HOGAN & HARTSON

Hogan & Hartson LLP
Columbia Square
555 Thirteenth Street, NW
Washington, DC 20004
+1.202.637.5600 **Tel**
+1.202.637.5910 **Fax**

www.hhlaw.com

November 3, 2006

David L. Sieradzki
Partner
+1.202.637.6462
DLSieradzki@hhlaw.com

Beth O'Donnell
Executive Director
Public Service Commission
211 Sower Blvd., PO Box 615
Frankfort, KY 40602

Re: *Petition of SouthEast Tel., Inc., for Arbitration of Certain Terms and Conditions of Proposed Agreement with BellSouth Telecommunications, Inc. Concerning Interconnection Under the Telecommunications Act of 1996*, Case No. 2006-00316

Dear Ms. O'Donnell:

On behalf of SouthEast Telephone, Inc. ("SouthEast") and pursuant to the Commission's October 23, 2006 procedural order in the above-captioned proceeding, I am transmitting with this letter the direct testimony of Joseph Gillan, Steven Turner, Carey Roesel, James Keller, and Robin Kendrick, on behalf of SouthEast.

Several of the documents included in Exhibit SET-5 are bulky and are being transmitted electronically to the parties. In addition, one file included in Exhibit SET-5 – an Excel spreadsheet labeled "Kentucky Collocation Cost Model" – is a proprietary document. SouthEast respectfully requests that this document be treated as confidential and be withheld from public inspection.

Please contact me if you have any questions.

Respectfully submitted,

David Sieradzki

David L. Sieradzki
Counsel for SouthEast Telephone, Inc.

Enclosures

cc: Amy E. Dougherty
Mary K. Keyer
Andrew D. Shore
Darrell Maynard

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PUBLIC SERVICE
COMMISSION

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

PETITION OF SOUTHEAST TELEPHONE, INC., FOR ARBITRATION OF CERTAIN TERMS AND CONDITIONS OF PROPOSED AGREEMENT WITH BELLSOUTH TELECOMMUNICATIONS, INC. CONCERNING INTERCONNECTION UNDER THE TELECOMMUNICATIONS ACT OF 1996

Case No. 2006-00316
Filed November 3, 2006

TESTIMONY OF JOSEPH GILLAN

I. Introduction

Q. Please state your name, business address and party sponsoring your testimony.

A. My name is Joseph Gillan. My business address is P. O. Box 541038, Orlando, Florida 32854. I am an economist with a consulting practice specializing in telecommunications. I am testifying on behalf of SouthEast Telephone, Inc. ("SouthEast").

Q. Please briefly outline your educational background and related experience.

A. I am a graduate of the University of Wyoming where I received B.A. and M.A. degrees in economics. From 1980 to 1985, I was on the staff of the Illinois Commerce Commission where I had responsibility for the policy analysis of issues created by the emergence of competition in regulated markets, in particular the telecommunications industry. While at the Commission, I served on the staff subcommittee for the NARUC Communications Committee and was appointed to the Research Advisory Council overseeing the National Regulatory Research Institute.

In 1985, I left the Commission to join U.S. Switch, a venture firm organized to develop interexchange access networks in partnership with independent local telephone companies. At the end of 1986, I resigned my position of Vice President-Marketing/Strategic Planning to begin a consulting practice.

Over the past twenty-five years, I have provided testimony before more than 35 state commissions (including, on numerous occasions, Kentucky), seven state legislatures, the Commerce Committee of the United States Senate, and the Federal/State Joint Board on Separations Reform. I have also been called to provide expert testimony before federal and state civil courts by clients as diverse as the trustees of a small competitive carrier in the Southeast to Qwest Communications. In addition, I have filed expert analysis with the Finance

Ministry of the Cayman Islands and before the Canadian Radio-Telecommunications Commission.

I serve on the Advisory Council to New Mexico State University's Center for Regulation (since 1985) and serve as an instructor in their Principles of Regulation program taught twice annually in Albuquerque. In addition, I lecture at Michigan State University's Regulatory Studies Program. I have also been invited to lecture at the School of Laws at the University of London (England) on telecommunications policy and cost analysis in the United States. A complete listing of my qualifications, testimony and publications is provided in Exhibit JPG-1 (attached).

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to address two issues:

Issue A2: What monthly recurring rates should be established in each pricing zone for the voice grate local loop element?

Issue A3: What monthly recurring rate should be established for the "Port" component of the "Platform" combination of elements?

As I explain below, the foundation for both rate proposals is the "just and reasonable" rate standard applicable to Section 271 network elements. As the Commission is well aware, BellSouth is required to provide loops, switching and transport under both Section 251 and Section 271 of the Telecommunications Act of 1996 ("Act"). Although rate elements offered to comply with Section 251 of the Act must comply with the FCC's TELRIC pricing rules, elements offered under Section 271 are held to a potentially more liberal "just and reasonable" rate standard. The dual obligations of Sections 251/271 are relevant to the issues in this arbitration in two areas.

First, SouthEast is proposing that the Commission adopt a voice grade loop rates consistent with the Commission's existing cost findings in Case No. 382, but without the dramatically disparate zone rates that discourage competition in smaller markets. With the market leader (BellSouth) pursuing a strategy of statewide averaging in its retail pricing, the Commission must "flatten" the underlying wholesale pricing if it is to encourage widespread competition for mass market customers in Kentucky. The reformed deaveraged voice grade loop proposal recommend here satisfies both the policy objectives underlying Section 271, as well as complies with the requirement of Section 251 that the rates be deaveraged into three cost-based zones.[1]

Second, local switching is no longer required under Section 251 of the Act and, therefore, only available (at just and reasonable rates) under Section 271.

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[1] Because BellSouth has refused to answer SouthEast's discovery in this proceeding, SouthEast has only been able to estimate the appropriate voice grade loop rates. As such, SouthEast reserves the right to refine its loop pricing proposal as more detailed information becomes available.

SouthEast has requested that the Commission arbitrate a just and reasonable rate for local switching so that SouthEast may continue to serve mass market customers using a "Platform" combination of local loops, local switching and shared transport facilities leased from BellSouth.

Together, these recommendations are intended to ensure that widespread mass market competition continues to develop in Kentucky, with SouthEast compensating BellSouth for its leased facilities at rates that satisfy the "basic just, reasonable, and nondiscriminatory rate standard ... that has historically been applied under most federal and state statutes [thereby achieving] ... Congress's intent that Bell companies provide meaningful access to network elements."[2]

Q. Do you have an overall caveat to your testimony that you would like to emphasize?

A. Yes. As I indicated above, the "just and reasonable" rate standard for Section 271 elements is generally broader than the TELRIC rate standard that applies to network elements required under Section 251. The "just and reasonable" standard typically defines a range of rates, that would include rates based on

[2] In the Matter of Review of §251 Unbundling Obligations of Incumbent Local Exchange Carriers, CC Docket No. 01-338, Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, CC Docket No. 96-98, Deployment of Wireline Services Offering Advanced Telecommunications Capability, CC Docket No. 98-147, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking (rel. August 21, 2003) ("*TRO*"). ¶ 663 (footnotes omitted).

forward looking economic costs (such as TELRIC), as well as rates based on historic (sometimes called embedded) costs. In order to fully develop a recommendation concerning the appropriate just and reasonable rates for loops and switching,[3] SouthEast requested basic information from BellSouth, including data needed to evaluate different geographic averaging options and to better understand its forward-looking costs.

Unfortunately, BellSouth has taken the position that SouthEast is not entitled to review cost information, comprehensively claiming that (a) state commissions have no authority to arbitrate the rates for Section 271 elements, and that (b) Section 251 rates should not be challenged in this arbitration as well.[4] The Commission has already rejected BellSouth's challenge to its authority to arbitrate the reasonableness of rates for elements required by Section 271, a fact that BellSouth refuses to accept.[5] By refusing to respond to SouthEast data request, the practical effect of BellSouth's position is limit SouthEast's proposal to only those rates that can be based on information that is *publicly* available, seriously constraining the analysis that can be done in this round of testimony. As such, I

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[3] My testimony recommends that the Commission retain existing rates for shared transport as compliant with both Sections 251 and 271 of the Act. Shared transport comprises a relatively small percentage of the total cost of the "Platform" combination used to serve SouthEast's mass market customers and, as a result, does not present the same policy concerns as the rates for loops and switching.

[4] *See* BellSouth's Response in Opposition to SouthEast's Motion to Compel and for a Continuance, October 20, 2006 ("*BellSouth Opposition to Motion to Compel*").

[5] *BellSouth Opposition to Motion to Compel* at 3.

reserve the right to refine and/or modify my rate recommendations once the discovery issues have been resolved.

II. The Section 271 Rate Standard

Q. Is there any question that BellSouth is obligated to offer loops, transport and switching under Section 271 of the Act, even where the FCC has determined that BellSouth may not have the same obligation under Section 251?

A. No. There is no question that BellSouth's obligation under §271 is both separate from -- and additional to -- whatever obligation BellSouth may (or may not) have to offer network elements under §251 of the Act. As the FCC explained in the *Triennial Review Order* (*TRO*):

> … the plain language and the structure of section 271(c)(2)(B) [i.e., the competitive checklist] establish that BOCs have an <u>independent and ongoing access obligation</u> under section 271…. Checklist items 4, 5, 6, and 10 separately impose access requirements regarding loop, transport, switching, and signaling, without mentioning section 251. Had Congress intended to have these later checklist items subject to section 251, it would have explicitly done so as it did in checklist item 2. Moreover, were we to conclude otherwise, we would necessarily render checklist items 4, 5, 6, and 10 entirely redundant and duplicative of checklist item 2 and thus violate one of the enduring tenets of statutory construction: to give effect, if possible, to every clause and word of a statute.[6]

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6 *TRO* ¶ 654 (footnotes omitted, emphasis added).

The FCC's conclusions regarding the additional obligations of Section 271 were affirmed by the D.C. Circuit in *USTA II.*[7] Consequently, there should not be any dispute that BellSouth is under an independent obligation to offer access to Section 271's listed checklist elements: switching, loops, transport and signaling.

Q. Is the pricing standard that applies to Section 271 the same TELRIC pricing standard that applies to Section 251 network elements?

A. No, not necessarily. While network elements required under Section 251 must be priced in compliance with the FCC's TELRIC rules, elements required under Section 271 may be priced to satisfy a potentially more liberal "just and reasonable" pricing standard. As the FCC explained:

> Thus, the pricing of checklist network elements that do not satisfy the unbundling standards in section 251(d)(2) are reviewed utilizing the basic just, reasonable, and nondiscriminatory rate standard of sections 201 and 202 that is fundamental to common carrier regulation that has historically been applied under most federal and state statutes, including (for interstate services) the Communications Act. Application of the just and reasonable and nondiscriminatory pricing standard of sections 201 and 202 advances Congress's intent that Bell companies provide meaningful access to network elements.[8]

Importantly, the just and reasonable rate standard has traditionally been satisfied by maintaining a reasonable nexus between cost and price, even though, over the years, different approaches to cost have been used. This is particularly true with

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7 *USTA v. FCC*, 359 F.3d 554, 588-590 (D.C. Cir. 2004) ("*USTA II*").

8 *TRO* ¶ 663 (footnotes omitted).

respect to (what the FCC described as) the "basic just, reasonable, and nondiscriminatory rate standard … that has historically been applied" to all manner of services.[9] Consequently, it is useful to consider how the basic standard has been used in the past.

Q. Is the just and reasonable pricing standard a common concept in utility regulation?

A. Yes, the just and reasonable rate standard is a common foundation for traditional regulation, whether that regulation is outlined in federal or state statute. The concept is not limited to telecommunications, but is generally applied to regulated utilities. The touchstone to judging just and reasonableness has commonly been cost. As the FCC has explained:

> The Communications Act requires that rates be just and reasonable and not create unreasonable discrimination or undue preference. Sections 201(b) and 202(a), 47 U.S.C. §§ 201(b), 202(a). Costs are traditionally and naturally a benchmark for evaluating the reasonableness of rates, because cost-based rates both deliver price signals which contribute to efficient use of the networks and generally distribute network costs to the customer who causes those costs."[10]

Over time, as FCC regulation has adapted to changing conditions, its underlying commitment that rates should bear a reasonable nexus to cost has not changed.

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9 *TRO*, ¶ 663.

10 *Memorandum Opinion and Order, Investigation of Special Access Tariffs of Local Exchange Carriers*, CC Docket 85-166, Adopted October 13, 1988, Released December 1, 1988, 4 FCC Rcd. No. 12, ¶ 32, emphasis added.

For instance, when the FCC adopted price cap regulation, it made clear that specifically designed its price cap system to reflect costs:

> We proposed to adjust price caps each year according to a predetermined formula that is designed to ensure a continuing nexus between tariffed rates and the underlying cost of providing service.
>
> ***
>
> A carrier's services are grouped together in accordance with common characteristics, and the weighted prices in each group are adjusted annually pursuant to formulas designed to ensure that rates are based on cost ...
>
> ***
>
> ... the foundation of the price cap regulatory approach is to ensure that rates follow costs, while creating incentives to reduce costs...[11]

The notion that cost should be the principal touchstone to judge the reasonableness of rates permeates the record of FCC decisions, including those decisions that granted temporary deviations from cost.[12] The long standing importance of "cost" to the just and reasonable rate standard remained, even as

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[11] *Report and Order and Second Further Notice of Proposed Rulemaking*, Federal Communications Commission, CC Docket No. 87-313, April 17, 1989, ¶¶'s 8, 38 and 865. Emphasis Added.

[12] For instance, the FCC once permitted the RBOCs to strategically price special access services, due to the "dislocations" of the AT&T divestiture and the fear of bypass from high initial access rates. Even then, however, the FCC's approach was to "bracket" allowed pricing relationships in an effort to reflect costs:

> As the Commission found in the *Strategic Pricing Order*, the six to one ratio represents the most likely approximation of the cost relationship between HiCap and VG services based on the record. The 4 to 8 range should be broad enough to encompass a "cost based" rate that might be produced by any rational cost allocation methodology used by an exchange carrier in the near future.

Order on Reconsideration, Investigation of Special Access Tariffs of Local Exchange Carriers, CC Docket 85-166, Adopted November 28, 1989, Released January 19, 1990, 5 FCC Rcd. No. 2, ¶ 73.

historical (sometimes called embedded) cost measures began to be replaced by more prospective (i.e., forward-looking measures) of cost. As the Supreme Court noted in reviewing the history of regulated ratemaking in *Verizon*:

> What had changed throughout the era beginning with *Smyth* v. *Ames* was prevailing opinion on how to calculate the most useful rate base, with disagreement between fair-value and cost advocates turning on whether invested capital was the key to the right balance between investors and ratepayers, and the price cap scheme simple being a rate-based offset to the utilities' advantage of superior knowledge of the facts employed in cost-of-service ratemaking. What is remarkable about this evolution of just and reasonable ratesetting, however, is what did not change. <u>The enduring feature of ratesetting from *Smyth* v. *Ames* to the institution of price caps was the idea that calculating a rate base and then allowing a fair rate of return on it was a sensible way to identify a range of rates that would be just and reasonable to investors and ratepayers.</u>[13]

Q. How have costs traditionally been measured when establishing just and reasonable rates?

A. Traditionally, costs were measured using "accounting" costs, sometimes called historical or embedded costs.[14] A common problem encountered when using accounting costs, however, is that such costs are not easily attributable to any particular service, requiring regulators to allocate or assign costs by applying a "fully distributed costing" approach.[15] (One of the advantages of network

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[13] *Verizon* at 481. Emphasis added.

[14] For instance, as recently as the *TRRO*, the FCC noted (¶51): "Special access prices are regulated pursuant to the Communications Act's "just and reasonable" standard, which predates and bears no necessary relation to this cost-based standard, relying instead on historical costs."

[15] A fully distributed costing approach is generally structure to allocate the total costs of a company to its constituent services so that the total costs are recovered.

element costing is that it is generally easier to identify the cost of particular network facilities – a switch, for instance – even if it is difficult to attempt to assign that cost to the multiple services that use that switch.)

Because fully distributed costing relies extensively on allocation methods that lack precision (as well as other reasons), the regulatory trend has been to move away from using fully distributed costs to other cost-based approaches. In developing its *Open Network Architecture* policies (a form of unbundling predating the 1996 Act),[16] the FCC replaced the fully distributed costing approach with a more flexible "direct cost plus reasonable allocation" standard. The important change introduced by the FCC was that its "direct cost plus reasonable allocation standard" did not require the incumbent to fully assign all costs to all services. Rather, the FCC described the approach as follows:

> In the Part 69/ONA Order the Commission ... replaced the traditional FDC price ceiling with a more flexible cost-based test. The new test retained the "direct cost" component of the traditional

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[16] As the FCC explained:

> ONA was designed to unbundle certain services provided by BOCs, both to promote efficient and innovative use of the network by independent enhanced service providers (ESPs) and to prevent discrimination by BOCs in their offerings of BSEs to competing ESPs and BOC-owned ESPs. The Commission concluded that the provision of unbundled basic service "building blocks" would promote the ability of the BOCs' ESP competitors to compete effectively. Hence, the Commission ordered the BOCs to unbundle from their existing feature group access arrangements optional features called BSEs.

Order, Federal Communications Commission CC Docket 92-91, December 2, 1993, Released December 15, 1993, ¶ 4 (footnotes omitted) (*ONA Tariff Order*).

> approach but afforded the LECs greater leeway in the application of overhead loadings.[17]
>
> ***
>
> Once the direct costs have been identified, LECs will add an appropriate level of overhead costs to derive the overall price of the new service. To provide the flexibility needed to achieve efficient pricing, we are not mandating uniform loading, but BOCS will be expected to justify the loading methodology they select as well as any deviations from it.[18]

Q. Are TELRIC rates also considered just and reasonable?

A. Yes. The TELRIC pricing standard is a logical extension of the FCC's ONA pricing rule (above), with the added complexity that costs are to be based on forward-looking (as contrasted with accounting) costs.[19] Moreover, <u>by definition</u>, rates based on TELRIC fall within the range of just and reasonable prices because the statutory *requirement* in Section 251 is that UNE rates be just and reasonable,[20] with the FCC *interpreting* the requirement (in that context) to

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[17] *Memorandum Opinion and Order on Reconsideration and Third Further Notice of Proposed Rulemaking*, Federal Communications Commission CC Docket 87-266, October 20, 1994, Released November 7, 1994, 10 FCC Rcd 244, ¶ 212 ("*Video Dialtone Reconsideration*").

[18] <u>*Id.*</u>, referencing *Amendments of Part 69 of the Commission's Rules Relating to the Creation of Access Charge Subelements for Open Network Architecture, 6 FCC Rcd 4524 at 4531 (1991).* The ILECs were also permitted to seek a higher rate of return, or "risk premium," for new services that they deem especially risky.

[19] See §51.505 adopting the TELRIC pricing standard, defined as "the sum of (1) the total element long-run incremental cost of the element" ... "and (2) a reasonable allocation of forward-looking common costs."

[20] Specifically, section 252(d) PRICING STANDARDS requires:

> (1) INTERCONNECTION AND NETWORK ELEMENT CHARGES-
>
> Determinations by a State commission of the just and reasonable rate for the interconnection of facilities and equipment for purposes of subsection

require a forward looking analysis because the Act requires that Section 251 rates be "determined without reference to a rate-of-return or other rate-based proceeding."

Q. Based on this review, what are the key attributes of just and reasonable Section 271 rates?

A. The key conclusions of this review are that Section 271 just and reasonable rates: (a) must bear a <u>reasonable nexus to cost</u> (either traditional accounting cost or forward looking costs), (b) must achieve Congress' intent that Section 271 provide <u>meaningful access</u> to a competitor, and (c) would include, but are not limited to, rates based on forward-looking costs, such as TELRIC.

Q. How should the Commission evaluate the guidance that Section 271 requires meaningful access to local facilities?

> (c)(2) of section 251, and <u>the just and reasonable rate for network elements</u> for purposes of subsection (c)(3) of such section—
>
> (A) shall be—
>
> (i) based on the cost (determined without reference to a rate-of-return or other rate-based proceeding) of providing the interconnection or network element (whichever is applicable), and
>
> (ii) nondiscriminatory, and
>
> (B) may include a reasonable profit.

A. As noted, the FCC prefaced its analysis of the requirements of Section 271 with an unambiguous understanding that the competitive checklist embodied <u>additional</u> obligations that were particular to the RBOCs because of their unique market position and the threat that position posed to interexchange competition:

> Section 251, by its own terms, applies to *all* incumbent LECs, and section 271 applies only to BOCs, a subset of incumbent LECs. In fact, section 271 places specific requirements on BOCs that were not listed in section 251. These additional requirements reflect Congress' concern, repeatedly recognized by the Commission and courts, with balancing the BOCs' entry into the long distance market with increased presence of competitors in the local market.... The protection of the interexchange market is reflected in the fact that section 271 primarily places in each BOC's hands the ability to determine if and when it will enter the long distance market. If the BOC is unwilling to open its local telecommunications markets to competition or apply for relief, the interexchange market remains protected because the BOC will not receive section 271 authorization.... Section 271 was written for the very purpose of establishing specific conditions of entry into the long distance that are unique to the BOCs. As such, BOC obligations under section 271 are not necessarily relieved based on any determination we make under the section 251 unbundling analysis.[21]

The obligations of Section 271 are intended to do more than passively open the local market. Rather, these provisions are additional specific obligations intended to offset, as best they can, the formidable advantages that BellSouth was expected to enjoy once it was authorized to provide long distance service. Having received that authorization, the requirements of Section 271 do not go away – BellSouth's has a continuing obligation to provide access to local competitors until relieved by the FCC through forbearance.

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21 *TRO*, ¶ 655 (footnotes omitted).

Sadly, the very result that Section 271 was intended to prevent – the reemergence of an RBOC-dominated interexchange market – is clearly occurring. BellSouth's long distance penetration in the mass market is 63%, serving more than 7.6 million customers as of the end of September.[22] Although BellSouth has experienced the loss of access lines to cable-based entrants, it proudly reports stable revenues in broadband and long distance, and increasing revenues per mass market customers (now over $63 per month).[23] With BellSouth's acquisition by AT&T – an acquisition that would not have been plausible had Section 271 provided meaningful access enabling AT&T to remain active in the mass market – the very reversal that Congress had sought to prevent will be complete. If the Commission wants to maintain a robustly competitive environment in Kentucky for conventional mass market customers, it is critical that Section 271's promise of reasonable access be translated into actual offerings.

III. Specific Pricing Proposals

Q. Before providing specific rate recommendations, do you have a general comment?

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[22] BellSouth Investor News, October 24, 2006, page 3.

[23] *Ibid* at 5.

A. Yes. As I indicated earlier, BellSouth has refused to answer discovery that would assist SouthEast's analysis of appropriate loop and switching rates, effectively elevating its *position* that the Commission does not have authority to arbitrate such rates above the Commission's *decision* that it does.[24] Unfortunately, BellSouth's discovery objections have had the effect of seriously limiting SouthEast's ability to propose just and reasonable rates to only those analyses possible with publicly available information, such as BellSouth's accounting costs filed with the FCC. As such, the analysis (and recommendations) presented below are may be modified as more complete information becomes available.

Q. Before turning to your rates proposals for the *recurring* voice grade loop and local switching rates, how do you recommend the Commission establish the *non-recurring* charges for Section 271 network elements?

A. I recommend that the Commission establish the non-recurring rates for Section 271 network elements at the levels that (would) apply to Section 251 network elements. As I explained earlier, the TELRIC-compliant rates for Section 251 network elements also satisfy the "just and reasonable" rate standard that applies to Section 271.[25] Consequently, there is no question that adopting the TELRIC-

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24 *Order*, Kentucky Public Service Commission, Case Nos. 2005-00519 and 2005-00533, August 16, 2006.

25 Even though Section 271 prices are not *required* to be priced at TELRIC, there is nothing that *prohibits* establishing 271 rates at TELRIC levels. As I explained earlier, TELRIC rates must fall within the range of just and reasonable rates.

compliant non-recurring rate elements satisfies the pricing standard for Section 271.

Moreover, non-recurring charges are assessed whenever the status-quo is disrupted – that is, whenever a customer desires to *change* its service provider or *change* its service configuration. Such activities will always disproportionally affect competitors who do not enjoy an existing base of customers that they inherited from a monopoly past. Because the competitive harm – and the harm to Kentucky consumers – is exacerbated by inefficiently high non-recurring charges, I recommend that the Commission establish identical non-recurring charges for elements/activities, without regards to whether the element is provisioned in accordance with Sections 251 or 271 of the Act.

A. Voice Grade Loops (Issue A2)

Q. Voice grade loops remain available at TELRIC rates under Section 251 of the Act. As such, why are you recommending that the Commission adopt rates for this element under Section 271 of the Act?

A. Although voice grade loops are required under Section 251 of the Act, I am recommending that the Commission also establish Section 271 prices at this time so that it may more broadly consider factors clearly relevant under Section 271 of the Act, including the effect on the development of competition. As I explain below, the extreme rate relationships that characterize the zone prices currently in effect are fundamentally inconsistent with the prevailing pricing trends for retail services. As such, SouthEast is proposing that the Commission substantially flatten UNE loop rates to promote local competition. Such pricing would clearly comply with Section 271's just and reasonable pricing standard, while retaining the basic structure and rate relationships required by Section 251 as well.

Q. Has the Commission expressed sensitivity to the effect of geographic deaveraging on local competition?

A. Yes. In Case 382, the Commission recognized that the process of selecting the appropriate zones is judgmental and was concerned about the effect of the FCC's deaveraging policy on local competition:

> Although no specific criteria was used to split the costs, many factors and variations have been considered. The methodology selected extends the Zone 1 rates to other state localities and the Commission finds this is necessary to expand local competition to all areas of the state.[26]

Q. What concern is created by the highly deaveraged loop rates currently in effect?

A. The concern is that the very highly deaveraged loop rates adopted by the Commission in Case No. 382 (nearly 5 years ago) unnecessarily discourage mass

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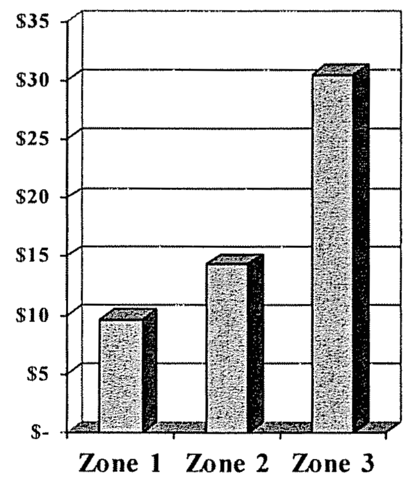
[26] Order, Kentucky Public Service Commission Case No. 382, December 18, 2001, at 34.

market competition in smaller markets, particularly those markets designated as Zone 3. The steep barrier caused by this deaveraging scheme is illustrated in the chart 1 below.

Deaveraged Loop Rates



Much has changed in the market since the Commission adopted these geographically deaveraged rates. In 2001, local competition was only just entering Kentucky, with less than 24k UNE-P lines in the entire state.[27] Mass market competition was in its infancy, and the retail pricing strategies of BellSouth were unclear. The zones adopted by the Commission create a significant barrier to widespread local competition, causing the cost to serve a mass market customer in Zone 3 to be *more than 3 times* the cost to serve a similar customer in Zone 1.

Q. What do you recommend?

A. I recommend that the Commission move to ameliorate the dramatic price differences characterizing existing loop rates, specifically voice-grade loops used

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[27] Source: FCC BellSouth Form 477 Filing (Local Competition Report), data as of December 31, 2001.

to serve mass market customers.[28] BellSouth's retail strategies demonstrate its view that the prices for mass market services are more appropriately established on a *statewide* basis, not on the cost of individual wire centers. There is no practical economic gain from imposing on entrants a highly deaveraged UNE rate schedule, when the market leader (BellSouth) is committed to a strategy of statewide retail pricing.

Q. Are statewide averaged rates the dominant form of BellSouth's retail pricing?

A. Yes. Although BellSouth's legacy pricing for stand-alone local exchange service exhibits some deaveraging (discussed further below), the *flagship* products that BellSouth markets to mass market customers are its packages and bundles that offer expanded calling, include (otherwise optional) features, and/or long distance service. Significantly, the pricing of these services – such as Complete Choice, Area Plus Service, the 2 Pack Plan, and the Preferred Pack Plan – do not exhibit geographically deaverage retail rates *at all.*

Moreover, for those few products where BellSouth does offer geographically distinct prices (such as its basic, stand-alone, flat rate service), the prices are

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[28] I focus my testimony on the pricing of voice-grade loops used in combination with local switching because the vast majority of loops used to serve mass market customers in Kentucky are part of this configuration (See rates for Combination P.1, Appendix A, Case No. 382). My recommendations, however, would also apply to the rates for stand-alone voice grade loops (A.1.1 and A.1.2, Appendix A, Case No. 382).

inversely related to cost, with prices marginally lower in small exchanges, and increasing as the size of the exchange increases. Even here, however, where the prices are likely the legacy of a long-abandoned pricing strategy,[29] the difference between the least costly exchange and the most costly exchange is very small.

For instance, the rate for residential flat-rate service (including subscriber line charge) in the *least* costly rate group (less than 13,800 lines) is $21.70 per month, while the rate in its *most* expensive rate group (over 200,800 lines) is $24.90 per month, only 15% ($3.20 per month) higher. In contrast, the difference in loop price between the lowest and highest UNE rate zone is $20.95 per month, an increase of 217%.

The highly deaveraged loop rates imposed by BellSouth on its competitors are fundamentally incompatible with retail pricing strategies in the mass market, as well as the Commission's desire to see local competition develop throughout the State. Consequently, I recommend that the Commission adopt a reformed rate schedule for voice grade loops used to serve mass market customers that substantially lessens (if not eliminates) the dramatic disparity in Zone rates that exists today.

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[29] Historically, local telephone prices were developed under a "value of service" pricing model that assumed that customers were willing to pay more for local exchange service the larger the number of subscribers in an exchange (and, therefore, other customers that could be called).

Q. How do you recommend the Commission reform the disparity in the existing zone prices for voice grade loops used to serve mass market customers?

A. Unfortunately, BellSouth refused to provide even the most basic information relied upon by the Commission to establish the existing zones, including the cost per wire center and the number of lines in each wire center. As a result of BellSouth's refusal to provide this core data, it is only possible to provide *estimates* of the appropriate Zone specific rates, which I present below.

Q. What are the *estimated* rate levels that you recommend for voice grade loops?[30]

A. Given the information currently available, I recommend that the Commission adopt a modified zone pricing plan structured to still produce the average loop rate of $17.26. It is my understanding that this is the average loop cost underlying the existing zone prices, although I cannot confirm this fact given BellSouth's refusal to respond to discovery.[31] The reformed zone and zone pricing proposal was developed in the following two steps.

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[30] As indicated earlier, the only prices I have developed in this testimony are the rates for voice grade loops used as part of a platform combination of elements. Once BellSouth has fully responded to discovery, I intend to also propose comparable rates for SL1 and SL2 voice grade loops acquired on a stand-alone basis.

[31] Regulatory Source Associates had routinely reported UNE-P prices, including the statewide average rate to its investor-clients. The $17.26 statewide average loop rate is drawn from this report. *See* Telecom Regulatory Note – Updated UNE Prices, Regulatory Source Associates, August 16, 2004.

First, the proposal reorders the wire centers in each Zone based on the availability (and level) of federal High Cost support. Specifically, the proposal assigns wire centers to each Zone in the following manner:

* Zone 1 consists of wire centers for which no federal Universal Service Support is available;
* Zone 2 consists of wire centers that qualify for up to $2 per month per line of federal High Cost support; and
* Zone 3 consists of all remaining wire centers.

Exhibit JPG-2 identifies the reformed Zone assignment of each wire center and compares the assignment to the Zone designation in Case No. 382.

Second, the loop rate in each Zone is calculated to produce an *effective* statewide average rate, taking into account that federal Universal Service Support is available to carriers serving customers in higher cost exchanges. Under this proposal, a carrier that qualified for federal USF support would confront an equalized loop cost structure that would encourage it to serve each wire center.

Estimated Loop Zone Pricing

Rate Zone	Estimated Rate	Estimated USF Support[32]	Effective Rate
Zone 1	$15.96		
Zone 2	$16.90	$0.94	$15.96
Zone 3	$21.75	$5.79	$15.96

[32] The estimated average High Cost and Interstate Access Support in the Zone.

As indicated earlier, the estimates provided in the table above could be refined if BellSouth would respond to discovery. As such, I reserve the right to revise the specifics of this recommendation once outstanding discovery disputes with BellSouth are resolved.

B. Local Switching (Issue A3)

Q. Please summarize your recommendations with respect to the rate for local switching.

A. Unlike the voice grade loops addressed above, local switching is no longer available under Section 251 of the Act. BellSouth remains obligated, however, to offer local switching at rates that are just and reasonable under Section 271. In this section of my testimony, I provide (a) an embedded cost analysis demonstrating that SouthEast's offer to pay a rate no higher than $5.50 per line is clearly just and reasonable, and (b) recommend that the Commission adopt a more efficient, cost-based, rate structure of a flat-rate per port.

Q. Please explain how you estimated BellSouth's embedded cost of local switching in Kentucky.

A. The basic calculation that I employed to estimate BellSouth's cost of local switching is the formula adopted by the FCC in its *ONA Order*.[33] That is, I calculated BellSouth's "direct cost" of local switching, to which I added a "reasonable allocation" of other costs. Specifically, the calculation consists of three steps:

* First, the analysis calculates BellSouth's Central Office Switching Expense per line.

* Second, the calculation adds an estimate of BellSouth's annual depreciation expense attributable to local switching. This results in an estimate of direct historic cost (*i.e.*, expense plus depreciation).

* Third, the direct cost (calculated by adding steps 1 and 2) is increased by a factor to provide the same return and contribution to common cost (above direct expense) from local switching as BellSouth earned on all of its regulated services in 2005 in Kentucky.

An alternative approach would be to use this same basic formula (*i.e.*, direct cost plus a reasonable allocation of common costs), but using forward-looking costs instead of historic costs. If forward-looking costs were used, the result would be very close to TELRIC. However, because BellSouth has refused to answer discovery requesting underlying costs studies, the only analysis that can be done is an embedded cost analysis based on publicly available information.

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[33] *Memorandum Opinion and Order on Reconsideration and Third Further Notice of Proposed Rulemaking*, Federal Communications Commission CC Docket 87-266, October 20, 1994, Released November 7, 1994, 10 FCC Rcd 244, ¶ 212 ("*Video Dialtone Reconsideration*").

Q. Have you previously used this formula to propose a just and reasonable rate for local switching?

A. Yes. This basic formula was used by the Tennessee Regulatory Authority ("TRA") to establish interim just and reasonable rates for local switching in an arbitration between BellSouth and ITC DeltaCom.[34] As the TRA explained when adopting ITC DeltaCom's proposed rate, the methodology used by ITC DeltaCom (and effectively mirrored here) was consistent with the traditional just and reasonable rate standard:

> Additionally, the Arbitrators noted that existing case law holds that a just and reasonable rate includes a utility's operating expenses as well as a fair return on investments and concluded that DeltaCom's proposed rate of $5.08 contained those elements. Thereafter, a majority of Arbitrators voted to adopt DeltaCom's Final Best Offer of $5.08 as an interim rate subject to true up. The Arbitrators voted unanimously to have the Chair open a generic docket to adopt a rate for switching outside of 47 U.S.C. §251 requirements.[35]

The relevant pages from the TRA decision are attached as Exhibit JPG-3.

Q. What is the source of the data used in your cost analysis?

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34 *See* Petition for Arbitration of ITC^DeltaCom Communications Inc., with BellSouth Telecommunications Inc., Pursuant to the Telecommunications Act of 1996, Tennessee Regulatory Authority Docket 03-00119, October 20, 2005 ("ITC Arbitration"). The only material difference between the calculation presented here and the calculation provided to the TRA that additional data that was not available in the ITC Arbitration makes it possible to more accurately estimate switch-related depreciation expense here.

35 *Ibid* at 37-38 (footnotes omitted).

A. The source data for the analysis is drawn from the FCC's Automated Reporting Management Information System (ARMIS). ARMIS reports summarize and report key data on BellSouth's historic cost, including information relating to the company's investment and expense levels associated with central office switching (*i.e.,* local switching), developed according to the FCC's Uniform System of Accounts.[36]

Q. Please explain how you calculated the two components of direct cost (i.e., BellSouth's actual switch-related expenses and its switch-related depreciation).

A. The first component in the direct cost formula is easily calculated because BellSouth annually reports its Central Office Switching Expense in ARMIS. In 2005, BellSouth incurred $16.571 million in central office switching expense, for an average of $1.50 per month.

The second step in the analysis determining the direct embedded cost of central office switching requires that annual depreciation be added to the expense calculated above. Importantly, ARMIS does not require that BellSouth separately report that portion of its annual deprecation expense that is directly attributable to central office switching. As such, the average annual depreciation expense for

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36 47 C.F.R. Part 32.

central office switching must be estimated from values that are reported in ARMIS.

Q. How did you estimate BellSouth's annual switch-related depreciation expense in 2005?

A. At the end of 1999, the FCC reduced the lower bound of the depreciation life for digital switching from 16 years to 12 years.[37] Assuming that BellSouth adopted the faster depreciation opportunity (*i.e.*, by depreciating its central office switching investment over 12 years), then only digital switching investment that BellSouth made since the end of 1993 would remain to be depreciated. ARMIS indicates that between 1993 and 2005, BellSouth increased its investment in digital central office switching in Kentucky by $218.7 million. The estimated annual depreciation associated with this switching investment (applying a 12 year life) produces an annual depreciation expense for central office switching of $18.224 million per year, or $1.65 per port, per month. Adding this to BellSouth's embedded switch related expense discussed above produces a direct cost of $3.16 per port.

Q. What "reasonable allocation" did you add to this estimate of BellSouth's direct embedded cost of switching?

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[37] *See*, Federal Communications Commission, Report and Order CC Docket No. 98-137 and Memorandum Opinion and Order ASD 98-91, December 30, 1999.

A. The final step is to calculate an additional amount to provide a contribution to BellSouth's common costs and a return on its investment in central office switching. This step is accomplished by applying a markup factor that is based on BellSouth's average markup (above expenses) for all of its services in Kentucky, calculated as shown below:

$$\text{Markup} = \frac{\text{Total Operating Revenue - Total Operating Expense}}{\text{Total Operating Expense}}$$

It is useful to note that providing BellSouth a contribution (*i.e.*, markup above expenses) on local switching equal to its average markup would limit rates to just and reasonable levels *only* if BellSouth's average prices are themselves just and reasonable. Significantly, BellSouth's ARMIS data indicates returns above just and reasonable levels, with a return on net investment in Kentucky in 2005 of 13.1%.[38] This return is above the FCC's last approved rate of return of 11.25%. Thus, by developing an expense markup factor that provides BellSouth the same average contribution as its other services, any excess contribution (above just and reasonable levels) embedded in the prices of these other services will be also inflate the rate for local switching as well.

Q. Please summarize your estimated embedded cost of local switching for BellSouth in Kentucky.

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[38] Source: ARMIS 43-01 (2005). Rate of Return calculated based on revenues, expenses and net investment subject to separations, applying the same methodology as used to calculate the Rate of Return on interstate services (Row 1920).

A. In summary, the embedded cost of local switching in Kentucky is approximately $4.32 per switch port, as shown in the table below:

Calculating the Embedded Cost of Local Switching

Cost Component	**2005 (thousands)**	**Per Line**
Central Office Switching Expense	$16,571	$1.50
Switching Share of Depreciation	$18,224	$1.65
Total Embedded Cost	$34,795	$3.16
Applying Average Contribution	36.8%	36.8%
Contribution	$12,814	$1.16
Embedded Cost plus Contribution	$47,609	$4.32
Direct Cost Plus Reasonable Allocation Per Port		**$4.32**

Q. What just and reasonable rate for local switching do you recommend?

A. As I explained above, BellSouth's embedded cost of local switching is approximately $4.32 per port per month. Consequently, applying this conventional cost-based approach to calculating a just and reasonable rate would produce a rate in this range. My understanding is that SouthEast has offered to pay BellSouth a rate no higher than $5.50 per month and the above analysis demonstrates that SouthEast's offer is just and reasonable.

Q. What rate structure do you recommend that the Commission adopt for the Section 271 Local Switching Element?

A. I recommend that the Commission follow the lead of the FCC (and several other state commissions, including the Tennessee Regulatory Authority when it adopted its interim Section 271 switching rate)[39] and adopt a simplified flat-rate structure for local switching. Specifically, I recommend the Commission adopt a flat-rate per analog switch port, inclusive of usage and features.[40] Such a simplified rate structure eliminates the need for call detail records and reflects the fact that modern circuit switches are port (and not usage) constrained.

Over the past several years, several states and the FCC (in its role conducting the "Virginia Arbitration")[41] have carefully examined whether a flat-rate structure is most appropriate for local switching. States that have adopted a flat-rate structure for unbundled local switching include Illinois,[42] Minnesota,[43] Indiana,[44]

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39 *Final Order of Arbitration Award*, Docket No. 03-00119, Tennessee Regulatory Authority (rel. Oct. 20, 2005).

40 This rate would substitute for the following rate elements used by BellSouth to recover central office switching costs under section 251-based rates: port, features, end-office switching (usage) and shared trunk port charges (usage).

41 *Petition of WorldCom, Inc. Pursuant to Section 252(e)(5) of the Communications Act for Preemption of the Jurisdiction of the Virginia State Corporation Commission Regarding Interconnection Disputes with Verizon Virginia Inc., and for Expedited Arbitration*, Memorandum Opinion and Order, 18 FCC Rcd 17,722 (2003).

42 *Second Interim Order*, ICC Docket 96-0486 and 96-0569 Consolidated, Illinois Commerce Commission (Feb. 17, 1998) and *Order*, Illinois Commerce Commission Docket 98-0396 (July 10, 2002).

43 *Order Setting Prices and Establishing Procedural Schedule*, MPUC Docket Nos. P-421/CI-01-1375, *et al.* (Oct. 2, 2002).

44 *In the Matter of the Commission Investigation and Generic Proceeding on Ameritech Indiana's Rates for Interconnection Service, Unbundled Elements, and Transport and Termination Under the Telecommunications Act of 1996 and Related Indiana Statutes*, Indiana Utility Regulatory Commission, Cause No. 40611-S1, Phase I at 42 (Mar. 28, 2002).

Wisconsin and Utah.[45] The FCC reached the same conclusion in resolving arbitrations involving MCI and AT&T (with Verizon) for Virginia. As the FCC explained:

> Given the record evidence that modern switches typically have large amounts of excess central processor and memory capacity, the usage by any one subscriber or group of subscribers is not expected to press so hard on processor or memory capacity at any one time as to cause call blockage, or a need for additional capacity to avoid such blockage.... Principles of cost causation, therefore, support a per line port cost recovery approach because, more than any other approach, it spreads getting started costs to carriers in a manner that treats equally all subscribers served by a switch.[46]

In addition, the FCC concluded that a flat rate "...approach avoids the competitive disadvantages associated with use of a per MOU price imposed on all usage and it avoids the problems involved with estimating the minutes of use over which to spread an estimate of switching costs."[47]

The presence of excess switching capacity reinforces the fact that a flat-rate structure is more cost-justified than alternative rate structures. As the Commission is aware, incumbent local exchange carriers have seen declining switched access lines over the past several years as customers have eliminated fax lines, second lines and even some primary line services. The number of BellSouth's switched access lines in Kentucky -- and, therefore, available

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45 *Report and Order*, Utah PSC Docket No. 01-049-85 (May 5, 2003).

46 *Virginia Arbitration Order* ¶ 463.

47 Id., ¶ 483.

capacity on its switches -- has declined by more than 27% since 2000.[48] With switches *designed* with excess capacity -- and with the number of lines *declining* through time -- there is no justification for assuming that changes in usage will result in changes in switch costs, which is the economic basis for a usage sensitive switching rate.[49] The Commission should adopt a flat-rate structure for Section 271 local switching.

Q. How does the proposed Section 271 rate of $5.50 compare to the various flat-rates based on TELRIC?

A. As shown below, the proposed Section 271 rate here represents a substantial premium over other flat, TELRIC-based, switching rates adopted by the FCC and other state commissions.

Comparison of SouthEast Proposed §271 to Other States/FCC

State	Cost Measure	Rate	Proposed §271 Rate	% Above Comparable
Illinois	TELRIC	$2.18	$5.50	152%
Indiana	TELRIC	$2.98	$5.50	85%
Wisconsin	TELRIC	$2.83	$5.50	94%
Utah	TELRIC	$3.55	$5.50	55%

[48] Source: ARMIS 43-08.

[49] BellSouth's existing switching systems have already been designed and installed to serve the maximum peak capacity in an environment where BellSouth was a monopoly and there was underlying growth in access lines and usage. Because the number of lines and the usage on those lines is declining as customers shift to other providers and other services (for instance, Internet usage is shifting to DSL), BellSouth's existing switches should be entering a period of systematic excess supply. As such, there is no reasoned basis for recovering a portion of switching costs through usage-based charges.

Comparison of SouthEast Proposed §271 to Other States/FCC

State	Cost Measure	Rate	Proposed §271 Rate	% Above Comparable
Minnesota	TELRIC	$3.12	$5.50	76%
Virginia (FCC)	TELRIC	$2.83	$5.50	94%
Tennessee	Just and Reasonable	$5.08	$5.50	8%

IV. Conclusion

Q. Please summarize your testimony.

A. Local competition for mass market customers in Kentucky remains highly dependent upon access to BellSouth facilities at just and reasonable rates. My testimony recommends that the Commission: (a) significantly flatten the rates for voice grade loops used to serve mass market customers, and (b) adopt a flat-rate for local switching at just and reasonable levels. These actions will foster competition for mass market customers, including customers in Kentucky's smaller markets.

Q. Does this conclude your direct testimony?

A. Yes.

Qualifications of Joseph Gillan

Education

B.A. Economics, University of Wyoming, 1978.
M.A. Economics, University of Wyoming, 1979.

Professional History

Gillan Associates, Economic Consulting (1987-Present)

In 1987, Mr. Gillan established a private consulting practice specializing in the economic evaluation of regulatory policies and business opportunities in the telecommunications industry. Since forming his consulting practice in 1987, Mr. Gillan has advised business clients as diverse as AT&T and TDS Telecom (a small entrant seeking the authority to compete in a rural area).

Vice President, US Switch, Inc. (1985-1987)

Responsible for crafting the US Switch business plan to gain political acceptance and government approval. US Switch pioneered the concept of "centralized equal access," which positioned independent local telephone companies for a competitive long distance market. While with US Switch, Mr. Gillan was responsible for contract negotiation/marketing with independent telephone companies and project management for the company's pilot project in Indiana.

Policy Director/Market Structure - Illinois Commerce Commission (1980-1985)

Primary staff responsibility for the policy analysis of issues created by the emergence of competition in regulated markets, in particular the telecommunications industry. Mr. Gillan served on the staff subcommittee for the NARUC Communications Committee and was appointed to the Research Advisory Council overseeing NARUC's research arm, the National Regulatory Research Institute.

Mountain States Telephone Company - Demand Analyst (1979)

Performed statistical analysis of the demand for access by residential subscribers.

Professional Appointments

Guest Lecturer	School of Laws, University of London, 2002
Advisory Council	New Mexico State University, Center for Regulation, 1985 – Present
Faculty	Summer Program, Public Utility Research and Training Institute, University of Wyoming, 1989-1992

Professional Appointments (Continued)

Contributing Editor	Telematics: The National Journal of Communications Business and Regulation, 1985 - 1989
Chairman	Policy Subcommittee, NARUC Staff Subcommittee on Communications, 1984-1985
Advisory Committee	National Regulatory Research Institute, 1985
Distinguished Alumni	University of Wyoming, 1984

Selected Publications

"The Local Exchange: Regulatory Responses to Advance Diversity", with Peter Rohrbach, Public Utilities Fortnightly, July 15, 1994.

"Reconcentration: A Consequence of Local Exchange Competition?", with Peter Rohrbach, Public Utilities Fortnightly, July 1, 1994.

"Diversity or Reconcentration?: Competition's Latent Effect", with Peter Rohrbach, Public Utilities Fortnightly, June 15, 1994.

"Consumer Sovereignty: An Proposed Approach to IntraLATA Competition", Public Utilities Fortnightly, August 16, 1990.

"Reforming State Regulation of Exchange Carriers: An Economic Framework", Third Place, University of Georgia Annual Awards Competition, 1988, Telematics: The National Journal of Communications, Business and Regulation, May, 1989.

"Regulating the Small Telephone Business: Lessons from a Paradox", Telematics: The National Journal of Communications, Business and Regulation, October, 1987.

"Market Structure Consequences of IntraLATA Compensation Plans", Telematics: The National Journal of Communications, Business and Regulation, June, 1986.

"Universal Telephone Service and Competition on the Rural Scene", Public Utilities Fortnightly, May 15, 1986.

"Strategies for Deregulation: Federal and State Policies", with Sanford Levin, Proceedings, Rutgers University Advanced Workshop in Public Utility Economics, May 1985.

"Charting the Course to Competition: A Blueprint for State Telecommunications Policy", Telematics: The National Journal of Communications Business, and Regulation, with David Rudd, March, 1985.

"Detariffing and Competition: Options for State Commissions", Proceedings of the Sixteenth Annual Conference of Institute of Public Utilities, Michigan State University, December 1984.

Listing of Expert Testimony – Court Proceedings

MCI, L.L.C. dba Verizon Business vs. Vorst Paving, Inc., (Civil Action NO. CV: 106-064 District Court for the Southern District Of Georgia) (Damages Calculation)

United States of America v. SBC Communications Inc. and AT&T Corp. (Civil Action No. 1:05CV02102 District Court for the District of Columbia) (Inadequacy of Proposed Final Judgment Settling SBC Merger with AT&T)

United States of America v. Verizon Communications Inc. and MCI Inc. (Civil Action No. 1:05CV02103 District Court for the District of Columbia) (Inadequacy of Proposed Final Judgment Settling Verizon Merger with MCI)

T & S Distributors, LLC, ACD Telecom, Inc, Telnet Worldwide, Inc et al. v. Michigan Bell Telephone Company (Civil Action No. 04-689-CK Ingham Circuit Court, State of Michigan) (Enforcement of contract; Industry definitions of local exchange service and end user)

Dwayne P. Smith, Trustee v. Lucent Technologies (Civil Action No. 02-0481 Eastern District of Louisiana)(Entry and CLEC Performance)

BellSouth Intellectual Property v. eXpeTel Communications (Civil Action No. 3:02CV134WS Southern District of Miss.)(Service definition, industry structure and Telecom Act of 1996)

CSX Transportation Inc. v. Qwest International, Inc. (Case No. 99-412-Civ-J-21C Middle District of Florida) (industry structure and wholesale contract arrangements).

Winn v. Simon (No. 95-18101 Hennepin Cty. Dist. Ct.)(risk factors affecting small long distance companies)

American Sharecom, Inc. v. LDB Int'l Corp. (No. 92-17922, Hennepin County District Court) (risk factors affecting small long distance companies)

World Com, Inc. et al. v. Automated Communications, Inc. et al. (No. 3:93-CV-463WS, S.D. Miss.) (damages)

International Assignments

Recovering Contribution: Lessons from the United States' Experience, Report submitted to the Canadian Radio-television and Telecommunications Commission on behalf of CallNet.

Forcing a Square Peg into a Round Hole: Applying the Universal Service Cost Model in the Cayman Islands, Analysis Presented to the Government of the Cayman Islands on behalf of Cable and Wireless.

<u>Summary of Expert Testimony and Affidavits – Regulatory Proceedings</u>

State	Docket/Case	Topic	Sponsor(s)
New York	Case No. 06-C-0897	Verizon Pricing Flexibility	CompTel/XO
Tennessee	Docket 06-00093	AT&T-BellSouth Acquisition	CLEC Coalition
Mississippi	No. 2006-UA-164	AT&T-BellSouth Acquisition	NuVox/TWTC
Kentucky	Case No. 2006-00136	AT&T-BellSouth Acquisition	NuVox/Xspedius
Indiana	Cause No. 42986	Wire Center Impairment List	COVAD/NuVox
Ohio	05-1393-TP-UNC	Wire Center Impairment List	CLEC Coalition
Illinois	Docket 06-0029	Wire Center Impairment List	CLEC Coalition
Illinois	Docket 06-0027	AT&T Illinois Deregulation	Data Net Systems
Oklahoma	Cause PUD 20060034	Wire Center Impairment List	CLEC Coalition
Kansas	06-SWBT-743-COM	Wire Center Impairment List	CLEC Coalition
Arkansas	Docket 05-140-C	Wire Center Impairment List	CLEC Coalition
Georgia	Docket 19341-U (II)	Establishing Section 271 Rates	CompSouth
Texas	Docket 31303	Wire Center Impairment List	CLEC Coalition
Washington	Docket UT-050814	Verizon-MCI Merger	Covad
California	Application 05-04-020	Verizon-MCI Merger	Cox
California	Application 05-04-020	Verizon-MCI Merger	Covad/CalTel
Oklahoma	Cause 200400695	Supersedes Bond	Cox
Florida	Docket 041269-TP	TRRO Implementation	CompSouth
Mississippi	Docket 2005-AD-139	TRRO Implementation	CompSouth
South Carolina	Docket 2004-316-C	TRRO Implementation	CompSouth
Kentucky	Case No. 2004-00427	TRRO Implementation	CompSouth
Alabama	Docket No. 29543	TRRO Implementation	CompSouth
Louisiana	Docket No. U-28356	TRRO Implementation	CompSouth
North Carolina	Docket P-55, Sub 1549	TRRO Implementation	CompSouth
Tennessee	Docket No. 04-00381	TRRO Implementation	CompSouth
Georgia	Docket No. 19341-U	TRRO Implementation	CompSouth
California	Application 05-02-027	SBC-AT&T Merger	Cox
California	Application 05-02-027	SBC-AT&T Merger	CalTel
Oklahoma	Cause 200400695	SBC Deregulation	Cox

Summary of Expert Testimony and Affidavits – Regulatory Proceedings

State	Docket/Case	Topic	Sponsor(s)
Kansas	05-SWBT-907-PDR	SBC Deregulation	Cox-WorldNet
Wisconsin	6720-TI-196	SBC Deregulation	CUB
Oklahoma	Cause 200400042	Status of Local Competition	Cox
Michigan	Case U-14323	SBC Deregulation	Talk America
Oklahoma	Cause RM 200400014	Regulatory Flexibility for SBC	CLEC Coalition
New Mexico	Case No. 3567	Regulation of Wireless Carriers	Wireless Coalition
North Carolina	Docket P-19 Sub 277	Alternative Regulation	CompSouth
North Carolina	Docket P-55 Sub 1013	Alternative Regulation	CompSouth
Mississippi	Docket 2003-AD-714	Switching Impairment	CompSouth
Kentucky	Case No. 2003-00379	Switching Impairment	CompSouth
Texas	Docket 28607	Switching Impairment	CLEC Coalition
Massachusetts	D.T.E 03-60	Switching Impairment	CLEC Coalition
Louisiana	Docket U-27571	Switching Impairment	CompSouth
New Jersey	Docket TO03090705	Switching Impairment	CLEC Coalition
Kansas	03-GIMT-1063-GIT	Switching Impairment	CLEC Coalition
South Carolina	Docket 2003-326-C	Switching Impairment	CompSouth
Alabama	Docket 29054	Switching Impairment	CompSouth
Illinois	Docket No. 03-0595	Switching Impairment	AT&T
Indiana	Cause No. 42500	Switching Impairment	AT&T
Pennsylvania	Case I-00030099	Switching Impairment	CLEC Coalition
Tennessee	Docket No. 03-00491	Switching Impairment	CompSouth
North Carolina	P-100, Sub 133Q	Switching Impairment	CompSouth
Georgia	Docket No. 17749-U	Switching Impairment	CompSouth
Missouri	Case TW-2004-0149	Switching Impairment	CLEC Coalition
Michigan	Case No. U-13796	Switching Impairment	CLEC Coalition
Florida	Docket No. 030851-TP	Switching Impairment	FCCA
Ohio	Case 03-2040-TP-COI	Switching Impairment	AT&T/ATX
Wisconsin	05-TI-908	Switching Impairment	AT&T
Washington	UT–023003	Local Switching Rate Structure	AT&T/MCI
Arizona	T-00000A-00-0194	UNE Cost Proceeding	AT&T/WCOM

Summary of Expert Testimony and Affidavits – Regulatory Proceedings

State	Docket/Case	Topic	Sponsor(s)
Illinois	Docket 02-0864	UNE Cost Proceeding	AT&T
North Carolina	P-55, Sub 1013 P-7, Sub 825 P-19, Sub 277	Price Cap Proceedings	CLEC Coalition
Kansas	02-GIMT-555-GIT	Price Deregulation	Birch/AT&T
Texas	Docket No. 24542	Cost Case	AT&T
North Carolina	Docket P-100, Sub 133d	UNE Cost Proceeding	CLEC Coalition
Georgia	Docket No. 11901-U	DSL Tying Arrangement	WorldCom
Tennessee	Docket No. 02-00207	UNE Availability/Unbundling	CLEC Coalition
Utah	Docket No. 01-049-85	Local Switching Costs/Price	AT&T
Tennessee	Docket No. 97-00309	Section 271 Compliance	CLEC Coalition
Illinois	Docket No. 01-0662	Section 271 Compliance	AT&T
Georgia	Docket No. 14361-U	UNE Availability/Unbundling	CLEC Coalition
Florida	Docket 020507-TL	Unlawful DSL Bundling	CLEC Coalition
Tennessee	Docket No. 02-00207	UNE Availability/Unbundling	CLEC Coalition
Georgia	Docket No. 14361-U	UNE Costs and Economics	AT&T/WorldCom
Florida	Docket 990649-TP	UNE Cost and Price Squeeze	AT&T/WorldCom
Minnesota	P-421/CI-01-1375	Local Switching Costs/Price	AT&T
Florida	Docket 000075-TP	Intercarrier Compensation	WorldCom
Texas	Docket No. 24542	Unbundling and Competition	CLEC Coalition
Illinois	Docket 00-0732	Certification	Talk America
Indiana	Cause No. 41998	Structural Separation	CLEC Coalition
Illinois	Docket 01-0614	State Law Implementation	CLEC Coalition
Florida	Docket 96-0768	Section 271 Application	SECCA
Kentucky	Docket 2001-105	Section 271 Application	SECCA
FCC	CC Docket 01-277	Section 271 for GA and LA	AT&T
Illinois	Docket 00-0700	Shared Transport/UNE-P	CLEC Coalition
North Carolina	Docket P-55 Sub 1022	Section 271 Application	SECCA
Georgia	Docket 6863-U	Section 271 Application	SECCA
Alabama	Docket 25835	Section 271 Application	SECCA
Michigan	Case No. U-12622	Shared Transport/UNEs	AT&T

Summary of Expert Testimony and Affidavits – Regulatory Proceedings

State	Docket/Case	Topic	Sponsor(s)
Ohio	Case 00-942-TP-COI	Section 271 Application	AT&T
Alabama	Docket No. 25835	Structural Separation	SECCA
Alabama	Docket No. 27821	UNE Cost Proceeding	ITC^Deltacom
Louisiana	Docket U-22252	Section 271 Application	SECCA
Mississippi	Docket 97-AD-321	Section 271 Application	SECCA
South Carolina	Docket 2001-209-C	Section 271 Application	SECCA
Colorado	Docket 99A-577T	UNE Cost Proceeding	AT&T
Arizona	Case T-00000A-00-0194	UNE Cost Proceeding	AT&T
Washington	Docket UT-003013	Line Splitting and Combinations	AT&T
Ohio	Case 00-1368-TP-ATA Case 96-922-TP-UNE	Shared Transport	AT&T/PACE
North Carolina	P-100 Sub 133j	Standard Collocation Offering	CLEC Coalition
Florida	Docket 990649-TP	UNE Cost Proceeding	CLEC Coalition
Michigan	Case No. U-12320	UNE Combinations/Section 271	AT&T
Florida	Docket 00-00731	Section 251 Arbitration	AT&T
Georgia	Docket 5825-U	Universal Service Fund	CLEC Coalition
South Carolina	97-239-C	Universal Service Fund	CLEC Coalition
Texas	PUC Docket 22289/95	ETC Designation	Western Wireless
Washington	Docket UT-003013	UNE Costs and Local Competition	AT&T
New York	Docket 98-C-1357	UNE Cost Proceeding	Z-Tel
Colorado	Docket 00K-255T	ETC Designation	Western Wireless
Kansas	99-GCCZ-156-ETC	ETC Designation	Western Wireless
New Mexico	98-484-TC	ETC Designation	Western Wireless
Illinois	Docket 99-0535	Cost of Service Rules	AT&T/MCI
Colorado	Docket 00-B-103T	U S WEST Arbitration	ICG Comm.
North Dakota	PU-1564-98-428	ETC Designation	Western Wireless
Illinois	Docket 98-0396	Shared Transport Pricing	AT&T/Z-Tel
Florida	Docket 981834-TP	Collocation Reform	CLEC Coalition
Pennsylvania	M-00001353	Structural Separation of Verizon	CompTel/ATX
Illinois	Docket 98-0860	Competitive Classification of	CompTel/ AT&T

Summary of Expert Testimony and Affidavits – Regulatory Proceedings

State	Docket/Case	Topic	Sponsor(s)
		Ameritech's Business Services	
Georgia	Docket 6865-U	Complaint re: Combinations	MCIWorldcom
Virginia	Case No. PUC 990100	GTE/Bell Atlantic Merger	AT&T
Florida	Docket 990649-TP	UNE Cost and Pricing	CLEC Coalition
Nebraska	Application C-1960/PI-25	IP Telephony and Access Charges	ICG Communications
Georgia	Docket 10692-U	Pricing of UNE Combinations	CLEC Coalition
Colorado	Docket 99F-141T	IP Telephony and Access	Qwest
California	Case A. 98-12-005	GTE/Bell Atlantic Merger	AT&T/MCI
Indiana	Case No. 41255	SBC/Ameritech Merger	AT&T
Illinois	Docket 98-0866	GTE/Bell Atlantic Merger	AT&T
Ohio	Case 98-1398-TP-AMT	GTE/Bell Atlantic Merger	AT&T
Tennessee	Docket 98-00879	BellSouth BSE	SECCA
Missouri	Case TO-99-227	§ 271 Review: SBC	AT&T
Colorado	Docket 97A-540T	Stipulated Price Cap Plan/USF	CLEC Coalition
Illinois	ICC Docket 98-0555	SBC/Ameritech Merger	AT&T
Ohio	Case 98-1082-TP-AMT	SBC/Ameritech Merger	AT&T
Florida	Docket 98-1121-TP	UNE Combinations	MCI WorldCom
Georgia	6801-U	§ 251 Arbitration: BellSouth	AT&T
Florida	92-0260-TL	Rate Stabilization Plan	FIXCA
South Carolina	Docket 96-375	§ 251 Arbitration: BellSouth	AT&T
Kentucky	Docket 96-482	§ 251 Arbitration: BellSouth	AT&T
Wisconsin	05-TI-172/5845-NC-101	Rural Exemption	TDS Metro
Louisiana	U-22145	§ 251 Arbitration: BellSouth	AT&T
Mississippi	96-AD-0559	§ 251 Arbitration: BellSouth	AT&T
North Carolina	P-140-S-050	§ 251 Arbitration: BellSouth	AT&T
Tennessee	96-01152	§ 251 Arbitration: BellSouth	AT&T
Arizona		§ 251 Arbitration: US West	AT&T Wireless
Florida	96-0883-TP	§ 251 Arbitration: BellSouth	AT&T
Montana	D96.11.200	§ 251 Arbitration: US West	AT&T

Summary of Expert Testimony and Affidavits – Regulatory Proceedings

State	Docket/Case	Topic	Sponsor(s)
North Dakota	PU-453-96-497	§ 251 Arbitration: US West	AT&T
Texas	Docket 16226	§ 251 Arbitration: SBC	AT&T/MCI
Alabama	Docket 25703	§ 251 Arbitration: BellSouth	AT&T
Alabama	Docket 25704	§ 251 Arbitration: GTE	AT&T
Florida	96-0847-TP	§ 251 Arbitration: GTE	AT&T
Kentucky	Docket 96-478	§ 251 Arbitration: GTE	AT&T
North Carolina	P-140-S-51	§ 251 Arbitration: GTE	AT&T
Texas	Docket 16630	§ 251 Arbitration: SBC	LoneStar Net
South Carolina	Docket 96-358	§ 251 Arbitration: GTE	AT&T
Texas	Docket 16251	§ 271 Review: SBC	AT&T
Oklahoma	97-0000560	§ 271 Review: SBC	AT&T
Kansas	97-SWBT-411-GIT	§ 271 Review: SBC	AT&T
Alabama	Docket 25835	§ 271 Review: BellSouth	AT&T
Florida	96-0786-TL	§ 271 Review: BellSouth	FCCA
Georgia	Docket 6863-U	§ 271 Review: BellSouth	AT&T
Kentucky	Docket 96-608	§ 271 Review: BellSouth	AT&T
Louisiana	Docket 22252	§ 271 Review: BellSouth	AT&T
Texas	Docket 16226	UNE Cost	AT&T/MCI
Colorado	97K-237T	Access Charges	AT&T
Mississippi	97-AD-321	§ 271 Review: BellSouth	AT&T
North Carolina	P-55 Sub 1022	§ 271 Review: BellSouth	AT&T
South Carolina	97-101-C	§ 271 Review: BellSouth	AT&T
Tennessee	97-00309	§ 271 Review: BellSouth	AT&T
Tennessee	96-00067	Wholesale Discount	AT&T
Tennessee	97-00888	Universal Service	AT&T
Texas	Docket 15711	GTE Certification as CLEC	AT&T
Kentucky	97-147	BellSouth BSE Certification	SECCA
Florida	97-1056-TX	BellSouth BSE Certification	FCCA
North Carolina	P691 Sub O	BellSouth BSE Certification	SECCA
Florida	98-0696-TP	Universal Service	FCCA

Summary of Expert Testimony and Affidavits – Regulatory Proceedings

State	Docket/Case	Topic	Sponsor(s)
New York	97-C-271	§ 271 Review: Bell Atlantic	CompTel
Montana	D97.5.87	§ 271 Review: US West	AT&T
New Mexico	97-106-TC	§ 271 Review: US West	AT&T/CompTel
Nebraska	C-1830	§ 271 Review: US West	AT&T
Alabama	Docket 25980	Universal Service	AT&T
Kentucky	Admin 360	Universal Service	AT&T
North Carolina	P100-S133B	Universal Service	AT&T
North Carolina	P100-S133G	Universal Service	AT&T
Illinois	95-0458/0531	Combined Network Elements	WorldCom
Illinois	96-0486/0569	Network Element Cost/Tariff	WorldCom
Illinois	96-0404	§ 271 Review: Ameritech	CompTel
Florida	97-1140-TP	Combining Network Elements	AT&T/MCI
Pennsylvania	A-310203-F0002	Local Competition	CompTel
Georgia	6415-U/6527-U	Local Competition	CompTel
Illinois	98-NOI-1	Structural Separation	CompTel/Qwest
New York	98-C-690	Combining Network Elements	CompTel
Texas	Docket 17579	§ 251 Arbitration: SBC (2nd)	AT&T/MCI
Texas	Docket 16300	§ 251 Arbitration: GTE	AT&T
Florida	Docket 920260-TL	Price Cap Plan	IXC Coalition
Louisiana	Docket U22020	Resale Cost Study	AT&T/LDDS
California	Docket R.93-04-003	Rulemaking on Open Network Architecture	LDDS/WorldCom
Tennessee	Docket 96-00067	Avoidable Cost/Resale Discount	AT&T
Georgia	Docket 6537-U	Unbundled Loop Pricing	CompTel
Georgia	Docket 6352	Rules for Network Unbundling	AT&T
Pennsylvania	Docket A-310203F0002	Introducing Local Competition	CompTel
Florida	Docket 95-0984-TP	Interconnection Terms and Prices	AT&T
Kentucky	Case No. 365	Local Competition/Universal Service	WorldCom
Mississippi	Docket 95-UA-358	Introducing Local Competition	AT&T/WorldCom

<u>Summary of Expert Testimony and Affidavits – Regulatory Proceedings</u>

State	Docket/Case	Topic	Sponsor(s)
Florida	Docket 95-0984-TP	Interconnection Terms and Prices	AT&T
Illinois	Docket 95-0458	Wholesale Local Services	WorldCom
California	Dockets R.95-04-043/044	Local Competition	WorldCom
Florida	Docket 95-0696-TP	Universal Service and Carrier of Last Resort Obligations	IXC Coalition
Georgia	Docket 5755-U	Removing Subsidies from Access	AT&T
South Carolina	Docket 95-720-C	Price Regulation	ACSI
Michigan	Case No. U-10860	Interconnection Agreement	WorldCom
Mississippi	Docket 95-US-313	Price Regulation Plan	WorldCom/AT&T
Missouri	Case TR-95-241	Expanded Local Calling	MCI
Washington	Docket UT-941464	Interconnection Complaint	IXC Coalition
Maryland	Case No. 8584 – Phase II	Introducing Local Competition	WorldCom
Massachusetts	DPU 94-185	Introducing IntraLATA and Local Competition	WorldCom
Wisconsin	Docket 6720-TI-111	IntraLATA Equal Access	Schneider Com.
North Carolina	Docket P-100, Sub 126	Expanded Local Calling	LDDS
Georgia	Docket 5319-U	IntraLATA Equal Access	MCI/LDDS
Mississippi	Docket 94-UA-536	Price/Incentive Regulation	LDDS
Georgia	Docket 5258-U	Price Regulation Plan	LDDS
Florida	Docket 93-0330-TP	IntraLATA Equal Access	IXC Coalition
Alabama	Docket 23260	Access Transport Rate Structure	LDDS
New Mexico	Docket 94-204-TC	Access Transport Rate Structure	LDDS
Kentucky	Docket 91-121	Alternative Regulation Proposal	Sprint, AT&T and LDDS
Texas	Docket 12784	Access Transport Rate Structure	IXC Coalition
Illinois	Docket 94-0096	Customer's First Proposal	LDDS
Louisiana	Docket U-17949-D	Alternative Regulation	AT&T, Sprint and LDDS
New York	Case No. 93-C-0103	Rochester Plan-Wholesale/Retail	LDDS
Illinois	Dockets 94-0043/46	Access Transport Rate Structure	IXC Coalition

Summary of Expert Testimony and Affidavits – Regulatory Proceedings

State	Docket/Case	Topic	Sponsor(s)
Florida	Docket 92-1074-TP	Expanded Interconnection	Intermedia
Louisiana	Docket U-20800	Access Transport Rate Structure	LDDS
Tennessee	Docket 93-008865	Access Transport Rate Structure	LDDS
Ohio	Docket 93-487-TP-ALT	Alternative Regulation	Allnet/LCI/LDDS
Mississippi	Docket 93-UN-0843	Access Transport Rate Structure	LDDS
South Carolina	Docket 93-756-C	Access Transport Rate Structure	IXC Coalition
Georgia	Docket 4817-U	Access Transport Rate Structure	IXC Coalition
Louisiana	Docket U-20710	Pricing and Imputation Standards	LDDS
Ohio	Case 93-230-TP-ALT	Alternative Regulation	MCI/Allnet/LCI
New Mexico	Docket 93-218-TC	Expanded Local Calling	LDDS
Illinois	Docket 92-0048	Alternative Regulation	LDDS
Mississippi	Docket 93-UN-0038	Banded Rates for Toll Service	LDDS
Florida	Docket 92-1074-TP	Expanded Interconnection	Florida Coalition
Louisiana	Docket U-20237	Preferential Toll Pricing	LDDS, MCI and AT&T
South Carolina	Docket 93-176-C	Expanded Local Calling	LDDS & MCI
Mississippi	Case 89-UN-5453	Rate Stabilization Plan	LDDS & ATC
Illinois	Docket 92-0398	Local Interconnection	CLEC Coalition
Louisiana	Docket U-19993	Payphone Compensation	MCI
Maryland	Docket 8525	Payphone Compensation	MCI
South Carolina	Docket 92-572-C	Payphone Compensation	MCI
Georgia	Docket 4206-U	Payphone Compensation	MCI
Delaware	Docket 91-47	Application for Rate Increase	MCI
Florida	Docket 88-0069-TL	Comprehensive Price Review	Florida Coalition
Mississippi	Case 92-UA-100	Expanded Local Calling	LDDS & ATC
Florida	Docket 92-0188-TL	GTE Rate Case	MCI & FIXCA
Wisconsin	Docket 05-TI-119	IntraLATA Competition	MCI & Schneider
Florida	Docket 92-0399-TP	Payphone Compensation	MCI & FIXCA
California	Docket I,87-11-033	Alternative Regulation	Intellical

Summary of Expert Testimony and Affidavits – Regulatory Proceedings

State	Docket/Case	Topic	Sponsor(s)
Florida	Docket 88-0068-TL	Rate Stabilization	Public Counsel and Large Users
New York	Case 28425, Phase III	Access Transport Rate Structure	Empire Altel
Wisconsin	Docket 05-TR-103	Intrastate Access Charges	MCI & CompTel
Mississippi	Docket 90-UA-0280	IntraLATA Competition	Intellicall
Louisiana	Docket U-17949	IntraLATA Competition	Cable & Wireless
Florida	Docket 88-0069-TL	Rate Stabilization	Florida Coalition
Wisconsin	Docket 05-TR-103	Intrastate Access Charges	Wisconsin IXCs
Florida	Docket 89-0813-TP	Alternative Access Providers	Florida Coalition
Alaska	Docket R-90-1	Intrastate Toll Competition	Telephone Utilities of Alaska
Minnesota	Docket P-3007/NA-89-76	Centralized Equal Access	MCI & Telecom*USA
Florida	Docket 88-0812-TP	IntraLATA Toll Competition	Florida Coalition
Wisconsin	Docket 05-TR-102	Intrastate Access Charges	Wisconsin IXCs
Wisconsin	Docket 6655-NC-100	Centralized Equal Access	Wisconsin IXCs
Florida	Docket 88-0069-TL	Rate Stabilization	Florida Coalition
Wisconsin	Docket 05-NC-100	IntraLATA Toll Competition	Wisconsin IXCs
Florida	Docket 87-0347-TI	AT&T Regulatory Relief	Florida Coalition
Illinois	Docket 83-0142	Intrastate Access Charges	Illinois Consolidated
Texas	Docket 8218	WATS Prorate Credit	TEXALTEL
Iowa	Case RPU 88-2	Centralized Equal Access	MCI & Teleconnect
Florida	Docket 87-1254-TL	Regulatory Flexibility for LECs	Microtel
Wisconsin	Docket 05-TR-5, Part B	IntraLATA Competition and Access Charges	Wisconsin State Telephone Assc.
Florida	Docket 86-0984, Phase II	Intrastate Loop Cost Recovery	Florida Coalition

Zone Assignments – Comparing Reform Proposal to Case 382 Zones

Reformed Zone Assignments	Case 382 Zone Assignment	CLLI	Location
1	1	DAVLKYMA	DANVILLE
1	1	LSVLKY26	LOUISVILLE – 26th Street
1	1	LSVLKYAN	LOUISVILLE – Anchorage
1	1	LSVLKYAP	LOUISVILLE – Armory Place
1	1	LSVLKYBE	LOUISVILLE – Beechmont
1	1	LSVLKYBR	LOUISVILLE – Bardstown Road
1	1	LSVLKYSH	LOUISVILLE – Shively
1	1	LSVLKYSL	LOUISVILLE – Six Mile Lane
1	1	LSVLKYSM	LOUISVILLE – St. Matthews
1	1	LSVLKYTS	LOUISVILLE – Third Street
1	1	LSVLKYWE	LOUISVILLE – Westport Road
1	1	MYVLKYMA	MAYSVILLE
1	1	OWBOKYMA	OWENSBORO
1	1	PDCHKYMA	PADUCAH – Main
1	2	BWLGKYMA	BOWLING GREEN – Main
1	2	FRFTKYES	FRANKFORT – East
1	2	FRFTKYMA	FRANKFORT - Main
1	2	GRTWKYMA	GEORGETOWN
1	2	HNSNKYMA	HENDERSON
1	2	HPVLKYMA	HOPKINSVILLE
1	2	LOUSKYES	LOUISA
1	2	LSVLKYCW	LOUISVILLE – Crestwood
1	2	LSVLKYFC	LOUISVILLE – Fern Creek
1	2	LSVLKYHA	LOUISVILLE – Harrods Creek
1	2	LSVLKYJT	LOUISVILLE – Jeffersontown
1	2	LSVLKYOA	LOUISVILLE – Okolona
1	2	LSVLKYVS	LOUISVILLE – Valley Station
1	2	MDBOKYMA	MIDDLESBORO
1	2	MDVIKYMA	MADISONVILLE
1	2	MRRYKYMA	MURRAY
1	2	MYFDKYMA	MAYFIELD
1	2	OKGVKYES	OAK GROVE
1	2	PNVLKYMA	PAINTSVILLE
1	2	RCMDKYMA	RICHMOND
1	2	RSTRKYES	ROSE TERRACE
1	2	SHVLKYMA	SHELBYVILLE
1	2	WNCHKYMA	WINCHESTER - Main
2	2	PDCHKYLO	PADUCAH – Lone Oak

Reformed Zone Assignments	Case 382 Zone Assignment	CLLI	Location
2	3	LGRNKYES	LAGRANGE
2	2	CRBNKYMA	CORBIN
2	2	BRTWKYES	BARDSTOWN
2	3	PRBGKYES	PRESTONSBURG
2	3	CRTNKYMA	CARROLLTON
2	2	PKVLKYMA	PIKEVILLE – Main
2	3	HDBGKYMA	HARRODSBURG
2	3	ALLNKYMA	ALLEN
2	3	HRLNKYMA	HARLAN
2	3	LRBGKYMA	LAWRENCEBURG
2	2	PDCHKYIP	PADUCAH – Information Park
2	3	GBVLKYMA	GILBERTSVILLE
2	3	MTSTKYMA	MT. STERLING
2	3	MGFDKYMA	MORGANFIELD
2	2	CNCYKYMA	CENTRAL CITY
2	2	PDCHKYRL	PADUCAH
2	3	SPFDKYMA	SPRINGFIELD
2	3	RLVLKYMA	RUSSELLVILLE
2	2	ERTNKYMA	EARLINGTON
2	3	FKLNKYMA	FRANKLIN
2	3	SSVLKYMA	SIMPSONVILLE
2	3	BRGNKYMA	BURGIN
2	3	PARSKYMA	PARIS
2	3	BNTNKYMA	BENTON
2	3	BNLYKYMA	BENHAM-LYNCH
2	3	PRVDKYMA	PROVIDENCE
2	3	LBJTKYMA	LEBANON JUNCTION
2	3	SNTNKYMA	STANTON
2	3	GNVLKYMA	GREENVILLE
2	3	MARTKYMA	MARTIN
2	3	NEONKYES	NEON
2	3	JNCYKYMA	JUNCTION CITY
2	3	MRGPKYMA	MORTONS GAP
2	3	STONKYMA	STONE
2	3	TYVLKYMA	TAYLORSVILLE
2	3	WSPNKYMA	WEST POINT
2	3	ELCYKYES	ELKHORN CITY
2	3	STFRKYMA	STANFORD
2	3	WHBGKYMA	WHITESBURG
2	3	FLTNKYMA	FULTON
2	3	VIRGKYMA	VIRGIE

Reformed Zone Assignments	Case 382 Zone Assignment	CLLI	Location
2	3	CYNTKYMA	CYNTHIANA
3	3	EDVLKYMA	EDDYVILLE
3	3	PRTNKYES	PRINCETON
3	3	INEZKYMA	INEZ
3	3	SWSNKYMA	S. WILLIAMSON
3	3	FEBRKYMA	FREEBURN
3	3	NWHNKYMA	NEW HAVEN
3	3	BVDMKYMA	BEAVER DAM
3	3	JCSNKYMA	JACKSON
3	3	HRFRKYMA	HARTFORD
3	3	BLFDKYMA	BLOOMFIELD
3	3	HRBGKYES	HARDINSBURG
3	3	SEBRKYMA	SEBREE
3	3	CADZKYMA	CADIZ
3	3	DWSPKYES	DAWSON SPRINGS
3	3	CMBGKYMA	CAMPBELLSBURG
3	3	WLBGKYMA	WILLIAMSBURG
3	3	EMNNKYES	EMINENCE
3	3	NRVLKYMA	NORTONVILLE
3	3	LVMRKYMA	LIVERMORE
3	3	MCWLKYMA	MCDOWELL
3	3	HANSKYMA	HANSON
3	3	BDFRKYMA	BEDFORD
3	3	RBRDKYMA	ROBARDS
3	3	EKTNKYMA	ELKTON
3	3	PKVLKYMT	PIKEVILLE
3	3	PIVLKYMA	PINEVILLE
3	3	WACOKYMA	WACO
3	3	WYLDKYES	WAYLAND
3	3	CLPTKYMA	CLOVERPORT
3	3	DRBOKYES	DRAKESBORO
3	3	ENSRKYMA	ENSOR
3	3	BYVLKYMA	BEATTYVILLE
3	3	HWVLKYMA	HAWESVILLE
3	3	MARNKYMA	MARION
3	3	SLVSKYMA	SALVISA
3	3	SLPHKYMA	SULPHUR
3	3	WLCKKYES	WALLINS CREEK
3	3	MLTNKYMA	MILTON
3	3	MGTWKYMA	MORGANTOWN

Reformed Zone Assignments	Case 382 Zone Assignment	CLLI	Location
3	3	WHVLKYMA	WHITESVILLE
3	3	FORDKYMA	FORD
3	3	HABTKYMA	HABIT
3	3	MLBGKYMA	MILLERSBURG
3	3	MACEKYMA	MACEO
3	3	CNTNKYMA	CANTON
3	3	GTHRKYMA	GUTHRIE
3	3	STRGKYMA	STURGIS
3	3	STCHKYMA	ST. CHARLES
3	3	CLAYKYMA	CLAY
3	3	WDDYKYMA	WADDY
3	3	FDCKKYES	FEDSCREEK
3	3	ISLDKYMA	ISLAND
3	3	PRVLKYMA	PERRYVILLE
3	3	GHNTKYMA	GHENT
3	3	PNTHKYMA	PANTHER
3	3	WRFDKYMA	WARFIELD
3	3	CRBOKYMA	CRAB ORCHARD
3	3	BGDDKYMA	BAGDAD
3	3	OWTNKYMA	OWENTON
3	3	STGRKYMA	STAMPING GROUND
3	3	PLRGKYMA	PLEASANT RIDGE
3	3	BRMNKYMA	BREMEN
3	3	BWLGKYRV	BOWLING GREEN
3	3	MCDNKYMA	MCDANIELS
3	3	CLTNKYES	CLINTON
3	3	CRLSKYMA	CARLISLE
3	3	CHPLKYMA	CHAPLIN
3	3	PMBRKYMA	PEMBROKE
3	3	HCMNKYMA	HICKMAN
3	3	SRGHKYMA	SORGHO
3	3	DIXNKYMA	DIXON
3	3	CNTWKYMA	CENTERTOWN
3	3	COTNKYMA	CROFTON
3	3	FNVLKYMA	FINCHVILLE
3	3	SDVLKYMA	SADIEVILLE
3	3	CLHNKYMA	CALHOUN
3	3	CYDNKYMA	CORYDON
3	3	EMNNKYPL	EMINENCE
3	3	MTEDKYMA	MT. EDEN
3	3	SCRMKYMA	SACRAMENTO

Reformed Zone Assignments	Case 382 Zone Assignment	CLLI	Location
3	3	WNCHKYPV	WINCHESTER
3	3	FRDNKYMA	FREDONIA
3	3	STNLKYMA	STANLEY
3	3	TRENKYMA	TRENTON
3	3	NEBOKYMA	NEBO
3	3	SLGHKYMA	SLAUGHTERS
3	3	UTICKYMA	UTICA
3	3	WSBGKYMA	WILLISBURG
3	3	FDVLKYMA	FORDSVILLE
3	3	LFYTKYMA	LAFAYETTE
3	3	WLVLKYMA	WEST LOUISVILLE
3	3	GRACKYMA	GRACEY
3	3	HBVLKYMA	HEBBARDSVILLE
3	3	SHGVKYMA	SHARON GROVE
3	3	AURRKYMA	AURORA
3	3	KKVLKYMA	KIRKSVILLE
3	3	BLSPKYMA	BLUFF SPRINGS
3	3	PTRYKYMA	PORT ROYAL

BEFORE THE TENNESSEE REGULATORY AUTHORITY

NASHVILLE, TENNESSEE

October 20, 2005

IN RE:	)	
	)	
PETITION FOR ARBITRATION OF ITC^DELTACOM COMMUNICATIONS, INC. WITH BELLSOUTH TELECOMMUNICATIONS, INC. PURSUANT TO THE TELECOMMUNICATIONS ACT OF 1996	)	DOCKET NO. 03-00119

FINAL ORDER OF ARBITRATION AWARD

TABLE OF CONTENTS

ISSUE 26: LOCAL SWITCHING- LINE CAP AND OTHER RESTRICTIONS

(a) Is the line cap on local switching in certain designated MSAs only for a particular customer at a particular location?

(b) Should the Agreement include language that prevents BellSouth from imposing restrictions on DeltaCom's use of local switching?

(c) Is BellSouth required to provide local switching at market rates where BellSouth is not required to provide local switching as an Unbundled Network Element (UNE)?

(d) What should be the market rate?

A. Position of the Parties

DeltaCom opines that the existing language in the contract states that the four line cap only applies to a single physical end user location with four or more DS0 (Digital Signal, Level 0) equivalent lines. The current contract language also includes language that prevents BellSouth from imposing restrictions on DeltaCom's use of local switching. DeltaCom requests that this language continue in the new agreement.[95]

Joseph Gillan, witness for DeltaCom, recommends that the Authority reject BellSouth's market-based switching rates subject to the three line rule and that the existing TELRIC UNE rate of $1.89, established by the Authority, should remain in effect for all analog switch ports since those are the rates the Authority has found to be just and reasonable.[96] Finally, DeltaCom argues that to the extent that BellSouth is allowed to price a service at market rates, those rates must be approved by the Authority and supported by relevant market analysis.[97]

BellSouth witness, Kathy Blake, states that BellSouth is only required to provide local switching as set forth in 47 C.F.R. § 51.319(c)(2) and the interconnection agreement should not include language that prevents BellSouth from imposing restrictions on DeltaCom's use

[95] Jerry Watts, Pre-Filed Direct Testimony, pp. 14-15 (August 4, 2003)
[96] Joseph Gillan, Pre-Filed Direct Testimony, p. 4 (August 4, 2003)
[97] *Id* at 2-5

of local switching. The current FCC rules impose restrictions on DeltaCom's use of local switching and set forth criteria under which BellSouth may avail itself of the local switching exemption. Ms. Blake says that BellSouth will provide local switching at the market-based rate where it is not required to unbundle local switching. BellSouth maintains that its rates for local switching are not appropriate for consideration in an arbitration proceeding because local switching is not required by the Act or the FCC's rules implementing the Act and such rates are not governed by 47 U.S.C. §§ 251 or 252.[98] BellSouth points out that the Arbitrators voted in the AT&T arbitration to "permit BellSouth to aggregate lines provided to multiple locations of a single customer to determine compliance with FCC Rule 51.319(c)(2),"[99] and that the Authority clarified that "[a]lthough BellSouth can aggregate lines of a customer running from multiple locations for the purpose of determining if BellSouth is obligated to provide unbundled local switching pursuant to FCC Rule 51.319(c)(2), this aggregation must be based on each location within the Nashville Metropolitan Statistical Area served by AT&T."[100]

B. Deliberations and Conclusions – January 12, 2004

With respect to Issue 26(a), it was noted by a majority of the panel that the four-line carve out per customer should reflect the Authority's previous decision in the AT&T arbitration, in which the Authority has permitted BellSouth to aggregate lines provided to multiple locations of a single customer.[101] Furthermore, the majority stated that the four-line carve out and the language regarding line count per customer should continue unless altered

[98] Kathy Blake, Pre-Filed Direct Testimony, pp 3-4 (August 4, 2003)
[99] *Id* at 4-5 (quoting from *Final Order of Arbitration Award*, TRA Docket No 00-00079, p 20 (November 29, 2001))
[100] *Id* at 5 (quoting from *Order Granting Requests in Part for Reconsideration and Clarification*, TRA Docket No 00-00079, p. 5 (April 22, 2002))
[101] Transcript of Proceedings, p 16 (January 12, 2004); *see also In the Matter of the Interconnection Agreement Negotiations Between AT&T Communications of the South Central States, Inc, TCG MidSouth Inc, and BellSouth Telecommunications, Inc, Pursuant to 47 USC § 252*, TRA Docket No. 00-00079, *Final Order of Arbitration Award*, p 20 (November 29, 2001).

as a result of TRA Docket No. 03-00491, the TRA's nine month proceeding to determine the availability of UNE switching.[102] As a result, a majority of the Arbitrators voted that the line cap on local switching in certain designated metropolitan statistical areas ("MSAs") permits BellSouth to aggregate lines provided to multiple locations of a single customer.[103]

As to Issue 26(b), DeltaCom asserted that the panel should adopt language from the parties' current interconnection agreement. The specific language states, "except as otherwise provided herein, BellSouth shall not impose any restrictions on ITC^DeltaCom regarding the use of Switching Capabilities purchased from BellSouth."[104] The Arbitrators disagreed with DeltaCom and stated that the proposed language from DeltaCom attempts to thwart prevailing rules.[105] The FCC rules, particularly as set forth in the TRO, specify how and when an ILEC may restrict the use of local switching.[106] DeltaCom's proposed language does not reference any state or federal rules or proceedings. As such, the Arbitrators disagreed with DeltaCom, and voted that the Agreement not include language that prevents BellSouth from imposing any restrictions on DeltaCom's use of local switching.[107]

As to Issues 26(c) and (d),[108] to the extent that the rate for a particular element has not been ordered in a generic proceeding and the rate is proposed in the context of negotiating an interconnection agreement, a party should not be precluded from litigating the issue before the Authority in an arbitration. Section 252(c)(2) of the Act states that in an arbitration a state

[102] Transcript of Proceedings, p. 16 (January 12, 2004).

[103] *Id* at 49. Director Jones disagreed with the majority on this part of Issue 26 Director Jones concluded that the local switching exemption should be applied on a per location basis In support of this conclusion, Director Jones cited the FCC's decision in CC Docket No. 00-251. *Petition of Worldcom, Inc Pursuant to Section 252(e)(5) of the Communications Act for Preemption of the Jurisdiction of the Virginia State Corporation Commission Regarding Interconnection Disputes with Verizon Virginia Inc, and for Expedited Arbitration*, CC Docket No 00-218, CC Docket No 00-249, CC Docket No 00-251, Memorandum Opinion and Order, 17 FCC Rcd 27,039, 27212 (2002) (concluding "that the local switching exemption applies on a 'per location' basis"). *See* Transcript of Proceedings, pp 16-17 (January 12, 2004)

[104] *Post-Hearing Brief of ITC^DeltaCom Communications, Inc*, p 24 (October 27, 2003) (citing parties' current approved interconnection agreement, Attachment 2, Section 9 1 2)

[105] Transcript of Proceedings, p 16 (January 12, 2004)

[106] 47 C.F R § 51 319(d) (2003).

[107] Transcript of Proceedings, p. 15 (January 12, 2004)

[108] Chairman Tate did not agree with the majority decision on Issue 26(d) as deliberated June 21, 2004

that in an arbitration a state commission shall establish any rates for interconnection, services, or network elements. As a result, the Arbitrators rejected BellSouth's claim that market based rates for switching are not appropriate for an arbitration proceeding and found that BellSouth is required to provide local switching at market rates where BellSouth is not required to provide local switchıng as a UNE.[109]

The Arbitrators observed that the record in this docket was not sufficient to allow the development of an appropriate rate for unbundled local switching.[110] While both parties proposed a rate, the $14 rate proposed by BellSouth was not presented with cost studies.[111] Therefore, it could not be determined that the $14 rate was just and reasonable as required by FCC rule. Additionally, TELRIC rate proposed by DeltaCom could not be supported since by law, and in this instance, switching is not a UNE under Section 251. It would be inconsistent with FCC rules to price non-251 network elements the same as 251 UNEs, i.e. at TELRIC. For these reasons, the Arbitrators did not support the rate proposed by either party and voted unanimously to require the parties to submit final and best offers as to the appropnate intenm rate for local switching.[112]

C. Final Best Offers

The parties submitted FBOs on February 20, 2004. In its filing, BellSouth argued that the Authority lacks the jurisdiction to consider or mandate the pricing of network elements that BellSouth will provide under 47 U.S.C. § 271 (not 47 U.S.C. § 251) and that the FCC has subsequently determined that a checklist element that does not have to be unbundled (such as switchıng) is subject to the "just and reasonable" pricing standard set forth in 47 U.S.C. §§ 201 and 202. Furthermore, it avers that the jurisdiction to enforce 47 U.S.C. §§ 201 and 202

[109] *Id* at 16.
[110] *Id* at 15
[111] Transcript of Proceedings, v II pp 479-483 (August 27, 2003)
[112] Transcript of Proceedings, p 16 (January 12, 2004).

is vested with the FCC, not with state commissions. BellSouth agreed that it is required to provide switching pursuant to § 271 of the Act, and in satisfaction of that obligation, it offers a Wholesale Local Platform DS0 Service priced at $26.48 for Zone 1, $30.31 for Zone 2 and $35.32 for Zone 3. BellSouth explains that this rate includes the port, features and TELRIC-based analog Service Level 1 ("SL1") loop. As an alternative, BellSouth requested another thirty days to negotiate a rate acceptable to both parties.[113] BellSouth provided no cost justification for the rates proposed.

DeltaCom proposes to pay BellSouth a flat rate of $5.08 per month per analog switch port, with no additional usage or feature charges. In support of this proposed rate DeltaCom uses the embedded cost for central office switching, plus a contribution equal to the average contribution of BellSouth's services in Tennessee in 2002. The rate development for the charge of $5.08 is based on BellSouth's reported central office switching expenses for 2002 and includes an estimated share of its depreciation costs for switching plant in service. This expense is directly available in ARMIS[114] 43-08 (row 6210). The portion of its depreciation expense attributed to central office switching is estimated by applying the ratio of central office switching plant in service to Total Plant in Service to the annual depreciation of plant.

D. Deliberations and Conclusions – Issue 26(d)

Following three continuances, on June 21, 2004, the Arbitrators deliberated the final and best offers submitted by the parties regarding Issue 26(d). The majority of the panel adopted DeltaCom's FBO of $5.08 as an interim rate.[115]

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[113] *BellSouth Telecommunications, Inc 's Best and Final Offers*, pp 2-5 (February 20, 2004).

[114] ARMIS is an acronym for Automated Reporting Management Information System, which is maintained by the FCC's Industry Analysis and Technology Division

[115] Chairman Tate proposed a $14 interim rate on grounds that (1) TELRIC rates are not market-based, (2) the FBOs submitted by the parties did not constitute negotiated market-based rates; (3) one or more CLECs had entered into agreements that provided for the $14 rate and these CLECs operated under these agreements for three years, and (4) the $14 rate represented the only marked-based rate in the record Chairman Tate proposed that the $14 rate be adopted as an interim rate unless and until the FCC or the Authority set a different rate or the parties negotiate a different rate

Notwithstanding BellSouth's assertions that the Authority lacked jurisdiction, the Arbitrators deliberated the switching issue as an open issue presented in a § 252 arbitration proceeding.

The Act expressly provides for state commission jurisdiction to arbitrate all open issues presented pursuant to Section 252(b)(4)(C). In addition, the Federal Act makes it clear that state commissions must arbitrate all open issues in interconnection agreements. Section 252(b)(4)(C) states:

> (C) The State commission shall resolve each issue set forth in the petition and the response, if any, by imposing appropriate conditions as required to implement subsection (c) upon the parties to the agreement, and shall conclude the resolution of any unresolved issues not later than 9 months after the date on which the local exchange carrier received the request under this section.[116]

In addition, Section 252 contains no exception for Section 271 elements presented as an open issue in an arbitration.

The TRA has broad statutory authority to arbitrate any open issue submitted in a Section 252 arbitration. Section 252(b)(4)(C) provides that "the State commission shall resolve each issue set forth in the petition" for arbitration "and the response" thereto. The scope of open issues presented for arbitration under Section 252 includes "issues on which incumbents are mandated to negotiate."[117] Switching is an element of access and interconnection which Bell operating companies are mandated to negotiate pursuant to Section 271(c)(2)(B)(vi).

Beyond those issues that are mandated for negotiation, "the parties are free to include interconnection issues that are not listed in § 251(b) and (c) in their negotiations" and may

[116] 47 U.S.C. § 252(b)(4)(C) (2001)
[117] *MCI v BellSouth*, 298 F 3d 1269, 1274 (11th Cir 2002)

"petition for compulsory arbitration of any open issue."[118] The Court of Appeals for the Fifth Circuit, in *Coserv Ltd Liability Corp. v. Southwestern Bell*:

> There is nothing in § 252(b)(1) limiting open issues only to those listed in § 251(b) and (c). By including an open-ended voluntary negotiations provision in § 252(a)(1), Congress clearly contemplated that the sophisticated telecommunications carriers subject to the Act might choose to include other issues in their voluntary negotiations, and to link issues of reciprocal interconnection together under the § 252 framework. In combining these voluntary negotiations with a compulsory arbitration provision in § 252(b)(1), Congress knew that these non-251 issues might be subject to compulsory arbitration if negotiations fail. That is, Congress contemplated that voluntary negotiations might include issues other than those listed in § 251(b) and (c) and still provided that any issue left open after unsuccessful negotiation would be subject to arbitration by the PUC. We hold, therefore, that where parties have voluntarily included in negotiations issues other than those duties required of an ILEC by § 251(b) and (c), those issues are subject to compulsory arbitration under § 252(b)(1). The jurisdiction of the PUC as arbitrator is not limited by the terms of § 251(b) and (c); instead, it is limited by the actions of the parties in conducting voluntary negotiations. It may arbitrate only issues that were the subject of the voluntary negotiations. The party petitioning for arbitration may not use the compulsory arbitration provision to obtain arbitration of issues that were not the subject of negotiations . . . . An ILEC is clearly free to refuse to negotiate any issues *other than those it has a duty to negotiate* under the Act when a CLEC requests negotiation pursuant to § 251 and 252. [Emphasis added.][119]

BellSouth has a duty and cannot refuse to negotiate the price for the switching element pursuant to Section 271(c)(2)(B)(vi). The price for the switching element was presented as an open issue in DeltaCom's petition for arbitration. Upon the failure of the parties to reach agreement of this non-251 issue, DeltaCom properly presented the price for switching as an open issue in the arbitration. As an open issue in the arbitration, the issue was properly before the TRA for resolution under Section 252 of the Federal Act. Further, BellSouth did not include this issue (Issue No. 26(d)) in its July 2, 2003 motion to remove certain issues from the arbitration.

[118] *Coserv Ltd Liability Corp v Southwestern Bell*, 350 F 3d 482, 487 (5th Cir. 2003)
[119] *Id*, at 487-488

Further, there is no language contained in the Federal Act that expressly prohibits state jurisdiction over Section 271 elements that are included in issues required to be arbitrated pursuant to Section 252. Rather, there is language that indicates that Congress gave states a role in determining Section 271 elements through state approval of both SGAT conditions and interconnection agreements. Under Section 271(c)(1) of the Federal Act, an incumbent telephone company must offer network elements either through a statement of generally available terms and conditions or an interconnection agreement. Each must be filed with and approved by the state commission.[120] Section 271 of the Federal Act requires an incumbent telephone company to satisfy its competitive checklist obligations through interconnection agreements.[121] These interconnection agreements are required to be approved by a state commission under Section 252.[122]

BellSouth must provide switching pursuant to the requirements of Section 271. In its *Final Best Offer* BellSouth argued that the TRA does not have jurisdiction to establish the rate for switching. BellSouth argued that, because Section 271 elements are regulated under Sections 201 and 202 of the Federal Act, state commissions are precluded from setting a rate for a Section 271 switching element. BellSouth cites to ¶ 664 of the TRO as standing for the proposition that ". . .the jurisdiction to enforce Sections 201 and 202 of the Act is vested with the FCC, not with state public service commissions." Paragraph 664 of the TRO, in its entirety, states:

> Whether a particular checklist element's rate satisfies the just and reasonable pricing standard of section 201 and 202 is a fact-specific inquiry that the Commission will undertake in the context of a BOC's application for section 271 authority or in an enforcement proceeding brought pursuant to section 271(d)(6). We note, however, that for a given purchasing carrier, a BOC might satisfy this standard by demonstrating that the rate for a section 271 network element is at or below the rate at which the BOC offers comparable functions

[120] 47 U S C. § 252(e) and (f) (2001)
[121] 47 U.S C § 271(c)(2)(A) (2001)
[122] 47 U S.C § 271(c)(1)(A) (2001)

> to similarly situated purchasing carriers under its interstate access tariff, to the extent such analogues exist. Alternatively, a BOC might demonstrate that the rate at which it offers a section 271 network element is reasonable by showing that it has entered into arms-length agreements with other, similarly situated purchasing carriers to provide the element at that rate.

Paragraph 664 offers two examples of situations where the FCC will make determinations of fact regarding whether a rate for a Section 271 element is just and reasonable. There is nothing, however, in the above-quoted language, to preclude a state commission from setting the rate for a Section 271 element.

Congress explicitly charged state commissions with the responsibility to arbitrate Section 252 disputes, and this charge includes arbitrating the rates, terms and conditions of Section 271 elements. Further, the fact that the FCC has the authority to enforce Section 271 does not diminish or cut off the obligations of the state commissions to arbitrate interconnection agreements required by Section 271 which also includes establishing rates for elements required by the competitive checklist.

Section 271(c)(2)(A) links BellSouth's obligations under the competitive checklist to its providing that access through an interconnection agreement (or SGAT):

> (A) AGREEMENT REQUIRED - A Bell operating company meets the requirements of this paragraph if, within the State for which the authorization is sought—
>
> (i) (I) such company is providing access and interconnection pursuant to one or more agreements described in paragraph (1)(A) [Interconnection Agreement], or
>
> (II) such company is generally offering access and interconnection pursuant to a statement described in paragraph (1)(B) [an SGAT], and
>
> (ii) such access and interconnection meets the requirements of subparagraph (B) of this paragraph [the competitive checklist].[123]

[123] 47 U S C § 271(c)(2)(A) (2001).

By directly tying interconnection agreements to Section 271(c)(1)(A) and (B), the Act explicitly ties compliance with the competitive checklist to the review process described in Section 252. As Section 271(c)(1) states:

> (1) AGREEMENT OR STATEMENT- A Bell operating company meets the requirements of this paragraph if it meets the requirements of subparagraph (A) or subparagraph (B) of this paragraph for each State for which the authorization is sought.
>
> (A) PRESENCE OF A FACILITIES-BASED COMPETITOR- A Bell operating company meets the requirements of this subparagraph if it has entered into one or more **binding agreements that have been approved under section 252** specifying the terms and conditions under which the Bell operating company is providing access and interconnection to its network facilities for the network facilities of one or more unaffiliated competing providers of telephone exchange service (as defined in section 3(47)(A), but excluding exchange access) to residential and business subscribers.[124]

This language demonstrates that Section 271 network elements must be offered pursuant to the same, identical review process as Section 251 network elements.

The FCC's TRO determined that pricing of Section 271 elements must be more liberal than TELRIC prices but produce just and reasonable prices.[125] The TRO states:

> Thus, the pricing of checklist network elements that do not satisfy the unbundling standards in section 251(d)(2) are reviewed utilizing the basic just, reasonable, and nondiscriminatory rate standard of sections 201 and 202 that is fundamental to common carrier regulation that has historically been applied under most federal and state statutes, including (for interstate services) the Communications Act. Application of the just and reasonable and nondiscriminatory pricing standard of sections 201 and 202 advances Congress's intent that Bell companies provide meaningful access to network elements.[126]

Thus, the FCC recognized that the pricing standards of Section 271 elements must be the same as the pricing standards used before the Federal Act such as those standards in Sections

[124] 47 U.S C. § 271(c)(1)(A) (2001) (Emphasis added)
[125] This does not mean that TELRIC prices are not just and reasonable On the contrary, TELRIC prices must first meet the just and reasonable definition of the Act
[126] TRO, 18 FCC Rcd at 17389

201 and 202. Nevertheless, it is significant that the FCC did not change the division of pricing responsibility defined in the Federal Act. While the FCC will continue to set the pricing standards, it continues to be incumbent upon state commissions to apply those standards in the process of establishing rates.[127] The FCC did not change the process utilized to resolve pricing disputes of Section 271 elements. There is no indication that the FCC intended to remove Section 271 elements from state arbitrations or from approval of interconnection agreements consistent with Section 252.

In the regulatory scheme set up by the Federal Act, state commissions are directed by provisions of the Federal Act and FCC regulations in making decisions, which are subject to federal court review.[128] Thus, cooperative federalism is a statutory framework in which there is both state and federal regulation of telecommunications services. The parameters of both federal and state regulation within this statutory framework are determined by the Federal Act and the state statutes establishing regulatory authority.

In construing the reach of the TRA's authority, the Tennessee Supreme Court has held:

> Any authority exercised by the Public Service Commission must be as the result of an express grant of authority by statute or arise by necessary implication from the expressed statutory grant of power. *Pharr v. Nashville, Chattanooga and St. Louis Railway,* 186 Tenn. 154, 208 S.W.2d 1013 (1948); *Nashville, Chattanooga and St. Louis Railway v. Railroad and Public Utilities Commission et al,* 159 Tenn. 43, 15 S.W.2d 751 (1929). In either circumstance, the grant of power to the Commission is strictly construed.[129]

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[127] The United States Supreme Court affirmed this division of responsibility in *AT&T Corp. v. Iowa Utilities Bd.*, 525 U S 366, at 384 (1999), emphasis added:

> "252(c)(2) entrusts the task of establishing rates to the state commissions . . The FCC's prescription, through rulemaking, of a requisite pricing methodology no more prevents the States from establishing rates than do the statutory 'Pricing standards' set forth in 252(d). It is the States that will apply those standards and implement that methodology, determining the concrete result in particular circumstances."

[128] *Id* at 352

[129] *Tennessee Pub Serv Comm'n v Southern Ry Co*, 554 S W 2d 612, 613 (Tenn 1977).

The Tennessee Court of Appeals has echoed this interpretation of the TRA's authority:

> The Commission, like any other administrative agency, must conform its actions to its enabling legislation. It has no authority or power except that found in the statutes. While its statutes are remedial and should be interpreted liberally, they should not be construed so broadly as to permit the Commission to exercise authority not specifically granted by law.[130]

The TRA must exercise its authority in accordance with legislative limitations, directives and policy. In other words, "its actions must be harmonious and consistent with its statutory authority."[131] Chapter 4 of Title 65 sets forth the statutory framework for the TRA's authority to regulate public utilities. Pursuant to Tenn. Code Ann. § 65-4-104, the statutory grant of authority over public utilities given to the TRA is extensive:

> The authority has general supervisory and regulatory power, jurisdiction, and control over all public utilities, and also over their property, property rights, facilities, and franchises, so far as may be necessary for the purpose of carrying out the provisions of this chapter [Chapter 4].

Tenn. Code Ann. § 65-4-106 provides:

> This chapter [Chapter 4] shall not be construed as being in derogation of the common law, but shall be given a liberal construction, and any doubt as to the existence or extent of a power conferred on the authority by this chapter or chapters 1, 3, and 5 of this title shall be resolved in favor of the existence of the power, to the end that the authority may effectively govern and control the public utilities placed under its jurisdiction by this chapter.

In addition to the general powers described in the above referenced statutes, the TRA has been given specific authority or power by Tenn. Code Ann. § 65-5-201(a) "to fix just and reasonable individual rates, joint rates, tolls, fares, charges or schedules thereof," by Tenn. Code Ann. § 65-4-117(3) "to fix just and reasonable standards, classifications, regulations, practices or services to be furnished, imposed, observed and followed thereafter by any public

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[130] *BellSouth Telecommunications, Inc v Greer*, 972 S W.2d 663, 680 (Tenn Ct App 1997) (internal citations omitted)
[131] *Tennessee Cable Television Ass'n v Tennessee Pub Serv Comm'n*, 844 S.W 2d 151, 159 (Tenn Ct App. 1992)

utility," and by Tenn. Code Ann. § 65-4-114(1) to require every public utility to "furnish safe, adequate, and proper service."

With the passage of the Tennessee telecommunications act in 1995 (the "Tennessee Act"), the Tennessee General Assembly changed regulation of telecommunications companies in Tennessee and established a new direction for the State and a new mandate to the TRA. The expressed goal of the Tennessee Act is articulated at Tenn. Code Ann. § 65-4-123:

> The general assembly declares that the policy of this state is to foster the development of an efficient, technologically advanced, statewide system of telecommunications services by permitting competition in all telecommunications services markets, and by permitting alternative forms of regulation for telecommunications services and telecommunications services providers. To that end, the regulation of telecommunications services and telecommunications services providers shall protect the interests of consumers without unreasonable prejudice or disadvantage to any telecommunications services provider; universal service shall be maintained; and rates charged to residential customers for essential telecommunications services shall remain affordable.

The Tennessee Act also recognizes and imposes certain requirements on providers of telephone services:

> All telecommunications services providers shall provide non-discriminatory interconnection to their public networks under reasonable terms and conditions; and all telecommunications services providers shall, to the extent that it is technically and financially feasible, be provided desired features, functions and services promptly, and on an unbundled and non-discriminatory basis from all other telecommunications services providers.[132]

In *Mich. Bell Tel. Co. v. MCImetro Access Transmission Servs*, the Sixth Circuit Court of Appeals stated:

> When Congress enacted the federal Act, it did not expressly preempt state regulation of interconnection. In fact, it expressly *preserved* existing state laws that furthered Congress's goals and authorized states to implement additional requirements that would foster local interconnection and competition, stating

[132] Tenn Code Ann § 65-4-124(a).

> that the Act does not prohibit state commission regulations "if such regulations are not inconsistent with the provisions of [the FTA]." 47 U.S.C. § 261. Additionally, Section 251(d)(3) of the Act states that the Federal Communications Commission shall not preclude enforcement of state regulations that establish interconnection and are consistent with the Act. 47 U.S.C. § 251(d)(3).[133]

The Tennessee statutes and the relevant provisions of the Federal Act together form the basis for the authority of the TRA to set an interim rate for switching in the context of an arbitration proceeding and to convene a generic proceeding for the purpose of determining a permanent rate for switching. While Section 271 establishes the enforcement authority of the FCC regarding Section 271 issues, it does not strip the TRA of its authority to set rates for Section 251 or Section 271 elements. The TRA is exercising its authority provided by the General Assembly prior to the enactment of the federal act as the legal foundation for its actions. Additionally, the TRA's decision is consistent with the requirement that its actions not conflict with any current federal requirements.

According to FCC rules, in situations where unbundled switching is not required under Section 251, the element must still be offered to competitors in order to comply with the requirements of Section 271; however, the rate does not have to comply with TELRIC pricing methodology. Instead, the FCC requires that rates for unbundled elements offered pursuant to Section 271 must be "just and reasonable."[134] The reason for requesting FBOs in this case was to determine a just and reasonable rate for unbundled switching.

In its FBO on Issue No. 26(d), DeltaCom proposed a rate of $5.08 (usage included) which was based on BellSouth's ARMIS 43-08 (row 6210) reported central office switching expenses for 2002 and an estimated share of its depreciation costs for switching plant in service.

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[133] *Mich Bell Tel Co v MCImetro Access Transmission Servs*, 323 F 3d 348, 358 (6th Cir 2003)
[134] TRO, 18 FCC Rcd at 17389

BellSouth's FBO was based on the price it charges for wholesale local platform DS0 service.[135] The proposed rates were $26.48 in Zone 1; $30.31 in Zone 2; and $35.32 in Zone 3. Inclusive in these rates are the port, features, and an analog SL1 loop. These rates did not include usage, which was an additional per-minute charge.

During the deliberations it was noted that BellSouth failed to demonstrate that its proposed switching rate is at or below the rate at which BellSouth offers comparable functions to similarly situated purchasing carriers under its interstate access tariff or that the rate is reasonable by showing that it had entered into arm's length agreements with other similarly situated purchasing carriers to provide the switching element at the rate proposed in its final best offer.[136] It was also noted that BellSouth's FBO did not contain a stand-alone rate for switching. Additionally, the Arbitrators noted that existing case law holds that a just and reasonable rate includes a utility's operating expenses as well as a fair return on investments and concluded that DeltaCom's proposed rate of $5.08 contained those elements.[137] Thereafter, a majority of the Arbitrators voted to adopt DeltaCom's Final Best Offer of $5.08 as an interim rate subject to true up.[138] The Arbitrators voted unanimously to have the Chair open a generic docket to adopt a rate for switching outside of 47 U.S.C. § 251

[135] *See In Re Petition for Arbitration of ITC^DeltaCom Communications, Inc with BellSouth Telecommunications, Inc Pursuant to the Telecommunications Act of 1996*, TRA Docket No. 03-00119, BellSouth's Best and Final Offers, p 5 (February 20, 2004)

[136] Transcript of Proceedings, p. 4 (June 21, 2004) The *Triennial Review Order* states

> Whether a particular checklist element's rate satisfies the just and reasonable pricing standard of section 201 and 202 is a fact-specific inquiry that the Commission will undertake in the context of a BOC's application for section 271 authority or in an enforcement proceeding brought pursuant to section 271(d)(6). We note, however, that for a given purchasing carrier, a BOC might satisfy this standard by demonstrating that the rate for a section 271 network element is at or below the rate at which the BOC offers comparable functions to similarly situated purchasing carriers under its interstate access tariff, to the extent such analogues exist Alternatively, a BOC might demonstrate that the rate at which it offers a section 271 network element is reasonable by showing that it has entered into arms-length agreements with other, similarly situated purchasing carriers to provide the element at that rate.

Triennial Review Order, ¶ 664

[137] Transcript of Proceedings, p. 4 (June 21, 2004), *see Farmers Union Central Exchange v FERC*, 734 F 2d 1486, 1502 (D C Cir 1984); *see also FPC v Hope Natural Gas Co* , 320 U S 591, 596-598, 605, 64 S.Ct 281, 88 L.Ed 333 (1994)

[138] See supra n 115, Chairman Tate did not vote with the majority with respect to the rate for local switching

requirements.[139] The Arbitrators unanimously found that the interim rate should be trued up to the earlier of establishment of: 1) a switching rate in the generic docket; 2) a commercially negotiated switching rate; or 3) FCC rules regarding switching rates outside of 47 C.F.R. §251.

[139] Transcript of Proceedings, pp. 2-9 (June 21, 2004)

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COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

* * * * *

In the Matter of:

Petition of SouthEast Telephone, Inc., for Arbitration of Certain Terms and Conditions of Proposed Agreement with BellSouth Telecommunications, Inc., Concerning Interconnection Under the Telecommunications Act of 1996	)))))	Case No. 2006-00316

RECEIVED

NOV 06 2006

PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF

STEVEN E. TURNER

ON BEHALF OF

SOUTHEAST TELEPHONE, INC.

NOVEMBER 3, 2006

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I. BACKGROUND AND EDUCATION

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 attached as Exhibit SET-1 to my testimony.

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 Kentucky Public Service Commission ("Commission") in Docket Numbers 2001-00105, 2003-00379, and 2006-00099. I have also been a witness in commission proceedings in the states of Alabama, Arkansas, California, Colorado, Delaware, Florida, Georgia, Hawaii, Illinois, Indiana, Kansas, Louisiana, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Hampshire, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, 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. I am testifying on behalf of SouthEast Telephone, Inc. ("SouthEast") and will address two issues in this testimony.

First, I will address Issue A-4 in SouthEast's Arbitration Petition with BellSouth. Specifically, Issue A-6 raises the following question: "What rates, terms and conditions should govern an interconnection arrangement in which BellSouth's offering of UNE-L interconnected to SouthEast's network at an 'Adjacent Meet Point'?"[1] My testimony will

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1 Commonwealth of Kentucky, Before the Public Service Commission, *In the Matter of: Petition of SouthEast Telephone, Inc., for Arbitration of Certain Terms and Conditions of Proposed Agreement with BellSouth Telecommunications, Inc., Concerning Interconnection Under the Telecommunications Act of 1996*, Case No. 2006-00316, Petition of SouthEast Telephone, Inc. for Arbitration with BellSouth under the Telecommunications Act of 1996, June 15, 2006, p. 11. (Hereafter referred to as "SouthEast Arbitration Petition.")

present an explanation of a form of collocation known as Adjacent Off-Site Collocation and why this Commission should permit this form of collocation. Moreover, I will introduce a cost study that I performed to develop standard rates for this form of collocation along with terms and conditions governing the provision of this form of collocation.

Second, I will address a portion of Issue A-2 in SouthEast's Arbitration Petition with BellSouth in conjunction with Mr. Joseph Gillan. Specifically, Issue A-2 raises the following question: "What monthly recurring rates should be established in each pricing Zone for the voice-grade Local Loop element?"[2] Mr. Gillan's testimony will propose specific § 271 rates for the voice-grade local loop element. However, should the Commission choose not to adopt § 271 voice-grade local loop rates, my testimony addresses why the Commission should open a generic § 251 cost proceeding to update the voice-grade local loop costs and rates.

III. DISCUSSION OF ADJACENT OFF-SITE COLLOCATION AVAILABILITY

Q. WHAT FORMS OF COLLOCATION CURRENTLY EXIST IN KENTUCKY?

A. Per my review of BellSouth's collocation alternatives as found in the existing BellSouth-SouthEast interconnection agreement, BellSouth offers traditional Physical Caged Collocation, Physical Cageless Collocation, Virtual Collocation, and a limited definition of Adjacent On-Site Collocation. All of these forms of collocation require that SouthEast places its equipment either in BellSouth's central office or in a controlled environmental vault (or equivalent) on BellSouth's property. These are not the only forms of collocation

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2 SouthEast Arbitration Petition, p. 10.

that are technically feasible or that are provided by other incumbents across the country. Adjacent Off-Site Collocation is also a technically feasible form of collocation that should be made available to SouthEast.

Q. COULD YOU EXPLAIN WHAT ADJACENT OFF-SITE COLLOCATION IS AND HOW IT WORKS?

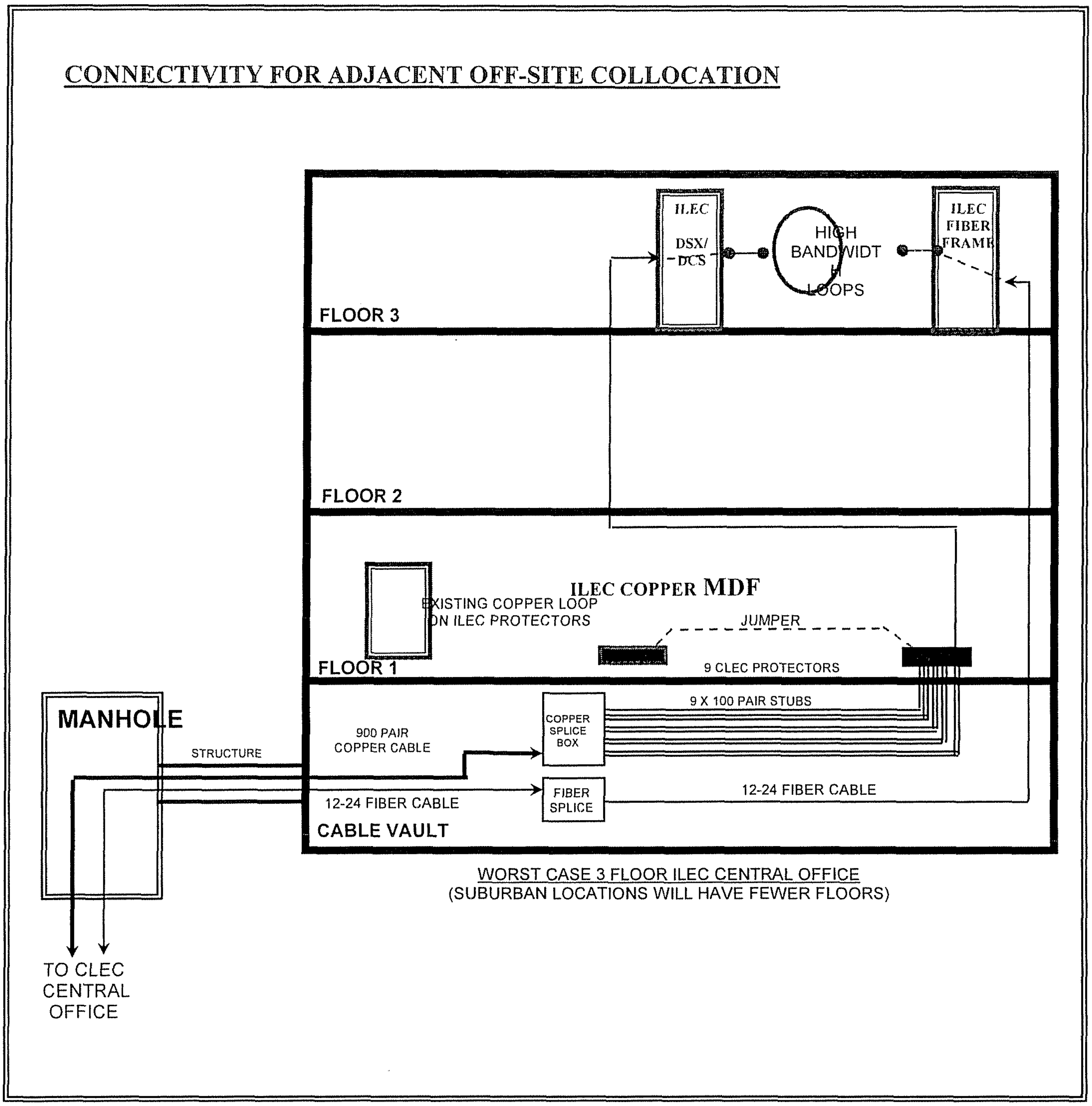
A. Adjacent Off-Site Collocation occurs when the CLEC's telecommunications equipment is not located on the central office property. In this form of collocation, the CLEC arranges its own rights-of-way, etc. and provides cabling at the nearest manhole to the central office with enough slack to be pulled into the central office cable vault. All components of collocation such as space, power, HVAC, and the like except for connectivity are self-provided.

Q. COULD YOU PLEASE PROVIDE A DIAGRAM THAT GENERALLY ILLUSTRATES THE COMPONENTS OF ADJACENT OFF-SITE COLLOCATION?

A. Yes. The diagram below generally defines the relationship between the Adjacent Off-Site Collocation arrangement and the key incumbent connectivity points.

Figure 1 - Connectivity For Adjacent Off-Site

1



Q. COULD YOU PROVIDE THE REGULATORY BASIS FOR WHY BELLSOUTH SHOULD BE REQUIRED TO PROVIDE THIS FORM OF COLLOCATION?

A. Yes. The FCC *Advanced Services Order* requires ILECs to permit adjacent space collocation to the extent it is technically feasible.[3] Given that part of the overall intent of the FCC *Advanced Services Order* is to make more central office space available for collocation (via cageless collocation, shared collocation, and subleased collocation), adjacent space collocation is the FCC's attempt to ensure that CLECs always have an option for acquiring interconnection and access to UNEs within the ILEC's central office.

Several ILECs already provide for adjacent off-site collocation. Specifically, AT&T (in Texas and in California) and Verizon (in California) have testified that they are already providing off-site adjacent collocation arrangements for CLECs.[4] Moreover, AT&T has terms and conditions for adjacent off-site collocation in its tariffs for at least the states of California, Kansas, Michigan, Missouri, Nevada, Oklahoma, Texas, and Wisconsin. In short, this is a form of collocation that is already being provided for in other similarly situated networks, and there is no reason why BellSouth should not also make this same form of collocation available in Kentucky.

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3 FCC *Advanced Services Order* ¶ 44.

4 Before the Public Utilities Commission of the State of California, *Order Instituting Rulemaking on the Commission's Own Motion into Competition for Local Exchange Service*, R. 95-04-043, *Order Instituting Investigation on the Commission's Own Motion into Competition for Local Exchange Service*, I.95-04-044, Assigned Commissioner's Ruling Transferring Specific Collocation Issues for Pacific Bell and GTE California Incorporated from the Local Competition Proceeding to the Collocation Phase of OANAD and Reopening OANAD Hearing Record, January 13, 2000, p. 4.

Q. WHY IS IT IMPORTANT TO NOTE THAT OTHER INCUMBENTS ARE ALREADY PROVIDING ADJACENT OFF-SITE COLLOCATION?

A. Because the FCC in the *Advanced Services Order* has specific provisions related to the presumption that a form of collocation that works in one part of the country should be available in other parts as well.

> We recognize that different incumbent LECs make different collocation arrangements available on a region by region, state by state, and even central office by central office basis. Based on the record, we now conclude that the deployment by any incumbent LEC of a collocation arrangement gives rise to a rebuttable presumption in favor of a competitive LEC seeking collocation in any incumbent LEC premises that such an arrangement is technically feasible. Such a presumption of technical feasibility, we find, will encourage all LECs to explore a wide variety of collocation arrangements and to make such arrangements available in a reasonable and timely fashion. We believe this "best practices" approach will promote competition. Thus, for example, a competitive LEC seeking collocation from an incumbent LEC in New York may, pursuant to this rule, request a collocation arrangement that is made available to competitors by a different incumbent LEC in Texas, and the burden rests with the New York incumbent LEC to prove that the Texas arrangement is not technically feasible.[5]

Here we have a form of collocation that has been shown to be technically feasible by being implemented in many states that SouthEast is asking to be made available to it in Kentucky. According to this rule, the burden of proof falls on BellSouth to show that this form of collocation is not technically feasible to restrict access to this form of collocation to SouthEast.

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5 FCC *Advanced Services Order* ¶ 45.

Q. ARE THERE ANY INDICATIONS THAT BELLSOUTH ITSELF OFFERS ADJANCENT OFF-SITE COLLOCATION?

A. Actually, there are. BellSouth has actually implemented collocation arrangements at remote terminals with SouthEast that are very similar to Adjacent Off-Site Collocation arrangements. Remote terminals are locations where BellSouth places electronics equipment to convert copper loops into signals that can be transmitted over fiber facilities back to the BellSouth central office. SouthEast needs access to the copper loops. To enable access to the copper loops, SouthEast obtains its own easement, places equipment on that easement, and typically extends a 200-pair copper cable to a pedestal where it meets BellSouth for connections to the copper loops at the remote terminal. SouthEast's easement is "off-site" from where BellSouth's remote terminal equipment is located. Moreover, a copper entrance facility is then extended from SouthEast's equipment to BellSouth's equipment to enable SouthEast to have access to the copper portion of the unbundled loops. If BellSouth is willing to permit collocators such as SouthEast to have access to this form of collocation at a remote terminal, there is certainly no reason why SouthEast should be precluded from having access to a similar form of collocation at the central office.

Q. HAS BELLSOUTH PREVIOUSLY RESPONDED TO THIS ISSUE OF OFFERING ADJACENT OFF-SITE COLLOCATION?

A. Yes. This issue was raised in Kentucky Public Service Commission Case No. 2001-105. I testified on this issue on behalf of AT&T. Mr. Gray testified on this issue on behalf of BellSouth.

Q. COULD YOU BRIEFLY SUMMARIZE BELLSOUTH'S OBJECTIONS TO ADJACENT OFF-SITE COLLOCATION IN CASE NO. 2001-105?

A. Yes. According to Mr. Gray, BellSouth's objections revolved around the following four concerns. *First*, Mr. Gray objects to Adjacent Off-Site Collocation in that BellSouth does not believe that the FCC *requires* that this form of collocation be made available. The following quote from Mr. Gray's testimony summarizes BellSouth's position:

> Based on the FCC's *Collocation Reconsideration Order*, it is clear to BellSouth that it must only offer "adjacent collocation" as described above, which is ***at*** **the premises of the local exchange carrier** (emphasis added). This includes buildings and similar structures owned, leased, or controlled by BellSouth that house network facilities, structures that house BellSouth's facilities on public rights-of-way, and all land owned, leased or otherwise controlled by BellSouth that is adjacent to these structures **at the premises of BellSouth** (emphases added). In other words, BellSouth must only offer "on-site" adjacent collocation (which it does so). There is no FCC or Commission requirement that BellSouth must provide "off-site" collocation to the CLECs when central office space is exhausted.[6]

Second, Mr. Gray offers that even though other incumbent LECs offer adjacent off-site collocation, he believes the form of collocation that they are offering is so limited that BellSouth should not have to also offer it notwithstanding the FCC requirements identified above to the contrary.[7]

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6 BellSouth Telecommunications, Inc., Rebuttal Testimony of A. Wayne Gray before the Kentucky Public Service Commission, Case No. 2001-105, July 30, 2001, p. 28. (Hereafter referred to as "Gray Testimony.")

7 Gray Testimony, p. 29.

Third, at least as of the time of Mr. Gray's testimony, Mr. Gray argued that BellSouth should not have to offer adjacent off-site collocation in that BellSouth had not even had a request for adjacent on-site collocation in any of its nine states.[8]

Fourth, again at least as of the time of Mr. Gray's testimony, Mr. Gray claimed that BellSouth was only *required* to provide adjacent on-site collocation when space was exhausted within its central offices and that BellSouth did not have any space exhaust situations. As such, Mr. Gray argued that it certainly should not then be required to provide adjacent off-site collocation.[9]

Q. COULD YOU PLEASE RESPOND TO BELLSOUTH'S PRIOR OBJECTIONS TO ADJACENT OFF-SITE COLLOCATION?

A. Yes. BellSouth is correct that the FCC's *Collocation Reconsideration Order* and even the FCC's *Advanced Services Order* only explicitly note that Adjacent On-Site Collocation is *required*. However, the term "required" is the key point here. *First*, the FCC *Advanced Services Order* makes the following conclusion in its order: "The collocation rules set forth in the Order serve as minimum standards, and permit any state to adopt additional requirements."[10] In other words, BellSouth has fairly identified the FCC's explicit *minimum* standards for adjacent collocation. But this Commission is fully able to "adopt additional requirements" that it believes are helpful to establish competition in Kentucky.

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8 *Id.*

9 *Id.*

10 FCC *Advanced Services Order* ¶ 8.

Second, while BellSouth has fairly identified the *minimum* standards in the FCC *Advanced Services Order* and in the *Collocation Reconsideration Order*, BellSouth has not fairly reflected the FCC's requirements regarding portability of collocation terms and conditions between different incumbent LEC territories. I described the FCC *Advanced Services Order* requirement that there is a "rebuttable presumption" that forms of collocation that exist in one part of the country with a different incumbent LEC should be made available in other parts of the country should they be asked for by a collocator. The fact that BellSouth has fairly noted the *minimum* standard for adjacent on-site collocation found in the FCC *Advanced Services Order* does not mean that "rebuttal presumption" rules do not also apply to BellSouth. Because Adjacent Off-Site Collocation is available in other incumbent LEC territories, BellSouth should also make it available here in Kentucky.

Q. DOES NOT BELLSOUTH'S EARLIER TESTIMONY ALSO ADDRESS THE "REBUTTABLE PRESUMPTION" RULE REGARDING ADJACENT OFF-SITE COLLOCATION?

A. Yes. However, BellSouth's testimony in this regard is not particularly convincing. Mr. Gray makes only three points: (1) the terms for Adjacent Off-Site Collocation in other states require that the off-site location be within one city block of the central office to which the collocation arrangement is connected; (2) that no CLEC in Kentucky had even asked for adjacent on-site collocation, much less adjacent off-site collocation; and (3) that adjacent collocation is only available when space is exhausted within the central office and no Kentucky central offices are space exhausted.

It is true that some of the states where Adjacent Off-Site Collocation is available have a provision that the form of collocation should only be available for off-site locations that are within a city block of the incumbent LEC central office. However, this is not an issue of technical feasibility. With Adjacent Off-Site Collocation, there are only two collocation elements that are purchased from BellSouth – fiber entrance facilities and copper entrance facilities. With fiber, there are no legitimate distance limitations and in reality fiber entrance facilities are used today into BellSouth central offices that come from considerable distances. As such, the real issue is with copper entrance facilities. With copper, because the entrance facilities are being used to connect with unbundled loops, the increased distance between the BellSouth MDF and the SouthEast off-site collocation facility can cause service problems if the distance becomes too great. One standard city block may or may not lead to sufficient distance to cause service problems in that the length of the copper loop from BellSouth MDF out to the customer premises is a factor as well. However, in these other states, some limitation on the distance from the incumbent LEC central office did not seem to be an unreasonable request as typically the collocator would also want to be near the central office. That said, I would recommend that the Commission not institute a specific distance limitation but allow the collocator to make this tradeoff on its own with respect to how additional copper distance will limit its service options to the unbundled copper loops that it purchases from BellSouth. Either way (with a distance limitation or not), the fact that other states have this distance limitation should not be a sufficient reason in Kentucky for BellSouth to refuse to provide this form of collocation to SouthEast.

Q. DO YOU HAVE A RESPONSE TO BELLSOUTH'S CONCERN THAT NO CLEC IN KENTUCKY HAS EVEN ASKED FOR ADJACENT ON-SITE COLLOCATION, MUCH LESS ADJACENT OFF-SITE COLLOCATION?

A. Yes. It is my understanding from speaking with SouthEast personnel that SouthEast does want to utilize Adjacent Off-Site Collocation. One additional indication that SouthEast is serious about using this form of collocation is that it has filed for arbitration with BellSouth on this specific issue. It may still be true that BellSouth has not had a request in Kentucky for Adjacent On-Site Collocation. However, BellSouth has at least one CLEC that wants to utilize Adjacent Off-Site Collocation.

Q. WHY WOULD SOUTHEAST WANT TO UTILIZE ADJACENT OFF-SITE COLLOCATION?

A. One critical operational benefit to SouthEast is that SouthEast can set up its off-site collocation arrangements in such a way that they are standardized between all of its locations. Essentially, SouthEast will be able to extend copper and fiber entrance facilities from BellSouth's office to its adjacent off-site location in such a way that every off-site location can look exactly the same to SouthEast's personnel. SouthEast believes that this standardization will lead to its ability to provide service more efficiently to its end user customers.

It is for this reason that I would ask the Commission not to restrict this form of collocation to only those situations where space within BellSouth's central office is restricted (another of BellSouth's criticisms). From a technical feasibility standpoint, Adjacent Off-Site Collocation is technically feasible whether central office space is limited or not. Moreover, the FCC only set as a *minimum* standard that Adjacent On-Site Collocation would be available when space exhaust existed within the incumbent central office. However, there is no reason technical or otherwise that should preclude SouthEast from having the option of using Adjacent Off-Site Collocation regardless of the utilization of BellSouth's central office space. SouthEast should be permitted to set up its network in as efficient a manner as it can.

Q. DO YOU HAVE ANY PROPOSED TERMS AND CONDITIONS FOR ADJACENT OFF-SITE COLLOCATION?

A. Yes. I have attached as Exhibit SET-2 terms and conditions that would provide for Adjacent Off-Site Collocation in Kentucky should the Commission determine to implement this form of collocation in SouthEast's interconnection agreement with BellSouth.

IV. DISCUSSION OF ADJACENT OFF-SITE COLLOCATION COSTS AND RATES

Q. ARE YOU PROPOSING RATES FOR ADJACENT OFF-SITE COLLOCATION?

A. Yes. I have attached as Exhibit SET-3 the rates that I would propose for Adjacent Off-Site Collocation.

Q. HOW DID YOU DEVELOP THESE RATES?

A. I developed a Collocation Cost Model on behalf of AT&T and MCI that has been referred to in many cost proceedings as the AT&T/MCI Collocation Cost Model. This model was used to establish the forward-looking economic cost of six forms of collocation in incumbent LEC central offices. One of the six forms of collocation that was included in this model was Adjacent Off-Site Collocation. I have taken this model and removed the information for the other five forms of collocation (since the only form of collocation at issue in this proceeding is Adjacent Off-Site Collocation) and prepared a cost study for Adjacent Off-Site Collocation.

To develop collocation costs in the AT&T/MCI Collocation Cost Model, I worked as part of a subject matter expert team that developed the model as well as a Central Office Model Layout. To understand the costs that I have developed for Kentucky, I will briefly outline the conceptual basis for this layout in the testimony that follows. I will also briefly discuss the components of the Collocation Cost Model and present the results from the use of the Collocation Cost Model by addressing how these investments were converted into nonrecurring and recurring costs.

While discussing Adjacent Off-Site Collocation, I identify some of the most important underlying logic and assumptions of the Collocation Cost Model and explain how they are reflected in the Model Central Office. Changes to the specific configuration of the Model Central Office entails changes to the underlying logic of the Collocation Cost Model, and, if attempted, impact the compliance of the Collocation Cost Model with a forward-looking, economic cost methodology.

Q. HAS THE AT&T/MCI COLLOCATION COST MODEL BEEN USED IN OTHER STATES TO SET COLLOCATION RATES?

A. Yes. The AT&T/MCI Collocation Cost Model has been used in a number of states to establish collocation rates. Specifically, I know that it has been adopted in states such as California, Michigan, Minnesota, Missouri, Oklahoma, and Texas at a minimum. It has also been used to set rates (although not explicitly adopted by the state commissions) in Delaware, Kansas, Maryland, Nevada, New Jersey, Pennsylvania, Virginia, West Virginia, and Wisconsin. The AT&T/MCI Collocation Cost Model has had wide use throughout the country in setting collocation rates.

A. OVERVIEW OF THE AT&T/MCI COLLOCATION COST MODEL

Q. PLEASE DESCRIBE THE PURPOSE OF THE COLLOCATION COST MODEL.

A. In an effort to estimate the forward-looking economic costs associated with various forms of collocation, AT&T and MCI assembled a team of experts knowledgeable with all aspects of collocation. Specifically, the team was comprised of individuals with extensive backgrounds in central office space planning, cable engineering, power engineering, outside plant design, and other areas pertinent to collocation.

The team of experts developing the Collocation Cost Model identified six types of collocation: (1) Physical Collocation; (2) Virtual Collocation; (3) Common Collocation; (4) Cageless Collocation; (5) Adjacent On-Site Collocation; and (6) Adjacent Off-Site Collocation.

Q. PLEASE DESCRIBE THE PROCESS USED TO DEVELOP THE COLLOCATION COST MODEL.

A. AT&T and MCI retained a team of subject matter experts on all components of the Collocation Cost Model. The purpose of the Collocation Cost Model is to identify all incumbent investments needed to provide collocation. As the first step, the team constructed a forward-looking Central Office Model Layout based upon the use of best practice central office space-planning strategies, efficient suppliers, and competitive processes. From this model layout, subject mater experts identified all relevant investments and provided these to the consulting firm of FTI Consulting to develop collocation cost estimates in the Collocation Cost Model.

Q. HOW WILL YOU STRUCTURE THE TESTIMONY IN SUPPORT OF THE COLLOCATION COST MODEL?

A. I will start out by describing in detail the development of Central Office Model Layout. The reason for this is that the Central Office Model Layout helps to identify the relevant distances for cabling that are associated with Adjacent Off-Site Collocation once the cabling is inside of the central office. Additionally, I will explain how these distances associated with the various elements of collocation were used to develop the costs and rates for Adjacent Off-Site Collocation. Finally, I will explain how I made the costs as Kentucky-specific as I was able to using the information provided in discovery by BellSouth.

B. COSTS FOR COLLOCATION WERE DEVELOPED USING MODEL LAYOUTS AND BEST PRACTICES ASSUMPTIONS

Q. HOW DID YOU APPROACH DEVELOPMENT OF THE COLLOCATION COST MODEL AND MODEL LAYOUTS IN ESTIMATING THE COST OF COLLOCATION?

A. The subject matter expert team determined that the most appropriate method to develop the Collocation Cost Model would be to identify all investments for physical collocation in central offices incorporating the use of "best practices."

Q. WHAT FACTORS DID THE SUBJECT MATTER EXPERTS CONSIDER IN DETERMINING THE BEST PRACTICES FOR IMPLEMENTING COLLOCATION?

A. "Best practices" assume the use of cost efficient, forward-looking technology and utilize only as much building space, labor, and materials as needed to properly place all equipment, including the appropriate amount of space for auxiliary equipment. "Best practices" also assume that the incumbent would make decisions relating to collocation of a CLEC in the same manner that the incumbent places its own equipment and that of its affiliates.

Q. WHY IS IT IMPORTANT TO IDENTIFY THE INVESTMENTS ASSOCIATED WITH COLLOCATION BASED ON THE USE OF BEST PRACTICE SPACE-PLANNING STRATEGIES?

A. CLEC collocation is essential for the CLEC to provide local service efficiently using the incumbent's unbundled network elements. Without collocation, there would be no way for the CLEC to efficiently pick up and transport the traffic coming from unbundled loops it has purchased, or to interconnect with the incumbent's network. Thus, collocation is essential for new entrants who plan facilities-based entry.

At the same time, collocation elements within the incumbent's central office are largely under the control of the incumbent. In a competitive environment, an incumbent will not have the incentive to minimize the costs to CLECs for collocation. For example, the incumbent will not have the incentive to make space in its central office available to a CLEC on the same basis as it uses space in the central office for additional equipment of its own. Basing the Model Central Office – and thus investments – on best practice space planning ensures the inclusion only of costs associated with an efficient collocation arrangement. Indeed, the incumbent has the incentive to gold plate the collocation arrangement to drive up the costs of competitors, unless the Commission vigorously applies the best practice standards to counter-balance that incentive.

Q. PLEASE DESCRIBE THE FORWARD-LOOKING CENTRAL OFFICE MODEL LAYOUT.

A. The Central Office Model Layout assumes a new urban central office designed for up to 150,000 lines, together with associated transport, power, multi-media, and miscellaneous equipment space. Such an office would consist of approximately 36,000 square feet of equipment space – or three equipment floors of about 12,000 square feet (100' x 120') each – plus a below-ground cable vault. *See* Figure 2 and Figure 3. The Central Office Model Layout also assumes an additional 3,000 square feet on each floor and the entire basement (except for the cable vault area) to provide a generous allowance for building support services such as main corridors, elevators, washrooms, lunch rooms, conference facilities, administrative areas, electrical rooms, and mechanical rooms. This results in an overall footprint of 15,000 square feet. The best practice central office planning strategy (*see* Figure 3) provides adequate space for the long-term requirements associated with a forward-looking, urban central office and is representative of central office layouts that would have been constructed in recent years to accommodate growth in a downtown urban environment. New central offices designed for areas outside of urban centers would likely consist of only one or two floors above the cable vault, requiring shorter cable connectivity lengths. I understand that in Kentucky, most BellSouth central offices resemble these suburban and rural offices. Hence, the forward-looking Central Office Model Layout incorporates conservative assumptions in terms of recent actual central office builds and is likely to be significantly larger than the average central office across the incumbent territory.[11]

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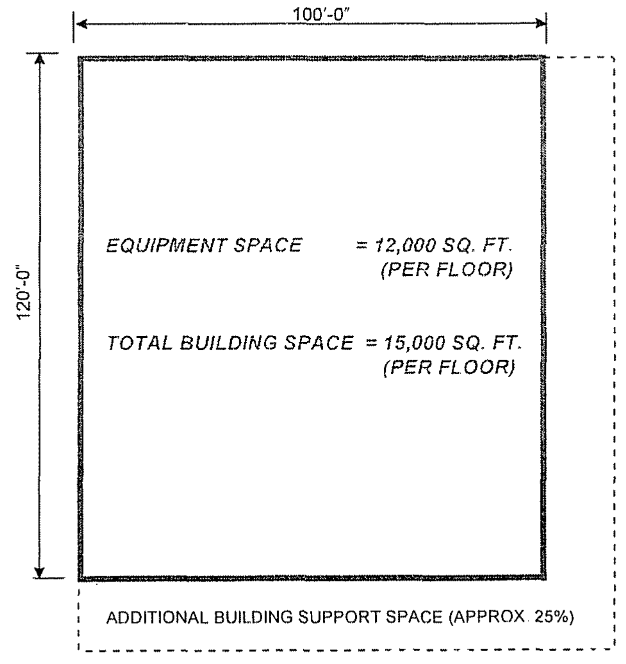
11 Basing the Central Office Model Layout on a large urban central office does not make the Collocation Cost Model any less appropriate for modeling physical collocation cost in Kentucky. A large urban central office was chosen so that the cable lengths for fiber and copper connectivity would be their longest due to the size of the central office. Therefore, applying these costs in a smaller central office in Kentucky will ensure that BellSouth is still being fully compensated (if not overcompensated) for the investments associated with Adjacent Off-Site Collocation.

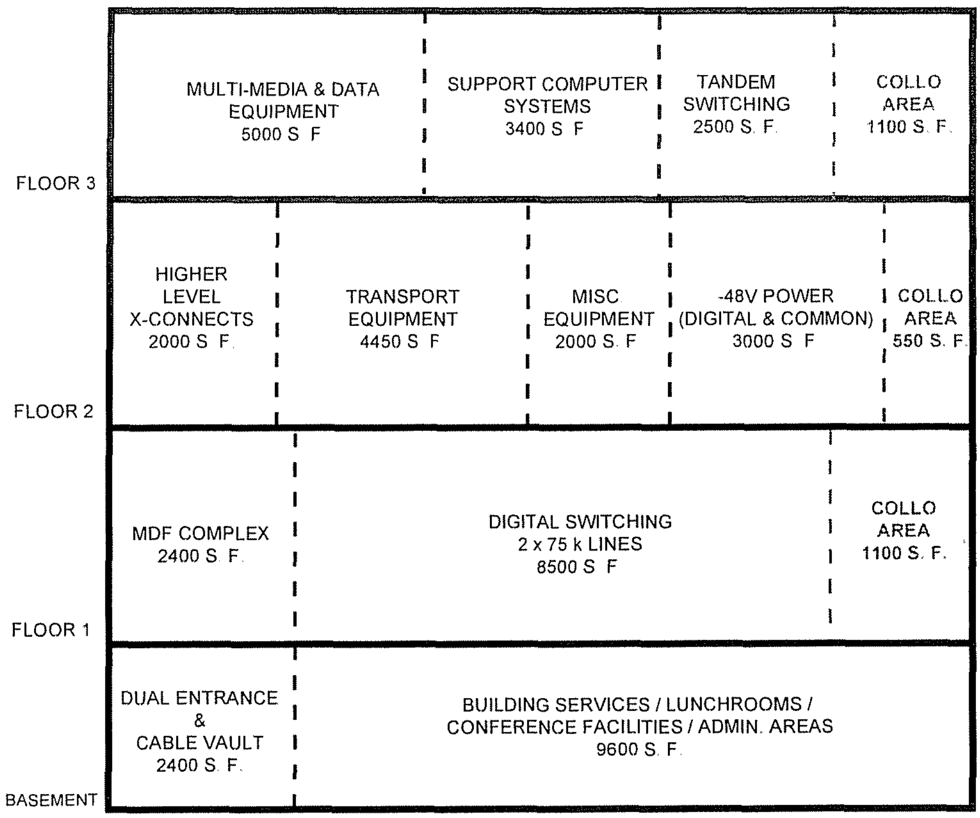
Figure 2 - Office Area



SUMMARY		
EQUIPMENT SPACE PER FLOOR	=	12,000 SQ. FT.
TOTAL FOOTPRINT PER FLOOR	=	15,000 SQ. FT.
NUMBER OF FLOORS	=	3
TOTAL EQUIPMENT SPACE	=	36,000 SQ. FT.
TOTAL ABOVE GROUND FLOOR SPACE	=	45,000 SQ. FT.
CABLE VAULT AND BUILDING SERVICES	=	BELOW GROUND

FORWARD LOOKING URBAN CENTRAL OFFICE

Figure 3 - Best Practice Space Planning



BEST PRACTICE SPACE PLANNING MODEL

Q. HOW COULD THIS THREE-STORY BUILDING BE USED TO MODEL THE INVESTMENTS NEEDED TO PLACE COLLOCATION AREAS IN EXISTING CENTRAL OFFICES IN URBAN AREAS THAT MAY HAVE, FOR EXAMPLE, EIGHT FLOORS?

A. The Central Office Model Layout contains enough space to house all the equipment needed in the largest urban central offices and, indeed, is the general layout used over the past 10 years in planning new central offices. If the equipment in a particular central office currently is spread out across eight floors, that is because the old analog equipment required an extraordinary amount of space. However, as that equipment has been replaced by digital equipment, pockets of space have become available throughout the eight stories that can be used for collocation space. If such space is not available, that is due to one of two things: the incumbent has not removed old equipment that it is no longer using, or the incumbent is now housing administrative personnel in otherwise available equipment space.

If the incumbent needed space for its own equipment, it would not locate its equipment far from the cross-connects, but rather would remove any unused equipment or relocate administrative personnel to convenient spaces in the central office and place its telecommunications equipment there. Thus, use of the Central Office Model Layout simply is consistent with the way the incumbent would make space available for itself.

Q. IF THE MODEL CENTRAL OFFICE LAYOUT IS BASED ON A LARGE URBAN ENVIRONMENT, CAN IT ALSO BE USED FOR SMALLER URBAN, SUBURBAN AND RURAL COLLOCATIONS?

A. Yes, it can. Smaller urban, suburban, and rural situations will require less telecommunications equipment, so the central office likely would be only one or two floors plus the basement, with each floor having approximately the same 15,000 square foot footprint. The connectivity lengths required would be shorter, thereby reducing costs; land costs should be lower; and there may be no costs associated with elevators. Thus, even if there are some structural scale economies in the large urban central office, overall collocation costs are likely to be lower in smaller urban, suburban and rural locations than in the large urban locations modeled. Thus, the Central Office Model Layout provides a conservatively high estimate of collocation investments and costs for other areas.

Q. DO YOU BELIEVE THAT THE DETERMINATION OF DISTANCE IS CRITICAL TO THE UNDERLYING LOGIC OF THE COLLOCATION COST MODEL?

A. Yes. One of the most critical issues in developing the cost for collocation is the distance that various elements are from one another. The spatial relationships between frames (MDF, DSX, and FDF) and the collocation arrangement or between critical pieces of equipment (DCS) and the collocation arrangement significantly affect the cost of collocation. In order to be consistent with forward-looking, economic cost principles, the Central Office Model Layout must be forward-looking, efficient and nondiscriminatory. Careful attention was given by the developers of the Collocation Cost Model to ensure that the distances calculated for all connectivity arrangements were based on total demand and were forward looking, efficient and non-discriminatory.

Q. DO YOU HAVE ANY INFORMATION THAT INDICATES INCUMBENT LECS ENGINEERS THEIR OFFICES CONSISTENTLY WITH THE PRINCIPLES USED TO DEVELOP COSTS WITHIN THE COLLOCATION COST MODEL?

A. Yes. *First*, information provided by SBC in a Texas proceeding – particularly through tours of SBC-Texas' central offices – indicates a layout for the central office that is almost precisely like that found in the description of the Model Central Office for the Collocation Cost Model. The engineering guidelines used to develop the Collocation Cost Model are documented in the Technical White Paper submitted as Exhibit SET-4 with this testimony. *Second*, SBC-Texas' affiliate, SBC-California, was required to provide me with tours of their central offices in a California collocation cost proceeding. My observation on these tours is that SBC-California's practices in engineering its central offices and the collocation arrangements closely approximate those incorporated in the White Paper. *Third*, I have had opportunities to review BellSouth central offices in

Georgia and North Carolina and have found these offices to also conform to the principles found in the Model Central Office. Therefore, in my expert opinion, the costs developed using the Model Central Office will provide an accurate estimate of BellSouth's forward-looking costs for collocation.

Q. COULD YOU PROVIDE SOME ADDITIONAL DETAIL IN HOW THE DISTANCES WERE CALCULATED FOR ADJACENT OFF-SITE COLLOCATION?

A. In developing the costs for copper entrance facilities, the subject matter experts assumed that a 900 pair cable would be brought into the central office vault through the manhole. Further, it was assumed that the terminations that would be available on the MDF would drop down into the cable vault at the far end of the room. In other words, the calculation for the voice grade connectivity cost assumes a worst case cost associated with going to the far end of the cable vault. In developing the costs for fiber facilities, the subject matter experts assumed that the fiber cable would come into the splice point in the cable vault and be able to go up a riser rack at that point. The splice point inside the vault is assumed to be 50 feet inside the vault wall (looking towards the manhole).

Q. COULD YOU PROVIDE SOME ADDITIONAL DETAIL IN HOW THE PLANNING COST FOR ADJACENT OFF-SITE COLLOCATION WAS DEVELOPED?

A. Yes. The general approach used was to identify the tasks that the incumbent would have to perform on its part to implement an Adjacent Off-Site Collocation arrangement. To ensure fair and reasonable compensation for incumbent manpower, the Collocation Cost Model incorporates a planning component outlining the expected incumbent manpower requirements to implement a CLEC collocation request using best practice processes in a competitive environment. As shown in the chart below, the planning functions are broken into the various areas within the incumbent's work groups that would be required to implement the copper and fiber entrance facilities that would come into the incumbent's central office.

Table 1 - Adjacent Off-Site Collocation Incumbent Manpower Requirements

ADJACENT OFF-SITE COLLOCATION INCUMBENT MANPOWER REQUIREMENTS							
FUNCTION	***Per CLEC Request (4)***	***Labor Rate***	***Unit***	***Hours to Plan Specified Collocation Area***	***Investment for Element Per CLEC***	***Used By***	***Notes***
Outside Plant Access Design	Per CLEC Request	$50.98	per Hr	8	$407.84	1 CLEC	
Building Planning	Per CLEC Request	$50.98	per Hr	0	$0.00	1 CLEC	
MDF Planning	Per CLEC Request	$50.98	per Hr	4	$203.92	1 CLEC	
Real Estate Project Management	Per CLEC Request	$50.98	per Hr	0	$0.00	1 CLEC	
Real Estate Construction Manager	Per CLEC Request	$50.98	per Hr	0	$0.00	1 CLEC	
Architectural	Per CLEC Request	$50.98	per Hr	0	$0.00	1 CLEC	
Power Engineer	Per CLEC Request	$50.98	per Hr	0	$0.00	1 CLEC	
Equipment Engineer	Per CLEC Request	$50.98	per Hr	2	$101.96	1 CLEC	1
Equipment Installation Project Manager	Per CLEC Request	$50.98	Per Hr	2	$101.96	1 CLEC	2
Operations Group	Per CLEC Request	$50.98	per Hr	2	$101.96	1 CLEC	
Application Fee	Per CLEC Request	$50.98	per Hr	10	$509.80	1 CLEC	3

NOTES

1. Should not include cable and cable racking for demand activity.
2. Should not include coordination of growth projects.
3. Application fee to cover activities of various administrative groups (customer service, billing, etc.).
4. Each installation requires the same number of hours.

C. USE OF MODEL LAYOUTS TO CALCULATE INVESTMENTS FOR COLLOCATION

Q. HAVING CONSTRUCTED THE MODEL CENTRAL OFFICE, WHAT WERE THE INVESTMENT COMPONENTS YOU ESTIMATED FOR ADJACENT OFF-SITE COLLOCATION?

A. The subject matter experts estimated investments associated with the following:

- overhead common systems infrastructure (cable racks, cable, *etc.*);
- entrance fiber (bringing the CLEC's fiber from the manhole to appropriate interconnection points);
- copper entrance facilities (bringing the CLEC's copper facilities from the manhole to the appropriate interconnection point – MDF); and
- manpower resources to plan the Adjacent Off-Site Collocation request.

Q. HOW DID YOU ESTIMATE THESE INVESTMENT COMPONENTS?

A. The general methodology used was as follows:

- Identify, end-to-end, all the specific elements needed to provide the components.
- Obtain quotes (in hours or dollars, as appropriate) for the engineering, furnishing, and installing these elements.
- The subject matter experts, using their experience and knowledge, evaluated this information and selected input values for the Collocation Cost Model to calculate the investment costs. (The supporting Backup Documentation for the inputs in the Collocation Cost Model is found in Exhibit SET-5, which is a CD-ROM containing the AT&T/MCI Collocation Cost Model and various supporting work papers.)

Q. DID YOU USE MAJOR SUPPLIERS, SUCH AS LUCENT AND NORTEL, FOR YOUR QUOTES ON PRICES AND HOURS?

A. No. The common systems infrastructure components and the magnitude of the construction project associated with collocation are relatively minor and smaller contractors can manage such installation at competitive prices. Indeed, even if larger suppliers, such as Lucent and Nortel, bid competitively, they are unlikely to be able to meet the short time intervals required for these very small jobs. For that reason, incumbents typically have various smaller contractors who specialize in ironwork, cabling, *etc.*, authorized to complete short interval installations. The use of a telecommunications giant or a major construction company for collocation components is akin to using a Big Eight accounting firm to handle a simple income tax return or using a major law firm in traffic court.

Q. ARE THE INVESTMENT INPUTS AND COSTS EMPLOYED IN THE COLLOCATION COST MODEL ABLE TO BE SPECIFIC TO THE STATE OF KENTUCKY AND SPECIFIC TO BELLSOUTH?

A. Yes. The Collocation Cost Model has a worksheet within it where I am able to incorporate the specific BellSouth-Kentucky cost factors that were used for the final rates in Kentucky Administrative Case No. 382. These cost factors allow the user of the Collocation Cost Model to convert investments into recurring costs and ultimately into recurring rates. SouthEast asked in discovery for BellSouth to provide the following:

> Please provide an electronic version of the BellSouth Cost Calculator used to develop the final rates in Administrative Case No. 382. Please ensure that the version of the BellSouth Cost Calculator that is provided by BellSouth in response to this discovery request contains all supporting electronic files that will permit the user of the BellSouth Cost Calculator to modify the inputs to the BellSouth Cost Calculator and produce revised results. Specifically, please ensure that the version of the

> BellSouth Cost Calculator that is provided allows for the use of the Capital Cost Calculator within the BellSouth Cost Calculator including the ability to modify the inputs within the Capital Cost Calculator and having these revised inputs propagate through to the cost elements within the BellSouth Cost Calculator.[12]

BellSouth objected to this discovery request and did not provide the information sought.[13] The information that would have been contained in a response to this discovery request would have included the cost factors that this Commission utilized to set the final rates in Kentucky Administrative Case No. 382 – the rates for UNEs and collocation that currently exist in Kentucky. The Collocation Cost Model has the capability to use precisely the cost factors that this Commission ordered to establish the currently existing rates in Kentucky. However, given that BellSouth did not provide the information to the above data request – information that SouthEast does not have access to otherwise – I was unable to utilize BellSouth-Kentucky cost factors in this regard. In lieu of this information, I have used cost factors that I believe to be within the range of cost factors that would have been contained in this discovery request had BellSouth responded to it with information instead of an objection. If SouthEast obtains the cost factors used for

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12 Commonwealth of Kentucky, Before the Public Service Commission, *In the Matter of: Petition of SouthEast Telephone, Inc., for Arbitration of Certain Terms and Conditions of Proposed Agreement with BellSouth Telecommunications, Inc., Concerning Interconnection Under the Telecommunications Act of 1996*, Case No. 2006-00316, SouthEast Telephone Inc. First Set of Data Requests to BellSouth Telecommunications, Inc., September 15, 2006, Data Request No. 24. (Hereafter referred to as "SouthEast First Set of Discovery Requests to BellSouth.")

13 Commonwealth of Kentucky, Before the Public Service Commission, *In the Matter of: Petition of SouthEast Telephone, Inc., for Arbitration of Certain Terms and Conditions of Proposed Agreement with BellSouth Telecommunications, Inc., Concerning Interconnection Under the Telecommunications Act of 1996*, Case No. 2006-00316, BellSouth Telecommunications, Inc.'s Responses and Objections to SouthEast Telephone, Inc.'s First Set of Data Requests, September 29, 2006, Data Request No. 24. (Hereafter referred to as "BellSouth's Responses and Objections to SouthEast First Set of Discovery Requests.")

the final rates in Kentucky Administrative Case No. 382, SouthEast will amend its proposed rates to reflect these cost factors.

Finally, the Inputs worksheet for the Collocation Cost Model allows one to incorporate BellSouth-Kentucky specific labor rates. BellSouth provided information in response to SouthEast Discovery Request No. 13 that contained the labor rates used by this Commission in Administrative Case No. 382 to set final rates. I have incorporated these labor rates into the Collocation Cost Model. The Inputs worksheet for the Collocation Cost Model also allows one to incorporate a BellSouth-Kentucky specific common cost factor. Once again, the information BellSouth provided in response to SouthEast Discovery Request No. 13 contained the common cost factor used to set final rates in Administrative Case No. 382. I have used this same common cost factor for the rates proposed with the Collocation Cost Model.

Q. CAN YOU SUMMARIZE THE OUTPUTS OF THE COLLOCATION COST MODEL FOR ADJACENT OFF-SITE COLLOCATION IN KENTUCKY?

A. Yes, the Collocation Cost Model estimates costs for the following four collocation elements:

- Planning
- Copper Entrance Facilities (Identified as Voice Grade Circuits and DS-1 Circuits)
- Fiber Entrance Facilities (Identified as Optical Circuits, OC-3 Circuits, and OC-12 Circuits)
- Entrance Fiber Structure

The DS-1 connectivity costs are presented in two alternative ways; each modeled with either a DCS cross-connect or a DSX cross-connect. This flexibility permits the output from the Collocation Cost Model to be tailored to the collocation requirements experienced by a particular incumbent at a specific Central Office location.

V. POTENTIAL NEED FOR A GENERIC § 251 LOOP COST PROCEEDING

Q. COULD YOU BRIEFLY EXPLAIN HOW YOUR TESTIMONY RELATES TO THAT OF MR. GILLAN'S ON THE ISSUE OF LOOP PRICES?

A. Yes. It is my understanding that Mr. Gillan will present to the Commission in his testimony the basis for why the Commission should set § 271 rates for the voice-grade local loop element. As Mr. Gillan explains, local competition in Kentucky would be furthered by the Commission reforming the highly disparate loop rates to "flatten" the rate structure for this element. It is possible, however, that even more aggressive action will be needed by the Commission in the future, In that event, my testimony presents to the Commission information regarding the underlying investments, costs, and demand for local loops that should contribute to a decrease in rates from those that were ordered by the Commission in Administrative Case No. 382 and recommends that the Commission be prepared to update these cost studies to adopt lower loop prices.

Q. WHEN WERE THE RATES IN ADMINISTRATIVE CASE NO. 382 FINALIZED?

A. It is my understanding that the rates were finalized in a Commission order on December 18, 2001.

Q. DO YOU KNOW APPROXIMATELY WHEN THIS COST PROCEEDING WAS INITIATED?

A. According to an order of this Commission, BellSouth was to file its cost support for its proposed rates in Administrative Case No. 382 on May 2, 2001.[14] According to my experience in preparing and restating loop cost studies, the underlying investment, cost, and demand data for this cost filing from BellSouth would have been based on data as of the end of 2000 at the latest. As such, the underlying cost information for the present loop rates in Kentucky is approximately six years old. Moreover, I believe there is strong support that the direction of telecommunications costs has declined in this time and would lead to lower loop rates.

Q. WHAT INDICATORS CAN THE COMMISSION RELY UPON TO EVALUATE WHAT DIRECTION TELECOMMUNICATIONS COSTS HAVE TAKEN?

A. Cost reductions have occurred in the telecommunications industry over the past decade as a result of three primary factors, all of which are applicable or soon to be applicable to BellSouth. *First*, the cost of most telecommunications equipment has declined over time. *Second*, telecommunications carriers are realizing significant efficiency gains as a result of consolidations (merger savings and improved purchasing power). AT&T has been on the forefront of such consolidation, having closed its merger with Ameritech in October of 1999, after previously merging with Pacific Telesis (PacBell) and, before that, with Southern New England Telephone. As this Commission is certainly aware, AT&T is expected to complete its merger with BellSouth, perhaps before the end of the year.

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14 Commonwealth of Kentucky, Before the Public Service Commission, *In the Matter of: An Inquiry into the Development of Deaveraged Rates for Unbundled Network Elements*, Administrative Case No. 382, April 12, 2001, p. 3.

Although this merger may have other competitive implications, the efficiency gains that would arise from this merger through cost savings and the increased purchasing power of AT&T should be reflected in the network element costs that BellSouth provides here in Kentucky. *Third*, growth in overall demand for the full scope of services offered by BellSouth over its network has contributed to significant reductions in the per-unit costs of shared facilities and infrastructure. The combined effect of these trends has been a significant reduction in the forward-looking costs of providing local telecommunications services. As discussed below, BellSouth has certainly not been immune to any of these declining cost factors.

Q. WHAT EVIDENCE SUPPORTS THE COST DECLINES FOR INPUTS USED TO CONSTRUCT THE LOCAL TELECOMMUNICATIONS NETWORK INFRASTRUCTURE?

A. Recent telecommunications publications, the FCC and the courts have all identified the significant reductions in equipment prices that have occurred over the past several years. Industry trade publications such as *Broadband Week* have commented on the same: "There is no denying the downward trend of equipment prices, ranging from sophisticated switching gear to fiber optic cable."[15] Similarly, incumbent LEC executives have touted their success in achieving large price declines. For example, Joseph Nacchio, former chief executive of Qwest Communications International, stated the following in a May 2001 conference call with analysts: "We've been able to take advantage of an extraordinarily favorable pricing environment from our suppliers who are scrambling for

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15 *Broadband Week*, "Equipment Prices Dropping, But Not Plummeting," Ken Branson, June 4, 2001, is included in the directory titled "Declining Cost Support" as part of Exhibit SET-5.

every dollar they can get." Mr. Nacchio further explained: "We're just pressing vendors across the board – whether it's optics, DSL, adding switched ports or software releases. It's become a buyer's market and we're taking advantage."[16]

More recent publications have identified similar trends in the telecommunications equipment industry. *Telephone Online* noted the following in a September 11, 2006 article about telecommunications equipment pricing:

> This summer has seen a wave of bitter price wars among major equipment suppliers, as vendors risk more and more near-term payback for a chance to win a long-term role supplying merged supercarriers with next-generation network technologies.
>
> Though cutthroat pricing was once thought to be the exclusive weapon of choice for Chinese vendors such as Huawei Technologies and ZTE, sources say some of the industry's most established equipment vendors are now often the ones leading the rate to the bottom.[17]

The article goes on to identify that the "most established equipment vendors" that are dramatically cutting equipment prices include vendors such as Lucent, Alcatel, Cisco Systems, Juniper Networks, and Redback Networks among others.

An article in TechNewsWorld from September 12, 2006 makes a similar point:

> Another factor is the number of telecommunications carriers has been decreasing. Longstanding industry leaders such as AT&T and MCI have merged with or been acquired by other companies, thus the number of potential telecommunications customers has dwindled.

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16 *CNET News.com*, "Telecoms Anticipate Price Cuts for Gear," Wylie Wong and Sam Ames, May 25, 2001, is included in the directory titled "Declining Cost Support" as part of Exhibit SET-5.

17 *Telephone Online*, "Major Vendors in Price War," Ed Gubbins, September 11, 2006, is included in the directory titled "Declining Cost Support" as part of Exhibit SET-5.

> Like the telecom equipment vendors, carriers have been under competitive pressure and have been looking for ways to reduce their operating expenses. Carriers want to deal with fewer suppliers because it enables them to streamline the procurement process and realize the benefits of volume discounts.[18]

Furthermore, the FCC and the courts have also recognized these cost declines. For example, the D.C. Circuit remarked that "[i]n a market with falling costs, ancient UNE rates cannot serve as a valid benchmark."[19] As part of its efforts to determine inputs for the FCC's Synthesis Model, the FCC noted that "US West agrees that the costs of the equipment, such as switches and multiplexers, used to provide telecommunications services are declining, and that the per-unit cost of providing more services on average is declining."[20]

Q. HOW WILL BELLSOUTH REALIZE SAVINGS AND OTHER BENEFITS FROM ITS MERGER WITH AT&T?

A. In a press release issues by BellSouth, the pending merger between AT&T and BellSouth is indicated to produce a net present value of $18 billion in synergies.[21] Much of this synergy is related to anticipated cost savings from the merger:

> A substantial portion of synergies are expected to come from reduced costs in the operations of unregulated and interstate services, and corporate staff, and the synergies are over and above expected productivity improvements from the companies' ongoing

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18 *TechNewsWorld*, "Mergers Reshaping Telecom Equipment Market," Paul Korzeniowski, September 12, 2006, is included in the directory titled "Declining Cost Support" as part of Exhibit SET-5.

19 *WorldCom, Inc. v. FCC*, No. 01-1198, 2002 WL 31360443, *4 (D.C. Cir., September 9, 2002).

20 FCC CC Docket No. 96-45 & No. 97-160, In the Matter of Federal-State Joint Board on Universal Service Forward-Looking Mechanism for High Cost Support for Non-Rural LECs, Tenth Report and Order, October 21, 1999 at ¶ 313.

21 BellSouth Press Release, "AT&T, BellSouth to Merge," March 5, 2006.

> initiatives. Approximately half of the total cost savings are expected to come from network operations and IT, as facilities and operations are consolidated and traffic is moved to a single IP network. Additional savings are expected to come from combining staff functions and from reduced ongoing advertising and branding expenses.[22]

In a forward-looking cost study, there anticipated cost savings should be incorporated into the development of the price for the voice-grade local loop element

Q. HAS GROWTH IN OVERALL NETWORK DEMAND FOR THE SERVICES OFFERED BY BELLSOUTH CONTRIBUTED TO SIGNIFICANT REDUCTIONS IN THE UNIT COSTS?

A. Yes. In addition to the cost reductions discussed above, BellSouth-Kentucky's network has experienced significant growth in demand, which further reduces the per-unit cost of network elements. BellSouth-Kentucky's total line demand has grown from 1.68 million to 2.03 million between 2000 and 2005, a growth of 20.8 percent.[23] Thus, BellSouth-Kentucky has experienced a great increase in demand for the different services that can be provided over its network, thereby driving down per-unit costs. Because all of the services BellSouth-Kentucky offers are provided over some amount of shared facilities, the increase in high capacity demand results in a lower cost per unit for plain old telephone service ("POTS") services as more demand is available to cover shared costs. For example, the poles used to provide POTS are the same poles that are used to support higher capacity services such as DS-1, DS-3, and optical services. Moreover, the fiber optic facilities and digital loop carrier systems that support POTS services also support

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22 *Id.*

23 Supporting calculations are included in the directory titled "Declining Cost Support" as part of Exhibit SET-5

DS-1 and other data services (*e.g.*, DSL). In other words, the forward-looking network consists of one set of facilities that is used to provide the full range of services that BellSouth-Kentucky offers. Given that many of BellSouth-Kentucky's services are growing at very high rates, the per-unit cost of shared facilities used to provide these services is declining significantly over time.[24]

Q. DO YOU HAVE SOME SENSE OF HOW MUCH OF A REDUCTION IN LOOPS COSTS WOULD BE ATTRIBUTABLE TO THIS INCREASE IN LINE COUNTS IN KENTUCKY?

A. It is not possible to be precise about this without having access to the BellSouth loop cost studies. However, in Georgia, the Georgia Public Service Commission addressed this very same type of issue of identifying the reduction in loop costs associated with growth in lines. Ultimately, the Georgia Public Service Commission reduced loop rates in Georgia by 5.67 percent to account for line growth.[25] The percentages in Kentucky would likely be different, but growth in line counts leads to reductions in unit cost in loops because of the effects of scale economies.

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[24] The Georgia Public Service Commission recently recognized the cost savings associated to a growing network: "the Commission rejects BellSouth's arguments that only growth for POTS lines should be considered. The Commission acknowledges that all of BellSouth's demand, including demand for high-capacity services, share the same network infrastructure, and it is necessary to evaluate the total network growth in developing forward-looking UNE costs." Georgia Public Service Commission, *Review of Cost Studies, Methodologies, Pricing Policies, and Cost Based Rates for Interconnection and Unbundling of BellSouth Telecommunications, Inc.'s Services*, Commission Order, Docket No. 14361-U, March 18, 2003, at 13, is included in the directory titled "Cost Orders" as part of Exhibit SET-5.

[25] Georgia Public Service Commission, *In Re: BellSouth Telecommunications, Inc.'s Petition for a Declaratory Ruling Regarding UNE Remand Order*, Docket No. 14361-U, Letter Order, February 21, 2006, p. 3.

Q. WHAT THEN IS YOUR RECOMMENDATION?

A. I would encourage the Commission to implement the reformed voice-grade local loop prices that Mr. Gillan has proposed in his testimony. However, it may be that additional actions will be necessary for the Commission to promote local competition. I believe that the declining cost nature of the telecommunications industry, the cost-reducing effects of BellSouth's pending merger with AT&T, and the increasing demand for telecommunications services should lead to reductions in voice-grade local loop rates. To ascertain what these new rates should be, I would recommend that the Commission be prepared to initiate a generic § 251 cost proceeding for loop rates, if additional reforms to those recommended by Mr. Gillan are needed.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

EXHIBIT SET-1
RESUME OF STEVEN E. TURNER

STEVEN E. TURNER

2031 Gold Leaf Parkway
Canton, Georgia 30114

678-493-9700 (Voice)
678-493-9701 (FAX)

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.

EDUCATION:

August 1990:	**Masters of Business Administration Degree - Finance** Georgia State University Atlanta, Georgia
December 1986:	**Bachelor of Science Degree - Electrical Engineering** Auburn University Auburn, Alabama

EXHIBIT SET-2
TERMS AND CONDITIONS FOR ADJACENT OFF-SITE COLLOCATION

TERMS AND CONDITIONS FOR ADJACENT OFF-SITE COLLOCATION

1.0 DEFINITIONS

Adjacent Off-Site Collocation Arrangement – When requested by a Collocator through the Physical Collocation application process, BellSouth shall permit an Adjacent Off-Site Collocation Arrangement, to the extent technically feasible. Such arrangement shall be used for interconnection or access to unbundled network elements. When the Collocator elects to utilize an Adjacent Off-site Collocation Arrangement, the Collocator shall provide both the AC and DC power required to operate such facility. The Collocator may provide its own facilities to BellSouth's premises or to a mutually agreeable meet point from its Adjacent Off-site location for interconnection purposes. The Collocator may subscribe to facilities available in the UNE rate schedule of the Collocator's interconnection agreement or, the Collocator may subscribe to the applicable rates established in this tariff for access to unbundled network elements.

At the time the Collocator requests this arrangement, the Collocator must provide information as to the location of the Adjacent Off-Site facility, the proposed method of interconnection, and the time frame needed to complete provisioning of the arrangement. BellSouth shall provide a response to Collocator within ten (10) days of receipt of the application, including a price quote, provisioning interval, and confirmation of the manner in which the Adjacent Off-Site Facility will be interconnected with BellSouth's facilities. BellSouth shall make best efforts to meet the time intervals requested by Collocator and, if it cannot meet the Collocator's proposed deadline, shall provide detailed reasons, as well as proposed provisioning intervals.

2.0 REGENERATION

2.1 Regeneration is required for collocation in an Adjacent Off-Site Collocation Arrangement if the cabling distance between the collocator's termination point located in an adjacent structure and BellSouth's cross-connect bay exceeds ANSI limitations. Regeneration is not required in any other circumstances except where the collocator specifically requests regeneration. Required regeneration and collocator-requested regeneration will be provided at the collocator's expense.

3.0 RATE ELEMENTS

3.1 Planning Fee

The Planning Fee recovers BellSouth's costs incurred to estimate the quotation of charges, project management costs, engineering costs, and other related planning activities for the Collocator's request for the Adjacent Off-Site Collocation arrangement. A major revision to the initial request for Adjacent Off-Site Collocation that changes cable entrance facilities requirements will be considered a total revision and result in the reapplication of the Planning Fee. A Planning Fee will apply when a Collocator is requesting any Interconnection Terminations between the Collocator's Adjacent Off-Site structure and BellSouth. This fee recovers the design route of the Interconnection Terminations to the Collocator's Adjacent Off-Site structure. Rates and charges are as found in paragraph 4.1 following.

3.2 Copper Cable Entrance Facility (Voice Grade Circuits or DS1s)

This rate element permits the Collocator to bring a 900-Pair copper cable to the BellSouth designated manhole with sufficient additional length to extend to the BellSouth vault. BellSouth would then splice this cable to the tails extended down from the MDF. These copper facilities could be used for either voice grade circuits or DS1 circuits. Rates and charges are as found in paragraph 4.2 following.

3.3 DS1 Interconnection Arrangement (DSX or DCS)

A BellSouth provided arrangement of twenty-eight (28) DS1 connections per arrangement between the BellSouth MDF and the BellSouth DSX or DCS as ordered y the Collocator. This rate element may not be provided by the Collocator. The Collocator will not be permitted access to the BellSouth Main Distribution Frame. If regeneration is required because the cabling distance between the collocator's termination point located in an Adjacent Structure and BellSouth's cross-connect bay exceeds ANSI limitations or where the collocator specifically requests regeneration, it will be at the collocator's expense. Regeneration is not required in any other circumstance. Rates and charges are as found in paragraph 4.3 following.

3.4 Conduit Space for Adjacent Off-Site Arrangement

Any reinforced passage or opening placed for the Collocator provided facility in, on, under/over or through the ground between the BellSouth designated manhole and the cable vault of the eligible structure. Rates and charges are as found in paragraph 4.4 following.

3.5 Optical Circuit Arrangement

This sub-element provides for the cost associated with providing twelve (12) fiber connection arrangements to the BellSouth network. This rate element may not be provided by the Collocator. The Collocator will not be permitted access to the BellSouth Fiber Distribution Frame. OC-3 and OC-12 Circuits can be added at the Collocator's option once the Optical Circuits element has been implemented between the Collocator and BellSouth. Rates and charges are as found in paragraph 4.5 following.

4.0 RATES AND CHARGES

Rate Element	Rate Per Month	Nonrecurring Charge
4.1 Planning Fee	None	$1,524.88
4.2 Copper Cable Entrance Facility (Per 900-Pair Cable)	$219.35	$494.40
4.3 DS-1 Circuits Connection to DCS Connection to DSX	 $208.51 $10.17	 $1,621.84 $1,621.84
4.4 Conduit Space for Adjacent Off-Site Arrangement (Per Cable Support)	$19.86	None
4.5 Optical Circuit Arrangement (Per 12 Fiber Breakout Cable)	$6.32	$3,109.93

EXHIBIT SET-3
ADJACENT OFF-SITE COLLOCATION RATES

Summary of Collocation Cost Model - Adjacent Off Site 10/28/2006

Version 3.0 BellSouth

Element	Non-Recurring	Unit (If Not Total)	Remarks	Monthly Recurring	Unit (If Not Total)	Remarks
Planning	**$1,524.88**	Per Request	Manpower Required Per CLEC Request			
Voice Grade Circuits						
Connection to MDF	**$494.40**	Per 900 Ckt	Cable, Installation, Splice, and Pull	**$219.35**	Per 900 Ckt	Hole, Rack, and MDF
DS - 1 Circuits						
Connection to MDF	**$494.40**	Per 450 Ckt	Cable, Installation, Splice, and Pull	**$219.35**	Per 450 Ckt	Hole, Rack, and MDF
Connection to DCS	**$1,621.84**	Per 28 Ckt	Cable	**$208.51**	Per 28 Ckt	Rack, Hole, and DCS
Connection to DSX	**$1,621.84**	Per 28 Ckt	Cable	**$10.17**	Per 28 Ckt	Rack, Hole, and DSX
Optical Circuits						
Connection to FDF	**$3,109.93**	Per Cable	12 Fiber breakout cable	**$6.32**	Per Cable	Rack, Hole, and FDF
OC-3 Circuits						
Connection to DCS			Requires Establishment of Optical Circuits Arrangement	**$178.51**	Per OC3	Rack, Hole, Fiber, FDF, and DCS
OC-12 Circuits						
Connection to DCS			Requires Establishment of Optical Circuits Arrangement	**$690.90**	Per OC12	Rack, Hole, Fiber, FDF, and DCS
Entrance Fiber Structure Tariff						
Structure Charge				**$19.8600**	Per Cable Support	BellSouth FCC Tariffed Rate

Exhibit SET-3

EXHIBIT SET-4
COLLOCATION COST MODEL TECHNICAL WHITE PAPER

Exhibit SET-4

COLLOCATION COST MODEL

VERSION 3.0

WHITE PAPER

AT&T Corporation
&
MCI WorldCom, Incorporated

January 16, 2004

COLLOCATION COST MODEL

VERSION 3.0

WHITE PAPER

AT&T Corporation
&
MCI WorldCom, Incorporated

January 16, 2004

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Introduction

1. OVERVIEW OF WHITE PAPER

AT&T and MCI, in an effort to develop the forward-looking costs associated with various forms of collocation, put together a team of experts knowledgeable in the different aspects of collocation. Specifically, the team was comprised of individuals with extensive background in central office space planning, cable engineering, power engineering, outside plant design, and other areas pertinent to collocation.

The following White Paper details the engineering and modeling assumptions utilized by this team of experts in developing the underlying inputs in the AT&T/MCI Collocation Cost Model. In general, this White Paper will outline the critical engineering judgements made by the team of experts in developing the key cost drivers behind the various forms of collocation.

By design, this White Paper goes into significant detail regarding the assumptions surrounding the development of costs for Physical Collocation. This section of the White Paper (*see* Section 1) describes the construct of the Model Central Office. This portion of the White Paper is critical towards understanding the engineering judgements for all subsequent sections of the White Paper in that the Model Central Office defines the spatial relationships between different network components with the Incumbent Local Exchange Carrier (ILEC) central office. Specifically, it is the Model Central Office that defines why the distance calculations between any two points within the central office are the specific numbers documented within the model and its associated back-up documentation. Moreover, the layout of the Model Central Office establishes the many of the realty costs, as well. Subsequent sections of the White Paper refer back to this portion of the White Paper, but it is important for the reader to understand this section before moving forward into other areas.

2. COLLOCATION OPTIONS INCLUDED IN THE COLLOCATION COST MODEL

Collocation, in essence, is the means by which a Competitive Local Exchange Carrier (CLEC) places telecommunications equipment in a space such that the CLEC may acquire access to ILEC unbundled elements and interconnection to the ILEC network. Note that *space* is generically used in this definition. The space may be within the ILEC central office within a cage area, or within the existing telecommunications equipment line-ups of the ILEC, or it may be outside of the ILEC central office altogether. It is the location and use of this *space* that has led the team of experts towards defining six variations of collocation:

1. Physical Collocation
2. Virtual Collocation
3. Common Collocation
4. Cageless Collocation
5. Adjacent Physical Collocation – On-Site
6. Adjacent Physical Collocation – Off-Site

The AT&T/MCI Collocation Cost Model develops the forward-looking cost for each of these variations of collocation. The purpose of this White Paper is to describe the engineering and costing assumptions behind each of these forms of collocation as the assumptions pertain to the development of the forward-looking cost of each collocation option.

3. STRUCTURE OF THE WHITE PAPER

Historically, the team of experts who constructed the AT&T/MCI Collocation Cost Model began by developing the engineering and cost assumptions for Physical Collocation. The details of this development are set out in Section 1 of this White Paper. As alluded to above, much of this development work involved defining a Model Central Office that would form the basis for many of the key engineering decisions within the model. Subsequent to this work, the same team of experts began work on a cost model for

Virtual Collocation. The same forward-looking Model Central Office that was used for Physical Collocation became the underlying structure for Virtual Collocation. As such, Section 2 of this White Paper, which details the engineering and costing assumptions behind Virtual Collocation, does not repeat the derivation of the Model Central Office. Moreover, the development of the Virtual Collocation Cost Model is largely based on the model development for Physical Collocation.

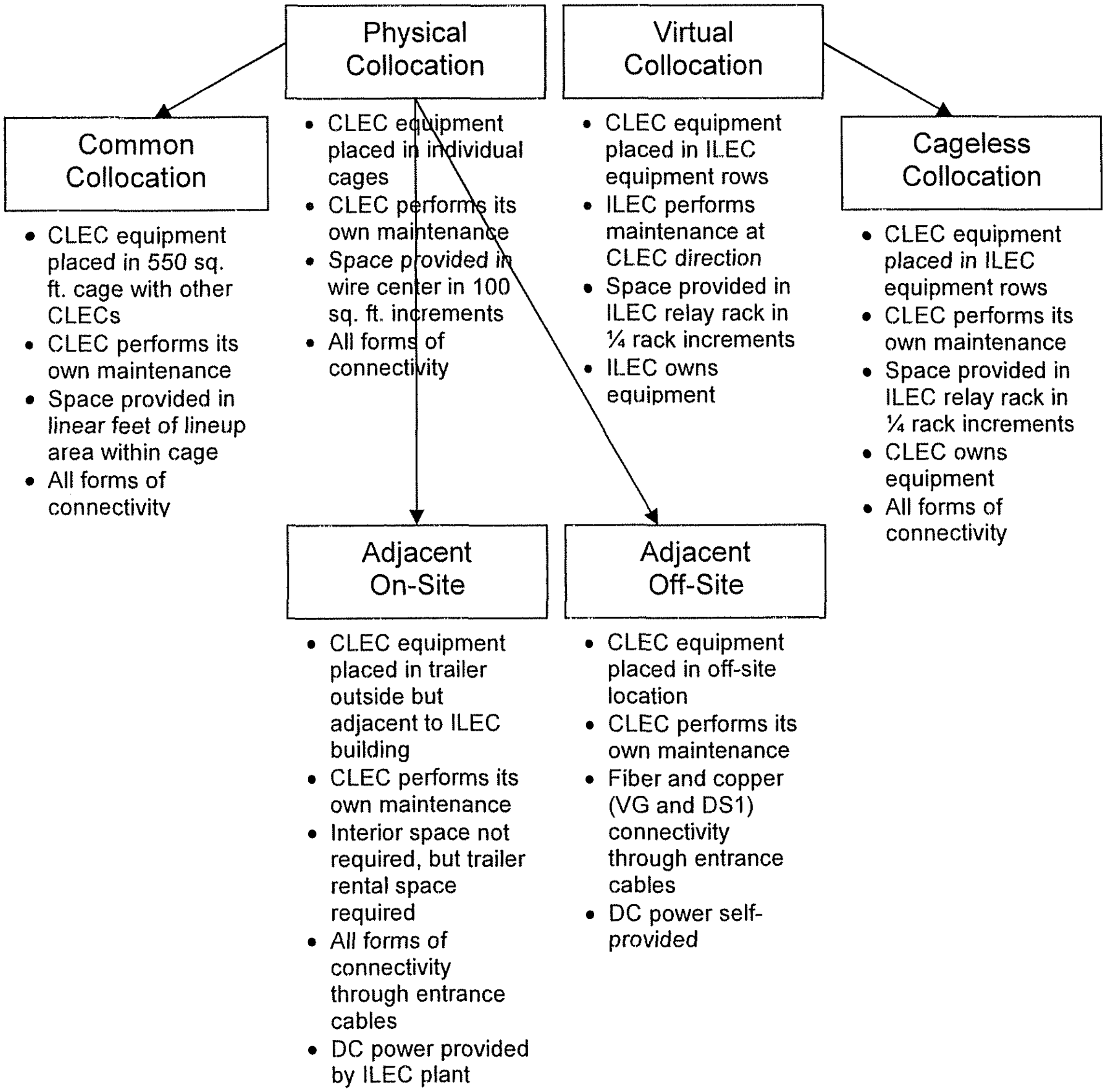
Thereafter, Common Collocation, Cageless Collocation, and the two forms of Adjacent Physical Collocation were added to the model. As with Virtual Collocation, these additional forms of collocation rely heavily on the forward-looking Model Central Office developed initially to model the costs for Physical Collocation. Further, there are many assumptions within the Virtual Collocation Cost Model that were relied upon in the development of the costs for Cageless Collocation. In short these four final forms of collocation depend heavily on the Physical Collocation and Virtual sections of the White Paper. As such, Section 3 of the White Paper, which will detail the unique assumptions behind these additional four flavors of collocation, will not reiterate material previously described in Section 1 and Section 2.

4. INTER-RELATIONSHIP OF THE SIX FORMS OF COLLOCATION

Rather than thinking of these six forms of collocation as six different models, it is more helpful to understand that the latter forms of collocation are really variations on the first two: Physical Collocation and Virtual Collocation. In viewing the six forms of collocation in this way, it may make it easier to understand how the AT&T/MCI Collocation Cost Model "fits together."

The following diagram illustrates how these six flavors of collocation are derived from one another.

RELATIONSHIP OF SIX FORMS OF COLLOCATION



This diagram illustrates several key points. First, Common Collocation is not an entirely new cost model, but rather, it is a derivation of the Physical Collocation Cost Model. Section 3 of this White Paper will go into greater detail as to the specifics of Common Collocation, but the bullet points above indicate that the principle difference between it and Physical Collocation is that CLECs placed in a Common Collocation Arrangement will not have their own cage. Second, Cageless Collocation is virtually entirely based on the costs associated with Virtual Collocation. Effectively, the difference between these two options resides in who owns and maintains the equipment. Finally, the two forms of Adjacent Collocation are variations on the costs associated with Physical Collocation with one major difference: The collocation trailer (instead of a cage) is located outside of the ILEC central office.

There are many more details that will be outlined in Section 3 related to Common Collocation, Cageless Collocation, Adjacent Physical Collocation – On-Site, and Adjacent Physical Collocation – Off-Site. However, from an approach standpoint, these additional four forms of collocation were largely modeled on the approach developed for Physical Collocation and Virtual Collocation. In other words, one the reader understands the approach used in these first two forms of collocation, the additional four only require understanding their unique attributes. They are not entirely new cost models.

Section 1: Physical Collocation

1. INTRODUCTION

1.1 PURPOSE OF STUDY

The purpose of this section of the White Paper is to present a technical model of the physical collocation of competitive local exchange carrier (CLEC) equipment in incumbent local exchange carrier (ILEC) central office buildings.[1] This White Paper presents a bottoms-up approach to implementing physical collocation by creating a forward-looking collocation model layout based upon the use of best practice central office planning strategies, least cost suppliers, and competitive processes. This will provide a clear and concise explanation of the physical requirements for efficient collocation of CLEC equipment at an ILEC central office. In addition, the White Paper provides the technical basis for determining the costs to meet these requirements and identifies the investments necessary for an efficient ILEC to provide physical collocation to CLECs.

1.2 OVERVIEW OF PHYSICAL COLLOCATION

The physical collocation of a CLEC's equipment is necessary for the efficient interconnection of networks, especially when the CLEC is using the ILEC's unbundled loops. Without collocation, there would be no way to concentrate local customer traffic and to efficiently transport the traffic to the CLEC's offices.

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1 Physical collocation also can occur at other places in an ILEC network, such as in the "telco closet" in a large office or residential building. Virtual collocation is addressed in Section 2 of the White Paper.

Physical collocation is nothing more than an arrangement that allows a CLEC to locate its own telecommunications relay rack equipment in a segregated portion of the central office. The CLEC then pays the ILEC for the use of that space within the central office and is provided with the ability to enter the central office to install, repair, and maintain its collocated equipment. Figure 1A displays the limited number of elements required to establish CLEC collocation areas in an ILEC building. As shown, the only requirements are for fiber connectivity between the first manhole outside the central office and the CLEC's terminal equipment in the collocation area; -48V DC power connectivity between the CLEC equipment and a battery distribution fuse bay (BDFB); optical connectivity between the collocation space and the fiber cross-connect; and copper connectivity (Voice Grade, DS-1, DS-3) between the collocation area and an appropriate ILEC cross-connect. Each of these is discussed in greater detail below. The physical demarcation point between the ILEC and CLEC for all copper connections is at a point of termination (POT) bay, normally placed in close proximity to CLEC equipment.[2]

2 While the long-term direction with regard to ILEC/CLEC interconnection may be to eliminate POT bays by moving this "physical demarcation" to the ILEC cross-connect, in the near term it is advantageous to ensure an easily identifiable line of demarcation in close proximity to the CLEC equipment for ease of trouble shooting. Furthermore, the inclusion of a POT bay in the collocation area provides CLEC maintenance staff with uninhibited access for testing and repair without the requirement for a security escort, which might be required if the demarcation were moved to the ILEC cross-connect.

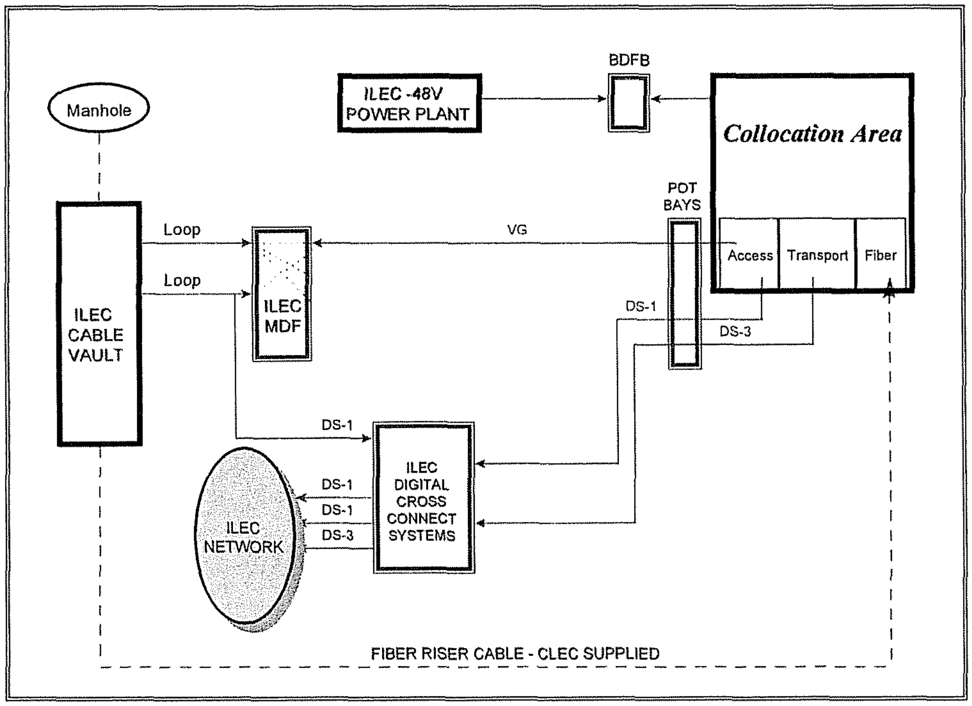

Figure 1A

Collocation is a low technology aspect of a high technology industry. It simply requires the placement and connection of CLEC equipment in an ILEC central office. The equipment located in telecommunications central offices typically is placed in metal relay racks, sometimes called bays. As shown in Figure 1B, these relay racks are roughly 2'-0" wide, 12" deep, and 7'-0" high. Typically, telecommunications relay racks are fabricated with pre-drilled ironwork uprights to permit the installation of equipment shelves on an "as required" basis. Unlike previous vintages of telecommunications equipment, relay racks currently installed in central offices are generally 7'-0" high, avoiding any need for complex overhead ironwork arrangements for support. Instead, they are supported directly on the floor slab using anchors appropriately sized for the specific seismic zone in which the equipment is installed. Relay racks are placed adjacent to each other in rows (called "lineups") to simplify cabling arrangements and day-to-day maintenance operations.

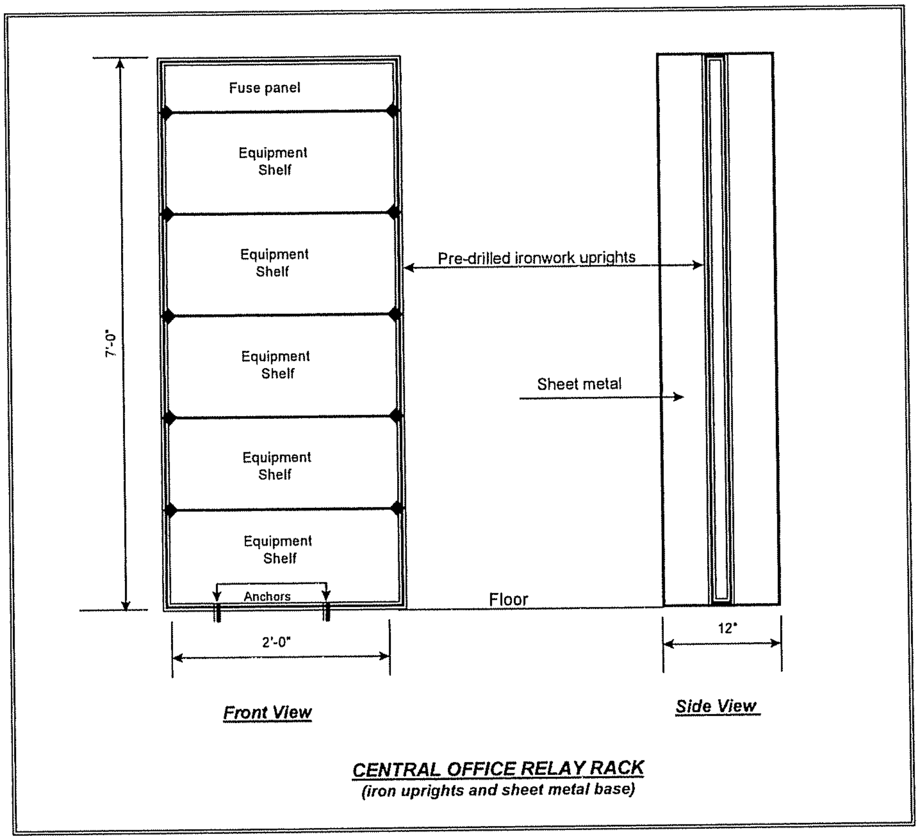
Fuse panel
Equipment Shelf
Equipment Shelf
Equipment Shelf
Equipment Shelf
Equipment Shelf
Anchors
7'-0"
2'-0"
Pre-drilled ironwork uprights
Sheet metal
Floor
12"
Front View
Side View
CENTRAL OFFICE RELAY RACK
(iron uprights and sheet metal base)

Figure 1B

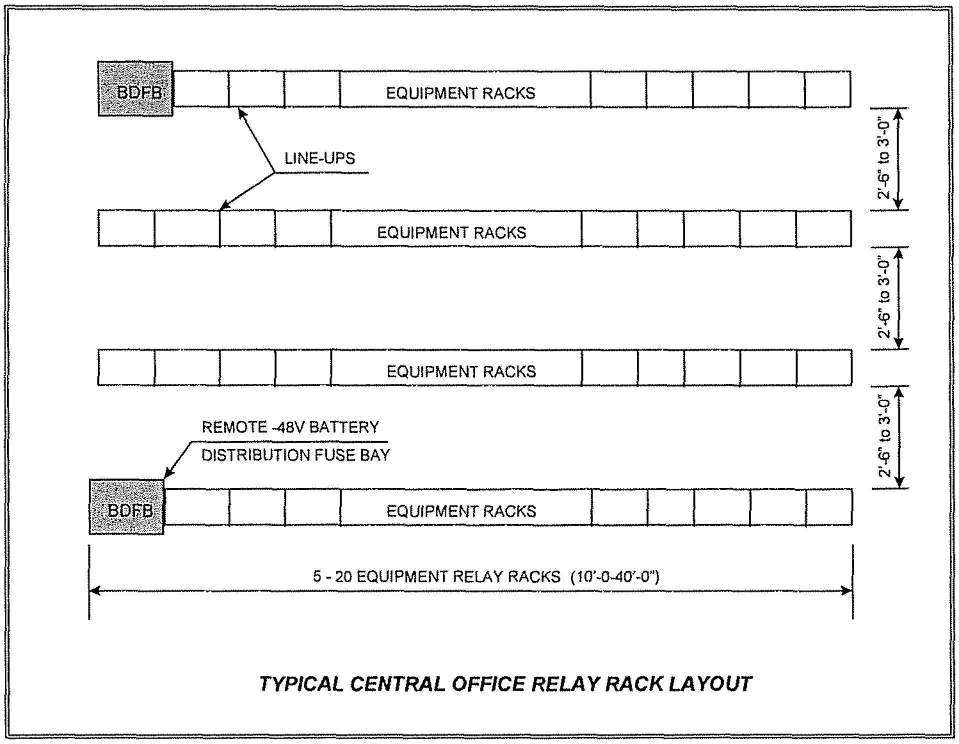

Figure 1C

As shown in Figure 1C, telecommunications equipment line-ups typically can be as short as ten or as long as forty feet, depending on physical constraints such as the availability of space and the length of power feeders. Telecommunications equipment floor layouts typically include both front and rear aisles for maintenance purposes. In addition, floor layouts incorporate battery power distribution fuse bays -- located every third or fourth line-up -- to provide -48 Volt power delivery in the most cost-efficient manner. It is not uncommon to find 1,000 or more equipment relay racks already located in a large urban ILEC central office. The installation of a few additional relay racks of equipment to provide competitive collocation should not be a difficult task, particularly since ILECs commonly install additional relay racks to provide service to their own customers on an ongoing basis.

2. COLLOCATION COSTS CAN EASILY BE OVERSTATED BY AN ILEC

An ILEC has the ability to artificially raise CLEC costs for physical collocation in numerous ways, including:

⇒ *Arbitrary sizing and placement of the collocation area within the central office.* ILECs have the incentive to place the collocation space far away from the ILEC cross-connects. Locating collocation space distant from the cross-connects increases CLEC costs because copper connectivity charges (Voice Grade, DS-1, DS-3) are length-sensitive. Similarly, the fiber riser charge is typically length-sensitive, and power delivery charges increase with complexity and distance relative to the shared BDFB and -48V DC power plant.

One common way that ILECs seek to accomplish this is to insist that the collocation spaces for all CLECs be located together in the central office, thus creating a requirement for a very large space that may not be available close to the cross-connects. The efficient approach is to size collocation spaces to fit into readily-available, conveniently located space on a first come first served basis, in much the same manner as the ILEC would do for itself when it requires additional equipment space. Indeed, with the deployment of digital equipment -- both in the local access network and to replace existing, less space-efficient analog switches in the central office -- there are many convenient spaces currently available for collocation space in ILEC central offices.

⇒ *Imposing all the costs of government-mandated building code upgrades on the CLEC.* ILECs often are required to upgrade buildings to meet requirements such as the Americans with Disabilities Act or to incorporate the latest building code revisions (e.g., asbestos removal, electrical systems upgrades, sprinkler installations). These costs are not attributable to collocators but rather are part of the generic costs of central office space which should be borne by all users of the central office.

⇒ *Using non-competitive "contract prices" with "preferred suppliers" for the procurement and resale of interface equipment to CLECs.* ILECs have the incentive to employ these practices to artificially raise CLEC costs. This can be avoided by basing rates on least cost suppliers, competitive quotes, and best practice provisioning principles -- and most effectively by allowing the CLEC to purchase its own equipment wherever possible.

⇒ *Requiring CLECs to absorb excessive and inefficient manpower costs for in-house ILEC manpower and the use of non-competitive "preferred" consultants.*

⇒ *Inclusion of Time and Material (T&M) or Individual Case Basis (ICB) charges.* Charges based on existing inefficient processes and over-engineering practices, especially since these charges are "undefined," can become extremely costly to the CLEC since costs are only quantified on a case by case basis upon implementation of a collocation request. When a CLEC has the business need for a specific collocation space, it is in a vulnerable negotiating position. ILECs can use this leverage to artificially increase CLECs' costs by forcing CLECs to delay their business plans while challenging specific charges. Furthermore, any charge that simply reimburses ILECs for their time and materials on an individual cost basis provides the ILECs with no incentive to pursue efficiencies and improved competitive processes.

The collocation model that is described in this White Paper is based on best practice central office planning strategies and input prices that reflect those charged by competitive suppliers. As a result, both ILEC customers and CLEC customers benefit from the most efficient use of the central office. In addition, the collocation model that has been developed is extremely flexible, providing costs for elements that a CLEC may require in a collocation area. Specifically, there are no hidden sub-charges. This enables the collocation cost model outputs to be used to construct a flexible tariff that can meet the requirements of an individual collocator at a specific ILEC central office, with an easily defined single end-to-end charge for each element.

3. CENTRAL OFFICE PLANNING

3.1 PREVIOUS PLANNING PRACTICES

Many central offices were originally designed and built to accommodate very different technological requirements for equipment space, connectivity, air cooling requirements, etc. Modern switching and transmission equipment present different requirements. As a result, most ILEC central offices, and in particular large urban and suburban central offices, currently have the following characteristics.[3]

⇒ *Large multi-floor buildings with floors dedicated and reserved for specific equipment*

⇒ *Various sized "pockets" of space scattered throughout the central office, created by the replacement of analog equipment with more space efficient digital technologies*

⇒ *These "pockets " currently may be vacant, used by administrative staff, or still have unused analog equipment retired-in-place*

⇒ *Lengthy and indirect cable routes caused by congestion in the overhead cable racks as a result of removing previous equipment without removing cables*

⇒ *Multiple voice grade cross-connects using a Main Distribution Frame and various Intermediate Distribution Frames with complex inter-DF tie cable systems resulting in excessive cable lengths and additional points of failure*

Most of the above characteristics are the result of ILEC planning strategies that are no longer efficient. For example, when faced with new technologies or modernization requirements in its already large urban central offices, ILECs traditionally have responded by either adding floors to the building or extending the building horizontally (rather than with forward-looking planning strategies that minimize the overall, long-term requirement for building space). As a result, central offices throughout the country tend to be larger than necessary. The worst case scenarios, in terms of efficient utilization of equipment space, are usually the large urban, multiple-floor central offices, which normally have significant amounts of space previously utilized for equipment now utilized by administrative or support personnel.

The situation is further exacerbated by the fact that many existing central offices have congested overhead cable racking and/or blocked inter-floor cable holes, caused by removing equipment without also removing the unused cables that once connected this equipment from overhead racks. These conditions often make direct routing of cable difficult if not impossible -- particularly when cables are routed between floors and/or over existing equipment areas. At times, new cables must be routed around congestion or additional cable racking must be installed to alleviate congestion areas. The result is much longer than necessary cabling lengths. Costs can easily be manipulated according to the placement of a collocation area by the ILEC.

Figure 3A provides an illustrative example of the overhead cable congestion that currently exists in most large urban central office buildings and the resultant excessive fiber, power, and copper cross-connect connectivity lengths created as a result of this embedded ILEC practice.

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3 As discussed below in Section 4.1, although the collocation model reflected in this White Paper was developed assuming that the collocation space would be located in a large, urban ILEC central office, the collocation model is also applicable in non-urban central offices.

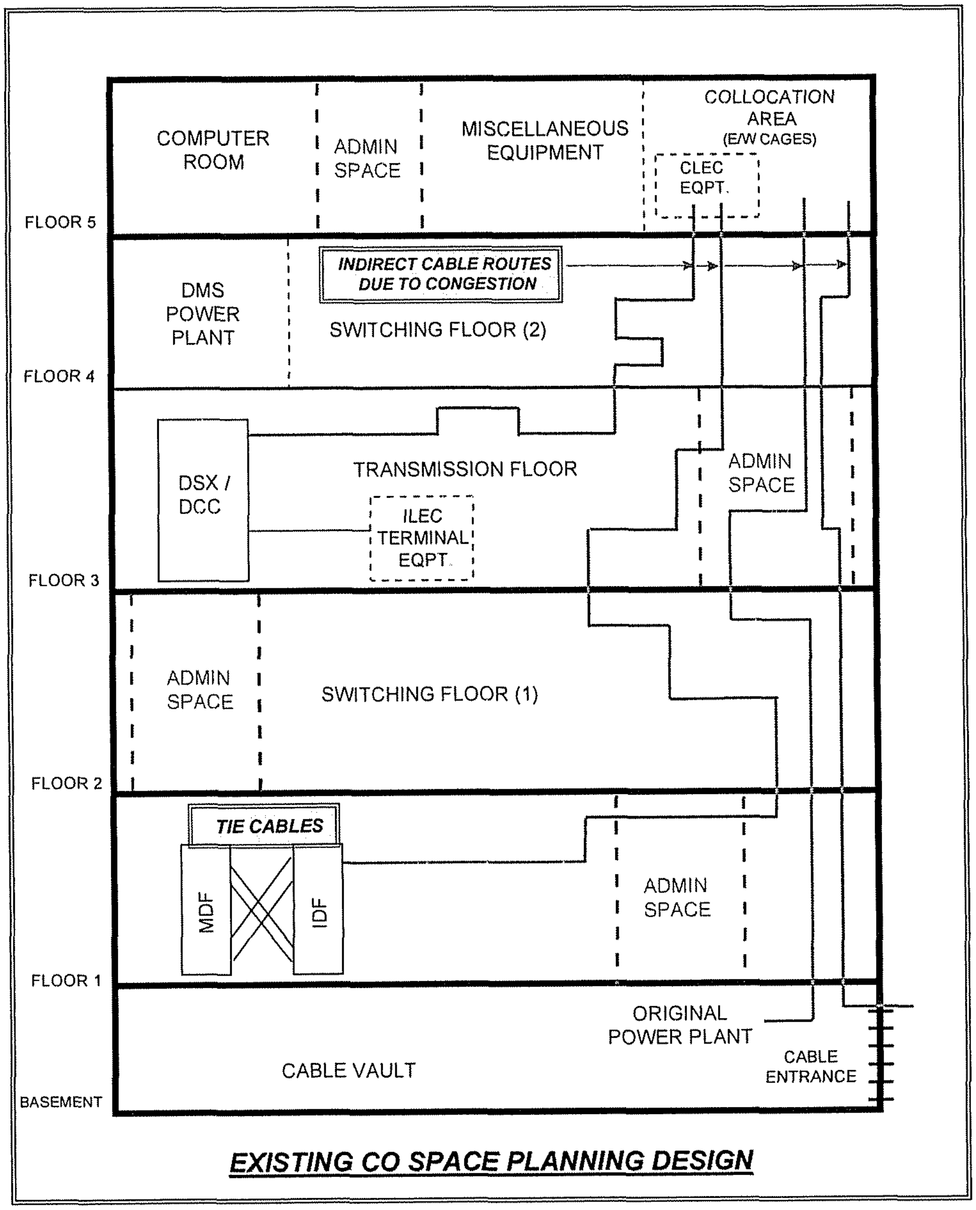


Figure 3A

The deployment of digital switching and transmission technologies that are far more space-efficient than their analog predecessors, and the advent of distributed remote switching modules in the local access network, have resulted in a requirement for less equipment space in the central office and have reduced cross-connect complexity for voice grade connections. Thus, central offices built in the past five years have been and going forward can be designed according to a more *"forward looking"* space planning scenario that results in smaller buildings, fewer floors, less overall square footage, and shorter and more direct cable routing. Figure 3B provides an illustrative example.

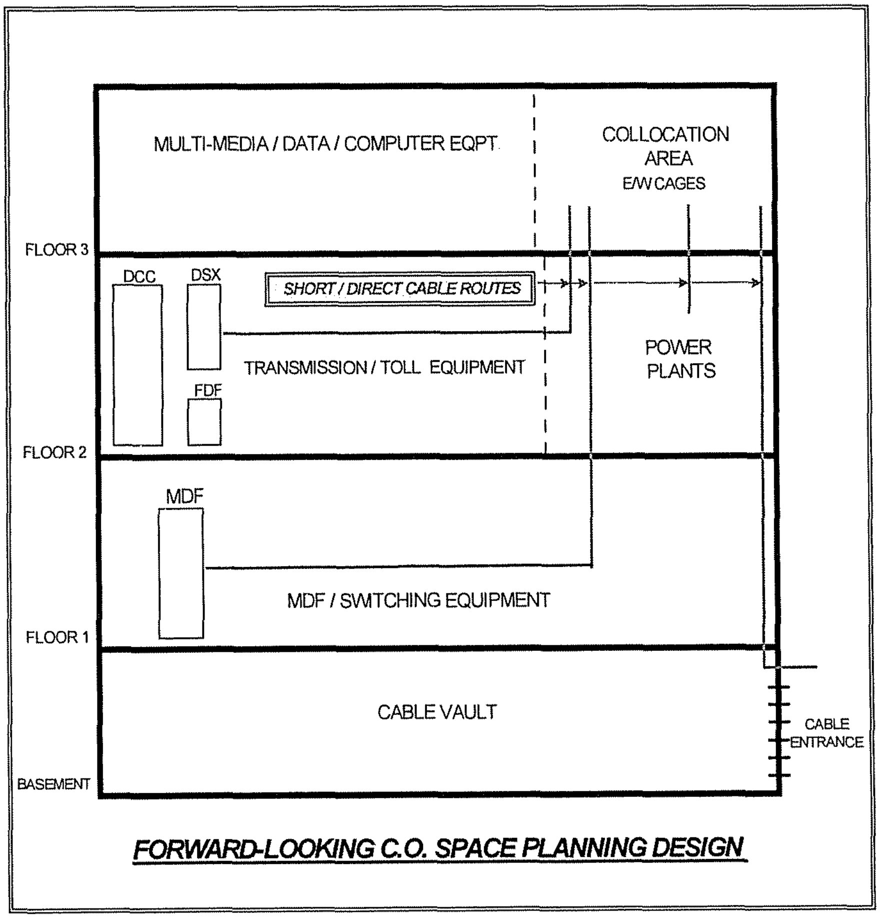


Figure 3B

As depicted in Figure 3B, an urban central office built today or in recent years requires only three equipment floors and, unlike many existing urban ILEC central offices, has the following connectivity characteristics:

⇒ *Shorter and more direct cable routes*

⇒ *Less cable congestion*

⇒ *A single Main Distribution Frame for voice grade connections*

Thus, even in an urban environment, an efficient, forward-looking collocation area would not be more than two floors from the cross-connects.

3.2 BEST PRACTICE PLANNING STRATEGIES

The methodology used in this model is to use an efficient, forward-looking central office model layout (such as the one displayed in Figure 3B) and current best practice central office planning strategies to calculate average connectivity lengths. These average connectivity lengths will be calculated for the fiber riser between the cable vault and the collocation area, the power distribution cabling between collocation equipment and the BDFB, and the optical and copper connections between the collocation area and appropriate ILEC cross-connect. These connectivity lengths are used in subsequent stages of the Collocation Model to establish investment levels required for efficient collocation.

The use of forward-looking average connectivity lengths developed from the central office model layout is appropriate because many existing urban central office conditions are simply not reflective of an efficient approach to central office space planning. If collocation charges were based on existing central office conditions, unnecessary and discriminatory cost penalties would be imposed on CLECs. These collocation charges would reflect costs that the ILEC would not incur to provide for its own customers because it can place its own equipment in a manner that minimizes the deleterious effect of central office congestion. Furthermore, a forward-looking approach to determining average connectivity length ensures that both parties have the incentive to work toward the realization of a best practice and least cost space planning scenario on a case-by-case basis.

Examples of how a forward-looking central office model layout and average connectivity lengths can be employed to promote best planning practices within existing central office environments include:

a) Using more than one vacant pocket of space to create multiple collocation areas on a first come first served basis;

b) Relocating existing administrative staff currently located in prime equipment space to make that space available for collocation; and

c) Removing retired-in-place equipment currently located in prime equipment space to make that space available for collocation.

In short, calculating average connectivity lengths based on a forward-looking central office model layout ensures that an ILEC will apply the same type of best practice space planning strategies for collocating CLECs as the ILEC will use for placement of its own equipment within the central office. It minimizes the potential that large, costly collocation areas would be created in remote areas of the central office, and forces both parties to work together, improving the likelihood that both the ILEC and CLEC are treated equally.

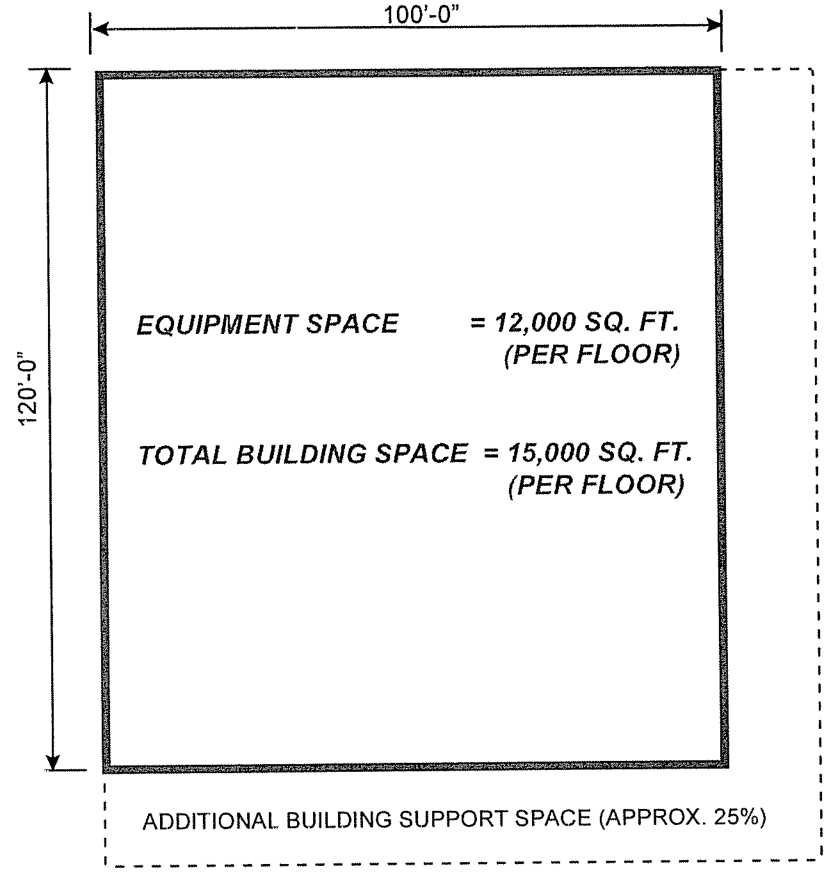
4. OVERVIEW OF ASSUMPTIONS USED IN THE COLLOCATION MODEL

4.1 FORWARD-LOOKING CENTRAL OFFICE MODEL LAYOUT

As noted above, the Collocation Model relies upon a forward-looking central office model layout to establish efficient collocation requirements. This central office model layout assumes a new urban central office designed for up to 150,000 lines, together with associated transport, power, multi-media, and miscellaneous equipment space. Such an office would need approximately 36,000 square feet of equipment space -- or three equipment floors of about 12,000 square feet (100 feet x 120 feet) each -- plus a below-ground cable vault. (*See* Figures 4A and 4B.) The central office model layout also assumes an additional 3,000 square feet on each floor and the entire basement (except for the cable vault area). This area provides a generous allowance for building support services such as main corridors, elevators, washrooms, lunch rooms, conference facilities, administrative areas, electrical rooms, and mechanical rooms. This results in an overall footprint of 15,000 square feet.

The best practice central office planning strategy -- shown in Figure 4B -- provides adequate space for the long-term requirements associated with a forward-looking, urban central office and is representative of central office layouts that would have been constructed in recent years to accommodate growth in a downtown urban environment. New central offices designed for areas outside of urban centers would likely consist of only one or two floors above the cable vault, requiring shorter cable connectivity lengths. Hence, the forward-looking physical central office model layout incorporates conservative assumptions in terms of recent central office telecommunications building deployment and is likely to be significantly larger than the average central office across the ILEC territory.

The forward-looking central office model layout being relied upon can also be used for central offices located outside the downtown core or for situations where the ILEC's primary central office is not expected to grow to three floors due to demographics. The impact would be minimal, because even a single switch central office in a one-floor building is likely to utilize a footprint of approximately 15,000 square feet with all equipment placed on the same floor. Thus, the use of this model for suburban central offices and for ILECs that may not have multi-floor central offices in the downtown core, would mean that the average connectivity lengths for fiber, copper and power would be over-stated by about 20-40 feet (i.e. the distance between floors). The only other area that would be affected is the land and building calculation. However, because the land and building calculation is based on assignable space, the impact on floor space rental is likely minimal. The land cost used in the cost model is a default value and can be adjusted to suit local conditions.



SUMMARY		
EQUIPMENT SPACE PER FLOOR	=	12,000 SQ. FT.
TOTAL FOOTPRINT PER FLOOR	=	15,000 SQ. FT.
NUMBER OF FLOORS	=	3
TOTAL EQUIPMENT SPACE	=	36,000 SQ. FT.
TOTAL ABOVE GROUND FLOOR SPACE	=	45,000 SQ. FT.
CABLE VAULT AND BUILDING SERVICES	=	BELOW GROUND

FORWARD LOOKING URBAN CENTRAL OFFICE

Figure 4A

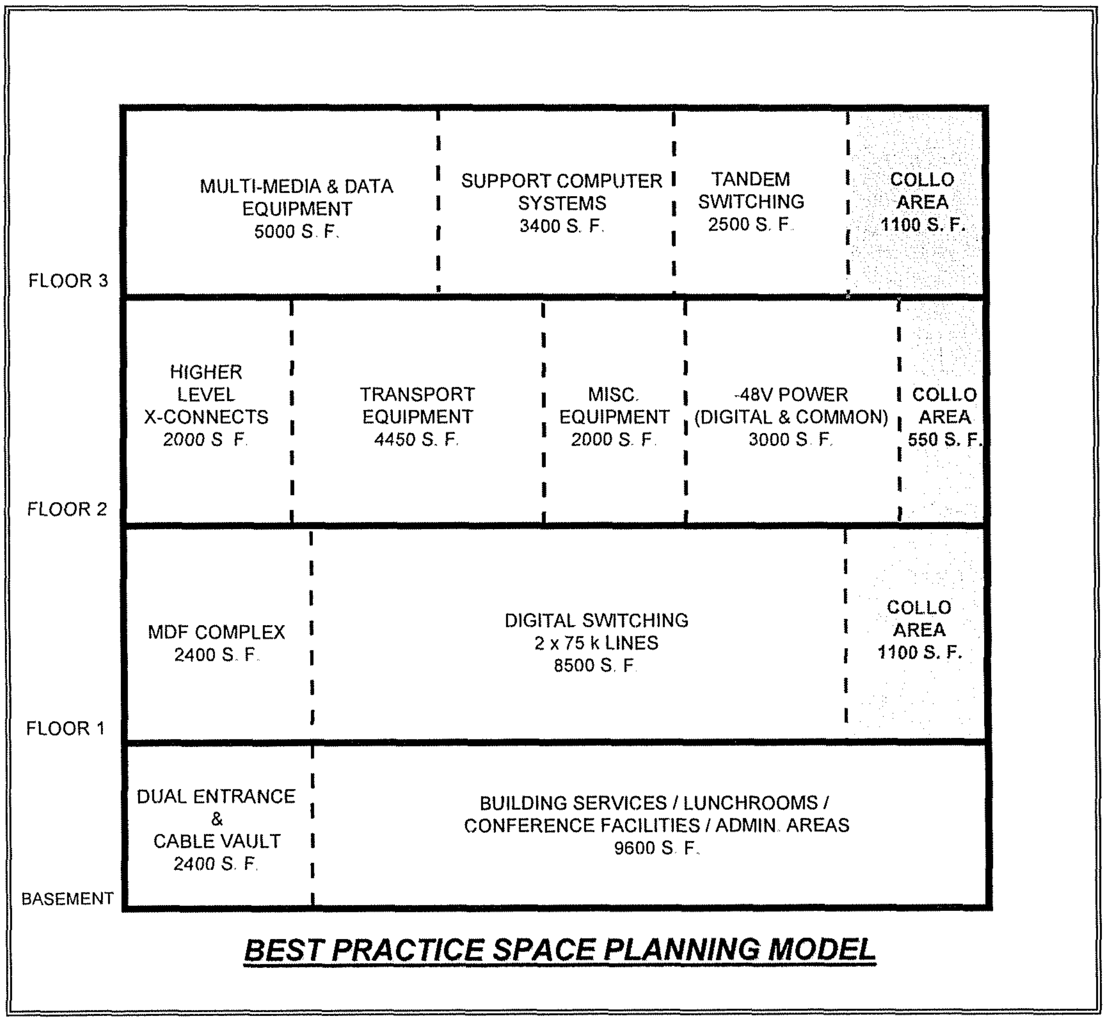


Figure 4B

To ensure efficient connectivity arrangements, similar to those incurred by the ILEC in deploying its equipment, the model establishes collocation areas using pockets of existing vacant or administrative space in the central office. To be conservative, the model calculates the average connectivity lengths based on a minimum and maximum scenario. For the maximum cable length, the model uses a worst case scenario with the collocation area located on the top floor (Floor 3) of the central office layout, the cross-connects located on Floor 1, and the collocation area at the extreme opposite corner of the building from where the cross connects are located. Based on this premise, there would be a two-floor distance between the collocation area and the ILEC cross-connects. For the minimum cable length, the model uses a best case scenario and assumes that the collocation area is located on the same floor and in close proximity to the ILEC cross-connects. However, since physical collocation requires the construction of cages, it is unlikely that a new collocation area could be built directly adjacent to ILEC cross-connects. Therefore, the best case scenario includes a 40-foot minimum length between the collocation area and the ILEC cross-connects. Both scenarios include a 15-foot cable drop (i.e., 7'6" on each end). Hence, the forward looking best practice central office model layout used in the model generates ***minimum and maximum*** copper connectivity lengths of 55 and 275 feet.[4] The model therefore uses an average connectivity length of 165 feet for Voice Grade, DS-1, or DS-3 cabling between the CLEC collocation area and the appropriate ILEC cross-connect. The optical connectivity length is 190 feet to account for the fact that optical connections will not use a POT bay in the common area.

These average connectivity lengths of 165 feet and 190 feet are appropriate forward-looking assumptions. This is principally because central offices built today and in the future would not have the inherent cost penalties associated with cable congestion, blocked cable holes, multiple MDFs, inter-DF tie cable systems and other limitations which can easily be manipulated to increase the cost of entry for CLECs. As shown in Figure 4C, when ILECs install the same type of multiplexing and fiber terminal equipment for themselves as for the CLECs, the average cable distance tends to be in the 100 to 125 foot range. This is because the equipment would be placed on the same floor and as close as possible to ILEC cross-connects. Thus, the model conservatively

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4 These extremes were determined as follows: equipment area width = 100 feet; equipment area length = 120 feet; distance between floors = 20 feet; cable drop to equipment at both ends = 15 feet. So the maximum two-floor distance would be 100' + 120' + 20' + 20' + 15' = 275', and the minimum same-floor distance would be 20' + 20' + 15' = 55'.

sets connectivity lengths for CLECs that are significantly longer than the equivalent costs for the ILEC.

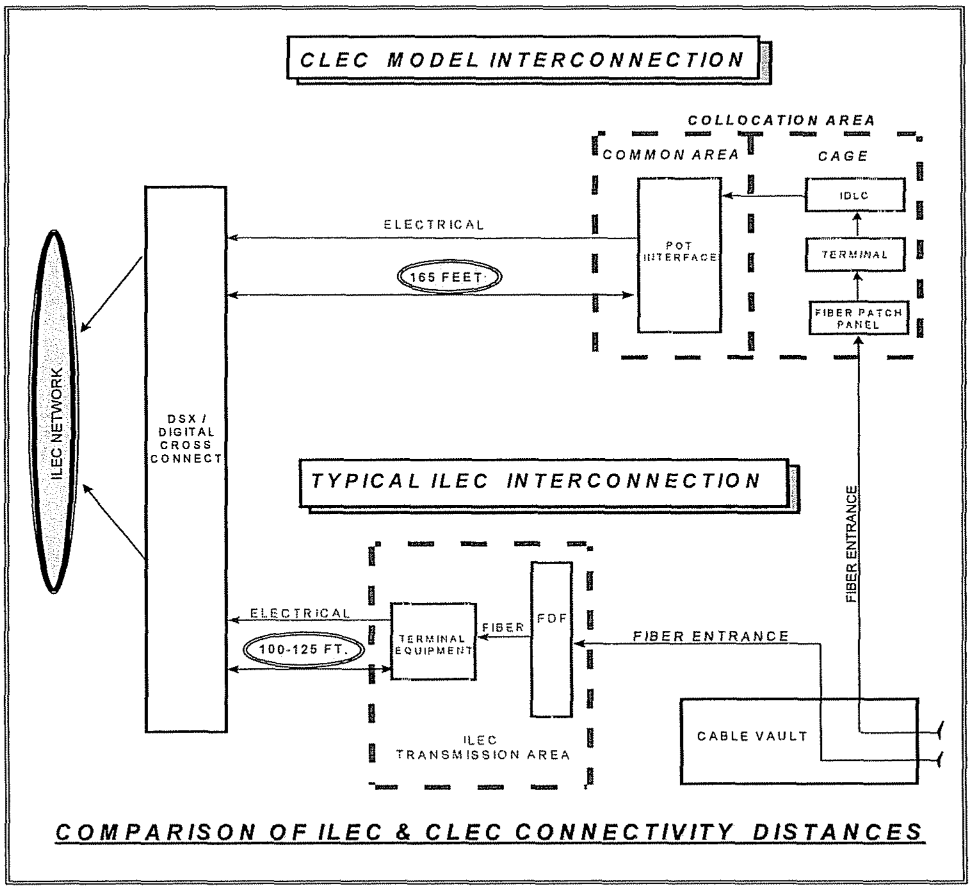


Figure 4C

Using the same forward-looking, three-floor central office model layout and the best practice planning assumptions discussed above, average lengths for all collocation-related cabling and connectivity components have been developed. A summary of all average connectivity lengths used is set forth in Chart 1 below.[5]

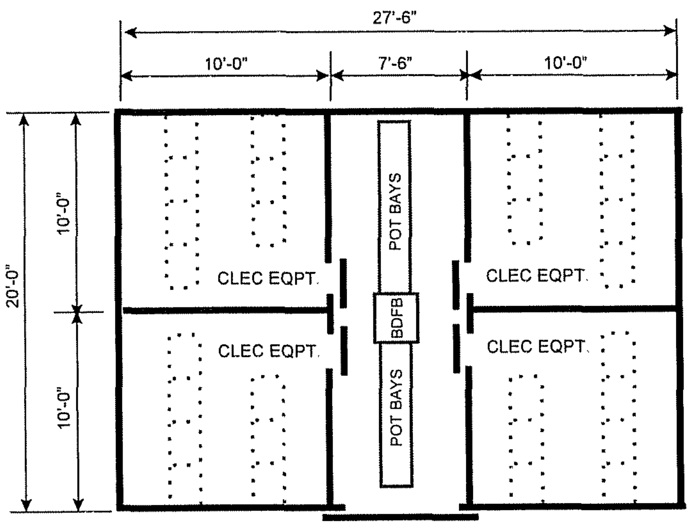
5 Calculations for all average cable lengths are included in backup documentation for the Collocation Model Layout.

CHART 1			
COLLOCATION MODEL CONNECTIVITY COMPONENTS AND AVERAGE DISTANCES			
TYPE OF CONNECTION	***CABLE LENGTH***	***CABLE RACK LENGTH***	***CABLE HOLES AND SLEEVES***
FIBER ENTRANCE CABLE (BY CLEC)	125'-0"	N/A	--
FIBER RISER CABLE (BY CLEC)	175'-0"	160'-0"	3
COPPER (DS-0/DS-1/DS-3)	165'-0"	150'-0"	2
FIBER BREAKOUT CABLES	190'-0"	175'-0"	2
-48V DC POWER PLANT TO BDFB	165'-0"	150'-0"	2
BDFB TO DC PANELS IN CAGE	35'-0"	5'-0"	--
FLOOR GROUND BAR TO COMMON AREA GROUND BAR	100'-0"	IN CONDUIT	--
COMMON AREA GROUND BAR TO EQUIPMENT GROUND BAR	30'-0"	CABLE BRACKETS ON COPPER RACK	--

4.2 CENTRAL OFFICE COLLOCATION AREA MODEL

The Collocation Model assumes a best practice planning strategy that permits more than one collocation area to be assigned in a central office based on available space in close proximity to ILEC cross-connects. This is in contrast to an arbitrary assumption (sometimes made by the ILECs) that the first collocation area in a central office must be sized to accommodate all potential future CLECs, even when that decision results in placement of the collocation area in a remote location far from the cross-connects.

As shown in Figure 4D, the model assumes a collocation area model layout of 550 square feet to take advantage of smaller areas that would be in relatively close proximity to ILEC cross-connects. These pockets of space include those made available by prior replacements of older technologies with more space efficient digital equipment, vacant area, space occupied by administrative staff, or locations occupied by redundant equipment that an efficient ILEC would have removed long ago. This assumption reflects an expectation by the model developers that, in terms of placement, the ILEC would employ the same best planning process that it would use when planning efficient equipment space allocations for its own equipment.



SUMMARY		
OVERALL SPACE REQUIREMENT	=	550 SQ. FT.
NUMBER OF 100 SQ. FT. ALLOCATIONS	=	4
CLEC CAGE SPACE	=	100 SQ. FT.
SHARED COMMON SPACE	=	150 SQ. FT.
CLEC CONTRIBUTION FOR EACH 100 SQ. FT.	=	137.5 SQ. FT.
POT BAYS + TERMINATION PANELS	=	BY CLEC
DC POWER PANELS IN CAGE (IF REQUIRED)	=	BY CLEC
BDFB (INCLUDED IN POWER CONSUMPTION)	=	BY ILEC

FORWARD-LOOKING BEST PLANNING COLLOCATION MODEL

Figure 4D

The 550 square feet included in the collocation model layout provides sufficient space to accommodate interface equipment such as point of termination (POT) bays and remote power distribution BDFB equipment, while avoiding the economic disadvantages of exceptionally large collocation areas. For those central offices where more than 550 square feet of collocation space is required, a second collocation area would be selected when necessary. Proceeding in this manner is consistent with the FCC Amended Order Part 51.323 (f)(1) (and Paragraph 585), which supports the concept of CLECs obtaining reasonable amounts of space in an ILEC's premises on a first-come, first-served basis.

Within the 550 square foot collocation area, the collocation area model layout assumes the construction of four 100 square foot equipment areas and a common area of 150 square feet (to accommodate ILEC and CLEC point of termination interface equipment bays and a BDFB). The model anticipates that the cost of the entire common area would be shared by all CLECs (with no contribution from the ILEC) and that CLECs would request collocation space in increments of 100 square feet, without any guarantee of expanding into an adjacent space. If a CLEC requires additional space for expansion, it would have to take the next closest available space in much the same way as an ILEC would. For this type of situation, cage-to-cage cabling for cages occupied by the same CLEC should be permitted.

4.3 COMMON INTERFACE EQUIPMENT

With the exception of the shared BDFB, which is included in the Power Consumption elements discussed in Section 5, the model assumes that all interface equipment located in the common area will be purchased and installed by the CLEC. This includes POT bays, and all required voice grade, DS-1, and DS-3 interconnection shelves to be placed on the POT bays.[6] Proceeding in this manner permits CLECs to achieve the benefits of a competitive best practice and least cost approach to the provisioning of interface equipment, instead of forcing them to absorb the cost of potentially less-competitive contract prices currently in place between the ILEC and its suppliers.

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6 All CLEC-provided POT bays and interconnection panels should conform to appropriate standards and be acceptable for use in telecommunications COs. Because this would be passive cross-connect equipment located completely within the secure collocation area, it would pose no potential threat to the ILECs' network security or integrity.

4.4 OVERHEAD COMMON SYSTEMS INFRASTRUCTURE

Cables are typically routed within the central office environment on overhead cable racks supported from the ceiling. (*See* Figure 4E.)

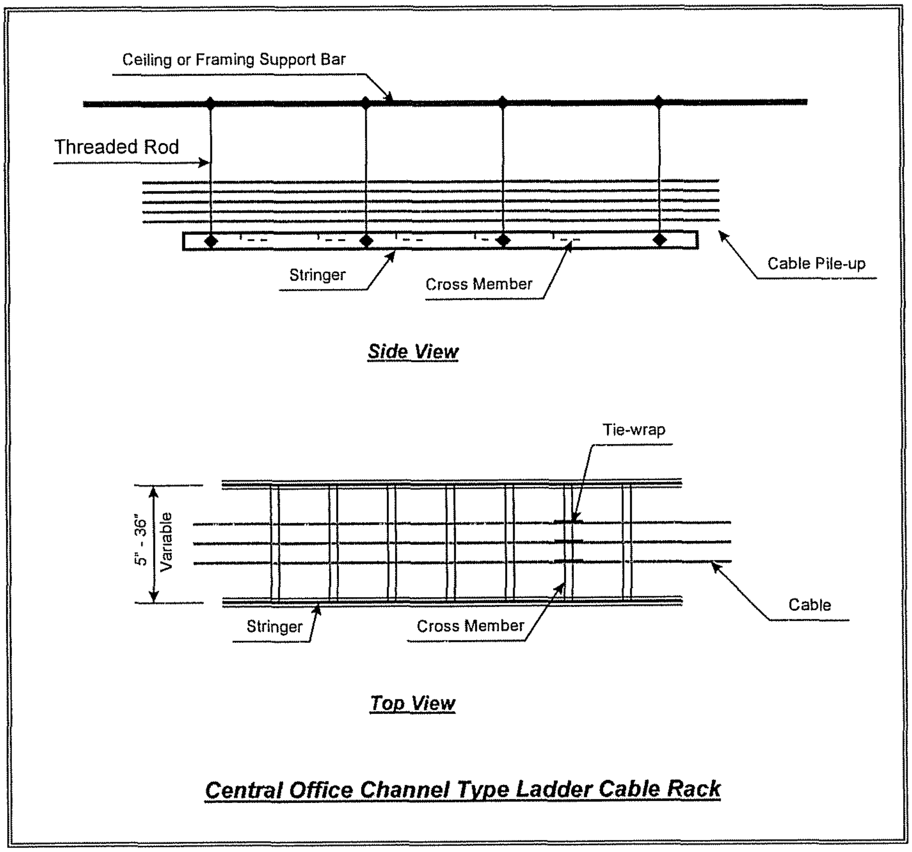


Figure 4E

Central office cable racking is readily available in widths between five and thirty inches. Usually, different types of cabling (e.g., fiber, power, copper) are routed on separate cable racks. The bulk of the cabling in a central office is copper, which is typically placed on wider cable racks (15", 20", 25", 30"). Specialty cables, such as fiber and power, are usually placed on narrower 12" or 15" cable racks. Although the ILEC has the responsibility to supply copper, fiber, and power accessibility to the new collocation area in the most cost efficient manner, Figure 4F provides the preferred configuration for routing fiber, copper and power cables to each collocation area.[7]

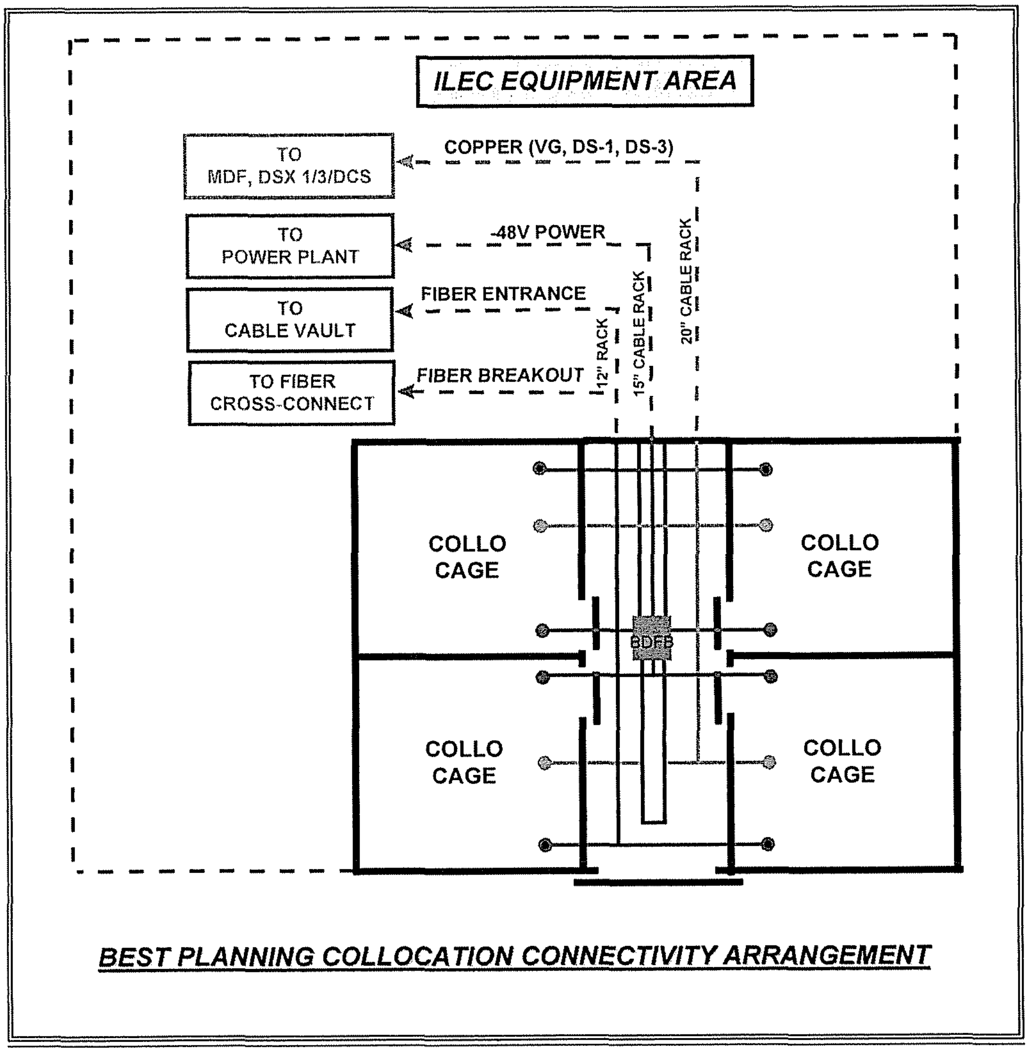


Figure 4F

As shown, an efficient connectivity arrangement provides for pre-placed cable routes installed by the ILEC at the time that the initial collocation area is constructed. The following connectivity routes will be required by the CLECs and should be incorporated into the planning process for a new initial collocation area.

7 The model assumes that if necessary the ILEC must place the racks between the collocation area and the cross-connects. Portions of the Cable Racks may already be in place. In either case, the CLECs pay space rental to the ILEC for their occupancy.

- ⇒ *Copper cable route for Voice Grade, DS-1, DS3 cables to ILEC cross-connects*
- ⇒ *Fiber cable route for Fiber Riser between the cable vault and the collocation cage*
- ⇒ *Fiber cable route for fiber breakout cables between the CLEC cage and ILEC fiber cross-connect*
- ⇒ *Power cable route for cabling between the -48V Power Plant and Collocation BDFB*

As previously noted, it is the responsibility of the ILEC to provide overhead cable racking to transport cables between various areas of the central office. With the exception of small amounts of cable located within the common area, the vast majority of cabling associated with collocation connectivity will be routed on shared cable racks within the ILEC central office. To account for this, a cable rack occupancy cost (based on the amount of space utilized on a particular shared cable rack) has been incorporated into the model. (For similar reasons, an occupancy cost for the use of ILEC inter-floor cable holes also is incorporated into the model.)

Because cables are many different sizes, the model develops individual cable rack occupancy costs for the various types of telecommunications cable used in ILEC central offices, which are reflected in Chart 2. The top portion of the chart, entitled Cable Rack Capacities, outlines commonly used cable rack sizes, together with the estimated number of cables that can be placed on each at various cable pile-up levels (i.e. build-up on the rack). The lower portion of Chart 2 sorts the various types of cabling commonly used for telecommunications equipment according to size, and develops a cable equivalency factor. As shown, DS-1, DS-3, and 12 fiber optical breakout cables are the benchmark, with an equivalency of one cable. A 100-pair voice grade cable is equivalent to two benchmark cables; a fiber riser cable is equivalent to three benchmark cables; and a large 750 MCM power cable is equivalent to four benchmark cables.[8]

CHART 2													
COLLOCATION MODEL - CABLE RACK CAPACITIES													
CABLE RACK WIDTH		***CABLE PILE-UP***											
ACTUAL SIZE	***CABLE SPACE***	***1"***	***2"***	***3"***	***4"***	***5"***	***6"***	***7"***	***8"***	***9"***	***10"***	***11"***	***12"***
10"	8.5"	26	51	77	102	128	154	179	204	230			
12"	10.5"	32	63	94	126	158	189	221	252	283	315		
15"	13.5"	41	81	122	162	203	243	284	324	365	405	446	486
20"	18.5"	56	111	167	222	278	333	389	444	500	555	611	666
25"	23.5"	71	141	212	282	353	423	494	564	635	705	776	846
30"	28.5"	86	171	257	342	428	513	599	684	770	855		

CABLE TYPE	***EQUIVALENCY FACTOR***	***OCCUPANCY FACTOR FOR CABLE RACK & CABLE HOLE USAGE***
Fiber Riser	3	Fiber Riser cables assume 7" Pile-up on 12" Racks * Capacity = 74 Cables (221/3)
Breakout Cable (12 Fibers)	1	Fiber Breakout cables assume 7" Pile-up on 12" Racks* Capacity = 221 Cables
750 MCM	4	Power Distribution Cables assume 5" Pile-up on 15" Racks * Capacity = 51 Cables (203/4)
100 Pair VG/DS-0	2	Copper DS-0 Voice Grade Cables assume 10" Pile-up on 20" Racks Capacity = 278 Cables (555/2)
28 Pair DS-1	1	Copper DS-1 Cables assume 10" Pile-up on 20" Racks Capacity = 555 Cables **
Coax DS-3	1	Coax DS-3 assume 10" Pile-up on 20" Racks Capacity = 555 Cables **

** Reduced capacity due to rigidity & bending radius **DS-1 & DS-3 requires 2 cables per circuit*

The Occupancy Factors are a function of both pile-up on the rack and the widths of the racks. It is possible to find large 25" and 30" cable racks being utilized in some areas of certain central offices. However, the occupancy factors used in the Collocation Model have been conservatively calculated assuming that copper connectivity uses 20" cable

8 Equivalencies based on an approximation of cable size.

racks, power cables use 15" cable racks, and fiber riser and breakout cables use 12" cable racks. Again, in some central offices, existing cable build-up in overhead cable racks may be in excess of 1.5 feet in some areas of the central office (e.g., above cross-connects). However, the central office model layout develops cable rack occupancy factors using a conservative assumption of only 10" pile-up for copper cabling (voice grade, DS-1, DS-3), 7" pile-up for fiber cables, and 5" pile-up for the more rigid power cabling. Cable rack fills have therefore been accounted for by using conservative cable rack sizes with best practice cable pile-up assumptions (i.e., 25" and 30" cable racks and 1.5 foot cable build-up situations have not been considered).

Previously, average connectivity lengths were determined to be 165 feet for copper, 190 feet for optical connectivity, and 175 feet for fiber riser cables. Based on these cable lengths, the length component to be used for the cable rack occupancy component on shared cable racks shared by the ILEC and CLECs has been determined to be 150 feet for copper and optical connectivity and 160 feet for the riser connection. The 15-foot difference between the average cable lengths of 165 and 175 feet and cable rack occupancy of 150 and 160 feet is accounted for by the cable drops to equipment at each end (7' 6"), where no cable rack is being used.

5. DC POWER AND GROUNDING ELEMENTS

5.1 OVERVIEW

The standard and most cost effective method of delivering -48V DC between the power plant and telecommunications equipment in a central office environment is to use a remote power distribution bay, such as a BDFB. This is particularly true in a multi-floor installation or in circumstances in which long cable runs are required to reach the power plant. The cost implications of excessive power cable runs back to the power plant could be used as a deterrent to CLEC collocation, because in many cases the cost of power cable increases much faster than the associated increase in distance. The major reason for this disproportionate increase in power cable cost in comparison to distance is that power cable must be sized to provide the correct voltage at the equipment. Therefore, as the length of power cable increases, the voltage loss also increases, creating the need for larger distribution cables, often costing several times more per foot.

For this reason, the accepted best practice for power planning is to install a BDFB in close proximity to the equipment it will serve, thus permitting the use of smaller, less-costly cables for power distribution. This also ensures that the -48V power plant will not become exhausted due to the requirement for many small fuses. Figure 5A provides a schematic depicting the relationship between the -48V power plant, the BDFB, and the end equipment.

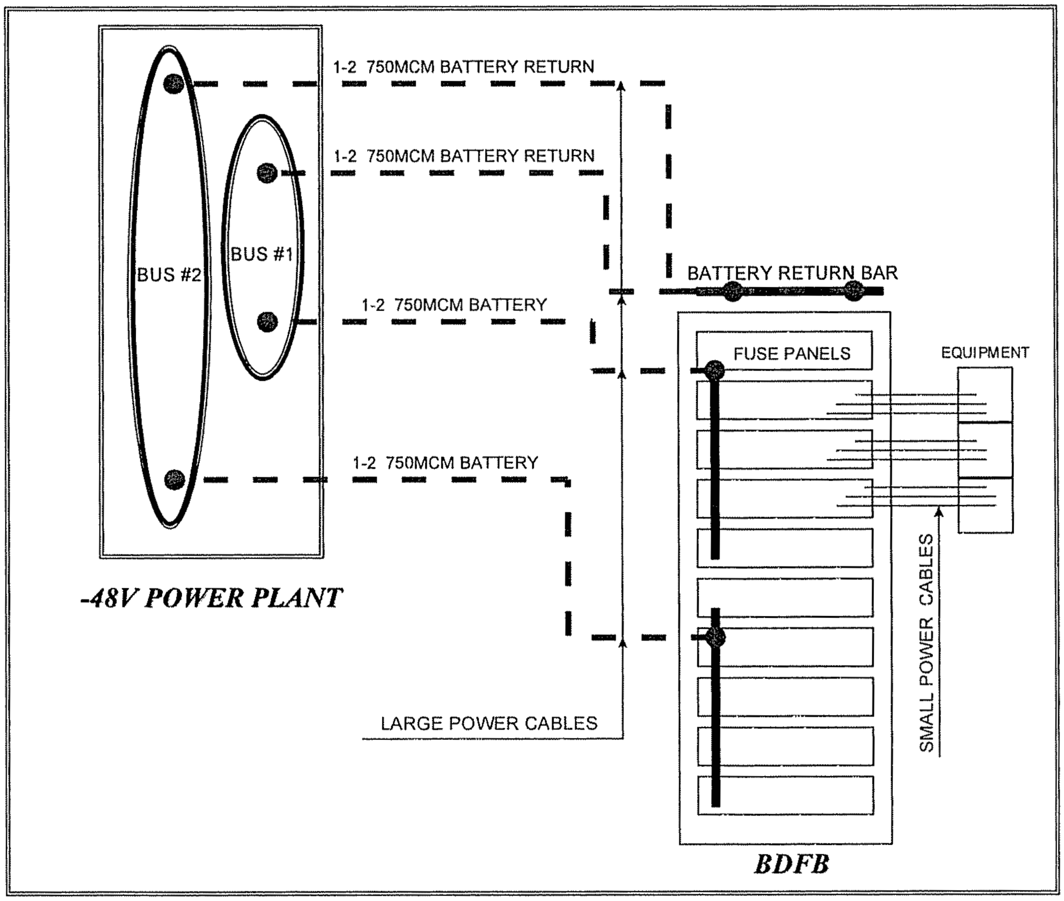
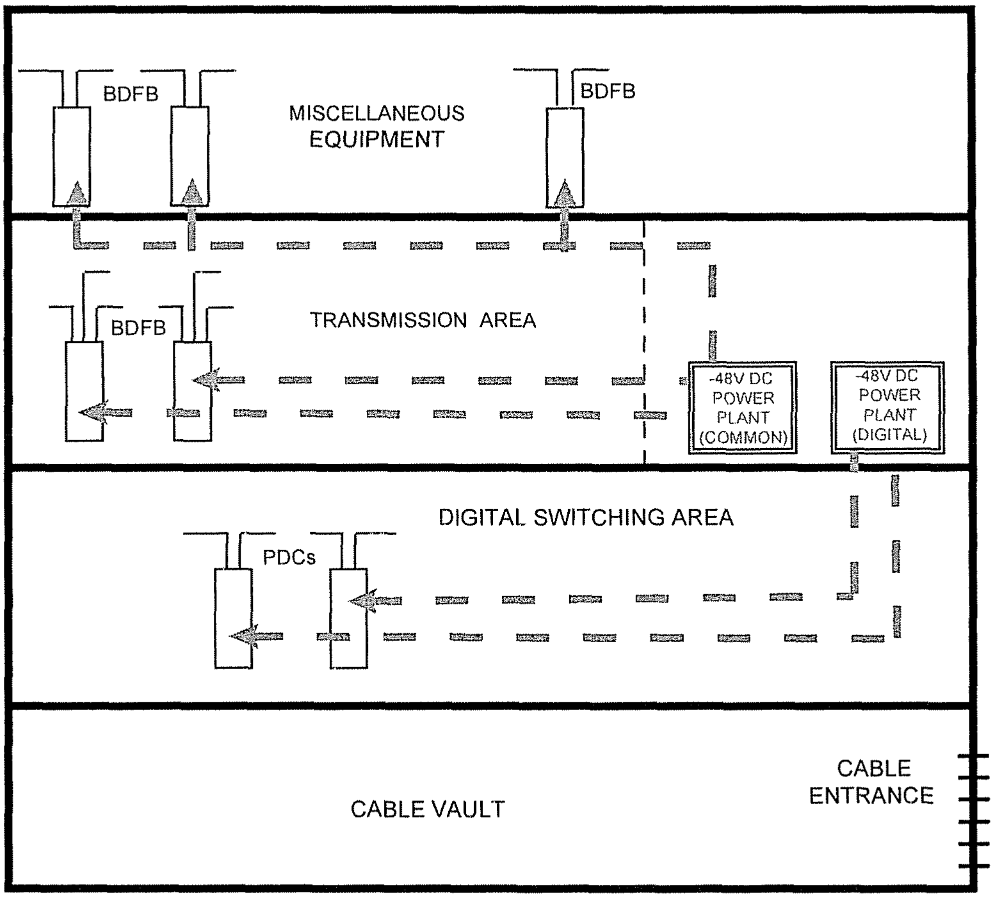


Figure 5A

In summary, the use of a remote BDFB located in close proximity to the equipment it will serve has become the norm for providing -48V DC power to telecommunications equipment. This is because it postpones the exhaust of the -48V power plant and is more cost-effective than running many large (and costly) power distribution cables all the way back to the power plant for equipment fusing. An overview of the accepted best practice method for delivering -48V DC power in a telecommunications environment is shown in Figure 5B.



OPTIMUM -48V DC POWER DELIVERY USING BDFBs & PDCs

Figure 5B

Figure 5B illustrates the best practice method for delivering power. This configuration minimizes power distribution costs and provides optimum operations flexibility by placing fusing in close proximity to equipment. ILECs regularly utilize a BDFB or some other type of distribution bay (in the Nortel DMS switch, the BDFB is referred to as a power distribution center) placed close to the equipment it will serve. Normally, these BDFBs are strategically located according to the expected fuse requirements of the equipment. In a transmission environment, a BDFB is located in the first bay position of each third or fourth equipment line-up, depending on line-up length and expected demand for fuses. This standard approach permits short power feeders to equipment and ensures a least-cost approach to power distribution.

Figure 5B also reflects the use of an intermediate fuse bay, such as a BDFB, to distribute power. This has proven to be more cost-effective than running numerous cables to the power plant and has become the norm for distributing power to all types of telecommunications equipment, particularly in large urban central offices with multiple floors.

The use of an intermediate distribution bay is the least-cost and best-practice method for delivering -48V DC power to telecommunications equipment. In a collocation environment however, the delivery of -48V power is typically divided into two separate charges:

1) *A monthly power consumption charge for shared use elements such as the power plant, diesel generator, and distribution as far as the BDFB; and*
2) *A non-recurring power distribution charge to provide power feeders between the equipment and the closest BDFB.*

Unless the line of demarcation between power consumption and power distribution is clearly defined, the opportunity for double recovery could be built into a model. Avoidance of this potential problem requires two basic steps. First, any NRCs related to common systems infrastructure (cable racking and power cables) for the delivery of -48V power should be based solely on the distance between the collocation equipment and a BDFB serving the collocation area, and ***not*** between the collocation area and the -48V DC power plant. This is necessary because the investments required to deliver power between the -48V power plant and the BDFB are included in modeling the power consumption charge.

Second, an average length is used in the calculation of the investment for DC power distribution between the CLEC equipment and a collocation BDFB. This ensures that the ILEC uses the same best practice planning strategies as it would for its own installations by placing the BDFB in close proximity to collocation equipment.

Figure 5C below superimposes a collocation scenario on the previously presented Figure 5B depicting an optimum telecommunications power delivery arrangement to demonstrate the requirement for a clear line of demarcation between power consumption and power distribution for collocation.

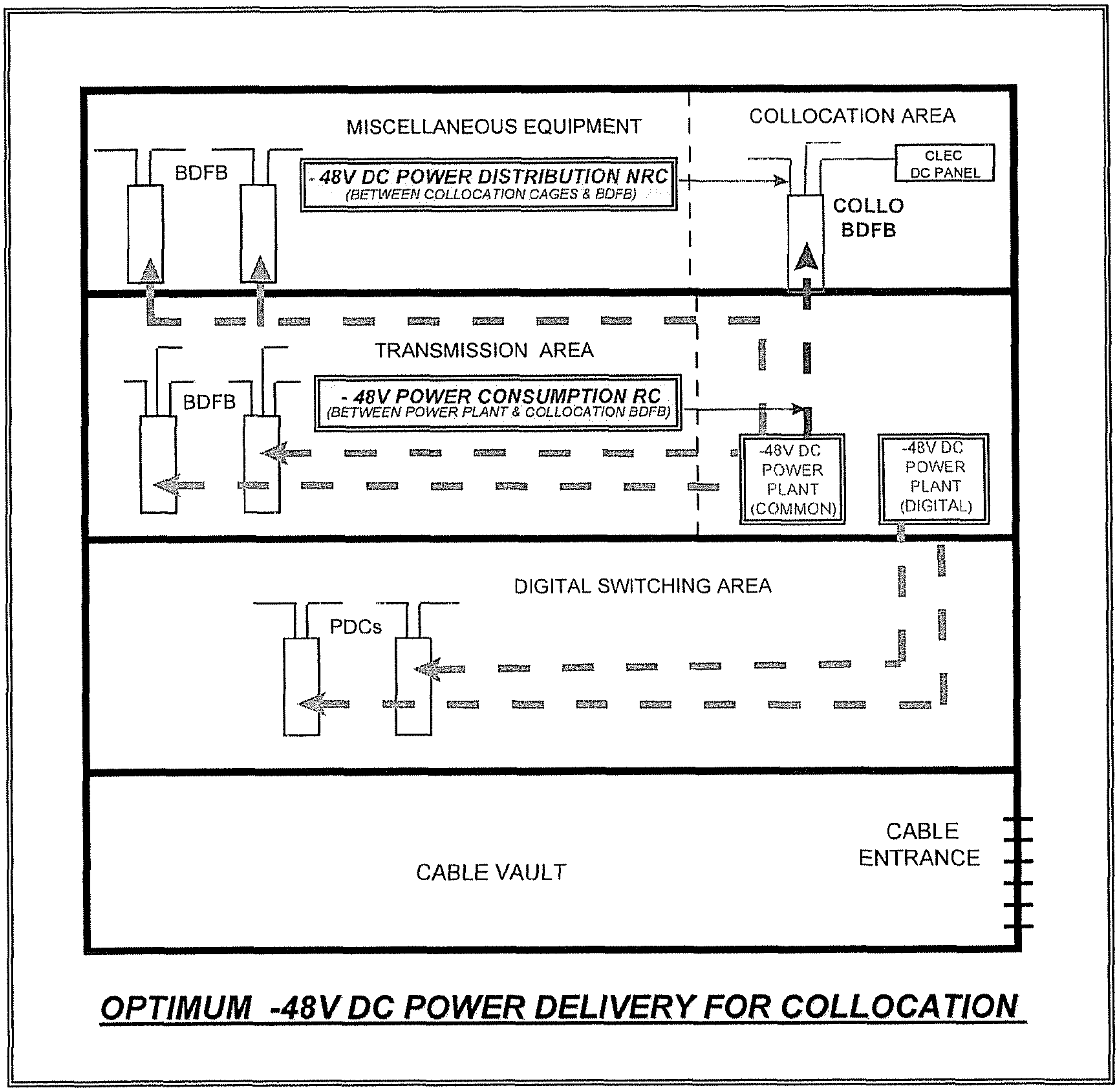


Figure 5C

Proceeding in this manner ensures that -48V DC power will be delivered to CLECs in the most cost-effective manner by using best practice power planning principles (i.e., using BDFBs) and incorporating adequate checks and balances to ensure that no double-recovery could arise by calculating length sensitive power distribution NRCs in a way that would include portions of the investments already included in the power consumption recurring charge -- *a situation that would be very difficult to detect on a case by case basis.*

Because BDFBs are normally located within a few line-ups of the equipment to be fused, the best-practice planning scenario for the collocation BDFB is to place it as close as possible to the collocation area cages. Preferably, this placement would be in the collocation common area provided in the collocation area model layout, depicted in Figure 5D. Because this BDFB is simply a remote fuse bay connected to the shared -48V power plant, any ILEC equipment located near the collocation area also can use it.

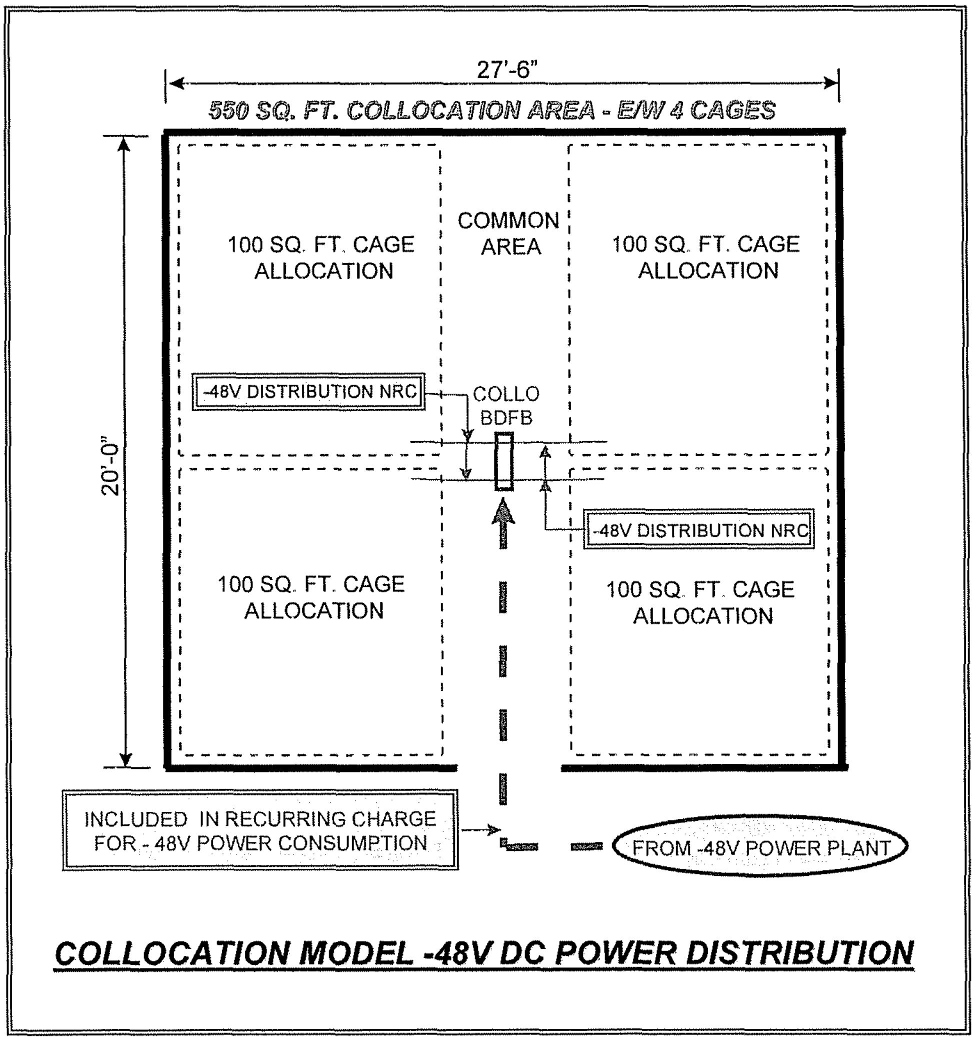


Figure 5D

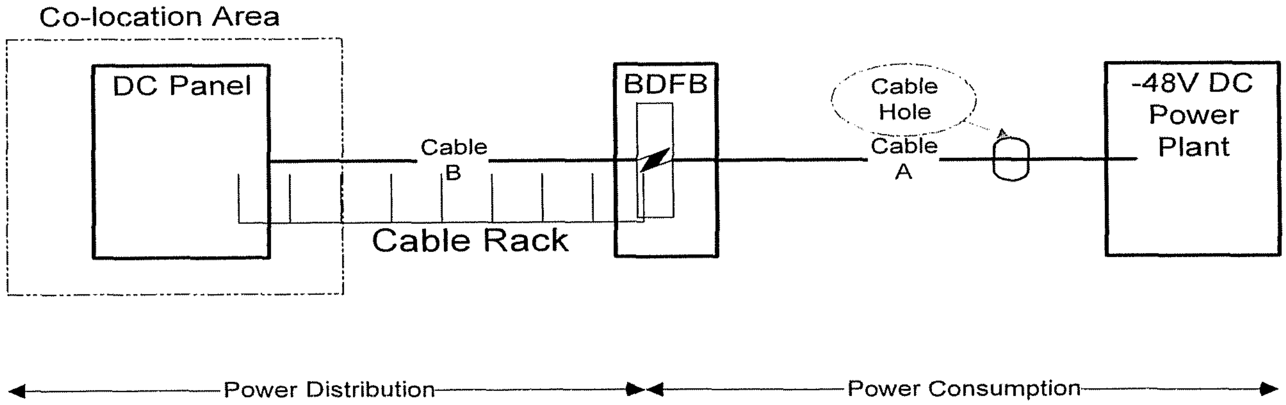
Based on the assumption that the collocation BDFB is strategically located in the collocation common area as per the same best practice planning scenario used by the ILEC for the delivery of -48V DC power to its own equipment, it is unlikely that -48V DC power distribution cables for fusing collocation equipment would be longer than about 35 feet. Therefore, the Collocation Model assumes an average length of 35 feet for -48V DC power distribution between the collocation BDFB and the CLEC provided DC power panels placed inside each cage. The 35 feet assumes 15 feet in the common area and a 20 foot drop provided in the cage to allow the CLEC to connect to its DC power panels.

5.2 POWER DISTRIBUTION COMPONENTS

The model includes the delivery of -48V DC power between the shared -48V DC power plant and the collocation BDFB in the cost that is developed for the power consumption element. The charge for power distribution between the BDFB and the CLEC-provided DC panels is limited to the previously mentioned 35 feet of power cable. The selection of ILEC-provided power cables will depend on the amount of bulk DC power requested by the CLEC. Similarly, CLEC-provided DC power panels located in the CLEC cage for fusing depend on individual CLEC fusing requirements and the amount of DC power the CLEC is willing to purchase.

In addition, the model assumes that the CLEC reimburses the ILEC for the installation of a five-foot length of 12" cable rack to connect between the CLEC cage and the power rack installed over the shared BDFB. Because this rack is only required on the initial installation, it is included as part of the collocation cage investments in the model. A schematic setting forth the components that are included in the central office model layout as part of the non-recurring cost for -48V DC Power Distribution is displayed below.

COLLOCATION MODEL - -48V DC POWER DELIVERY



Power Delivery Elements (-48V DC Option)				
Element	***Description***	***Prov. by CLEC/ILEC***	***Quantity***	***Remarks***
-48V DC Power Panel	Located in Cage	CLEC	--	CLEC installs -48V DC panels in cage and terminates ILEC provided feed
Cable 'B'	4 x #2 Cable between Cage & Collo BDFB	ILEC	35'-0"	One time charge for 2x20 Amp A & B feeds + return as requested by CLEC - Includes 20'-0" drop in cage
Cable 'B'	4 x 2/0 Cable between Cage & Collo BDFB	ILEC	35'-0"	One time charge for 2x50 Amps A & B feeds + return as requested by CLEC - Includes 20'-0" drop in cage
Cable 'B'	4 x 4/0 Cable between Cage & Collo BDFB	ILEC	35'-0"	One time charge for 2x100 Amps A & B feeds + return as requested by CLEC - Includes 20'-0" drop in cage
Cable Rack	15" CLEC specific	ILEC	5'-0"	Included in cage investment
BDFB	Located close to Collocation Cages	ILEC	--	Included in -48V DC Power Consumption Charge

Cable Rack Occupancy	Shared support for Cable 'A' below	ILEC	--	Included in -48V DC Power Consumption Charge
Cable 'A'	Cable between –48V Power Plant & BDFB	ILEC	--	Included in -48V DC Power Consumption Charge
-48V DC Power Plant	Shared use between CLEC's & ILEC	ILEC	--	Included in -48V DC Power Consumption Charge
Auto-start Diesel Fuel Tanks, & AC Switchboard	Required for Battery Back-up	ILEC	--	Included in -48V DC Power Consumption Charge
AC Energy	Required for AC Energy used	ILEC	--	Included in -48V DC Power Consumption Charge

5.3 POWER CONSUMPTION COMPONENTS

The -48V DC power consumption components that are modeled to develop the power consumption recurring charge include all ILEC investments necessary to engineer, furnish, and install (EF&I) a shared -48V power plant, including the mandatory battery and diesel generator back-up. The model also includes amounts for fuel tanks, AC entrance, and switchboard equipment. Based on the previously discussed best power practice planning strategy, a BDFB and associated cabling components also are included to ensure the most cost-efficient method of delivering -48V DC power to the collocation area.

To maximize its flexibility, the model develops investments associated with two different power plant installations: a 2500 amp DC power plant and a 4000 amp DC power plant. These two sizes were selected to provide a reasonable range of ILEC investments in medium and large sized central offices, respectively.

The following components are included in the model to develop a proposed charge for CLEC -48V power consumption.[9]

- High capacity shared 1200 amp BDFB (A/B feed) with all shelves and fuses.
- Power cabling between the BDFB and ILEC –48V Power Plant.
- Batteries to provide up to four hours of reserve DC power.
- Battery Control Board (Power Distribution Center).
- Rectifiers (N+1) to carry load plus one for maintenance.
- Engineering and Installation costs.
- Cable rack and cable hole cost occupancy charges.
- Standby diesel generator to ensure continuous supply of AC power.
- Fuel tanks, AC entrance, switchboard equipment.
- AC Electric Energy component.

With a shared -48V DC power plant, it is impossible to separately meter (and separately charge for) CLEC AC electric energy usage. Therefore, an AC electric energy component is included in the model to account for the shared -48V DC power plant. As shown on Chart 3, the AC energy component is developed by restating the cost per AC kilowatt-hour usage charge as an AC energy rate per DC amp used.[10] The rate determined as a result of the above energy calculation is added to the costs per amp for DC power to create the all-inclusive monthly power consumption charge.

Chart 3		
Calculation of AC Electric Energy Component		
Quantity of DC Amps		1
Quantity of Watts per DC Amp		52.07
Hours Usage per Day		24
Days Usage per Month		30.43
Total Monthly DC Watts		38026
AC Equivalent Watts at 90% Rectifier Efficiency		42251
Total AC Kilowatt Hours		42.25
Cost per Kilowatt Hour	$	0.045
AC Energy Rate per DC Amp	***$***	***1.88***

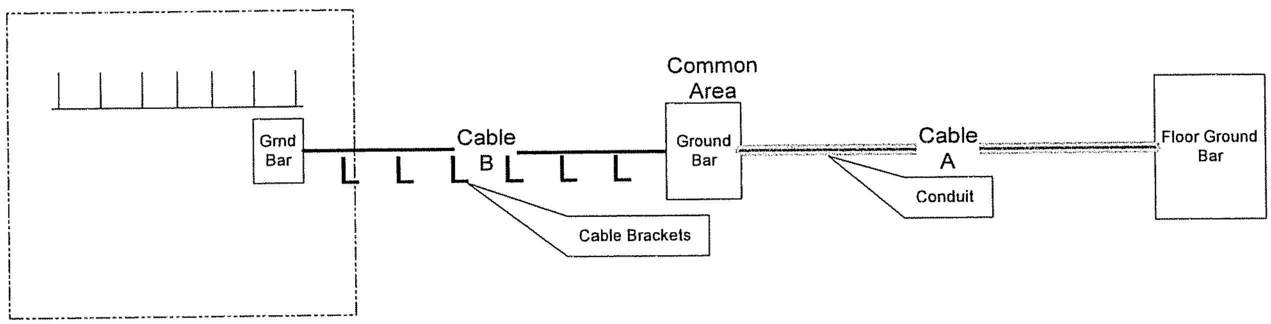
9 Details regarding -48V power plant investments and the resultant charge are included in the Collocation Cost Model.

10 The example uses a rate of $0.045 per Kilowatt hour for electric power. The model allows the actual rate per Kilowatt hour used in the cost calculations to be state-specific.

5.4 EQUIPMENT GROUNDING COMPONENTS

As shown in the following schematic, the collocation area model layout assumes that each CLEC will furnish and install a cable rack mounted equipment ground bar within its cage. The CLEC also will install a suitable ground cable to connect to the ILEC provided ground bar that should be placed in the collocation common area for use by all CLECs. The following schematic outlines the grounding components assumed in the collocation area model layout (the shaded areas in the chart indicate elements provided by the ILEC for which the Collocation Model develops costs).

COLLOCATION MODEL - EQUIPMENT GROUNDING



Grounding Elements				
Element	***Description***	***Provided by CLEC/ILEC***	***Quantity***	***Remarks***
Equipment Ground Bar	Attached to CLEC Cable Rack in Cage	CLEC	--	CLEC will provide ground bar and connect to ILEC Ground Bar in Common Area
Cable 'B'	No. 4/0 cable between CLEC Ground Bar and Common Area Bar	CLEC	30'-0"	CLEC installs ground cable to connect to ILEC Common Area Ground Bar using cable brackets attached to ILEC cable racking
New Common Area Ground Bar	Extension of ILEC Building Principal Floor Ground	ILEC	--	ILEC to extend suitable ground to Common Area and place ground bar for all CLECs
Cable 'A'	No. 4/0 cable in conduit between existing central office Floor Ground Bar and new Common Area Bar	ILEC	100'-0"	ILEC extends suitable ground to Common Area for all CLECs

6. ACCESS (ENTRANCE FIBER) COMPONENTS

6.1 OVERVIEW

The collocation of competitive equipment in ILEC central office buildings includes fiber connectivity between the first manhole and the CLEC collocation area, using CLEC-provided, fire-retardant cable for routing cables through the central office. Ideally, the pulling and splicing of fiber cable between the manhole and the cable vault, and the subsequent routing of fiber riser cable between the cable vault and collocation area, would be performed by the CLEC. In the event that this is not permitted, however, the central office model layout incorporates assumptions (which are outlined below) to calculate the costs that an efficient ILEC would incur to perform these functions in a competitive environment.

6.2 FIBER ENTRANCE COMPONENTS

The major elements required to route fiber cable between the first manhole and the collocation cage using fire retardant cable include:

⇒ Pulling and splicing of cable in the cable vault

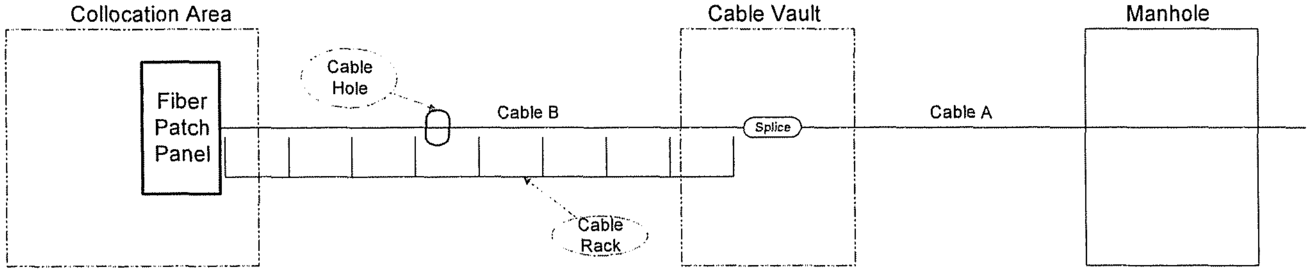
⇒ A splice case to change from external to internal fiber cable

⇒ Fire retardant riser cable between the vault splice and collocation area

⇒ Cable rack and cable hole (with occupancy charges based on usage)

The following schematic outlines the elements that have been used in the central office model layout to determine the cost of access connectivity (assuming that it would not be possible for the CLEC to perform the required pulling and splicing in the ILEC central office).

COLLOCATION MODEL - ENTRANCE FIBER (Fire Retardant Cable)



Access Elements (Cable Pulling & Splicing) - With Fire Retardant Provided					
Element	***Description***	***Provided by CLEC/ILEC***	***Quantity***	***Hours***	***Remarks***
Fiber Patch Panel	Located in cage	CLEC	--	--	Termination to Cage Fiber Patch Panel by CLEC
Cable 'B'	Between cage & vault splice	CLEC	175'-0"	--	Fire retardant Fiber cable provided by CLEC
Installation of Cable 'B'	Placed on shared cable rack (ILEC + CLECs)	ILEC	175'-0"	14	One time charge - Includes opening / closing of 3 cable holes
Cable Rack Occupancy	12" Rack shared by ILEC + CLECs	ILEC	135'-0"		Cost per cable
Cable Rack	12" Rack shared by all CLECs	ILEC	20'-0"	--	Included in cage cost modeling
Cable Rack	12" CLEC specific Rack	ILEC	5'-0"	--	Included in cage cost modeling
Cable Hole Occupancy	Cable holes shared by CLEC's & ILEC	ILEC	3	--	For use of ILEC cable holes
Splice Case	External to fire retardant cable	CLEC	1	--	Approved vault splice case provided by CLEC
Cable 'A'	Between vault splice & manhole	CLEC	--	--	Fiber cable provided by CLEC
Structure Charge	Between manhole & cable vault splice	Tariff Item	125'-0"	--	Per existing structures tariff
Cable Pulling	Manhole to cable vault splice	ILEC	125'-0"	4.0	Includes set-up & take-down
Splicing Activity	External cable to fire retardant cable	ILEC	--	3.0	Set-up & take-down in vault
Splice Fibers	In Cable Vault	ILEC	--	2.0	For up to 24 Fibers

Note: Access Design Charges included in ILEC Manpower Summary - Section 9

7. COPPER AND OPTICAL CONNECTIVITY COMPONENTS

7.1 OVERVIEW OF CONNECTIVITY MODELS

This aspect of the collocation area model layout addresses the need to provide both copper and optical connectivity between the collocation area and the ILEC cross-connects. The model assumes that copper connectivity between the CLEC and ILEC can be provided at three different transmission bandwidths.

1. ***Voice Grade (VG)*** is the transmission level of connection used to access the ILEC outside plant loops at a voice grade level. The CLEC will interconnect with voice grade circuits at the ILEC Main Distribution Frame (MDF).
2. ***Digital Stream 1 (DS-1)*** is the transmission level of connection containing 24 voice grade circuits at 1.544 Mb/s. This type of connection will be used primarily to provide connectivity between the collocation area and the ILEC access network to interconnect to unbundled DS-1 loops.
3. ***Digital Stream 3 (DS-3)*** is the transmission level of connection containing 28 DS-1 Systems or 672 equivalent voice grade circuits. DS-3 connections will be used primarily to provide connectivity from the CLEC switch site to the collocation area over leased facilities or to interconnect to high bandwidth DS-3 unbundled loops.

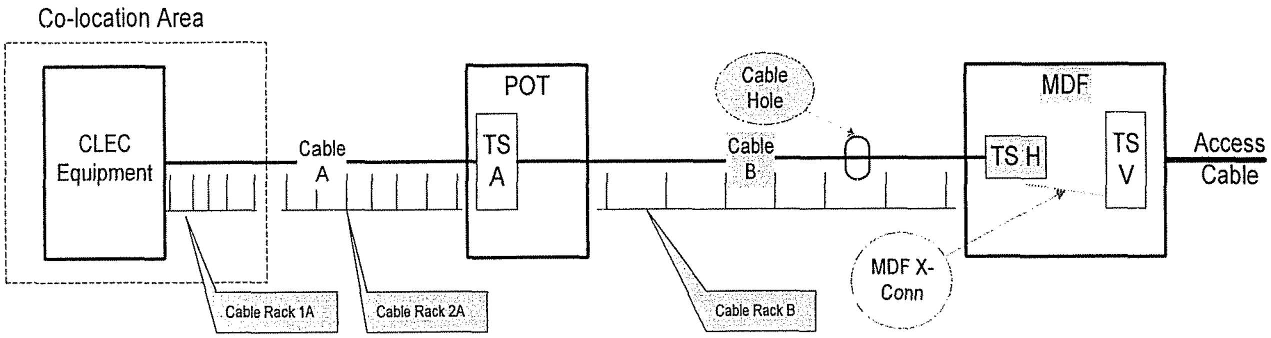
In most ILEC central offices, the majority of copper DS-1 and DS-3 circuits to which CLECs will want to interconnect are currently located on DSX panels. However, in some ILEC central offices those higher bandwidth circuits may have already been relocated to an electronic Digital Cross-connect System (DCS). The Collocation Model addresses both situations by including all components necessary for end to end connectivity in each case. The model also addresses the requirement for optical connectivity to permit CLECs to interconnect with fiber loops or to access the ILEC network.

Depicted in schematic form on the following pages are the best practice and least-cost connectivity arrangements that have been adopted in the Collocation Model for all interconnection between the collocation area and various ILEC central office cross-connects. These include the following:

- ⇒ *Distance from the collocation area to the ILEC equipment is 165 feet for copper connections*
- ⇒ *Distance from the CLEC patch panel to the ILEC equipment is 190 feet for optical connections*
- ⇒ *Cable Rack 1A is dedicated to an individual CLEC and included in the cage cost modeling*
- ⇒ *Cable Rack 2A is shared by all CLECs and also included in the cage cost modeling*
- ⇒ *Cable Rack B and all cable holes are shared between the ILEC and CLECs and reimbursed by a cable rack occupancy charge*

7.2 VOICE GRADE MODEL REQUIREMENTS

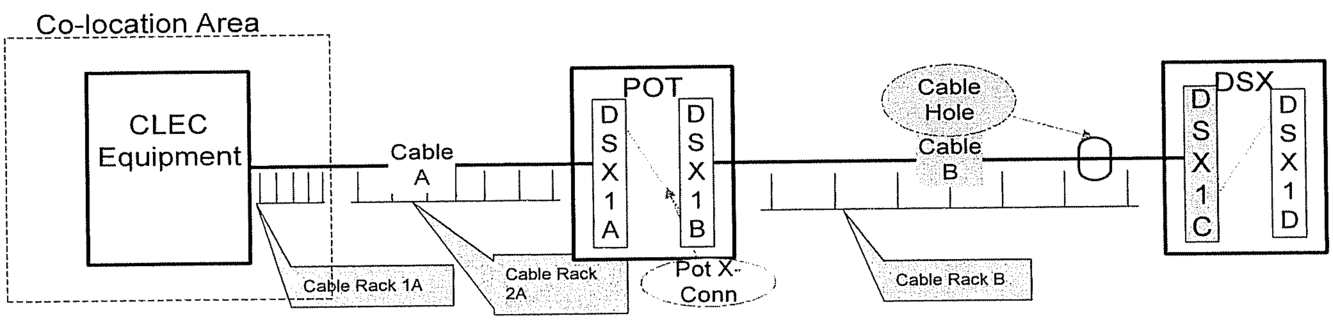
Copper Connectivity at Voice Grade Level



CONNECTIVITY ELEMENTS FOR VOICE GRADE SERVICE				
ELEMENT	**DESCRIPTION**	**PROVIDED BY**	**SIZE/CAPACITY**	**LENGTH**
CLEC Equipment	Voice Grade Equipment	CLEC		
Cable A	Cable from Line Cards to POT Bay	CLEC		<25 feet
Cable Rack 1A	20" Ladder Rack - CLEC specific - in cage cost model	ILEC		5 feet
Cable Rack 2A	20" Ladder Rack - Shared by CLECs - in cage cost model	ILEC		20 feet
POT Bay	Frame to hold Terminal Block for Demarcation Point.	CLEC	7'-0" high x 23" wide x 12 " deep	
TS A	66 Type Terminal Block	CLEC		
Cable B	Cable from Pot Bay Terminal Blocks to HMDF	ILEC	100 Pair	165 feet
Cable Hole Occupancy	2 Cable Holes shared by ILEC + CLECs	ILEC		
Cable Rack B Occupancy	20" Ladder Rack - Shared by ILEC + CLECs	ILEC		150 feet
MDF-H	Horizontal Terminal Block for X-Conn to Access side of DF	ILEC	100 pair	
MDF	MDF Terminal Strip Space	ILEC	1 block space	
MDF X-Connect	Jumper from horizontal to vertical ~ Included in Unbundled Loop	ILEC		
MDF-V	Vertical side terminal strip ~ Included in Unbundled Loop	ILEC		

7.3 DS-1 MODEL REQUIREMENTS USING A MANUAL DSX

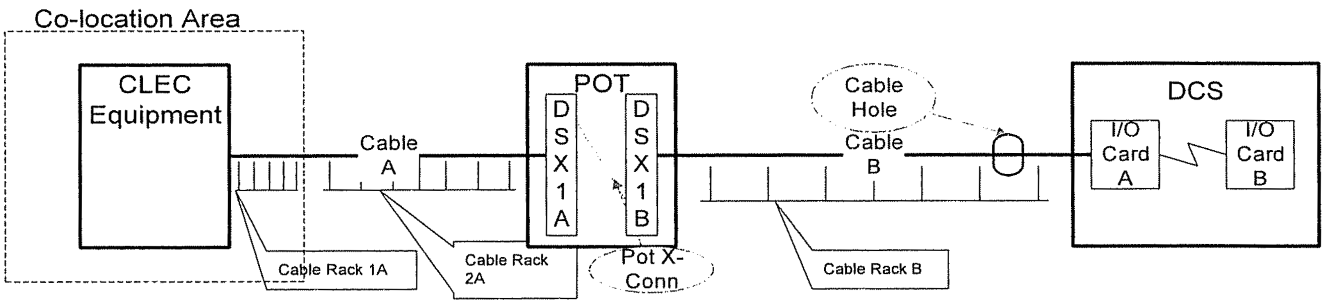
Copper Connectivity at DS-1 Level (DSX)



CONNECTIVITY ELEMENTS FOR DS-1 SERVICE (DSX OPTION)				
ELEMENT	**DESCRIPTION**	**PROVIDED BY**	**SIZE/CAPACITY**	**LENGTH**
CLEC Equipment	DS-1Multiplexer	CLEC	28 DS1	
Cable A	2x 30 Pair ABAM	CLEC	28 DS1	<25 feet
Cable Rack 1A	20" Ladder Rack - CLEC specific ~ included in cage cost model	ILEC		5 feet
Cable Rack 2A	20" Ladder Rack -Shared by CLECs ~ included in cage cost model	ILEC	555 ABAM	20 feet
POT	Demarcation Point	CLEC	7'-0" high x 23" wide x 12 " deep	
DSX-1A	Passive X-Connect Panel	CLEC	56 DS1	
POT X-conn	22 Gauge jumper wire	CLEC	4 feet	
DSX-1B	Passive X-Connect Panel	CLEC	56 DS1	
Cable B	2x 30 Pair ABAM	ILEC	28 DS1	165 feet
Cable Rack B Occupancy	20" Ladder Rack - Shared by ILEC + CLECs	ILEC	555 ABAM	150 feet
Cable Hole Occupancy	2 Cable Holes - Shared by ILEC + CLECs	ILEC	555 ABAM per hole	
DSX-1C	Passive X-Connect Panel	ILEC	56 DS1	
DSX	Digital X-Connect Frame shared by ILEC + CLECs	ILEC	560 DS1	

7.4 DS-1 MODEL REQUIREMENTS USING AN ELECTRONIC DCS

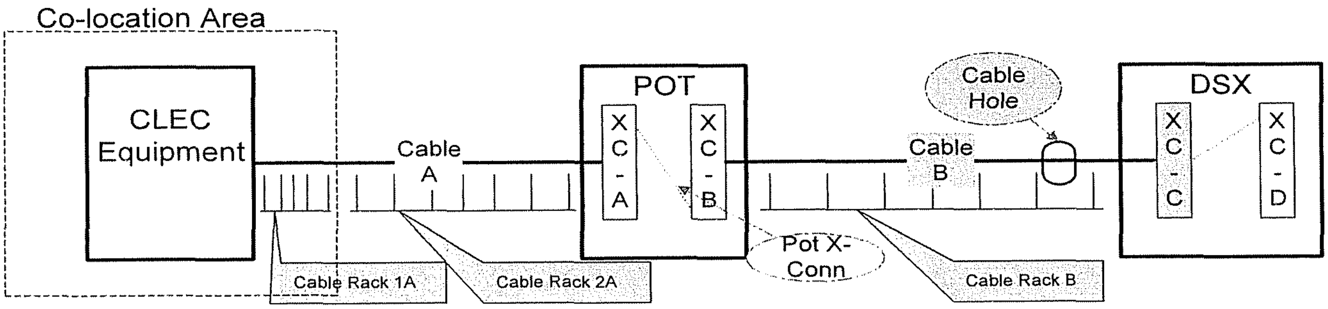
Copper Connectivity at DS-1 Level (DCS)



CONNECTIVITY ELEMENTS FOR DS-1 SERVICE (DCS OPTION)				
ELEMENT	**DESCRIPTION**	**PROVIDED BY**	**SIZE/CAPACITY**	**LENGTH**
CLEC Equipment	DS-1Multiplexer	CLEC	28 DS1	
Cable A	2x 30 Pair ABAM	CLEC	28 DS1	<25 feet
Cable Rack 1A	20" Ladder Rack - CLEC specific ~ included in cage cost model	ILEC		5 feet
Cable Rack 2A	20" Ladder Rack -Shared by CLECs ~ included in cage cost model	ILEC	555 ABAM	20 feet
POT	Demarcation Point	CLEC	7'-0" high x 23" wide x 12 " deep	
DSX-1A	Passive X-Connect Panel	CLEC	56 DS1	
POT X-conn	22 Gauge jumper wire	CLEC	4 feet	
DSX-1B	Passive X-Connect Panel	CLEC	56 DS1	
Cable B	2x 30 Pair ABAM	ILEC	28 DS1	165 feet
Cable Rack B Occupancy	20" Ladder Rack - Shared by ILEC + CLECs	ILEC	555 ABAM	150 feet
Cable Hole Occupancy	2 Cable Holes - Shared by ILEC + CLECs	ILEC	555 ABAM per hole	
DCS	Digital X-Connect System shared by ILEC + CLECs	ILEC	7168 DS1	

7.5 DS-3 MODEL REQUIREMENTS USING A MANUAL DSX

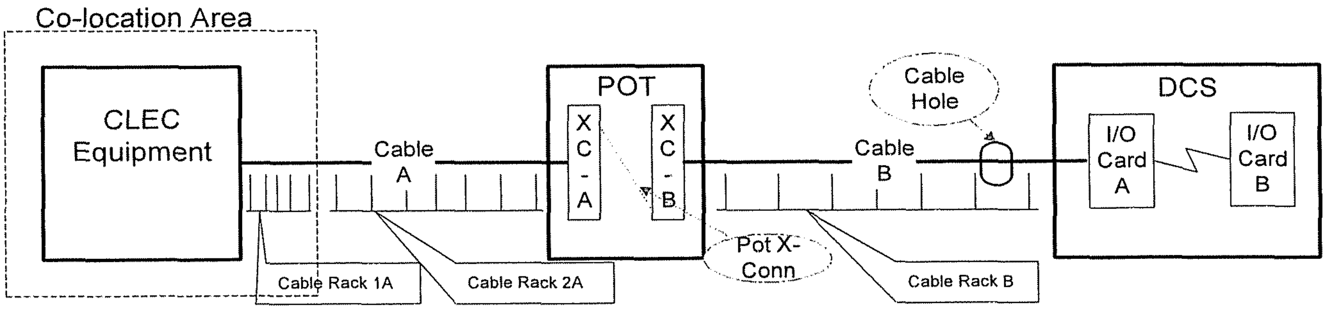
Copper Connectivity at DS-3 Level (DSX)



CONNECTIVITY ELEMENTS FOR DS-3 SERVICE (DSX OPTION)				
ELEMENT	***DESCRIPTION***	***PROVIDED BY***	***SIZE***	***LENGTH***
CLEC Equipment	DS-3 Terminal/Multiplexer	CLEC		
Cable A	734 Shielded	CLEC		<25 feet
Cable Rack 1A	20" Ladder Rack - CLEC specific ~ included in cage cost model	ILEC		5 feet
Cable Rack 2A	20" Ladder Rack - Shared by all CLECs	ILEC	555-734 type	20 feet
POT	Demarcation Point	CLEC	7'-0" high x 23" wide x 12 " deep	
XC-A	Passive X-Connect Panel	CLEC	16 DS3	
POT X-Conn	Shielded X-Connect Wire	CLEC	2 per DS3	3 feet
XC-B	Passive X-Connect Panel	CLEC	16 DS3	
Cable B	734 Shielded (2 cables)	ILEC	2 per DS3	165 feet
Cable Rack B Occupancy	20" Ladder cable rack - Shared ILEC + CLECs		555 734 Type	150 feet
Cable Hole Occupancy	2 Cable holes between floors ~ Shared ILEC + CLECs	ILEC	555 734 Type	
XC-C	Passive X-Connect Panel	ILEC	16 DS3	
DSX	Digital X-Connect Frame shared by ILEC + CLECs	ILEC	112 DS3	

7.6 DS-3 MODEL REQUIREMENTS USING AN ELECTRONIC DCS

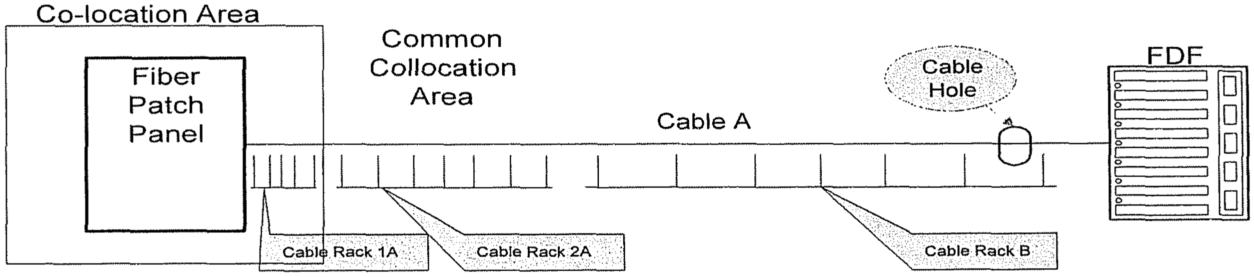
Copper Connectivity at DS-3 Level (DCS)



CONNECTIVITY ELEMENTS FOR DS-3 SERVICE (DCS OPTION)				
ELEMENT	**DESCRIPTION**	**PROVIDED BY**	**SIZE**	**LENGTH**
CLEC Equipment	DS-3 Terminal/Multiplexer	CLEC		
Cable A	734 Shielded	CLEC		<25 feet
Cable Rack 1A	20" Ladder Rack - CLEC specific ~ included in cage cost model	ILEC		5 feet
Cable Rack 2A	20" Ladder Rack - Shared by all CLECs	ILEC	555-734 type	20 feet
POT	Demarcation Point	CLEC	7'-0" high x 23" wide x 12 " deep	
XC-A	Passive X-Connect Panel	CLEC	16 DS3	
POT X-Conn	Shielded X-Connect Wire	CLEC	2 per DS3	3 feet
XC-B	Passive X-Connect Panel	CLEC	16 DS3	
Cable B	734 Shielded (2 cables)	ILEC	2 per DS3	165 feet
Cable Rack B Occupancy	20" Ladder cable rack – Shared ILEC + CLECs		555 734 Type	150 feet
Cable Hole Occupancy	2 Cable holes between floors ~ Shared ILEC + CLECs	ILEC	555 734 Type	
Digital X-Connect System	DS-3 Digital Cross-Connect shared by ILEC + CLECs	ILEC	512 DS3	

7.7 OPTICAL MODEL REQUIREMENTS

Fiber Connectivity



CONNECTIVITY ELEMENTS FOR OPTICAL SERVICE				
ELEMENT	***DESCRIPTION***	***PROVIDED BY***	***SIZE/CAPACITY***	***LENGTH***
CLEC Equipment	Fiber patch panel in cage	CLEC	--	--
Cable Rack 1A	12 " ladder rack - already included in cage cost model for entrance fiber	ILEC	--	5 feet
Cable Rack 2A	20" ladder rack - already included in cage cost model for entrance fiber	ILEC	--	20 feet
Cable A	Breakout cable between cage and fiber x-connect	ILEC	12 fibers	190 feet
Cable Rack B (Occupancy)	12" Ladder Rack - shared by ILEC + CLECs	ILEC	221 cables	150 feet
Cable Hole Occupancy	2 cable holes - shared by ILEC + CLECs	ILEC	221 cables per hole	
Fiber Distribution Frame	Fiber X-connect system shared by ILEC + CLECs	ILEC	768 fibers	

8. LAND AND BUILDING ELEMENTS

8.1 OVERVIEW

The largest charges that ILECs have proposed for CLEC collocation have been associated with the costs of building modifications -- costs that allegedly are directly related to collocation placement in the central office. Decisions regarding placement of the collocation area are typically made by the ILEC with no input from CLECs.

Consequently, if the CLEC must pay for all alleged building modification costs, the ILEC -- unless constrained -- has the ability to select a location in the central office that is either difficult to access or requires extensive new construction. ILECs can impose site preparation charges that include costs for demolishing existing walls, removing doors, electrical and mechanical components, etc., even before new construction begins. It is not uncommon for the ILEC to require CLECs to pay for new corridors, hallways, doors, and sometimes even a costly new external entrance to the building, allegedly to provide a "secure environment." (The issue of security as it relates to this model is addressed in Section 8.2.)

Building renovation charges imposed on CLECs can be prohibitive if the ILEC is allowed to recover from the CLEC all expenses associated with mandated changes in local building codes. These include items such as asbestos removal, building modifications to meet the Americans with Disabilities Act requirements, new sprinklers, fire alarm systems etc. It is unreasonable to expect CLECs to assume the responsibility for upgrading central officess that do not meet current standards. The costs attributable to meeting environmental and other regulations should be borne by the primary user of the central office. The appropriate share of these exceptional building costs will then be recovered in the per square foot land and building charge to the CLECs.

ILECs can inflate building rearrangement charges by claiming that major building services (e.g., emergency diesel power, air conditioning, electrical service) are currently at full capacity and that a CLEC collocation request that precipitates additional capacity needs should bear the full costs associated with that additional capacity in up-front nonrecurring charges. Upgrades to major building systems are not the responsibility of the CLEC; rather, CLECs should pay their share of the major building systems costs through the rates for collocation elements that include these building systems.

Therefore, any additional charge for building rearrangements or upgrades would result in double recovery.

The ILEC, as the primary user of the central office, must be responsible for the long- term maintenance and upgrading of its central office buildings. The responsibility for expenditures associated with building codes revisions or upgrades to major building systems cannot be transferred to a particular CLEC simply because the timing of a particular major building component upgrade coincides with a CLEC collocation request. The CLEC's share of these costs are included in the monthly per square foot charge for rent and the cost of investments associated with the various collocation elements.

8.2 PLACEMENT AND SECURITY ISSUES

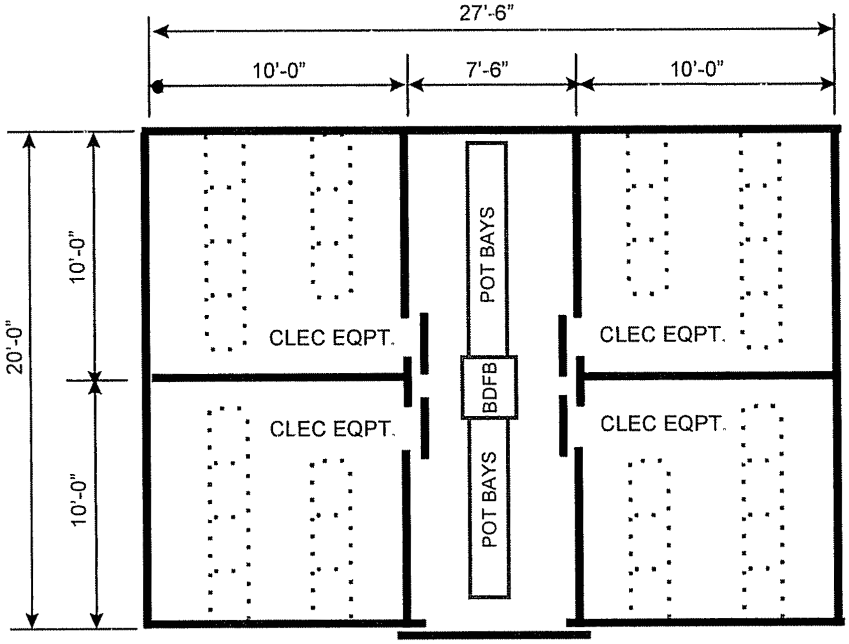
As noted in subsection 3, the primary consideration in the establishment of a collocation area is that it be constructed relatively close to the ILEC cross-connects to minimize ongoing recurring charges for connectivity. From a physical perspective, however, the collocation space should be situated in an area of the central office that provides unrestricted access to the CLEC with the least disruption possible to the ILEC. This could be accomplished by locating the collocation area on an exterior wall or on a corridor. Since existing ILEC equipment rooms within the central office are typically secure and cannot be entered without a door code or card reader, placement along a corridor allows for uninhibited access by CLECs while at the same time providing security for the ILEC.

The central office model layout incorporates building investments that are directly attributable to the creation and rental of a collocation space by the ILEC. Included in this building investment is an explicit investment associated with the installation of an electronic card-reader security system. While the ILEC is entitled to ensure its equipment areas are secure, the CLEC should not have to bear the burden of excessive costs of providing extensive building renovations for the alleged purpose of ensuring ILEC security. Central offices utilize electronic security card systems to monitor access and egress. Each doorway has an electronic card reader that will admit only the holders of pre-screened cards. Because the investment in the security system has been included in developing the total investment in the central office building, these costs are included in the basic per square foot cost of a central office building. Thus, the model assumes the cost of the security system is recovered in the per square foot charge for rent. The costs of purchasing individual cards and associated system maintenance, on the other hand, are assumed to be costs each CLEC should bear separately.

8.3 COLLOCATION CONSTRUCTION COMPONENTS

The components and magnitude of the construction project associated with physical collocation are relatively minor and can be implemented by most smaller contractors at competitive rates. There is no requirement for ILECs to use only large construction companies for collocation related building rearrangements. That sort of requirement is akin to requiring the use of a Big Eight accounting firm to handle a simple income tax return or using a major law firm in small claims court.

The central office model layout assumes that the ILEC arranges and obtains all quotations based on a competitive bidding process. Subsequent to the receipt of the competitive tenders, the bids are analyzed as to content to ensure that all of the work has been included. The succeeding contractor is then permitted to complete the work in the most efficient and expeditious manner. Figure 8A shows the space-efficient collocation area incorporated in the model. That collocation area is used throughout this section to outline various construction components, quantities, and associated costs.



FORWARD-LOOKING BEST PLANNING COLLOCATION MODEL

Figure 8A

Chart 4 includes a list of the common elements required for the construction of a typical collocation area in an ILEC central office. The rationale for including each construction element in the development of this collocation model follows.

CHART 4			
COLLOCATION MODEL – SUMMARY OF CONSTRUCTION ELEMENTS			
ITEM	QUANTITY	UNIT	REMARKS
PARTITIONING (INCL. PANELS, GATES & INSTALLATION)	155	Lin. Ft.	Wire Woven Partitions – channel frame, 1-1/2" diamond mesh, 10 ga. wire painted, 5x8 panels
FLOOR TILE	550	Sq. Ft.	1/8" x 12 x 12 vinyl composite conductive tile
ELECTRONIC CARDS	5	Each	Card reader system in central office
PADLOCKS FOR CAGES	4	Each	Provided by CLEC
PLYWOOD	1	Sheet	4' x 8' x ¾" sheet
HVAC	7.7	Tons	Maintain temperature 68-80F
LIGHTING	22	Each	Standard 1'x4' fluorescent fixtures
SWITCHING (MOTION DETECTION TYPE)	5	Each	1 per cage and 1 for Common Area
ELECTRICAL PANEL	1	Each	225 amp, 42 circuit , 120/240volts
ELECTRICAL RECEPTACLES	12	Each	20 amp duplex electrical outlets
GROUNDING	1	Each	Pre drilled copper ground bar
4/0 GROUNDING CABLE	140	Lin. Ft.	Unsheathed braided copper cable
MESH GROUNDING	10	Lin. Ft.	Safety and EMI compliant grounding

PARTITIONING

To segregate the CLEC space from the ILEC portion of the central office requires some type of partitioning. The types of partitions typically found in central offices include drywall partitioning and masonry, as well as chain link fencing used to secure storage areas.

Cages to house collocators can be constructed of either drywall or chain link fencing. There are inherent advantages and disadvantages to both types of partitioning. Drywall partitioning is constructed of vertical metal studs covered with a layer of paper enclosed gypsum plaster. The butt joints of the boards are then covered with a plaster paste that is sanded smooth after it dries. This type of partitioning offers good security and privacy for the occupants. However, this method of construction creates a great deal of dust that is detrimental to the telecommunications equipment. It also prohibits air-flow, which increases the cost of air conditioning.

The collocation area model layout assumes the use of woven wire mesh partitioning, using painted 10-gauge metal fabric that is stretched across frames that are easily assembled, and that affords adequate security from intrusion. The cage is accessed by way of a swinging door of similar construction to the partition walls. Many of the collocation installations to date have used this method of partitioning.

The collocation area model layout assumes the use of an eight-foot high woven wire mesh partitions because of the ease of construction, economy, and relatively clean installation. Other advantages of an eight-foot high woven wire mesh partitions include easier provision of air conditioning since the requirement for mechanical work is reduced. Cable racking can be installed more easily and fencing provides increased visibility, resulting in better security, from the ILEC perspective.

FLOOR TILE

Floor covering should be sufficient to support equipment and be easy to maintain. Also it must be free of static electricity that adversely affects the operation of the telecommunications equipment. Therefore, the collocation area model layout requires concrete floors covered with vinyl composite conductive tiles.

A concrete floor slab with a live load of 150 to 300 pounds per square foot live load capacity is adequate to support commonly used telecommunications equipment. Further, the use of concrete permits the installation of expansion shields, allowing the best method of securing the equipment frames to the floor.

Occasionally equipment has been installed on concrete floors that have been painted, but there are drawbacks. First, there is an increased maintenance cycle of repainting. Second, the paint flaking that often occurs can be drawn into the equipment and cause malfunctioning. Thus, a concrete floor slab covered with vinyl composition tile is considered to be the norm for telecommunications buildings.

ELECTRONIC CARDS, PADLOCKS

The model assumes an electronic card reader system is used throughout the central office as the least cost method of providing security. There is no greater danger of sabotage from a collocator's employees and contractors than from the ILEC's employees and contractors. Thus, providing (and charging) CLECs for cards permits security to be maintained in the collocation area.

It is assumed that each Collocation Cage is provided with a padlock. However, the model assumes that the CLEC will purchase and install its own padlock. A key or the combination would be provided to the ILEC for emergency situations.

PLYWOOD

Plywood backboards will be used to mount the electrical distribution panel and any other components that cannot readily be attached to the metal cage.

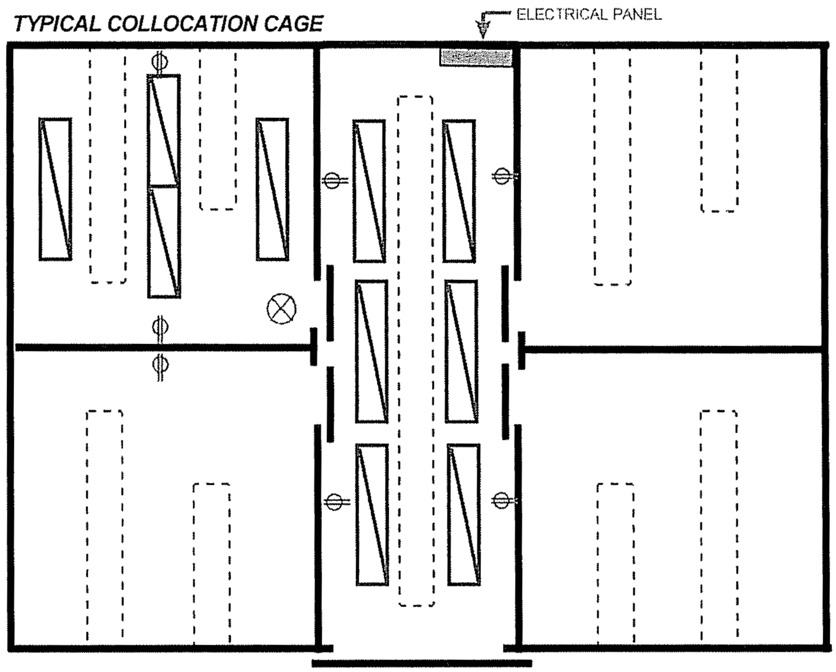
HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

Telecommunications equipment will operate at relatively high and low temperatures. However, sudden fluctuations in temperature can contribute to card failures. Therefore, the model assumes a requirement for air conditioning in order to maintain room temperature between 65 and 80 degrees Fahrenheit.

Air conditioning (heating is not required) investment for the collocated equipment should be based solely on the amount of heat that must be dissipated as a result of collocated equipment installed, rather than on the capital costs to replace an entire HVAC system. The electrical power used by telecommunications equipment is used as the indicator of the additional amount of heat that must be dissipated. The model develops the investment for HVAC based on the amount of electrical power used by a collocator, so the greater a collocator's power demand, the larger the investment required. Basing HVAC investment on power demand ensures that the ILEC is compensated for the additional HVAC demands collocators' equipment imposes on the ILEC. In addition, charging all collocators for HVAC based on their respective per-amp power demand avoids penalizing a particular collocator with an ICB charge, simply because that collocator's request happens to coincide with the exhaust of the ILEC's HVAC system. More important, all collocators will know in advance the cost of HVAC rather than the uncertainty of an undefined ICB.

ELECTRICAL

As shown in Figure 8B, the collocation area model layout assumes fluorescent lighting in the cages and the common area. Each 100 square foot allocation requires four 4'-0" units hung by chains from the slab above. To ensure adequate illumination, each fixture should be equipped with two 40-watt lamps. In addition, the model assumes six identical light fixtures used to illuminate the common area (for the POT bays and BDFB).



ELEMENT	SYMBOL	QUANTITY PER CAGE	QUANTITY IN COMMON AREA
4'-0" FLOUR. LIGHTS		4	6
20 amp AC OUTLETS		2	4
MOTION SWITCHES		1	1

COLLOCATION MODEL - ELECTRICAL COMPONENTS

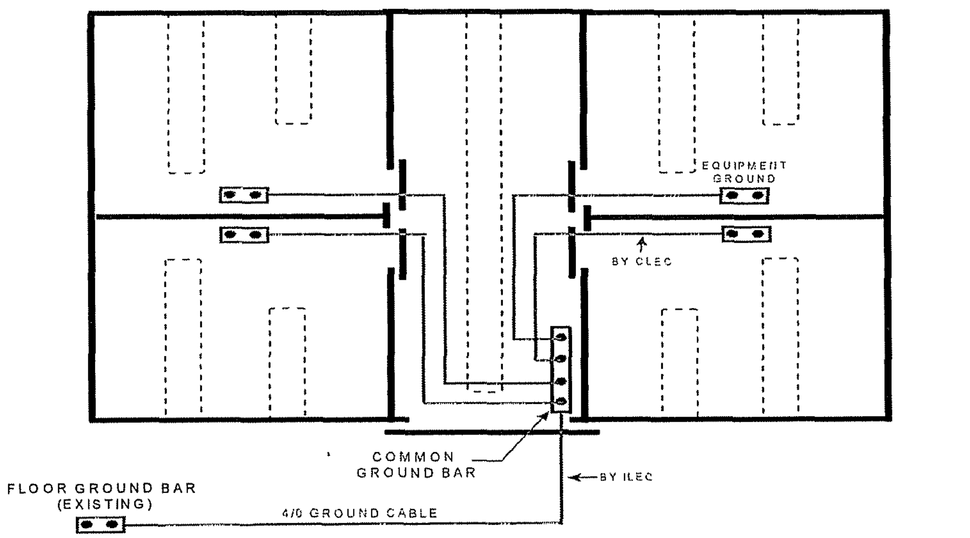
Figure 8B

The collocation area model layout also incorporates motion detector light switching that is activated when a technician enters the collocation area. Similarly, entering the cages within the collocation area activates the individual cage lighting. The lights will shut off when the technician leaves the area, thus conserving power and reducing costs. Furthermore, standard duplex electrical receptacles are included in the cages and the common area within the collocation area for operating test equipment and general convenience purposes. Finally, the collocation area model layout includes an

AC electric distribution service panel to feed lighting, switching and outlets.

GROUNDING

As shown in Figure 8C, to ensure optimum grounding, the collocation area model layout incorporates the installation of a new common ground bar located in the common area by the ILEC. This ground bar, together with approximately 100 feet of 4/0 ground cable placed in conduit, will be connected to the existing floor ground bar by the ILEC. Each CLEC can then provide its own equipment ground and ground cable to connect to the common area ground as explained in Subsection 4.



COLLOCATION MODEL- GROUNDING LAYOUT

Figure 8C

8.4 COST OF FLOOR SPACE

The collocation area model layout recognizes that the ILEC should receive compensation for floor space used by the CLEC and therefore incorporates a cost per square foot land and building component. Although actual rates per square foot for land

and building can be state-specific, the overall basis for calculating monthly rental charges for floor space remains constant. As shown in Chart 5, calculations are based on the forward-looking central office model layout, and assume an 80% factor for assignable space and a land to building ratio of two-to-one based on the building footprint.

CHART 5	
LAND & BUILDING COST CALCULATION TABLE	
EQUIPMENT SPACE CALCULATION	
Equipment Space Requirement	12,000
Ancillary Requirement	25%
Total Footprint per Floor	15,000
Number of Floors (incl. Basement)	4
Gross Building Space	60,000
Assignable Space Factor	80%
Assignable Space	***48,000***
LAND CALCULATION	
Building Footprint	15000
Building to Land Ratio	2
Land Area Requirement	***30,000***
BUILDING CALCULATION	
Gross Building Space	***60,000***

8.5 REAL ESTATE RESOURCES

The following ILEC resources are required to implement the central office model layout:

1. ***Project Manager:*** Reviews requirements of the collocator and coordinates the activities of engineering consultants to produce working drawings. Ascertains that funding is in place to proceed with project. Reports to the CLEC on progress and reviews the project with the ILEC subsequent to the completion of the collocation area.
2. ***Architect:*** Produces architectural quality drawings depicting the exact location, dimensions, physical obstructions, and other pertinent information regarding the proposed collocation space. Requests tenders and reviews

submissions for accuracy and completeness prior to the issuance of a contract by the Project Manager. In some instances, the Architect may also be the Project Manager.

3. ***Construction Manager:*** Coordinates and reviews contractors' activities in the collocation space. Resolves on site interference with existing services. Monitors the progress and prepares construction activity reports.

The specific time allocations for each resource and associated project intervals are outlined in Section 9.

9. PROCESS ISSUES

9.1 ILEC MANPOWER REQUIREMENTS

The planning and implementation of a collocation area in an ILEC central office requires manpower effort on the part of the ILEC. To ensure fair and reasonable compensation for ILEC manpower, the central office model layout incorporates a planning component outlining the expected ILEC manpower requirements to implement a CLEC collocation request using best practice processes in a competitive environment. As shown in Chart 6, the ILEC resource requirements have been separated into manpower required to establish the initial collocation area and manpower requirements to implement each CLEC request. The first CLEC request includes both requirements.

CHART 6			
FUNCTION	***HOURS TO PLAN INITIAL COLLOCATION AREA***	***HOURS PER EACH CLEC REQUEST***	***NOTES***
OUTSIDE PLANT ACCESS DESIGN	0	6	
BUILDING PLANNING	10	4	
MDF PLANNING	0	4	
REAL ESTATE PROJECT MANAGER	6	2	
REAL ESTATE CONSTRUCTION MANAGER	8	4	
ARCHITECT	22	2	1
POWER ENGINEER	6	4	2
EQUIPMENT ENGINEER	6	4	3
EQUIPMENT INSTALLATION PROJECT MGR.	6	8	4
OPERATIONS GROUP	2	4	
APPLICATION FEE	0	10	5
TOTAL ILEC MANPOWER	***66***	***52***	***6***

NOTES

1. ASSUMES IN HOUSE ARCHITECT WITH NO EXTERNAL CHARGES FOR ARCHITECTS.
2. DISTRIBUTION ONLY (BDFB TO DC PANEL): -48V DC POWER ASSESSMENTS ARE DEMAND FUNCTIONS COVERED UNDER POWER CONSUMPTION CHARGE.
3. ONLY 5'0" CLEC-SPECIFIC RACK TO CAGE; OTHER CABLE AND CABLE RACKING IS DEMAND ACTIVITY COVERED UNDER RECURRING CHARGE.
4. SHOULD NOT INCLUDE COORDINATION OF DEMAND PROJECTS.
5. APPLICATION FEE TO COVER ACTIVITIES OF VARIOUS ILEC ADMINISTRATIVE AND BILLING GROUPS.
6. ASSUMES FIRST CLEC REQUEST COINCIDES WITH PLANNING OF INITIAL COLLOCATION AREA..

The proposed manpower requirements shown in the preceding chart have been developed assuming the following minimum requirements:

⇒ *Fully trained and competent staff*

⇒ *Best practice processes for building modifications*

⇒ *Best practice processes for central office Equipment and Power rearrangements*

⇒ *Up-to-date and accurate records (e.g., power consumption, equipment drawings, wiring lists, etc.)*

⇒ *Efficient suppliers/construction interfaces with least cost competitive intervals*

The central office model layout also assumes that the ILEC will only be reimbursed for time spent implementing functions associated with collocation elements covered by a non-recurring charge. Time expended assessing equipment for which the ILEC is reimbursed via a recurring charge (e.g., -48V power plant, shared cable racking, etc.) is an ongoing ILEC planning requirement. These work functions are no different than the assessments the ILEC must undertake prior to implementing other demand projects and should therefore not be charged to CLECs. ILEC manpower spent due to existing inefficiencies such as the revisions to inaccurate drawing records, etc., should not be included in ILEC project management time to implement a CLEC collocation request.

The manpower requirements shown in Chart 6 provide an accurate assessment of the planning time required to efficiently implement a CLEC collocation request in a best practice competitive environment. These times are included in the Collocation Model as a specific component for the planning of a CLEC collocation request rather than permitting the ILEC to arbitrarily establish undefined charges using an ICB for Time and Materials, which can easily be manipulated on a case by case basis.

9.2 IMPLEMENTATION INTERVALS

An assessment of the functions and intervals required to implement the first CLEC collocation request in a particular ILEC central office, assuming optimum efficiency, best practice processes, and a competitive environment, indicates that the maximum interval should be 68 working/business days. This includes the time from when a CLEC applies to collocate in an ILEC central office until the collocation area is ready for equipment to be delivered by the CLEC.

The interval for subsequent collocation requests in the same central office is less since some of the planning activities and building modifications would already be completed in response to the initial request. A reasonable interval for subsequent requests is calculated at 56 working/business days.

Rather than permitting the ILEC to establish arbitrary intervals on a case by case basis, the central office model layout adopts the following standard intervals for planning and implementing a CLEC collocation request in an ILEC central office:

⇒ *Initial Collocation request in a particular ILEC Central Office = 14 Calendar Weeks*

⇒ *Subsequent Collocation requests in the same Central Office. = 11 Calendar Weeks*

Section 2: Virtual Collocation

1. INTRODUCTION

1.1 PURPOSE

The purpose of this section of the White Paper is to present a technical model for the virtual collocation of CLEC equipment in ILEC central office buildings (the Virtual Collocation Model). As with the technical model for physical collocation, the Virtual Collocation Model uses a bottoms-up approach to implementing virtual collocation based on the forward-looking central office and collocation model layouts, and the use of best practice central office planning strategies, least cost suppliers, and competitive processes. This section identifies the requirements for efficient virtual collocation of CLEC equipment at an ILEC central office and provides the technical basis for determining the costs to meet these requirements, and, based on these, identifies the investments necessary for an efficient ILEC to provide virtual collocation to CLECs.

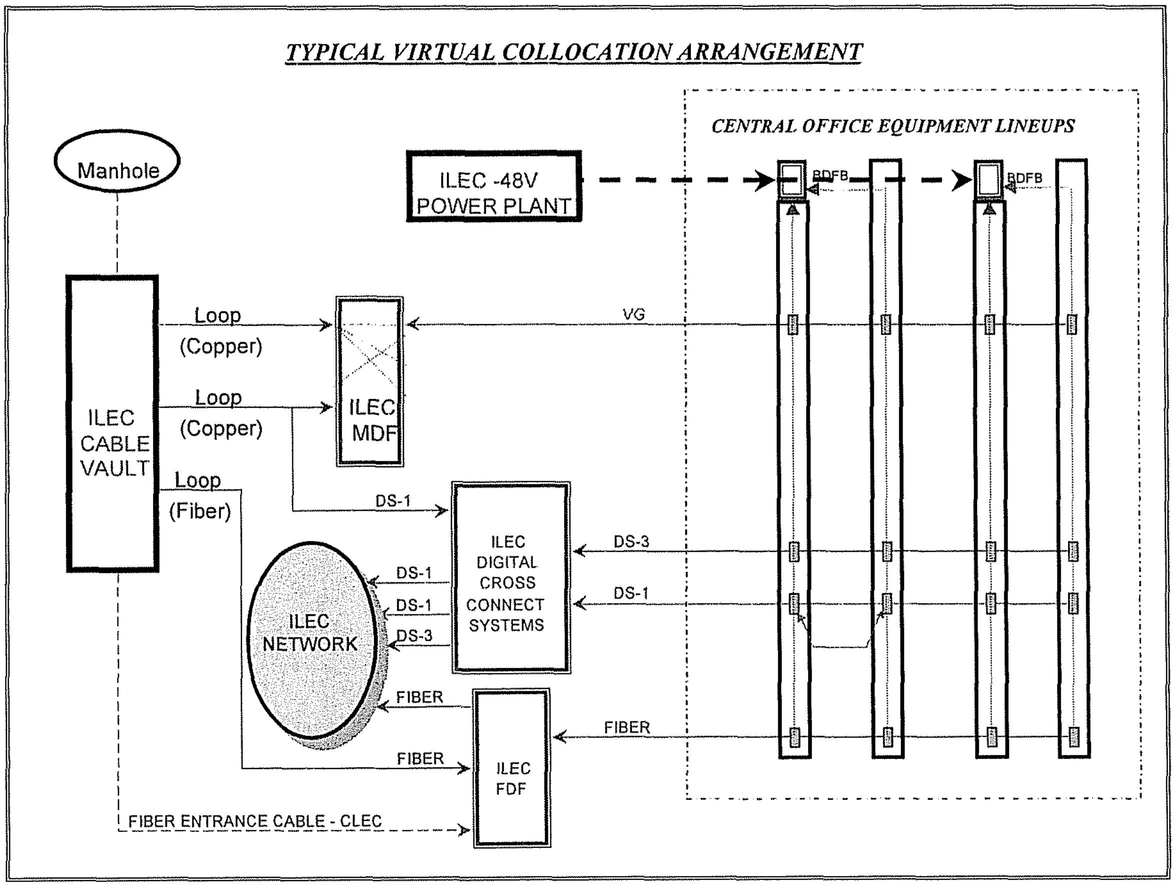
1.2 OVERVIEW OF VIRTUAL COLLOCATION

Virtual collocation is nothing more than an arrangement that allows a CLEC to place its own telecommunications equipment in an area of the central office currently used by the ILEC for its own equipment. A CLEC may wish to use virtual collocation if it lacks sufficient customer demand to justify a physical collocation arrangement, or because physical collocation cage construction costs render that method of collocation too costly. In addition, Section 251c(6) of the Telecommunications Act of 1996 requires that virtual collocation be provided when physical collocation is not practical for technical reasons or because of space limitations. Virtual collocation arrangements usually operate as follows: The CLEC purchases the necessary equipment and sells it to the ILEC for a nominal sum ($1.00), and then the equipment is installed, at the CLEC's expense, in vacant space in the ILEC's equipment (relay) racks in the central office along with ILEC equipment. The ILEC handles day-to-day maintenance activities, for which it is reimbursed by the CLEC. The CLEC is provided the ability to enter the central office on request but requires a security escort.

The elements required to establish physical collocation in an ILEC central office are depicted in Figure 1A in Section 1 of this White Paper. The requirements for virtual collocation are quite similar, except:

- There is no separate cage. Instead, the CLEC's equipment is not segregated from the ILEC's equipment, but rather is placed in the same relay racks that house the ILEC's equipment.
- There is no need for a point of termination (POT) bay to be used as a demarcation point between the ILEC and CLEC.
- There is no requirement to locate POT bays close to virtually collocated equipment because the ILEC is responsible for end-to-end maintenance.

A schematic of the components associated with a typical virtual collocation arrangement in an ILEC central office appears below.



The following cost components of virtual collocation are described and modeled: building space, space on the equipment racks, connectivity, power, access (entrance fiber), and operational costs such as maintenance activities, security escorts, and the training of ILEC technicians.

2. COST OF BUILDING AND RELAY RACKS

Since virtual collocation provides for CLEC equipment to be located within existing ILEC equipment areas, there will be costs associated with the building space taken up by the collocated equipment. In order to use the equipment area, and hence the floor space, efficiently in ILEC central offices, the Virtual Collocation Model develops investments for building space based on units of ¼ relay rack. ILEC equipment space is comprised of rows (called "lineups") of relay racks that, when installed, resemble empty metal bookcases without shelves. (*See* Figure 1B in Section 1 of this White Paper.) Relay racks are fabricated to permit the installation of equipment shelves on an "as required" basis. The telecommunications equipment that CLECs may install comes in various sizes (heights), and thus requires varying amounts of "shelf space" on a relay rack. While this conceivably permits relay racks – and the building space they take up – to be administered by the "rack inch," for administrative simplicity the Virtual Collocation Model develops the investments for both building space and the relay rack based on units of ¼ relay rack. Using units of ¼ relay rack ensures that ILEC equipment space is used efficiently and allows CLECs to pay only for the space used. In many instances, relay racks with empty space will be available. In some cases, however, a new relay rack may need to be installed for a CLEC to place its equipment. In either situation, it is appropriate to include – and the model includes – investment for a relay rack.

Relay racks are roughly 2'-0" wide, 12" deep, and 7'-0" high and placed in lineups to simplify cabling and day-to-day maintenance operations. Equipment lineups are typically located with 2'-6" to 3'-0" front and rear aisles for maintenance purposes. For the purpose of this White Paper, it will be assumed that each relay rack utilizes nine (9) square feet of floor space.[11] (Using increments of ¼ relay racks is the equivalent of 2.25 square feet of space.)

The overall method of calculating monthly rental charges remains the same as for physical collocation. As shown in Chart 5 (*see* Section 1 of this White Paper), the monthly rental calculations are based on the three floor forward-looking central office layout model developed in Section 1 of this White Paper. Also as before, the monthly rental calculations assume generous factors of 80% assignable space and a two-to-one land to building ratio based on the building footprint.

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11 Includes the relay rack footprint plus 50% of front and rear aisles. The 9 square feet is sufficiently generous to incorporate end guards and 15" deep frames.

3. CONNECTIVITY

3.1 OVERVIEW OF CONNECTIVITY LENGTH ASSUMPTIONS

As explained in subsection 4 of Section 1, best practice planning strategies dictate that ILEC equipment is placed as close as possible to the appropriate cross-connect to minimize cable lengths. Figure 4C (*see* Section 1 of the White Paper) provides an illustrative example of the average cable lengths for ILEC equipment. As shown, the average connectivity lengths between existing ILEC equipment areas and ILEC cross-connects are between 100-125 feet.

Since virtual CLEC equipment is placed in the same equipment areas that the ILEC uses for its own equipment (and is not segregated from the ILEC equipment), it is likely that connectivity investments for virtual collocation will be in the 100-125 foot range. This length would be less than that required for physical collocation. Thus, using the same connectivity lengths for virtual collocation as those used for physical collocation provides a conservative estimate. That is, while it is likely that CLEC equipment will be placed in the 100-125 foot range from cross-connects (since the equipment is in the same lineups used by the ILEC), the model uses the same 165-foot connectivity length developed for physical collocation.

There are two connectivity lengths required for virtual collocation that are not required for physical collocation, that are developed using the same worse case/best case method described above in subsection 4 of the physical collocation model. First, a different power cabling length is required to connect CLEC virtual equipment to the ILEC BDFB. Assuming relay rack lineups of 40 feet, with a BDFB located in the first relay rack of every other line-up, results in a connectivity length of 40 feet. Second, connecting two pieces of CLEC virtual equipment ("virtual-to-virtual" connectivity), assuming that the equipment will be within 12 lineups, results in a connectivity length of 65 feet.[12]

Power and grounding cabling is an integral part of most telecommunications installations, necessary to complete continuity testing prior to acceptance. Testing continuity from the equipment to the CLEC switch is necessary to ensure the equipment is operational, functional and ready to accept connectivity cabling. Thus, power and grounding cables are installed at the time the CLEC's equipment is installed. Because the CLEC is responsible to the installer for the invoice associated with installing equipment, power and grounding cables, the ILEC will not incur initial cabling costs for power or grounding.

In an ideal scenario the CLEC would similarly be responsible to an installer for the total invoice associated with equipment and all cabling installation, and the ILEC would incur no initial cabling costs. However, the ILEC would have the incentive and ability to impose unnecessary cabling costs on CLECs. If an ILEC knew that the CLEC would have to pay an installer cabling costs no matter where the collocated equipment was placed, the ILEC would have the incentive to require the installer to place CLEC equipment in a remote area of the central office, far from cross connects. To overcome the ILEC's incentive to impose unnecessary costs by virtue of its ability to dictate placement of virtually collocated equipment, the model includes ILEC investments for initial connectivity cabling based on cable lengths shown below. By basing the connectivity installation on established cable lengths, the incentive for the ILEC to impose excess cabling costs on the CLECs is removed.

A summary of the average connectivity lengths to be used for virtual installations is set forth in Chart 7.

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12 Calculations for all cable lengths are included in the backup documentation.

CHART 7			
VIRTUAL COLLOCATION MODEL CONNECTIVITY COMPONENTS AND AVERAGE DISTANCES			
TYPE OF CONNECTION	CABLE LENGTH	CABLE RACK LENGTH	CABLE HOLES AND SLEEVES
FIBER ENTRANCE CABLE (BY CLEC)	125'-0"	N/A	--
FIBER RISER CABLE (BY CLEC)	175'-0"	160'-0"	3
COPPER (DS-0/DS-1/DS-3)	165'-0"	150'-0"	2
OPTICAL (FIBER BREAKOUT CABLES)	165'-0"	150'-0"	2
-48V DC POWER PLANT TO BDFB	165'-0"	150'-0"	2
BDFB TO FUSE PANEL ON VIRTUAL EQUIPMENT	40'-0"	25'-0"	--
CONNECTIONS BETWEEN CLEC VIRTUAL EQUIPMENT	65'-0"	50'-0"	--
TIMING LEADS FOR CLEC VIRTUAL EQUIPMENT	135'-0"	120'-0"	--

3.2 OVERHEAD COMMON SYSTEMS INFRASTRUCTURE COMPONENTS

As explained in paragraph 4.4 of Section 1, cables are routed within the central office environment on overhead cable racks hung from the ceiling. The following cable routes will be required for CLEC virtual collocation.

⇒ *copper and optical cable routes between virtual equipment and ILEC cross-connects*

⇒ *fiber cable route for riser cable between the cable vault and Fiber Distribution Frame*

⇒ *a power cable route to the closest BDFB*

⇒ *copper and fiber cable routes between virtual CLEC equipment*

The model does not distinguish between situations in which cable racks between the virtual collocation equipment and cross-connects already exist and situations where they do not exist. In either situation, the CLEC would pay a space rental fee to the ILEC for its cable rack occupancy. Of course, that space rental fee would be based on the costs associated with providing the cable rack.

Conservative occupancy factors that incorporate cable rack fills using best practice cable pileup assumptions are used to develop investments for the use of ILEC cable racks and inter-floor cable holes.[13] Because cables are many different sizes, the model develops individual cable rack occupancy costs for the various types of telecommunications cable used in ILEC central offices, which are reflected in Chart 8. The top portion of the chart, entitled Cable Rack Capacities, outlines the commonly-used cable rack sizes, together with the estimated number of cables that can be placed on each at various cable pile-up levels (e.g. build-up on the rack). The lower portion of Chart 8 sorts the various types of cabling commonly used for telecommunications equipment according to size, and develops a cable equivalency factor. As shown, copper DS-1 cables and 12 Fiber Optical Breakout cables are the benchmark, with an equivalency of one cable. All cables smaller than the benchmark, such as DS-3 cables and smaller power distribution cables have also been assigned a one-cable equivalency. A 100-pair voice grade cable is equivalent to two benchmark cables; a fiber riser cable is equivalent to three benchmark cables; and a large 750 MCM power cable is equivalent to four benchmark cables.

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13 Supporting data for cable rack occupancy calculations and an explanation of cable rack capacity table can be found in Paragraph 4.4 of Section 1.

CHART 8													
COLLOCATION MODEL - CABLE RACK CAPACITIES													
CABLE RACK WIDTH		CABLE PILE-UP											
ACTUAL SIZE	CABLE SPACE	1"	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"
10"	8.5"	26	51	77	102	128	154	179	204	230			
12"	10.5"	32	63	94	126	158	189	221	252	283	315		
15"	13.5"	41	81	122	162	203	243	284	324	365	405	446	486
20"	18.5"	56	111	167	222	278	333	389	444	500	555	611	666
25"	23.5"	71	141	212	282	353	423	494	564	635	705	776	846
30"	28.5"	86	171	257	342	428	513	599	684	770	855		
CABLE TYPE	EQUIVALENCY FACTOR	OCCUPANCY FACTOR FOR CABLE RACK & CABLE HOLE USAGE											
Fiber Riser	3	Fiber Riser cables assume 7" Pile-up on 12" Racks * Capacity = 74 Cables (221/3)											
Breakout Cable (12 Fibers)	1	Fiber Breakout cables assume 7" Pile-up on 12" Racks* Capacity = 221 Cables											
750 MCM	4	Power Delivery Cables assume 5" Pile-up on 15" Racks * Capacity = 51 Cables (203/4)											
100 Pair VG/DS-0	2	Copper DS-0 Voice Grade Cables assume 10" Pile-up on 20" Racks Capacity = 278 Cables (555/2)											
28 Pair DS-1	1	Copper DS-1 Cables assume 10" Pile-up on 20" Racks Capacity = 555 Cables **											
Coax DS-3	1	Coax DS-3 assume 10" Pile-up on 20" Racks Capacity = 555 Cables **											
Power Distribution Cable	1	Power Distribution for fusing CLEC Virtual Equipment to the BDFB assume 7" Pile-up on 15" Racks Capacity = 284 Cables											

** Reduced capacity due to rigidity & bending radius*
***DS-1 & DS-3 requires 2 cables per circuit*

4. COPPER AND OPTICAL CONNECTIVITY COMPONENTS

4.1 OVERVIEW OF CONNECTIVITY MODELS

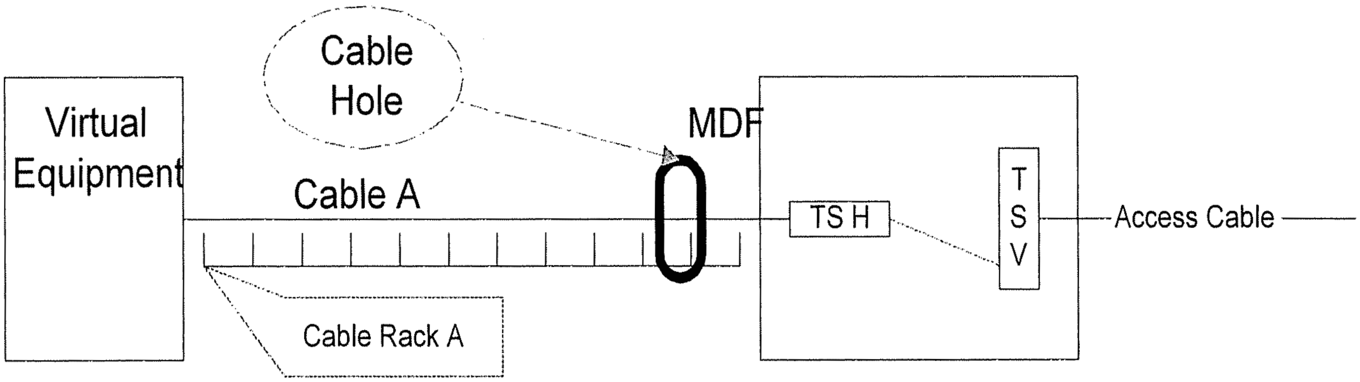
Virtual collocation requires connectivity between the CLEC's equipment and the ILEC cross-connects in the same way that an ILEC's equipment requires connectivity to cross-connects. The Virtual Collocation Model develops the investments associated with occupancy of ILEC cable racks for cabling between virtually located equipment. The model assumes that connectivity between the CLEC and ILEC can be provided at different transmission bandwidths: voice grade, DS-1, DS-3 and OC-x (optical connections used to connect to "dark fiber" in the access network).

In most ILEC central offices, the majority of DS-1 and DS-3 circuits to which CLECs will want to interconnect are currently located on DSX panels. However, in some ILEC central offices those higher bandwidth circuits may have already been relocated to an electronic digital cross-connect system (DCS) or may appear at a Fiber Distribution Frame (FDF). The Collocation Model includes all components necessary for end to end connectivity in all cases.

Depicted in schematic form on the following pages are the best practice and least-cost connectivity arrangements that have been adopted in the Virtual Collocation Model for all interconnection between CLEC virtual equipment and to the various ILEC central office cross-connects.

4.2 VIRTUAL VOICE GRADE MODEL REQUIREMENTS

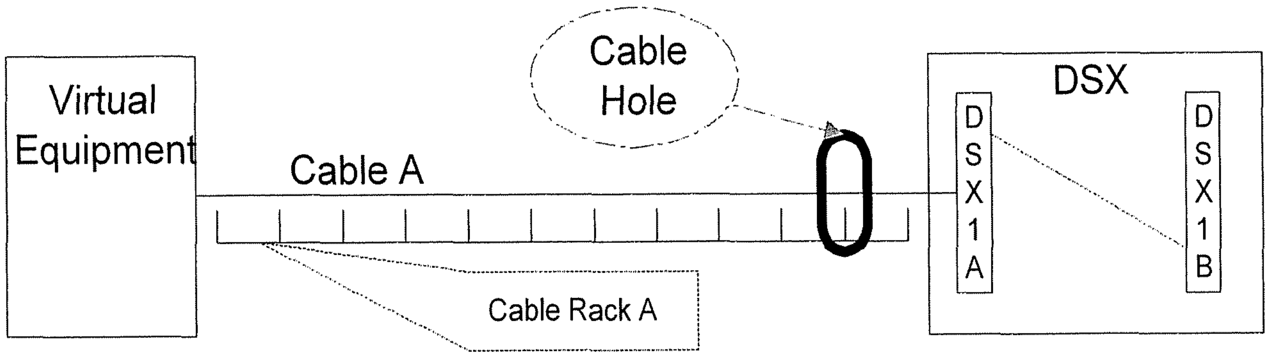
Copper Connectivity at Voice Grade Level



CONNECTIVITY ELEMENTS FOR VOICE GRADE SERVICE				
ELEMENT	**DESCRIPTION**	**PROVIDED BY**	**SIZE/CAPACITY**	**LENGTH**
Virtual CLEC Equipment	Voice Grade Equipment	CLEC		
Cable A	Cable from Line Cards to Horizontal side of MDF	ILEC	100 pair cable	165 feet
Cable Hole Occupancy	2 Cable Holes shared by ILEC + CLECs	ILEC		
Cable Rack A Occupancy	20" Ladder Rack - Shared by ILEC + CLECs	ILEC	555 cables	150 feet
MDF-H	Horizontal Terminal Block for X-Conn to Access side of DF	ILEC	100 pair	
MDF	MDF Terminal Strip Space	ILEC	1 block space	
MDF X-Connect	Jumper from horizontal to vertical ~ Included in Unbundled Loop	ILEC		
MDF-V	Vertical side terminal strip ~ Included in Unbundled Loop	ILEC		

4.3 VIRTUAL DS-1 MODEL REQUIREMENTS USING A MANUAL DSX

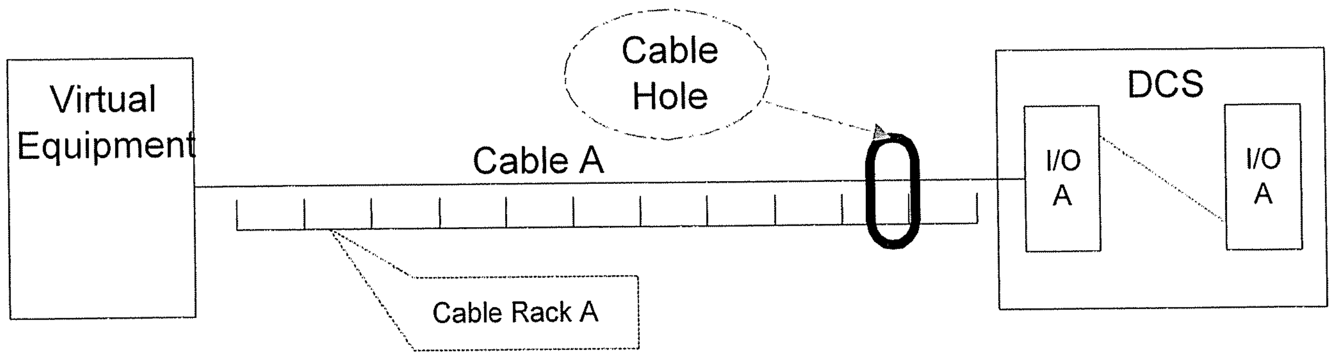
Copper Connectivity at DS-1 Level (DSX)



CONNECTIVITY ELEMENTS FOR DS-1 SERVICE (DSX OPTION)				
ELEMENT	**DESCRIPTION**	**PROVIDED BY**	**SIZE/CAPACITY**	**LENGTH**
Virtual CLEC Equipment	DS-1Multiplexer	CLEC	28 DS1	
Cable A	2x 30 Pair ABAM	ILEC	28 DS1	165 feet
Cable Rack A Occupancy	20" Ladder Rack - Shared by ILEC + CLECs	ILEC	555 cables	150 feet
Cable Hole Occupancy	2 Cable Holes - Shared by ILEC + CLECs	ILEC	555 cables	
DSX-1C	Passive X-Connect Panel	ILEC	56 DS1	
DSX	Digital X-Connect Frame shared by ILEC + CLECs	ILEC	560 DS1	

4.4 VIRTUAL DS-1 MODEL REQUIREMENTS USING ELECTRONIC DCS

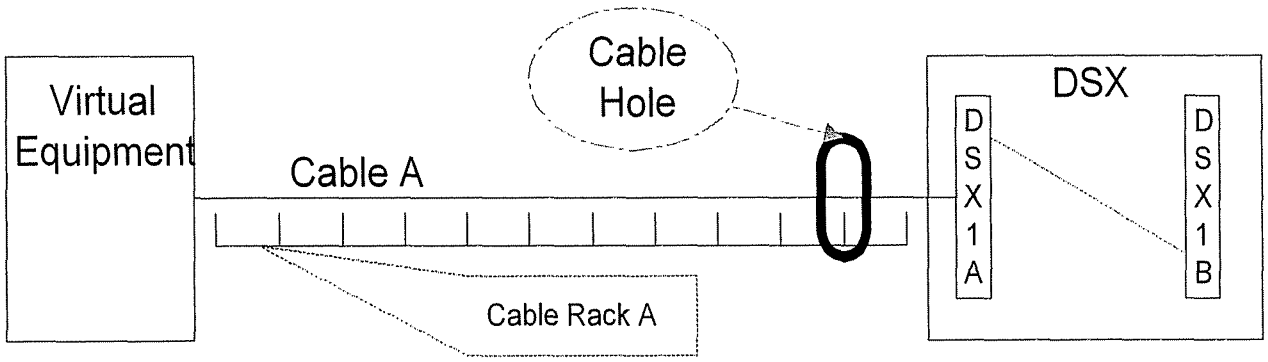
Copper Connectivity at DS-1 Level (DCS)



CONNECTIVITY ELEMENTS FOR DS-1 SERVICE (DCS OPTION)				
ELEMENT	**DESCRIPTION**	**PROVIDED BY**	**SIZE/CAPACITY**	**LENGTH**
CLEC Virtual Equipment	DS-1Multiplexer	CLEC	28 DS1	
Cable A	2x 30 Pair ABAM	ILEC	28 DS1	165 feet
Cable Rack A Occupancy	20" Ladder Rack - Shared by ILEC + CLECs	ILEC	555 cables	150 feet
Cable Hole Occupancy	2 Cable Holes - Shared by ILEC + CLECs	ILEC	555 cables	
DCS	Digital X-Connect System shared by ILEC + CLECs	ILEC	7168 DS1	

4.5 VIRTUAL DS-3 MODEL REQUIREMENTS USING A MANUAL DSX

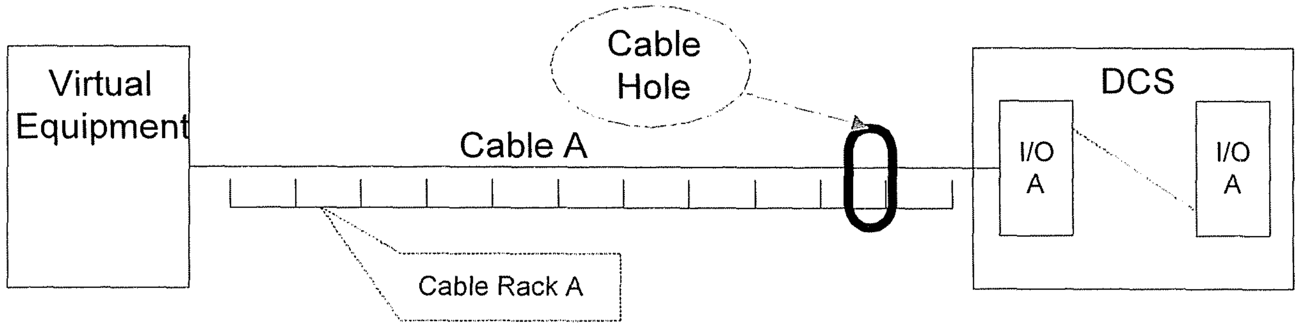
Copper Connectivity at DS-3 Level (DSX)



CONNECTIVITY ELEMENTS FOR DS-3 SERVICE (DSX OPTION)				
ELEMENT	**DESCRIPTION**	**PROVIDED BY**	**SIZE**	**LENGTH**
CLEC Virtual Equipment	DS-3 Terminal/Multiplexer	CLEC		
Cable A	734 Shielded (2 cables)	ILEC	2 per DS3	165 feet
Cable Rack A Occupancy	20" Ladder cable rack - Shared ILEC + CLECs		555 cables	150 feet
Cable Hole Occupancy	2 Cable holes between floors ~ Shared ILEC + CLECs	ILEC	555 cables	
XC-C	Passive X-Connect Panel	ILEC	16 DS3	
DSX	Digital X-Connect Frame shared by ILEC + CLECs	ILEC	112 DS3	

4.6 VIRTUAL DS-3 MODEL REQUIREMENTS USING ELECTRONIC DCS

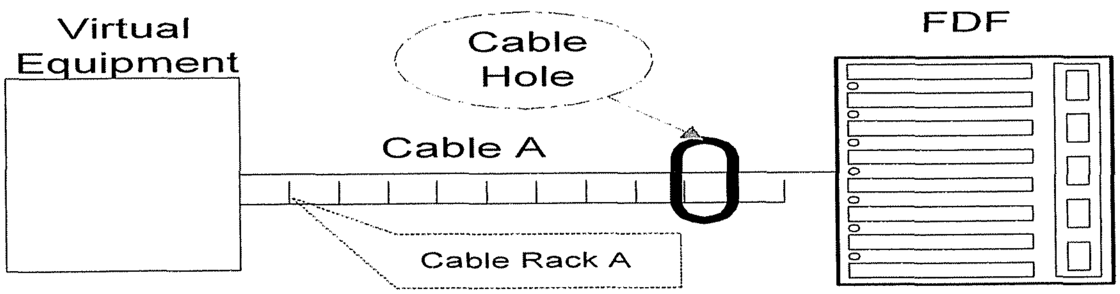
Copper Connectivity at DS-3 Level (DCS)



CONNECTIVITY ELEMENTS FOR DS-3 SERVICE (DCS OPTION)				
ELEMENT	**DESCRIPTION**	**PROVIDED BY**	**SIZE**	**LENGTH**
CLEC Virtual Equipment	DS-3 Terminal/Multiplexer	CLEC		
Cable A	734 Shielded (2 cables)	ILEC	2 per DS3	165 feet
Cable Rack A Occupancy	20" Ladder cable rack – Shared ILEC + CLECs		555 cables	150 feet
Cable Hole Occupancy	2 Cable holes between floors ~ Shared ILEC + CLECs	ILEC	555 cables	
Digital X-Connect System	DS-3 Digital Cross-Connect shared by ILEC + CLECs	ILEC	512 DS3	

4.7 VIRTUAL OPTICAL MODEL REQUIREMENTS USING FIBER FRAME

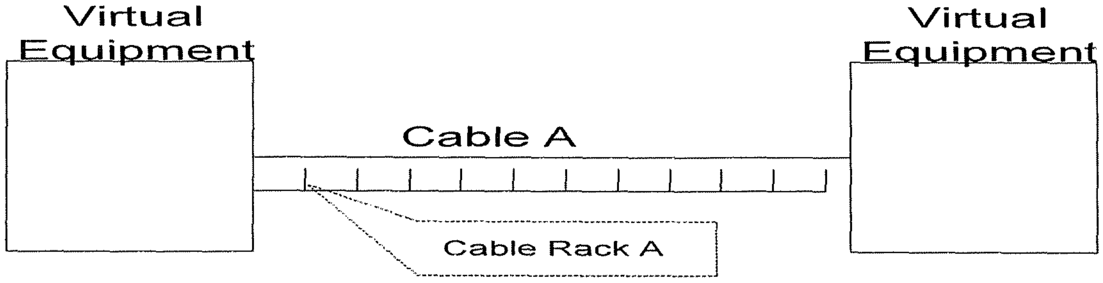
Fiber Connectivity at DS-3 Level



CONNECTIVITY ELEMENTS FOR OPTICAL SERVICE				
ELEMENT	***DESCRIPTION***	***PROVIDED BY***	***SIZE***	***LENGTH***
CLEC Virtual Equipment	Optical Terminal	CLEC		
Cable A	Fiber breakout cable	ILEC	12 Fibers	165 feet
Cable Rack A Occupancy	12" Ladder cable rack – Shared ILEC + CLECs		221 cables	150 feet
Cable Hole Occupancy	2 Cable holes between floors ~ Shared ILEC + CLECs	ILEC	221 cables	
FDF	Fiber Distribution Frame	ILEC	768 Fibers	

4.8 INTRA-CLEC VIRTUAL COPPER AND OPTICAL MODEL REQUIREMENTS

Virtual to Virtual Copper and Optical Connectivity



CONNECTIVITY ELEMENTS FOR INTRA-CLEC SERVICE				
ELEMENT	***DESCRIPTION***	***PROVIDED BY***	***SIZE***	***LENGTH***
CLEC Virtual Equipment	Optical and/or multiplexing equipment	CLEC		
Cable A	Connects two equipment virtually located CLEC equipment shelves	ILEC	DS1 DS3	65 feet
Cable Rack A Occupancy (for Fiber connection)	12" Ladder cable rack – Shared ILEC + CLECs		221 cables	50 feet
Cable Rack A Occupancy (for DS1 and DS3 connections)	20" Ladder cable rack – Shared ILEC + CLECs		555 cables	50 feet

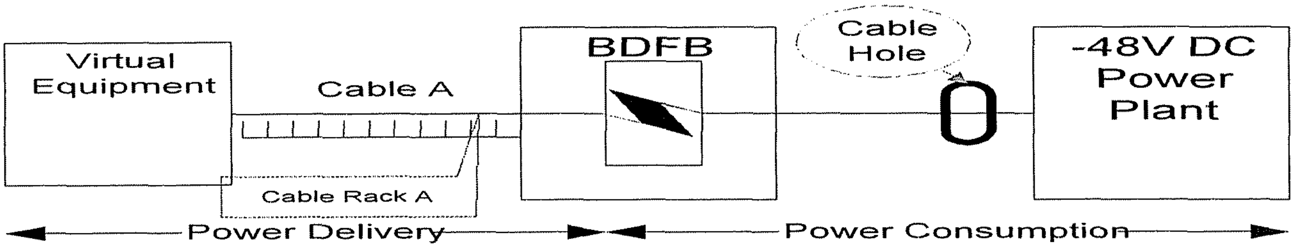
5. DC POWER AND GROUNDING ELEMENTS

5.1 OVERVIEW

As explained in detail in subsection 5 of Section 1, the standard and most cost effective method of delivering -48V DC between the power plant and telecommunications equipment in a central office is to use a remote power distribution bay, such as a BDFB. Using a BDFB located close to the equipment it will serve will postpone the exhaust of the -48V power plant and is more cost-effective than running many large (and costly) power distribution cables to the power plant for equipment fusing. An overview of the accepted best practice method for the delivery of -48V DC power in a telecommunications environment is shown in Figure 5B in Section 1 of this White Paper.

The delivery of -48V power to a virtual collocation is divided into two separate charges in a similar manner as for physical collocation: (1) A monthly power consumption charge for shared use elements such as the power plant, diesel generator and distribution as far as the BDFB (that i, between the power plant and the BDFB); and (2) A monthly recurring charge for distribution associated with occupancy of the cable rack between the BDFB and the CLEC's virtual equipment. A schematic depicting the components included in the Virtual Collocation Model for -48V DC power appears below.

- 48V Power Delivery for Virtual Equipment Installation



Power Delivery Elements				
Element	**Description**	**Prov. By CLEC/ILEC**	**Quantity**	**Remarks**
CLEC Virtual Equipment	Located in ILEC lineup	CLEC	--	CLEC requests direct fusing to virtual equipment from BDFB
Cable 'A' (2 feeds of 0-5amps) *	4 x #10 cable between virtual equipment & BDFB	CLEC	40'-0"	Two A & B cables to feed 0-5amps + battery returns.
Cable 'A' (2 feeds of 6-20amps) *	4 x #6 cable between virtual equipment & BDFB	CLEC	40'-0"	Two A & B cables to feed 6-20amps + battery returns.
Cable 'A' (2 feeds of 21-30amps) *	4 x #4 cable between virtual equipment & BDFB	CLEC	40'-0"	Two A & B cables to feed 21-30amps + battery returns.
Cable 'A' (2 feeds of 31-50amps) *	4 x #2 cable between virtual equipment & BDFB	CLEC	40'-0"	Two A & B cables to feed 31-50amps + battery returns.
Cable 'A' (2 feeds of 51-60amps) *	4 x #1 cable between virtual equipment & BDFB	CLEC	40'-0"	Two A & B cables to feed 51-60amps + battery returns.
Cable Rack 'A'	15" existing cable rack	ILEC	25'-0"	Power delivery rack for ILEC & virtual equipment
BDFB	Located in close proximity to virtual equipment	ILEC	--	Included in -48V DC Power Consumption Charge
Cable Rack	Shared support	ILEC	--	Included in -48V DC Power

Occupancy	for Cable 'B' below			Consumption Charge
Cable 'B'	Cable between –48V Power Plant & BDFB	ILEC	--	Included in -48V DC Power Consumption Charge
-48V DC Power Plant	Shared use between CLEC's & ILEC	ILEC	--	Included in -48V DC Power Consumption Charge
Auto-start Diesel Fuel Tanks, & AC Switchboard	Required for Battery Back-up	ILEC	--	Included in -48V DC Power Consumption Charge
AC Energy	Required for AC Energy used	ILEC	--	Included in -48V DC Power Consumption Charge

* Supplied as part of the virtual equipment installation and paid for by CLEC

5.2 POWER DISTRIBUTION COMPONENTS

Since best planning practices require locating a BDFB close to ILEC equipment, it is unlikely that -48V DC power distribution cables required for fusing collocation equipment would be longer than about 40 feet. The Virtual Collocation Model therefore assumes a cable length of 40 feet for -48V DC power distribution cabling between the collocation BDFB and the CLEC provided virtual equipment.[14] As noted in subsection 4 above, the power cabling will be included in the cost of the equipment installation paid for immediately by the CLEC. The investment associated with the 40 feet of power cabling ensures remuneration to the ILEC for its cable racks and also ensures that the cost of power cable reflects best practice planning principles. As with connectivity, if the ILEC requires an installer to place virtual equipment in a location that does not reflect best practice planning principles, the ILEC could successfully impose higher than necessary costs on the CLEC -- costs the ILEC would likely not face if it were installing equipment for itself. This should not be permitted.

[14] The 40 feet includes 25 feet in cable racks and 7'-6" drops at each end. Assumptions are included in backup documentation.

5.3 POWER CONSUMPTION COMPONENTS

Investments for -48V DC power consumption for the Virtual Collocation Model are based on the same approach used for physical collocation. All ILEC investments necessary to engineer, furnish, and install (EF&I) a shared -48V power plant (using a 2500 amp and a 4000 amp plant), including the mandatory battery and diesel generator back-up are identified. A BDFB and associated cabling components are also included to ensure the most cost-efficient method of delivering -48V DC power to the collocation area. However, the BDFB investment for virtual collocation is sized at 600 amps to more closely reflect BDFB sizes typically used in ILEC equipment areas.

As with physical collocation, a charge is developed for CLEC AC electric energy usage by restating the usage charge per AC kilowatt hour as an AC energy rate per DC amp used. (*See* Chart 3 in Section 1 of this White Paper.[15]) The rate from that calculation is added to the costs per amp for DC power to create the all-inclusive monthly power consumption charge.

5.4 EQUIPMENT GROUNDING

Unlike the physical collocation model outlined in Section 1, the grounding of CLEC virtual equipment installations must adhere to the same method of grounding as adjacent ILEC equipment to ensure optimum performance of both carriers' equipment. The installer will ensure a grounding arrangement consistent with adjacent ILEC equipment when installing the CLEC virtual equipment. Since the CLEC is responsible for payment of that installation invoice, grounding investments are not modeled for virtual collocation.

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15 The example contained in the physical collocation section of this White Paper uses a rate of $0.05 per Kilowatt hour for electric power. The model allows the actual rate per Kilowatt hour used in the cost calculations to be state-specific.

6. ACCESS (ENTRANCE FIBER) COMPONENTS

6.1 OVERVIEW

Unlike physical collocation where the CLEC performs day-to-day maintenance operations, a virtual scenario requires that the ILEC assume responsibility for ongoing maintenance of the entrance fiber. The best practice arrangement is therefore to terminate all CLEC entrance fibers at a centralized ILEC cross-connect, typically called a Fiber Distribution Frame (FDF). As with the physical collocation model layout outlined in Section 1, the ideal arrangement is for the CLEC to perform the pulling and splicing of fiber cable between the manhole and the cable vault, and the subsequent routing of fiber riser cable between the cable vault and the FDF. In the event that this is not permitted, however, the Virtual Collocation Model incorporates assumptions (outlined below) to calculate the costs that an efficient ILEC would incur to perform these functions in a competitive environment.

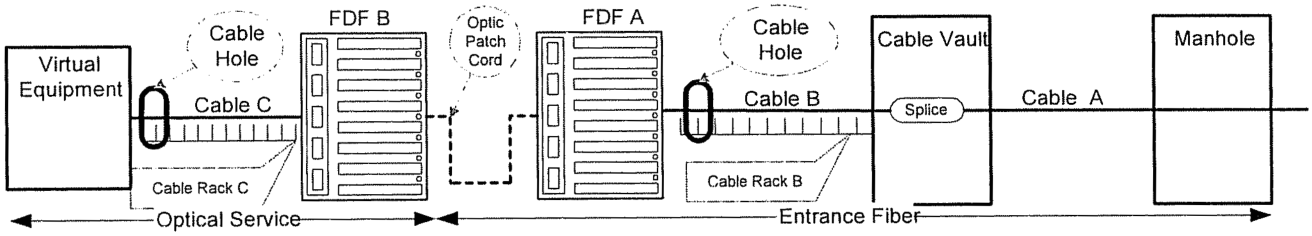
6.2 FIBER ENTRANCE COMPONENTS

The major elements required to route fiber cable between the first manhole and the Fiber Distribution Frame using fire retardant cable include:

⇒ Pulling and splicing of cable in the cable vault
⇒ A splice case to change from external to internal fiber cable
⇒ Fire retardant riser cable between the vault splice and FDF
⇒ Cable rack and cable hole (with occupancy charges based on usage)

The following schematic outlines the elements that have been used in the central office model layout to determine the cost of access connectivity (assuming that it would not be possible for the CLEC to perform the required pulling and splicing in the ILEC central office).

Access Elements – Cable Pulling and Splicing



Access Elements (Cable Pulling & Splicing) - With Fire Retardant Provided					
Element	***Description***	***Provided by CLEC/ILEC***	***Quantity***	***Hours***	***Remarks***
Optic Patch Cord	Between Fiber Distribution Frames	ILEC	6		1 required per fiber pair
FDF 'A'	ILEC Fiber Cross-connect	ILEC	12 Fibers	--	Frame capacity is 768 fibers
Cable 'B'	Between FDF & vault splice	CLEC	175'-0"	--	Fire retardant Fiber cable provided by CLEC
Installation of Cable 'B'	Placed on shared 12" cable rack (ILEC+CLECs)	ILEC	175'-0"	14	One time charge - Includes opening and closing 3 cable holes
Cable Rack Occupancy	12" cable rack shared by ILEC + CLECs	ILEC	160'-0"	--	Cost per cable for use of on ILEC cable racks
Cable Hole Occupancy	Cable holes shared by CLEC's & ILEC	ILEC	3	--	For use of ILEC cable holes
Splice Case	External to fire retardant cable	CLEC	1	--	Approved vault splice case provided by CLEC
Cable 'A'	Between vault splice & manhole	CLEC	--	--	Fiber cable provided by CLEC
Cable Support Charge	Between vault splice and vault wall	ILEC	50'-0"	--	Cost Model to use same as cable rack occupancy for Riser cable
Structure Charge	Between manhole & cable vault splice	Tariff Item	75'-0"	--	Per existing structures tariff
Cable Pulling	Manhole to cable vault splice	ILEC	125'-0"	4.0	Includes set-up & take-down
Splicing Activity	External cable to fire retardant cable	ILEC	--	3.0	Set-up & take-down in vault
Splice Fibers	In Cable Vault	ILEC	--	2.0	For up to 24 Fibers

Note: Access Design Charges included in ILEC Manpower Summary in section 7.

7. PROCESS ISSUES

7.1 ILEC MANPOWER REQUIREMENTS AND IMPLEMENTATION INTERVALS

The planning and implementation of virtual collocation in an ILEC central office requires manpower effort on the part of the ILEC. To ensure fair and reasonable compensation for ILEC manpower, the Virtual Collocation Model incorporates a planning component for two different types of requests: those that involve cabling plus equipment, and those that involve cabling only. For each type of request, the model includes investments for the ILEC manpower requirements to implement a CLEC collocation request using best practice processes in a competitive environment. Chart 9 provides the ILEC resource requirements required for each virtual collocation request.

CHART 9		
ILEC MANPOWER REQUIREMENTS HOURS TO PLAN AND IMPLEMENT A VIRTUAL COLLOCATION REQUEST		
ILEC FUNCTION	**INITIAL OR SUBSEQUENT REQUEST: *CABLE + EQUIPMENT***	***SUBSEQUENT REQUEST: CABLE ONLY***
OUTSIDE PLANT ACCESS DESIGN	6	0
BUILDING PLANNING	10	0
MDF PLANNING	4	2
POWER ENGINEER	8	0
EQUIPMENT ENGINEER	12	6
EQUIPMENT INSTALLATION PROJECT MGR	10	3
OPERATIONS GROUP	6	1
APPLICATION FEE (ADMINISTRATION)	10	8
SECURITY ESCORTS	AS REQUIRED	AS REQUIRED
TOTAL ILEC MANPOWER	**66**	**20**

NOTES:

1) ILEC ACTIVITIES SHOULD NOT INCLUDE COORDINATION OF DEMAND PROJECTS COVERED UNDER RECURRING CHARGE IN COST MODEL (EG. –48V POWER PLANT EXPANSIONS).
2) APPLICATION FEE TO COVER MARKETING CONTACT GROUP AND VARIOUS ADMINISTRATIVE AND BILLING ACTIVITIES.

The proposed manpower requirements assume the same minimum requirements as those listed for the physical model layout contained in Section 1. For example, ILEC staff is assumed to be fully trained and competent, and the ILEC will only be reimbursed for time spent implementing functions associated with virtual collocation elements covered by a non-recurring charge.

The manpower requirements shown in Chart 9 provide an accurate assessment of the planning time required to efficiently implement a CLEC virtual collocation request in a best practice competitive environment. The intervals are included as a specific component to plan and implement a CLEC virtual collocation request so that the ILEC cannot arbitrarily establish undefined charges using an "individual case basis" for time and materials, which can easily be manipulated on a case by case basis.

An assessment of internal ILEC functions and intervals required to implement a CLEC virtual collocation request, assuming optimum efficiency, best practice processes, and a competitive environment, indicates that the maximum interval from the time a CLEC applies for virtual collocation in an ILEC central office until the project is ready for installation work to commence is 22 working/business days.

8. OPERATIONAL ISSUES

8.1 MAINTENANCE ACTIVITY

The CLEC will be responsible for directing all maintenance activities associated with the virtual collocation equipment. This includes system surveillance, direction of repair activity, requests to the ILEC for maintenance activity/assistance. The ILEC is responsible for hardware functions such as circuit pack replacement and changing fuses. Work will be performed by the ILEC upon the request of the CLEC, and will be reimbursed using the labor rate for the appropriate qualified technician.

8.2 SECURITY ESCORTS

CLEC personnel will not normally be required to visit the virtually collocated equipment for day-to-day operations. There may be instances, however, when it is necessary for CLEC engineering and/or maintenance personnel to visit the ILEC central office. Because virtual installations will be in existing ILEC equipment areas it is reasonable to expect that an ILEC escort be in attendance for the entire time.

8.3 RESPONSE TIMES AND CHARGING INCREMENTS

Response time is defined as the total elapsed interval between the time of a CLEC request for an appropriately qualified technician at a particular central office until the technician arrives and makes contact with the CLEC. The response times listed in Chart 10 apply to both maintenance and security escort requests. Chart 11 depicts the method proposed to assess CLECs for time charged by ILEC technicians.

CHART 10	
MAINTENANCE AND ESCORT RESPONSE TIMES	
CENTRAL OFFICE TYPE	**RESPONSE TIME**
Staffed and Attended	1 hour
Staffed and Unattended	4 hours
Not staffed and NBD	2 hours
Not staffed and non-NBD	4 hours
Definitions: **Staffed**-technicians are scheduled to work in the location. **Attended-**hours during which technicians are required to be at the CO. **NBD (Normal Business Day)-**usually Monday to Friday, 0800h to 1700h.	

CHART 11		
MAINTENANCE AND ESCORT CHARGING INCREMENTS		
CENTRAL OFFICE TYPE	**INITIAL CHARGE**	**SUBSEQUENT CHARGE**
Staffed and Attended	¼ hour	¼ hour
Staffed and Unattended	4 hours	¼ hour
Not staffed and NBD	¼ hour	¼ hour
Not staffed and non-NBD	4 hours	¼ hour

NOTE: It is essential that the ILEC provide the CLEC with a detailed explanation as to the actual attended hours of any manned CO as part of the collocation agreement.

8.4 CIRCUIT PACKS

A flat rate of one hour will be reimbursed to the ILEC for time spent packing and shipping defective circuit packs or time spent receiving and unpacking repaired circuit packs.

8.5 TRAINING OF ILEC TECHNICIANS

If a CLEC's virtual equipment is not already deployed in a central office, it is reasonable to expect the CLEC to train ILEC technicians on the use and maintenance of the CLEC's collocated equipment. The CLEC will reimburse the ILEC for costs associated with the initial training of a maximum of two technicians when the virtually installed equipment does not already exist in the central office. Rather than a complete product maintenance course, however, the training provided need only be an introductory course consisting of a product overview, hardware configurations, and hardware change procedures. The ILEC technicians being trained are assumed to be familiar with general precautions and procedures for maintenance of central office equipment. Any subsequent training of ILEC staff due to staff turnover, transfers, etc. is the responsibility of the ILEC since otherwise the ILEC would have the incentive to continually change staffing for collocation space maintenance.

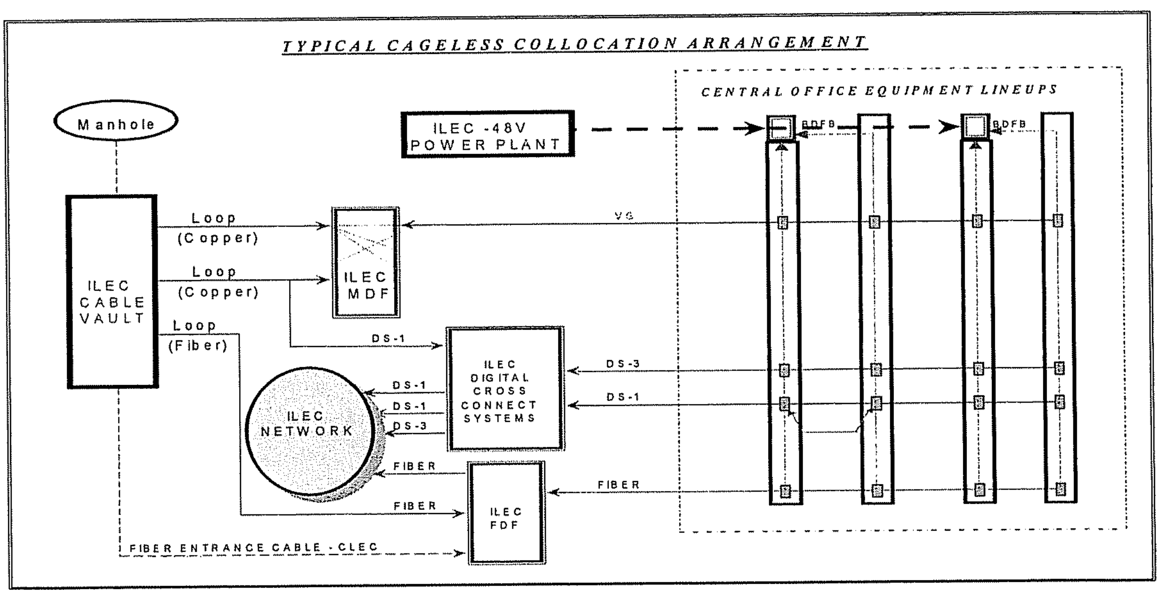
Section 3: Alternative Forms of Collocation

1. CAGELESS COLLOCATION

1.1 DEFINITION AND NEED FOR COLLOCATION FORM

Much like Virtual Collocation, Cageless Collocation involves the placement of the CLEC's equipment within the ILEC equipment lineups without using a segregated area of the central office. The only difference between Cageless Collocation and Virtual Collocation is that a cageless collocator retains ownership of the collocated equipment. Three ramifications result from this change in ownership. First, the CLEC becomes responsible for the physical maintenance of the equipment rather than having the ILEC technicians perform the work as in the case of Virtual Collocation. Second, because the ILEC will not be performing any maintenance on the virtually collocated equipment, there will be no need for ILEC personnel to be trained in maintaining the CLEC's equipment. And third, a security escort may be required where electronic card access is not available.

The diagram below, which is precisely the same diagram as used for Virtual Collocation, outlines the key components associated with Cageless Collocation.



Cageless Collocation will be important form of collocation for CLECs requiring little in the way of telecommunications space or those wanting to introduce new technology into the marketplace. Specifically, Digital Subscriber Loop (DSL) technology is one that would be ideally suited to a Cageless Collocation arrangement. First, this technology does not require much floor space, only requiring approximately two relay racks for a configuration that can serve a substantial number of customers. And second, being that this technology is new, the ILEC would most certainly need to be trained on the equipment. The cost of this training could be formidable in the face of deploying a new technology.

1.2 UNIQUE ATTRIBUTES

As has already been stated, Cageless Collocation is almost identical to Virtual Collocation except in three respects. First, ownership of the equipment will remain with the CLEC. In Virtual Collocation, the equipment is transferred to the ILEC for a nominal sum (normally $1.00). However, in Cageless Collocation the equipment will remain in the ownership and control of the CLEC. Second, since the equipment will remain in the control of the CLEC, there will be no need to train the ILEC personnel in the maintenance of the equipment. Third, the CLEC will be responsible to perform the on-site maintenance of the equipment that is place in a Cageless Collocation arrangement. In this respect, Cageless Collocation is like Physical Collocation -- the CLEC is directly responsible for all on-site maintenance activity.

From a cost perspective, there is no difference between Cageless Collocation and Virtual Collocation. Although there is a separate output sheet for Cageless Collocation than for Virtual Collocation in the Collocation Cost Model, there are no differences in the costs that have been developed for the two options. Effectively, the difference in these two options is one of terms and conditions, not cost. As such, the information provided in Section 2 as to the development of costs for Virtual Collocation applies for Cageless Collocation with the exceptions as outlined above.

2. COMMON COLLOCATION

2.1 DEFINITION AND NEED FOR COLLOCATION FORM

Common Collocation is similar to Physical Collocation in that a CLEC's equipment is placed in a segregated area of the central office. In this form of collocation, however, the equipment of multiple collocators may be placed in the same segregated area. The principle difference between this form of collocation and Physical Collocation is that the internal cage partitions are eliminated.

There are many different reasons why Common Collocation is an important collocation alternative that should be made available to CLECs. First, like Cageless Collocation, many CLECs may have collocation requirements that do not demand much space. Common Collocation, like Cageless Collocation, provides the CLEC an opportunity to collocate in the ILEC's central office without reserving space that the CLEC may never need. Second, Common Collocation has a significant advantage over Physical Collocation in that it permits a more efficient use of the telecommunications space. Specifically, the internal walls within the collocation area that divide it into 100 square foot areas reduce the number of relay racks that can be installed. The walls themselves take up space and break the equipment lineups into short and less efficient sections. If an ILEC begins to near the point of space exhaustion within its central office, the ILEC may need to explore providing a portion of its central office that is reserved specifically for Common Collocation so as not to eliminate collocation within its central office from consideration.

2.2 UNIQUE ATTRIBUTES

Common Collocation has three unique attributes making its cost development and recovery different from that of Physical Collocation.

1. There are no internal cage partitions within the Common Collocation area.
2. Rather than recovering the investment associated with the Common Collocation area through a per square foot element, the cost is recovered through per linear foot basis.
3. The placement of cabinetized relay racks has been assumed in developing the per linear foot costs for Common Collocation.

Each of these unique attributes will be discussed in more detail below.

CAGE PARTIONING

The dimensions of the Common Collocation Area are precisely the same as that for Physical Collocation: 27.5 feet by 20 feet. However, in Physical Collocation 60 feet of additional cage partitioning material are required to provide the four separate 100 square foot cages that will not be required for Common Collocation. Further, there are five gates included in the cage partitioning costs for Physical Collocation. In Common Collocation only one gate is required.[16] The net effect of these assumptions for Common Collocation is that the Cage Partitioning investment is based on 95 linear feet of material (the perimeter of the Common Collocation Cage) rather than 155 linear feet for Physical Collocation. And second, the partitioning investment only includes the capital for one gate. This change is reflected in a lower per foot price for the partitioning material.

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16 In Physical Collocation there was one gate included for each of the four separate 100 square foot collocation areas. In Common Collocation, the four additional gates will not be required.

LINEAR FOOT VERSUS SQUARE FOOT COST RECOVERY

In Physical Collocation, the investments associated with Land and Building and the collocation area are recovered on a square foot basis. This is appropriate in that the costs can be easily tracked or allocated back to one of the 100 square foot areas that the collocation area is divided into. However, there are no walls in Common Collocation. Therefore, there is not straightforward means to utilize *area* as an appropriate cost recovery metric. Instead, all of the costs associated with the cage preparation and Land and Building investment are allocated across the number of linear feet of relay racks that can be placed within the Common Collocation area. Further, the possibility exists that all of the relay rack space within the Common Collocation area may not be "rented" from the ILEC at any given point in time. To account for this possibility, these costs are increased by an occupancy fill factor to adjust for the potential unused area within the Common Collocation layout. This fill factor mitigates the risk the ILEC bears from not having all of the space rented at any given time within the Common Collocation area.

CABINETIZED RELAY RACKS

Telecommunications equipment can be "packaged" in cabinetized relay racks or in standard relays racks where the telecommunications equipment is exposed. The later form is the normal application used within central offices. However, since there could be numerous CLECs within the same Common Collocation area, the costs for Common Collocation have been derived assuming that cabinetized relay racks are installed in the collocation area by the CLECs. The impact on the cost study for Common Collocation comes from the difference in depth between these two types of relay racks. Cabinetized relay racks have a depth of 24 inches, whereas standard relay racks (exposed) have a depth of 12 inches. Because of the greater depth of the cabinetized relay rack, four rows of cabinetized relay racks (one fewer row of relay racks than if standard relay racks were used) can fit within the 27.5 foot by 20 foot Common Collocation area.[17]

Once the number of rows was determined, the next step was to determine the number of linear feet that could feet within the Common Collocation area. Again, assuming cabinetized relay racks, the experts used a width for the relay rack of 26.5 inches. Further, the experts provided four feet of space on one end of the Common Collocation area (the side with the gate) and 1'-5" on the other. Given these dimensions, 10 cabinetized relay racks fit in each of the four rows.

Finally, one relay rack was removed to allow space for a BDFB. The net result is that 39 cabinetized relay racks fit within the Common Collocation area. Using the 26.5-inch width noted previously, this yields a total of 86.125 linear feet of relay rack space within the Common Collocation area. It is this quantity of linear feet within the Common Collocation area, grossed up for an occupancy factor, that is used to derive the costs per linear foot of relay rack space ordered by the CLEC.

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17 The following assumptions come into play when determining the number of relay rack rows that can fit within the Common Collocation area. First, the rows of relay racks were distributed along the 20-foot side of the Common Collocation area. Second, the cabinetized relay rack is two feet in depth. Third, the aisle width between front-sides of the relay racks is three feet. Fourth, the aisle width between the back-sides of the relay racks is two feet. Effectively, this requires 4.5 feet of depth per each row of relay racks that are installed ((2 + 3) / 2 + 2). Dividing 20 feet by 4.5 feet yields that the maximum number of relay rack rows that can fit within the Common Collocation area using cabinetized relay racks is four (20 / 4.5 rounded down to a whole number). By way of comparison, standard (exposed) relays racks would require 3.5 feet ((2 + 3) / 2 + 1) of depth per each row of relay racks. As such, five rows (20 / 3.5 rounded down to a whole number) of relays racks would fit along the 20 foot side of the Common Collocation area if this type of relay racks were used.

3. ADJACENT PHYSICAL COLLOCATION – ON-SITE

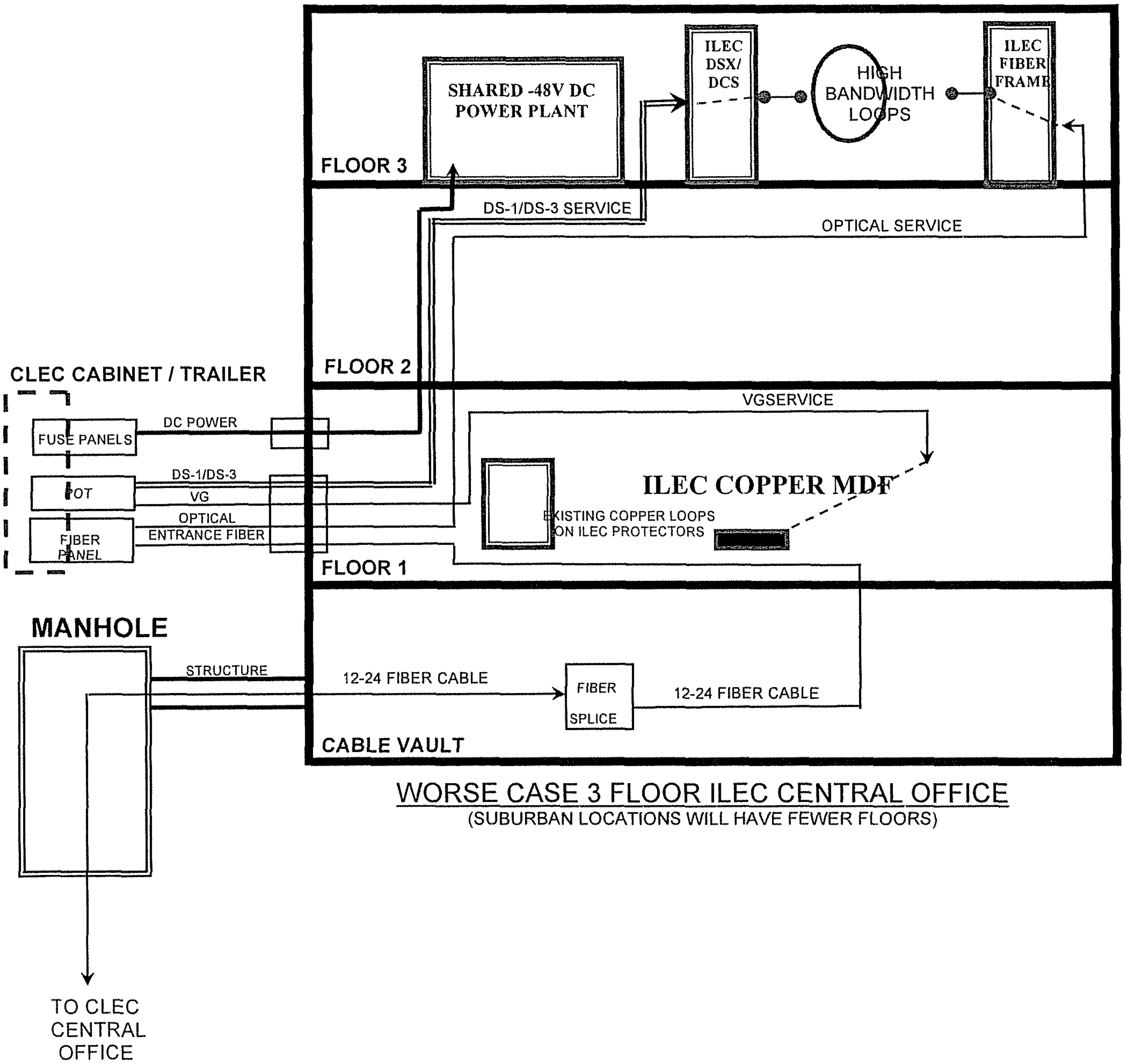
3.1 DEFINITION AND NEED FOR COLLOCATION FORM

The Adjacent Physical Collocation – On-Site alternative assumes that the placement of additional telecommunications equipment via collocation will occur through CLECs placing telecommunications equipment in a walk-in cabinet (WIC), hut, trailer, or similar environmentally protected structure near the ILEC central office. The critical point here is that this option is being developed to provide a means to collocate near the CLEC's central office in a form other than using space inside the central office.

The WIC is placed within four feet of the outside wall of the central office. Two holes in the central office are used to route cables to the WIC, one for power and the other for fiber and copper, which are carried in separate cable racks. The CLECs draw power from the central office. However, fusing is self-provided in the WIC. Thus, in contrast to the physical collocation model, the BDFB is replaced by self-provided CLEC equipment, and the power distribution element (from the BDFB to the collocator's equipment) is relaced by self-provided cabling.

The diagram below generally defines the relationship between the Adjacent Physical Collocation – On-Site arrangement and the key ILEC connectivity points.

CONNECTIVITY FOR ADJACENT ON-SITE COLLOCATION



WORSE CASE 3 FLOOR ILEC CENTRAL OFFICE
(SUBURBAN LOCATIONS WILL HAVE FEWER FLOORS)

3.2 UNIQUE ATTRIBUTES

Several items in the Physical Collocation Model required modification to implement the Adjacent Physical Collocation – On-Site alternative. However, although many input values changed between these two scenarios, the on-site alternative still heavily relied on the Model Central Office defined in Section 1 of this White Paper. The following is a list of the elements that were modified for Adjacent Physical Collocation – On-Site:

1. Cabling Distances
2. Planning
3. Land and Building
4. Power Delivery

CABLING DISTANCES

Of the changes necessary to implement Adjacent Physical Collocation – On-Site, the most substantial was in developing the distances associated with this collocation option. In determining the cable lengths, the experts had to assume a range of positions in which the telecommunications trailer outside of the ILEC central office could be placed. Specifically, the experts determined that the outside wall of the telecommunications trailer would be within four feet of the outside wall of the ILEC central office. Second, the experts determined that the telecommunications area within the ILEC central office would have common walls with the exterior walls of the ILEC central office on two sides of the building. On the other two sides of the ILEC central office, it was assumed that there would be "administrative" areas between the exterior wall of the ILEC central office and the nearest exterior wall of the telecommunications. As such four scenarios for cable lengths were developed: (1) Adjacent to Telecommunications Space – Best Case; (2) Adjacent to Telecommunications Space – Worst Case; (3) Adjacent to Administrative Space – Best Case; and (4) Adjacent to Administrative Space – Worst Case.

The length calculations for these four scenarios are identified below:

Adjacent to Telecommunications Space – Best Case

Cable Section	Length in Feet
Length on One Floor	20
Width on One Floor	20
Vertical Climb Inside First Floor	10
Length between Hut and ILEC Central Office	6
Distance within the Hut	10
Drops on Each End	15
Total Cable Length	**81**
Total ILEC Rack Length	**56**

Adjacent to Telecommunications Space – Worst Case

Cable Section	Length in Feet
Length on One Floor	120
Width on One Floor	100
Vertical Climb Inside First Floor	10
Vertical Climb to Third Floor	40
Length between Hut and ILEC Central Office	6
Distance within the Hut	10
Drops on Each End	15
Total Cable Length	**301**
Total ILEC Rack Length	**276**

Adjacent to Administrative Space – Best Case

Cable Section	Length in Feet
Length on One Floor	20
Width on One Floor	20
Distance within Administrative Area	40
Vertical Climb Inside First Floor	10
Length between Hut and ILEC Central Office	6
Distance within the Hut	10
Drops on Each End	15
Total Cable Length	**121**
Total ILEC Premium Rack Length	**50**
Total ILEC Non-Premium Rack Length	**46**

Adjacent to Administrative Space – Worst Case

Cable Section	Length in Feet
Length on One Floor	120
Width on One Floor	100
Distance within Administrative Area	40
Vertical Climb Inside First Floor	10
Vertical Climb to Third Floor	40
Length between Hut and ILEC Central Office	6
Distance within the Hut	10
Drops on Each End	15
Total Cable Length	**341**
Total ILEC Premium Rack Length	**50**
Total ILEC Non-Premium Rack Length	**266**

The experts next assigned weightings to each of these scenarios. The experts determined that there was a 50 percent probability of being placed adjacent to the telecommunications area. Further, within these scenarios, there was an even probability of being placed anywhere within the best and worst case within the ILEC telecommunications space. The net effect was that these four scenarios were each weighted at 25 percent to develop the overall calculations. The net result was that power, fiber, DS1, and DS3 connectivity had a cabling length of 211 feet, ILEC premium racking length of 25 feet, and ILEC non-premium racking length of 161 feet. Voice grade connectivity is 20 feet less than the cabling length for power, fiber, DS1, and DS3 connectivity in that the MDF is always on the first floor. Therefore, the average 20 foot distance included to traverse floors for the power, fiber, DS1, and DS3 connectivity is not necessary for the voice grade connectivity. The net result was the voice grade connectivity had a cabling length of 191 feet, ILEC premium racking length of 25 feet, and ILEC non-premium racking length of 141 feet.

The reference to premium racking in these calculations applies whenever cable rack is installed within administrative areas. Specifically, the engineering and installation components of the total investment in premium cable rack are increased by 20 percent over non-premium cable rack to account for the more difficult environment in which the rack is being installed.

PLANNING

Similarly to Physical Collocation and Virtual Collocation, planning and implementation of a collocation area adjacent to the ILEC central office requires manpower effort on the part of the ILEC. To ensure fair and reasonable compensation for ILEC manpower, the central office model layout incorporates a planning component outlining the expected ILEC manpower requirements to implement a CLEC collocation request using best practice processes in a competitive environment. As shown in the chart below, the ILEC resource requirements have been separated into manpower required to establish the initial collocation area and manpower requirements to implement each CLEC request. The first CLEC request includes both requirements.

ADJACENT ON SITE COLLOCATION ILEC MANPOWER REQUIREMENTS							
FUNCTION	***Overall Colo Area or Per CLEC Request (6, 7)***	***Labor Rate***	***Unit***	***Hours to Plan Specified Collocation Area***	***Investment for Element Per CLEC***	***Used By***	***Notes***
Outside Plant Access Design	Per CLEC Request	$55.03	per Hr	6	$330.18	1 CLEC	
	Subsequent Cabling	$55.03	per Hr	0	$0.00	1 CLEC	
Building Planning	Per CLEC Request	$55.03	per Hr	8	$440.24	1 CLEC	
	Subsequent Cabling	$55.03	per Hr	0	$0.00	1 CLEC	
MDF Planning	Per CLEC Request	$55.03	per Hr	4	$220.12	1 CLEC	
	Subsequent Cabling	$55.03	per Hr	2	$110.06	1 CLEC	
Real Estate Project Management	Per CLEC Request	$55.03	per Hr	6	$330.18	1 CLEC	
	Subsequent Cabling	$55.03	per Hr	0	$0.00	1 CLEC	
Real Estate Construction Manager	Per CLEC Request	$55.03	per Hr	10	$550.30	1 CLEC	
	Subsequent Cabling	$55.03	per Hr	0	$0.00	1 CLEC	
Architectural	Per CLEC Request	$55.03	per Hr	24	$1,320.72	1 CLEC	1
	Subsequent Cabling	$55.03	per Hr	0	$0.00	1 CLEC	
Power Engineer	Per CLEC Request	$55.03	per Hr	6	$330.18	1 CLEC	2
	Subsequent Cabling	$55.03	per Hr	0	$0.00	1 CLEC	
Equipment Engineer	Per CLEC Request	$55.03	per Hr	4	$220.12	1 CLEC	3
	Subsequent Cabling	$55.03	per Hr	3	$165.09	1 CLEC	
Equipment Installation Project Manager	Per CLEC Request	$55.03	per Hr	8	$440.24	1 CLEC	4
	Subsequent Cabling	$55.03	per Hr	4	$220.12	1 CLEC	
Operations Group	Per CLEC Request	$55.03	per Hr	4	$220.12	1 CLEC	
	Subsequent Cabling	$55.03	per Hr	1	$55.03	1 CLEC	
Application Fee	Per CLEC Request	$55.03	per Hr	10	$550.30	1 CLEC	5
	Subsequent Cabling	$55.03	per Hr	8	$440.24	1 CLEC	

NOTES

1. Assumes in-house architect with no external charges for architects.
2. Distribution only. (BDFB to DC Panel); -48V DC Power assessments are demand functions covered under power consumption.
3. Should not include cable and cable racking for demand activity.
4. Should not include coordination of growth projects.
5. Application fee to cover activities of various ILEC administrative groups (customer service, billing, etc.).
6. Assumes that the first CLEC coincides with the planning of initial collocation area.
7. If subsequent cabling job is for additional power – Equipment Engineer allocation is transferred to Power Engineer.

LAND AND BUILDING

Given that the telecommunications trailer exists outside of the ILEC central office, there is no reason to incorporate any building investment in this cost category. However, the CLEC will utilize space adjacent to the central office to place the telecommunications trailer. To evaluate the appropriate cost for this space, the experts determined that the cost of this space could be approximated by identifying a market rate for parking, determining the area of the parking space, and incorporating this per foot cost into the model for ILEC land rental. It is possible that the space the CLEC would place its telecommunications trailer would be unimproved. However, to be conservative, an improved cost (parking space) is included in the model for the development of this cost element. The details supporting this calculation can be found in the back-up documentation for the model.

POWER DELIVERY

Three key components changed in the calculation of Power Delivery for Adjacent Physical Collocation – On-Site as compared to Physical Collocation: (1) the length of the cable and (2) the quantity of DC power being requested; and (3) the size of the cable. The first of these issues has been previously discussed. The principle change with regards to the quantity of DC power is that power is now being delivered to the CLEC's *own* BDFB so that the CLEC can individually deliver DC power to the equipment that requires it. BDFBs come in different sizes. However, the approach that the team of experts took was that the CLEC's would use BDFBs with DC power requirements of 2-

100 Amp feeds, 2-200 amp feeds, 2-300 amp feeds, or 2-400 amps fees. Finally, once the length of cable is determined and the power requirement established, then the diameter and quantity of cables can be developed.

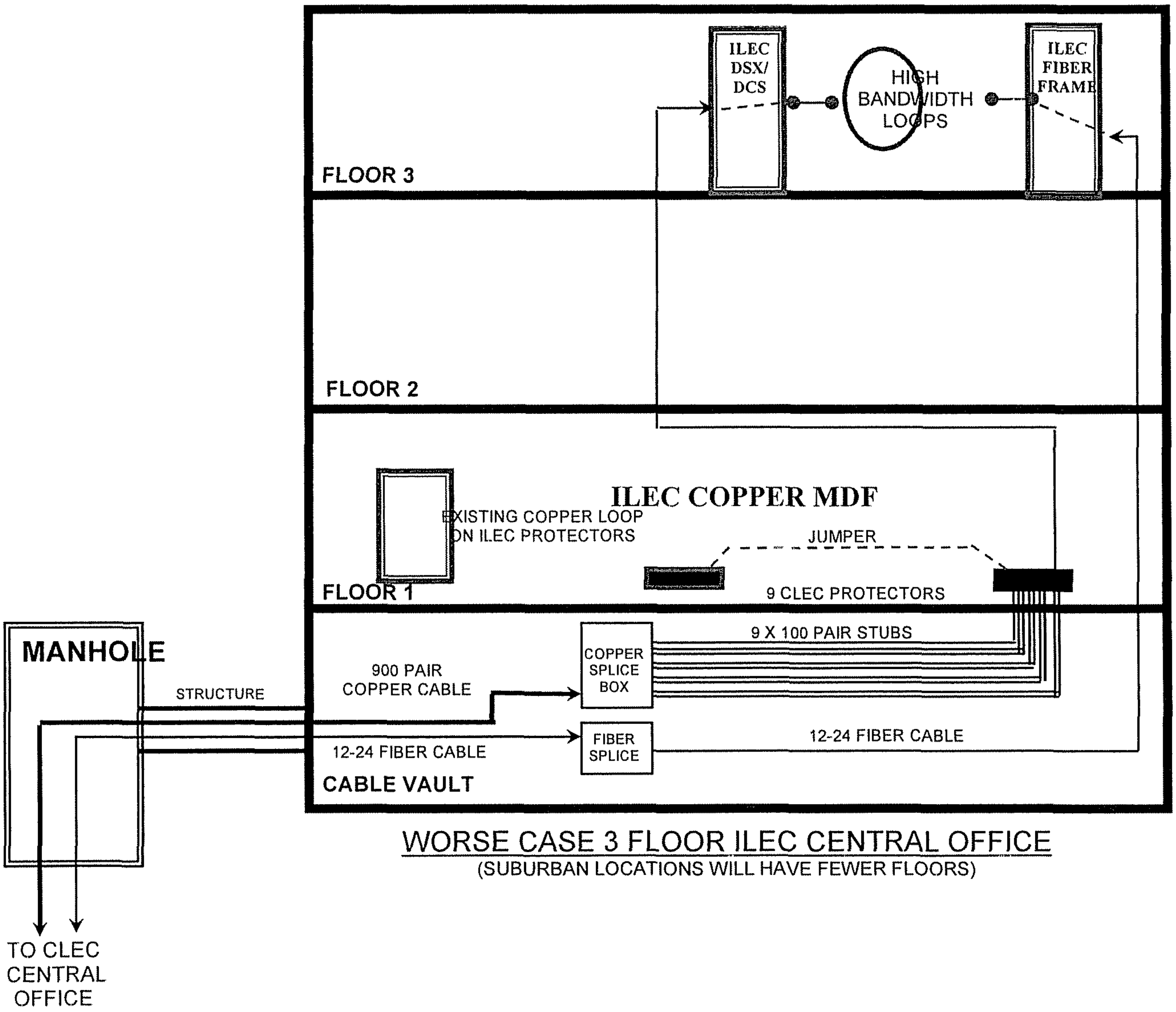
4. ADJACENT PHYSICAL COLLOCATION – OFF-SITE

4.1 DEFINITION AND NEED FOR COLLOCATION FORM

The Adjacent Physical Collocation – Off-Site arrangement occurs when the CLEC's telecommunications equipment is not located on the central office property. In this form of collocation, the CLEC arranges its own rights-of-way, etc. and provides cabling at the nearest manhole to the central office with enough slack to be pulled into the central office cable vault. All components except connectivity are self-provided.

The diagram below generally defines the relationship between the Adjacent Physical Collocation – Off-Site arrangement and the key ILEC connectivity points.

CONNECTIVITY FOR ADJACENT OFF-SITE COLLOCATION



WORSE CASE 3 FLOOR ILEC CENTRAL OFFICE
(SUBURBAN LOCATIONS WILL HAVE FEWER FLOORS)

3.2 UNIQUE ATTRIBUTES

Several items in the Physical Collocation Model required modification to implement the Adjacent Physical Collocation – Off-Site alternative. The following is a list of the elements that were modified for Adjacent Physical Collocation – Off-Site:

1. Cabling Distances
2. Planning

CABLING DISTANCES

In developing the costs for Adjacent Physical Collocation – Off-Site, there is one cost category for connectivity cabling that does not occur in this alternative that occurred in all others: DS3 Cabling. Effectively, because of the potential distances that can be involved to model a circuit to an off-site location, and the high costs of providing a DS3 over copper facilities over a long distance, the decision was to remove DS3 connectivity as a connectivity option. However, DS3 circuits can still be delivered via fiber connectivity between the CLEC and ILEC.

What remains are two types of entrance facilities: copper and fiber. In developing the costs for copper entrance facilities, the experts assumed that a 900 pair cable would be brought into the vault through the manhole. Further, it was assumed that the terminations that would available on the MDF would drop down into the cable vault at the far end of the room. In other words, the calculation for the voice grade connectivity cost assumes a worst case cost associated with going to the far end of the cable vault. In developing the costs for fiber facilities, the experts assumed that the fiber cable would come into the splice point in the cable vault and be able to go up a riser rack at that point. The splice point inside the vault is assumed to be 50 feet inside the vault wall (looking towards the manhole). The details for these distance calculation can be found in the back-up documentation.

PLANNING

Similarly to Physical Collocation and Virtual Collocation, planning and implementation of a collocation area adjacent to the ILEC central office requires manpower effort on the part of the ILEC. To ensure fair and reasonable compensation for ILEC manpower, the central office model layout incorporates a planning component outlining the expected ILEC manpower requirements to implement a CLEC collocation request using best practice processes in a competitive environment. As shown in the chart below, the ILEC resource requirements have been separated into manpower required to establish the initial collocation area and manpower requirements to implement each CLEC request. The first CLEC request includes both requirements.

ADJACENT OFF SITE COLLOCATION ILEC MANPOWER REQUIREMENTS							
FUNCTION	***Per CLEC Request (4)***	***Labor Rate***	***Unit***	***Hours to Plan Specified Collocation Area***	***Investment for Element Per CLEC***	***Used By***	***Notes***
Outside Plant Access Design	Per CLEC Request	$55.03	per Hr	8	$440.24	1 CLEC	
Building Planning	Per CLEC Request	$55.03	per Hr	0	$0.00	1 CLEC	
MDF Planning	Per CLEC Request	$55.03	per Hr	4	$220.12	1 CLEC	
Real Estate Project Management	Per CLEC Request	$55.03	per Hr	0	$0.00	1 CLEC	
Real Estate Construction Manager	Per CLEC Request	$55.03	per Hr	0	$0.00	1 CLEC	
Architectural	Per CLEC Request	$55.03	per Hr	0	$0.00	1 CLEC	
Power Engineer	Per CLEC Request	$55.03	per Hr	0	$0.00	1 CLEC	
Equipment Engineer	Per CLEC Request	$55.03	per Hr	2	$110.06	1 CLEC	1
Equipment Installation Project Manager	Per CLEC Request	$55.03	Per Hr	2	$110.06	1 CLEC	2
Operations Group	Per CLEC Request	$55.03	per Hr	2	$110.06	1 CLEC	
Application Fee	Per CLEC Request	$55.03	per Hr	10	$550.30	1 CLEC	3

NOTES

1. Should not include cable and cable racking for demand activity.
2. Should not include coordination of growth projects.
3. Application fee to cover activities of various administrative groups (customer service, billing, etc.).
4. Each installation requires the same number of hours.

EXHIBIT SET-5
COLLOCATION COST MODEL
AND OTHER SUPPORTING WORK PAPERS

CONFIDENTIAL AND PROPRIETARY

TRANSMITTED VIA E-MAIL TO THE PARTIES TO
CASE NO. 2006-00316

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

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PUBLIC SERVICE COMMISSION

In the Matter of:	)	
	)	
PETITION OF SOUTHEAST TELEPHONE,	)	
INC., FOR ARBITRATION OF CERTAIN	)	**Case No. 2006-00316**
TERMS AND CONDITIONS OF PROPOSED	)	**Filed November 3, 2006**
AGREEMENT WITH BELLSOUTH	)	
TELECOMMUNICATIONS, INC.	)	
CONCERNING INTERCONNECTION UNDER	)	
THE TELECOMMUNICATIONS ACT OF 1996	)	

TESTIMONY OF CAREY ROESEL

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND PARTY SPONSORING YOUR TESTIMONY.

A. My name is Carey Roesel. My business address is 210 N. Park Avenue, Winter Park, Florida 32789. I am employed as a consultant by Technologies Management, Inc. ("TMI"), a consulting firm that specializes in telecommunications regulation. I am testifying in this proceeding on behalf of SouthEast Telephone, Inc. ("SouthEast").

Q. PLEASE BRIEFLY OUTLINE YOUR EDUCATIONAL BACKGROUND AND RELATED EXPERIENCE.

A. Since 1996 I have been a consultant working with competitive telecommunications companies. In that capacity I have provided assistance in market planning, rate research, certification, and tariffs. Prior to joining Technologies Management I worked in the local division of Sprint. I have received a Bachelor of Arts in Economics at the University of Florida and a Master of Arts in Applied Economics from the University of Central Florida.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony addresses Issue A-5 in the arbitration, which concerns the appropriate reciprocal compensation arrangement and rates to be used to compensate both SouthEast and BellSouth for their respective costs of transporting and terminating calls on one another's local networks. BellSouth seeks to impose a "bill and keep" arrangement for this purpose, whereby neither carrier would receive any compensation for terminating traffic on behalf of the other carrier. Under this approach, each carrier recovers from its own customers the costs of transporting and terminating calls that are originated by customers of the other carrier.

In contrast, SouthEast proposes that each carrier pay the other a reciprocal compensation rate for terminating traffic that reflects the cost-based switching and common transport rates approved by the Commission in Administrative Case No. 382. In my testimony, I will explain why SouthEast's proposal is more appropriate than BellSouth's bill and keep proposal, pursuant to the standards established under Section 252(d)(2) of the Telecommunications Act of 1996 ("the

Act") and Section 51.713 of the rules of the Federal Communications Commission ("FCC").

Q. PLEASE EXPLAIN IN MORE DETAIL THE DIFFERENCE BETWEEN BELLSOUTH'S PROPOSED BILL AND KEEP ARRANGEMENT AND THE RECIPROCAL COMPENSATION ARRANGEMENT PROPOSED BY SOUTHEAST.

A. Both proposals can be considered forms of "reciprocal compensation," which is a term used in the Act to describe the type of inter-carrier compensation that is required for recovering costs associated with the transport and termination of traffic between the networks of two local carriers. Specifically, within Section 252 of the Act, which establishes procedures for negotiation, arbitration and approval of interconnection agreements between incumbent local exchange carriers and competitive local exchange carriers, subsection (d)(2) states as follows:

(2) Charges for Transport and Termination of Traffic

(A) In General. – For the purposes of compliance by an incumbent local exchange carrier with section 251(b)(5), a State commission shall not consider the terms and conditions for reciprocal compensation to be just and reasonable unless—

(i) such terms and conditions provide for the mutual and reciprocal recovery by each carrier of costs associated with the transport and termination on each carrier's network facilities of calls that originate on the network facilities of the other carrier; and

(ii) such terms and conditions determine such costs on the basis of a reasonable approximation of the additional costs of terminating such calls.

Therefore, pursuant to the requirements of the Act, interconnection agreements between ILECs and CLECs typically include terms and conditions related to compensation for traffic that each carrier originates on its network and terminates to the other carrier's network. The compensation is to be "reciprocal," meaning that it is the same in either direction, and it should enable each carrier to recover the costs of transporting and terminating calls for the other carrier, which would generally include costs associated with transport and switching.

"Bill and keep" is a form of reciprocal compensation whereby each carrier charges the other carrier a zero rate for terminating traffic—in other words, no monetary transaction takes place between the two carriers. Under this type of reciprocal compensation scheme (and ignoring long distance access charges), each carrier recovers the costs of its local network entirely from its own customers, even though the other carrier is also using the network to terminate traffic originated by its customers and therefore benefits from and imposes costs on the network.

In contrast, under a reciprocal compensation arrangement that includes rates, the originating carrier pays the terminating carrier a rate for the terminating traffic, in order to allow the terminating carrier to recoup its network costs associated with transporting and terminating that traffic.

Q. DO BOTH OF THESE COMPENSATION METHODS SATISFY THE REQUIRMENTS OF THE ACT?

A. They can, but the answer depends upon the balance of traffic that is exchanged between the two carriers. If the traffic exchanged is exactly equal, then there is effectively no difference between a bill and keep arrangement and a reciprocal compensation arrangement that includes non-zero rates. Under the bill and keep arrangement, no money would be exchanged, while under the reciprocal compensation arrangement with rates, the money exchanged between the carriers would be exactly equal, thereby netting to zero. Consequently, ignoring transaction costs, carriers who expect to exchange roughly equivalent amounts of local traffic over the term of an interconnection agreement should be ambivalent to whether a bill and keep or rate-based reciprocal compensation scheme is used. When transaction costs are considered, the bill and keep arrangement would actually be preferable since it would allow the carriers to avoid those costs.

However, if the traffic is not balanced and one carrier terminates substantially more traffic that originates from the other carrier, the two compensation approaches yield different outcomes. Under the bill and keep approach, the carriers still exchange no money, but the carrier that terminates substantially more traffic that originates from the other carrier receives no compensation for performing that service. By contrast, under a rate-based reciprocal compensation arrangement, the carrier who terminates the larger amount of traffic for the other carrier would be a net recipient of the reciprocal compensation payments. This result is appropriate, because it compensates the carrier who is terminating the larger volume of traffic for the added costs imposed on his network by that traffic. For instance, additional transport facilities and more capacity would be needed in order to accommodate more terminating traffic. Under the Act, carriers are to be compensated for these additional costs.

Q. DO THE FCC RULES ADDRESS THE USE OF A BILL AND KEEP ARRANGEMENT FOR RECIPROCAL COMPENSATION?

A. Yes. 47 C.F.R. Sec. 51.713 allows a state commission to impose bill and keep arrangements "if the state commission determines that the amount of telecommunications traffic from one network to the other is roughly balanced with the amount of telecommunications traffic flowing in the opposite direction, and is expected to remain so..." By inference, this rule suggests that if the traffic is imbalanced, a state commission cannot impose a bill and keep arrangement.

Q. WHICH OF THESE COMPENSATION METHODS HAS BEEN USED TO DATE BETWEEN SOUTHEAST AND BELLSOUTH?

A. The existing interconnection agreement between BellSouth and SouthEast calls for a reciprocal compensation arrangement with rates, not a bill and keep approach.

Q. WHY IS THE CONTINUATION OF THIS TYPE OF RECIPROCAL COMPENSATION ARRANGEMENT APPROPRIATE?

A. The traffic exchanged between BellSouth and SouthEast is not in balance and SouthEast expects the imbalance to persist over at least the period of time that the new interconnection agreement will be in place. Specifically, SouthEast terminates far more traffic that is originated on BellSouth's network than BellSouth terminates for SouthEast. Consequently, SouthEast incurs significantly higher net costs than BellSouth for the traffic that is exchanged between the two companies. A bill and keep arrangement, as proposed by BellSouth, will not appropriately compensate SouthEast for its transport and termination costs, and would be inconsistent with the requirements of the Act. It is therefore necessary to use a reciprocal compensation arrangement that includes cost-based rates for terminating traffic.

Q. ISN'T THE TRAFFIC IMBALANCE BETWEEN SOUTHEAST AND BELLSOUTH DUE TO THE LARGE VOLUME OF ISP TRAFFIC THAT BELLSOUTH CUSTOMERS TERMINATE TO INTERNET SERVICE PROVIDERS ("ISP'S") SERVED BY SOUTHEAST, AND SHOULDN'T THAT TRAFFIC BE TREATED DIFFERENTLY THAN OTHER TRAFFIC?

A. It is true that a portion of the BellSouth-originated traffic that is terminated over SouthEast's network is dial-up ISP traffic, although that does not represent the entire traffic imbalance. Ignoring the ISP-bound traffic, the local traffic going from BellSouth to SouthEast would exceed the traffic in the other direction.

The FCC decided in its 2001 *ISP Remand Order* that ISP-bound traffic is in a separate category from local transport and termination and is not subject to the reciprocal compensation requirements of Section 251(b)(5) of the Act. (*ISP Remand Order*, 16 FCC Rcd at 917-72.) The FCC adopted an interim compensation scheme in that order that capped the rate applicable to ISP-bound traffic at $.0007 per minute after a transitional period that has now expired. Under its "mirroring rule" in that decision, that cap was to apply only if the ILEC offered to accept that same rate for all traffic subject to reciprocal compensation, including ISP-bound traffic and local traffic. If the ILEC did not offer to accept that capped rate for all traffic, the FCC required it to exchange ISP-bound traffic at the state-approved or state-arbitrated reciprocal compensation rates. (*ISP Remand Order*, par. 89.)

The FCC concluded in that decision that there was no evidence to demonstrate a difference in the cost of terminating calls to an ISP versus voice calls to a local end user:

> Assuming the two calls have otherwise identical characteristics (*e.g.*, duration and time of day), a LEC generally will incur the same costs when delivering a call to a local end-user as it does delivering a call to an ISP. We therefore are unwilling to take any action that results in the establishment of separate intercarrier compensation rates, terms, and conditions for local voice and ISP-bound traffic. (*ISP Remand Order*, par. 90.)

It should be noted that the FCC's *ISP Remand Order* was remanded by the U.S. Court of Appeals in 2002, based on the underlying legal basis for the FCC's decision, but the Court did not vacate the Order. To date, the FCC has not issued a subsequent decision that revises the interim compensation system adopted in the *ISP Remand Order*. However, in a subsequent October 2004 related decision involving a petition filed by Core Communications, Inc. for forbearance from the application of the ISP Remand Order, the FCC reiterated that they had found no basis for treating ISP traffic differently from local traffic:

> The mirroring rule was adopted based on our finding that the record lacked evidence of any material differences between the costs of delivering ISP-bound traffic and local voice traffic that would justify any differences in the treatment between the two with respect to intercarrier compensation. Because the record still lacks any such evidence, we affirm our prior conclusion that the mirroring rule is necessary to prevent disparate treatment between the two types of traffic. (*Order*, FCC 04-241, WC Docket No. 03-171, released October 18, 2004.)

Q. WHAT RECIPROCAL COMPENSATION RATES DO YOU RECOMMEND BE APPROVED IN THIS ARBITRATION?

A. In my opinion, it would be reasonable to adopt the cost-based UNE switching and common transport rates that were approved by the Commission in Administrative Case No. 382 for all terminating traffic, including local and ISP traffic. These rates are as follows:

End Office Switching	
End Office Switching Function, per MOU	$0.0011971
End Office Trunk Port – Shared, per MOU	$0.0002112
Tandem Switching	
Tandem Switching Function, per MOU	$0.000194

Tandem Trunk Port, per MOU	$0.0002416
Common Transport	
Common Transport, per Mile, per MOU	$0.000003
Common Transport, Facilities Term. per MOU	$0.0007466
Composite Rates (assuming 12 miles of transport)	$0.0026265

These rates were approved by the Commission as reasonably reflecting switching and common transport costs for BellSouth. Therefore, they clearly meet the requirement that the rates paid to BellSouth for terminating traffic cover BellSouth's transport and termination costs. On the other hand, they may somewhat understate the costs imposed on SouthEast for the transport and termination functions that it provides when it terminates BellSouth-originated traffic, due to the rural nature of SouthEast's network and the longer transport facilities that it utilizes to terminate calls. Consequently, the use of these rates may not fully compensate SouthEast for its transport and termination costs, but since the compensation rate must be the same in both directions, this rate reflects the best available alternative.

Q. WHY HAVE YOU INCLUDED TANDEM SWITCHING COSTS IN THIS RECOMMENDED COMPOSITE RATE?

A. SouthEast's local switch in Lexington, Kentucky, serves an area comparable to that served by a local tandem in BellSouth's network. Accordingly, pursuant to the FCC rules, it is appropriate to include the tandem element in the rate. 47

C.F.R Sec. 51.711(a)(3), which applies to reciprocal compensation, states: "Where the switch of a carrier other than an incumbent LEC serves a geographic area comparable to the area served by an incumbent LEC's tandem switch, the appropriate rate for the carrier other than the incumbent LEC is the incumbent LEC's tandem interconnection rate."

Q. CAN YOU EXPLAIN IN MORE DETAIL YOUR STATEMENT THAT SOUTHEAST'S LOCAL NETWORK IS MORE RURAL IN NATURE THAN BELLSOUTH'S?

A. It is my understanding that SouthEast has one local switch located in Lexington, Kentucky. This switch serves the Company's entire Kentucky local market, which includes end offices located in very rural areas. In order to terminate traffic to those areas, SouthEast must install or lease transport facilities that cover extensive distances, at significant cost. As traffic increases over those facilities, the Company likewise incurs substantial costs to augment those facilities—costs that are higher than would be incurred for shorter-length transport facilities in more densely populated areas.

SouthEast is one of relatively few CLECs around the country who have installed and leased network facilities to serve rural areas and thereby bring competitive choice to customers living in those areas. Such competition is clearly in the public interest and should not be discouraged by imposing reciprocal compensation rates that will not reasonably compensate SouthEast for its transport and termination costs.

Q. WOULD YOU SUMMARIZE YOUR TESTIMONY?

A. I recommend that the Commission reject BellSouth's proposal to impose a bill and keep compensation arrangement for the exchange of local and ISP traffic between itself and SouthEast. Instead, the Commission should approve SouthEast's proposed reciprocal compensation arrangement, using the cost-based switching and transport rates that it approved in Administrative Case No. 382.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

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COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:	)	
	)	
PETITION OF SOUTHEAST TELEPHONE,	)	
INC., FOR ARBITRATION OF CERTAIN	)	**Case No. 2006-00316**
TERMS AND CONDITIONS OF PROPOSED	)	**Filed November 3, 2006**
AGREEMENT WITH BELLSOUTH	)	
TELECOMMUNICATIONS, INC.	)	
CONCERNING INTERCONNECTION UNDER	)	
THE TELECOMMUNICATIONS ACT OF 1996	)	

TESTIMONY OF JAMES KELLER

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is James Keller. My business address is 1309 Fosse Rd, Marion, IL 62959.

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

A. I own my own telecommunications engineering consulting and construction firm. I regularly consult for SouthEast Telephone on telecommunications engineering issues.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.

I hold a Bachelor of Science degree in Electrical Engineering from University of Kentucky in Lexington, Kentucky.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I am testifying on behalf of SouthEast Telephone, Inc. ("SouthEast") and will address one issue in this testimony. I will address Issue A-9 in SouthEast's Arbitration Petition with BellSouth. Specifically, Issue A-9 raises the following question: "Must BellSouth provide data on the location and type of certain network facilities and the number of customer lines and geographic service area of such facilities?"

Q. WHAT GEOGRAPHIC INFORMATION DOES SOUTHEAST NEED FROM BELLSOUTH?

A. In cases where SouthEast seeks to serve customers using some BellSouth facilities that subtend BellSouth Remote Terminals ("RTs"), SouthEast needs BellSouth to provide data regarding the specific geographic location of the RT to which that customer's premises are connected. This is necessary so that SouthEast can arrange interconnections that physically meet that RT, or that point to that RT from other points in the public switched network.

Q. DOES SOUTHEAST CURRENTLY GET THE INFORMATION IT NEEDS FROM BELLSOUTH?

A. No. At present, SouthEast currently gets data that provides the customer's address and phone number and a Remote Terminal address that BellSouth has internally assigned. BellSouth does not provide the actual geographic location of the RT. For example, if the information f312 Cumberland rd or p277 1-2x1 us highway 421s is put into MapQuest or any mapping software, the location will come up not valid. Therefore, SouthEast Telephone must find the location by following pole routes and physically spotting the RT.

Q. WHAT PROVISIONS DOES SOUTHEAST WANT TO BE INCLUDED IN A NEW INTERCONNECTION AGREEMENT WITH BELLSOUTH?

A. SouthEast is simply requesting that BellSouth provide a physical geographic address – *i.e.*, an address in a format that could be used by 911 dispatchers – address for every RT. SouthEast further requests the ability to meet with a BellSouth Engineer to discuss locating RT's that SouthEast is unable to locate. In addition, rather than having to request data from BellSouth on a piecemeal, customer by customer basis, SouthEast needs a comprehensive data set that specifies the RTs and end offices associated with all PSTN telephone numbers and physical geographic locations (customer premises) in advance. This is critical for proactive network planning and deployment purposes.

Q. WHY SHOULD BELLSOUTH BE REQUIRED TO PROVIDE THIS INFORMATION TO SOUTHEAST?

A. SouthEast is moving to a facilities based network and is attempting to construct facilities as close as possible to customer locations. It should not have to until a customer calls in with an order to realize that the company has never constructed to that location. If this were to happen, it might take at least 6 months before SouthEast would be able to provide the customer with service.

BellSouth says that it wants CLECs to move away from relying primarily on BellSouth network facilities, and instead should build their own networks and use them as much as possible. SouthEast is trying to do just that. SouthEast plans to deploy its own facilities deep into the network and interconnect with BellSouth RTs, if not build out all the way to customer premises. However, SouthEast cannot successfully implement this strategy without the necessary data from BellSouth about RT locations and the telephone numbers and customer locations subtending each RT.

Q. HOW SHOULD BELLSOUTH PROVIDE THIS DATA, AND WHAT RATE SHOULD BELLSOUTH CHARGE?

A. SouthEast requests that BellSouth provide a CD-ROM containing the above information, updated monthly, at a rate of $75.00 per Exchange requested by SouthEast. This request is necessary because data will change as customers move into and out of the area, and as new buildings and subdivisions are constructed. It is essential that SouthEast know where every RT is located and what lines and numbers are coming off that RT.

Q. WHY DO YOU THINK A RATE OF $75.00 PER MONTH WOULD BE REASONABLE?

A. Actually BellSouth ought to provide this information at no charge. BellSouth obviously knows where its RTs and end offices are located and could provide that information with no effort at all.

In addition, BellSouth already has the information regarding which telephone numbers and geographic locations subtend each RT. SouthEast knows BellSouth has this information in its computer systems, because BellSouth can respond in real time to

SouthEast's queries on an individual, case-by-case basis about a particular customer's telephone number, street address, and associated RT.

All SouthEast is requesting is that BellSouth take the information that it already has in its computer systems and download the data for burning onto a CD-ROM disk. This process would take a negligible amount of a technician's time each month. Nonetheless, to be conservative, SouthEast estimates that a BellSouth technician might spend one-half hour of time per month, per exchange, to gather this information and download and burn it onto a CD-ROM disk. At a rate of $150.00 per hour for the technician's time, this would yield a rate of $75.00 per exchange each month.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

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TESTIMONY OF ROBIN KENDRICK

Q. PLEASE STATE YOUR NAME, ADDRESS AND EMPLOYMENT.

A. My name is Robin Kendrick, and I am employed by SouthEast Telephone, Inc. as Complex Provisioning and Repair Manager. My office is at 106 Scott Avenue, Pikeville, Kentucky 41501.

Q. PLEASE DESCRIBE YOUR BACKGROUND AND PROFESSIONAL EXPERIENCE AS THEY RELATE TO ISSUES IN THIS PROCEEDING.

A. Since 2002, I have worked in various positions within the SouthEast organization. I have been an account executive in charge of commercial sales. I have worked in the field as a service technician. Currently, I utilize my unique experience as a field technician in my day to day work as the Complex Provisioning and Repair Manager.

Q. HAVE YOU TESTIFIED IN OTHER REGULATORY PROCEEDINGS IN THE PAST?

A. No.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. I am testifying on behalf of SouthEast Telephone, Inc. on Issue No. A-8, "Dispatched/No Trouble Found" charges.

Q. WHAT ARE YOUR RESPONSIBILITIES AT SOUTHEAST TELEPHONE?

A. I follow the order and repair process to ensure that they flow smoothly. For example, when customers order new service from SouthEast and SouthEast needs to use BellSouth facilities to provision these services, SouthEast must submit installation orders into BellSouth's ordering systems. Also, when SouthEast's customers experience problems with their service and need repairs, the repairs may involve problems in BellSouth's network. In that case SouthEast must submit repair orders into BellSouth's ordering systems. SouthEast also keeps track of whether BellSouth installs or repairs the service properly and whether BellSouth technicians keep their repair appointments. We also must track whether BellSouth follows up correctly when there are further questions about repair requests and additional clarification is needed for repairs to be done.

It is my responsibility to monitor these orders to ensure that they are flowing properly through both the SouthEast and BellSouth systems. It is also part of my duties to track BellSouth missed installations, repair appointments, and I also track clarified orders. It is my job to ensure that regardless of the issue, the customer's problem is resolved in a timely and professional manner. My department also submits commercial orders, DSL and dry loop orders, as well as escalating orders with the BellSouth Local Customer Service Center.

Q. COULD YOU PLEASE EXPLAIN THE "DISPATCHED/NO TROUBLE FOUND" CHARGE AND RELATED CHARGES THAT ARE OF CONCERN TO SOUTHEAST?

A. BellSouth applies a "Dispatched/No Trouble Found" charge when SouthEast submits a repair order, BellSouth dispatches a technician to repair facilities in the BellSouth network, and no trouble is found. In some cases, BellSouth bills SouthEast a "Maintenance of Service Charge" for any dispatching and testing with regard to a trouble or repair problem that exists but that is found not to be on the BellSouth system. BellSouth also imposes a "Trouble Determination Charge" or "Trouble Location Charge" for any dispatching and testing for trouble on a resold service if no trouble is found in BellSouth's network.

Q. WHAT LIMITATIONS DOES BELLSOUTH IMPOSE IN CONNECTION WITH THESE CHARGES?

A. In some cases, a customer contacts SouthEast regarding a problem involving trouble on the line, SouthEast submits an order into BellSouth's repair system, and BellSouth dispatches a technician, and no trouble is found. If the customer is still experiencing problems with the line, the customer will contact SouthEast again, SouthEast will have to resubmit the order to BellSouth, and BellSouth will have to dispatch a technician a second time. In many cases multiple dispatches are needed before the trouble is resolved.

Q. ARE THERE ANY OTHER PROBLEMS WITH THE WAY BELLSOUTH HANDLES THESE CHARGES?

A. Yes. BellSouth sends SouthEast monthly bills that lump together these charges without itemizing when and where the particular service calls occurred for which a service call was dispatched and no trouble was found. This makes it difficult or impossible for SouthEast to verify BellSouth's charges by comparison with SouthEast's records.

Q. WHAT IS SOUTHEAST'S POSITION ON WHAT RATES, TERMS, AND CONDITIONS SHOULD APPLY TO THE PARTIES' RESPECTIVE "DISPATCHED/NO TROUBLE FOUND" CHARGES?

A. It is the opinion of SouthEast that both Parties should be allowed to reciprocally bill one another for "dispatched/no trouble found" conditions, and that language to this effect be included in the new Interconnection Agreement that is developed as a result of this arbitration proceeding. In other words, SouthEast should have the right to impose a charge upon BellSouth when BellSouth dispatches a technician, the technician fails to detect any trouble on the line, but in fact there is a problem with the line and a repeat call for repairs is needed.

SouthEast also finds BellSouth's requirement that only thirty (30) days will be allowed from the date of the original report and the reported trouble unrealistic. There have been several occasions where SouthEast would have to send BellSouth repair out on the same customer issue in time periods exceeding the thirty (30) day time limit imposed by BellSouth.

In addition, it is the position of SouthEast that, if the company is to be billed for "no trouble found" service calls performed by BellSouth on behalf of SouthEast, BellSouth should provide a monthly list of all such service calls to SouthEast. SouthEast requests that the list contain the types of elements tested, the types of tests performed, and an itemized list of the costs involved per telephone number.

Similarly, the BellSouth standard Interconnection Agreement allows BellSouth to bill SouthEast a "Maintenance of Service Charge" for any dispatching and testing that is found not to be on the BellSouth System. It is the position of SouthEast that the same option should be available to SouthEast when the problem is ultimately determined to be on the BellSouth infrastructure, and not in the SouthEast system. Furthermore, SouthEast feels that the company should be able to bill BellSouth reciprocally at the rates set forth in BellSouth's FCC No. 1 Tariff, Section 13.3.1.

Q. WHY IS SOUTHEAST CONCERNED ABOUT THESE ISSUES?

A. As a CLEC, SouthEast is dependent upon BellSouth for most customer repair issues. This is especially true for repairs/trouble determination up to the demarcation point between the BellSouth network and the facilities maintained by either SouthEast or the customer. By contrast, if a customer has inside wire maintenance for problems inside the residence, it is not as much an issue, because SouthEast can address the repair by dispatching an in-house repair technician.

SouthEast has had numerous occasions where a customer has contacted SouthEast with a problem, BellSouth is dispatched for the repair, but the problem isn't repaired on the first visit to the customer's residence. This results in a second visit to the customer's residence for the same problem. In cases such as this, SouthEast is billed twice for the same repair, but most importantly it results in loss of credibility with the customer.

Q. WHAT DOES SOUTHEAST PROPOSE THIS COMMISSION DO?

A. SouthEast respectfully requests that this Commission direct that any Interconnection Agreement agreed to by the Parties include ATT. 1, Section 5.7, and that the thirty (30) day time limit be extended to a more realistic sixty (60) day time frame for resolving "dispatched/no trouble found conditions." SouthEast further requests this Commission allow SouthEast to assess BellSouth the same charges on resold lines where the trouble is found to be on the BellSouth system.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.