BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Implementation of requirements arising from Federal Communications Commission triennial UNE review: Local Circuit Switching for Mass Market Customers.	))))	Docket No. 030851-TP

DIRECT TESTIMONY OF

STEVEN E. TURNER

ON BEHALF OF
AT&T COMMUNICATIONS OF THE SOUTHERN STATES, LLC

DECEMBER 4, 2003

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I. INTRODUCTION OF WITNESS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Steven E. Turner. My business address is Kaleo Consulting, 2031 Gold Leaf Parkway, Canton, Georgia 30114.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I own and direct my own telecommunications and financial consulting firm, Kaleo Consulting.

Q. PLEASE DESCRIBE YOUR EDUCATION BACKGROUND.

A. I hold a Bachelor of Science degree in Electrical Engineering from Auburn University in Auburn, Alabama. I also hold a Masters of Business Administration in Finance from Georgia State University in Atlanta, Georgia.

Q. PLEASE DESCRIBE YOUR WORK EXPERIENCE.

A. From 1986 through 1987, I was a Research Engineer for General Electric in its Advanced Technologies Department developing high-speed graphics simulators. In 1987, I joined AT&T and, during my career there, held a variety of engineering, operations, and management positions. These positions covered the switching, transport, and signaling disciplines within AT&T. From 1995 until 1997, I worked in the Local Infrastructure and Access Management organization within AT&T. In this organization, I gained familiarity with many of the regulatory issues surrounding AT&T's local market entry, including issues concerning the unbundling of incumbent local exchange company ("incumbent" or "ILEC") networks. I was on the AT&T team that negotiated with Southwestern Bell Telephone Company concerning unbundled network element

definitions and methods of interconnection. A copy of my resume is provided as Exhibit SET-1.

Q. HAVE YOU PREVIOUSLY TESTIFIED OR FILED TESTIMONY BEFORE A PUBLIC UTILITY OR PUBLIC SERVICE COMMISSION?

A. I have testified or filed testimony before the commissions in the states of Alabama, Arkansas, California, Colorado, Delaware, Florida, Georgia, Hawaii, Illinois, Indiana, Kansas, Kentucky, Louisiana, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Hampshire, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Dakota, Texas, Washington, and Wisconsin. Additionally, I have filed testimony before the Federal Communications Commission ("FCC").

II. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony describes and quantifies the significant cost disadvantages that an efficient competitive local exchange carrier ("CLEC") would confront in attempting to serve mass market customers if continued access to unbundled local switching and the unbundled network element platform ("UNE-P") were denied.

Q. WHAT SPECIFIC ISSUES IN THIS DOCKET DO YOU ADDRESS?

A. Specifically, I address Issue 5(d), which covers the potential economic barriers that render CLEC entry uneconomic absent access to unbundled local circuit switching:

1. The costs of migrating ILEC loops to CLECs' switches; or
2. The costs of backhauling voice circuits to CLECs' switches from the end offices serving the CLECs' end users?

My testimony demonstrates that in the absence of unbundled local switching, CLECs face practically insurmountable cost disadvantages relative to the Incumbent Local Exchange Carriers ("ILECs") if unbundled network element loops ("UNE-L") used in conjunction with their own (or a third party provider's) switching is the sole option for providing local services to mass market customers.

The significant disadvantages I describe apply whether a CLEC uses self-provided switching or switching that is provided by a separate non-ILEC entity. For simplicity in presentation, I will discuss these cost disadvantages in the context of self-provided switching. However, they would also apply if a CLEC attempted to provide service to mass-market customers using "wholesale" switching provided by another carrier.

The FCC's Triennial Review Order ("TRO") recognized that the "absolute cost advantages" enjoyed by an ILEC can constitute a barrier to entry that would satisfy the impairment standard. (TRO¶ 90).

Q. GENERALLY, WHAT COSTS COMPRISE THE COST DISADVANTAGE THAT AN EFFICIENT CLEC WOULD INCUR TO SERVE ITS CUSTOMERS USING UNE-L?

A. A CLEC seeking to serve mass market customers using its own switches would incur the costs for backhauling a customer loop from the ILEC central office to the CLEC's switch (i.e., "backhaul costs") as well as attendant costs for transitioning the customer's service from the ILEC to the CLEC (i.e., hot cut costs, number portability).

To accomplish this, the CLEC must first deploy a costly "backhaul" infrastructure between the ILEC central office where it seeks to serve mass market customers and the physical locations where its switches are located. Backhaul is the term used to describe the process and equipment needed to haul the customer's loop from the ILEC's central office where the customer loop terminates to the CLEC's switch in another location so that voice service can be provided to the customer. As described in the accompanying Testimony of AT&T's witness Jay Bradbury, creation of this backhaul infrastructure typically entails (1) the cost of preparing the loop for transport out of the ILEC's central offices, and (2) the cost of transporting the traffic back to the CLEC's switch location. Together, these costs are referred to as the "backhaul infrastructure". The cost of preparing the loop for transport out of the ILEC's central office includes: (1) the costs of acquiring collocation space in the offices in question and (2) the deployment of electronic equipment in that space (a) to convert an end user's traffic from the analog signals generated by standard telephone sets to digital signals, and (b) to concentrate and multiplex those digital signals.

In addition, a CLEC must incur the costs of "hot cuts" and number portability. "Hot cuts", as an example, are the transfer of the customer's active service with the ILEC to the CLEC by transferring the customer's loop from the ILEC switch to the CLEC switch without interrupting the customer's service. Number portability is a critical capability established as a result of the Act. Number porting permits the customer to retain and freely move his/her telephone number

amongst competing networks. *See* Direct Testimony of AT&T Witness Mark Van De Water.

My testimony focuses upon these components of the absolute cost disadvantages associated with this CLEC "backhaul," and hot cut costs associated with connecting a customer's loop with the CLEC switch which are highly significant and contribute to the impairment a CLEC faces in using self-provided switches to serve mass-market customers. Other cost disadvantages may also exist for the CLEC, such as in customer acquisition cost or in OSS platform fixed costs that I do not address but which may also add to the CLEC's disadvantage beyond the level that I quantify.

Q. HOW HAVE YOU QUANTIFIED THIS ABSOLUTE COST DISADVANTAGE?

A. The "impairment analysis tools" that underlie my testimony quantify these *additional* costs of loop connectivity incurred by CLECs, but not by the ILEC, if CLECs are required to provide facilities-based mass-market local services based upon a voice grade UNE-L architecture. As discussed in the Direct Testimony filed by Jay Bradbury, these costs are a product of the "closed" legacy network architecture employed by the ILEC.

In performing this analysis, I have followed the FCC's admonition not to examine results for a specific CLEC; instead, my analysis focuses on a hypothetical, efficient CLEC. I also have made a conscious effort to be conservative with respect to inputs and assumptions. As will become clear from the results of this analysis, the most conservative assumption, given current conditions, is the

working premise that a CLEC would enter the market using a facilities based and voice grade UNE-L architecture to serve the mass market at all because there are no offsetting absolute CLEC cost advantages available to offset these CLEC cost disadvantages.

As a result, the tools I use calculate the *minimum* level of cost disadvantage an efficient CLEC would face. In order to provide the degree of "granularity" required by the FCC's order, the tools utilize data that is specific to BellSouth's operations in Florida.

Q. HOW IS THE REMAINDER OF THIS TESTIMONY ORGANIZED?

A. The remainder of my testimony is organized as follows. Section III provides the background to my analysis and an overview and summary of the results. I provide results based by LATAs in the BellSouth-Florida territory.

The discrete analysis of BellSouth's central offices in Florida, upon which the LATA results are based, covers a broad range of lines. Not surprisingly, the absolute cost disadvantage per line is highest in those central offices where a CLEC can be expected to serve a relatively small number of mass market lines, and lower in those central offices where a CLEC can be expected to serve a relatively larger number of lines. Nevertheless, even when a very substantial number of lines is served in an individual office the unit cost disadvantage experienced by the CLEC for backhaul and hot cuts is substantial. As explained more fully in the accompanying economic testimony of AT&T's witness Don Wood, ILEC cost advantages of the magnitude I have calculated for all wire

centers in BellSouth-Florida constitute an entry barrier that preclude mass-market local competition without access to unbundled local switching.

Section IV of my testimony describes, in general terms, the tools that I relied upon to measure the CLECs' cost disadvantage and the analysis that has been undertaken for BellSouth-Florida LATAs using those tools. A more detailed explanation of the technical aspects of the tools, including an overview of the calculations the tools perform, is set forth in the Technical Appendix that is attached as an electronic exhibit in CD-ROM format to this testimony as Exhibit SET-2. Additionally, Exhibit SET-2 will also contain the electronic version of the DS0 Impairment Analysis Tools as well as the results by LATA for BellSouth in Florida. Finally, in Section V, I present the results for BellSouth in each LATA in Florida. These results are supplemented in detail by the information contained in Exhibit SET-2. Included in that discussion is a description of the inputs and sources of the inputs used. The results demonstrate that CLECs cannot practically overcome the significant cost disadvantages identified in this study. Thus, the modeling results for the "hypothetical CLEC" and actual market experience are entirely consistent: there currently is a notable absence of actual, broad based facility-based competition for mass market customers using voice grade UNE-L which corroborates the FCC's national finding of impairment for switching to serve mass market customers.

III. BACKGROUND AND SUMMARY OF RESULTS

A. Impairment Resulting From Absolute Cost Disadvantages Experienced by a CLEC, and the Network Architectures That Create That Impairment

Q. YOU HAVE PREVIOUSLY REFERRED TO AN ABSOLUTE COST DISADVANTAGE THAT A CLEC ENCOUNTERS WHEN USING SELF-PROVIDED SWITCHING TO SERVE MASS MARKET CUSTOMERS. COULD YOU EXPLAIN THIS CONCEPT IN MORE DETAIL?

A. Among the types of barriers to entry that the FCC expressly recognized in the TRO are "absolute cost advantages" enjoyed by the ILEC, or absolute cost disadvantages experienced by the CLEC. That is, competitors will be impaired if, in the absence of unbundling, an efficient CLEC would incur substantially higher costs than do the ILECs in order to self deploy the network facility in question. Thus, as the FCC observed, "[w]hen the incumbent LEC has absolute cost advantages, other firms may be deterred from entering the market." TRO, ¶ 90 and n. 302. This is particularly so if the ILEC is providing service at rates close to its average cost. *Id.*

Q. WOULD A HYPOTHETICAL EFFICIENT CLEC USING SELF-PROVIDED SWTICHING TO SERVE THE MASS MARKET EXPERIENCE ABSOLUTE COST DISADVANTAGES AS COMPARED TO BELLSOUTH?

A. Yes.

Q. WOULD THIS RESULT IN THE CLEC BEING IMPAIRED IN ITS ABILITY TO PROVIDE SERVICE TO MASS MARKET CUSTOMERS IN FLORIDA?

A. Yes.

Q. WHY?

A. The absolute cost disadvantages analyzed in my testimony are created by differences in the basic characteristics of the network architectures employed by

ILECs, on the one hand, and CLECs on the other. The network architecture testimony presented by Jay Bradbury describes these important differences in the network configurations employed by CLECs and ILECs in detail. These differences, which I summarize briefly below, are generally recognized and were explicitly acknowledged by the FCC in the *TRO*. *See, e.g.*, TRO at ¶ 480.

Q. GENERALLY, HOW WAS AN ILEC'S NETWORK DESIGNED?

A. The ILECs' local networks were designed in a monopoly environment. As a result, they rely upon an integrated network architecture that does not easily allow for multiple carriers to access a customer's loop to provide voice service.

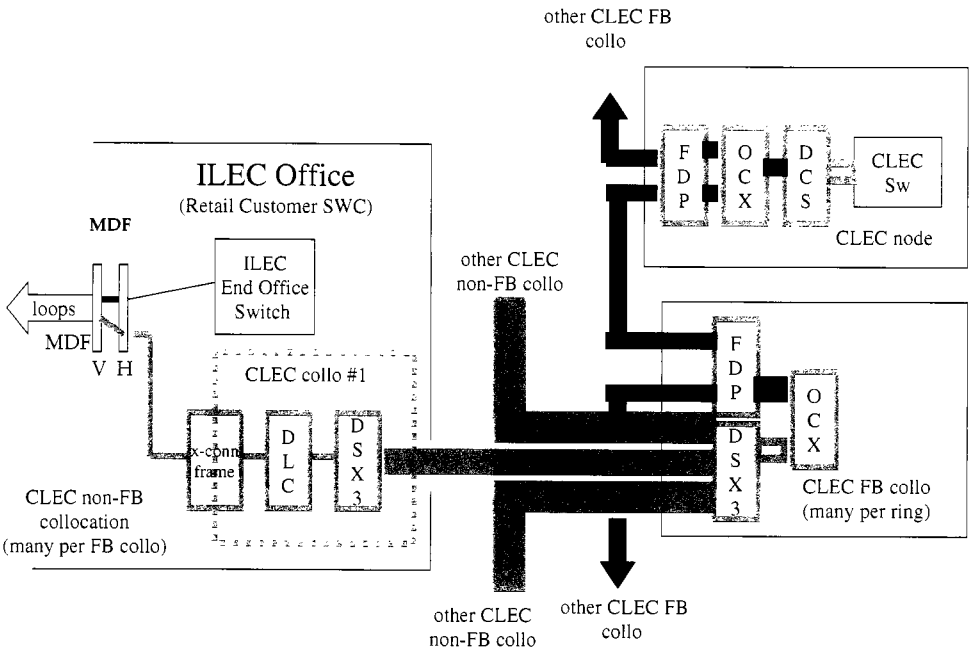
The ILEC network was designed and built based upon analog (and largely copper-based) technology. Because analog signals degrade over distance, copper loops could not exceed relatively short lengths without the need for expensive equipment to ensure that the voice signal could travel from the caller to the called party. As a result, the ILECs deployed – and by virtue of their historical monopoly position they were able to deploy – a relatively large number of local switches, each of which served a relatively small geographic area limited generally to an area determined by the length of copper that could practically support voice services. As the FCC confirms in the TRO, in recent years the ILECs have deployed increasing amounts of fiber optic equipment in the "feeder" portion of the loop, but the "distribution" portion of loop plant – that connecting to the customer's premises – remains almost entirely copper, and the basic architecture characterized by a high density of local offices/switches where customer loops are terminated remains the same.

Furthermore, because a switch was placed at the termination point for these analog loops, ILECs could inexpensively connect their customers' loops to their switches by using a simple set of "jumper" wires across the main distribution frame ("MDF"). And for the vast majority of mass market customers, those jumper pairs are left in place even when a customer moves, so that when a new customer moves in to this same residence or small business location, the ILEC can re-activate service through the use of software commands from a service representative without the need for any physical work.

Q. DOES THE CLEC NETWORK DESIGN DIFFER FROM THE ILEC NETWORK?

A. Yes. The diagram below displays the facilities that a CLEC must employ to connect a customer loop to its switch, and compares them to the facilities an ILEC needs to perform the same functions. The DS0 Impairment Analysis Tools quantify the *minimum* equipment and network functionality that a facilities-based efficient hypothetical CLEC (*i.e.*, a CLEC providing its own switching) would need to extend a customer's UNE loop obtained from the ILEC central office where the customer's loop terminates to the CLEC's own switch, which is also depicted in Figure 1 (the larger orange and blue lines running from the MDF to the CLEC Switch).

Figure 1
Comparison of CLEC Backhaul Network
With ILEC Cross-Connect



Q. HOW DOES THE CLEC NETWORK DESIGN DIFFER FROM THE ILEC NETWORK DESIGN?

A. The local network architecture employed by an efficient CLEC that is self-providing switches is very different from the ILEC network. Because CLECs are attempting to enter markets that have long been dominated by a single monopoly provider, they are unlikely – even in the medium to long term – to be able to generate sufficient customer volume for it to make economic sense to place their own switches at locations close to each ILEC central office. Instead, a CLEC must provide service to customers from multiple ILEC central offices with a

single switch in order to generate a sufficient volume of customer line terminations and calls per switch that is comparable to the customer line terminations and call volume on a switch that is on average achieved by ILECs.

As a result, the CLEC must deploy extensive equipment – which is a large and substantially demand insensitive cost – to extend each and every loop from collocations located at various ILEC wire centers to its local switches. In order to extend customer loops to its switches, a CLEC must install and maintain Digital Loop Carrier (DLC) equipment in each ILEC central office where the customer's analog loops (voice grade UNE-loops) are located. This DLC equipment, as previously mentioned, is used to digitize, concentrate and multiplex the traffic delivered over these analog loops to permit efficient backhaul from the ILEC central office where the customer's loop terminates to the distant CLEC switch without substantially reducing the quality of the customer's voice service. The DLC deployed by the CLEC must permit the distant CLEC switch port to interoperate with the customers' telephone sets to enable the CLEC to provide such capabilities as dial tone and the ability to ring the customer's telephone set. In addition, the CLEC must have connectivity between the DLC (in the collocation space) and its switch so that the voice signal has a path to travel between those two points.

The need to deploy equipment to "backhaul" the customer's loop to the CLEC switch in connection with UNE-L has been recognized by the FCC: "The need to backhaul the circuit derives from the use of a [CLEC] switch located in a location

relatively far from the end user's premises, which effectively requires competitors to deploy much longer loops than the incumbent." TRO ¶ 480.

Once this expensive backhaul infrastructure is deployed, the CLEC must arrange for, and pay ILEC charges for a hot cut. In addition, the CLEC may incur charges for number portability when the customer wants to maintain the phone number it previously had with the ILEC for each active customer loop it migrates to its network.

Q. DO THESE DIFFERENCES IN THE ILEC AND CLEC NETWORK DESIGNS RESULT IN DIFFERENT COSTS TO PROVIDE SERVICE TO MASS MARKET CUSTOMERS FOR CLECS USING UNE-L AND ILECS?

A. Yes. The crucial economic fact is that costs to backhaul customer lines to the CLEC switch, hot cuts to provision the migration of service to the CLEC switch with limited service interruption, and number portability to maintain the customer's same telephone number are not faced by the ILEC. Unlike a CLEC seeking to use the UNE-L architecture, the ILEC connects its loops and switching using a simple, inexpensive copper wire pair cross-connection in the central office where its loops terminate. Thus, the ILEC's "backhaul" network consists of only a relatively short pair of jumper wires.

Collectively, the CLEC's costs associated with collecting and backhauling its customers' loops to its switch to create the same functionality as the ILEC's "short pair of jumper wires" represents an absolute cost disadvantage and results in a substantial barrier to market entry using UNE-L in Florida. The analytical tools described in my testimony, which I refer to generally as "DS0 Impairment

Analysis" tools, identify and quantify the *absolute cost disadvantages* a CLEC would likely face if it sought to broadly serve the mass-market in a particular area with a relatively ubiquitous backhaul network using voice grade UNE-L. Conversely, the backhaul disadvantage represents a significant component of ILEC profit margin that is never eroded even if an efficient CLEC actually entered these markets in the face of such a disadvantage.

B. Overview of Results

Q. WILL YOU GIVE AN OVERVIEW OF THE DS0 IMPAIRMENT TOOLS THAT YOU USED TO QUANTIFY THE ABSOLUTE COST DISADVANTAGE THAT AN EFFICIENT CLEC WOULD EXPERIENCE AS COMPARED TO BELLSOUTH?

A. Yes. However, a more detailed description of the DS0 Impairment Analysis Tools is contained in Section IV and in the accompanying technical appendix (Exhibit SET-2). In addition, the LATA results for Florida are set forth in Section V, which also contains a general discussion of the inputs employed (along with the specific inputs used for each LATA analysis).

Broadly speaking, the DS0 Impairment Analysis Tools calculate the costs that CLECs face in three broad categories: (1) preparation of the loop for transport from ILEC central offices (including DS0 equipment infrastructure and collocation); (2) backhaul transport between the ILEC's central offices and the CLEC's switch; and (3) customer transfer costs for hot cuts and number portability. The tools use inputs that are based upon the experience and judgment of subject matter experts (SMEs) as to the costs an efficient CLEC would incur to provide the backhaul and customer transfer functions efficiently. (*See* generally TRO, ¶ 517, providing that costs should be based on the entry of an efficient

CLEC, not any particular CLEC.) In other instances, the costs are developed using state-approved rates (*e.g.*, for elements of the cost of collocation and hot cuts) or interstate charges (*e.g.*, the cost of high capacity special access facilities, purchased under multi-year term plans). As noted earlier, it is my opinion that the methodology employed and the inputs used produce conservative results. That is, they tend to reflect relatively *low* estimates of the absolute cost disadvantage that would be experienced by a "hypothetical efficient CLEC" that is attempting to enter the local market using UNE-L. Of course, CLECs could experience far higher costs depending upon their customer base.

Q. CAN YOU PROVIDE AN OVERVIEW OF THE DOLLAR AMOUNT FOR THE COST DISADVANTAGE THAT A CLEC WOULD FACE USING UNE-L?

A. The results of my analysis, which are shown in Section V, support the conclusion that hypothetical efficient CLECs face substantial, absolute cost disadvantages relative to the ILEC in each geographic market in which BellSouth has elected to challenge the FCC's national finding of impairment. Those cost disadvantages range from a high of $22.94 per line per month to a minimum of $12.79 for the Florida LATA study areas. These costs *do not include* the monthly recurring charges paid to the incumbent simply to lease an unbundled loop. Thus, to the extent that the TELRIC costs paid by a CLEC to lease the loop are higher than the ILEC's efficient costs for providing the loop to itself, such cost disadvantages are not reflected

Q. WHAT DOES THE MINIMUM IMPAIRMENT DOLLAR FIGURE REPRESENT?

A. The latter minimum figure in fact provides a shorthand basis – and a conservative one at that (for the reasons I have previously discussed) – for supporting a general finding of economic impairment in Florida consistent with the FCC's national finding of impairment. As noted earlier, an important characteristic of impairment is that the number of customer lines a CLEC serves in a given ILEC central office (as distinct from the absolute size of the ILEC central office) is a key determinant of the absolute cost disadvantage. Thus, the cost disadvantage of serving 500 lines in a 5,000 line office would be much the same as the cost disadvantage of serving 500 lines in a 50,000 or 100,000 line office. That is because collocation charges and hot cut costs do not vary based on the ILEC office size, and the backhaul cost is largely a fixed cost related to the type of DLC deployed and the designation used by the tools for a particular ILEC central office (*i.e.*, whether it is a "node" or "satellite," *see* infra.). Generally, therefore, the average cost disadvantage per line decreases as the number of lines served in an office increases, but the important point is that it *never* drops below a level of absolute cost disadvantage that would preclude mass-market competition.

Thus, even if a CLEC serves a very substantial number of lines in an individual central office in Florida, the minimum cost impairment per line I cite above would nevertheless constitute a cost penalty that is competitively disqualifying under any reasonable measure.

As discussed in the testimony of Don Wood, a CLEC cost disadvantage of the magnitude described above constitutes a clear barrier to entry and should by itself satisfy any reasonable definition of "impairment."

Q. HOW DOES THE IMPAIRMENT FOR CLECS CALCULATED BY THE DS0 IMPAIRMENT TOOL COMPARE TO CLEC IMPAIRMENT COSTS CALCULATED BY ILECS?

A. The types of costs and the general levels of impairment I have identified are consistent with calculations submitted by ILECs during the FCC proceedings leading up to the *TRO*. In January, 2003, for example, SBC Communications, Inc. ("SBC") submitted an Ex Parte letter to Chairman Powell from James C. Smith, a Senior Vice President of SBC ("SBC Ex Parte"). (See Exhibit SET-3). Attachment 3 to that letter is a document entitled "SBC's Analysis of the Economic Viability of Facilities-Based UNE-L Residential Serving Arrangements," in which SBC claims that it "compares the cost of a UNE-L-based serving arrangement with the revenue stream a CLEC could reasonably anticipate when serving residential customers." *Id.*, p. 1.

In its ex parte SBC identified a series of cost categories that CLECs might incur in using UNE-L to serve residential customers that would not also be incurred by ILECs. These include:

- payments by CLECs to ILECs for hot cuts (SBC appears, however, to have excluded internal CLEC costs that would be incurred to implement the hot cut process (*Id.* at 3);
- the costs of collocation (*Id.* at 4-5);
- the costs of GR-303 concentration and multiplexing equipment (*Id.* at 5); and
- transport costs (*Id.* at 7).

These are the very same cost elements that are reflected in the tools and calculations that I discuss below.

For the three states that SBC analyzed, *i.e.*, California, Michigan and Texas, SBC developed estimated cost differentials that totaled respectively $10.74, $10.88 and $10.74 per line for these cost components for a central office in which a CLEC would serve 250 lines; and $9.00, $7.85 and $8.80 per line, respectively, for these cost components for a central office in which a CLEC would serve 500 lines. (*See* February 4, 2003 Ex Parte letter from Joan Marsh, AT&T Director of Federal Government Affairs, to Ms. Marlene Dortch, Secretary, Federal Communications Commission in CC Docket Nos. 01-338, 96-98, and 98-147, appended hereto as Exhibit SET-4. Note that for a 100 percent increase in lines served, the impairment per line declines only 16 to 29 percent, depending on the state). Thus, SBC's own analysis presented to the FCC shows that the cost disadvantage faced by a CLEC – essentially the same cost disadvantage discussed in my testimony – is substantial.

IV. THE DS0 IMPAIRMENT ANALYSIS TOOLS

A. Overview

Q. CAN YOU EXPLAIN IN MORE DETAIL HOW THE DS0 IMPAIRMENT TOOLS WORK?

A. Because UNE-L entry requires CLECs to connect ILEC loops to their own switches, the forward-looking cost of such connections is central to any analysis of the economic viability of UNE-L as an entry strategy to serve mass-market customers. The DS0 Impairment Analysis Tools described in this section of my

testimony compute the loop-related impairment costs of providing service that would be incurred by an efficient CLEC using UNE-L that are *not* incurred by incumbents. Again, the analysis reflects the anticipated experience of a hypothetical, efficient CLEC seeking to broadly serve the mass market using UNE-L, rather than focusing on the business strategy of any particular competitive carrier.

Q. DO THE DS0 IMPAIRMENT TOOLS MAKE ASSUMPTIONS REGARDING THE CUSTOMER BASE OF AN EFFICIENT CLEC?

A. Yes, there are four important sets of assumptions. *First*, the DS0 Impairment Tools require an assumption about the market share of mass market customers a hypothetical efficient CLEC is expected to achieve. *Second*, it employs assumptions about how rapidly a CLEC will acquire that market share. *Third*, as discussed above, it assumes that transport costs will be defrayed by traffic for both enterprise and mass market customers, which has the effect of reducing backhaul transport costs included as impairment. *Fourth*, it requires estimates of customer "churn," *i.e.*, how long a hypothetical efficient CLEC can expect to keep a customer that it takes from the ILEC or another CLEC.

The DS0 Impairment Tools assume that an efficient hypothetical CLEC will benefit by serving both the enterprise and the mass-market customers, particularly in the area of self-provided transport. Self-provided transport cannot generally be justified solely by local voice demand, particularly if only mass-market customers are considered. If, in particular, data networking and long distance demand of enterprise customers cannot be addressed, there are limited instances where self-provided facilities are economically justifiable. The DS0 Impairment Analysis

Tools deploy self-provided facilities between large incumbent offices, and assume that these facilities are also utilized for mass-market backhaul. Thus, the calculations described here assume that the CLEC has an active enterprise business. If it did not, there would be no basis for hypothesizing the existence of self-provided fiber facilities between ILEC offices. Apportioning costs of node-to-node transport between mass market and enterprise customers is one of many ways that the Impairment Analysis Tools assume the efficient sharing of facilities used to serve mass market customers. In addition, where there are facility-based collocations, the DS0 backhaul infrastructure reflects the economies of shared use between mass market and enterprise customers.

Q. DO THE IMPAIRMENT TOOLS MAKE ANY ASSUMPTIONS ABOUT REVENUES GENERATED BY MASS MARKET CUSTOMERS?

A. No. As noted earlier, the DS0 Impairment Tools are designed only to quantify the absolute cost disadvantage experienced by a hypothetical efficient CLEC. Revenues are not relevant to this determination. Revenues would be highly relevant to an analysis of whether entry could be profitable, given the level of cost impairment calculated by the DS0 impairment tool, but that is not the subject of this testimony.

Q. CAN YOU DESCRIBE HOW THE DS0 IMPAIRMENT TOOL IS ORGANIZED?

A. The DS0 Impairment Tools are a collection of spreadsheet models that calculate the cost associated with connecting a customer's loop that terminates in an incumbent's central office to a CLEC's switch, and the associated customer acquisition costs.

One of the spreadsheets is called the Facility Ring Processor Tool, which determines the transport equipment and facilities that are required to efficiently connect collocation arrangements where unbundled loops are collected back to the CLEC switch. This tool essentially identifies the "backhaul" transport architecture that is needed to establish connectivity between a customer's loop that terminates in the ILEC's central office and a CLEC switch.

The output of the Facility Ring Processor is used as an input to the Transport Cost Analysis Tool. The Transport Cost Analysis Tool calculates the transport cost per DS3 as a function of the number of DS3s active at a Network Node, (a collocation that is connected to a fiber CLEC ring used to provide service to customers) based on the transport network determined by the Facility Ring Processor Tool. A DS3 is equal to 28 DS1s and provides for approximately 45 megabits per second of transport connectivity between two points.

Finally, the cost generated by the Transport Cost Analysis Tool is used as an input to the DS0 Impairment Analysis Tool. In addition to the transport costs, the DS0 Impairment Analysis Tool calculates costs associated with (1) digital loop carrier equipment, (2) collocation, including space and power, (3) interconnection arrangements at the collocation and the CLEC switching office, and (4) the cost of hot cuts. The total of these individual cost components at each wire center, divided by the number of lines a hypothetical efficient CLEC is anticipated to acquire in each wire center, yields the DS0 impairment per line for each wire center which can be and was for this proceeding aggregated into LATA results.

Q. DO THE DS0 IMPAIRMENT TOOLS CALCULATE THE TOTAL COSTS THAT AN EFFICIENT CLEC INCURS TO PROVIDE SERVICE TO A CUSTOMER?

A. No. It is important to emphasize that the DS0 Impairment Analysis Tools quantify only certain significant components of the cost disadvantage that would be faced by a hypothetical efficient CLEC using UNE-L, as compared to the ILEC. The tools do *not* calculate the total cost that would be experienced by a hypothetical efficient CLEC to provide service in Florida. For example, a CLEC's costs to acquire customers are appreciably higher than the costs of the monopoly ILEC, *e.g.*, TRO ¶ 471, particularly when the likelihood of price discounting is considered. Likewise, customer-servicing operations become most efficient only when they are used to serve very large customer groups. These factors are considered in connection with a "business case" analysis, as are the costs of the local switching and local transport. Any business case analysis must take into account the implications of providing local switching and transport to both enterprise and mass market customers, and the benefits the CLEC might realize from deploying fewer, larger switches relative to the ILEC.

B. Costs of Preparing Loops for Transport Out of the ILEC's Central Offices

Q. WHAT COSTS WOULD A CLEC INCUR TO PREPARE CUSTOMER LOOPS FOR TRANSPORT OUT OF THE ILEC CENTRAL OFFICES?

A. As noted earlier, there are two major components of the cost of preparing the signal, *i.e.*, (1) the cost of DLC and related equipment housed within the ILEC's central office (together with associated equipment at the CLEC's central office) used to digitize, concentrate and multiplex the signals on the CLEC's customers'

loops, and (2) the CLEC's cost to obtain collocation space in the ILEC's central office in which to place the DLC and related equipment.

Q. COULD YOU DESCRIBE THE TYPES OF EQUIPMENT THAT THE CLEC MUST DEPLOY TO TRANSPORT THE CUSTOMER'S LOOP OUT OF THE ILEC'S CENTRAL OFFICE?

A. The three main types of equipment required by a CLEC to provide voice grade services using UNE-L are: (1) digital loop carrier (DLC) equipment, *i.e.*, the equipment necessary to digitize, multiplex and concentrate the traffic on individual voice grade loops at the originating ILEC central office, and the corresponding equipment at the location of the CLEC switch; (2) facility terminating equipment, *i.e.*, the cross-connection frames within the CLEC's collocation facilities in each ILEC central office on which the incoming voice grade loops terminate, the out-going transport facilities terminate, and equipment cross-connections are made; and (3) supporting infrastructure equipment, *e.g.*, the battery distribution fuse bay and test equipment, that the CLEC must install in order to make its collocated facilities operational.

1. DLC Infrastructure and Facility Terminating Equipment

Q. DOES THE COST FOR DLC EQUIPMENT VARY BY GEOGRAPHIC LOCATION?

A. Because DLC and related equipment can be purchased on the open market, its cost is the same regardless of the geographic area being served. However, the cost per line for providing such equipment varies significantly as a function of the number of customers actually served out of a given central office. For example, the cost of the collocation in an ILEC central office which the equipment is housed *does* vary by state and incumbent LEC (but typically does not vary by

specific central office for comparable configurations). The DS0 Impairment Tools take these characteristics into account.

Q. HOW DOES THE DS0 IMPAIRMENT TOOL SIZE THE DLC AND SUPPORTING INFRASTRUCTURE EQUIPMENT?

A. At a high level, the DS0 Impairment Analysis Tool sizes the required DLC and supporting infrastructure based upon the number of lines the CLEC will serve out of a given central office. For each central office, the tool selects the lowest cost investment option from among three differently sized DLC alternatives. Because the frame space required to house the DLC modules and common units is also known, the DLC frame requirements are calculated for each central office, depending upon the DLC alternative selected.

Q. IS THIS SAME METHOD USED FOR SIZING FACILITY TERMINATING EQUIPMENT?

A. Yes. A similar approach is used to establish the number of cross-connection panels (and corresponding frames required) to provide a connection between the ILEC's MDF and the DLC equipment in the CLEC's collocation area for each line acquired in a central office by the CLEC. Each cross-connection panel has a known capacity of the number of voice lines that can terminate on the panel and each panel consumes a specific amount of frame space. Thus, by knowing the number of lines served (which determines the number of terminations), the number of required cross-connection panels can be calculated; and knowing the number of cross-connection panels determines the number of frames required.

Once the quantity of DLC equipment items required in an ILEC central office is determined (*i.e.*, DLC modules, common units and line cards, and termination

panels and frames) – and the installed unit costs are calculated – the tools quantify the gross investment in the infrastructure investment needed for voice grade lines for each central office.

Q. IS THE INVESTMENT FOR DLC AND DLC EQUIPMENT SIZED FOR THE ULTIMATE CUSTOMER DEMAND THE EFFICIENT CLEC IS EXPECTED TO SERVE?

A. No, not for all the equipment. The DLC calculations incorporate the effects of a "ramp up" to reflect the fact that a CLEC would not acquire all of its customers instantaneously. The DLC common equipment is sized to meet ultimate demand (*i.e.*, the tools select the particular DLC alternative, and the corresponding cross-connect panels and frames, based on the *final* CLEC market share and line count assumed in the study It is economically prudent to initially install the type of DLC common units that will ultimately be required, rather than to start with smaller units and then replace them with larger ones over time).

However, due to the size and variable nature of line card investment, the tools incorporate the line card investment only as to the demand sufficient to serve the initial customers that the CLEC acquires. The line cards are installed in the collocated DLC equipment to actually terminate the unbundled loops into the equipment that will allow for the backhaul to the CLEC's switch. The tools incorporate a demand "ramp-up" profile that reflects that general experience of new market entry. That is, demand is initially zero, it increases to close to the ultimate level in the first few years and then remains flat for the remainder of the 10-year study period. The "ramp up" adjustment reflects the fact that common equipment that must be installed on day one is recovered over a smaller number

of customers in the earlier period than in latter periods. In addition, it provides for a sizeable deferral of the line card investments to future periods.

Q. DO THE DS0 IMPAIRMENT TOOLS CALCULATE THE COSTS FOR ANCILLARY DC POWER EQUIPMENT REQUIRED TO OPERATE THE DLC EQUIPMENT?

A. Yes. Ancillary power equipment such DC power distribution equipment (sometimes referred to as a mini-battery distribution fuse bay or mini-BDFB) is also included in the support infrastructure investment. The CLEC's choice to install this equipment within its collocation arrangements allows the CLEC to further divide the power (*e.g.*, from one 60 amp circuit to two 30 amp circuits) and thereby gain flexibility and potentially minimize the need for subsequent (and costly) power augments as the CLEC's customer base increases. Therefore, the tools allow power distribution equipment to be added to the CLEC's collocation arrangement.

2. Collocation Costs

Q. WHERE DOES THE CLEC HOUSE THE DLC AND RELATED EQUIPMENT?

A. Before a CLEC can deploy the equipment required to prepare a loop for transport, it must rent collocation space from BellSouth, in each BellSouth central office where it seeks to provide service. The minimum amount of floor space, including a wide range of collocation elements such as interconnection arrangements based on the particular equipment needs described previously, are computed for each wire center in Florida.

Q. HOW ARE THESE COLLOCATION COSTS DETERMINED?

A. Collocation cost is principally a function of the amount of space, cross-connections and power required to provide the backhaul functionality. Because the number of frames required in a central office is developed in the analysis above, and because the average floor space required by a frame is known, the minimum amount of collocation space required in the central office can be calculated. In addition, since the type of DLC and the number of lines served are known, the DC power requirements at the office can be established.

Q. WHAT SOURCE DOES THE DS0 IMPAIRMENT TOOL RELY UPON FOR THE COLLOCATION RATES?

A. The source data for the DS0 Impairment Analysis Tools includes the prevailing collocation rates, by type of collocation, for BellSouth in Florida. The tools use current collocation charges for BellSouth for the following components, established by the Florida Public Service Commission, to build bottom-up collocation costs for each BellSouth central office that is used to provide service to mass-market customers in Florida:

- AC and DC power Cost
- Space occupancy
- Space construction
- Administrative charges
- DS0 connectivity
- Fiber Entrance Facilities

The DS0 Impairment Analysis Tools establishes the collocation costs for each affected central office by applying the state established costs to the equipment space, power and cross-connection requirements of the particular central office (calculated as described above). ILEC collocation charges, both recurring and non-recurring, are calculated on the basis of common collocation measurement

units (*e.g.*, square feet of space, DC amps required, and 2-wire cross-connections), and then multiplied by the collocation rate per unit for each central office. If the ILEC requires a CLEC to purchase a minimum block of capacity (such as minimum costs for cage construction, power feeds and/or cable terminations), then the minimum block size just sufficient to address the equipment deployed in the specific office is determined and used in the cost calculation (because the number of required frames is known, as is the typical "footprint" of each frame, then the total square footage requirement can be determined).

For example, DC power charges are based upon the number and size (maximum capacity) of the power feeds and a per amp charge multiplied by the total amps. The DC power computation is based on the calculated power consumption of the required equipment and appropriate BellSouth tariff rates. The tools also include the capability to match the projected equipment power requirement to the basis upon which the incumbent charges are applied. For nodes, the DS0 backhaul is assigned only the proportion of the cost for DC power that is actually required by the equipment deployed. This approach is taken for nodes in that the service to enterprise customers is assumed to consume all existing power (or space, depending on the element being evaluated) not required for the DS0 infrastructure. For satellites, however, the primary purpose for establishing the collocation arrangement is to interconnect with unbundled loops. As such, for these central office collocations, the entire cost for an appropriate sized

collocation arrangement (including the cost for DC power) is assigned to the DS0 backhaul.

Q. HOW DOES THE DS0 IMPAIRMENT TOOL DETERMINE THE AMOUNT OF COLLOCATION SPACE THAT IS NEEDED FOR THE EQUIPMENT?

A. The space occupancy and construction charges generally reflect minimum standard sizes and additional incremental blocks of space. Once the relevant charges are selected, the DS0 Impairment Analysis Tools use the actual square footage needed at that central office to compute the relevant costs. In order to account for all possible variations in ILEC tariff structures, the collocation section of the DS0 Impairment Analysis tool employs a series of logical formulas and lookup tables to select the appropriate collocation charges. The DS0 Impairment Tools calculates the total number of frames deployed (for DLC, termination equipment, and test equipment) and multiplies the total frame count by user-adjustable inputs for the floor space required by each of the different types of frames. The resulting square footage is the minimum amount of collocation space required to serve the anticipated efficient hypothetical CLEC market share at each ILEC central office. The tool effectively calculates the cost of collocation for space requirements running from zero to 300 square feet in one square foot increments, based upon the charges contained within BellSouth's approved collocation appendix and the increments of space where the charges change. The tool selects the minimum cost alternative given the amount of space required. For example, an ILEC may offer minimum initial purchases of 100, 200, and 300 square feet. Additional increments may be in 25 square foot increments. If 137

square feet were required in an office, the tool would check to determine if a 150 square foot cage (100 initial + two 25 square foot increments), a 200 square foot or a 300 square foot cage represents the lowest total cost. Regardless of the actual size, the lowest cost alternative is selected.

Q. HOW DOES THE DS0 IMPAIRMENT TOOL DETERMINE THE COLLOCATION CHARGES FOR LOOP CONNECTIVITY?

A. Connectivity charges are computed separately at the Voice Grade, DS1, or DS3 level or for fiber (depending on the type of transport deployed). The incumbent charges a CLEC to physically cross-connect transport facilities to the CLEC equipment in the collocation. This specific CLEC equipment allows the customer loop to be transported from the ILEC central office back to where the CLEC's switch is located. If leased transport is employed, the cross-connection is at the DS1 or DS3 level. The costs may also include the cost of a cable from the CLEC's collocation to an intermediate cross-connection frame in the ILEC space where the ILEC actually makes its cross-connection. In a similar manner, charges may apply (in addition to hot cut charges) to install and terminate wire cables between the CLEC collocation and an intermediate frame in ILEC space, where a second cable to the MDF is also terminated. These connections represent pre-wiring to the MDF necessary for the CLEC to access voice grade loops. Tariff charges (in addition to the hot cut charges) may apply to install and terminate cables between the CLEC collocation and an intermediate frame in ILEC space where the ILEC's cable (generally to the MDF (for loop) or a transport frame (for interoffice connections) terminate and a cross-connection is made. If tariff charges exist, they are utilized by the model. On the other hand, if the cables

must be installed by an ILEC-certified contractor (*i.e.*, no tariff charge exists but a cost is incurred), the average installed cost of an appropriately sized cable is included.

Even when self-provided transport is employed, charges may apply to cross-connect fiber running from the CLEC facility in the street outside the office to the CLEC's collocation space within the central office (commonly referred to as a collocation Entrance Facility).

In general, connectivity charges apply based upon one or more of the following categories: per termination, per block of terminations or conductors, and/or per cable. The tool determines, based upon the number and type of backhaul facilities and the number of customer loops served (and inputs regarding maximum cable sizes), the quantity of each category needed based upon the conditions in each central office out of which the CLEC serves its customers. To the extent that an ILEC does not impose charges for a particular category, the unit price is zero.

Q. ARE THE COLLOCATION COSTS ADJUSTED TO ACCOUNT FOR THE PREVIOUSLY-DESCRIBED "RAMP UP" IN THE NUMBER OF CUSTOMERS AN EFFICIENT CLEC WOULD ULTIMATELY SERVE?

A. Yes. Like the DLC calculations described above, collocation costs associated with DC Power consumption are adjusted to incorporate the effect of a "ramp up" that reflects the fact that an efficient CLEC would not acquire all of its customers instantaneously. For example, power feed related charges are incurred immediately based on the maximum expected lines in service, and collocation space construction is based on the projected number of frames, rather than incrementally as each frame is added. Collocation costs which are not incurred on

day one, but only as demand materializes, are treated similar to the line-card investment portion of total DLC investment as described above. In addition, collocation amperage-related charges (including HVAC) as well as DS0 termination charges are incurred only as actual demand materializes, and these receive the same treatment as DLC line cards.

C. Costs of Connecting to the CLEC's Switch (Backhaul Infrastructure)

1. Facility Ring Processor Tool

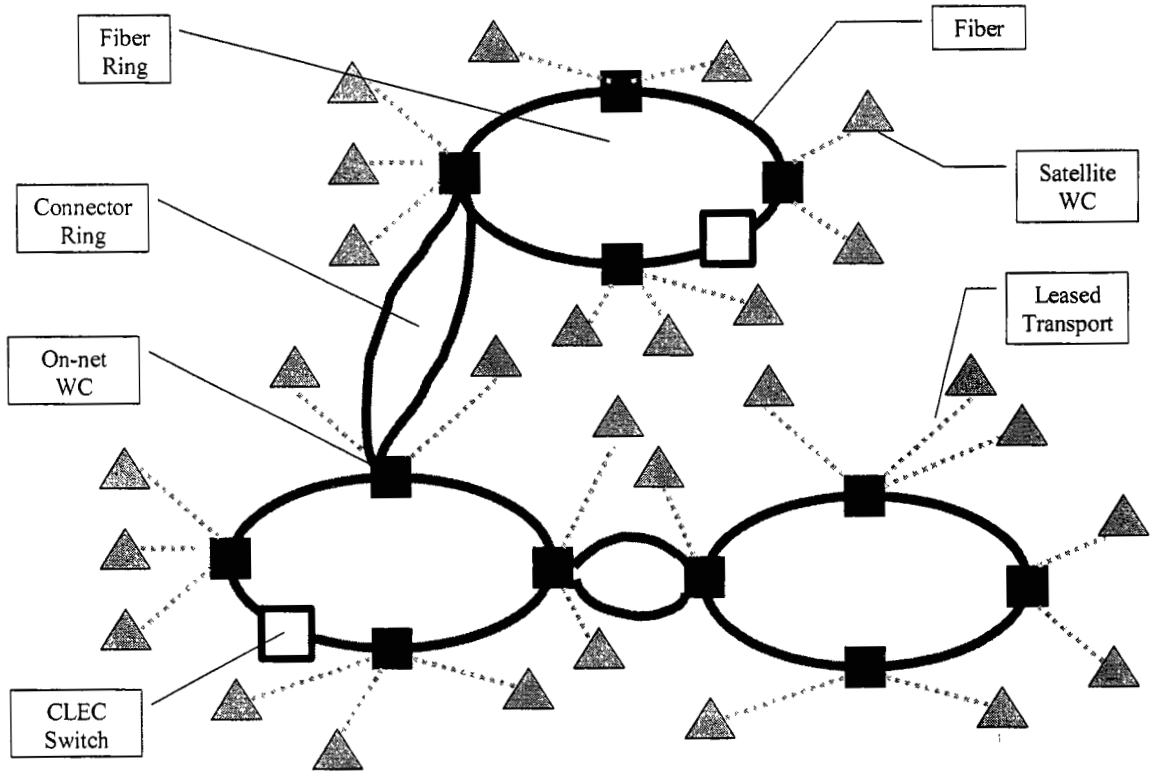
Q. HOW DO THE DS0 IMPAIRMENT TOOLS CALCULATE THE LEVEL OF COST IMPAIRMENT ASSOCIATED WITH BACKHAULING A CUSTOMER'S LOOP FROM AN ILEC CENTRAL OFFICE TO THE CLEC SWITCH?

A. The Facility Ring Processor Tool ("FRP") initially establishes a self-provided CLEC facility network that is linked to the largest ILEC central offices. The CLEC's collocations at those wire centers form the "nodes" of its transport facilities. Each remaining wire center (or satellite location) to be served is then "homed" to the closest node location that is on the CLEC network or "on-net". This process creates the basic backhaul transport network.

Q. CAN YOU PROVIDE A BRIEF DESCRIPTION OF THE FRP TOOL?

A. Yes. The following diagram displays the basic architecture the FRP Tool uses:

Figure 2



The facility architecture designed by the FRP Tool requires the designation of central offices in Florida as either Network Nodes (or "core" offices) or Satellite offices. The FRP Tool will connect each network node to another network node using self-provided facilities (nodes connected to at least two other nodes), and "Satellite offices" are connected to the closet node office using facilities leased from the incumbent. As a default mechanism, the FRP ranks all wire centers in Florida by number of lines, and then assigns wire centers in declining line count order as Network Nodes until 50 percent of lines have been assigned to nodes. Generally, this mechanism designates approximately 30 percent of the central

offices as Network Nodes. However, the user can change the default mechanism or change the designation of any individual node.

Once the Network Node offices are identified, the FRP tool treats all of the incumbent central offices that are *not* designated as node office locations as Satellite offices. The tool separately assigns each Satellite location to its nearest Network Node location.

The FRP tool combines multiple individual physical rings to connect all of the Network Nodes, with each ring serving up to the user-specified maximum number of Network Nodes. The tool uses "ring connectors" to interconnect adjacent rings. An algorithm (written in Visual Basic for Applications code) determines the mix of rings and ring connectors.

Q. HOW DOES THE FRP CALCULATE THE MILEAGE BETWEEN NODES?

A. The FRP tool calculates both the airline mileage and the rectilinear mileage between Network Node-to-Network Node office pairings, based on the vertical and horizontal coordinates of the pair. The tool separately accumulates the airline and the rectilinear distances for all Network Node-to-Network Node connections required in a particular study area, and calculates the average airline miles per node and the average rectilinear miles per node within the study area. Similar calculations are made for the ring connector distances. Based on these distance calculations, the FRP tool determines where fiber signal "regenerators" (used to "boost" the fiber signal after a certain distance) are required (using the user-specified regenerator spacing input) for rings and ring connectors. Finally, the

FRP tool calculates a density zone distribution for the self-deployed facilities. The FRP tool estimates construction costs based on eight density zones in order to reflect the different cost characteristics of serving areas with different populations.

As noted earlier, the FRP tool also associates each Satellite location with its nearest Network Node location. The fundamental assumption in the FRP tool is that Satellite offices will connect to nodes using incumbent-supplied interoffice transport (*i.e.*, special access). Because BellSouth's charges for these types of connectivity are based upon airline distance, the FRP tool determines the closest Network Node to each particular Satellite office on the basis of airline distance. This distance is used subsequently to determine pricing of incumbent supplied transport (*i.e.*, interoffice transport) in the calculation of backhaul costs in the DS0 Impairment Analysis tool.

2. Transport Cost Analysis Tool

Q. HOW DO THE FACILITY RING PROCESSOR TOOL AND TRANSPORT COST ANALYSIS TOOL RELATE TO ONE ANOTHER?

A. The Facility Ring Processor Tool fundamentally calculates the mileage between the nodes that are incorporated into the CLEC's SONET rings and the mileage between the satellites that are then connected to their nearest node. Once this network of nodes is identified along with the corresponding mileage for these rings, and the mileage to connect the satellites back to the nodes, the Transport Cost Analysis Tool is then used to develop the costs of actually constructing or leasing that network.

Q. DOES THE TRANSPORT COST ANALYSIS TOOL DETERMINE THE COSTS TO CONNECT AND OPERATE THE NODES AND SATELLITES?

A. Yes. Satellite-to-node connections are leased facilities from the ILEC and their cost is a function of the established airline distance between those locations which is established by the FRP tool. The node-to-node connections are based on a ring architecture that used SONET rings self-deployed by the CLEC to connect all CLEC node offices. The mileage of fiber that is calculated for a particular SONET ring in the FRP is developed using an algorithm that minimizes the amount of fiber deployed but also accounts for the engineering reality that SONET rings are limited in the number of nodes that can be placed on a particular physical ring and the maximum distance that can exist between any two nodes. The details of this calculation can be found in the Technical Appendix. Once the SONET ring fiber mileage (referred to as "conductor mileage") is established in the FRP, the facility costs are calculated by the Transport Cost Analysis Tool in much the same manner as occurs in the TELRIC studies for ILEC UNE transport. For node (or on-net) offices, the backhaul cost is the self-provided network cost only which is allocated to a typical DS1 or DS3 that would be served on this self-provided network. It is important to understand that this allocation is another of the conservative assumptions made within the model in that the implicit assumption is that the SONET rings built between the nodes will be used for more than just the backhaul of customer loops. As such, by calculating the average cost of a DS1 or DS3 on the self-provided network, this cost will be attributed to the backhaul of customer loops terminating at node collocations assuming that other DS1s or DS3s on the same self-provided network are bearing their share of the

network's cost from other enterprise applications. The number and size (DS1 or DS3) of transport required is based on the actual lines being served out of a node collocation in the same manner as the calculations are performed for a satellite central office.

After the tool has completed the cost development for the "node" locations in the study area, it is necessary to develop the transport cost for "satellite" locations. As noted previously, satellite locations are central offices where the CLEC will need to obtain the customer's unbundled loop, but will not have a fiber network extended to the particular office. As such, the tool must determine the unit cost for DS1 and DS3 leased transport for the connections from the satellite locations, which are not on the CLEC SONET fiber rings, to the nearest node locations, which is on the CLEC SONET fiber ring. The calculation is based on the shortest distance between a satellite and the closest node to that satellite (referred to in tariffs as interoffice transport or special access as "airline mileage"). This airline mileage between the node and satellite central offices is then used to calculate the DS1 or DS3 transport cost using the relevant BellSouth rates for a DS1 connection and a DS3 connection. The actual selection of whether a DS1 connection or a DS3 connection is used is based on the number of unbundled loops that the CLEC expects to serve within a central office. There are specific calculations that take account of the functionality of the DLC that are also used to identify the specific number and size (DS1 or DS3) of connections that are required between the DLC at the satellite central office and the nearest node, but the underlying driver of this determination is the number of lines that the CLEC

anticipates serving at the satellite central office. Based on the number and size (DS1 or DS3) of the connections and the mileage between the satellite central office and nearest node central office, the total transport cost calculation for this pair of offices can be made. This same set of calculations is repeated for each satellite central office contained within the study area. For satellite locations, the backhaul cost is the combination of the leased facility cost to the node location and the self-provided transport from the node location to the CLEC switch.

When special access tariffs are used to determine the pricing of such facilities, it may also require knowledge of the specific offices connected, in order to determine whether price cap or pricing flexibility tariffs apply. All these preceding factors are taken into account by the tools' calculations.

Q. EARLIER YOU BRIEFLY DISCUSSED THAT THE ALLOCATION OF THE COSTS FOR THE SONET NETWORKS IS PERFORMED BASED ON THE EXISTENCE OF OTHER SERVICES SHARING THE SAME NETWORK. COULD YOU DESCRIBE THIS ALLOCATION IN MORE DETAIL?

A. Yes. As I noted earlier, such a CLEC self-provided SONET transport infrastructure would rarely if ever be built to handle exclusively transport traffic generated only by mass market customers. In recognition of this fact, the Transport Cost Analysis Tool assumes that there would also be significant enterprise customer traffic moving between Network Node locations on the transport ring.

The Transport Cost Analysis Tool gives effect to this assumption by employing a "utilization" or "fill" factor that effectively allocates the total costs of the self-

provided SONET network structure and optical equipment required by the OC-48 ring built to connect all Network Nodes in a study area as follows:

$$\text{Average Cost of Back-Haul per DS3 per Node} = \frac{\text{Total Cost of OC-48 Network}}{\text{48 DS3s per OC-48} * 80\%}$$

Q. HOW WOULD YOUR UTILIZATION BE AFFECTED IF MORE NODES WERE ADDED TO THE NETWORK?

A. Quite simply, the addition of more nodes to the SONET network would cause the utilization level to drop. The precise mechanics of this relationship have not been modeled because it is not possible to know all of the enterprise demand that would exist between the nodes on the SONET network. However, utilization is not a static assumption. If additional nodes were added to the network, these additional nodes on the same SONET rings cause the following to occur: (1) Increase the average cost of back-haul transport per DS3 per mile because more miles of transport have been added to the SONET network to incorporate the additional node; and (2) Decrease the anticipated average utilization of the ring because you would generally be adding nodes with a lower anticipated demand.

D. Costs of Transferring Customers from the ILEC to CLEC Network (Hot Cuts)

Q. THE THIRD MAJOR COMPONENT OF ABSOLUTE CLEC COST DISADVANTAGE YOU IDENTIFIED EARLIER INVOLVES THE COSTS OF TRANSFERRING CUSTOMERS. CAN YOU DESCRIBE HOW THESE COSTS ARE CALCULATED?

A. Yes. The third major component of the CLEC's economic impairment is the costs associated with transitioning customer loops from the ILEC to a CLEC using UNE-L. This customer transfer is referred to in the industry as a "hot cut." The largest component of this cost consists of the charge(s) that BellSouth assesses to

transfer each customer's loop from its network facilities to the CLEC's collocation (*i.e.*, the "hot cut" charge). The hot cut cost assessed by BellSouth is a nonrecurring per-line charge imposed on CLECs so they can connect ILEC-supplied loops to CLEC-owned switches. The hot cut charge may include charges that vary per order and per line on an order (or on a first and additional line basis), with the number of the lines converted for a unique retail customer address typically being the determining factor. As input to the impairment analysis, weighted average costs per line are developed based upon the profile of single and multi-line mass-market customer locations. Separate calculations are made for consumer and business locations.

For Florida, BellSouth, for example, today exacts a nonrecurring charge of $83.11, assuming that a coordinated hot cut is employed for a single line order. As the FCC has recognized, charges such as these can "contribute to a significant barrier to entry." *See* TRO, ¶470.

Q. DO HOT CUT COSTS CONSIST ONLY OF THE ILEC IMPOSED COSTS?

A. No. Additional hot cut costs may also include the cost of work that must be performed *internally* by the CLEC in order to accomplish this transfer. (*See, TRO, ¶470.* The FCC recognizes not only economic impairment arising from the hot cut process, but also operational issues. *See, TRO,* ¶465, which discusses operational impairments associated with hot cuts.) Therefore, the DS0 Impairment Analysis tool can include the internal CLEC's costs to manage hot cuts in addition to the charges assessed by the incumbent. The average hot cut costs per month are a function of customer churn, the calculated "per-line" hot cut

charges and the internal costs of the CLEC. If customers that choose a CLEC remained that CLEC's customer forever, the CLEC would incur only a single hot cut cost for each customer that it adds to its network. However, customer behavior in a competitive mass-market would be characterized by significant churn. For example, the default churn rate employed is 4.6 percent per month. *See* Banc of America Securities, April 30, 2003, page 10. For this reason, the calculation of the hot cut charges per customer line must be higher to reflect the effects of this churn on total hot cut activity. (*See, e.g.*, TRO ¶ 471: "The evidence in the record demonstrates that customer churn exacerbates the operational and economic barriers to serving mass market customers.") This is accounted for in the tool by the combination of the CLEC's net growth in lines and its disconnect rate. Thus if the CLEC grows its overall number of lines by five percent in a year, and it also anticipates a five percent disconnect rate, its hot cut expenses in that year would be the hot cuts associated with the five percent net line growth *plus* the hot cuts associated with replacing the five percent of lines that would otherwise be lost, *i.e.*, a total of 10 percent of the lines in that year would experience a hot cut.

V. TOTAL CLEC DS0 COST DISADVANTAGE

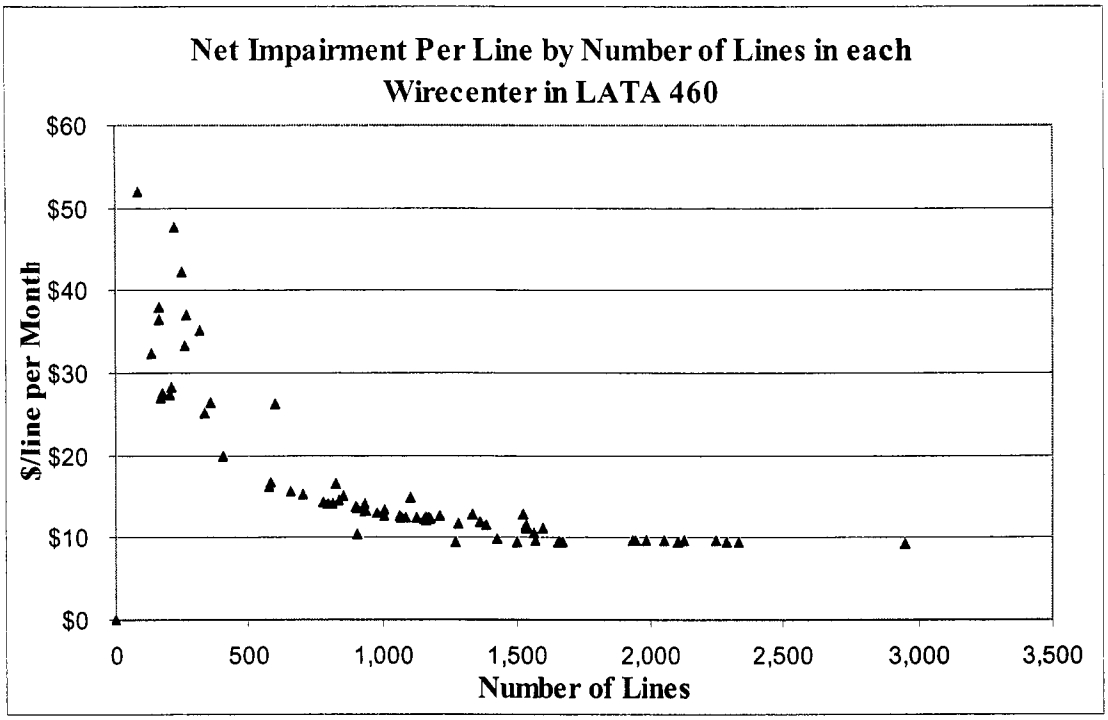
Q. PLEASE SUMMARIZE THE DS0 COST DISADVANTAGE YOU HAVE DEVELOPED FROM THE DS0 IMPAIRMENT ANALYSIS TOOLS.

A. As indicated in the previous discussion, the DS0 Impairment Analysis Tools rely upon specified inputs for each of the calculations leading to the total cost disadvantage faced by a CLEC entering the mass market. Overall, these inputs are conservative because (1) they focus only on major components of impairment

and ignore other sources of impairment, (2) assume enterprise customers will defray a significant proportion of the costs of back-haul transport and collocation, and (3) ignore many of the costs that a hypothetical efficient CLEC would spend to effectuate customer acquisition.

The results of my study, by geographic market, are summarized in the tables set forth below. Market-specific details, including inputs, are shown on Exhibit SET-2.

The lowest average impairment for any Florida LATA is $12.79 (for LATA 460). The following graph depicts the total impairment per line for each wirecenter within that LATA. It demonstrates that the impairment increases rapidly as the number of lines served in an office declines.



Based on the average impairment for LATA 460 (the largest LATA in Florida) my analysis shows that CLECs would experience an average cost disadvantage of $12.79 if UNE-L had to be used to serve mass-market customers.

The conclusion is inescapable that cost impairment in the form of an absolute cost disadvantage of this magnitude to the CLEC – and corresponding cost umbrella for the ILEC – constitutes a clear barrier to entry.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes it does.

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KALEO CONSULTING EMPLOYMENT EXPERIENCE:

TELECOMMUNICATIONS AND FINANCIAL CONSULTANT (Jan 1997-Present)

- Provide expert testimony on technical issues surrounding the unbundling and interconnection to incumbent Local Exchange Company (ILEC) networks. The testimony includes analysis of ILEC unbundling and interconnection per the Telecommunications Act of 1996 (Section 271) as well as other technical issues of local market entry. Further, the testimony includes evaluating and conducting unbundled element and interconnection cost studies.
- Provide expert testimony on the level and extent of facilities-based competition in the local market place. This testimony which quantitatively and economically evaluates the extent of competition results in an assessment of ILEC compliance with Section 271 proceedings.
- Develop models to aid companies in developing market entry plans for the local telecommunications market. This assistance includes evaluating what market entry alternatives as well as which geographies provide the best profit opportunities for the new entrant.

AT&T EMPLOYMENT EXPERIENCE:

DISTRICT MANAGER - CONNECTIVITY NETWORK PLANNING - LI&AM (Feb 1996-Dec 1996)

- Managed the development of AT&T's Infrastructure Plans of Record for the Southwest region. These plans entailed defining the right mix of built and leased infrastructure to meet AT&T's local offer needs at the least cost.
- Managed AT&T's dedicated access inventory in the Southwest region. This effort involved identifying the optimum supplier(s) in each market for AT&T's access needs to meet both financial and strategic objectives.

MANAGER - STRATEGIC ACCESS PLANNING - Access Strategic Planning (Nov 1994-Feb 1996)

- Managed the development of strategic models to analyze alternatives for entering the local market. These models considered various technologies for entering local that would optimize the contribution to AT&T from a revenue, expense, and capital perspective.

RE-ENGINEERING MANAGER - Network Operations (Jul 1994-Oct 1994)

- Directed a CCS-NSD management-union team in re-engineering the engineering, provisioning, and maintaining of the Operator Services network. Delivered a re-engineered process that reduced operational expense significantly while mitigating the impacts on customers and employees.

PROJECT MANAGER/SYSTEM ENGINEER - CCS Centralized Test Center (Jan 1992-Jun 1994)

- Coordinated implementation plans and system development for new services and network elements in the Common Channel Signaling (CCS) Network. The planning scope included provisioning, monitoring, and maintaining the T1.5 facilities for the CCS signaling circuits.
- Acquired funding (development, capital, and head count) through writing and defending business cases in support of projects for new services or network elements in the CCS Network. Upon approval, coordinated the implementation of system development and capital projects affecting the CCS Centralized Test Center.

AT&T EMPLOYMENT EXPERIENCE (cont.):

DEPARTMENTAL QUALITY MANAGER - Network Operations (Jan 1990-Jan 1992)

- Developed the Network Operations Quality Management System and implemented it into an organization of 5000 people. Implementation required gaining organizational support for staffing and training 40 Quality Specialists and managing their efforts in transferring the quality technology into Network Operations.

OPERATIONS SUPERVISOR - Regional Network Service Center (Nov 1988-Dec 1989)

- Managed the Regional Network Service Center serving AT&T customers in the Southeastern United States through correcting their service troubles. Responsibilities included leading a team of 20 associates who responded to over 2000 customer troubles per month and escalating with Local Exchange Companies to remove barriers to trouble resolution.

4ESS SWITCH ENGINEER - Network Engineering Services (Dec 1987-Nov 1988)

- Identified current levels of asset utilization, analyzed future needs, and developed a capital budget to purchase and provision the necessary equipment to efficiently meet customer needs. Managed the implementation of over $10M in capital projects.

GENERAL ELECTRIC EMPLOYMENT EXPERIENCE:

RESEARCH AND DESIGN ENGINEER - Simulation and Control Systems (Jun 1986-Dec 1987)

- Designed and developed a major sub-system for a high-speed graphics simulator supporting both defense and commercial customers.
- Designed and developed a Very Large-Scale Integrated (VLSI) Chip with over 80,000 transistors used in the video display sub-system for the high-speed graphics simulator.

ACHIEVEMENTS:

- Developed the strategic planning system used throughout AT&T Connectivity Planning that identifies the mix of connectivity options (Wireless, CATV, LEC) that AT&T should implement within a market. This model is being used to determine AT&T's local market entry strategy for the entire country.
- Re-engineered the Operator Services operations processes through a collaborative effort of management and union employees yielding $19.9 million in operational expense savings annually while making the new organization more customer responsive.
- Planned and implemented a modification to the CCS Network data collection architecture resulting in operational expense savings of $7.3 million per year.
- Significantly advanced the implementation of Total Quality Management in Network Operations through the Quality Specialist strategy initiative begun in 1990.
- Completed development of a Win Back Program for non-AT&T customers who called the Regional Network Service Center in error. This program generated over $1.6 million in new revenue for AT&T in 1989.
- Designed and developed a Management Information System enabling the measurement of asset utilization in switching equipment at any point in time. The use of the information provided with this system and the resulting changes in engineering practices reduced Network Operations under-utilized switching assets by approximately $250 million.
- Re-engineered the installation process for switching equipment resulting in a 70% reduction in the installation interval.
- Designed and developed the largest VLSI chip with General Electric at that time in only five months.

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January 14, 2003

Via Electronic Submission

Chairman Michael Powell
Federal Communications Commission
445 12th Street, SW, 8th Floor
Washington, D.C. 20554

Re: Ex Parte Presentation
UNE Triennial Review Proceeding – CC Docket No. 01-338
Local Competition Proceeding – CC Docket No. 96-98
Deployment of Advanced Wireline Services – CC Docket No. 98-147

Dear Chairman Powell:

On January 8, 2003, WorldCom acknowledges for the first time, and contrary to its prior claims, that a CLEC may be able to serve residential customers without the UNE-P in certain wire centers.[1] After setting forth a putative analysis of the economics of using a UNE loop strategy to serve residential customers in particular-sized wire centers, it concludes that "UNE-L might prove to be a feasible alternative to UNE-P in some central offices, particularly those with relatively large numbers [25,000 or more] of residential lines."

SBC welcomes WorldCom's acknowledgement that facilities-based residential competition may be feasible after all. We take sharp issue, however, with the methodology and certain of the assumptions underlying WorldCom's analysis.[2] In fact, insofar as WorldCom

[1] Letter from Gil M. Strobel, Lawler, Metzger & Milkman, LLC, to Marlene H. Dortch, Secretary, FCC, January 8, 2003.

[2] In addition to presenting a purported economic analysis of the viability of a UNE loop strategy, WorldCom raises two operational issues. *First,* it claims that incumbent LECs can perform only a few thousand hot cuts per month. SBC already has shown this claim to be untrue, and it is noteworthy that WorldCom does not even purport to refute SBC's showing. Suffice it to say that SBC *today* performs more than a few thousand hot cuts per month; in fact, from June 2001 through May 2002, SBC performed 500,00 hot cuts. Moreover, as detailed in its previous filings, SBC can substantially increase the number of hot cuts it performs with its existing work force with no degradation in service quality. *See* Attachment 5. *Second,* WorldCom claims that it takes fourteen months to obtain and prepare collocation space and that, even where it has existing collocation arrangements, it would take eight months to obtain additional space and install and test new equipment. These time estimates are grossly inflated. As an

bases its analysis on a comparison of UNE-P rates with the costs of a UNE loop strategy, its methodology has been squarely rejected by both the Supreme Court and the D.C. Circuit.[3] It also is "empirically and theoretically incorrect."[4] By contrast, we attach to this letter a legally sustainable, analytically sound analysis of the viability of a UNE loop strategy using appropriate assumptions – some of which actually result in higher estimated CLEC costs than WorldCom's assumptions.[5] As shown in the summary set forth in Table A, this analysis reveals that CLECs can earn a positive margin providing facilities-based residential service in wire centers with 5000 or more lines. To the extent they also serve business customers, they could profitably serve even smaller wire centers. These conclusions, moreover, are further buttressed by marketplace evidence, which shows that CLECs *today* are using their own switches to serve customers in more than three quarters of SBC's wire centers with 5000 or more lines and thus already have incurred many of the costs needed for facilities-based residential service in those wire centers.[6]

In its analysis, SBC compares the costs of a UNE loop strategy, not to the cost of the UNE-P, but to the revenue opportunity available to new entrants.[7] To calculate CLECs' costs, SBC developed a model that assumes the same principal network configuration that WorldCom uses in its cost estimate. Specifically, SBC assumes that a CLEC would connect unbundled loops to collocated GR 303 concentration equipment in each wire center and then use unbundled dedicated transport to haul its traffic to its own switch.[8] Because CLECs, as a rule, offer and

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initial matter, CLECs can and presumably would rely on virtual, not physical collocation to provision residential service, and virtual collocation intervals in SBC's region range from 70 to 110 days. Even if CLECs also relied on physical collocation, the intervals are far lower than suggested by WorldCom, ranging from 90 to 126 days for previously conditioned space and from 90 to 180 calendar days for unconditioned space. Those deadlines can be extended only 20 business days where space is not readily available.

[3] For a fuller explanation of why WorldCom's analysis is inconsistent with legal precedent, *see* Attachment 1.

[4] *See* Attachment 1, which explains, not only why WorldCom's analysis is inconsistent with the law, but also shows that this analysis is analytically flawed and rests on numerous unreasonable assumptions. *See also* letter from Dr. Howard Shelanaky to William Maher, a copy of which is set forth as Attachment 2, which shows that WorldCom's analysis is at odds with sound economic principles.

[5] *See* Attachment 3.

[6] SBC derived this evidence by looking at the percentage of its wire centers with 5000 or more lines in which one or more CLECs had ported a telephone number to their own switch. The Commission has recognized that ported numbers "provide insights into the number of customer lines served by competitors." *See, e.g., FCC Local Competition Report,* August 1999 at 43.

[7] Comparing costs with revenue opportunities for residential customers theoretically could implicate the D.C. Circuit's warning that below-cost, subsidized retail rates are not a source of impairment. Because CLECs pursue only relatively high-end customers, a real-world analysis of the ability of CLECs to earn a margin avoids this concern.

[8] For purposes of its analysis, which focuses exclusively on smaller wire centers in rural areas, SBC assumes that CLECs would use UNE transport. In larger wire centers, CLECs presumably would rely on

promote packages of local and long-distance services, SBC also included the costs of providing long-distance services. Although CLECs already have deployed more than 1300 switches and obtained thousands of collocation arrangements, SBC assumes, conservatively, that a CLEC would deploy a new switch (or switches) in every serving area and would require a new collocation arrangement in every wire center that we modeled.[9]

SBC also used extremely conservative assumptions in calculating the revenue opportunity available to CLECs. Specifically, we assumed that CLECs would serve only residential lines, notwithstanding that they already are serving substantial numbers of business customers with their own switches. Since the revenues available from business customers far exceed the revenues available from residential customers, the exclusion of business revenues from our analysis significantly understates the actual revenue opportunity available to CLECs and therefore overstates the line size required for CLECs profitably to serve a wire center.

To calculate the residential revenue opportunity on a per-line basis, we relied on the retail prices of the residential packages CLECs actually market and sell today. We thus assumed a revenue opportunity of $40 to $60 per line (an average of $50), plus $8 in switched access, EUCL, and universal service revenue. In a previous filing, a copy of which is provided as Attachment 4, SBC shows more fully why these revenue estimates are reasonable. For present purposes, we note that the average of $50 per line that we use is the *lowest* price point of MCI's The Neighborhood offering, which also is priced as high as $70. To calculate the revenue opportunity in the wire center as a whole, we used the same market share assumptions made by WorldCom – specifically, that a CLEC would capture five to ten percent market share in the wire center in question. Given the rapid pace at which CLECs have gained market share in states in which they have actively marketed residential service, and the even greater success they have had in winning business customers, these assumptions, particularly the low-end assumption, are quite conservative.

Based on the cost and revenue assumptions described above, we determined that a CLEC could earn a positive margin in a wire center with 5000 or more lines, assuming, consistent with WorldCom's analysis, that it could obtain a five to ten percent market share in that wire center. Because a five to ten percent market share in a 5000 line wire center represents 250 to 500 lines, we show in *Attachment 3* the per line costs and associated margins for a CLEC with 250 and 500 lines in wire centers in three representative SBC states: California, Michigan, and Texas.

While SBC's analysis shows that CLECs can earn margins when they use their own switches to serve residential customers in wire centers with 5000 or more lines, the fact that CLECs may or may not be able to earn margins in smaller wire centers does not warrant a finding of impairment in those wire centers. The critical issue is not whether CLECs can serve

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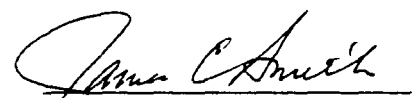
special access services or their own facilities because they would not be impaired without access to unbundled dedicated transport.

[9] To the extent CLECs can use their existing switches and collocation arrangements, their costs would be lower than assumed in SBC's model.

every wire center profitably, but whether they can viably serve a particular *market*. Because wire centers with fewer than 5000 lines account for a minority of all subscriber lines, notwithstanding that they represent almost half (42.3%) of SBC's wire centers, it is reasonable to assume that any losses a CLEC incurs in those wire centers will be more than offset by profits earned in larger wire centers in those same markets. Stated differently, just as incumbent LECs must offset losses incurred in certain wire centers with profits from others, the same should be expected of CLECs. Thus it would be reasonable for the Commission to conclude that CLECs are not impaired anywhere without access to unbundled switching.

Respectfully Submitted,



James C. Smith
Senior Vice President

Attachments

cc: Scott Bergmann
Jeffrey Carlisle
Daniel Gonzalez
William Maher
Thomas Navin
John Rogovin
Robert Tanner
Lisa Zaina
Matthew Brill
Barbara Cherry
Linda Kinney
Jeremy Miller
Brent Olson
William W. Sharkey
Julie Veach
Michelle Carey
Jordan Goldstein
Christopher Libertelli
Steven F. Morris
Tamara Preiss
Don Stockdale
Simon Wilkie

Table A

CLEC Margin Analysis

California		CLEC Retail Price Points[1]		
		$40	**$50**	$60
		Margin[2]		
Market Share	5%	-$2.31	**$5.69**	$13.69
	10%	-$0.65	**$8.65**	$16.65

Michigan		CLEC Retail Price Points[1]		
		$40	**$50**	$60
		Margin[2]		
Market Share	5%	-$0.97	**$8.97**	$16.97
	10%	$6.48	**$14.48**	$22.48

Texas		CLEC Retail Price Points[1]		
		$40	**$50**	$60
		Margin[2]		
Market Share	5%	-$3.25	**$4.75**	$12.75
	10%	-$0.03	**$7.97**	$15.97

[1] Price points for bundled package of local, intraLATA toll and long distance service.

[2] Margins account for both operational costs and SG&A (SG&A is estimated as 20% of revenue).

Attachment 1

WORLDCOM'S ANALYSIS OF THE COST OF SERVING RESIDENTIAL CUSTOMERS USING UNE LOOPS IS INCONSISTENT WITH THE ACT AND FUNDAMENTALLY FLAWED

In its January 8, 2003, *ex parte*, WorldCom submitted "empirical facts" concerning the supposed economics of serving residential customers using unbundled local loops and self-provided switching (*i.e.*, UNE-L competition), which it claims show that CLECs generally are impaired without access to unbundled local switching and the UNE-P.[1] In particular, WorldCom submitted an economic analysis that compares CLECs' putative costs of providing residential local service using UNE-L with UNE-P rates, which, it claims, are "a surrogate for the incumbent LECs' costs of serving their retail customers[.]" Based on its finding that UNE-L costs generally exceed UNE-P rates, WorldCom asks the Commission to conclude that CLECs relying on UNE-L would be at a cost disadvantage relative to ILECs and that they are, therefore, impaired without access to the UNE-P. WorldCom's analysis is flatly inconsistent with the statute and binding legal precedent. It also is riddled with faulty reasoning and unsupported and unverifiable data.[2]

As an initial matter, WorldCom's analysis rests on a view of the Act that has been soundly repudiated by both the Supreme Court and D.C. Circuit. Both courts were presented with Commission decisions that defined impairment with reference to the relative cost of providing services with and without UNEs. Both courts rejected this analytical framework. The Supreme Court held that the mere fact that it may be cheaper to use UNEs than UNE alternatives says nothing about whether a competitor reasonably could provide service using the alternative. The D.C. Circuit similarly held that cost disparities alone could not constitute impairment because "average unit costs are necessarily higher at the outset for any new entrant into virtually any business."

Precedent aside, WorldCom's analysis is woefully flawed. Even assuming *arguendo* that a cost disparity between incumbent LECs and new entrants represents impairment, UNE-P rates are hardly a reliable indicator of incumbent LEC costs. To the contrary, as SBC has explained in its prior filings, and as numerous analysts have recognized, UNE-P rates have been set substantially *below* incumbent LEC costs. Indeed, TELRIC does not even purport to reflect actual costs. Rather, it purports to reflect the cost of a hypothetical, optimally efficient competitor using state-of-the-art equipment.

Furthermore, WorldCom's assumption that incumbent LECs with lower cost structures would be able to exclude new entrants by lowering retail rates ignores the realities of local

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[1] Letter from Donna Sorgi, Vice President Federal Advocacy, WorldCom, to William F. Maher (January 8, 2003) (WorldCom Letter), attaching Microeconomic Consulting Research Associates (MiCRA), "The Cost of Serving Residential Customers Using UNE Loops" (MiCRA Analysis).

[2] *See also* Letter from Dr. Howard A. Shelanski to William F. Maher, Chief, Wireline Competition Bureau (January 13, 2003) (Attachment 2), demonstrating that cost differences alone do not constitute impairment, and that, in any event, WorldCom's cost comparison is meaningless because it compares CLECs' putative costs with UNE-P rates rather than ILECs' actual costs.

exchange competition and retail rate structures. In the real world, incumbent LECs are forced to serve many, if not most, residential service customers at a loss. To the extent incumbent LECs earn margins serving other, high-end customers, they depend on those margins to recoup these losses. In contrast, new entrants do not have provider of last resort obligations and thus do not have to recoup losses when they target only high-end customers on whom margins are available. Therefore, the notion that a cost disparity would prevent new entrants from serving the high-end customers they singularly seek out is nonsensical.

In the final analysis, though, WorldCom's methodology proves too much. If it were the case, as WorldCom claims, that a CLEC could not compete wherever a UNE-loop strategy is more costly than the UNE-P, CLECs could not use their own switches to compete even for business customers because the same cheap UNE-P rates apply to business customers. Of course, as shown in the *UNE Fact Report* and the Commission's local competition reports, CLECs are serving millions of business customers using their own switches, thus disproving WorldCom's theory.

WorldCom's analytical framework also is at war with the goals of the Act and this Commission of promoting innovation and investment in alternative facilities. Because UNE-P rates are designed to reflect the costs of a hypothetical, optimally efficient competitor using state-of-the-art technology, they are certain to be lower than the cost structure of any CLEC. As a consequence, given a choice, CLECs inevitably will continue to rely on the UNE-P, rather than invest in their own facilities.

While from a legal and theoretical standpoint, WorldCom's analysis is fatally flawed, so too is its analysis of the purported costs of competing with its own switches. WorldCom's cost estimates are inflated by a host of unexplained and inexplicable assumptions, including, to name a few examples, the assumptions that: (1) it would have to spend $30 million developing an UNE-L OSS system (an assumption that is not credible since WorldCom and many other switch-based CLECs already have UNE-L OSS systems); (2) each and every one of its collocation spaces would have to be expanded at an average cost of $120,000 per collocation space; and (3) each collocation space would be equipped with digitizing equipment capable of serving a minimum of 576 lines.

The bottom line is that WorldCom's analysis is legally, analytically, and factually deficient. Its claim that CLECs are impaired in any wire center with fewer than 25,000 lines is not credible and should be rejected outright by the Commission.

I. WorldCom's Analytical Framework is Contrary to the Act.

In its *ex parte*, WorldCom asserts that, to determine whether UNE-L competition is viable, competitive carriers' costs must be compared to the ILECs' costs of serving customers. It maintains that, if competitors' costs are higher than those of incumbents, the incumbent can reduce its retail price and thus undercut competitive carriers' offerings.[3] In that event, according

[3] WorldCom Letter at 2.

to WorldCom, CLECs would not be able to offer competitive services using their own switches, and thus would be impaired without the UNE-P.[4]

In undertaking this cost comparison, MiCRA (WorldCom's consultant) used UNE-P rates as a "surrogate" for ILEC costs. It offers little justification for this sleight of hand, claiming only that UNE-P rates "are available and verifiable."[5] Not surprisingly, since UNE-P rates are based on the forward looking costs of a hypothetical, optimally efficient competitor using state-of–the-art equipment, rather than ILECs' actual costs, MiCRA concluded that CLECs would be "severely disadvantaged relative to incumbents if they must use UNE-L."[6] MiCRA further concluded that the incumbents' advantage, and the CLECs' impairment, is largely due to ILEC economies of scale that CLECs cannot match.[7]

WorldCom's analytical framework for evaluating impairment is based on a view of the Act and impairment that has been expressly rejected by both the Supreme Court and the D.C. Circuit. In its original *Local Competition Order*, the Commission adopted an interpretation of "impairment" that, for all practical purposes, mirrors WorldCom's analysis here. In particular, the Commission found that an entrant's ability to offer a telecommunications service is impaired "if the quality of the service the entrant can offer, absent access to the requested element, declines and/or the cost of providing the service rises."[8] Thus, like WorldCom, the Commission interpreted the impairment standard "as requiring the Commission . . . to consider whether the failure of an incumbent to provide access to a network element would . . . increase the financial or administrative cost of the service a requesting carrier seeks to offer."[9]

In *Iowa Utils. Bd.*, the Supreme Court squarely repudiated the notion that the "impairment" standard in section 251(d)(2) of the Act is satisfied simply by a showing that a CLEC's costs of providing service would increase if it is denied unbundled access to a network element. Specifically, it found that the Commission's assumption that any increase in cost imposed by denial of a network element constitutes impairment "is simply not in accord with the ordinary and fair meaning of [that] term."[10] It noted that, while an increase in costs might reduce

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[4] *Id.* at 2-5, 7.

[5] *Id.* at 3. Of course, WorldCom's rationale provides no basis for using UNE-P rates as a surrogate for ILEC costs, especially when data concerning ILECs' actual costs are available through ARMIS.

[6] *Id.*

[7] *Id.*

[8] *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket 96-98, First Report and Order, 11 FCC Rcd 15499, para. 287 (1996) (*Local Competition Order*), vacated and remanded, *AT&T Corp. v. Iowa Utils. Bd.*, 525 U.S. 366 (1999).

[9] *Id.*

[10] *Iowa Utils. Bd.*, 525 U.S. at 389.

a firm's profits, such an increase says nothing about a firm's ability to provide the services it seeks to offer:

> An entrant whose anticipated annual profits from the proposed service are reduced from 100% of investment to 99% of investment has perhaps been 'impaired' in its ability to amass earnings, but has not *ipso facto* been 'impaired . . in its ability to provide the services it seeks to offer'; and it cannot realistically be said that the network element enabling it to raise its profits to 100% is 'necessary.' In a world of perfect competition, in which all carriers are providing their service at marginal cost, the Commission's total equating of increased cost (or decreased quality) with 'necessity' and 'impairment' might be reasonable; but it has not established the existence of such an ideal world. [11]

Because it found the Commission's cost assumptions were unreasonable, and led to an impairment analysis that failed to comport with the goals of the Act or give substance to the "necessary" and "impair" requirements, the Court vacated the Commission's unbundling rules.[12]

On remand from the Supreme Court, the Commission once again gauged impairment by reference to the relative costs of using UNEs and UNE alternatives. In fact, in the *UNE Remand Order*, it adopted the *precise* theory that WorldCom now advances — namely that UNE rates are a surrogate for incumbent LEC costs and that "[i]f the cost of the alternative element is materially greater than the cost of obtaining the corresponding element from the incumbent, the requesting carrier will not be able to provide service at prices that are competitive with the incumbent's prevailing retail prices."[13] Without addressing whether UNE rates represent a reasonable proxy for incumbent LEC costs, the D.C. Circuit rejected this variation on the Commission's 1996 analysis. It noted that new entrants in virtually any business face higher unit costs and flatly rejected the notion that such cost differentials necessarily create impairment: "To rely on cost disparities [such as economies of scale] that are universal as between new entrants and incumbents in *any* industry is to invoke a concept too broad, even in support of an

[11] *Id.* at 389-90 (adding that, "[w]e disagree with JUSTICE SOUTER that a business can be impaired in its *ability* to provide services — even impaired in that ability 'in an ordinary, weak sense of impairment' . . . when the business receives a handsome profit but is denied an even handsomer one.").

[12] *Id.* at 391 ("Section 251(d)(2) . . . requires the Commission to determine on a rational basis *which* network elements must be made available, taking into account the objectives of the Act and giving some substance to the "necessary" and "impair" requirements. The latter is not achieved by disregarding entirely the availability of elements outside the network, and by regarding *any* 'increased cost or decreased service quality' as establishing a 'necessity' and an 'impair[ment]' of the ability to 'provide . . . services.'") (emphasis in original).

[13] *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, 15 FCC Rcd. 3696, at paras. 74-74 (1999) (*UNE Remand Order*), *vacated and remanded, U.S. Telecom. Ass'n v. FCC*, 290 F.3d 415 (D.C. Cir. 2002) (*USTA v. FCC*).

initial mandate, to be reasonably linked to the purposes of the Act[]."[14] The court further indicated that any analysis of cost differentials must be "based on characteristics that would make genuinely competitive provision of an element's function wasteful," such as those "linked (in some degree) to natural monopoly."[15] WorldCom's theory that any cost advantage enjoyed by an ILEC constitutes impairment thus is flatly inconsistent with the Act.

II. WorldCom's Theory that Any ILEC Cost Advantages Create Impairment is Analytically Unsound

WorldCom's conclusion that any cost disparity between UNE-L and UNE-P constitutes impairment not only is unlawful it also is based on a flawed conception of the local telecommunications market. In particular, its theory that ILECs can and will take advantage of any cost disparity to selectively lower rates to levels that CLECs cannot match disregards the reality of local competition and local rate structures. As the Commission knows, local rates are not set based on the costs of serving particular customers. Rather, they are based on cost averaging and allocation principles designed to ensure universal service at reasonable rates. While ILEC retail rates thus permit ILECs to recover their costs of serving some customers, they are significantly below cost for many others. And, unlike CLECs, ILECs are required to serve all end-users, not just those that can be served profitably. As a consequence, ILECs depend on the revenue they receive from serving high-margin customers to offset losses they incur in serving other customers. WorldCom's assumption that any cost disparity between an ILEC and a CLEC in the residential market would enable the ILEC to undercut the CLEC's prices thus is wrong.

Indeed, WorldCom's theory is belied by the millions of business customers already served through an UNE-L strategy. If, as WorldCom claims, a CLEC could not compete wherever there is a cost disparity between UNE-L and UNE-P, CLECs could not use their own switches to compete even for business customers because the same cheap UNE-P rates apply to business customers. The fact that CLECs are serving millions of customers using UNE loops and their own switches conclusively establishes the fallacy of WorldCom's assumptions.

Moreover, because local rates for particular customers are largely divorced from costs, and CLECs are free to target only high margin customers, any comparison of ILEC and CLEC costs is beside the point. The only relevant inquiry is whether a CLEC's anticipated revenue exceeds its costs, and thus whether it profitably can serve customers using its own switch.

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[14] *USTA v. FCC*, 290 F.3d at 427. The court noted, for example, that, in evaluating local switching, the Commission focused on whether CLECs would enjoy economies of scale comparable to ILECs' "'*particularly in the early stages of entry.*'" *Id.* (emphasis in original), citing *UNE Remand Order*. The court further observed that "average unit costs are necessarily higher at the outset for any new entrant into virtually any business." The court found that, because the Commission did not consider "the presence of economies of scale '*over the entire extent of the market*,'" there was "no particular reason to think" that switching is unsuitable for "multiple competitive supply." *Id.* (emphasis in original), citing 2 Alfred E. Kahn, The Economics of Regulation: Principles and Institutions 119 (1989).

[15] *Id.*

Along with this critique, SBC proffers precisely that type of analysis, which reveals that CLECs can earn a positive margin providing facilities-based residential services in wire centers with 5000 or more lines, and may be able to earn positive margins in much smaller wire centers if those wire centers contain a sufficient number of business lines.

Even assuming, *arguendo*, a cost disparity between ILECs and new entrants has some legal significance, UNE-P rates fail accurately to reflect ILECs' actual costs. Rather, they are intended to recover the forward-looking costs of a hypothetical, optimally efficient competitor, and thus are substantially below an ILEC's actual costs. Indeed, as SBC has shown in prior filings, its operating costs alone (exclusive of any return on its investment) are nearly double the UNE-P rates in many of its states. Moreover, as a hypothetical proxy for the costs of an optimally efficient competitor, UNE-P rates also are bound to be less than the cost structure of any CLEC. WorldCom thus posits an analytical construct that is guaranteed to show "impairment" and is antithetical to the Act's goal of promoting facilities-based competition.

III. WorldCom's Analysis of CLEC Costs Relies on Unsupported and Flawed Assumptions

Not only is WorldCom's analysis legally and analytically unsound, it also relies on many assumptions concerning CLEC costs that are unsupported or demonstrably without foundation.

A. *OSS Costs*

In its CLEC-cost model, MiCRA claims to analyze the incremental cost — relative to UNE-P — to a CLEC of serving residential customers using unbundled local loops "based on the costs of connecting subscribers to the existing WorldCom local network."[16] Included in the model are the supposed costs of building, upgrading, and operating the systems necessary to provision UNE-L based local services and handle back-office operations. These include $30 million (7-year life) for building the OSS system, $1 million annually for system upgrades, and $0.66 monthly per line.

WorldCom offers no explanation as to why it included any of these costs in its analysis. WorldCom — and many other switch-based CLECs — already have deployed the OSS systems necessary to purchase unbundled loops, and they are using those systems today, primarily to serve business customers.[17] Far from imposing additional costs, the expansion into residential markets would only reduce the per-line OSS costs of these CLECs by permitting additional economies of scale and scope.[18]

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[16] MiCRA Analysis at 1.

[17] As reported in the *UNE Fact Report 2002*, "[m]ore than 200 CLECs of all sizes have actually deployed local circuit switches in the Bell companies' regions." *UNE Fact Report 2002*, Local Switching at II-1 (April 2002). Plainly, each of these carriers must have deployed the OSS and back office systems necessary to provide UNE-L or pure facilities based local services.

[18] The fact that a future new entrant might have to construct OSS systems is irrelevant to an impairment analysis. Given the number of CLECs, including AT&T and WorldCom, that already must have

In any event, the costs MiCRA includes in its analysis are completely unsupported. MiCRA offers no explanation of what is included in the one-time $30 million system cost, the $1 million annual cost for system upgrades, or the $0.66 monthly per line cost. As a consequence, neither the Commission nor interested parties has any basis for assessing the reasonableness of MiCRA's assumptions, even as to CLECs that have no UNE loop OSS systems.

B. *Collocation Costs*

As with OSS, WorldCom has grossly inflated collocation costs. As an initial matter, it includes $120,000 per central office in collocation build-out costs, *including in those central offices in which it already has collocation* (Case 1 in the MiCRA analysis). WorldCom fails to explain why *any* build-out cost would be appropriate where it already has collocation in place.

Even in those offices in which WorldCom does not already have collocation arrangements, it would not need to spend anything close to $120,000 in build-out costs. In order to provide mass market UNE-loop based service, a CLEC could virtually collocate the necessary concentration equipment using as little as a single bay to serve 2,048 customers. In the SBC region, that virtual collocation arrangement would cost approximately $31,000.[19]

Even assuming a CLEC would choose physical collocation, instead of virtual, WorldCom's $120,000 build-out estimate seems excessive. WorldCom purports to base this estimate on "actual charges paid for collocation," but, even if true (which is impossible to verify) the collocation arrangements purchased by WorldCom are most likely not the sort of collocation arrangements a facilities-based CLEC would need to serve mass market customers. WorldCom's collocation arrangements thus far have been used to serve business customers with significant data needs.[20] The equipment CLECs typically collocate to serve such customers requires significantly more space and power than the GR-303 and other equipment CLECs would collocate to serve mass-market customers. As such, the "actual charges" WorldCom previously has paid for collocation say nothing about the costs it would incur to collocate the equipment necessary to serve residential customers with its own switch.

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deployed OSS systems for UNE loop service, competition does not depend the ability of new entrants to deploy such systems. An impairment analysis must focus on the viability of *competition*, not the needs of individual CLECs.

[19] A CLEC that focuses heavily on the provision of data services to business customers might prefer physical collocation, but in that case, the incremental costs of using physical instead of virtual collocation properly would be attributable to the business services that drove the decision to use physical, rather than virtual, collocation.

[20] On its face, moreover, WorldCom's cost estimate of $120,000 per central office for collocation is patently unreasonable as an estimate of the average collocation cost a facilities-based CLEC will incur in serving the mass market. Aside from undocumented and occasional anecdotes of high cost collocation arrangements, no CLEC has ever presented the Commission any data that would suggest that the average cost of collocation space throughout the country is anywhere near $120,000.

WorldCom also assumes ongoing monthly costs of $2500 per central office, including in those central offices in which it already uses collocation arrangements to serve business customers. To the extent that WorldCom is already incurring these costs to serve business customers, they should not all be loaded onto any residential customers that would be served out of these offices, yet that is what WorldCom appears to have assumed.[21]

WorldCom does not include with its analysis any of the underlying data it used to calculate its average collocation cost. WorldCom also fails to offer any insight into how it gathered its data, whether the data represent all or only a portion of the collocation purchased by WorldCom (*e.g.*, whether it is limited to collocation purchased by WorldCom over a certain time or in particular ILEC territory or includes all locations purchased any time), the nature of the collocation included in the estimate (*e.g.*, physical or virtual, caged or cageless), or the characteristics of the collocation space included in the estimate (*e.g.*, number of square feet, number of interconnection circuits, number of racks, and power arrangements). It is simply impossible for the Commission to accept WorldCom's collocation cost estimates based on the scant information included in WorldCom's analysis.

C. *Transport Costs*

MiCRA's estimated transport costs likewise are inflated and largely unsupported. MiCRA purports to rely on nationwide average rates for special access and unbundled transport. It does not explain, however, the basis on which it calculates those averages. The only explanation offered is a cite to an October 30 WorldCom *ex parte*, but that *ex parte* does not include or explain the calculation of national average rates. Rather, it purports to set forth separately special access and UNE rates in five states, three of which are in the SBC region. Significantly, the alleged special access rates for each of these three SBC states are inaccurate and inflated.[22]

MiCRA also provides no information concerning its assumptions regarding transport mileage. That omission, as well, makes it impossible to accord any credibility to MiCRA's analysis.

D. *Digitizing Equipment*

WorldCom's estimated cost of digitizing equipment appears improperly to assume that WorldCom would deploy digitizing equipment capable of serving a minimum of 576 lines in

[21] If WorldCom is suggesting that these costs are incremental in nature, it does not so indicate, and it certainly offers no evidence to support any such suggestion. Indeed, $2500 appears to be an inflated number even as to total recurring costs — all the more so, as an estimate of any incremental cost.

[22] For example, SBC's tariffed rate for DS1 transport under a 5 year term plan in Texas is $35 for all three zones; in contrast, Worldcom's October 30, 2002, *ex parte* cites a rate of $40 for zones 1 and 2 and $46 for zone 3.

every central office, irrespective of the number of lines WorldCom serves in that office.[23] In fact, GR-303 equipment can be purchased in blocks of 32 lines. WorldCom therefore assumes that it would purchase far more such equipment than it would actually need in smaller wire centers. For example, in a wire center in which WorldCom was serving 96 lines, GR-303 equipment would cost $20,000, instead of the $36,000 assumed by WorldCom.

IV. WorldCom Concerns Regarding Purported Operational Barriers are Overblown.

In addition to its analysis of the purported economic barriers to UNE-L competition, WorldCom posits two supposed "operational" barriers. *First,* WorldCom claims that incumbent LECs can perform only a few thousand hot cuts per month, and thus cannot provision UNE loops in mass market quantities. In its reply comments, and numerous *ex parte* presentations, SBC has offered overwhelming evidence that it can meet any reasonably anticipated demand for UNE loops; evidence that WorldCom does not even attempt to refute. *Second,* WorldCom asserts that it takes fourteen months to obtain and prepare physical collocation space and that, even where it already has physical collocation, it would take eight months to obtain the additional space, and install and test the new equipment purportedly necessary to provide switch-based residential services. These intervals are grossly inflated for physical collocation, and far exceed the intervals for virtual collocation, which facilities-based CLECs serving mass market customers are likely to use.

A. *Hot Cuts*

In its analysis, WorldCom raises again its canard regarding the supposed "operational barrier" created by the hot cut process. WorldCom claims that the "manual hot cut process is not suitable for mass market customers." In defense of this time-worn claim, WorldCom asserts, without support, that "the incumbents simply cannot handle the necessary volume of transactions—the hot cut process permits a few thousand transactions per month, not the millions needed to bring competition to the mass market." Like every other CLEC who claims that hot cuts cannot be provisioned in sufficient volumes, WorldCom has never presented any data or analysis to support its claim.[24]

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[23] It is impossible to know for sure how WorldCom calculated per line costs of digitizing equipment because it lumps those costs together with switching and OSS costs. Nevertheless, insofar as WorldCom states that digital loop carrier equipment costs $36,000 for each block of 576 lines and characterizes the cost of such equipment as "lumpy," it appears that WorldCom has assumed a minimum capacity of 576 lines in every wire center, irrespective of actual need.

[24] Dividing current hot cut volumes by current UNE-P volumes, assuming that an ILEC can provision no more hot cuts per month than it does today, and then claiming that it will take so many years to provision hot cuts at current UNE-P volumes is *not* an analysis of the ability of an ILECs to scale its hot cut provisioning. It is merely an algebraic exercise without significance. Current hot volumes reflect only CLEC ordering needs and are in no way determinative of the upper bounds of ILEC hot cut provisioning capability.

As SBC has repeatedly informed the Commission, SBC already provisions much more than "a few thousand" hot cuts per month.[25] Indeed, in the span of a year, from June 2001 through May 2002, SBC provisioned approximately half a million hot cuts. Thus, not only is WorldCom's assertion unsupported, it is patently untrue and contrary to the evidentiary record in this proceeding.

The record also demonstrates that SBC's performance in provisioning hot cuts is outstanding. In each of SBC's states, comprehensive performance measures for hot cuts have been established in collaboration with CLECs and state commissions. These measures capture SBC's performance in all critical aspects of hot cut provisioning, including incidences of premature disconnects, compliance with hot cut provisioning intervals, and frequency of trouble reports, and apply irrespective of the volume of hot cut orders submitted by CLECs. The performance results—undisputed by any of the CLECs—demonstrate that in virtually every instance and measure, SBC's performance is better than 95%. As a consequence, it is no surprise that in its SBC 271 Orders, the Commission has found that SBC's hot cut performance provides CLECs a meaningful opportunity to compete. Indeed, in its most recent California Order, the Commission dispensed with the issue in a single, short paragraph. Much as CLECs would like the Commission to believe otherwise, SBC's hot cut performance simply is not an issue.

In addition to current performance, the record demonstrates that SBC is fully capable of scaling its hot cut processes to handle significant increases in volumes.[26] SBC uses sophisticated force models to determine its staffing requirements and can allocate additional resources to meet increases in demand for hot cuts. Indeed, the current volume of hot cuts consume a very small amount—1.3%—of SBC's central office man hours. Thus, by increasing its CO man hours by less than 4%, SBC could quadruple the number of hot cuts it provisions. Such an increase represents more than 2 million hot cuts per year.

In addition, SBC demonstrated—using actual data as to hot cut provisioning and staffing—that if all 1.5 million UNE-P orders from May 2001 through June 2002 had been UNE-L orders requiring hot cuts, SBC could have accommodated the increase in hot cut volume with 6% overtime in Ameritech, 3.7% overtime in SWBT, and .9% overtime in Pacific Bell. SBC's analysis further reflects that, using 10% overtime, SBC could provision nearly 3.7 million hot cuts per year—a volume that is more than sufficient to accommodate any foreseeable increase in hot cuts ordered by CLECs in the event unbundled local switching is eliminated.

The facts demonstrate that SBC is currently provisioning hot cuts in substantial volumes at superior performance and is fully capable of increasing those volumes at the same level of performance. With the record before it, the Commission can not simply presume that SBC will not be able to provision hot cuts in increased volumes if unbundled switching is eliminated. The

[25] *See, e.g.*, Letter of Jarvis Bennett, SBC, to Marlene Dortch, Secretary, Federal Communications Commission (December 18, 2002) (Attachment 7).

[26] SBC does not, as some CLECs have claimed, impose any arbitrary caps or limits on the number of hot cuts it will perform in a central office per day. *See,* Letter from Stephen Gray, President, McLeodUSA to William F. Maher, Chief, Wireline Competition Bureau (December 17, 2002).

data demonstrate that SBC is fully prepared to meet any reasonably forseeable increase in hot cut demand, consistent with hot cut performance requirements.

WorldCom also alleges that because of the manual nature of the hot cut process, "provisioning takes considerably longer for UNE-L customers than for UNE-P customers (or for long distance customers)." As a preliminary matter, as the Commission itself has determined, there is nothing about the manual nature of hot cuts that renders hot cut provisioning inadequate. The basic component of a hot cut—cross connecting copper pairs on a distribution frame—is work that SBC technicians have been performing for decades. There are thus millions of operational cross-connects in SBC's central offices, each one manually placed by an SBC central office technician.

Moreover, it simply is not true that UNE-L provisioning takes "considerably longer" than UNE-P provisioning. For individual voice grade loop orders, the longest SBC loop provisioning interval is 5 days, and in many cases, loop provisioning intervals are even shorter. WorldCom's claim that UNE-L provisioning is "considerably longer" than UNE-P provisioning thus is implausible on its face. This is particularly true given that for its UNE-P-based The Neighborhood service, MCI tells customers that it may take up to three weeks for their service to be transitioned to MCI. Within a window of three weeks, it is ludicrous for WorldCom to suggest that a provisioning difference of 2 or 3 days rises to the level of impairment.

Finally, WorldCom suggests the need for a "project cut-over process" to address its phantom claims of hot cut deficiencies. WorldCom, however, offers no description of how such a process would work or how it would differ from provisioning processes in place today. More, fundamentally, WorldCom offers no basis for its suggestion that such a process would enhance an ILEC's ability to provision hot cuts in greater volumes or reduce the time to provision hot cuts. There simply is no substance to WorldCom's plea for a project cut-over process. Rather, as with its unsupported claims about hot cut volumes, it is nothing more than a smokescreen for its desire to perpetuate indefinitely the availability of UNE-P.

B. *Collocation Intervals*

WorldCom also asserts that obtaining new physical collocation space takes 14 months, and, even where WorldCom already has collocation, it would take 8 months to obtain the additional collocation space and deploy the additional equipment purportedly necessary to serve mass market customers. WorldCom's estimates are grossly inflated, fail to reflect the availability of virtual collocation, and are inconsistent with the assumptions underlying its cost estimates.

As an initial matter, the physical collocation intervals cited by WorldCom bear no relation to ILECs' actual provisioning intervals. For example, the physical collocation provisioning intervals in SBC's states range from a low of 90 to a high of 126 calendar days for conditioned space, and from 90 to 180 calendar days for unconditioned space. And, where states have not established collocation provisioning intervals, the Commission's rules require incumbent LECs to provision caged collocation space in 76 business days if the space already is conditioned and 91 business days where major construction is required. Those deadlines can be

extended no more than 20 business days where space is not readily available. Thus, on their face, the physical collocation intervals WorldCom cites are patently unreasonable.

In any event, CLECs are far more likely to use virtual, rather than physical, collocation to serve residential customers for several reasons. As discussed above, physical collocation generally is more expensive than virtual collocation, especially for the types of equipment used to provide mass market services. Physical collocation also offers no inherent advantages over virtual collocation for such equipment. In addition, the provisioning intervals for virtual collocation are shorter than for physical collocation. For example, SBC's intervals for virtual collocation range from a low of 70 days in Texas to no more than 110 days in California. The intervals that WorldCom cites thus far exceed a reasonable estimate of the time necessary to obtain any collocation space and deploy any equipment necessary to provide UNE-L based residential services.

Moreover, the collocation intervals WorldCom cites are impossible to square with the assumptions underlying its cost estimates. As described in more detail in its November 18, 2002, *ex parte* presentation, nine of the 14 month collocation interval WorldCom cites are devoted to pre-application activity; specifically, obtaining outside plant permits, identifying equipment and space requirements, and completing and submitting a collocation application. WorldCom does not specify how much of this time it assumes would be devoted to each activity, but it must attribute the vast majority of this time to obtaining outside plant permits because the other activities easily could be completed in virtually no time at all. And construction of fiber backhaul facilities accounts for much of the five remaining months in WorldCom's 14 month interval. WorldCom's three business cases, however, assume that CLECs either already have their own transport facilities (Case 1) or will purchase transport from the ILEC as unbundled dedicated transport or as a special access service (Cases 2 and 3). WorldCom's business cases thus assume that a CLEC will have no need to obtain a permit for outside plant or to construct transmission facilities. Consequently, even if a CLEC might need to obtain additional collocation to provide UNE-L based service, and in many cases it will not, it can do so in far less than 14 months.

Attachment 2

Jay Bennett
Executive Director-
Federal Regulatory

SBC Telecommunications, Inc.
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Washington, D.C. 20005
Phone 202 326-8889
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Via Electronic Submission

January 14, 2003

Memorandum of Ex Parte Communication

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
TW-A325-Lobby
Washington, D.C. 20554

Dear Ms. Dortch:

Re: *CC Docket No. 01-338, Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*

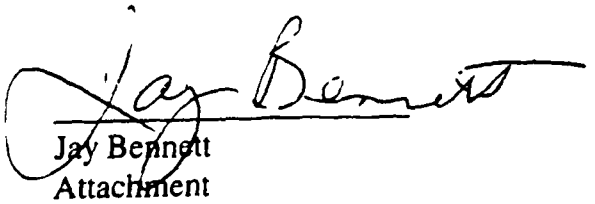
CC Docket No. 96-98, Implementation of the Local Competition Provisions in the Telecommunications Act of 1996

CC Docket No. 98-147, Deployment of Wireline Services Offering Advanced Telecommunications Capability

Today Dr. Howard Shelanski sent the attached letter to Wireline Competition Bureau Chief William Maher, Jr. The letter was submitted on behalf of BellSouth, Qwest, SBC and Verizon.

We are submitting the original and one copy of this Memorandum to the Secretary in accordance with Section 1.12 of the Commission's rules. Please include a copy of this submission in the record of the above-listed proceedings. You may contact me at (202) 326-8889 should you have any questions.

Sincerely,



Jay Bennett
Attachment

cc: C. Libertelli
M. Brill
D. Gonzalez
J. Goldstein
L. Zaina
W. Maher, Jr.
J. Carlisle
S. Bergmann
R. Lerner
M.Carey
T. Navin
J. Veach
J. Miller
R. Tanner
B. Oslon
S. Wilkie
R. Pepper

January 14, 2003

William F. Maher, Chief
Wireline Competition Bureau
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, D.C. 20554

Re: Response to WorldCom's January 8, 2003 *Ex Parte* filing

Dear Mr. Maher:

This letter makes two broad points in response to WorldCom's ex parte filing of January 8, 2003 on the cost of serving residential customers over UNE loops. In its filing WorldCom argues that it will in many cases be "impaired" by the substitution of UNE-L for UNE-P because under UNE-L it will be at a cost disadvantage to the ILECs. I do not here address the details or mechanics of the calculations that WorldCom submits in support of its contention. My purpose is to address two fundamental concerns with WorldCom's argument. First, and most importantly, WorldCom offers no theory of "impairment" beyond implicitly equating it with any disparity in costs. WorldCom's premise therefore appears to be that CLECs should be considered "impaired" any time ILECs have demonstrable cost advantages over new entrants. That premise is incorrect, as I will discuss below. Second, even to the extent cost disparities are relevant to the Commission's impairment analysis, WorldCom's analysis does not do the comparisons necessary to demonstrate the scale or scope of any such disparities.

Cost differences do not in themselves necessarily constitute impairment

Cost disparities are common, if not the norm, among competing businesses. Firms that vie for customers in most markets differ in their scale, scope, efficiency, and investment strategies. New entrants, in particular, will almost always have to incur costs that incumbents no longer face. Few businesses involve only short run, variable costs without any fixed or sunk costs. Yet new competitors enter many industries viably and successfully even though they lack cost parity with incumbents. It would be a weak and economically meaningless definition of impairment that hinged on such normal and ultimately non-determinative cost differences. New entrants often survive and thrive despite cost disadvantages because they have offsetting comparative advantages that help them over the long run; because the industry structure permits positive margins even for firms with comparatively higher costs; because demand is heterogeneous such that they find sufficient numbers of customers even though their product or service might not be identical in price/quality to incumbents' product or service; and/or because initial cost disparities may erode over time.

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Steve Turner Exhibit No. 3
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SBC Letter to Chairman Powell

Consider the first of the above factors. A new firm can make technological and other strategic decisions with less constraint than an incumbent can. This is true even, as in local exchange service, if the entrant uses part of the incumbent's existing infrastructure. The entrant can pick and choose which markets to enter, which customers to target within those markets, and to some degree which kinds of technological inputs to use in serving those customers. The less the new entrant relies on the incumbent's facilities, the greater the entrants' freedom to choose new, incrementally more efficient inputs and system architectures to provide competing service. That the entrant must incur some costs that the incumbent does not or has short run costs that are initially higher than the incumbent's does not mean that the entrant is at an overall or long-run disadvantage to the incumbent. The Commission has in the past clearly recognized this point. In its 1991 AT&T Streamlining Order the Commission stated the following:

> "Some parties argue that AT&T enjoys market power by virtue of its size and superior resources, financial strength, and technical capabilities. Any such advantages that AT&T may have, however, do not necessarily confer market power. The issue is not whether AT&T has advantages, but, if so, why, and whether any such advantages are so great as to preclude the effective functioning of a competitive market. An incumbent firm in virtually any market will have certain advantages -- including, perhaps, resource advantages, scale economies, established relationships with suppliers, ready access to capital, etc. Such advantages do not, however, mean that these markets are not competitive, nor do they mean that it is appropriate for government regulators to deny the incumbent the efficiencies its size confers in order to make it easier for others to compete. Indeed, the competitive process itself is largely about trying to develop one's own advantages, and all firms need not be equal in all respects for this process to work." 6 FCC Rcd 5880 (1991) at para. 60.

Precisely the same reasoning applies in this context and to the Commission's determination of what constitutes impairment. The simple fact of cost disparities, cannot, as WorldCom implies in its filing, suffice to show economic impairment. This point has more recently been emphasized by the United States Court of Appeals in *United States Telecom Ass'n v. FCC*, 290 F.3d 415, 426-427 (D.C. Cir. 2002) (*USTA v. FCC*) (finding that impairment cannot be based on the kinds of cost disparities usually faced by new entrants in a given sector of the economy).

It is important to note that cost disparities do not necessarily take on additional significance just because some of the asymmetries relate to sunk costs or to scale economies. WorldCom argues that sunk costs create barriers to entry and are thus particularly impairing. It is certainly true, as WorldCom argues, that the higher the sunk costs the greater the risk of entry into a market. Yet exit from a market is rarely costless and the risk of stranding costs is a normal part of business in most industries. In fact, it is a risk that incumbents face as well. WorldCom nonetheless appears to believe that any sunk cost for a new entrant constitutes impairment. Indeed, in footnote 10 of its filing WorldCom suggests that even where a piece of equipment can be redeployed, there is impairment because the costs of initially installing the equipment cannot be recovered. But these are clearly the kind of normal set-up costs that new firms incur all the time. To recognize such costs as "impairment" simply because they are sunk does not make economic sense.

Similarly, the existence of scale advantages for the incumbent does not necessarily create meaningful impairment for new competitors. The Commission recognized as much in the above-quoted excerpt from its 1991 AT&T streamlining order, as did the Court of Appeals in *USTA v. FCC*.

See 290 F.3d at 427. To be sure, scale economies may become so substantial that they make competition practically impossible, as in the case of natural monopoly. But, again, new entrants will often if not usually be at a scale disadvantage to incumbents and scale disparities over even a large range need not pose a substantial or long-term barrier to entry. The mere fact that an entrant might not, for example, initially be able to deploy a switch as efficiently as an ILEC is to be expected and cannot in itself prove material "impairment."

In the end, WorldCom's filing ignores the many reasons why cost differences alone do not constitute competitive impairment. Their premise that the Commission must set policy so as to eliminate any disadvantages for CLECs in cost or service quality is, as an economic matter, empirically and theoretically incorrect. It has moreover been rejected by the Supreme Court. The Commission had originally found, in paragraph 285 of the 1996 Local Competition Order, that impairment exists if the quality of the service the entrant can offer, absent access to the requested element, declines and/or the cost of providing the service rises. The Supreme Court specifically rejected the Commission's statement and explained that "[i]n a world of perfect competition, in which all carriers are providing their service at marginal cost, the Commission's total equating of increased cost (or decreased quality) with "necessity " and "impairment" might be reasonable; but it has not established the existence of such an ideal world." 525 U.S. at 389-90. To the extent WorldCom here again argues that any cost disparity or service disadvantage constitutes impairment, the Commission must reject WorldCom's premise.

Even where cost differences do matter, WorldCom does not provide the necessary analysis to demonstrate such differences

WorldCom bases its case with an economic analysis purporting to show that under a UNE-L regime ILECs will have lower costs than CLECs. It bears emphasizing that, as an economic matter, cost comparisons are only one aspect of any meaningful examination of competitive impairment, which would focus more broadly on whether markets are contestable. WorldCom's submission does not address the evidence that local markets are not only contestable, but actually contested. WorldCom's impairment analysis focuses solely on comparing estimated CLEC costs under UNE-L with estimated ILEC costs, for which the model uses UNE-P rates as a proxy. But even if such a cost comparison, standing alone, were appropriate to evaluate impairment, WorldCom's version of that comparison is not helpful. WorldCom's calculation by definition does not incorporate any real-world ILEC operating costs or even any estimates of such costs. It instead incorporates proxy costs generated by a model of a hypothetical, rather than real, network.

WorldCom argues that its analysis is conservative because the TELRIC rates it uses to proxy ILEC costs are higher than the ILEC costs generated by the HAI model WorldCom uses to measure its own costs. Yet it is possible for a model (or different models) to proxy one carrier's costs well and another's poorly. More importantly, WorldCom cannot deny that TELRIC is a hypothetical network model that specifically eschews measurements of an ILEC's real-world operating costs. Indeed, that hypothetical nature of TELRIC was the central issue in *Verizon v. FCC*, in which the Supreme Court upheld TELRIC pricing. Once that hypothetical nature of TELRIC is acknowledged, then WorldCom's economic analysis becomes irrelevant to the question of impairment. There is nothing conservative about comparing one hypothetical model with another if an ILEC's real costs are in fact much higher than TELRIC prices for UNE-P. And one would be hard pressed to assume a correspondence between an ILEC's operating costs and UNE-P prices given the great differences in the latter that exist across jurisdictions. Yet actual competitive impairment depends on actual market factors, including issues relating to actual ILEC costs and actual CLEC costs. WorldCom's model addresses neither.

WorldCom devotes much of its analysis to arguing that UNE-L would impose higher costs than UNE-P on CLECs. Only by the circular logic of equating UNE-P with ILEC costs, and moreover by ignoring actual empirical evidence of entry by means other than UNE-P, does that comparison possibly say anything about competitive impairment. WorldCom never undertakes another calculation that would be useful to making competitive predictions: whether, under current retail rates, UNE-L would provide positive margins for CLECs. WorldCom's implicit answer is that current retail rates do not matter because the ILEC will use its alleged cost advantage to lower retail prices. But even if one assumes a material cost disparity to exist, one cannot simply assume the real-world feasibility of downward pricing by the ILECs, especially in the residential context to which WorldCom restricts its analysis. Indeed, such assumptions of downward pricing responses are particularly unwarranted where they are based on a TELRIC proxy that likely understates ILEC costs and therefore overstates the margins available to be decreased.

Respectfully submitted

/s/ Howard A. Shelanski
Howard A. Shelanski

Attachment 3

SBC's Analysis Of The Economic Viability Of Facilities-Based UNE-L Residential Serving Arrangements

SBC developed a model to determine the economic viability of serving residential customers using a local serving arrangement consisting of CLEC switching and UNE loops ("UNE-L"). Specifically, SBC compares the cost of a UNE-L-based serving arrangement with the revenue stream a CLEC could reasonably anticipate when serving residential customers.

To calculate CLECs' costs, SBC developed a model that assumes the same principal network configuration that WorldCom uses in its cost estimate. Specifically, SBC's model calculates the recurring and non-recurring cost of obtaining and using unbundled loops, collocation, GR-303 DLC concentration equipment, switching, and transport.[1] Although CLECs already have deployed more than 1300 switches and obtained thousands of collocation arrangements, SBC assumes, conservatively, that a CLEC would deploy a new switch (or switches) in every serving area and would require a new collocation arrangement in every wire center that SBC modeled. Because CLECs, as a rule, offer and promote packages of local and long-distance services, SBC also included the costs of providing long-distance services.

SBC evaluated profitability under various assumptions regarding the number of lines a CLEC could expect to serve in each wire center. The analysis shows that using conservative assumptions, a CLEC could earn a positive margin in a wire center with 5000 lines. The model assumes, consistent with WorldCom's analysis CLEC market shares of five to ten percent. Because a five to ten percent market share in a 5000 line wire center represents 250 to 500 lines, SBC calculated the per line costs and associated margins for a CLEC with 250 and 500 lines in wire centers in three representative SBC states with the highest UNE-P volumes: California, Michigan, and Texas.[2]

In its analysis, SBC compares the costs of a UNE loop strategy, not to the cost of the UNE-P, but to the revenues a CLEC could reasonably expect in each wire center. In calculating this revenue opportunity, SBC used extremely conservative assumptions. Most notably, SBC used only *residential* revenue, notwithstanding that CLECs already are serving large numbers of business customers with their own switches. Since the revenues available from business customers far exceed the revenues available from residential customers, the exclusion of business revenues from SBC's analysis significantly understates the actual revenue opportunity available to CLECs and therefore overstates the line size required for CLECs profitably to serve a wire center.

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[1] For purposes of its analysis, which focuses exclusively on smaller wire centers, SBC assumes that CLECs would use UNE transport. In larger wire centers, CLECs presumably would rely on special access services or their own facilities because they would not be impaired without access to unbundled dedicated transport.

[2] Although SBC does not include the per line cost at line counts higher than 500, such costs are even lower.

SBC based its revenue calculations on the retail prices of the residential services CLECs market and sell today. SBC thus assumed a revenue opportunity of $40 to $60 per line (plus $8 in switched access, EUCL, and universal service revenue). In a previous filing, a copy of which is provided as Attachment 4, SBC shows more fully why these revenue estimates are reasonable. As an example, however, the average of $50 per line that SBC used is the *lowest* price point of MCI's The Neighborhood offering, which also is priced as high as $70.

To calculate the revenue stream available to CLECs in a wire center as a whole, as noted above, SBC used the same market share assumptions made by WorldCom. Specifically, SBC assumed that, on average, a CLEC would capture five to ten percent market share per wire center. Given the rapid pace at which CLECs have gained market share in states in which they have actively marketed residential service, and the even greater success they have had in winning business customers, these assumptions, particularly the low-end assumption, are quite conservative. Based on these 5% and 10% market share assumptions, SBC's calculations show that CLECs can earn positive margins when they use their own switches in wire centers with 5000 or more lines and offer the same service packages they are offering today.

I. Cost

The SBC model calculates the per line cost of each of the following components of a UNE-L-based local serving arrangement:

A. *UNE Loop*

SBC's model calculates the monthly recurring and amortized monthly non-recurring cost of the two-wire analog loops and cross-connects that a facilities-based CLEC would purchase to serve mass-market customers. In order to calculate UNE loop costs, SBC's model uses the actual UNE loop rates established by the California, Michigan, and Texas Commissions.

SBC determined that 56% of its wire centers with 10,000 lines or less are in the Zone 3 (highest) deaveraged UNE loop pricing zone, and 44% are in either the Zone 1 (lowest) or Zone 2 (middle) deaveraged UNE loop pricing zones. SBC's model thus uses a blended recurring UNE loop rate, reflecting 56% of the Zone 3 loop rate and 44% of the Zone 2 loop rate in each state.[3] In Michigan and Texas, the model also adds the recurring monthly charges for loop-to-collocation cross connects. (There is no such charge in California).

California:

Zone 3 Recurring Loop Rate	Zone 2 Recurring Loop Rate	Blended Recurring UNE Loop Rate
$19.64	$11.27	(.56*19.64)+(.44*11.27) = $15.96

[3] SBC's loop cost calculation is thus conservative because it uses only the Zone 2 loop rate for the 44% component of the blended rate, even though some wire centers represented by the 44% are in Zone 1.

Michigan:

Zone 3 Recurring Loop Rate	Zone 2 Recurring Loop Rate	Cross Connect	Blended Recurring UNE Loop Rate
$12.54	$8.73	$0.13	(.56*12.54)+(.44*8.73) + 0.13 = $10.99

Texas:

Zone 3 Recurring Loop Rate	Zone 2 Recurring Loop Rate	Cross Connect	Blended Recurring UNE Loop Rate
$18.98	$13.65	$1.24	(.56*18.98)+(.44*13.65) + $1.24 = $17.87

For non-recurring loop costs, the SBC model reflects current CLEC ordering activity for both coordinated hot-cut ("CHC") and frame due time ("FDT") loop cutovers. The model thus calculates non-recurring loop costs based on the percentage of CHC and FDT ordering activity in each state. For California, the model reflects that 32% of a CLEC's total hot cut orders will be CHCs and 68% will be FDTs. In Texas, it reflects that 43% of a CLEC's total hot cut orders will be CHCs and 57% will be FDTs.[4] Currently, there are no separate charges for CHCs in Michigan (or any of the Ameritech states). However, to be conservative, the model assumes that there may be such charges in the future. SBC therefore used the Texas percentages of CHCs and FDTs, as well as the Texas CHC and FDT rates, for calculating Michigan hot cut costs.

The model also includes all additional UNE loop non-recurring charges, including service order charges, that may be assessed for each UNE loop service order submitted by a CLEC. In addition, although WorldCom failed to provide any support for its estimated $10 internal CLEC cost associated with hot cuts, SBC's model conservatively includes an additional $10 to reflect such costs. Finally, similar to WorldCom's estimate, SBC's model assumes that UNE loop non-recurring costs are amortized over 18 months.[5] The following are the per line, monthly amortized non-recurring costs used in SBC's model:

California	$3.77
Michigan	$3.16
Texas	$2.82

[4] By reflecting current CHC and FDT ordering activity, the model is overly conservative in its assumptions. For mass-market customers, CLECs likely will rely on FDT cutovers, and the overall ratio of FDT to CHC cutovers would thus be much greater.

[5] For all monthly amortizations, SBC used a 12.19% interest rate.

The total monthly per line loop costs calculated by the model are thus:

California	(15.96 + 3.77) = $19.73
Michigan	(10.99 + 3.16) = $14.15
Texas	(17.87 + 2.82) = $20.69

B. ***Collocation***

The SBC model assumes that a facilities-based CLEC will purchase virtual collocation. CLECs can collocate GR-303 equipment in virtual collocation, and physical collocation offers no advantage over virtual collocation for serving mass-market customers using GR-303 equipment. Virtual collocation also tends to cost less than physical collocation, especially for the equipment and configurations that likely would be used by CLECs to serve mass-market customers, and virtual collocation generally has shorter provisioning intervals than physical collocation.

Using SBC's tariffed virtual collocation rates, the model calculates the cost of the virtual collocation arrangements that a facilities-based CLEC would actually use for the GR-303 concentration equipment necessary to serve mass-market customers. The SBC model, moreover, is overly conservative in that it assumes a CLEC will have to purchase virtual collocation in each SBC wire center, and it does not discount the cost of collocation to account for the fact that many CLECs already are collocated in many of SBC's wire centers and in ILEC wire centers throughout the country.[6]

The following are the virtual collocation costs by line count used in SBC's model:

California:

Lines	Non-recurring Cost	Monthly Recurring Cost
250	$4,775	$539.16
500	$4,775	$539.16

Michigan:

Lines	Non-recurring Cost	Monthly Recurring Cost
250	$8,743.21	$1,152.06
500	$10,475.11	$1,164.78

[6] The *UNE Fact Report* calculates that by year-end 2001, CLECs had purchased almost 25,000 collocation arrangements throughout the country, and that BOC end offices serving more than 80% of all BOC access lines have one or more collocators. *UNE Fact Report* at II-16.

Texas:

Lines	Non-recurring Cost	Monthly Recurring Cost
250	$9,937.54	$542.97
500	$12,349.10	$555.85

Consistent with WorldCom's collocation costs estimates, collocation were amortized over 10 years. The resulting amortized monthly collocation costs per line are:

California:

Lines	Amortized Monthly Cost Per Line
250	$2.43
500	$1.22

Michigan:

Lines	Amortized Monthly Cost Per Line
250	$5.11
500	$2.63

Texas:

Lines	Amortized Monthly Cost Per Line
250	$2.75
500	$1.47

C. *CLEC GR-303*

SBC's model includes the Engineered, Furnished & Installed ("EF&I") cost of the hardware, software, and cabling and wiring associated with GR-303 DLC concentration equipment in a configuration representing a 4:1 concentration ratio. Specifically, the model reflects actual prices of GR-303 equipment produced by a major manufacturer and the installation costs for that equipment in virtual collocation space in a configuration similar to that used by SBC's CLEC affiliate. A CLEC entering the mass-market on a significant scale could obtain similar prices and installation costs. SBC amortized GR-303 costs over 9 years to obtain a monthly per line cost.

Lines	Per Line GR-303 Cost	Amortized Monthly Per Line GR-303 Cost
250	$84.98	$1.30
500	$50.38	$0.77

D. *CLEC Switch*

SBC's cost calculation for switching is based on a switch equipped to serve 16,128 customers with a 4:1 concentration ratio for both GR-303 and trunking.[7] SBC also assumed an 85% switching fill factor consistent with WorldCom's analysis. As with collocation, SBC's switch costs are conservative because the model does not discount switch costs to reflect the fact that CLECs already have deployed a substantial number of switches.[8]

The calculated per line monthly switch cost includes initial switch investment as well as EF&I costs and annual charge factors for building, land, power, maintenance, and other switch-associated deployment costs. The calculations are based on a switch cost estimator used by SBC's CLEC subsidiary. The switching cost data are based on SBC Telecom's contract with a major switch vendor and thus represent real-world costs that a facilities-based CLEC would incur in purchasing switches.

The cost of the switch modeled is $2,061,188, to which SBC added the cost of multiplexing equipment in the amount of $99,297 to account for the DS1 level signal for transport. The total cost of the switch in SBC's model is thus $2,160,485. This includes installation, transportation, cabling and wiring, and miscellaneous equipment, and is representative of the real installation costs a CLEC would incur for this switch configuration. On a per line basis, with 85% fill, the cost is $158.00. Adding in all associated switch deployment costs, SBC's model calculates the total cost of switching to be $216.60 per line in California, $198.32 per line in Michigan, and $205.22 per line in Texas. SBC also calculated switch maintenance and other operating costs of $1.19 per line per month in California, $0.99 per line per month in Michigan, and $1.08 per line per month in Texas. Amortizing over 10 years, SBC calculated the total monthly switch cost to be $4.32 per line per month in California, $3.68 per line per month in Michigan, $4.05 per line per month in Texas.

E. *Transport*

For purposes of this analysis, which focuses on relatively small, predominately rural and suburban wire centers, SBC calculated the cost of transport based on unbundled dedicated transport prices. As with collocation and switching, the model is conservative in that it does not discount the cost of transport to reflect the fact that CLECs may have their own transport networks and thus would not need to purchase additional transport from SBC. SBC used the unbundled dedicated transport rates established by the California, Michigan and Texas Commissions. SBC assumed 25 air miles of transport.

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[7] The switch reflected in the cost model has the capacity to grow to serve over 100,000 customers. Adding additional lines would reduce the cost per line for switching. Thus, a switch equipped to serve 32,256 lines would cost $3,115,036, or $96.57 per line. At 64,512 lines, the cost would drop to $77.88 per line.

[8] The *UNE Fact Report* demonstrates that CLECs already have deployed more than 1,300 circuit switches throughout the country and are currently using those switches to serve customers in BOC wire centers accounting for nearly 86% of all BOC access lines. *UNE Fact Report* at II-1, II-6.

For non-recurring transport costs, the model assumes that only one LSR is required for all DS1s needed to provision each line count. The non-recurring transport costs are amortized over 18 months.

The monthly transport costs used in the model are:

California:

Lines	Amortized Monthly Cost Per Line
250	$5.49
500	$5.49

Michigan:

Lines	Amortized Monthly Cost Per Line
250	$2.89
500	$2.87

Texas:

Lines	Amortized Monthly Cost Per Line
250	$5.11
500	$4.98

F. *Miscellaneous Costs*

In order to provide a complete picture of CLEC costs, SBC included SG&A costs of 20% of revenue. Consistent with its December 11, 2002, *ex parte* presentation, and to properly compare costs with the revenue opportunities available to CLECs selling bundles of local and long distance services, SBC also included long distance costs of $5.00.

G. *Total Cost*

Adding together all of the above cost components, SBC calculated the total per line costs of providing a package of local and long-distance services using a UNE-L serving arrangement to be:

California:

Lines	Amortized Monthly Cost Per Line (@$40)	Amortized Monthly Cost Per Line (@$60)
250	$50.31	$54.31
500	$47.35	$51.35

Michigan:

Lines	Amortized Monthly Cost Per Line (@40)	Amortized Monthly Cost Per Line (@$60)
250	$47.03	$51.03
500	$41.52	$45.52

Texas:

Lines	Amortized Monthly Cost Per Line (@40)	Amortized Monthly Cost Per Line (@$60)
250	$51.25	$55.25
500	$48.03	$52.03

II. Revenue Opportunities

Consistent with its November 18, 2002, *ex parte* presentation, SBC used a low total revenue estimate of $48.00 and a high total revenue estimate of $68.00. As SBC thoroughly documented in its December 11, 2002, letter to the Commission, these estimates are fully consistent with the local and long distance service package sold by CLECs to residential customers. SBC thus assumes that CLECs would continue offering the same services at the same prices they sell today using the UNE-P. Notably, WorldCom has recently raised the maximum price of the Neighborhood from $59 to $69. SBC's analysis does not take this increase into account, but if CLECs increased the prices of their packages, their margins obviously would grow concomitantly larger. As noted, the conservative nature of SBC's revenue estimates is further underscored by the fact that SBC assumed that CLECs would serve only residential customers, notwithstanding that business revenues tend to be much higher.

III. Margin Analysis

In order to determine the economic viability of UNE-L based service arrangements, SBC compared the cost of such arrangements with the revenue opportunities available to CLECs. At 250 and 500 lines, SBC compared the total cost per line of using a UNE-L serving arrangement with the low and high revenue estimates. SBC then calculated the margin for each line count for both the low and high revenue estimate.

The results demonstrate that CLECs can earn positive margins when they use their own switches and UNE-L-based serving arrangements for residential service in wire centers of 5,000 or more lines. *See Table A, supra.*

Attachment 4

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December 11, 2002

Via Electronic Delivery

Ms. Marlene Dortch, Secretary
Federal Communications Commission
445 12th Street, SW – Lobby Level
Washington, D.C. 20554

Re: ***Ex Parte Presentation***
In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, CC Docket Nos. 01-338; 96-98; and 98-147

Dear Ms. Dortch:

On November 18, 2002, SBC proposed to the Commission a transition plan under which it would continue to make available the functional equivalent of UNE-P for two years after the elimination of unbundled switching from the Commission's UNE list. SBC showed further that, under this plan, CLECs would be able to earn reasonable margins on residential retail service.[1] Specifically, SBC demonstrated—using realistic estimates of CLEC residential retail rates, non-retail revenue opportunities (access, SLC, etc.), and CLEC costs—that its proposed $26 rate would allow CLECs the opportunity to earn healthy margins of 15% to 34% for the customers they typically serve, and even higher margins when serving the heaviest users of vertical features and long distance services.[2] SBC further explained that these margins are more than sufficient, considering that CLECs incur virtually no incremental capital investment when using UNE-P functionality to provide local residential service. Two days later, AT&T disparaged SBC's compromise proposal, calling it a "competitive dead-end."[3]

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[1] *See Letter from Jay Bennett, Executive Director—Federal Regulatory, SBC, to Marlene H. Dortch, Secretary, Federal Communications Commission*, November 19, 2002 ("SBC Proposal").

[2] *Id.*, Att. at 8.

[3] *Letter from Joan Marsh, Director, Federal Government Affairs, AT&T, to Marlene Dortch, Secretary, Federal Communications Commission*, November 21, 2002, at 1 ("AT&T 11/21 Letter").

That AT&T was so quick to attack SBC's proposed transition plan should come as no surprise. AT&T has told analysts that, consistent with its strategy of "maximizing cash," it will not offer local residential service unless it can earn at least a 45% gross margin on such service.[4]

AT&T obviously could not complain to the Commission about the unavailability of 45% margins on virtually no investment. Instead, it attacked SBC's proposed transition plan with a spreadsheet that purports to show that AT&T would face "negative margin opportunities" if the Commission adopted SBC's plan. As shown below, AT&T's spreadsheet is a model of hypocrisy and disingenuous advocacy. It fails to reflect the service packages that AT&T and other UNE-P CLECs actually sell in the marketplace or the revenue streams available from the high-value customers they target. It also contains incorrect data even for the fictitious business model it represents.[5]

- AT&T Failed to Include Long Distance and Access Revenue Associated with Its Provision of Long Distance Services

The most glaring deficiency in AT&T's spreadsheet is its failure to account for long distance and access revenue associated with the combined local and long distance retail packages that AT&T and other CLECs sell to residential customers. Indeed, AT&T omits not only interLATA long-distance and access revenue, but intraLATA toll and access revenue as well, from its margin analysis. These omissions cannot be squared with the retail services AT&T and every other UNE-P CLEC actually market and sell to residential customers.

AT&T's lead UNE-P-based residential offering in SBC's states is its "Local and Long Distance Together" service. AT&T is aggressively promoting this combined local and long distance service in television commercials, print advertisements, and mass mailings. Attached hereto as Exhibit 1 are numerous examples of marketing materials used by AT&T to tout this service in SBC's states where UNE-P is most heavily used by CLECs: Michigan, Illinois, Ohio, Texas, and California. As those materials show, AT&T not only promotes the convenience of its combined offering of local and long distance service by telling customers they can "get all [their] calls" with AT&T and to "get it all" with AT&T, but also sends checks to consumers that, if cashed, will switch *all* of a customer's services—local, local toll, and long distance—to AT&T.

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[4] *Transcript*, Q2 2002 AT&T Earnings Conference Call—Final at 19 (July 23, 2002)("AT&T Earnings Transcript").

[5] On November 25, WorldCom submitted an *ex parte* letter echoing AT&T's claim that SBC's compromise proposal would offer negative margins. Like AT&T, WorldCom bases its claim on retail prices for basic POTS service. But even WorldCom concedes, albeit tacitly, that this argument is a red herring, when it follows this claim with a discussion of local and long-distance packages. The fact of the matter is that SBC *showed* that CLECs could earn healthy margins with packages of local and long distance services priced at $40-$60 per month. MCI does not even purport to challenge this showing, and it certainly does not explain why it could not continue to offer The Neighborhood – which is priced at either $50 or $60 today – under SBC's proposal.

There are several reasons CLECs focus their marketing on bundled service packages. One is that customers want them. As AT&T itself told the Commission: "Consumers buy bundles—Local and LD together just makes sense to them."[6] Another is that bundles help CLECs reduce churn. A customer that purchases a bundled service package is less likely to switch to another carrier than a customer who purchases stand-alone services. A third reason is that under a UNE-P regime, CLECs that provide both local and long distance services reduce the cost of their long distance offerings by eliminating originating access costs. In addition, UNE-P CLECs eliminate terminating access charges for long distance calls between their own subscribers and collect terminating access charges for long distance calls from customers of other long distance carriers. Significantly, and in specific recognition of the importance CLECs have attached to this benefit of the UNE-P, SBC's transition proposal treats access charges just as they would be treated under a UNE-P regime.

None of this is new. Five years ago, AT&T's Senior Vice President and General Counsel, John Zeglis, recognized the value proposition of using UNE-P functionality to provide bundled services when he laid out to the investment community the tremendous margins available to AT&T by using the UNE-P to provide packages of services to residential customers.[7] After showing that a 26% resale discount "[g]ives you a chance to market a combined local and long-distance package,"[8] he went on to discuss how the UNE-P makes much higher margins possible. He used as an example "a consumer that buys $25 of long-distance and five dollars of local toll service per month."[9] He noted that, by using the UNE-P to serve that consumer, AT&T could earn $20 in local service fees, $3.50 for the subscriber line charge, $30 in toll charges, and save $10 in access charges to boot – all told, a $63.50 value.[10] He then went on to note that "none of this is the right way to look at the new AT&T's business. "We are more than an all distance business. On top of that all distance stack of revenue we intend to add Internet service, information services, we intend to add anything that requires local connectivity."[11]

To be sure, AT&T's access costs, and thus its savings, are lower today than they were at the time of the Zeglis presentation, and long-distance prices have come down as well. The bottom line, though, is the same: it makes much more sense for AT&T to sell packages of services, rather than stand-alone POTS service, to consumers, and that is what AT&T does. Indeed, in AT&T's Second Quarter 2002 Earnings Conference Call, Betsy Bernard, AT&T's

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[6] *Letter from Joan Marsh, Director, Federal Government Affairs, AT&T, to Marlene Dortch, Secretary, Federal Communications Commission,* October 4, 2002, Att. 3 at 3.

[7] *Transcript,* AT&T Investment Community Meeting at 5 (March 3, 1997).

[8] *Id.*

[9] *Id.*

[10] *Id.*

[11] *Id.*

Consumer Services President and CEO, characterized AT&T's combined long distance and local package as its "lead initiative."[12]

Nor is AT&T alone in using the UNE-P to sell combined residential local and long distance services. Virtually every UNE-P CLEC targets the same residential customers that AT&T targets. MCI's local offering, The Neighborhood, for example, is a combined offering of residential local, intraLATA toll, and long distance service.[13] Other UNE-P CLECs, such as TalkAmerica and Birch, also offer residential local service as part of a combined local and long distance service.[14]

Because AT&T, WorldCom, and other UNE-P CLECs promote bundles of local and long distance service, rather than stand-alone local, residential service, it should come as no surprise that these bundled packages are primarily what customers buy from them. SBC regularly conducts interviews with customers who have left SBC for other carriers, and the most recent of those interviews reveal that more than 80% of SBC customers who switch to a CLEC subscribe to that CLEC not only for local service, but also for local toll and long distance services. In short, common sense and marketplace evidence indicates that AT&T and other CLECs use UNE-P to sell residential customers combined retail offerings of local and long distance services. It is, therefore, inappropriate for AT&T not to include in its CLEC margin calculations toll revenue and access revenue and cost savings associated with long distance services.

SBC estimates that by omitting long distance revenue, AT&T underrepresented its potential revenue by at least $15 per line, and probably more. In attempting to counter evidence that UNE prices in the SBC region do not permit SBC to recover its costs, AT&T has argued that any such losses are offset by an average of $11.69 per line in interLATA toll revenues.[15] Presumably, the high-margin customers AT&T targets for its bundles of local and long distance service generate even higher long-distance revenues. Taking AT&T's figure at face value, however, would require an upward adjustment of $11- $12 per line per month to account for the interLATA toll revenue AT&T obtains from such customers. In addition, this figure must be revised to account for intraLATA toll revenue, which SBC estimates is $3-4 per line per month, for a total upward adjustment in the range of $15 to account for long distance revenue.

Moreover, AT&T not only understated its *customer* long distance revenue, but also appears to have omitted entirely the access revenue and cost savings it realizes when it provides long distance services. As Mr. Zeglis indicated, AT&T not only gains terminating access revenue as a UNE-P CLEC, it also avoids all originating access and some terminating access costs for its local customers who subscribe to AT&T long distance services—in other words, the

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[12] *AT&T Earnings Transcript* at 11.

[13] *See* Ex. 2.

[14] *See* Ex. 3.

[15] *Letter from Joan Marsh, Director, Federal Government Affairs, AT&T, to Marlene H. Dortch, Secretary, Federal Communications Commission*, September 30, 2002, Att. 1 at 6 ("AT&T 9/30 Letter").

very customers AT&T targets and the services it sells. SBC estimates that by failing to reflect the fact that it uses UNE-P to sell bundled packages of local and long distance services, AT&T omitted an additional $1.50 or more in access revenue and cost savings from its margin calculations.[16] Thus, on the whole, AT&T understated its revenue estimates by $16.50 or more by failing to reflect the packages of local and long distance services that it sells to its customers.

- AT&T Also Underestimated Its Local Revenues

AT&T's analysis also underestimates the revenues available from the local component of the services offered by CLECs. Specifically, AT&T's analysis does not reflect the fact that AT&T successfully targets high-end customers – that is, customers who purchase multiple vertical features and other services in addition to basic POTS and long distance services. [17]

The revenue estimates used by AT&T in its November 21st *ex parte* are the same as the estimates used by AT&T in its September 30, 2002, *ex parte* submission to the Commission.[18] Belying its claim that its spreadsheet was "built using actual, verifiable data,"[19] AT&T has never fully identified the source of its data or the manner in which they were collected, nor has it made this information available to the Commission. Thus, while AT&T claimed in its September 30th *ex parte* that its features revenue data come from a "TNS Telecoms Bill Harvesting database,"[20] AT&T has never actually provided the data that it allegedly obtained from the TNS database and used in its September 30th *ex parte* calculations. Nor has it identified specifically what information it used from the TNS database, the characteristics of that information (*e.g.*, when it was harvested, how it was harvested, etc.), or whether AT&T performed any calculations or revisions to the information in the database.

The reason AT&T has never provided this or any of the data it used in constructing its margin calculations is self-evident. The customers whose bills ostensibly were harvested are not AT&T's own local customers. Indeed, AT&T would have no reason to rely on TNS data, as opposed to its own, if it actually were providing a revenue estimate for its own customers. Instead, AT&T apparently has purported to provide average local service revenue per line for all residential customers, including the low-end customers that AT&T and other CLECs eschew. Aside from the fact that this number is significantly lower than SBC's own data regarding average local revenues across its entire residential customer base, these data are obviously

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[16] Moreover, Legg Mason noted that even AT&T's access revenue estimates are understated in that they do not reflect the high value profile of AT&T's targeted long distance customers. *AT&T Pleads its UNE-P Case*, Legg Mason Report at 2 (September 18, 2002).

[17] Moreover, SBC estimates that AT&T's estimates of subsidy and other regulatory revenue are too low. SBC estimates that AT&T's figures should be at least $1.25 per line higher.

[18] *See AT&T 9/30 Letter*, Att. 1 at 5.

[19] *AT&T 11/21 Letter* at 1.

[20] *Id.* at 3.

irrelevant to any calculation of the revenue opportunity available to AT&T and other CLECs under the SBC proposal.[21]

If AT&T had provided estimates of the local revenue streams it obtains from the customers it actually serves, those estimates would be higher because of the revenue generated by vertical features and other non-POTS services purchased by AT&T's customers. As Betsy Bernard has admitted, AT&T's strategy in the marketplace is to use the UNE-P to retain its "high valued customers" and to attract other such customers from its competitors.[22] Ameritech data shows that AT&T and other CLECs are, in fact, successful in this endeavor. A study by Ameritech of the average local revenue that Ameritech had received from residential customers who switched their service to a UNE-P CLEC was significantly higher than Ameritech's average local revenue for all of its residential customers.[23]

That is not say that AT&T has not *tariffed* basic POTS offerings. But what AT&T tariffs and what it aggressively promotes are two very different things. For example, AT&T claims to offer basic local service for $15.00 in Texas,[24] but AT&T does not actively market this offering. In fact, a consumer who accesses AT&T's web site would search in vain for any mention of it.[25]

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[21] SBC estimates that its average revenue per line for local service, including local line and usage charges, EUCL and regulatory assessments, vertical and non-regulated services, and access charges are between $30 and $35, significantly higher than the $27 average estimated by AT&T.

[22] *AT&T Earnings Transcript* at 10. Prior to joining AT&T, David Dorman likewise talked about how the UNE-P would be used by CLECs to target high-end customers:

> So if you do something new and innovative, such as building a fiber coaxial network, you must unbundle it into pieces and offer those pieces to your competitors on any technically feasible basis for your incremental cost. It's hard to imagine a more perfect way to stifle competition. Why would you want to spend billions of dollars building a new network if your competitors can say: "I don't want all that other stuff. I just want the wires from her house and his house because they spend $200 a month. And I don't want your wires to low-income areas because those people only spend about $5 a month."

Telecom's Tragic Reform Tale, The Big, The Bad and The Ugly at 5 (March 16, 1998).

[23] *See Letter from Brian J. Benison, Associate Director, SBC, to Marlene H. Dortch, Secretary, Federal Communications Commission*, September 6, 2002, Att. 1 at 16.

[24] *Letter from Joan Marsh, Director, Federal Government Affairs, AT&T, to Marlene Dortch, Secretary, Federal Communications Commission*, October 4, 2002, Att. 3 at 7.

[25] From www.att.com, a consumer who clicks on "consumer" can then click on "local service." From there, a Texas consumer who enters his or her phone number is presented with three AT&T local offerings: a $25.00 per month package of local service plus three features (which AT&T mentions in its October 4th *ex parte*), a $27.00 per month package of local service plus 5 features, and a $32.00 per month package of local service plus 10 features (neither of which AT&T mentions). AT&T also fails to mention that the $80.00 check it offers to consumers to switch to its $25.00 package also requires them to choose AT&T for long distance services). Even if a consumer had the wherewithal to search for AT&T's

The fact is that regardless of the local services that may be available to customers who know enough to ask AT&T about them, AT&T markets, sells, and obtains revenue from service packages that include high value vertical features and other non-POTS services.

AT&T's spreadsheet does, in fact, claim to reflect revenue from basic service plus features, but the local service revenue estimates used by AT&T in its spreadsheet are impossible to square with the rates of the local service plans AT&T promotes in SBC's states. AT&T actively markets two residential local service plans with features in Michigan, one for $31.00 per month, and the other for $27.00 per month—much higher than the $24.18 average revenue per line estimate used by AT&T in its spreadsheet.[26] Similarly, AT&T used in its spreadsheet an average revenue per line in Ohio of $20.78 and in Texas of $19.96, but the prices for the local service packages that it promotes in Ohio are $25.00, $26.00, and $29.00; and the prices for the local service packages that it promotes in Texas $25.00, $27.00, and $32.00.[27]

AT&T's spreadsheet thus not only omits revenue associated with long distance and access services, it also understates the revenue from the local component of the services AT&T and other UNE-P CLECs market and sell.

Looking at the whole picture, a review of CLEC prices for combined packages of local and long distance services demonstrates that SBC's estimate of $40 to $60 in revenue is a conservative estimate of the revenues available to CLECs. MCI's The Neighborhood is priced at either $50.00 or $60.00, depending on the state—well within the range used by SBC.[28] SBC's range also is consistent with AT&T's unlimited Local Plus Long Distance Offers (local service plus AT&T Unlimited long distance plan), which in California, Michigan, Illinois, Ohio, and Texas are priced between $43 and $50, plus 7¢ per minute for long distance calls to non-AT&T customers.[29] SBC's revenue estimates are thus far more appropriate than the understated local only revenue estimates used by AT&T.

- AT&T Distorted the SG&A Calculation

Finally, the SG&A estimates used by AT&T demonstrate that AT&T will go to any lengths in its attempt to mislead the Commission about the profitability opportunities it enjoys using UNE-P functionality to target high end residential customers. In its November 18th

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tariffed local service offerings in Texas to try and find a basic local service rate, he or she would find that AT&T's "[t]ariffs are not posted on the web for this state at this time." *See* Ex. 4. The figures in AT&T's October 4th *ex parte* are also misleading in another respect. AT&T fails to mention that consumers pay (and thus AT&T obtains as revenue) an additional $.07 per minute for all calls under the One Rate plan and for all calls to non-AT&T subscribers under the AT&T Unlimited plan.

[26] *See* Ex. 5.

[27] *Id.*

[28] Ex. 2.

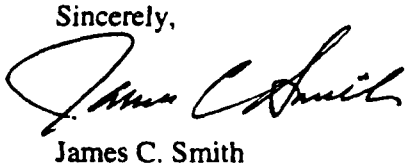
[29] *See* Ex. 5.

presentation, SBC used a 20% of total revenue estimate for SG&A costs. This is a common industry standard estimate of SG&A costs.[30] AT&T claims that the SG&A costs in its spreadsheet are "per SBC low estimate." But instead of calculating SG&A as 20% of its own revenue estimates per state, AT&T used the number ($9.60) that SBC calculated using its higher (and more reasonable) revenue estimates, and AT&T hard-coded that in each line of its calculations as the SG&A cost per state. In doing so, AT&T effectively used an SG&A estimate that is, on average, 35% of its own revenue estimates. AT&T cannot have it both ways. It cannot argue that SBC's revenue estimates are overstated but then calculate SG&A based on those estimates, and its suggestion that 35% SG&A costs are "low" is absurd. Indeed, this kind of claim is indicative of the overall lack of credibility of AT&T's analysis.

- Conclusion

It is unfortunate that rather than engage in serious discussion on the merits of a UNE-P transition plan, AT&T has chosen the path of tired rhetoric and misleading and inaccurate statistics. SBC stands by its proposed transition plan and its estimates of the potential CLEC margins available under its plan. SBC believes that its plan offers the Commission a realistic and meaningful approach to a national transition plan for a sustainable model for local competition.

Sincerely,



James C. Smith

Enclosures

[30] Moreover, SBC's estimate was overly conservative in that SBC applied the 20% to total revenue, including toll revenue, and SBC included a separate cost estimate for the provision of long distance service, which likely already includes some or all of the SG&A costs of providing long distance service.

cc: Chris Libertelli – *via electronic delivery and facsimile*
Jordan Goldstein – *via electronic delivery and facsimile*
Matthew Brill – *via electronic delivery and facsimile*
Dan Gonzalez – *via electronic delivery and facsimile*
Lisa Zaina – *via electronic delivery and facsimile*
Michelle Carey – *via electronic delivery and facsimile*
Tom Navin – *via electronic delivery and facsimile*
Brent Olson – *via electronic delivery and facsimile*
Rob Tanner – *via electronic delivery and facsimile*
Jeff Carlisle – *via electronic delivery and facsimile*
Rich Lerner – *via electronic delivery and facsimile*
Scott Bergmann – *via electronic delivery and facsimile*
Jeremy Miller – *via electronic delivery and facsimile*
William Maher – *via electronic delivery and facsimile*
Joan Marsh – *via facsimile and first class mail*

Attachment 5

Jay Bennett
Executive Director –
Federal Regulatory

SBC Telecommunications, Inc.
1401 I Street, N.W., Suite 1100
Washington D.C 20005
Phone: (202) 326-8889
Fax: (202) 408-4801

December 18, 2002

VIA ELECTRONIC SUBMISSION

Ms. Marlene H. Dortch
Secretary
Office of the Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Dear Ms. Dortch:

Re: **Memorandum of Ex Parte Communication**
CC Docket No. 01-338, Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers

CC Docket No. 96-98, Implementation of the Local Competition Provisions in the Telecommunications Act of 1996

CC Docket No. 98-147, Deployment of Wireline Services Offering Advanced Telecommunications Capability

On December 17, 2002, Jim Smith (Senior Vice President – FCC), Gary Phillips (General Attorney and Assistant General Counsel) and Jim Lamoureux (Senior Counsel) met with Daniel Gonzalez, Senior Legal Advisor to Commissioner Martin to describe the facts of SBC's hot cut performance. SBC described the scalability of its hot cut performance and explained that the record in this proceeding demonstrates that the hot cut process does not pose an impairment to competitors.

The attached materials were distributed during the meeting and are consistent with information that SBC has previously submitted into the record of the above-listed proceedings.

Pursuant to Section 1.1206(b) of the Commission's rules, this *ex parte* is being electronically filed. I ask that this *ex parte* be recognized with the proceedings identified above.

Please call me should you have any questions.

Sincerely,

Attachment

cc: D. Gonzalez

SBC Hot Cuts

The Facts

December 17, 2002

CLEC Claims of a Hot Cut "Problem" Have No Basis in the Record

- Quality: SBC provisions hot cut orders on a timely basis, with minimal disruption to end users
- Scalability: Moving forward, SBC has the capacity to meet any reasonably foreseeable increase in demand for hot cuts at the same superior level of performance
- Cost is not an impediment

Quality: Hot Cuts Are Not "Inherently" Risky

- Assertion rejected by Commission in its KS/OK 271 Order (¶ 207)
- Work performed by central office technicians for decades
- Millions of operational cross-connects in place today in SBC central offices -- each "manually" placed by central office technicians

Quality: Performance Metrics

- Comprehensive performance metrics for hot cuts are in place today in each of SBC's states -- key measures of quality and timeliness include premature disconnects, hot cut intervals and provisioning trouble reports
- Established through state collaborative processes based on needs of CLECs and reasonable operational requirements
- These metrics apply irrespective of the number of orders submitted by a CLEC

Quality: SBC's Hot Cut Performance

- In each of its SWBT 271 Orders, the FCC found that SBC provisions hot cuts in a manner that allows CLECs a meaningful opportunity to compete
- SBC provisioned approximately 500,000 hot cuts from June 2001 through May 2002, and the results demonstrate that quality of performance is <u>not</u> an issue

The Record Shows that SBC Can Scale its Hot Cut Processes

- SBC is prepared to meet any increase in hot cut demand, consistent with existing performance standards, resulting from the elimination of the UNE-P
- SBC uses sophisticated force models to determine staffing requirements
  - On a day-to-day basis, SBC can allocate additional resources, as needed, to meet any spikes in demand
- SBC does not cap the number of hot cuts it can or will perform

The Record Shows that SBC Can Scale its Hot Cut Processes

- Hot cut work from June 2001 to May 2002 required only 1.3% of SBC's CO man-hours
  - SBC could *quadruple* the number of hot cuts it performs by increasing the total number of central office man-hours by less than 4% - an increase that could be handled through overtime
  - Berringer/Smith declaration: if all UNE-P orders from June 2001 to May 2002 had instead been UNE-L orders, Ameritech could handle increased hot cut volume with 6% overtime, SWBT with 3.7% overtime, and Pacific with .9% overtime

Scalability: CLEC Misrepresentations of the Record

- 500,000 hot cuts provisioned from 6/1/01 to 5/31/02 does not represent SBC's provisioning capacity (CompTel/Pace, 10/31/02)
- SBC has never suggested that it could only provision 1 million loops in a year (Z-Tel 12/16/02 and CompTel/PACE 10/31/02)
- Inflated claims of time to match current UNE-P volumes (*e.g.* 8 years) are based on past volumes rather than capacity

Scalability: SBC Historical Experience in Handling "Spikes" in Volume

- SBC regularly experiences spikes in ordering activity -- e.g., at the start and end of the school year, as families and college students establish and disconnect telephone service
  - At beginning of University of Michigan's school year, retail orders in the Ann Arbor Main CO increased from a norm of 150 retail orders for new service per day to 800 per day
- SBC handled this and other similar spikes all over its region seamlessly

UNE-P Peak Volume Data Shows Future UNE-L Demand is Manageable

- In 2002, the peak weekly volumes for the COs with the highest UNE-P demand were approximately:
  - in Michigan - 2,290
  - in Texas - 420
  - in California - 450
- Since SBC could process an average increase of 650 orders *per day* in the Ann Arbor example, there should be no question that SBC can successfully process the volumes of UNE-L orders which follow the elimination of UNE-P

Cost: Hot Cut Charges are Not a Barrier

- Cost of a Hot Cut is Not a Source of Impairment
- Prices are established using TELRIC methodology
- SBC waives labor charges for FDT loop cutovers
- Weighted average loop cutover charge in CA from Jan-Sept 2002 was less than $30.00 per line
  - only SBC state where such information was available
- Consistent with 11/20/02 WorldCom estimates:
  - CA less than $20
  - average of 8 SBC states (AR, CA, IL, KS, MI, MO, OK, TX) approximately $34.00

Conclusions

- Record evidence demonstrates SBC's excellent hot cut performance at significant volumes today
- The record also shows that processes, metrics, and capacity to scale are in-place today
- The FCC cannot assume impairment based on unsubstantiated speculation about capacity to scale

Attachment 6

CA Summary by CLEC Line Size

All $ Amounts are Per Line/Per Month

	UNE Loop Zone Weightings	Tranpsort Zone/Type/OPP	Transport Recurring + Non Recurring	UNE Loop Recurring + Non Recurring	Total Collo	Amortize CLEC GR303	Total CLEC Switch Amortized Investment + Operating Expense		Total CLEC Facility Expense
250 Lines	0% URBAN, 44% SUBURBAN, 56% RURAL.	RURAL/UDT	$ 5.49	$ 19.73	$2.43	$3.73	$4.32		$ 35.71
500 Lines	0% URBAN, 44% SUBURBAN, 56% RURAL.	RURAL/UDT	$ 5.49	$ 19.73	$1.22	$1.99	$4.32		$ 32.75

Revenue		
Local & LD Offering	Other (Access, SLC, etc.)*	Total Revenue
$ 40.00	$ 8.00	$ 48.00
$ 60.00	$ 8.00	$ 68.00

Other Expenses		
LD Costs*	Est. SG&A @ 20%	LD Costs + SG&A@20%
$ 5.00	$ 9.60	$ 14.60
$ 5.00	$ 13.60	$ 18.60

CLEC Margin Analysis @ $40 Offering

	Total Revenue	Total CLEC Facility Expense	LD Costs + SG&A@20%	CLEC EBITDA Margin per Line	CLEC EBITDA Margin %
250 Lines	$ 48.00	$ 35.71	$ 14.60	$ (2.31)	-5%
500 Lines	$ 48.00	$ 32.75	$ 14.60	$ 0.65	1%

CLEC Margin Analysis @ $60 Offering

	Total Revenue	Total CLEC Facility Expense	LD Costs + SG&A@20%	CLEC EBITDA Margin per Line	CLEC EBITDA Margin %
250 Lines	$ 68.00	$ 35.71	$ 18.60	$ 13.69	20%
500 Lines	$ 68.00	$ 32.75	$ 18.60	$ 16.65	24%

UDT (Statewide - no Geographic Deaveraging)

Factors	
Loop Concentration Ratio	4
# of UDT Transport Miles	25
NRC Amortization Period(months)	18

	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K] = [H]+[J]
UNBUNDLED DEDICATED TRANSPORT(UDT)											
STATE		Fixed Mileage	Variable Mileage	Cross Connect	Multiplexing	**TOTAL DS1 UDT TRANSPORT per DS1 (UNCHANNELIZED)**	# of Whole DS1's	# OF VG Channels	**UDT RECURRING TRANSPORT PER CHANNEL RATE**	NRC per Order	Amortized per Channel	**UDT Recurring + Non Recurring Monthly per Line**
CA		$ 32.32	$ 46.00	$ 38.78	$ 255.58	$ 372.68	3.00	250	$ 4.47	$ 4,572.58	$ 1.02	$ 5.49
CA		$ 32.32	$ 46.00	$ 38.78	$ 255.58	$ 372.68	6.00	500	$ 4.47	$ 9,145.00	$ 1.02	$ 5.49

DS1 UDT Rates CA Generic Interconnection Agreement

	MRC	NRC
Fixed Mileage	$ 32.32	$ 67.62
Variable Mileage	$ 1.84	$ 57.35
Multiplexing	$ 255.58	$ 80.12
Cross Connect	$ 19.39	
Service Order		$ 0.16

UNE 2W Analog Loop MRC and NRC Costs

Factors	
Number of Loops per LSR	1
NRC Amortization Period(months)	18
CHC Amortization Period(months)	18
% of Coord. Hot Cuts (CHC)	32%

		[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
STATE		2W Analog Loop	2W Loop to Collo Cross Connect	**Total Recurring *UNE Rate***	Install Service Order NRC	Loop Connect NRC	Cross Connect NRC	Disconnect Service Order NRC	Loop Disconnect NRC	Total NRC	NRC Amortization (over 18 months)	Coordinated Hot Cuts (CHC)	CLEC Internal CHC/FDT Costs	CHC Amortized	**UNE Recurring + Non Recurring (monthly per line)**
CA	URBAN	$ 8.38	$ -	**$ 8.38**	$ 0.16	$ 18.56	$ 4.72	$ 0.16	$ 8.54	$ 40.52	$ 2.25	$ 54.48	$ 10.00	$ 1.52	**$ 12.16**
CA	SUBURBAN	$ 11.27	$ -	**$ 11.27**	$ 0.16	$ 18.56	$ 4.72	$ 0.16	$ 8.54	$ 40.52	$ 2.25	$ 54.48	$ 10.00	$ 1.52	**$ 15.05**
CA	RURAL	$ 19.64	$ -	**$ 19.64**	$ 0.16	$ 18.56	$ 4.72	$ 0.16	$ 8.54	$ 40.52	$ 2.25	$ 54.48	$ 10.00	$ 1.52	**$ 23.42**
	BLEND = 0% URBAN, 44% SUBURBAN, 56% RURAL.														
CA	BLEND	$ 15.96	$ -	**$ 15.96**	$ 0.16	$ 18.56	$ 4.72	$ 0.16	$ 8.54	$ 40.52	$ 2.25	$ 54.48	$ 10.00	$ 1.52	**$ 19.73**

CLEC GR303 Equipment and Collo

Factors	
Annual Interest Rate	12.19%
Number of Years Collo	10
Number of Years GR303	9
Number of Pmts./Year	12
Residual Value	0%

		[A]	[B]	[C]	[D] = [B] + [C]		[E]	[F]	[G]	[H] = [D]+[G]
STATE	Line Size	Collo NRC Per Line	Amortized NRC(per Line per Month)	Collo Monthly Recurring(per Line per Month)	Total Collo per Line Per Month		CLEC GR303 Equip Capital per Line	Residual Value(exclude from Amortization)	Amortize Non-Residual portion of CLEC GR303(per Line per Month)	Total Collo + Amortized GR303 per Line Per Month
CA	250	$ 19.10	$0.28	$ 2.16	$2.43		$84.98	$ -	$1.30	$3.73
CA	500	$ 9.55	$0.14	$ 1.08	$1.22		$50.38	$ -	$0.77	$1.99

CLEC Switch Investments

Factors	
Annual Interest Rate	12.19%
Number of Years	10
Number of Pmts./Year	12
Residual Value	0%

	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
STATE	CLEC Switch Investment(per Line)	CLEC Switch Support Investment	Total CLEC Switch Investment(per Line)	Residual Total CLEC Switch Investment (per Line)		Total CLEC Switch Investment Maintenance & Other Expense	Amortize Non-Residual portion of Total CLEC Switch Invesment	Total CLEC Switch Amortized Investment + Operating Expense per Line per Month
CA	$ 158.00	$ 58.60	$ 216.60	$0.00		$1.19	$3.13	$4.32

Assumptions

Unbundled Dedicated Transport (UDT)

All UDT rates are from the CA Generic Interconnection Agreement
25 Air miles of transport assumed.
NRC assumes only one LSR required for all DS1s within each Line Size Configuration
NRCs per DS1 do not vary with number of DS1 on each order.
Total NRC is spread across 18 months.

UNE Loop

2W Analog Loop, Cross Connect and NRC rates from the CA Generic Interconnection Agreement
Service Order NRC is divided by 1 Loops per LSR.
Coordinated Hot Cuts are based on 1 Loop per CHC
WorldCom's $10 CHC internal costs are included and applied to both CHC and FDT activity.
CHC related NRCs are spread across 18 months.
Remaining NRCs are spread across 18 months.
Blended Loop Rate = 0% URBAN, 44% SUBURBAN, 56% RURAL.

Collo/GR303

Virtual Collocation is assumed
Collocation MRC and NRCs do not vary based on Line Size Configuration
GR303 Digital Loop Concentration equipment costs are variable based on Line Size Configuration

CLEC Switch

Cost estimate for a switch equipped to serve 16,128 GR303 customers assuming 4:1 concentration ratio on both GR303 and Trunking
Per line per month expense includes Switch Investment w/EF&I and Annual Charge Factors(ACF) for Building Land, Power, Maintenance and Other Expenses.

FACTORS

Amortization
Applied to Collo, GR303 and CLEC Switch

Annual Interest Rate	12.19%
Number of Years Switch	10
Number of Years Collo	10
Number of Years GR303	9
Number of Pmts./Year	12
Residual Value	0%

Loop Concentration Factor(all states)	4
# of UNE Loops per LSR	1
UNE NRC Amoritzation(months)	18
UNE % of Coord. Hot Cuts (CHC)	32%
CLEC SG&A	20%

MI Summary by CLEC Line Size

All $ Amounts are Per Line/Per Month									
	UNE Loop Zone Weightings	Transport Type	Transport Recurring + Non Recurring	UNE Loop Recurring + Non Recurring	Total Collo	Amortize CLEC GR303	Total CLEC Switch Amortized Investment + Operating Expense		Total CLEC Facility Expense
250 Lines	0% URBAN, 44% SUBURBAN, 56% RURAL.	UDT	$ 2.89	$ 14.15	$5.11	$6.41	$3.86		$ 32.43
500 Lines	0% URBAN, 44% SUBURBAN, 56% RURAL.	UDT	$ 2.87	$ 14.15	$2.63	$3.40	$3.86		$ 26.92

Revenue		
Local & LD Offering	Other (Access, SLC, etc.)*	Total Revenue
$ 40.00	$ 8.00	$ 48.00
$ 60.00	$ 8.00	$ 68.00

Other Expenses		
LD Costs*	Est. SG&A @ 20%	LD Costs + SG&A@20%
$ 5.00	$ 9.60	$ 14.60
$ 5.00	$ 13.60	$ 18.60

CLEC Margin Analysis @ $40 Offering

	Total Revenue	Total CLEC Facility Expense	LD Costs + SG&A@20%	CLEC EBITDA Margin per Line	CLEC EBITDA Margin %
250 Lines	$ 48.00	$ 32.43	$ 14.60	$ 0.97	2%
500 Lines	$ 48.00	$ 26.92	$ 14.60	$ 6.48	13%

CLEC Margin Analysis @ $60 Offering

	Total Revenue	Total CLEC Facility Expense	LD Costs + SG&A@20%	CLEC EBITDA Margin per Line	CLEC EBITDA Margin %
250 Lines	$ 68.00	$ 32.43	$ 18.60	$ 16.97	25%
500 Lines	$ 68.00	$ 26.92	$ 18.60	$ 22.48	33%

UDT (Statewide - no Geographic Deaveraging)

Factors	
Loop Concentration Ratio	4
# of UDT Transport Miles	25
NRC Amortization Period(months)	18

		[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K] = [H]+[J]
UNBUNDLED DEDICATED TRANSPORT(UDT)												
STATE		Fixed Mileage	Variable Mileage	Cross Connect	Multiplexing	**TOTAL DS1 UDT TRANSPORT per DS1 (UNCHANNELIZED)**	# of Whole DS1's	# OF VG Channels	**UDT RECURRING TRANSPORT PER CHANNEL RATE**	NRC per Order	Amortized per Channel	**UDT Recurring + Non Recurring Monthly per Line**
MI		$ 20.12	$ 9.00	$ 0.54	$ 178.18	**$ 207.84**	3	250	**$ 2.49**	$ 1,781.90	$ 0.40	**$ 2.89**
MI		$ 20.12	$ 9.00	$ 0.54	$ 178.18	**$ 207.84**	6	500	**$ 2.49**	$ 3,426.98	$ 0.38	**$ 2.87**

DS1 UDT Rates MI MPSC Tariff # 20

	MRC	NRC
Fixed Mileage	$ 10.06	$ -
Variable Mileage	$ 0.36	$ -
Multiplexing	$ 178.18	$0.00
Cross Connect	$ 0.27	$ -
Admin Charge Install (Per Service Order)	$ -	$ 136.82
Design & Central Office Connection Charge - Per Circuit - Install	$ -	$ 339.17
Carrier Connection Charge Per Termination - Install	$ -	$ 209.19

UNE 2W Analog Loop MRC and NRC Costs

Factors	
Number of Loops per LSR	1
NRC Amortization Period(months)	18
CHC Amortization Period(months)	18
% of Coord. Hot Cuts (CHC)	43%

		[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
STATE		2W Analog Loop	2W Loop to Collo Cross Connect	**Total Recurring UNE Rate**	Install Service Order NRC	Loop Connect NRC	Cross Connect NRC	Disconnect Service Order NRC	Loop Disconnect NRC	Total NRC	NRC Amortization (over 18 months)	Coordinated Hot Cuts (CHC)	CLEC Internal CHC/FDT Costs	CHC Amortized	**UNE Recurring + Non Recurring (monthly per line)**
MI	URBAN	$ 8.47	$ 0.13	$ 8.60	$ 3.16	$ 17.82	$ -	$ 1.54	$ 5.85	$ 28.37	$ 1.58	$ 42.88	$ 10.00	$ 1.58	$ 11.76
MI	SUBURBAN	$ 8.73	$ 0.13	$ 8.86	$ 3.16	$ 17.82	$ -	$ 1.54	$ 5.85	$ 28.37	$ 1.58	$ 42.88	$ 10.00	$ 1.58	$ 12.02
MI	RURAL	$ 12.54	$ 0.13	$ 12.67	$ 3.16	$ 17.82	$ -	$ 1.54	$ 5.85	$ 28.37	$ 1.58	$ 42.88	$ 10.00	$ 1.58	$ 15.83
	BLEND = 0% URBAN, 44% SUBURBAN, 56% RURAL.														
MI	BLEND	$ 10.88	$ 0.13	$ 10.99	$ 3.16	$ 17.82	$ -	$ 1.54	$ 5.85	$ 28.37	$ 1.58	$ 42.88	$ 10.00	$ 1.58	$ 14.15

CLEC GR303 Equipment and Collo

Factors	
Annual Interest Rate	12.19%
Number of Years Collo	10
Number of Years GR303	9
Number of Pmts./Year	12
Residual Value	0%

		[A]	[B]	[C]	[D] = [B] + [C]		[E]	[F]	[G]	[H] = [D]+[G]
STATE	Line Size	Collo NRC Per Line	Amortized NRC(per Line per Month)	Collo Monthly Recurring(per Line per Month)	Total Collo per Line Per Month		CLEC GR303 Equip Capital per Line	Residual Value(exclude from Amortization)	Amortize Non-Residual portion of CLEC GR303(per Line per Month)	Total Collo + Amortized GR303 per Line Per Month
MI	250	$ 34.97	$0.51	$ 4.61	$5.11		$84.98	$ -	$1.30	$6.41
MI	500	$ 20.95	$0.30	$ 2.33	$2.63		$50.38	$ -	$0.77	$3.40

CLEC Switch Investments

Factors	
Annual Interest Rate	12.19%
Number of Years	10
Number of Pmts./Year	12
Residual Value	0%

	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
STATE	CLEC Switch Investment(per Line)	CLEC Switch Support Investment	Total CLEC Switch Investment(per Line)	Residual Total CLEC Switch Investment (per Line)		Total CLEC Switch Investment Maintenance Expense	Amortize Non-Residual portion of Total CLEC Switch Invesment	Total CLEC Switch Amortized Investment + Operating Expense per Line per Month
MI	$ 158.00	$ 40.32	$ 198.32	$0.00		$0.99	$2.87	$3.86

Assumptions

Unbundled Dedicated Transport (UDT)

All UDT rates are from the MPSC Tariff #20
25 Air miles of transport assumed.
In AIT the Fixed Mileage rate is applied at both ends of the IOF pipe.
NRC assumes only one LSR required for all DS1s within each Line Size Configuration
NRCs per DS1 do not vary with number of DS1 on each order.
Total NRC is spread across 18 months.

UNE Loop

2W Analog Loop, Cross Connect and NRC rates from MPSC Tariff #20
Service Order NRC is divided by 1 Loops per LSR.
Coordinated Hot Cuts % and rate are set to TX values as a proxy
Worldcom's $10 CHC internal costs are included and applied to both CHC and FDT activity.
CHC related NRCs are spread across 18 months.
Remaining NRCs are spread across 18 months.
Blended Loop Rate = 0% URBAN, 44% SUBURBAN, 56% RURAL.

Collo/GR303

Virtual Collocation is assumed
Collocation MRC and NRCs are variable based on Line Size Configuration
GR303 Digital Loop Concentration equipment costs are variable based on Line Size Configuration

CLEC Switch

Cost estimate for a switch equipped to serve 16,128 GR303 customers assuming 4:1 concentration ratio on both GR303 and Trunking
Per line per month expense includes Switch Investment w/EF&I and Annual Charge Factors(ACF) for Building Land, Power, Maintenance and Other Expenses.

FACTORS

Amortization
Applied to Collo, GR303 and CLEC Switch

Annual Interest Rate	12.19%
Number of Years Switch	10
Number of Years Collo	10
Number of Years GR303	9
Number of Pmts./Year	12
Residual Value	0%

Loop Concentration Factor(all states)	4
# of UNE Loops per LSR	1
UNE NRC Amoritzation(months)	18
UNE % of Coord. Hot Cuts (CHC) TX value	43%
CLEC SG&A	20%

TX Summary by CLEC Line Size

All $ Amounts are Per Line/Per Month

	UNE Loop Zone Weightings	Tranpsort Zone/Type	Transport Recurring + Non Recurring	UNE Loop Recurring + Non Recurring	Total Collo	Amortize CLEC GR303	Total CLEC Switch Amortized Investment + Operating Expense		Total CLEC Facility Expense
250 Lines	0% URBAN, 44% SUBURBAN, 56% RURAL	RURAL/UDT	$ 5.11	$ 20.70	$2.75	$4.05	$4.05		$ 36.65
500 Lines	0% URBAN, 44% SUBURBAN, 56% RURAL	RURAL/UDT	$ 4.98	$ 20.70	$1.47	$2.24	$4.05		$ 33.43

Revenue		
Local & LD Offering	Other (Access, SLC, etc.)*	Total Revenue
$ 40.00	$ 8.00	$ 48.00
$ 60.00	$ 8.00	$ 68.00

Other Expenses		
LD Costs*	Est. SG&A @ 20%	LD Costs + SG&A@20%
$ 5.00	$ 9.60	$ 14.60
$ 5.00	$ 13.60	$ 18.60

CLEC Margin Analysis @ $40 Offering

	Total Revenue	Total CLEC Facility Expense	LD Costs + SG&A@20%	CLEC EBITDA Margin per Line	CLEC EBITDA Margin %
250 Lines	$ 48.00	$ 36.65	$ 14.60	$ (3.25)	-7%
500 Lines	$ 48.00	$ 33.43	$ 14.60	$ (0.03)	0%

CLEC Margin Analysis @ $60 Offering

	Total Revenue	Total CLEC Facility Expense	LD Costs + SG&A@20%	CLEC EBITDA Margin per Line	CLEC EBITDA Margin %
250 Lines	$ 68.00	$ 36.65	$ 18.60	$ 12.75	19%
500 Lines	$ 68.00	$ 33.43	$ 18.60	$ 15.97	23%

RURAL UDT

Factors	
Loop Concentration Ratio	4
# of UDT Transport Miles	25
NRC Amortization Period(months)	18

		[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K] = [H]+[J]
UNBUNDLED DEDICATED TRANSPORT(UDT)												
STATE		Fixed Mileage	Variable Mileage	Cross Connect	Multiplexing	**TOTAL DS1 UDT TRANSPORT per DS1 (UNCHANNELIZED)**	# of Whole DS1's	# OF VG Channels	**UDT RECURRING TRANSPORT PER CHANNEL RATE**	NRC per Order	Amortized per Channel	**UDT Recurring + Non Recurring Monthly per Line**
TX	RURAL	$ 44.49	$ 77.76	$ 15.02	$ 81.15	$ 218.41	3.00	250	$ 2.62	$ 11,196.77	$ 2.49	$ 5.11
TX	RURAL	$ 44.49	$ 77.76	$ 15.02	$ 81.15	$ 218.41	6.00	500	$ 2.62	$ 21,219.77	$ 2.36	$ 4.98

DS1 RURAL UDT Rates TX T2A

	MRC	NRC-First	NRC-Addt'l
Fixed Mileage	$ 44.49	$ 174.43	$ 130.08
Variable Mileage	$ 3.11	$ 174.43	$ 130.08
Multiplexing	$ 81.15	$ 96.84	$ 48.51
Cross Connect	$ 7.51	$ 57.08	$ 40.49
Service Order		$ -	$ -

UNE 2W Analog Loop MRC and NRC Costs

Factors		
Number of Loops per LSR		1
NRC Amortization Period(months)		18
CHC Amortization Period(months)		18
% of Coord. Hot Cuts (CHC)		43%

		[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]
STATE		2W Analog Loop	2W Loop to Collo Cross Connect	**Total Recurring UNE Rate**	Install Service Order NRC	Loop Connect NRC	Cross Connect NRC	Disconnect Service Order NRC	Loop Disconnect NRC	Total NRC	NRC Amortization (over 18 months)	Coordinated Hot Cuts (CHC)	CLEC Internal CHC/FDT Costs	CHC Amortized	**UNE Recurring + Non Recurring (monthly per line)**
TX	URBAN	$ 12.14	$ 1.24	$ 13.38	$ 2.58	$ 15.03	$ 4.72	$ -	$ -	$ 22.33	$ 1.24	$ 42.88	$ 10.00	$ 1.58	$ 16.20
TX	SUBURBAN	$ 13.65	$ 1.24	$ 14.89	$ 2.58	$ 15.03	$ 4.72	$ -	$ -	$ 22.33	$ 1.24	$ 42.88	$ 10.00	$ 1.58	$ 17.71
TX	RURAL	$ 18.98	$ 1.24	$ 20.22	$ 2.58	$ 15.03	$ 4.72	$ -	$ -	$ 22.33	$ 1.24	$ 42.88	$ 10.00	$ 1.58	$ 23.04
	BLEND = 0% URBAN, 44% SUBURBAN, 56% RURAL														
TX	BLEND	$ 16.63	$ 1.24	$ 17.87	$ 2.58	$ 15.03	$ 4.72	$ -	$ -	$ 22.33	$ 1.24	$ 42.88	$ 10.00	$ 1.58	$ 20.70

CLEC GR303 Equipment and Collo

Factors	
Annual Interest Rate	12.19%
Number of Years Collo	10
Number of Years GR303	9
Number of Pmts./Year	12
Residual Value	0%

		[A]	[B]	[C]	[D] = [B] + [C]		[E]	[F]	[G]	[H] = [D]+[G]
STATE	Line Size	Collo NRC Per Line	Amortized NRC(per Line per Month)	Collo Monthly Recurring(per Line per Month)	Total Collo per Line Per Month		CLEC GR303 Equip Capital per Line	Residual Value(exclude from Amortization)	Amortize Non-Residual portion of CLEC GR303(per Line per Month)	Total Collo + Amortized GR303 per Line Per Month
TX	250	$ 39.75	$0.57	$ 2.17	$2.75		$84.98	$ -	$1.30	$4.05
TX	500	$ 24.70	$0.36	$ 1.11	$1.47		$50.38	$ -	$0.77	$2.24

CLEC Switch Investments

Factors	
Annual Interest Rate	12.19%
Number of Years	10
Number of Pmts./Year	12
Residual Value	0%

	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
STATE	CLEC Switch Investment(per Line)	CLEC Switch Support Investment	Total CLEC Switch Investment(per Line)	Residual Total CLEC Switch Investment (per Line)		Total CLEC Switch Investment Maintenance & Other Expense	Amortize Non-Residual portion of Total CLEC Switch Invesment	Total CLEC Switch Amortized Investment + Operating Expense per Line per Month
TX	$ 158.00	$ 47.22	$ 205.22	$0.00		$1.08	$2.97	$4.05

Assumptions

Unbundled Dedicated Transport (UDT)

All UDT rates are from the TX T2A Pricing Appendix
25 Air miles of transport assumed.
NRC assumes only one LSR required for all DS1s within each Line Size Configuration
NRCs per DS1 vary with number of DS1 on each order, based on the 'First and Additional' structure.
Total NRC is spread across 18 months.

UNE Loop

2W Analog Loop, Cross Connect and NRC rates from the TX T2A Pricing Appendix
Service Order NRC is divided by 1 Loops per LSR.
Coordinated Hot Cuts are based on 1 Loop per CHC
Worldcom's $10 CHC internal costs are included and applied to both CHC and FDT activity.
CHC related NRCs are spread across 18 months.
Remaining NRCs are spread across 18 months.
Blended Loop Rate = 0% URBAN, 44% SUBURBAN, 56% RURAL.

Collo/GR303

Virtual Collocation is assumed
Collocation MRC and NRCs are variable based on Line Size Configuration
GR303 Digital Loop Concentration equipment costs are variable based on Line Size Configuration

CLEC Switch

Cost estimate for a switch equipped to serve 16,128 GR303 customers assuming 4:1 concentration ratio on both GR303 and Trunking
Per line per month expense includes Switch Investment w/EF&I and Annual Charge Factors(ACF) for Building Land, Power, Maintenance and Other Expenses.

FACTORS

Amortization
Applied to Collo, GR303 and CLEC Switch

Annual Interest Rate	12.19%
Number of Years Switch/Collo	10
Number of Years GR303	9
Number of Pmts./Year	12
Residual Value	0%

Loop Concentration Factor(all states)	4
# of UNE Loops per LSR	1
UNE NRC Amoritzation(months)	18
UNE % of Coord. Hot Cuts (CHC)	43%
CLEC SG&A	20%

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February 4, 2003

Ms. Marlene Dortch
Secretary
Federal Communications Commission
445 12th Street, SW, Room TWB-204
Washington, DC 20554

Re: Notice of Written Ex Parte Communication, In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, CC Docket Nos. 01-338, 96-98 and 98-147

Dear Ms. Dortch:

On January 14, 2003, SBC filed an ex parte submission with the Commission that purported to offer a refutation of an analysis of UNE-L cost impairment offered by WorldCom and to propose its own preferred margin-based method for determining impairment.[1] SBC's effort succeeds at neither. First, even accepting SBC's error-ridden and understated analysis of CLEC cost impairment demonstrates that CLECs will be incapable of competing for customers served by analog lines if they must use UNE-L to reach these customers. Second, the margin method proposed by SBC to evaluate impairment is improper as both a matter of law and of economics. This submission provides a detailed evaluation and refutation of the positions taken in SBC's ex parte.[2]

[1] *See* ex parte letter from James C. Smith, SBC to Chairman Michael Powell, January 14, 2003 and ex parte letter from Gil M. Strobel, representing WorldCom to Marlene H. Dortch, January 8, 2003. Note that AT&T filed evaluations of CLEC economic impairment in an ex parte submission from Joan Marsh, AT&T to Marlene H. Dortch, on January 17, 2003. To the best of AT&T's knowledge, SBC has not attempted any refutation of this analysis.

[2] Although SBC has filed a further ex parte on these issues (letter from James C. Smith to Michael Powell, January 28, 2003, this latest submission makes no effort to correct any of the data or methodological errors that were present in its January 14, 2003 submission save correcting (without comment) an arithmetic error in this earlier submission. Similarly, BellSouth has also filed an undocumented viewgraph presentation (ex parte letter from Glenn T. Reynolds to Marlene Dortch, January 17, 2003) in which it appears follow the

Although SBC calculates that a CLEC seeking to use UNE-L to access unbundled loops faces a substantial cost disadvantage of roughly $10 per line per month relative to its own costs, it claims that impairment should be evaluated only on the basis of a cursory margin analysis that (i) incorporates a panoply of telecommunications services, not just the local services that a CLEC may seek to offer; and (ii) assumes that this cost impairment can be dismissed so long as there is a small segment of extremely high revenue customers who (at least hypothetically) offer the CLEC sufficient margin to cover its calculated $10 cost disadvantage. SBC's hypothetical "impairment" analysis is factually wrong in its calculation of actual cost impairment levels, wrong in its hypothetical assumptions about customer revenues, and, most important, wrong on the law and the underlying basic economics.

This analysis is divided into three parts. First, it evaluates the accuracy of SBC's development of the cost impairments suffered by CLECs seeking to provide voice service to customers served by analog loops. It finds that SBC makes numerous basic errors in its financial analysis. These include use of incomplete or inaccurate data, misunderstanding standard analytic practice for converting capital costs into monthly recurring costs, and errors in simple arithmetic. As a result of these numerous errors, SBC's overall cost impairment calculation of $10 per line per month is significantly understated relative to the amount that would result if SBC's most basic errors were corrected. Second, this analysis shows that SBC's contention that CLEC impairment be measured with respect to expansive profit margins for a high-volume customer segment, rather than local service costs for all POTS customers, has no basis in economics and is properly precluded by the plain language of the Telecommunications Act. Furthermore, the analysis also demonstrates that only a very tiny fraction of the total residence market generates revenue levels that are as generous as SBC hypothesizes. Finally, the analysis examines SBC's actual calculation of hypothetical CLEC profit margins. It demonstrates that even if, *arguendo,* one accepts SBC's inadmissible impairment test, simple correction of either SBC's overstatement of the revenues available to CLECs or understatement of CLEC costs necessary to earn these putative revenues, demonstrates that CLECs will be unable to profitably address the residence market using UNE-L.

SBC's Inaccurate Calculation of Overall Cost Impairments

Attachment A to this paper demonstrates that SBC has made a number of significant errors in calculating the individual cost impairments that CLECs must suffer if they attempt to use their own switch to serve customers with voice-grade loops. The net effect of SBC's errors and omissions in calculating the cost of the "extra" network that CLECs must employ to access and extend their customers' loops is to substantially understate the CLECs' overall cost impairment. These errors and omissions result from SBC's failure to: (i) account for all of a competitor's collocation equipment and space requirements; (ii) employ accurate CLEC capital carrying costs including taxes; (iii)

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same flawed procedures and employ similarly exaggerated hypothetical revenue data as SBC's submissions.

account for all of a competitor's operating and maintenance costs associated with this additional "backhaul" network; and (iv) recognize that CLEC backhaul networks can never be 100% "filled." SBC's failure to account correctly for all of these costs leads to an estimate of CLEC cost impairments that is probably too low by half.[3]

But despite SBC's inaccurate and understated execution of its cost impairment analysis, it nevertheless yields impairment figures that are of very great competitive significance. When added together, the individual components of SBC's analysis add up to about $10 per line per month -- even before its patent data and methodological errors are corrected.[4] Given the significance of the uncorrected SBC figure, the remainder of this analysis then assumes *arguendo* that SBC's $10 cost impairment figure is correct.

SBC-calculated CLEC cost impairments

	California		Michigan		Texas	
Impairment	250 Lines	500 Lines	250 Lines	500 Lines	250 Lines	500 Lines
Collocation	$2.43	$1.22	$5.11	$2.63	$2.75	$1.47
Digital loop carrier	$1.30	$0.77	$1.30	$0.77	$1.30	$0.77
Backhaul transport	$5.49	$5.49	$2.89	$2.87	$5.11	$4.98
Hot cut	$1.52	$1.52	$1.58	$1.58	$1.58	$1.58
Total cost impairment	**$10.74**	**$9.00**	**$10.88**	**$7.85**	**$10.74**	**$8.80**

SBC's Faulty Impairment Test

SBC states that the cost impairment it has calculated should be irrelevant for the purposes of satisfying the Telecom Act. Rather, SBC claims that impairment should be measured only with respect to the overall profit margins that a CLEC might receive from a broad portfolio of services sold to a particular customer segment. In particular, SBC argues that a CLEC is not impaired in providing the services it seeks to provide so long as it could earn a positive profit margin from serving a hypothetical set of high volume customers that purchase an expansive suite of local and long distance services. SBC's proposed "impairment" test is wrong as to the law, wrong as to economics and even wrong in its "facts" about available customer revenues.

"Profit margins" are not a rational test for impairment - As noted by the Commission and elsewhere, profit margins are not the proper basis upon which to determine whether interconnection pricing is consistent with the Telecommunications'

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[3] SBC's error is especially large with respect to the 250 or 500 line backhaul networks that it investigates. Such "thin" backhaul networks are likely to have extra costs that are disproportionately higher than those incurred to provide "thicker" networks that would be used to serve more dense areas.

[4] SBC's basic arithmetic error has been corrected in deriving these figures.

Act's pro-competitive intent and instruction that prices for unbundled network elements (and ultimately the retail services provided using those inputs) should be based on cost. The reason for this is simple. Because of the incumbents' monopoly position, current ILEC retail pricing frequently bears little relation to costs. Indeed, on average, current ILEC retail prices for telecommunications services are set well above cost.[5] Thus, measuring CLEC impairment on the basis of current price-cost margins is a trap for the unwary.[6] Competitors that enter based on such price bait and lacking cost parity will soon be squashed when the ILEC decides to exercise its cost advantage and reduce prices to the point at which entrants are made unprofitable.[7] Critically, this is not just an academic concern. When faced with CLEC entry in Michigan, Illinois and California, SBC itself has dramatically reduced its retail prices – and focused these reductions on the high volume retail customer segments that it claims are the most profitable.

Indeed, SBC appears to recognize that a margin-based impairment test would violate basic economic principles. Thus, it offers two reasons to justify its otherwise prohibited use of this test. First, SBC asserts that impairment should be measured with respect to margins rather than costs because TELRIC costs are lower than what the ILECs' claim to be their "actual" costs. Second SBC claims that even if a CLEC enters at an impaired level of cost, it will not be driven from the market because the ILEC cannot exercise downwards pricing power – presumably because regulatory commission rules prevent ILECs from offering residence customers price cuts. These arguments are sheer nonsense.

The first argument is nothing more than a thinly disguised version of the ILECs' six-year refrain that "TELRIC is too cheap." That argument, however, was fully put to rest by the Supreme Court in *Verizon* v. *FCC*.[8] In that case, the Court found that TELRIC pricing is lawful and that the kind of embedded cost methodology that the incumbents sought to impose would "defeat the competitive purpose of forcing efficient choices on all carriers whether incumbents or entrants."[9] Further, the Court held that

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[5] *See* Lee Selwyn, "Subsidizing the Bell Monopolies: How Government Corporate Welfare Programs are Undermining Telecommunications Competition," Economics and Technology, April 2002 (finding that RBOC switched service revenues exceed their efficient costs by $29 billion per year). Note that such pricing practices are completely consistent with economic theory. The managers and owners of firms that do not face close discipline from competitive suppliers always seek to raise their retail prices above competitive levels in order to return supracompetitive profits to their owners. *See* Jean Tirole, *The Theory of Industrial Organization*, MIT Press, 1988, pp. 62-94.

[6] *See* Robert D. Willig, "Determining 'Impairment' Using the *Horizontal Merger Guidelines*' Entry Analysis," in ex parte letter from C. Fredrick Beckner, III representing AT&T to Marlene Dortch, November 14, 2002; Robert H. Bork, letter to Michael K. Powell attached to ex parte letter from C. Fredrick Beckner, III representing AT&T to Marlene Dortch, January 10; 2003; Laurence J. Kotlikoff, "Natural Monopoly and the Definition of 'Impairment'," attached to ex parte letter from Penelope K. Alberg, AT&T to Marlene Dortch, January 22; 2003 and ex parte letter from Gil M. Strobel, representing WorldCom to Marlene H. Dortch, January 27, 2003.

[7] *See* Jean Tirole, *The Theory of Industrial Organization*, MIT Press, 1988, pp. 367-375.

[8] *Verizon Communications, Inc.* v. *FCC*, 122 S.Ct. 1646 (2002).

[9] *Id.* at 1673.

TELRIC is quite capable of providing incumbents with a reasonable return.[10] Indeed, the Court noted that the ILECs' claim of confiscation was peculiar, because they did not offer a *single* instance of a specific confiscatory rate.[11] Accordingly, there is no evidence that TELRIC is in fact too cheap, and every reason to believe that TELRIC rates are fully compensatory, lawful, procompetitive and necessary to support new entry.

SBC's second argument is simply incredible, and flatly refuted by SBC's own actions in lowering local rates in response to competitive entry in California, Michigan and Illinois. Furthermore, Section 254(k) of the Telecom Act requires state regulators to *eliminate* implicit subsidies in telephone rates. SBC has not identified a single State commission that would prohibit it from reducing local rates, nor could it likely do so. The Commission cannot credit SBC's inference that it operates as a charity – collecting from the heavy-use customers and subsidizing the lower-use ones. Seven years ago, the Telecommunications Act directed that any implicit subsidies in retail rates must be made explicit, and SBC has not named any specific remaining subsidy flow to support its claim. Indeed, acting as a rational business, SBC has designed its current retail tariff structure to return the maximum possible total profit and competitive advantage.[12]

And in all events, the best proof that SBC's argument is made of whole cloth is its own actions in the marketplace. SBC has shown that it is fully capable of eliminating any artificial (non-cost-based) profit margin when it feels the need. In Michigan, in Illinois and in California, SBC has responded to residential UNE-P entry by reducing dramatically the local retail rates it charges residential customers – particularly the higher volume segment of these customers.

SBC's improper market definition - SBC appears to believe that a CLEC is not impaired under the Telecommunications Act with regard to a particular UNE if there exists *any* identifiable demand *segment* that offers a profit sufficient to subsidize its acknowledged $10 per line monthly cost impairment. This view has no grounding in either the Telecommunications Act or in any accepted view of economic public policy. The stated goal of the Telecommunications Act is to bring pro-competitive benefits to "all Americans," not just a few selected ones. And the market segment that SBC claims to have shown to be open to competition by cost-impaired UNE-L CLECs – assuming that SBC does not close its price umbrella -- is small indeed.

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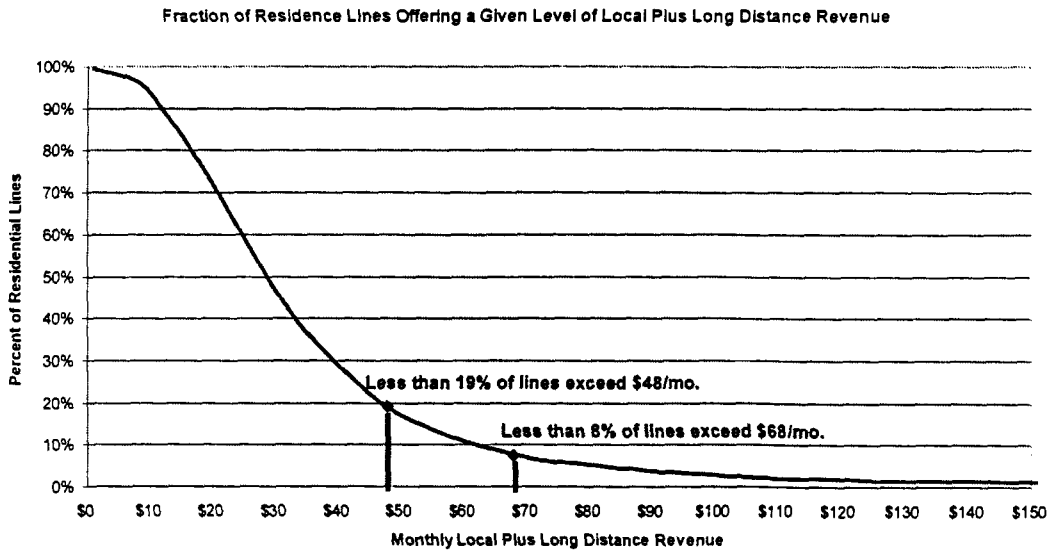
[10] *Id.* at 1677.

[11] *Id.* at 1679, 1680.

[12] An example of the ILECs' ability to exercise their downward pricing power to maximize overall profits may be found in their low Centrex rates. Although the ILECs surely would prefer it if they were able to maintain prices for these Centrex local services at parity with their equivalent single and multiline business services, the ILECs have determined that their overall profitability will be higher if they provide Centrex services at deep discounts relative to equivalent business line rates.

SBC only attempts to show that CLECs could serve a residential customer base that offers revenues of $48 to $68 per line per month for local and long distance services.[13] However, SBC has never, either in its initial proposal regarding such hypothetical revenues or in its instant ex parte, provided any documentation of the extent to which these hypothetical revenue figures comport with actual residence customer demand patterns.[14]

In fact, the proportion of customers SBC identifies as addressable by CLECs notwithstanding a $10 cost impairment is tiny. Analysis of data collected by TNS Telecoms show that fewer than 19% of all residence lines provide $48 in monthly local plus long distance revenue, and fewer than 8% provide $68 in revenue.[15] The following chart shows the small fraction of residential customer lines that would be addressable to UNE-L competitors under SBC's proposed definition of impairment – as well as the huge fraction that would be redlined from competition based on SBC's definition.



Source: TNS Telecoms Bill Harvesting® data

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[13] SBC tries to lighten the appearance of its burden by repeatedly referring to this target market as offering only $40 to $60 per line per month in revenues – without highlighting its further assumption that these figures do not include an additional $8 in assumed SLC and access revenues.

[14] SBC's initial treatment of putative CLEC revenues was provided in an ex parte letter from James C. Smith to Marlene Dortch, dated December 11, 2002. AT&T responded in an ex parte letter from Joan Marsh to Marlene Dortch, dated January 15, 2003. In its instant submission, SBC reinforces the point that its customer revenue figures are entirely hypothetical by declining to present any data or evidence vouching for these figures. Instead, SBC simply states that its entire justification for these figures was provided in its December 11, 2002 ex parte. But this response fails to acknowledge that SBC's December 11 ex parte was itself devoid of documentation or that AT&T's January 15 ex parte provided a documented refutation of the validity of these creamy revenue figures, and that SBC has provided no rebuttal to that showing.

[15] *See* ex parte letter from Joan Marsh, AT&T to Marlene Dortch, January 15, 2003.

Perhaps in recognition that it lacks any data to demonstrate that the fraction of lines offering over $48 or $68 encompasses more than a niche portion of the total residential market, SBC adduces two "reasons" for why its use of these creamy figures may be "excused."

First, it suggests that even though the typical residential customer line may offer an unprofitably smaller amount of revenue, these are not the customer lines that CLECs have acquired under UNE-P. Rather, SBC asserts, CLECs have been able successfully to "cherry-pick" only high-volume customers from the residential market segment. This undocumented allegation was refuted by AT&T in its January 15, 2003 ex parte, and data AT&T has been able to collect since that date make this refutation even more compelling. In the earlier ex parte, AT&T demonstrated that in Michigan, TNS data showed average CLEC residential customer local plus long distance revenues to be slightly less than the average residential customer revenues earned by SBC.[16] Over the past two weeks, AT&T has been able to conduct a similar analysis of TNS data for Illinois – and the results agree with those from Michigan. CLEC residential customers generate no more local plus long distance per-line revenue as do residential customers that have stayed with SBC service. Thus, SBC cannot support its use of $48 to $68 in customer revenues by implying that such revenue ranges represent typical CLEC customers.

Second, SBC argues that even if $48 to $68 per month does not represent the typical residential customer, or even current CLEC customers, it represents CLECs' aspirational customers. To support this claim, SBC references MCI's Neighborhood calling plans and claims that these plans return revenues (exclusive of SLC and access) that are a minimum of $50 to $70 per line.[17] First, this is false. While MCI is obviously happiest when it acquires a customer that selects its highest volume rate option (called "Neighborhood Complete") – which in states with reasonable UNE-P rates (*e.g.*, Michigan, Illinois, California, New York, etc.) sells for $49.99 plus SLC; MCI also offers much lower-cost alternative plans called "Neighborhood Advantage."[18] These less expensive plans cost only $21.99 in California and $27.99 in Michigan and Illinois. At an additional cost of $0.07 per minute for long distance, a California customer would need to use over 400 minutes per month of long distance (over four times the national average) before it would find the higher-priced "Neighborhood Complete" plan to be advantageous. In Michigan and Illinois, a customer would need to use over 314 minutes per month of long distance (over three times the national average) before it would find the higher-priced plan to be advantageous. Thus, SBC's focus on MCI's highest volume plans is misplaced and provides only a far upper bound as to potential CLEC customer revenues.

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[16] Michigan was the first state AT&T chose for this analysis because it has been one where UNE-P has perhaps been its most successful at providing residential customers with competitive alternatives.

[17] *See* SBC January 14, 2002 ex parte at p. 3.

[18] MCI's Neighborhood Complete plan offers unlimited local *and* long distance calling and multiple additional features. Neighborhood Advantage also offers unlimited local calling and multiple features, but generally does not include long distance charges. *See* http://www.mci.com/Res_Neighborhood_LTS.html .

SBC makes a similar allegation that AT&T chooses to serve only customers generating at least $50 per month in revenues.[19] AT&T of course seeks to gain as many of the highest value customers as it can, just as every ILEC seeks strongly to retain such customers. However, as the TNS Telecom Bill Harvesting® data show, such direct conflict between CLECs and ILECs over this desired customer segment has not to date shown the CLECs to be more successful at winning a higher volume customer mix than the ILECs. Moreover, for a large carrier like AT&T, it is critical to obtain volumes of customers, both large and small, when it enters new markets. Thus, AT&T, like WorldCom, has residential offers that are designed to appeal to all revenue segments. This is the only way for entrants to be successful over the long term and to fulfill the Act's intent to bring the benefits of competition to all Americans.

[19] *See* ex parte letter from Brian J. Benison, SBC to Marlene Dortch, dated January 27, 2003 (noting that AT&T executive John Polumbo stated that high value customers are AT&T's focus and target).

SBC's incorrect margin calculation

Even if SBC were correct that margins, not costs, should measure impairment, and even if SBC were correct that only the profit margins from the highest possible volume customer segment should be used to determine whether CLECs are impaired for the entire market, SBC is still is incorrect in its calculation of impairment levels.

SBC's impairment analysis runs as follows:

SBC calculation of CLEC impairment

		California		Michigan		Texas	
	Impairment	250 Lines	500 Lines	250 Lines	500 Lines	250 Lines	500 Lines
1	**UNE Loop + hot cut**	$19.73	$19.73	$14.15	$14.15	$20.69	$20.69
2	**Collocation**	$2.43	$1.22	$5.11	$2.63	$2.75	$1.47
3	**Digital loop carrier***	$1.30	$0.77	$1.30	$0.77	$1.30	$0.77
4	**Backhaul transport**	$5.49	$5.49	$2.89	$2.87	$5.11	$4.98
5	**CLEC switch**	$4.32	$4.32	$3.68	$3.68	$4.05	$4.05
6	**Cost of long distance**	$5.00	$5.00	$5.00	$5.00	$5.00	$5.00
7	**SG&A costs @ $48 rev**	$9.60	$9.60	$9.60	$9.60	$9.60	$9.60
8	**SG&A costs @ $58 rev**	$11.60	$11.60	$11.60	$11.60	$11.60	$11.60
9	**SG&A costs @ $68 rev**	$13.60	$13.60	$13.60	$13.60	$13.60	$13.60
10	**Total cost @ $40 rev****	**$47.87**	**$46.13**	**$41.73**	**$38.70**	**$48.50**	**$46.56**
11	**Total cost @ $50 rev****	**$49.87**	**$48.13**	**$43.73**	**$40.70**	**$50.50**	**$48.56**
12	**Total cost @ $60 rev****	**$51.87**	**$50.13**	**$45.73**	**$42.70**	**$52.50**	**$50.56**
13	**SBC assumed revenue****	$48.00	$48.00	$48.00	$48.00	$48.00	$48.00
14	**Implied net margin***	$0.13	$1.87	$6.27	$9.30	($0.50)	$1.44
15	**SBC assumed revenue****	$58.00	$58.00	$58.00	$58.00	$58.00	$58.00
16	**Implied net margin***	$8.13	$9.87	$14.27	$17.30	$7.50	$9.44
17	**SBC assumed revenue****	$68.00	$68.00	$68.00	$68.00	$68.00	$68.00
18	**Implied net margin***	$16.13	$17.87	$22.27	$25.30	$15.50	$17.44

* Figures corrected for SBC arithmetic double-count of collocation costs in DLC cost

** Note that SBC-stated revenue figures of $40/$50/$60 do not include $8 of SLC and access revenue

However nearly every row in the above table is inaccurately or inappositely developed by SBC.[20] These errors are set forth in detail in Attachment A and summarized below.

Row 2: Because of under-resourcing of collocation needs and failure to account correctly for capital carrying costs, maintenance costs, operations costs and underfill, SBC's calculated collocation cost figure is likely no more than half of what is appropriate.

Row 3: SBC's DLC costs are exceedingly low and do not include the costs of other collocation equipment the CLEC would require, such as DS0 point-of-termination panels, DSx-3 termination panels, and assorted test equipment, etc. In addition, correct capital carrying costs, maintenance costs, operations costs and underfill are not accounted for in SBC's calculations. An accurate figure would be roughly three times higher than SBC's stated figure.

Row 5: SBC omits completely the costs a CLEC would incur for an interoffice transport network necessary for its customers to complete calls to customers served from other local switches. Overall figure is likely $1 to $2 too low.

Row 6: The cost of long distance is dramatically understated. The $5 figure used by SBC was AT&T's estimate of just an *ILEC's* incremental cost to offer national average quantities of long distance (about 97 minutes per month for residence lines). A customer generating $48 to $68 in monthly local plus long distance revenue is almost surely using far more than 97 minutes of long distance per month. A more accurate long distance cost figure for customers generating these high revenue levels would be $10/month in long distance cost for a $48 customer and $20/month for a $68 customer.

Rows 7-9: AT&T does not agree that 20% SG&A costs are accurate for a CLEC entering a new market and seeking to acquire new customers. More than likely, these costs are significantly higher.

When just the cost errors detailed above are corrected, even SBC's high-volume local plus long distance customer margin impairment analysis shows that for all except the highest of the high-revenue customers in Michigan, a CLEC would earn a *negative* net margin, and thus not enter the local business in California, Michigan and Texas if it was unable to use UNE-P. And if SBC's hypothetical high-volume customers are discarded and the analysis focuses upon a residence line offering TNS' national average local plus long distance revenue of $41 per month, net margins are significantly *negative* in *all* of SBC's examples.

[20] These errors are in addition to SBC's arithmetic error in double-counting collocation costs which has been corrected in the above table.

Corrected SBC-style calculation of CLEC impairment

	Impairment	California 250 Lines	California 500 Lines	Michigan 250 Lines	Michigan 500 Lines	Texas 250 Lines	Texas 500 Lines
1	UNE Loop + hot cut	$19.73	$19.73	$14.15	$14.15	$20.69	$20.69
2	Collocation	$4.86	$2.44	$10.22	$5.26	$5.50	$2.94
3	Digital loop carrier*	$3.90	$2.31	$3.90	$2.31	$3.90	$2.31
4	Backhaul transport	$5.49	$5.49	$2.89	$2.87	$5.11	$4.98
5	CLEC switch	$5.82	$5.82	$5.18	$5.18	$5.55	$5.55
6	Cost of LD @ $48 rev	$10.00	$10.00	$10.00	$10.00	$10.00	$10.00
6	Cost of LD @ $50 rev	$15.00	$15.00	$15.00	$15.00	$15.00	$15.00
6	Cost of LD @ $60 rev	$20.00	$20.00	$20.00	$20.00	$20.00	$20.00
7	SG&A costs @ $48 rev	$9.60	$9.60	$9.60	$9.60	$9.60	$9.60
8	SG&A costs @ $58 rev	$11.60	$11.60	$11.60	$11.60	$11.60	$11.60
9	SG&A costs @ $68 rev	$13.60	$13.60	$13.60	$13.60	$13.60	$13.60
10	**Total cost @ $40 rev****	**$59.40**	**$55.39**	**$55.94**	**$49.37**	**$60.35**	**$56.07**
11	**Total cost @ $50 rev****	**$66.40**	**$62.39**	**$62.94**	**$56.37**	**$67.35**	**$63.07**
12	**Total cost @ $60 rev****	**$73.40**	**$69.39**	**$69.94**	**$63.37**	**$74.35**	**$70.07**
13	SBC assumed revenue**	$48.00	$48.00	$48.00	$48.00	$48.00	$48.00
14	Implied net margin*	($11.40)	($7.39)	($7.94)	($1.37)	($12.35)	($8.07)
15	SBC assumed revenue**	$58.00	$58.00	$58.00	$58.00	$58.00	$58.00
16	Implied net margin*	($8.40)	($4.39)	($4.94)	$1.63	($9.35)	($5.07)
17	SBC assumed revenue**	$68.00	$68.00	$68.00	$68.00	$68.00	$68.00
18	Implied net margin*	($5.40)	($1.39)	($1.94)	$4.63	($6.35)	($2.07)
	Average TNS revenue	$41.00	$41.00	$41.00	$41.00	$41.00	$41.00
	Implied net margin*	($12.00)	($7.99)	($8.54)	($1.97)	($12.95)	($8.67)

* Figures corrected for SBC arithmetic double-count of collocation costs in DLC cost

** Note that SBC-stated revenue figures of $40/$50/$60 do not include $8 of SLC and access revenue

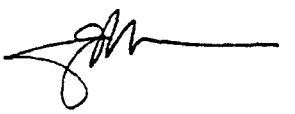
Conclusion

Regardless of whether SBC's understated calculation of CLEC cost impairment is accepted or corrected, CLECs who are forced to use current collocation, hot cut and backhaul architectures to gain access to ILEC voice-grade loops will be at a substantial cost disadvantage relative to the ILEC. Even using SBC's understated $10 figure for cost impairment results in the CLEC's disadvantage amounting to over 33% of CLEC average local revenues and over 24% of CLEC average local plus long distance revenues. These

are assuredly *not* "minor" disadvantages that can be made up in competitive markets. They simply will foreclose any competition by CLECs to serve analog line customers.

Consistent with Commission rules, I am filing one electronic copy of this notice and request that you place it in the record of the above-referenced proceedings.

Sincerely,



Joan Marsh

cc: William Maher
Jeff Carlisle
Michelle Carey
Brent Olson
Rich Lerner
Scott Bergmann
Thomas Navin
Jeremy Miller
Rob Tanner

ATTACHMENT A

SBC's Calculation of CLEC Cost Impairment Is Understated and Wrong

SBC follows fairly standard practice in dividing the extra costs that a CLEC faces to access an unbundled analog line into four categories: collocation costs, digital loop carrier (DLC) costs, backhaul transport costs and hot cut costs.[21] However, the validity of SBC's cost calculations varies substantially over these different categories. For some categories it fails to provide the source data and technical assumptions that it uses to develop the identified costs. For other categories, SBC appears to omit completely certain baseline costs that a CLEC must incur in order to successfully connect unbundled loops to its switch, and it also makes patent errors in other data assumptions, financial analysis methods and basic arithmetic.

Collocation costs - As a threshold matter, it is impossible to verify SBC's proposed virtual collocation cost figures because SBC provides no breakout of the virtual collocation resources that it assumes are needed for a CLEC to collect, digitize, concentrate, multiplex and otherwise prepare loops for backhaul.[22] While it is possible that SBC's cost-out provides for all of this required equipment, this seems doubtful. The only snippet of technical information concerning collocation space that SBC offers is a claim that DLC equipment serving 2,048 customers could be located within a single bay. While SBC does not state what DLC equipment it believes meets this specification, the most common model of DLC that SBC currently uses is Alcatel Litespan-2000. However, such DLC equipment is capable of serving only 672 lines out of a single bay.[23] Thus, this suggests that SBC may be underestimating, possibly by a factor of *three*, a CLEC's collocation resource requirements.

In addition, the only piece of CLEC equipment that SBC mentions as being housed in this virtual collocation space is a GR-303 DLC. But as AT&T has documented, there must also be room to accommodate DS0 point-of-termination panels, DSx-3 termination panels, and assorted test equipment.[24] For small collocations of the type that SBC examines, necessary space accommodations for this additional equipment could itself

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[21] In this submission, SBC continues its practice of avoiding calling digital loop carrier equipment digital loop carrier (DLC) equipment. In its November 14 submission, SBC called DLC "loop converters" or "CLEC equipment." Here, SBC introduces another two names for DLC, "GR 303 concentration equipment" and "digitizing equipment." But, SBC also finally uses the term, "GR-303 DLC concentration equipment" on page 5 of its Attachment 3.

[22] A list of the most significant of these elements required for physical collocation was provided by AT&T in its January 17, 2003 ex parte.

[23] Litespan-2000 documentation states that a 7-foot bay can accommodate four shelves of Litespan-2000 equipment. The first shelf would have to hold a common control assembly, the next three shelves could hold channel bank assemblies – each capable of supporting up to 224 lines. This yields a first bay capacity of 672 lines. *See* http://www.alcatel.com/doctypes/opgdatasheet/pdf/datasheet/lsp2000.pdf and DSC Practice, Litespan® General System Description, OSP 363-205-200, Issue 13, June 1998, Part 1 – Litespan-2000.

[24] AT&T January 17, 2003 ex parte.

require as much virtual collocation resource as is needed for just the DLC. Furthermore, SBC's assumption that CLECs will use virtual collocation imposes other costs that SBC does not account for. These include the CLEC's costs of (i) either maintaining its own remote monitoring and alarming equipment or paying SBC to perform this function; and (ii) paying SBC to train its central office personnel to provision, test and maintain its equipment, or to pay SBC to provide "escort" service if it wants its own technicians to perform these functions. Thus, without a more detailed accounting of what collocation resources SBC is including in its cost analysis, it is impossible to determine whether it has calculated correctly the complete virtual collocation costs that a CLEC would need to incur to use unbundled analog loops.[25]

In any event, there are several reasons why SBC's claimed "amortized monthly cost per line" figures for collocation are significantly understated – even if SBC has calculated correctly and fully incorporated total CLEC capital costs for a virtual collocation adequate to serve 250 or 500 lines.

First, SBC uses faulty financial assumptions to convert nonrecurring costs (NRCs) into an amortized monthly equivalent. SBC's cost of capital assumption for a CLEC is 12.19% -- barely above the 11.25% that the Commission ascribes to the ILECs. Given the substantially greater risks faced by new entrant CLECs (especially ones that must employ UNE-L rather than UNE-P), as well as the acknowledged scarcity of capital for competitors, a more appropriate CLEC cost of capital is at least 15%, and possibly much higher. This error alone causes SBC to underestimate collocation NRC costs by 11.5%. SBC also fails to account for income taxes that would have to be paid on the equity component of this return.[26] Assuming a composite federal, state and local income tax rate of 40% and a 60% equity component would raise calculated NRC costs by another 25%. Thus, accounting for taxes and a more realistic cost of capital would produce amortized monthly costs of NRCs that are about 36% higher than the levels calculated by SBC.

Second, SBC divides its calculated figures for per-month amortized NRCs and monthly recurring costs by the full line capacity of the facility (*e.g.*, 250 or 500 lines). This is valid only if a CLEC can run its collocation facilities at 100% of their capacity. In the real world, of course, this is nonsense. The collocation facilities SBC has costed are "lumpy." That is, they vary on a coarser than per-line basis (*i.e.*, per frame, per 10 amp fuse, etc.). Thus, unless a CLEC always has just enough customers to fill completely all of its leased facilities, a unit cost developed by dividing total costs by 100% of potential capacity will overstate, perhaps severely, the actual per-sold-customer line cost. Indeed,

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[25] To get a flavor for the variety and magnitude of the charges that ILECs impose for virtual collocation, it is useful to examine an ILEC virtual collocation tariff. Attached as an Exhibit to this filing is a copy of SBC's virtual collocation tariff for Missouri (accessed at: http://www.sbc.com/Large-Files/RIMS/Missouri/Local_Access/mo-la-03.pdf). This virtual collocation tariff was chosen because it has the most compact and readable format of the several that are available on SBC's website.

[26] It is possible that SBC's reasoning for ignoring income taxes is that it is assuming that CLECs will operate under 100% debt financing. Given the current unwillingness of the bond market to supply capital to the CLECs, this is fanciful.

even if a CLEC could control its customer counts in each ILEC LSO so as always to match exactly the facilities capacity it has in that LSO, it is still not possible to run a network at 100% of capacity. Spares must be available for maintenance and testing, and to accommodate ordinary customer churn. Such buffer needs typically limit effective to fill to 94%, and, indeed, the Commission's Synthesis model assumes that fill on DLC common equipment will be no higher than 82.5%. Accounting for this necessary but unsalable capacity would further increase SBC's estimates of per-line collocation costs.[27] Furthermore, SBC does not appear to include any costs that the CLEC might incur to operate and manage its virtual collocation facilities.

Thus, even assuming that SBC has included all of the virtual collocation resource costs that a CLEC would incur (and it seems likely that SBC has included only a *third* of these costs), just correcting SBC's procedures for translating these costs into amortized monthly per-line figures would raise SBC's stated figures by about 36%. And if SBC has under-resourced a CLEC's collocation requirements, the truly correct figure could be three times again higher.

Digital loop carrier costs - SBC states that the costs it presents for DLC are the EF&I cost of the hardware, software, cabling and wiring associated with GR-303 DLC concentration equipment employing a 4:1 concentration ratio. It also states that that these costs reflect the actual prices paid by SBC's own CLEC affiliate for similar equipment installed in virtual collocation space. And it claims the above capital costs amount to $50.38 per line ($0.77 per line per month on an amortized basis) for a 500 line facility and $84.98 per line ($1.30 per line per month on an amortized basis) for a 250 line facility.

These figures are extraordinarily low. First, these DLC capital costs do not appear to be consistent with prior figures SBC has advocated, and they are vastly lower than the costs assumed in the Commission's Synthesis model. On November 14, 2002 SBC submitted an *ex parte* communication in this docket that claimed the capital cost of a 100-line DLC system was $150/line, and implied that the cost of a 500 line system would be somewhat less, perhaps in the $100 range.[28] The figures that SBC provides here are only about half as large. Indeed, a 500-line DLC system is priced by the Commission's Synthesis model at between $200 and $275 per line in capital costs.[29] AT&T also believes that in the numerous state public utility commission meetings where SBC as advocated particular

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[27] AT&T is not aware of any regulatory proceeding in which SBC has advocated that per-line telecommunications costs be developed on the basis of 100% fill.

[28] *See* ex parte letter form Jan Bennett, SBC to Marlene Dortch, November 14, 2002.

[29] Because the Synthesis model assumes that DLCs are placed in remote terminals rather than located in central offices, a modest portion of total Synthesis model costs (attributable to the protective cabinet and a few other items) might be unnecessary in the current application. Unadjusted, the Synthesis model estimates the per-sold-customer line cost of a 500 line GR-303 DLC at about $275. Elimination of the unnecessary items in this cost estimate is not likely to reduce the implied cost below $200 to $225 per-sold-customer line. Indeed, just the per-line cost of DLC channel cards in the Synthesis model is $75 – already 50% higher than SBC's quote for a completely equipped DLC.

DLC costs, it has never proposed capital cost figures nearly as low as it has here. Even the HAI model -- a model that SBC has denigrated in every regulatory proceeding where it has been introduced -- would generate over $138 in per line capital investments for a 500-line DLC as costed by SBC. Because SBC does not provide any piece-by-piece accounting for its DLC costs, it is impossible to determine exactly the source of its error, but conservatively, SBC's estimate of DLC costs is no more than half of what a CLEC would need to spend for such equipment.

In any event, even if SBC were correct that DLC-specific capital costs are as inexpensive as it claims here, SBC's quoted figure understates the *total* capital costs of collocated CLEC equipment because it does not appear to account *at all* for the other equipment that a CLEC must collocate (*e.g*, DS0 POT panels, DSx-3 panels, etc.) in order to collect unbundled analog loops. Furthermore, SBC's conversion of these DLC and other capital costs into an amortized monthly per-line cost suffers from the same understatements (due to understated cost of capital, omission of taxes, failure to account for necessary underfill, etc.) that affect its development of virtual collocation costs.

Backhaul transport costs - SBC's calculation of backhaul transport cost is much more detailed than its development of other impairment costs. These figures are credible given the assumptions SBC has made (*e.g.*, 25 miles of DS1 transport, one LSR, etc.) about the character of facilities being acquired.

Hot cut costs - Although SBC's description of its hot cut capabilities is hyperbolic, its calculation of direct ILEC charges for hot cuts is reasonable.[30] AT&T does believe, however, that current inefficient ILEC hot cut practices will cause CLECs to incur internal costs that exceed $10/loop to coordinate and accept these cross-connects.

Summation of impairment costs - SBC appears to make a basic arithmetic error in summing a CLEC's individual impairment costs to calculate "Total CLEC Facility Expense" in its Attachment 6. In particular, SBC double-counts the cost of collocation by accounting for it in its own individual column, and then also adding its cost into the column listing GR-303 expense. This SBC arithmetic error explains why SBC's Attachment 6 shows different costs for DLC in different states – when these costs are not specific to any jurisdiction. This double-count error also infects SBC's "CLEC Margin Analysis" reported in Table A. In all of the subsequent analysis performed in this submission, AT&T corrects for the effects of this SBC arithmetic error.

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[30] AT&T strongly disagrees with SBC's self-assessment of its hot cuts capacities and quality. But since these issues are extraneous to the current exercise we will not address them here.

EXHIBIT

SBC-Missouri virtual collocation tariff attached and accessed via the internet at:

http://www.sbc.com/Large-Files/RIMS/Missouri/Local_Access/mo-la-03.pdf

INDEX

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION

1.0 GENERAL DESCRIPTION

This Section of the Access Service Tariff provides for Virtual Collocation for the purpose of interconnecting to SWBT for the transmission and routing of telephone exchange service and exchange access pursuant to 47 U.S.C. §251 (c)(2), and for access to SWBT's Unbundled Network Elements ("UNEs") pursuant to 47 U.S.C. §251 (c)(3) of the FTA 96 when the virtually collocated telecommunications equipment (hereafter referred to as equipment) is provided by the Collocator. In a Virtual Collocation arrangement, the Collocator designates the equipment to be placed at SWBTS's premised. The Collocator, however, does not have physical access to such premises. Instead, the equipment is under the physical control of SWBT, and SWBT is responsible for installing, maintaining and repairing such equipment, except where collocation is provided pursuant to the alternative virtual collocation attangement set forth in section 14.0. SWBT will offer Virtual Collocation even when physical collocation space is available.

Upon request from a collocator, SWBT will provide one of the following maintenance alternates for its virtual collocation offering:

(1) In all of SWBT's premises SWBT will offer virtual collocation wherein SWBT maintains and repairs the virtually collocated equipment consistent with the rates, terms and conditions as provided for in Paragraphs 1.1 through 13.4 of this tariff section.

(2) In CEVs, huts and cabinets where physical collocation space is not available, a Collocator may opt for virtual collocation wherein the Collocator maintains and repairs the virtually collocated equipment as described in Paragraph 14.0 following and consistent with the rates, terms and conditions as provided for throughout this entire tariff section. SWBT may at its option, elect to offer this maintenance alternative in one or more of its central offices, and in one or more of its CEVs, huts and cabinets where physical collocation space is available. As described in Paragraph 14.0, this maintenance alternative is contingent on the provision of a security escort paid for by the Collocator. In the event the FCC determines that SWBT may not require a security escort paid for by the Collocator, then this virtual collocation maintenance alternative as described in this Paragraph 1.0 (2) and in Paragraph 14.0 is null and void and all virtual collocation will be maintained as described in Paragraph 1.0 (1) above.

Virtual Collocation in the Central Office is available for interconnection with SWBT for the transmission and routing of telephone exchange service and exchange access as well as SWBT-provided UNEs. Virtual Collocation in CEVs, Huts and Cabinets is available for interconnection with SWBT-provided UNEs.

Rates for the individual UNEs the Collocator wants to gain access to for virtual collocation purposes can be found in the individual Collocator's Interconnection Agreement with SWBT.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

1.0 GENERAL DESCRIPTION (Continued)

SWBT will exercise physical control over any equipment deployed for the purpose of Virtual Collocation.

A description of the rate categories applicable to Virtual Collocation for the purpose of interconnecting to SWBT within SWBT's Central Offices is contained in 13.1 and 18.4, Rate Elements for SWBT Central Offices. A description of the rate categories applicable to Virtual Collocation for the purpose of interconnecting to SWBT within SWBT's CEVs, Huts and Cabinets is contained in 13.2, Rate Elements for SWBT CEVs, Huts and Cabinets.

1.1 Virtual Collocation for Interconnection to SWBT for the Transmission and Routing of Telephone Exchange Service and Exchange Access, and for Interconnection with SWBT-Provided UNEs when the Equipment is Provided by the Collocator.

Virtual Collocation provides for interconnection between SWBT and the facilities of a virtual Collocator and is available for the transmission and routing of telephone exchange service and exchange access in SWBT Central Offices and for interconnection with SWBT-provided UNEs in SWBT Central Offices and CEVs, Huts and Cabinets.

Virtual Collocation is available at SWBT wire centers as specified in the National Exchange Carrier Association, Inc., Tariff F.C.C. No. 4 and in SWBT CEVs, Huts and Cabinets. Upon request, SWBT will provide a listing of locations of SWBT CEVs, Huts or Cabinets.

The rate elements provided in this tariff section are required when Collocators use virtual collocation equipment to access UNEs. Such access is provided through cross connects purchased from the Collocator/SWBT Interconnection Agreement. Unbundled network elements including associated cross connects are obtained from the Interconnection Agreement between the Collocator and SWBT. Cross connects associated with UNEs establish the circuit between the virtually collocated equipment and these cross connects are the point at which services provided and purchased from the SWBT/Collocator Interconnection Agreement begin. Virtually collocated equipment is available as follows:

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

1.0 GENERAL DESCRIPTION (Continued)

Virtual Collocation for Interconnection to SWBT for the Transmission and Routing of Telephone Exchange Service and Exchange Access, and for Interconnection with SWBT-Provided UNEs when the Equipment is Provided by the Collocator. (Continued)

(A) A Collocator shall purchase from the vendor the equipment to be virtually collocated subject to the provisions as set forth in 1.1 (B) below and the equipment conforming to industry safety standards as described in SWBT's Technical Publication.

The Collocator may locate all equipment necessary for interconnection to SWBT under 47.U.S.C. 251 (C) (2) or accessing SWBT's unbundled network elements under 47.U.S.C. 251 (C) (3) of the FTA 96. In addition, SWBT currently will permit the collocation of DSLAMs, routers, ATM multiplexers, remote switching modules, and certain other equipment, the types of which and conditions upon which such will be permitted must be mutually agreed upon by SWBT and Collocator, in SWBT Eligible Structures. This tariff does not constitute, and shall not be asserted to constitute, an admission or waiver by any party of any rights, remedies or arguments with respect to the issue of what types of equipment Collocators may place in SWBT's premises or any other issue whatsoever before the Missouri Public Service Commission, the Federal Communications Commission, or any other regulatory body or state or federal court. The collocator will certify in writing to SWBT that the equipment is necessary for interconnection or access to unbundled network elements. In the event that SWBT believes that the collocated equipment is not of a type that is necessary for interconnection or access to unbundled network elements, is not of a type that SWBT permits as referenced above, or will not be or is not being used for interconnection or access to unbundled network elements, SWBT shall notify the Collocator and provide Collocator with ten (10) days to respond. In the event SWBT believes that the collocated equipment is not necessary for interconnection or access to unbundled network elements or determines that the Collocator's equipment does not meet Bellcore NEBS Level 1 Safety requirements, the Collocator will be given ten (10) business days to comply with the requirements or remove the equipment from the collocation space. If the parties do not resolve the dispute, SWBT or Collocator may file a complaint at the Commission seeking a formal resolution of the dispute. If it is determined that the Collocator's equipment is not Bellcore NEBS Level 1 Safety compliant, the Collocator will be responsible for removal of the equipment and all resulting damages.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

1.0 GENERAL DESCRIPTION (Continued)

1.1 Virtual Collocation for Interconnection to SWBT for the Transmission and Routing of Telephone Exchange Service and Exchange Access, and for Interconnection with SWBT-Provided UNEs when the Equipment is Provided by the Collocator. (Continued)

(B) Regarding safety, Collocator equipment or operating practices representing a significant demonstrable technical or physical threat to SWBT's personnel, network or facilities, including the Eligible Structure, or those of others are strictly prohibited. Regarding safety, and notwithstanding any other provision hereof, the characteristics and methods of operation of any equipment or facilities placed in the virtual collocation space shall not create hazards for or cause damage to those facilities, the virtual collocation space, or the Eligible Structure in which the virtual collocation space is located; impair the privacy of any communications carried in, from, or through the Eligible Structure in which the virtual collocation space is located; or create hazards or cause physical harm to any individual or the public. Any of the foregoing would be in violation of this tariff.

SWBT requires that all equipment to be collocated in SWBT's Eligible Structures meet Level 1 safety requirements as set forth in Bellcore Network Equipment - Building Systems (NEBS), but SWBT may not impose safety requirements on the Collocators that are more stringent than the safety requirements it imposes on its own equipment. SWBT may not deny collocation of Collocator's equipment because the equipment fails to meet Bellcore NEBS reliability standards. SWBT will publish, at least quarterly, a list of all network equipment installed within the network areas of its facilities within the previous twelve (12) months that fails to meet the Level 1 Safety requirements of Bellcore NEBS, and update the list as needed to keep it current. In the event that SWBT believes that the collocated equipment is not necessary for interconnection or access to unbundled network elements or determines that the Collocator's equipment does not meet Bellcore NEBS Level 1 Safety requirements, the Collocator will be given ten (10) business days to comply with the requirements or remove the equipment from the collocation space. If the parties do not resolve the dispute, SWBT or Collocator may file a complaint at the Commission seeking a formal resolution of the dispute. If it is determined that the Collocator's equipment is not Bellcore NEBS Level 1 Safety compliant, the Collocator will be responsible for removal of the equipment and all resulting damages.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

1.0 GENERAL DESCRIPTION (Continued)

1.1 Virtual Collocation for Interconnection to SWBT for the Transmission and Routing of Telephone Exchange Service and Exchange Access, and for Interconnection with SWBT-Provided UNEs when the Equipment is Provided by the Collocator. (Continued)

(C) A Collocator may arrange for a mutually agreed upon vendor/contractor to engineer and install the virtually collocated equipment the Collocator purchases and the Collocator may pay the vendor/contractor directly. The installation contractor and their activity will be under the direction and control of Collocator who will ensure that the installation contractor meets all standards and requirements for installation of equipment, as required under this Tariff. If SWBT chooses to have its personnel present when the CLEC equipment is installed, then SWBT's presence will be at its own expense. However, if SWBT demonstrates that the CLEC contractor has or would have violated any standard or requirement for installation of equipment, as required under this tariff, the CLEC is responsible for the quantifiable expense incurred by SWBT.

1.2 Federal Telecommunictions Act of 1996

SWBT provides virtual collocation for interconnection to SWBT for the transmission and routing of telephone exchange service and exchange access pursuant to 47 U.S.C. §251(c)(2), and for access to SWBT's unbundled network elements pursuant to 47 U.S.C. §251(c)(3).

The use of virtual collocation for (1) interconnection to SWBT or (2) access to SWBT's unbundled network elements, in either case pursuant to 47 U.S.C. §251(c), is available at SWBT wire centers as specified in the National Exchange Carrier Association, Inc., Tariff F.C.C. No. 4, and in SWBT CEVs, Huts and Cabinets.

2.0 PROVISIONING

Virtual collocation for Interconnection to SWBT or access to SWBT-provided UNEs is ordered as set forth in SWBT's Interconnector's Collocation Services Handbook for Virtual Collocation in Missouri. SWBT will designate the location or locations within its wire centers, CEVs, Huts and Cabinets for the placement of all equipment and facilities associated with virtual collocation. Virtual collocation does not involve the reservation of segregated central office or CEV, Hut and Cabinet space for the use of Collocators.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

2.0 PROVISIONING (continued)

Virtual Collocation is available for the direct connection of one Collocator-provided facility to a different interconnected provided facility within the same SWBT wire center, CEV, Hut or Cabinet provided the Collocator is interconnected with SWBT's network.

SWBT will provide Virtual Collocation for comparable equipment as it provides to itself in the central office, wire center, CEV, Hut or Cabinet, as the case may be.

3.0 COLLOCATOR RESPONSIBILITIES

The customer will provide, under this section of the tariff, at its expense, all facilities and equipment required to facilitate interconnection and access to SWBT UNEs. The customer will, at its expense, provide the following:

- All plug-ins and/or circuit packs (working, spare, and replacements),
- All unique tools and test equipment,
- Any ancillary equipment and cabling used for remote monitoring and control,
- Any technical publications and updates associated with all Collocator-owned and provided equipment,
- All training as described in Section 13.1(Q),

The Collocator will provide, at its expense, replacements for any recalled, obsolete, defective or damaged facilities, equipment, plug-ins, circuit packs, unique tools, test equipment, or any other item or material provided by the Collocator for placement in/on SWBT property. Suitable replacements are to be immediately provided to SWBT to restore equipment.

The Collocator will provide at least the minimum number of usable equipment spares specified by the manufacturer. Replacements must be delivered to the SWBT central office using the equipment spare within five (5) days of notification that a spare was used or tested defective.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

4.0 COOPERATIVE RESPONSIBILITIES

SWBT will work cooperatively with the Collocator to develop implementation plans including timelines associated with:

- Placement of Collocator's fiber into the central office vault,
- Location and completion of all splicing,
- Completion of installation of equipment and facilities,
- Removal of above facilities and equipment,
- To the extent known, the Collocator can provide forecasted information to SWBT on anticipated additional Virtual Collocation requirements,
- To the extent known, the Collocator is encouraged to provide SWBT with a listing of the equipment types that they plan to virtually collocate in SWBT central offices or CEVs, Huts and Cabinets. This cooperative effort will insure that SWBT personnel are properly trained on Collocator equipment.

5.0 INTERVALS AND PROVISIONING

5.1 Quote Intervals

In responding to an application request, SWBT shall provide the quotation of the applicable nonrecurring and recurring tariff rates, and the estimated construction interval no later than as specified below. The Collocator has forty-five (45) business days from receipt of the quotation to accept the quotation. The quotation expires after forty-five (45) business days. After forty-five (45) business days, a new application and application fee are required.

Price quote intervals are as follows and will run concurrent with the ten (10) day notification interval for availability of virtual collocation interconnection:

Number of Applications by One Collocator	Quotation Interval
1- 5	10 Business Days
6-20	25 Business Days

Should the Collocator submit twenty-one (21) or more applications within five (5) business days, the quotation interval will be increased by five (5) business days for every five (5) additional applications or fraction thereof. Any material revision to an application will be treated as a new application and will be subject to the time intervals set forth above.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

5.0 INTERVALS AND PROVISIONING (Continued)

5.1 Quote Intervals (Continued)

A Collocator may obtain a shorter interval for the return of price quotes for virtual collocation arrangements when submitting 6 or more applications if the Collocator files complete applications, including identification of specific rate elements and the applicable rates contained in this tariff, the exact quantity of the rate elements, and an up-front payment of the nonrecurring application fee from, paragraph 13.1 of this Tariff and schedules a meeting with SWBT at least twenty (20) business days prior to submission of the first application to discuss, coordinate and prioritize the Collocator applications. In addition, the applications must include an accurate front equipment view (a.k.a. rack elevation drawing) specifying bay(s) for the Collocator's point of termination. The shortened intervals are:

Number of Applications by One Collocator	Quotation Interval
1-5	10 Business Days
6-20	20 Business Days

Should the Collocator submit twenty-one (21) or more applications within five (5) business days, the quotation interval will be increased by five (5) business days for every five (5) additional applications or fraction thereof. Any material revision to an application will be treated as a new application and will be subject to the time intervals set forth above.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

5.0 INTERVALS AND PROVISIONING (Continued)

5.1 Quote Intervals (Continued)

Once SWBT has completed its review of the virtual collocation application form inquiry, the entire completed quote package will be forwarded to the potential interconnector in writing with a cover letter. The interconnector has 45 days to remit a signed confirmation form along with a check for 50% of all the applicable nonrecurring charges.

If the interconnector fails to respond within the 45-day interval, should the interconnector decide at a later time to proceed with virtual collocation, a new application and Planning Fee will be required.

5.2 Implementation Intervals

A virtual collocation arrangement is not reserved until the quotation is accepted. When the quotation is accepted, unless otherwise mutually agreed to by the Parties in writing, SWBT will allow the Collocator's vendor to begin equipment installation no later than 90 days from acceptance of the quotation. The virtual collocation interval ends when roughed in, unterminated DC power and interconnection cabling is provided to the virtual collocation area.

The construction intervals for virtual collocation arrangements are noted in Table 2-1. For Virtual Collocation in Active Collocation Space where the Collocator is requesting maximum DC Power of 50 amps, either in a single or in multiple feeds of 50 amps (maximum 50 amps per feed), the Virtual Collocation construction intervals remain as stated below. For Virtual Collocation in Active Collocation Space where a Collocator is requesting DC Power that exceeds 50 amps from a single source (e.g., 100 amps) per feed, the construction interval is 90 days. These same construction intervals apply for virtual collocation in Eligible Structures such as CEVs (Vaults), Huts and Cabinets.

When the quotation is accepted, unless otherwise mutually agreed to by the Parties in writing, the construction intervals for virtual are as follows:

Type	Description	Interval	Exception
Virtual	Active collocation space	70 days	With SWBT installation of bays/racks/frames
Virtual	Active collocation space	55 days	With CLEC installation of bays/racks/frames

Table 2-1

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

5.0 INTERVALS AND PROVISIONING (Continued)

5.2 Implementation Intervals (continued)

Virtual collocation space is not reserved until the quotation is accepted. When the quotation is accepted unless otherwise mutually agreed to by the Parties in writing, SWBT will complete construction of Active Collocation Space requests for virtual collocation in 55 days from the receipt of the Collocator's acceptance of the quotation where power is available and the Collocator is installing all of its own bays. The virtual collocation construction interval ends when roughed in, unterminated DC power and interconnection cabling is provided to the collocation area. SWBT will complete construction of Active Collocation Space requests for virtual collocation in 70 days from the receipt of the Collocator's acceptance of the quotation where SWBT will be installing all or some of the bays. SWBT considers power to be available if sufficient power plant capacity exists, the BDFB (if used) is within 100 feet of the Collocator's space and sufficient termination capacity on the power plant and/or BDFB exists.

If a completion date outside the time period required herein is not agreed to by the parties, the issue may be presented by either party to the Missouri Public Service Commission for determination

5.3 Installation of Virtual Collocation Equipment

SWBT does not assume any responsibility for the design, engineering, testing, or performance of the end-to-end connection of the Collocator's equipment, arrangement, or facilities.

SWBT will be responsible for using the same engineering practices as it does for its own similar equipment in determining the placement of equipment and engineering routes for all connecting cabling between collocation equipment.

In this arrangement, telecommunications equipment (hereafter referred to as equipment) is furnished by the CLEC and engineered and installed by a mutually agreed upon vendor for the Collocator. The Collocator will have the authority to select installation vendors. All installations of equipment will be in accordance with the Collocator-provided installation design and must comply with manufacturer's specifications and applicable published national standards approved by the FCC, and other governmental authorities that have jurisdiction.

The Collocator and SWBT must jointly accept the installation of the equipment and facilities prior to the installation of any services using the equipment. As part of this acceptance, SWBT will cooperatively test the collocated equipment and facilities with the Collocator.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

5.0 INTERVALS AND PROVISIONING (Continued)

5.3 Installation of Virtual Collocation Equipment (continued)

SWBT will provide TIRKS and/or SWITCH print out of actual point of termination/connection facilities assignment (APOT/CFA) to CLEC's at collocation space turnover. This information is used to request access and line sharing services. The CLEC is responsible for payment of all non-recurring charges, where applicable, prior to receiving APOT/CFA information.

5.4 Revisions

All Revisions to an initial request for a virtual collocation arrangement submitted by the Collocator must be in writing via a new application form.

Major Revisions:

Major revisions include:

- adding telecommunications equipment that requires additional electrical power
- accelerating the project schedule
- adding additional Collocator bays or equipment that impact the existing/proposed floor-space area provided to the Collocator in their quote package.

If the revision is major, a new interval for the virtual collocation arrangement will be established which shall not exceed two months.

Minor Revisions

Minor revisions include:

- adding bays of equipment that do not significantly impact the existing/proposed electrical systems
- adding light fixtures and outlets which do not exceed the capacity of the existing/proposed electrical system
- adjustments to the heat release projection which do not cause a change in the proposed/existing mechanical system

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

5.0 INTERVALS AND PROVISIONING (Continued)

5.4 Revisions (Continued)

However, minor revisions will not require that a new interval be established. No additional application fees shall be applicable if the revision is minor.

This list is not all-inclusive. Any revisions to the Collocators application not specified above must be reviewed by SWBT to determine whether the revision is major or minor.

5.5 Augments

In order to request an augment, the Collocator must submit a Virtual Collocation Application Form to SWBT Collocation Service Center (CSC) indicating in Section 3 of the application that this is an "Augmentation to an Existing Arrangement." The price quote will contain the charges and the construction interval for that application.

SWBT will work cooperatively with Collocators to negotiate mutually agreeable implementation intervals for augments.

6.0 EQUIPMENT PROVISIONING

The Collocator will arrange to deliver to the SWBT central office where the equipment is located a reasonable number, as recommended by the manufacturer, of all appropriate plug-ins, circuit packs and cards and any other equipment, plus all necessary circuit design and provisioning information on an agreed-upon date which is no later than two (2) business days prior to the scheduled turn-up of the Collocator's equipment.

For the disconnection of circuits, the Collocator will provide all circuit information no later than two (2) business days prior to the scheduled disconnection of the Collocator's circuit.

SWBT does not assume any responsibility for the design, engineering, testing, or performance of the end-to-end connection of the Collocator's circuits.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

7.0 REPAIR OF EQUIPMENT

Except in emergency situations, the Collocator-owned fiber optic facilities and central office terminating equipment will be repaired only upon the request of the customer. In an emergency, SWBT may perform necessary repairs without prior notification. The labor rates specified in Section 13.3(R) apply to SWBT central offices and SWBT CEVs, Huts and Cabinets and are applicable for all repairs performed by SWBT on the Collocator's facilities and equipment.

When initiating repair requests on Collocator owned equipment, the Collocator must provide SWBT with the location and identification of the equipment and a detailed description of the trouble.

Upon notification by the Collocator and availability of spare parts as provided by the Collocator, SWBT will be responsible for repairing the Virtually Collocated equipment at the same standards that it repairs its own equipment.

8.0 MAINTENANCE OF EQUIPMENT

The Collocator will request any and all maintenance by SWBT on its Virtually Collocated facilities or equipment. When initiating requests for maintenance on collocated equipment, the Collocator must provide SWBT with the location and identification of the equipment and a detailed description of the maintenance requested.

Upon notification by the Collocator and availability of spare parts as provided by the Collocator, SWBT will be responsible for maintaining the Virtually Collocated equipment at the same standards that it maintains its own equipment.

9.0 ALARM COLLECTION

The Collocator has the ability to purchase its own remote monitoring and alarming equipment. If the Collocator prefers SWBT to perform this function, it may elect to provision this arrangement under Section 25.5.1(A) of the FCC 73 Access Service Tariff. If the Collocator purchases this equipment, it must be identical to equipment specified in Section 25.5.1 of the FCC 73 Access Service Tariff.

Since the maintenance of the Collocator's equipment is at the direction and control of the Collocator, SWBT will not be responsible for responding to alarms and will only conduct maintenance and repair activities at the direction of the Collocator.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

10.0 TERMINATION OF VIRTUAL COLLOCATION

Upon termination of the Virtual Collocation arrangement, the Collocator will work cooperatively with SWBT to remove the Collocator's equipment and facilities from SWBT property subject to the condition that the removal of such equipment can be accomplished without damaging or endangering other equipment located in the central office. SWBT is not responsible for and will not guarantee the condition of such equipment. The Collocator is responsible for arranging for and paying for the removal of virtually collocated equipment including all costs associated with equipment removal, packing and shipping. Arrangements for and the removal of the Collocator virtually collocated equipment must be made within 30 business days after termination of the virtual collocation arrangement, unless a different time period is mutually agreed upon. SWBT shall be responsible for exercising reasonable caution when removing virtually collocated equipment. SWBT will only be responsible for damage done to such equipment caused by gross negligence on the part of SWBT or its contractors during the removal process. However, Collocators will indemnify and hold SWBT harmless for any damage done to virtually collocated equipment if SWBT permits the Collocator to hire a SWBT approved contractor to remove virtually collocated equipment. Any equipment not removed in this time frame may be removed by SWBT and stored in a non-SWBT location, at the expense of the Collocator.

Upon termination of the Virtual Collocation, the Collocator must remove the fiber entrance cable used for the Virtual Collocation. If the entrance cable is not scheduled for removal within seven (7) days, SWBT may arrange for the removal, and the Collocator will be responsible for any charges incurred to remove the cable. SWBT and the Collocator will cooperatively manage the removal process. The Collocator is only responsible for physically removing entrance cables housed in conduits or inner-ducts and will only be required to do so when SWBT instructs the Collocator that such removal can be accomplished without damaging or endangering other cables contained in a common duct or other equipment residing in the central office.

11.0 REVISIONS

Any revision to SWBT's Interconnector's Collocation Services Handbook for Virtual Collocation in Missouri, or its Technical Publication TP 76300MP, shall become effective and thereafter applicable under this tariff forty five (45) business days after such revision is released by SWBT except for those particular revisions to which the Collocator specifically objects within thirty (30) business days of receipt, providing an explanation for each objection. Upon each such objections, SWBT and the Collocator shall attempt to negotiate a resolution, either party may request resolution by the Missouri Public Service Commission. Any revision made to address potentially harmful situations shall become effective and applicable immediately, pending resolution of the objections by the Missouri Public Service Commission.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

12.0 DISPUTE RESOLUTION PROCESS FOR REVISIONS OR IMPLEMENTATION OF TECHNICAL PUBLICATIONS

Disputes that cannot be resolved by the parties regarding revisions to or implementation of SWBT technical publications that apply to virtual collocation arrangements will be resolved by use of (1) mediation, (2) any dispute resolution process promulgated by the Commission, or (3) any other method mutually agreed to by the parties. Either party may use any of these options to obtain a resolution of the dispute.

13.0 RATE REGULATIONS

This section contains specific regulations governing the rates and charges that apply to Virtual Collocation for the purpose of interconnecting to SWBT and for Access to SWBT provided UNEs when the Collocator provides the equipment.

There are two types of rates and charges that apply to the various rate elements for Virtual Collocation for interconnecting to SWBT and for Access to SWBT provided UNEs. These are non-recurring charges and monthly recurring rates.

Rates and charges specific to Virtual Collocation for interconnection with SWBT for the transmission and routing of telephone exchange service and exchange access, and for access to SWBT provided UNEs in SWBT Central Offices are set forth in 13.3. Rates and charges specific to Virtual Collocation for access to SWBT provided UNEs in SWBT CEVs, Huts and Cabinets are set forth in 13.4.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

13.0 RATE REGULATIONS (Continued)

13.1 Rate Elements for SWBT Central Offices

Consistent with provisions in Section 1.1, the following provides a list of the specific rate elements for virtual collocation for interconnection with SWBT for the transmission and routing of telephone exchange service and exchange access, and for access to SWBT provided UNEs to be used in conjunction with virtual collocation in SWBT Central Offices. Charges applicable to virtual collocation other than those listed below are listed in Section 25 of the FCC 73 Access Service Tariff (Expanded Interconnection).

(A) Planning

(1) Planning Fee

The planning fee recovers SWBT costs incurred to estimate the quotation of charges, project management costs, engineering costs, and other related planning activities for the Collocator's request for a virtual collocation arrangement. The planning fee also provides for SWBT personnel to survey each requested location for availability of space for the placement of entrance cables as well as to determine floor space to physically place Collocator-designated equipment expressed as a non-recurring charge. The planning fee is applied on an initial and subsequent basis. The initial charge will apply to the Collocator's request for a virtual collocation arrangement or the addition of cable. The subsequent planning charge will apply to any additional interconnection or power arrangements, connected to existing virtual collocated equipment. Charges for this sub-element are specified in 13.3(A)(1).

(B) Floor Space

This sub-element provides for the "occupancy" cost per bay framework associated with using the floor space in SWBT central offices expressed as a monthly rate. Charges for this sub-element are specified in 13.3(B). In those cases where an individual relay rack and its associated floor space are shared by SWBT and the Collocator or among Collocators, the floor space and relay rack associated will be apportioned on a quarter rack basis.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

13.0 RATE REGULATIONS (Continued)

13.1 Rate Elements for SWBT Central Offices (Continued)

(C) Relay Rack (Optional)

This sub-element provides the cost per Standard Bay relay rack when provided by SWBT expressed as a monthly rate. SWBT's Standard Bay dimensions are 7'-0" high, and have a 23" interior width, 26" exterior width, and up to 15" deep. Charges for this sub-element are specified in 13.3(C). In those cases where an individual relay rack and associated floor space are shared by SWBT and the Collocator or among Collocators, the floor space and relay rack associated will be apportioned on a quarter rack basis. When the standard bay relay rack is provided by the Collocator this rate element will not apply.

(D) Common Systems Materials

This sub-element provides the infrastructure installation and maintenance of ironwork, racking, and lighting above the equipment bays. Charges for this sub-element are specified in 13.3(D). The common systems sub-element is distinct for standard and non-standard frames. In those cases where common systems materials for an individual relay rack and associated floor space are shared with the Collocator or among Collocators, the common systems materials for the floor space and relay rack associated will be apportioned on a quarter rack basis.

(E) Real Estate

These rate elements provide for SWBT to recover the costs associated with preparing the Eligible Structure for telecommunications equipment (Site Conditioning) and securing this space (Safety & Security). Charges for these sub-elements are specified in 13.3(E).

(1) Site Conditioning

Permits SWBT to recover cost associated with preparing space within the Eligible Structure for telecommunications equipment. The nonrecurring charge for this sub-element is specified in 13.3(E)(1).

(2) Safety & Security

Permits SWBT to recover costs associated with securing the telecommunications area used for Virtual Collocation. The nonrecurring charge for this sub-element is specified in 13.3(E).

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

13.0 RATE REGULATIONS (Continued)

13.1 Rate Elements for SWBT Central Offices (Continued)

(F) Entrance Fiber

This sub-element provides for SWBT pulling and splicing fiber cable between the manhole and cable vault, and the subsequent routing of fiber riser cable between the cable vault and FDF. (Note: Virtually Collocated Equipment may also be connected to dedicated transport facilities provided as Unbundled Network Elements in lieu the entrance fiber. When Virtually Collocated Equipment is connected to dedicated transport facilities in lieu of the entrance fiber, the terms, conditions and charges for such dedicated transport facilities are pursuant to the Collocator/SWBT Interconnection Agreement. No recurring or non-recurring charges for dedicated transport facilities provided as used are applicable pursuant to this Tariff). Charges for this rate element are in 13.3(F)(1).

(1) Entrance Conduit

This sub-element represents any reinforced passage or opening in, on, under, over or through the ground between the first manhole and the cable vault through which the fiber optic cable is placed. Charges for this sub-element are specified in 13.3(F)(2).

(G) Power Arrangement

This sub-element is the cable and cable rack including support and fabrication material necessary to support the virtually collocated equipment expressed as a monthly rate for either 2-20 AMP feeds or 2-50 AMP feeds. Fuse panels necessary for terminating power feeds are provided by the Collocator. In the event that a Collocator requires a power arrangement that exceeds 50 AMPS from a single source, SWBT will cooperatively work with the Collocator using comparable rate elements as the basis for such arrangements. Cable sizing is based on list 2 design loads. Charges for this sub-element are specified in 13.3(G)(1-2).

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

13.0 RATE REGULATIONS (Continued)

13.1 Rate Elements for SWBT Central Offices (Continued)

(H) Power Consumption

(1) D.C. Power Per AMP

The DC power charge consists of use of the DC power system, with AC input and AC backup for redundant power expressed as a monthly rate. This rate element also includes the AC Power Usage to provide DC power to the virtually collocated equipment. DC Power Charge is on a per amp basis. Charges for this sub-element are specified in 13.3(H)(1).

(2) Heating, Ventilating, and Air Conditioning (HVAC)

This sub-element consists of the elements necessary to provide HVAC within the Eligible Structure to the collocation arrangement and is based on the heat dissipation required for each 10 amps of DC power. Charges for this sub-element are specified in 13.3(H)(2).

(3) Ground Cable Arrangement

The Ground Cable is the cabling arrangement designed to provide grounding for equipment per frame expressed as a monthly rate. Separate Ground Cable Arrangements are required for Integrated and Isolated Ground Planes. Charges for this sub-element are specified in 13.3(H)(3).

(I) Voice Grade Interconnection Arrangement

This sub-element provides for the cost associated with providing 100 voice grade pairs Non-shielded or Shielded between the SWBT Distributing Frame and the virtually collocated equipment expressed as a combination of a non-recurring charge and a monthly rate. Charges for this sub-element are specified in 13.3(I).

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

13.0 RATE REGULATIONS (Continued)

13.1 Rate Elements for SWBT Central Offices (Continued)

(J) DS-1 Interconnection Arrangement to DCS

This sub-element provides for the cost associated with providing 28 DS-1 circuits between SWBT DCS functionality purchased from the Collocators interconnection agreement and the virtually collocated equipment expressed as a combination of a non-recurring charge and a monthly rate. Charges for this sub-element are specified in 13.3(J). This includes the DS1-Port connecting to the virtual collocation arrangement.

(K) DS-1 Interconnection Arrangement to DSX

This sub-element provides for the cost associated with providing 28 DS-1 circuits between SWBT's DSX functionality purchased from the Collocators interconnection agreement and the virtually collocated equipment expressed as a combination of a non-recurring charge and a monthly rate. Charges for this sub-element are specified in 13.3(K).

(L) DS-3 Interconnection Arrangement to DCS

This sub-element provides for the cost associated with providing one DS-3 circuit between SWBT's DCS functionality purchased from the Collocators interconnection agreement and the virtually collocated equipment expressed as a combination of a non-recurring charge and a monthly rate. Charges for this sub-element are specified in 13.3(L).

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

13.0 RATE REGULATIONS (Continued)

13.1 Rate Elements for SWBT Central Offices (Continued)

(M) DS-3 Interconnection Arrangement to DSX

This sub-element provides for the cost associated with providing one DS-3 circuit between SWBT's DSX functionality purchased from the Collocators interconnection agreement and the virtually collocated equipment expressed as a combination of a non-recurring charge and a monthly rate. Charges for this sub-element are specified in 13.3(M).

(N) Fiber Interconnection Arrangement

This sub-element provides for the cost associated with providing 12 fibers between SWBT's FDF and the virtually collocated equipment expressed as a combination of a non-recurring charge and a monthly rate. Charges for this sub-element are specified in 13.3(N).

(O) Collocation to Collocation Connection

This rate element includes virtual to virtual and virtual to physical connection options.

(1) Fiber Cable (12 Fibers)

This sub-element provides for direct cabling using fiber cable (12 fibers) between two collocation arrangements at an Eligible Structure. This sub-element is expressed as a combination of a non-recurring charge and a monthly rate and these charges are specified in 13.3(O)(1).

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

13.0 RATE REGULATIONS (Continued)

13.1 Rate Elements for SWBT Central Offices (Continued)

(O) Collocation to Collocation Connection (continued)

(2) Copper Cable (28 DS1s)

This sub-element provides for direct cabling using copper cable (28 DS1s) between two collocation arrangements at an Eligible Structure. This sub-element is expressed as a combination of a non-recurring charge and a monthly rate and these charges are specified in 13.3.(O)(2).

(3) Coax Cable (1 DS3)

This sub-element provides for direct cabling using coaxial cable (1 DS3) between two collocation arrangements at an Eligible Structure. This sub-element is expressed as a combination of a non-recurring charge and a monthly rate and these charges are specified in 13.3(O)(3).

(4) Cable Racking and Hole

This sub-element provides for cable rack space and hole for copper, coax and optical cabling between two virtual collocation arrangements at an Eligible Structure. This sub-element is expressed as a monthly rate and in 13.3(O)(4).

(5) Route Design

This sub-element provides the route design for collocation connections. This sub-element is expressed as a non-recurring charge and this charge is specific in 13.3(O)(5).

(P) Timing Source Arrangement (Optional)

An SWBT provided single signal from the SWBT timing source to provide synchronization between a Collocator's single network element and SWBT's equipment expressed as a recurring and non-recurring rate. Charges for this sub-element, if requested by the Collocator, are specified in 13.3(P).

VIRTUAL COLLOCATION (Continued)

13.0 RATE REGULATIONS (Continued)

13.1 Rate Elements for SWBT Central Offices (Continued)

(Q) Training

SWBT is responsible for determining when training is necessary and how many SWBT employees require training to provide 24 hour a day, seven day a week coverage for the installation, maintenance and repair of Collocator's designated equipment not currently used in a wire center selected by the Collocator for virtual collocation. SWBT will be limited to request training for four (4) SWBT personnel per location, unless a different number is mutually agreed upon by SWBT and Collocator.

If the Collocator does not have SWBT coordinate the required training, the Collocator may assume the responsibility for providing the training. It is then the responsibility of the Collocator to:

(1) arrange and pay to the supplier all costs for training sessions, including, the cost of the trainer(s), transportation and lodging of such trainer(s), and required course material, and

(2) arrange and pay to each individual supplier all costs associated with lodging and other than local transportation, such as airfare, required for SWBT employee training.

(3) arrange and pay all costs associated with SWBT's employee(s) attendance at the training, including, lodging and other than local transportation, such as airfare, and employee(s) labor rate for time away from the job, required for SWBT employee training.

SWBT will work cooperatively with the Collocator to schedule SWBT personnel training time required for the installation, maintenance and repair of the Collocator's designated equipment. The Collocator will be assessed two hours of the technician additional labor charge for SWBT personnel time required to coordinate training activities with the Collocator. The Collocator will be responsible for reimbursement of applicable SWBT contractual compensation obligations for time spent as a result of the necessary training. All other charges, if applicable, specified in 13.3(Q)(Training) will be assessed to the Collocator.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

13.0 RATE REGULATIONS (Continued)

13.1 Rate Elements for SWBT Central Offices (Continued)

(R) Maintenance and Repair Labor Rates

(1) Maintenance of Equipment

This rate element is a labor rate charged by SWBT to the Collocator for ongoing maintenance of the Collocator's equipment. Any maintenance requirements will be initiated by the Collocator. Labor rates are based upon a ¼ hour basis and are dependent upon day of week and time of day. For purposes of this Tariff, normal week day is defined as 8:00 a.m. through 5:00 p.m., Monday through Friday, excluding holidays. Non-recurring charges for this sub-element are specified in 13.3(R).

(2) Repair of Equipment

This rate element is a labor rate charged by SWBT to the Collocator for repair of the Collocator's equipment. All repair will be at the direction of the Collocator.

Labor rates are based upon a charge for Network Operations Center (NOC) personnel to take the trouble report, create a trouble ticket, and dispatch a technician. Labor rates for actual repair of the trouble are based upon a 1/4 hour basis and are dependent upon day of week and time of day. For purposes of this Tariff, normal week-day is defined as 8:00 a.m. through 5:00 p.m., Monday through Friday excluding holidays. Non-recurring charges for this sub-element are specified in 13.3(R).

(S) Equipment Evaluation Cost

This rate element is a labor rate charged by SWBT to the Collocator for evaluating the Collocator's equipment when not meeting Level 1 Safety requirements as set forth in Bellcore Network Equipment - Building System (NEBS). Charges for this element is specififed in 13.3(S).

(T) Test and Acceptance

This rate element is a labor rate charged by SWBT to the Collocator for cooperative assisting the Collocator's approved vendor in testing and accepting the installed virtually collocated equipment. Charges for this element are specified in 13.3(T).

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

13.0 RATE REGULATIONS (Continued)

13.2 Rate Elements for SWBT CEVs, Huts and Cabinets

The following provides a list of the specific rate elements for virtual collocation for access to SWBT provided UNEs in SWBT CEVs, Huts and Cabinets. Charges applicable to virtual collocation in these structures other than those specified below are listed in Section 25 of the FCC 73 Access Service Tariff.

(A) Entrance Cable Fiber

This sub-element provides for the engineering of a point of appearance cable termination, preparation of work order drawings, postings of the work order and cable data in the appropriate databases for inventory and provisioning purposes, excavation to expose existing subsurface facilities, pulling the Collocator-provided cable into the eligible structure, routing, securing and preparing the end for splicing or termination. Charges for this sub-element are expressed as a non-recurring charge and can be found in 13.4(A).

(B) Entrance Conduit

Any reinforced passage or opening placed for the Collocator provided facility in, on, under/over or through the ground between the SWBT CEV, Hut, or Cabinet and the Collocator structure. Rates and charges are as found in Paragraph 13.4(B) following.

(C) Power Consumption

This sub-element provides for the use of power in the Hut, CEV, or Cabinet based on the amount of mounting space that is used by the Collocator as measured in 2-inch increments. Charges for this sub-element are expressed as a recurring charge and can be found in 13.4(C).

(D) 24-Foot CEV

This sub-element provides the use of mounting space within a 24-Foot CEV. This element is expressed as a monthly rate. The charges for this sub-element is specified in 13.4(D).

(E) 16-Foot CEV

This sub-element provides the use of mounting space within a 16-Foot CEV. This element is expressed as a monthly rate. The charge for this sub-element is specified in 13.4(E).

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

13.0 RATE REGULATIONS (Continued)

13.2 Rate Elements for SWBT CEVs, Huts and Cabinets (Continued)

(F) Maxi-Hut

This sub-element provides the use of mounting space within a Maxi-Hut. This element is expressed as a monthly rate. The charge for this sub-element is specified in 13.4(F).

(G) Mini-Hut

This sub-element provides the use of mounting space within a Mini-Hut. This element is expressed as a monthly rate. The charge for this sub-element is specified in 13.4(G).

(H) Large Cabinet

This sub-element provides the use of mounting space within a Large Cabinet. This element is expressed as a monthly rate. The charge for this sub-element is specified in 13.4(H).

(I) Medium Cabinet

This sub-element provides the use of mounting space within a Medium Cabinet. This element is expressed as a monthly rate. The charge for this sub-element is specified in 13.4(I).

(J) Small Cabinet

This sub-element provides the use of mounting space within a Small Cabinet. This element is expressed as a monthly rate. The charge for this sub-element is specified in 13.4(J).

(K) Project Coordination Fee

The project coordination fee provides for SWBT personnel to survey each requested CEV, Hut and Cabinet for availability of space for placement of copper or fiber cables as well as to determine space for any Collocator-designated equipment. This sub-element is expressed as a non-recurring charge and is specified in 13.4(K).

LOCAL ACCESS SERVICE

1. VIRTUAL COLLOCATION (Continued)

13.0 RATE REGULATIONS (Continued)

13.3 Rates and Charges Central Offices

	USOC	Rate Per Month	Nonrecurring Charge
(A) Planning Fee			
(1) Planning Fee			
- Initial		0.00	$5,555.76
- Subsequent (Interconnection Cabling)		0.00	2,224.49
- Subsequent (Power Cabling)		0.00	2,303.84
- Subsequent (Interconnection and Power Cabling)		0.00	2,882.61
(B) Floor Space			
(Per Bay Framework)		$28.91	$0.00
(C) Relay Rack			
(Per Rack)		$22.19	$0.00
(D) Common Systems Material			
(Per Standard Bay)		$10.75	$0.00
(Per Non-Standard Bay)		19.36	0.00
(E) Real Estate			
(1) Site Conditioning (Per Frame)		$92.81	$0.00
(2) Safety & Security (Per Frame)		195.57	0.00
(F) Entrance Fiber Placement			
(1) Entrance Fiber Cable Placement			
(Per Fiber Cable Sheath)		$11.01	$1,971.42
(2) Entrance Conduit		8.17	0.00
(G) Power Arrangement			
(1) 2-20 AMP Feeds (Per 2-20 Amp Power Feeds)		$7.74	$1,570.84
(2) 2-50 AMP Feeds (Per 2-50 Amp Power Feeds)		9.57	1,954.85

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

13.0 RATE REGULATIONS (Continued)

13.3 Rates and ChargesCentral Offices

	USOC	Rate Per Month	Nonrecurring Charge
(H) Power Consumption			
(1) DC Power Per AMP		$10.61	$0.00
(2) Heating Ventilating, and Air Conditioning (Per 10 Amps)		14.62	0.00
(3) Ground Cable Arrangement (Per Frame)		0.36	0.00
(I) Voice Grade Interconnection Arrangement (Non-Shielded or Shielded) (Per 100 Pairs)		$4.94	$1,481.37
(J) DS1 Interconnection Arrangements to DCS (Per 28 DS1s)		$297.44	$4,067.27
(K) DS1 Interconnection Arrangement to DSX (Per 28 DS1s)		$9.79	$1,800.69
(L) DS3 Interconnection Arrangement to DCS (Per DS3)		$115.59	$2,635.79

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

13.0 RATE REGULATIONS (Continued)

13.3 Rates and Charges Central Offices (Continued)

	USOC	Rate Per Month	Nonrecurring Charge
(M) DS3 Inteconnection			
Arrangement to DSX (Per DS3)		$7.14	$1,058.10
(N) Fiber Interconnection			
Arrangement (12 Fibers)		$6.55	$1,996.19
(O) Collocation-to-Collocation Connection			
(1) Fiber Cable (12 Fibers) - SWBT Provides Cable and Installs		$3.32	$1,095.09
(2) Copper Cable (28 DS1s) - SWBT Provides Cable and Installs		$3.34	$930.53
(3) Coax Cable (1 DS3) - SWBT Provides Cable and Installs		$3.26	$706.77
(4) Cable Racking and Hole			
- For Optical (Per Cable)		$0.90	$0.00
- DS1 (Per Cable)		0.49	0.00
- DS3 (Per Cable)		0.35	0.00

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

13.0 RATE REGULATIONS (Continued)

13.3 Rates and Charges Central Offices (Continued)

		USOC	Rate Per Month	Nonrecurring Charge
(O)	Virtual Collocation-to-Virtual Collocation Connection (Continued)			
	(5) Route Design		0.00	463.36
(P)	Timing Source Arrangement			
	- Timing Lead (1 pair per circuit)			
	(per linear foot per pair)		$0.08	$14.81
	- Bits Timing (Per two circuits)		3.58	698.82
(Q)	Training			
	(1) Communications Technician, per ½ hour		$0.00	$39.21
	(2) C.O. Manager, per ½ hour		0.00	39.45
	(3) Power Engineer, per ½ hour		0.00	38.47
	(4) Equipment Engineer, per ½ hour		0.00	38.47
(R)	Maintenance and Repair Rates			
	(1) Staffed CO During Attended Hours			
	- Each ¼ hour		$0.00	$15.15
	(2) Staffed CO During Unattended Hours			
	- Initial 4 Hours		0.00	242.35
	- Each Additional ¼ hour		0.00	15.15
	(3) Not Staffed CO/RT During Normal Business Day			
	- Each ¼ hour		0.00	15.15

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

13.0 RATE REGULATIONS (Continued)

13.3 Rates and Charges (Continued)

		USOC	Rate Per Month	Nonrecurring Charge
(R)	Maintenance and Repair Rates (continued)			
	(4) Not-Staffed CO/RT During Non-Normal Business Day			
	- Initial 4 Hours		0.00	242.35
	- Each Additional ¼ hour		0.00	15.15
(S)	Equipment Evaluation Cost			
	- Each ½ hour		0.00	38.47
(T)	Test and Acceptance			
	- Each ½ hour		0.00	39.21

13.4 Rates and Charges CEVs, Huts and Cabinets

(A)	Entrance Fiber Cable Placement			
	Fiber (per cable)		$0.00	$53.58
(B)	Entrance Conduit			
	(Per Fiber Cable Sheath)		2.61	0.00
(C)	Power Consumption			
	(Per 2-inch mounting space)		1.27	0.00

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

13.0 RATE REGULATIONS (Continued)

13.4 Rates and Charges CEVs, Huts and Cabinets (continued)

(D)	24-Foot CEV (Per 2-inch mounting space)	1.64	0.00
(E)	16-Foot CEV (Per 2-inch mounting space)	1.77	0.00
(F)	Maxi-Hut (Per 2-inch mounting space)	0.77	0.00
(G)	Mini-Hut (Per 2-inch mounting space)	1.33	0.00
(H)	Large Cabinet (Per 2-inch mounting space)	1.63	0.00
(I)	Medium Cabinet (Per 2-inch mounting space)	2.19	0.00
(J)	Small Cabinet (Per 2-inch mounting space)	3.29	0.00
(K)	Project Coordination Fee (Per CLEC Application/Augment)	0.00	631.17

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

14.0 ALTERNATIVE VIRTUAL COLLOCATION ARRANGEMENT DESCRIPTION

Virtual collocation wherein the Collocator maintains and repairs the virtually collocated equipment.

For purposes of virtually collocating equipment, SWBT shall determine which Eligible Structures require access to CEVs, Huts, or manholes containing concentrated cabling and other forms of equipment that requires drawings, schematics, or other engineering documents that aide in the prevention of accidental network outages. The drawings, schematics, or other engineering documents shall denote the location of the requesting Collocator's equipment and cabling without disclosing identity of equipment and cabling belonging to SWBT and other Collocators. Provided that SWBT is not required to make this determination prior to an executed agreement to virtually collocate in an Eligible Structure.

After Collocator has been provided with written notification by SWBT that access to CEVs, Huts, or manholes containing concentrated cabling and other forms of equipment requires drawings, schematics, or other engineering documents that aide in the prevention of accidental network outages, Collocators may not enter an Eligible Structures without obtaining undated copies of drawings, schematics, or other engineering documents. Upon request, SWBT shall immediately make available to Collocators those drawings, schematics, or other engineering documents that identify the location of the requesting Collocator's equipment and cabling. In the event the requested documents are not immediately available, SWBT shall not prevent the Collocator from entering the Eligible Structure. If SWBT does not immediately make the requested documents available to a Collocator and the Collocator enters the eligible structure, SWBT shall deliver the requested documents to Collocator immediately upon locating same.

SWBT will provide a security escort with the Collocator paying the expense for the escort. In areas defined in SWBT's local exchange tariff as rate groups C and D, SWBT will provide the security escort within one (1) hour of notification by the Collocator. In areas defined in SWBT's local exchange tariff as rate A and B, SWBT will provide the security escort as soon as reasonably possible, or within the time frame agreed to by the parties, at the time of notice.In the event the FCC determines that SWBT may not require a security escort paid for by the Collocator, then this virtual collocation maintenance alternative as described in this Paragraph 14.0 and in Paragraph 1.0(2) is null and void, and all virtual collocation will be maintained by SWBT as described in Paragraph 1.0(1).

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

14.0 ALTERNATIVE VIRTUAL COLLOCATION ARRANGEMENT DESCRIPTION (continued)

Prior to entering an Eligible Structure that requires drawings, schematics, or other engineering documents, Collocators must provide SWBT with reasonable notice of the entry. Notice will be provided to SWBT's Local Operations Center, which will be available to receive notice 24 hours a day, 7 days a week. Collocators providing notice to SWBT's Local Operations Center must specify the title and date of all drawings, schematics, or other engineering documents that will be used while in the Eligible Structure.

The Collocator shall conduct background checks of the technicians who have access to the collocation space. Collocator technicians will be security qualified by the Collocator and will be required to be knowledgeable of SWBT security standards. Disciplinary procedures shall be established in accordance with Section 15.3 to ensure the safety and integrity of the Eligible Structure, including, e.g., procedures that require the responsible employee to be terminated for certain specified actions that damage or place the equipment of SWBT or other Collocators in jeopardy.

SWBT may use security devices, e.g., identification swipe cards, keyed access, and/or logs, as appropriate for the Eligible Structure where collocation will take place.

The Commission will permit SWBT to recover the cost of such security devices from the Collocators in a reasonable manner. The Collocator shall provide indemnification and insurance to cover any damages caused by the Collocator's technicians at a level commensurate with the indemnification and insurance provided by SWBT equipment suppliers with equivalent access.

Provisioning of equipment required for virtual collocation, e.g., power arrangements and interconnection arrangements will be provided in accordance with this tariff and interconnection agreements.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

15.0 OBLIGATIONS OF THE COLLOCATOR

15.1 Indemnification of SWBT

Except as otherwise provided and to the extent not contradicted herein, the indemnity provisions of the Interconnection Agreement between SWBT and the Collocator shall apply and are incorporated herein by this reference. However, in no event will the provisions in this section supersede or override the indemnification provisions contained in the interconnection agreement between SWBT and Collocator. Additionally, in the event of a conflict between indemnification provisions in the interconnection agreement and the Tariff, the provisions in the interconnection agreement will control.

Collocators shall indemnify and hold harmless SWBT the agents, employees, officers, directors and shareholders of any of them ("Indemnities"), from and against any and all liabilities, obligations, claims, causes of action, fines, penalties, losses, costs, expenses (including court costs and reasonable attorney's fees), damages, injuries, of any kind, (individually and collectively "Liabilities"), including but not limited to, Liabilities as a result of (a) injury to or death of any person; (b) damage to or loss or destruction of any property; or (c) Liabilities related in any manner to employee benefits, workers compensation, payroll tax, and any other employer obligations which may be asserted against SWBT where such liabilities arise in connection with Collocator's use of persons that it classifies as an independent contractor or subcontractor to perform obligations under this Tariff; (d) attachments, liens or claims of material persons or laborers arising out of or resulting from or in connection with this Tariff or the performance of or failure to perform and directly or indirectly caused, in whole or part, by acts of omissions, negligent or otherwise, of Collocator or a contractor or a representative of Collocator or an employee of any one of them, except to the extent such Liabilities arise from the negligence or willful or intentional misconduct of SWBT or its employees. The provisions in this section are reciprocal and applicable also to SWBT.

SWBT shall make best efforts to promptly notify Collocator of any suit or other legal proceeding asserting a claim for Liabilities. Upon request, Collocator shall, at no cost or expense to the Indemnitee, defend any such suit or legal proceeding asserting a claim for Liabilities, and Collocator shall pay any costs and attorneys' fees that may be incurred by any Indemnitee in connection with any such claim, proceeding or suit. Collocator shall also (a) keep SWBT and any other Indemnitee subject to any such claim fully informed as to the progress of such defense, and (b) afford SWBT and such Indemnitee, each at its own expense, an opportunity to participate on an equal basis with Collocator in the defense or settlement of any such claim.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

15.0 OBLIGATIONS OF THE COLLOCATOR (Continued)

15.2 Insurance

The Collocator agrees to maintain, at all times, the following minimum insurance coverages and limits and any additional insurance and/or bonds required by law:

(A) Workers' Compensation insurance with benefits afforded under the laws of the State of Missouri and Employers Liability insurance with minimum limits of $100,000 for Bodily Injury-each accident, $500,000 for Bodily Injury by disease-policy limits and $100,000 for Bodily Injury by disease-each employee.

(B) Commercial General Liability insurance with minimum limits of: $2,000,000 General Aggregate limit; $1,000,000 each occurrence sub-limit for all bodily injury or property damage incurred in any one occurrence; $1,000,000 each occurrence sub-limit for Personal Injury and Advertising; $2,000,000 Products/Completed Operations Aggregate limit, with a $1,000,000 each occurrence sub-limit for Products/Completed Operations. Fire Legal Liability sub-limits of $300,000 are required for lease agreements. SWBT will be named as an Additional Insured on the Commercial General Liability policy.

(C) If use of an automobile is required, Automobile Liability insurance with minimum limits of $1,000,000 combined single limits per occurrence for bodily injury and property damage, which coverage shall extend to all owned, hired and non-owned vehicles.

SWBT requires that companies affording insurance coverage have a B+ VII or better rating, as rated in the A.M. Best Key rating Guide for Property and Casualty Insurance Companies.

A certificate of insurance stating the types of insurance and policy limits provided the Collocator must be received prior to commencement of any work. The insurance provisions and requirements are reciprocal to SWBT as well. If a certificate is not received, SWBT will notify the Collocator and the Collocator will have 5 business days to cure the deficiency. If the Collocator does not cure the deficiency within 5 business days, Collocator hereby authorizes SWBT, and SWBT may, but is not required to, obtain insurance on behalf of the Collocator as specified herein. SWBT will invoice Collocator for the costs incurred to so acquire insurance.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

15.0 OBLIGATIONS OF THE COLLOCATOR (Continued)

15.2 Insurance (Continued)

The cancellation clause on the certificate of insurance will be amended to read as follows:

"SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED OR MATERIALLY CHANGED, THE ISSUING COMPANY WILL MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER."

The Collocator shall also require all contractors who may enter the Eligible Structure to maintain the same insurance requirements listed above.

Self-insurance in lieu of the insurance requirements listed preceding shall be permitted if the Collocator 1) has a tangible net worth of Fifty (50) Million dollars or greater, and 2) files a financial statement annually with the Securities and Exchange Commission and/or having a financial strength rating of 4A or 5A assigned by Dun & Bradstreet. The ability to self-insure shall continue so long as the Collocator meets all of the requirements of this Paragraph. If the Collocator subsequently no longer satisfies this Paragraph, the coverage requirements described above shall immediately apply.

15.3 Conduct While in SWBT Eligible Structures

Collocators and SWBT will each establish disciplinary procedures up to and including dismissal or denial of access to the Eligible Structure and other SWBT property for certain specified actions that damage, or place the equipment, facilities, or the network or the personnel of the Collocators or SWBT in jeopardy. The following are actions that could damage or place the Eligible Structure, or the network or the personnel of the Collocators or SWBT in jeopardy and may justify disciplinary action up to and including dismissal or the denial of access to the Eligible Structure and other SWBT property:

(a) Theft or destruction of SWBT's or Collocator's property;

(b) Use/sale or attempted use/sale of alcohol or illegal drugs on SWBT property;

(c) Threats or violent acts against other persons on SWBT property;

(d) Knowing violations of any local, state or federal law on SWBT property;

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

15.0 OBLIGATIONS OF THE COLLOCATOR (Continued)

15.3 Conduct While in SWBT Eligible Structures (Continued)

(e) Permitting unauthorized persons access to SWBT or Collocator's equipment on SWBT property; and

Carrying a weapon on SWBT property.

In addition, Collocator and SWBT will take appropriate disciplinary steps as determined by each party to address any violations reported by SWBT or the Collocator of SWBT's policies and practices on security, safety, network reliability, and business conduct as defined in SWBT's Interconnector's Collocation Services Handbook for Virtual Collocation in Missouri, provided the Handbook and any and all updates to it are timely provided to Collocator at no charge.

16.0 COOPERATIVE RESPONSIBILITIES

16.1 Qualification of Collocators

Collocator technicians will be security qualified by the Collocator and will be required to be knowledgeable of SWBT security standards. Collocator personnel and technicians will undergo the same level of security training, or its equivalent that SWBT's own employees and authorized contractors must undergo. SWBT will not, however, require Collocators to receive security training from SWBT, but will provide information to Collocators on the specific type of training required. Collocators can then provide their employees with their own security training. Qualification program and security training details shall be included in SWBT's Interconnector's Collocation Services Handbook for Virtual Collocation in Missouri.

17.0 RATE REGULATIONS

The rate regulations, rate element descriptions and rates and charges included in 13.0 preceding apply to this virtual collocation alternative wherein the Collocator maintains and repairs the virtually collocated equipment. Additional rate elements and rates apply to this alternative as provided for below.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

17.0 RATE REGULATIONS (Continued)

17.1 Rate Elements for SWBT Offices

(A) This security escort charge consists of the charges for SWBT-provided security escorts for Collocator Vendor's access to their virtual collocation space in Staffed and Unstaffed Central Offices. Any escort requirements will be initiated by the Collocator. Labor rates are based upon a ¼ hour basis and are dependent upon day of week and time of day. For purposes of this tariff, normal week day is defined as 8:00 a.m. through 5:00 p.m., Monday through Friday, excluding holidays. The billing period will start at the time the technician is contacted. This will allow for travel time to reach the agreed meet point. Access requests outside of normal business hours or for unstaffed Central Offices which are cancelled will be subject to the minimum four (4) hour call out charge. Non-recurring charges for this sub-element are specified in 17.3(A) following.

17.2 Rate Elements for SWBT CEVs, Huts and Cabinets

(A) Security Escorts

The security escort charge consists of the charges for SWBT-provided security escorts for Collocator Vendor's access to their virtual collocation space in CEVs, Huts and Cabinets. Any escort requirements will be initiated by the Collocator. Labor rates are based upon a ¼ hour basis. The billing period will start at the time the technician is contacted. This will allow for travel time to reach the agreed meet point. Access requests which are cancelled will be subject to the minimum four (4) hour call out charge. Rates and charges are as found in 17.4(A).

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

17.0 RATE REGULATIONS (Continued)

17.3 Rates and Charges Central Offices

	USOC	Rate Per Month	Nonrecurring Charge
(A) Security Escorts			
Per visit			
(1) Staffed Building			
- Access during normal business hours			
- Each ¼ hour		$0.00	$15.15
- Each additional ¼ hour		0.00	15.15
- Access outside normal business hours			
- 4 hour minimum		0.00	242.35
- Each additional ¼ hour		0.00	15.15
(2) Unstaffed Building			
- Access during normal business hours			
- Each ¼ hour		0.00	15.15
- Each additional ¼ hour		0.00	15.15
- Access outside normal business hours			
- 4 hour minimum		0.00	242.35
- Each additional ¼ hour		0.00	15.15

17.4 Rates and Charges

CEVs, Huts and Cabinets

(A) Security Escorts, per visit			
4 hours minimum		00.00	242.35
Each additional ¼ hour		00.00	15.15

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

18.0 CDOW (CLECs Doing Own Work) - Collocator Responsibilities

When the Collocator selects the option to provide, install, and terminate their interconnection and power cabling with an SWBT Approved Vendor, the following paragraphs will apply. However, the terms and conditions within CDOW are not comprehensive. There are terms and conditions from the preceding sections of this same tariff that still apply for CDOW for rate elements that are not specifically addressed within Sections 18 and 19 following.

18.1 The Collocator has the option to provide, install and terminate its interconnection cabling between the Collocator's Dedicated Space and the SWBT Main Distribution Frame or its equivalent by an SWBT Approved Vendor. This option is only available if Collocator does all three (3) activities associated with interconnection cabling: provide, install and terminate. The Collocator may not elect to do some but not all the activities. Collocator must indicate on its virtual collocation application that it has selected this option to apply to all interconnection cabling requested on the application. If Collocator selects this option, the Collocator must also select the option to provide, install and terminate its power cable leads described in Section 18.2. If Collocator selects this option, SWBT will install and stencil termination blocks or panels at SWBT Main Distribution Frame or its equivalent for the handoff of the Actual Point of Termination (APOT) Connection(s) to the Collocator's SWBT Approved Vendor. Intervals and provisioning for this offering is found in Section 18.3.1 through 18.3.5. The Collocator's SWBT Approved Vendor must obtain an approved Method Procedures (MOP) from SWBT and follow SWBT's Technical Publication TP 76300MP for installation of equipment and facilities;

18.2 The Collocator has the option to provide, install and terminate its power cable leads between the Collocator's Dedicated Space and SWBT's Battery Distribution Fuse Bay (BDFB) by an SWBT Approved Power Installation Vendor. When the SWBT designated power termination point is at the Power Plant Primary Distribution, the Collocator's SWBT Approved Power Installation Vendor will provide and install the power cable leads, but not terminate. The Collocator must contact the SWBT Project manager five (5) business days prior to scheduling a request for the termination of the Collocator's power cable leads to the SWBT Power Plant Primary Distribution, which will be performed by SWBT. This option is only available if the Collocator does all three (3) activities associated with the power cable lead unless described otherwise within this Section. The Collocator may not elect to do some but not all the activities unless otherwise permitted in this section. If Collocator selects this option, the Collocator must also select the option to provide, install and terminate its interconnection cabling described in Section 18.1. Intervals and provisioning for this offering is found in Section 18.3.1 through 18.3.5. The Collocator's SWBT Approved Power Installation Vendor must obtain an approved Method of Procedures (MOP) from SWBT and follow SWBT's Technical Publication TP 76300MP for installation of equipment and facilities.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

18.0 CDOW (CLECs Doing Own Work) - Collocator Responsibilities (cont'd)

18.3 Intervals and Provisioning

18.3.1 Implementation Intervals (Collocator Installs Interconnection and Power Cabling)

SWBT will provide Virtual Collocation arrangements in Eligible Structures on a "first-come, first-served" basis. The determination whether there is sufficient space to accommodate Virtual Collocation at a particular Eligible Structure will be made initially by SWBT. SWBT will notify Collocator as to whether its request for space has been granted or denied due to a lack of space within ten (10) calendar days from receipt of a Collocator's accurate and complete Virtual Collocation Application. If SWBT determines that Collocator's Virtual Collocation Application is unacceptable, SWBT shall advise Collocator of any deficiencies within this ten (10) calendar day period. SWBT shall provide Collocator with sufficient detail so that Collocator has a reasonable opportunity to cure each deficiency. To retain its place in the queue to obtain the Virtual Collocation arrangement, Collocator must cure any deficiencies in its Application and resubmit such Application within ten (10) calendar days after being advised of the deficiencies. Any changes to the amount or type of floor space, interconnection terminations, and power requested from the originally submitted Virtual Collocation Application will not be considered a deficiency, but rather as a new Virtual Collocation Application with a new ten (10) calendar day space notification and a new delivery interval. The delivery intervals set forth in this Section 18.3 is for new and augment Virtual Collocation Applications and apply only when the Collocator installs interconnection and power cabling.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

18.0 CDOW (CLECs Doing Own Work) - Collocator Responsibilities (cont'd)

18.3 Intervals and Provisioning (cont'd)

18.3.1 The delivery interval relates to the period in which SWBT shall construct and turnover to the Collocator's SWBT Approved Vendor the requested Virtual Collocation Space. The delivery interval begins on the date SWBT receives a complete and accurate Virtual Collocation Application from the Collocator. The Collocator must provide the SWBT, within seven (7) calendar days from the date of notification granting the application request, a confirmatory response in writing to continue construction along with the fifty percent (50%) payment of non-recurring charges (unless payment was received with application) or the delivery interval provided in table below will not commence until such time as SWBT has received such response and payment. If the Collocator has not provided SWBT such response and payment by the twelfth (12th) calendar day after the date SWBT notified Collocator its request has been granted, the application will be canceled. Dedicated space is not reserved until SWBT's receipt of the confirmatory response in writing from the Collocator with applicable fees. The delivery in from the Collocator with applicable fees. The delivery interval for Virtual Collocation is determined by SWBT taking into consideration the various factors set forth in Table (1) below including, without limitation, the number of all Virtual Collocation Applications submitted by Collocator and the need for additional preparation of the space such as overhead racking, additional power or HVAC. The delivery interval assigned will be provided to the Collocator by SWBT with the ten (10) calendar day space notification. Each complete and accurate Virtual Collocation Application received by SWBT from the Collocator will be processed in the order received unless the Collocator provides a priority list, whichever is applicable.

Table (1)

Number of All Applications submitted by One Collocator per state or metering region	Overhead Iron/Racking Exists for Virtual Collocation Space Use	Overhead Iron/Racking Does Not Exist for Virtual Collocation Space Use	Additional Power or HVAC is Required for Virtual Collocation Space Use
1 – 10	60 calendar days	80 calendar days	180 calendar days
11-20	65 calendar days	85 calendar days	185 calendar days

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

18.0 CDOW (CLECs Doing Own Work) - Collocator Responsibilities (cont'd)

18.3 Intervals and Provisioning (cont'd)

18.3.1 (Continued)

Should the Collocator submit twenty-one (21) or more applications within ten (10) business days, the above delivery intervals will be increased by five (5) days for every five (5) additional applications or fraction thereof. Any material revision to an application will be treated as a new application and the delivery intervals set forth in Table (1) above will be re-started. All Virtual Collocation Applications received by SWBT from a Collocator within a ten (10) business day period shall be treated as submitted at the same time for purposes of administering the above staggering intervals. The Virtual Collocation delivery interval ends when roughed in and the assigned space has been distinctly marked by SWBT.

For example, but not by way of limitation, if a Collocator submits twelve (12) complete and accurate Virtual Collocation Applications in a state, the delivery intervals assigned by SWBT will depend on which variables apply within each Eligible Structure Virtual Collocation is requested:

If Applications (1-4) are for Virtual Collocation Space where overhead racking exists, the delivery intervals assigned will be sixty (60) days. If Applications (5-11) are for Virtual Collocation Space where overhead racking does not exist, the delivery intervals assigned to Applications (5-10) will be eighty (80) calendar days and Application (11) will be assigned eighty five (85) calendar days. The Virtual Collocation Application (12) was requested in an Eligible Structure that needs additional HVAC added and would be assigned one hundred and eight five (185) calendar days.

18.3.2 The second fifty percent (50%) payment must be received by SWBT prior to the space being turned over to the Collocator's SWBT_Approved Vendor. At space turnover, the Actual Point of Termination (APOT) Connection(s) will be provided to the Collocator's SWBT Approved Vendor by SWBT.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

18.0 CDOW (CLECs Doing Own Work) - Collocator Responsibilities (cont'd)

18.3 Intervals and Provisioning (cont'd)

18.3.3 For the following interconnection cabling Augments, the Collocator must submit a complete and accurate Virtual Collocation Application:

- 168 DS1 connections and/or
- 48 DS3 connections and/or
- 400 Copper (shielded or nonshielded) cable pair connections and/or
- 12 fiber pair connections

This application must include an up-front payment of the Application Fee and fifty percent (50%) of all applicable non-recurring charges.

The cabling Augment interval is determined by SWBT taking into consideration the various factors set forth in Table (2) below including, without limitation, the number of all Virtual Collocation Applications for the above Augments submitted by Collocator, the type of infrastructure available for collocation, and the need for additional preparation of the infrastructure such as overhead racking and additional power. The cabling Augment interval assigned will be provided to the Collocator by SWBT with the ten (10) calendar day Augment notification. Each complete and accurate Virtual Collocation Application received by SWBT from the Collocator will be processed in the order received unless the Collocator provides a priority list, whichever is applicable.

Table (2)

Number of All Applications submitted by One Collocator per state or metering region	Necessary Elements such as Iron/Racking and Power exist for Virtual Collocation Use	Necessary Elements such as Iron/Racking and Power does not exist for Virtual Collocation Use
1 – 10	30 calendar days	60 calendar days
11-20	35calendar days	65 calendar days

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

18.0 CDOW (CLECs Doing Own Work) - Collocator Responsibilities (cont'd)

18.3 Intervals and Provisioning (cont'd)

18.3.3 Should the Collocator submit twenty-one (21) or more Virtual Collocation Applications for cabling Augments within ten (10) business days, the above cabling Augment intervals will be increased by five (5) days for every five (5) additional application or fraction thereof. Any material revision to a Virtual Collocation Application for cabling Augments will be treated as a new application and the cabling Augment delivery intervals set forth in Table (2) above. All cabling Augment applications received by SWBT from a Collocator within a ten (10) business day period shall be treated as submitted at the same time for purposes of administering the above staggering intervals.

For example, but not by way of limitation, if a Collocator submits twelve (12) Virtual Collocation Applications for cabling Augments in a state, the delivery intervals assigned will depend on which variables apply within each Eligible Structure requested:

If Applications (1-4) are for Virtual Collocation cabling Augments where necessary elements such as overhead racking and power exists, the delivery interval assigned will be thirty (30) calendar days. If Applications (5-12) are for Physical Collocation where necessary elements such as overhead racking and power does not exists, the delivery interval assigned to Applications (5-10) will be sixty (60) calendar days and for Applications (11-12) sixty five (65) calendar days.

18.3.4 For all Augments other than provided above, SWBT will work cooperatively with Collocator to negotiate a mutually agreeable delivery intervals.

18.3.5 Within twenty (20) calendar days or mutually agreed upon time, from SWBT's receipt of the confirmatory response in writing to continue construction on the Virtual Collocation job requested along with the 50% payment of non-recurring charges (unless payment was received with application), Network Support and/or appropriate departments will schedule a walk through visit with the CLEC and/or vendor to provide floor plans of space and the preliminary route design for the interconnection and power cabling.

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

18.0 CDOW (CLECs Doing Own Work) - Collocator Responsibilities (cont'd)

18.4 Rates Elements for SWBT Central Offices

A. Power Arrangement

When the Collocator selects the option to install the power cable by an SWBT Approved Power Installation vendor, only the rack occupancy and on-going maintenance of the rack charge will apply. This is expressed as a monthly rate as specified in 19.1 (A).

B. Voice Grade Interconnection

When the Collocator selects the option to provide and install the interconnection cabling by an SWBT approved vendor, the Voice Grade Terminal blocks at the MDF, rack occupancy, and on-going maintenance charges will apply. This is expressed as a combination of a non-recurring charge and a monthly rate as specified in 19.1 (B).

C. DS-1 Interconnection Arrangement to DCS

When the Collocator selects the option to provide and install the interconnection cabling by an SWBT approved vendor, the DS-1 Port, rack occupancy, and on-going maintenance charges will apply. This is expressed as a combination of a non-recurring charge and a monthly rate as specified in 19.1 (C).

D. DS-1 Interconnection Arrangement to DSX

When the Collocator selects the option to provide and install the interconnection cabling by an SWBT approved vendor, the DSX at the MDF, rack occupancy, and on-going maintenance charges will apply. This is expressed as a combination of a non-recurring charge and a monthly rate as specified in 19.1 (D).

E. DS-3 Interconnection Arrangement to DCS

When the Collocator selects the option to provide and install the interconnection cabling by an SWBT approved vendor, the DS-3 Port, rack occupancy, and on-going maintenance charges will apply. This is expressed as a combination of a non-recurring charge and a monthly rate as specified in 19.1 (E).

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LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

18.0 CDOW (CLECs Doing Own Work) - Collocator Responsibilities (cont'd)

18.4 Rates Elements for SWBT Central Offices (cont'd)

F. DS-3 Interconnection Arrangement to DSX

When the Collocator selects the option to provide and install the interconnection cabling by an SWBT approved vendor, the DSX at the MDF, rack occupancy, and on-going maintenance charges will apply. This is expressed as a combination of a non-recurring charge and a monthly rate as specified in 19.1 (F).

G. Fiber Interconnection Arrangement

When the Collocator selects the option to provide and install the interconnection cabling by an SWBT approved vendor, the Fiber terminating panel at the FDF-1 Port, rack occupancy, and on-going maintenance charges will apply. This is expressed as a combination of a non-recurring charge and a monthly rate as specified in 19.1 (G).

H. Collocation to Collocation Connection

This rate element include virtual to virtual and virtual to physical connection options.

1. Fiber Cable

When the Collocator selects the option to provide and install the interconnection cabling by an SWBT approved vendor, the charge for on-going maintenance of the rack will apply. This is expressed as a combination of a non-recurring charge and a monthly rate as specified in 19.1 (H) (1).

2. Copper Cable

When the Collocator selects the option to provide and install the interconnection cabling by an SWBT approved vendor, the charge for on-going maintenance of the rack will apply. This is expressed as a combination of a non-recurring charge and a monthly rate as specified in 19.1 (H) (2).

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

18.0 CDOW (CLECs Doing Own Work) - Collocator Responsibilities (cont'd)

18.4 Rates Elements for SWBT Central Offices (cont'd)

3. Coax Cable

When the Collocator selects the option to provide and install the interconnection cabling by an SWBT approved vendor, the charge for on-going maintenance will apply. This is expressed as a combination of a non-recurring charge and a monthly rate as specified in 19.1 (H) (3).

4. Cable Racking and Hole

This sub-element provides for cable rack space and hole for copper, coax and optical cabling between two collocation arrangements and the required terminations at each virtual collocation arrangement(s) at an Eligible Structure. This sub-element is expressed as a monthly rate specified in 19.1 (H)(4).

5. Route Design

This sub-element provides the route design for collocation-to-collocation connections. This sub-element is expressed as a non-recurring charge and this charge is specific in 19.1 (H) (5)

LOCAL ACCESS SERVICE

VIRTUAL COLLOCATION (Continued)

19.0 Rates and Charges for CDOW

19.1 Rates and Charges for CLECs Doing own Work

The rate elements below represent the charges associated with CLEC's providing, installing, and terminating their interconnection and power cabling. However, the rates and charges within CDOW are not comprehensive. There are rates and charges from the preceding sections of this same tariff that still apply for CDOW for rate elements that are not specifically addressed within Section 19 following.

	USOC	Rate Per Month	Nonrecurring Charge
A. Power Arrangements			
(Collocator provides and installs Power Cables			
2-20 AMP Feeds (Per 2-20 AMP power Feeds)		$0.52	$0.00
2-50 AMP Feeds (Per 2-50 AMP power Feeds)		$0.52	$0.00
B. Voice Grade Interconnection			
(Collocator provides and installs Power Cabling)			
Arrangement (Non-Shielded and Shielded)			
(Per 100 Pairs)		$3.86	$225.02
C. DS1 Interconnection			
(Collocator provides and installs cabling)			
Arrangement to DCS			
(Per 28 DS1s)		$295.42	$3,496.22
D. DS1 Interconnection			
(Collocator provides and installs cabling)			
Arrangement to DSX			
(Per 28 DS1s)		$6.07	$651.13