direct Testimony of Rand Kennedy at 15 (Feb. 19, 1999); ACI Post-Hearing Brief at 16-17.

proposing in this proceeding.[67] Covad states that it can provide ADSL, SDSL or IDSL services over a "clean" copper loop. Covad explains that in order to provide IDSL over some longer loops, the loop will need to have the same kind of repeaters SWBT uses for ISDN.[68]

SWBT contends that if loops without excessive bridge tap, load coils, or repeaters are available, those loops will be offered to the requesting CLEC, consistent with spectrum management standards regarding interference.[69] Further, if loops exist with the presence of load coils, excessive bridge tap, or repeaters, SWBT will recommend the conditioning of the loop to remove those items. SWBT asserts that it is at the CLEC's sole option to order the removal of this equipment at the cost-based rates listed in SWBT's contract.[70]

Award

The Arbitrators find that SWBT must provide a "clean" copper loop upon CLEC request. The Arbitrators define "clean" in this context to mean a loop without excessive[71] bridged tap, load coils, or repeaters. Most of the xDSL technologies addressed in this proceeding depend on the use of a "clean" copper loop. SWBT utilizes "clean" copper loops for its own ADSL services, and must provide nondiscriminatory access to technically identical loops, if available, for use by CLECs. In the event that a "clean" loop is not available, the CLEC must be given the opportunity to evaluate the parameters of the xDSL service to be provided, and determine whether and what type of conditioning must be requested and performed. The Arbitrators find that all conditioning shall be performed at the request of the CLEC. In addition, the loop should be provisioned to meet basic metallic and electrical characteristics such as electrical conductivity and capacitive and resistance balance.

---

[67] Covad Exhibit 2, Direct Testimony of Druv Khanna at 26 (Feb. 19, 1999).

[68] Covad Exhibit 4, Direct Testimony of Anjali Joshi at 5-6 (Feb. 19, 1999).

[69] SWBT Exhibit 7, Rebuttal Testimony of William C. Deere at 14-16 (April 8, 1999).

[70] SWBT Exhibit 8, Rebuttal Testimony of Jerry Fuess at 7-8 (April 8, 1999).

[71] ACI witness Rand Kennedy generally characterized excessive bridged tap as that in excess of 2,500 feet in length, Tr. at 1300 (June 4, 1999).

The Arbitrators' decision on these issues is consistent with the *UNE Remand Order*, which concluded that:

> ... permitting incumbents to deny access to basic loops stripped of accreted devices, *i.e.*, "conditioned" loops, would preclude the ability of competitors to offer high-speed data services. Such unencumbered copper wire is necessary for requesting carriers to provide most types of xDSL service. While some "flavors" of xDSL can be provided over loops with a limited number of impediments, as a general rule the quality of such service – particularly the speed – is significantly diminished, compared to the service provided over unencumbered wires. ... Without access to these loops, competitors would be at a significant disadvantage, and the incumbent LEC, rather than the marketplace, would dictate the pace of the deployment of advanced services.[72]

The issue of "line and station transfers" raised by Rhythms includes several sub-issues, *e.g.*, subloop unbundling, packet switching unbundling (DSLAMs), collocation of DSLAMs in RTs. When a CLEC requests an xDSL loop to serve a particular customer, and that customer resides in an area that is served by fiber via a RT, the Arbitrators believe that SWBT should not deny the request out of hand, but should look at other options to provide the service. One solution may be that there are copper pairs that can be made available through a line and station transfer as described by Rhythms. Another option may be to allow the CLEC to collocate DSLAM equipment in the remote location. This copper/fiber facilities issue is addressed under DPL Issue No. 6. However, at a minimum, the solutions that are available to SWBT's retail advanced services operations, or to its separate subsidiary, must also be made available to CLECs. In order to monitor this issue, the Arbitrators find that SWBT's denial of CLEC orders due to loop non-availability, discussed in response to DPL Issue No. 13, should also apply to denials resulting from fiber/DLC/DAML facility issues.

The Arbitrators address other concerns expressed by the Parties on these DPL issues in other parts of this Award. Rhythms' concerns regarding artificial limitations on loop length is addressed in DPL Issue No. 1. SWBT's spectrum management position is discussed further in Section III of this Award.

---

[72] *UNE Remand Order* at ¶ 190 (footnotes omitted).

The Arbitrators find that the following language, adapted from T2A Attachment 25, should be included in the Parties' resulting Interconnection Agreements:

> SWBT will provide a loop capable of supporting a technology presumed acceptable for deployment or non-standard xDSL technology as defined in this [Award].
>
> SWBT shall not deny a CLEC's request to deploy any loop technology that is presumed acceptable for deployment, or one that is permitted during the twelve-month trial period, unless it has demonstrated to the Commission that the CLEC's deployment of the specific loop technology will significantly degrade the performance of other advanced services or traditional voice band services. For the purpose of this section, "significantly degrade" means to noticeably impair a service from a user's perspective.
>
> In the event the CLEC wishes to introduce a technology that has been approved by another state commission or the FCC, or successfully deployed elsewhere, the CLEC will provide documentation describing that action to SWBT and the Commission before or at the time of their request to deploy that technology in Texas. The documentation should include the date of approval or deployment, any limitations included in its deployment, and a sworn attestation that the deployment did not significantly degrade the performance of other services. The terms of this paragraph do not apply during the twelve-month trial period.

5. Can DSL loops retain repeaters at the CLEC's option?

Parties' Positions

Rhythms states that CLECs should be able to retain repeaters. Rhythms asserts that repeaters will not cause technical interference with other loops. Rhythms contends that if SWBT unnecessarily forces the removal of repeaters, the result will be unwarranted delay and expense. Rhythms views the CLEC option of retaining repeaters as a business decision relating to quality of service that is appropriate for the CLEC and the customer.[73]

Covad agrees with Rhythms' rationale, and argues that repeaters do not interfere with the provisioning of IDSL service.[74] Covad explains that the IDSL technology can provide service to customers beyond the normal ADSL distance limit of 18,000 feet. According to Covad witness Mr. Khanna, Covad has provided service to customers in California on loops in excess of 40,000

[73] ACI Exhibit 1, Direct Testimony of Eric H. Geis at 17-20, 38-39 (Feb. 19, 1999); ACI Exhibit 3, Direct Testimony of Rand Kennedy at 13-14 (Feb. 19, 1999).

[74] Covad Exhibit 4, Direct Testimony of Anjali Joshi at 5-6 (Feb. 19, 1999).

feet from the central office. Covad explains that in order to achieve those distances, repeaters must be placed on the cable pairs.[75]

SWBT asserts that it offers a 2-wire BRI-capable loop, which has digital repeaters or regenerators, as a standard product. The 2-wire BRI-capable loop would allow for provisioning IDSL. Additionally, SWBT offers language for the CLEC that allows for the ordering of an xDSL loop with repeater(s). SWBT does not contest this issue, except to note that if a loop contains repeaters, removal is at the option of CLEC, and that some repeaters may not be compatible with the CLEC's intended use.[76]

Award

The Arbitrators find that xDSL loops may retain repeaters at the discretion of the CLEC. The Arbitrators perceive no disagreement among the Parties on this issue. To the extent that a CLEC wishes to retain an existing repeater for the provision of IDSL or other technologies, it should be allowed to do so. The Arbitrators find that any conditioning of xDSL loops is at the sole discretion of the CLEC.

6. If a copper loop is not available from the customer premises to the SWBT central office, does Rhythms have the right to place appropriate equipment such as DSLAMs at the fiber/copper interface point in SWBT's network?

Parties' Positions

Rhythms posits that all carriers must have equal accessibility to the copper portion of loops, whether the copper portion ends at the MDF or a location in the field. Rhythms asserts that it must have the ability to place its xDSL equipment at the end of the copper section of the customer's loop. This will allow Rhythms to take the traffic and convert it so that it can ride the fiber DLC system back to the central office. Rhythms witness Mr. Kennedy contends that the DSLAM should be placed at the end of the copper facility, whether that is at the central office, or

[75] Tr. at 1395-1396 (June 4, 1999).

[76] DPL at 20 (May 28, 1999).

at a remote interface. He notes that the placement of a DSLAM at remote location is technically feasible.[77]

Covad does not provide evidence on this specific issue.

SWBT notes that the Texas Collocation Tariff permits the collocation of transmission equipment in huts, CEVS (controlled environmental vaults), and Remote Terminals (RTs), where space is available. SWBT states that xDSL loops out of these RT sites may be available via the bona fide request (BFR) process, depending on the circumstances in the RT. SWBT warns that a dual-fed RT with both copper and fiber may have technical issues that would limit the deployment of xDSL from the RT. For example, SWBT continues, if two xDSL signals travel down a distribution cable, one introduced by CLEC A from a collocation site in the central office, and the second from CLEC B at the RT site, there may be crosstalk and interference issues from these adjacent services since their power levels in the distribution cable are different. Since more carriers will be able to access the loop from the central office versus the RT, xDSL sub-loops would not be available from that particular RT. SWBT argues that spectrum management becomes exponentially more complicated, since the signals must be tracked and inventoried, and the signals' point of introduction into the loop must be tracked and accounted for.[78]

Award

The Arbitrators find that delaying the deployment of remote DSLAMs would hinder competition and the deployment of advanced services. The FCC found in its *Advanced Services Order* that "a LEC may not deny a carrier's request to deploy technology that is presumed acceptable for deployment, unless the LEC demonstrates to the state commission that deployment of the particular technology within the LEC network will significantly degrade the

---

[77] ACI Exhibit 1, Direct Testimony of Eric H. Geis at 19-20 (Feb. 19, 1999); ACI Exhibit 3, Direct Testimony of Rand Kennedy at 15-16 (Feb. 19, 1999).

[78] SWBT Exhibit 2, Direct Testimony of William C. Deere at 21 (Feb. 19, 1999).

performance of other advanced services or traditional voice band services."[79] SWBT has not demonstrated that deployment of DSLAMs at remote locations will significantly degrade the performance of other services. In fact, SWBT's own internal documents contain discussions relating to planning for exactly such deployment.[80] Therefore, SWBT should not be allowed to deny the Petitioners' requests to deploy DSLAMs in remote locations. The Arbitrators agree that the introduction of xDSL terminals and DSLAMs in remote terminals may present additional technical issues. However, evidence shows that SWBT's network planning team has been aware of the need to deploy remote DSLAMs.[81] *See* Confidential Attachment B, Paragraph B. Regardless of whether SWBT intends to pursue this option, the Arbitrators do not believe it is reasonable to delay CLEC deployment of remote DSLAM configurations until SWBT has determined whether it wants to have the same configuration for its own retail xDSL operation.

The Arbitrators find that in locations where SWBT has deployed (1) DLC systems and an uninterrupted copper loop is replaced with a fiber segment or shared copper in the distribution section of the loop, (2) DAML technology to derive two voice-grade POTS circuits from a single copper pair, or (3) entirely fiber optic facilities to the end user, a competitor can be effectively precluded from offering xDSL service if the following options are not made available.

In the three situations above, where spare copper facilities are available, and the facilities meet the necessary technical requirements for the provision of xDSL[82] and allow Petitioners to offer the same level of quality for advanced services, Petitioners should have the option of requesting that SWBT make copper facilities available, (*e.g.*, one way would be to perform a line and station transfer, *i.e.*, reassignment of a current service to a different working loop). Petitioners should also have the option of collocating a DSLAM in the RT at the fiber/copper

---

[79] *Advanced Services Order* at ¶ 68.

[80] ACI Exhibit 41(confidential), Deposition Exhibit 28. Specifically, the minutes from meetings of the Network Evolution Relevant to Data Services (NERDS) group, Jul. 21, 1998, Aug. 25, 1998, and Dec. 1, 1998.

[81] *Id.*

[82] For example, if the loop length exceeds a certain distance, the provision of a particular xDSL service may not be technically infeasible. *See UNE Remand Order* at ¶ 313.

interface point. In this situation, SWBT is required to provide unbundled access to subloops to allow Petitioners to access the copper wire portion of the loop.[83]

Further, the Arbitrators find that in the situation where Petitioners are unable to install a DSLAM at the RT or obtain spare copper loops necessary to provision an xDSL service, and SWBT has placed a DSLAM in the RT, SWBT must unbundle and provide access to its DSLAM. SWBT is relieved of this requirement to unbundle its DSLAM only if it permits Petitioners to collocate their DSLAMs in the RT on the same terms and conditions that apply to its own DSLAM.[84] To find otherwise would enable SWBT to effectively create a barrier to Petitioners' entry into the xDSL market in Texas.

The Arbitrators findings under this DPL Issue are also applicable to DPL Issue Nos. 1, 4(a) and 4(b).

The Arbitrators findings are consistent with FCC precedent. The FCC addressed this issue in its *UNE Remand Order*. First, the FCC concluded that ILECs must provide unbundled access to subloops. The FCC concluded "that lack of access to unbundled subloops at technically feasible points throughout the incumbent's loop plant will impair a competitor's ability to provide services that it seeks to offer."[85] The FCC clarified that "technically feasible points" would include (in the context of this issue) any FDI, whether the FDI is located at a cabinet, CEV, remote terminal, utility room in a multi-dwelling unit, or any other accessible terminal. The FCC further stated that:

> ... competitors seeking to offer services using xDSL technology need to access the copper wire portion of the loop. In cases where the incumbent multiplexes its copper loops at a remote terminal to transport the traffic to the central office over fiber DLC facilities, a requesting carrier's ability to offer xDSL service to

[83] This Commission has required subloop unbundling in prior arbitrations. *See UNE Remand Order* at ¶ 218.

[84] The FCC has required such unbundling in its *UNE Remand Order* at ¶ 313.

[85] *UNE Remand Order* at ¶¶ 209-211 (Loop facilities, including subloop elements, are the most time-consuming and expensive network element to duplicate on a pervasive scale, and that the cost of self-provisioning subloops can be prohibitively expensive. Self-provisioning subloops would require requesting carriers to incur significant sunk costs prior to offering services to end users. Requiring competitors to expend such sums would, at a minimum, delay entry and thus postpone the benefits of competition for consumers.).

> customers served over those facilities will be precluded, unless the competitor can gain access to the customer's copper loop before the traffic on that loop is multiplexed. Thus, we note that the remote terminal has, to a substantial degree, assumed the role and significance traditionally associated with the central office. In addition, in order to use its own facilities to provide xDSL service to a customer, a carrier must locate its DSLAM within a reasonable distance of the customer premises, usually less than 18,000 feet. In both of these situations, a requesting carrier needs access to copper wire relatively close to the subscriber in order to serve the incumbent's customer.[86]

The FCC then provides direction on the specific issue of remote DSLAMs in its discussion of loops used for packet switching.

> In locations where the incumbent has deployed digital loop carrier (DLC) systems, an uninterrupted copper loop is replaced with a fiber segment or shared copper in the distribution section of the loop. In this situation, and where no spare copper facilities are available, competitors are effectively precluded altogether from offering xDSL service if they do not have access to unbundled packet switching. ... When an incumbent has deployed DLC systems, requesting carriers must install DSLAMs at the remote terminal instead of at the central office in order to provide advanced services. We agree that, if a requesting carrier is unable to install its DSLAM at the remote terminal or obtain spare copper loops necessary to offer the same level of quality for advanced services, the incumbent LEC can effectively deny competitors entry into the packet switching market. We find that in this limited situation, requesting carriers are impaired without access to unbundled packet switching. Accordingly, incumbent LECs must provide requesting carriers with access to unbundled packet switching in situations in which the incumbent has placed its DSLAM in a remote terminal. This obligation exists as of the effective date of the rules adopted in this Order. The incumbent will be relieved of this unbundling obligation only if it permits a requesting carrier to collocate its DSLAM in the incumbent's remote terminal, on the same terms and conditions that apply to its own DSLAM. Incumbents may not unreasonably limit the deployment of alternative technologies when requesting carriers seek to collocate their own DSLAMs in the remote terminal.[87]

Finally, the Arbitrators note that because the FCC has found that packet switching is a UNE in the limited circumstances stated above, and that the DSLAM is a component of the

---

[86] *UNE Remand Order* at ¶ 218 (footnotes omitted).

[87] *UNE Remand Order* at ¶ 313 (footnotes omitted).

packet switching functionality,[88] the SBC/Ameritech merger conditions relating to advanced services equipment are relevant. The merger conditions provide that, "[i]f SBC/Ameritech transfers to its separate affiliate a facility that is deemed to be a UNE under 47 U.S.C. § 251(c)(3), the [FCC's] unbundling requirements will attach with respect to that UNE as described in section 53.207 of the [FCC's] rules, 47 C.F.R. § 53.207."[89] Accordingly, the unbundling requirement with respect to DSLAMs would attach to such equipment transferred to SWBT's advanced services affiliate.

7. Is SWBT permitted to require shielded cable (versus non-shielded cable) for central office wiring when provisioning xDSL technologies?

Parties' Positions

Rhythms contends that there is no legitimate technical purpose for requiring shielded cable for central office cabling.[90] Moreover, Rhythms asserts that shield cross connects are not necessary when provisioning xDSL services.[91]

Covad contends that shielded cross connects are not necessary because crosstalk in the limited distance covered by the shielded cable is insubstantial. Covad argues that other ILECs, including SWBT affiliate Pacific Bell, do not require shielded central office cable. Covad asserts that it has never received a report of any problems related to the absence of shield cross-connects from an ILEC.[92]

In its original filing, SWBT required shielded cable (versus non-shielded cable) for central office wiring when provisioning xDSL technologies. SWBT now replies that it does not

[88] *UNE Remand Order* at ¶ 303, 313.

[89] SBC/Ameritech Merger Order, Appendix C, *Conditions* at ¶ 3(e).

[90] ACI Exhibit 1, Direct Testimony of Eric H. Geis at 21-22 (Feb. 19, 1999); ACI Exhibit 3, Direct Testimony of Rand Kennedy at 26 (Feb. 19, 1999); ACI Exhibit 6, Rebuttal Testimony of Eric H. Geis at 27 (April 8, 1999); ACI Exhibit 8, Rebuttal Testimony of Rand Kennedy at 9-10 (April 8, 1999).

[91] *See* ACI Exhibit 5, Direct Testimony of Terry L. Murray (Feb. 19, 1999); ACI Exhibit 3, Direct Testimony of Rand Kennedy (Feb. 19, 1999); ACI Exhibit 4, Direct Testimony of Philip Kyees (Feb. 19, 1999).

require shielded cross-connect cabling in the current version of its proposed agreement, and instead leaves this as an option for the CLEC.[93]

Award

The Arbitrators do not perceive disagreement among the Parties on this issue. The Arbitrators agree with the Parties and find that SWBT can not require shielded cable for central office wiring when provisioning xDSL technologies; rather, use of a shielded cable should be at the option of the CLEC. *See* DPL Issue Nos. 28 and 32.

9. Can SWBT be permitted to install equipment at its own discretion that may interfere with the provision of xDSL services by a CLEC?

Parties' Positions

Rhythms insists that SWBT should not be entitled to install any equipment that would affect the continuity of CLECs services or would interpose SWBT between the CLEC and its customer.[94]

Covad acknowledges that SWBT no longer insists on "power guards." However, in the event that SWBT has not withdrawn this issue, Covad restates its objection to power guards. Covad maintains that SWBT should not be allowed to impose power guards on CLEC xDSL equipment. Covad contends that there is no reason to believe that a CLEC would violate any policy it agreed to and/or this Commission imposed regarding spectrum management. Covad further explains that power guards do not exist today, and SWBT should not be placed in a

[92] Covad Exhibit 4, Direct Testimony of Anjali Joshi at 17 (Feb. 19, 1999).

[93] DPL at 22 (May 28, 1999).

[94] ACI Exhibit 1, Direct Testimony of Eric H. Geis at 28-30 (Feb. 19, 1999); ACI Exhibit 3, Direct Testimony of Rand Kennedy at 26-27 (Feb. 19, 1999); ACI Exhibit 8, Rebuttal Testimony of Rand Kennedy at 7-8 (April 8, 1999).

position of monitoring CLEC xDSL equipment. Covad believes that power guards would inevitably degrade Covad's service.[95]

SWBT states that it does not intend, nor has it requested, to install equipment that may interfere with the provision of xDSL services by a CLEC. Rather, SWBT wishes to reserve the right to use a non-intrusive device, when/if available, as a means to assure that CLEC usage is as represented for all xDSL technologies. SWBT says that it does not offer contract language on this point because there is too much uncertainty as to this matter.[96]

Award

The Arbitrators deny SWBT's request to reserve the right to use a non-intrusive device, when or if available, as a means to assure that CLEC usage is as represented for all xDSL technologies. The Arbitrators recognize that some type of testing equipment will likely be required to perform maintenance and troubleshooting on xDSL systems. However, there has been no reasonable showing that an installed device of this sort would be practical, cost-effective, or necessary.

10. Is it appropriate for SWBT to impose limitations on the transmission speeds of xDSL services?

Parties' Positions

Rhythms argues that it is not appropriate for SWBT to impose limitations on the transmission speeds of xDSL services. Rhythms states that a more important consideration is interference with services carried on adjacent loops, which can be addressed directly by national

[95] Covad Exhibit 4, Direct Testimony of Anjali Joshi at 18-19 (Feb. 19, 1999).

[96] DPL at 25 (May 28, 1999).

standards. Until such national standards are in place, Rhythms contends that SWBT should not be allowed to impose unilateral limitations on transmission speed.[97]

Covad claims that it is not appropriate for SWBT to impose limitations on the transmission speeds of xDSL services and believes that this issue mirrors DPL Issue No. 9. [98]

SWBT asserts that it will comply with the *Advanced Services Order*. SWBT requires CLECs to identify the speeds that they intend to run solely for the purpose of spectrum management, as explained in SWBT's proposed contract language.[99]

Award

The Arbitrators find it is not appropriate for SWBT to impose limitations on the transmission speeds of xDSL services. A major benefit of competition is technological innovation, as demonstrated by the advanced services at issue in this proceeding. The Arbitrators determine that no incumbent carrier should be permitted to thwart technological innovation. The Arbitrators order that SWBT must not be permitted to restrict the Petitioners' services or technologies to a level at or below those provided by SWBT. However, consistent with the *Advanced Services Order*, the Arbitrators find that SWBT may obtain information from the CLEC regarding the type of xDSL service provided on the loop for the sole purpose of maintaining an inventory of advanced services present in the cable sheath. As discussed with respect to DPL Issue No. 14(b), SWBT must keep such information confidential, not allowing it to be revealed to SWBT's retail operations, to its retail affiliate(s), or to other competitors.

[97] ACI Exhibit 1, Direct Testimony of Eric H. Geis at 30-32 (Feb. 19, 1999); ACI Exhibit 6, Rebuttal Testimony of Eric H. Geis at 12-14 (April 8, 1999); ACI Exhibit 10, Rebuttal Testimony of Philip Kyees at 4-14 (April 8, 1999); ACI Exhibit 8, Rebuttal Testimony of Rand Kennedy at 7-8 (April 8, 1999); ACI Exhibit 21, Supplemental Direct Testimony of Rand Kennedy at 11 (May 24, 1999). [portions confidential]

[98] DPL at 27 (May 28, 1999).

[99] SWBT Exhibit 6, Rebuttal Testimony of Michael C. Auinbauh at 4-10 (April 8, 1999).