ORIGINAL

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January 21, 2004

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Ms. Blanca Bayó, Director
The Commission Clerk and Administrative Services
Room 110, Easley Building
Florida Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, Florida 32399-0850

Re: Docket No. 030852-TP

Dear Ms. Bayó:

Enclosed for filing are an original and 15 copies of the Rebuttal Testimony of Jay Bradbury (Redacted) on behalf of AT&T Communications of the Southern States, LLC in the above-referenced docket.

Please acknowledge receipt of this letter by stamping the extra copy of this letter "filed" and returning to me.

Thank you for your assistance with this filing.

Sincerely yours,

Tracy W. Hatch

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CERTIFICATE OF SERVICE
DOCKET NO. 030852-TP

I HEREBY CERTIFY that a copy of the foregoing has been furnished via electronic mail or as indicated this 21st day of January, 2004 to the following parties of record:

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Tracy W. Hatch, Esq.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Implementation of requirements arising from Federal Communications Commission Triennial UNE Review: Location-Specific Review for DS1, DS3 and Dark Fiber Loops, and Route-Specific Review for DS1, DS3 and Dark Fiber Transport.	Docket No. 030852-TP

REBUTTAL TESTIMONY OF

JAY M. BRADBURY

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

JANUARY 21, 2004

PUBLIC REDACTED VERSION

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION TITLE.

A. My name is Jay M. Bradbury. My business address is 1200 Peachtree Street, Suite 8100, Atlanta, Georgia 30309. I am employed by AT&T Corp. ("AT&T") as a District Manager in the Law and Government Affairs Organization.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE IN THE TELECOMMUNICATIONS INDUSTRY.

A. I graduated with a Bachelor of Arts degree from The Citadel in 1966. I have taken additional undergraduate and graduate courses at the University of South Carolina and North Carolina State University in Business and Economics. I earned a Masters Certificate in Project Management from the Stevens Institute of Technology in 2000.

I have been employed in the telecommunications industry for more than thirty-three years with AT&T, including fourteen (14) years with AT&T's then-subsidiary, Southern Bell. I began my AT&T career in 1970 as a Chief Operator with Southern Bell's Operator Services Department in Raleigh, North Carolina. From 1972 through 1987, I held various positions within Southern Bell's (1972 – 1984) and AT&T's (1984 – 1987) Operator Services Departments, where I was responsible for the planning, engineering, implementation and administration of personnel, processes and network equipment used to provide local and toll operator services and directory assistance services in North Carolina, South Carolina, Kentucky, Tennessee and Mississippi. In 1987, I transferred to AT&T's

External Affairs Department in Atlanta, Georgia, where I was responsible for managing AT&T's needs for access network interfaces with South Central Bell, including the resolution of operational performance, financial and policy issues.

From 1989 through November 1992, I was responsible for AT&T's relationships and contract negotiations with independent telephone companies within the South Central Bell States and Florida. From November 1992 through April 1993, I was a Regulatory Affairs Manager in the Law and Government Affairs Division. In that position, I was responsible for the analysis of industry proposals before regulatory bodies in the South Central states to determine their impact on AT&T's ability to meet its customers' needs with services that are competitively priced and profitable. In April 1993, I transferred to the Access Management Organization within AT&T's Network Services Division as a Manager - Access Provisioning and Maintenance, with responsibility for ongoing management of processes and structures in place with Southwestern Bell to assure that its access provisioning and maintenance performance met the needs of AT&T's strategic business units.

In August 1995, as a Manager in the Local Infrastructure and Access Management Organization, I became responsible for negotiating and implementing operational agreements with incumbent local exchange carriers needed to support AT&T's entry into the local telecommunications market. I was transferred to the Law and Government Affairs Organization in June 1998, with the same responsibilities. One of my most important objectives was to ensure that BellSouth provided AT&T with efficient and nondiscriminatory access to

BellSouth's Operations Support Systems (OSS) throughout BellSouth's nine-state region to support AT&T's market entry.

Beginning in 2002 my activities expanded to provide continuing advice to AT&T decision makers concerning industry-wide OSS, network, and operations policy, implementation, and performance impacts to AT&T's business plans.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE REGULATORY COMMISSIONS?

A. Yes, I have testified on behalf of AT&T in numerous state public utility commission proceedings regarding various network and related issues, including arbitrations, performance measures proceedings. Section 271 proceedings, and quality of service proceedings, in all nine states in the BellSouth region. I also have testified on behalf of AT&T in proceedings before the FCC regarding BellSouth's applications to provide in-region interLATA long distance service.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My rebuttal testimony responds to portions of the testimony of BellSouth's witnesses A. Wayne Gray and Shelley W. Padgett, including the supplemental direct testimony of Shelley W. Padgett. I also respond to portions of the direct and supplemental direct testimony of Verizon's joint witnesses, Orville D. Fulp and John White.

The testimony of these witnesses contains (and repeats numerous times) terminology and concepts regarding the deployment of physical facilities (fiber

and copper) and the electronic components associated with them that obfuscate how high capacity loops and dedicated transport are actually provisioned. The witnesses then attempt to leverage the confusion they have created to support a number of false conclusions about actual and potential loop and transport deployment in Florida. I will clarify the facts as they relate specifically to AT&T's actual deployment of high capacity loops in Florida, and also demonstrate the fact that AT&T is *not* a self-provider of dedicated transport in Florida, and the fact that AT&T is *not* a wholesaler of either high capacity loops or dedicated transport in Florida. Further, I will discuss how the muddle of terminology and concepts that BellSouth's and Verizon's witness have created does not comport with the Triennial Review Order[1] (TRO), so that any conclusions based upon these defective foundations do not support either ILEC's claims that it should be relieved of its obligations to provide high capacity loops and transport as Unbundled Network Elements (UNE).

Q. PLEASE IDENTIFY THE ISSUES THAT YOUR REBUTTAL TESTIMONY ADDRESSES.

A. My testimony provides information related to Issues 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, and 18.

Q. CAN YOU PROVIDE A HIGH LEVEL OVERVIEW OF THE FCC'S

[1] Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, *In the Matter of Review of the Section 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)*, FCC No. 03-36 (rel. Aug. 21, 2003).

FINDINGS REGARDING HIGH CAPACITY LOOPS AND DEDICATED TRANSPORT AND THE ASSOCIATED "TESTS" SET OUT IN THE TRO?

A. Yes. However, before I do, I want to note for the Commission that the Florida Competitive Carrier Association (FCCA), of which AT&T is a member, has sponsored the testimony of Mr. Gary J. Ball. Mr. Ball's direct and rebuttal testimony contains comprehensive discussion of the FCC's findings and guidance contained in the TRO related to high capacity loops and dedicated transport. AT&T's view of the TRO is generally consistent with that presented in Mr. Gray's testimony. Therefore in my testimony I will only provide a summary of the relevant findings and guidance in the TRO.

In the TRO, the FCC determined that incumbent local exchange carriers ("ILECs") must continue to provide CLECs with access to unbundled loops and dedicated transport at the DS1, DS3, and dark fiber capacity levels ("high-capacity loops" and "dedicated transport"). In support of this, the FCC conducted a comprehensive analysis that resulted in the determination that CLECs are impaired without access to high-capacity loops (including DS3 loops at up to two DS3s of capacity per customer location) and dedicated transport (including DS3 transport at up to 12 DS3s of capacity per route) at the national level. In other words, the FCC made a national finding that CLECs are impaired without access to DS1, DS3, and dark fiber high capacity loops (TRO ¶202) and DS1, DS3 and dark fiber dedicated transport (TRO ¶359). As a result, the FCC rules require that competing carriers have access to these types and capacity levels of unbundled

high-capacity loops and dedicated transport everywhere unless a state commission finds a lack of impairment as to specific locations and routes.

Recognizing that there may be individual customer locations or transport routes where competitively provisioned high-capacity loops and dedicated transport have been deployed to such an extent that CLECs may not be deemed to be impaired, the FCC developed a procedure known as the trigger analysis ("triggers"). The two triggers (self-provisioning and wholesale) are intended to give ILECs an opportunity to demonstrate to their respective state commissions that CLECs are not impaired without access to unbundled high-capacity loops or dedicated transport at *specific* customer locations or on *specific* dedicated transport routes for specific capacity levels.

The FCC also provides that ILECs may attempt to demonstrate that no impairment exists for specific loop locations or specific transport routes even though neither the self-provisioning trigger nor the wholesale trigger has been satisfied by showing that there is potential for CLECs to deploy such facilities at specific capacity levels at specific building locations and on specific dedicated transport routes (the "potential deployment" analysis). However, the FCC recognized that there is essentially no likelihood that a CLEC would deploy its own DS1 level facilities, either as loops or transport. Therefore, only DS3 and Dark Fiber facilities are eligible for consideration in connection with ILEC potential deployment claims.

Q. PLEASE DESCRIBE THE LOOP TRIGGERS AND THE KINDS OF FACILITIES THE COMMISSION MUST REVIEW IN APPLYING THEM.

A. The local loop network element is defined as a transmission facility between a distribution frame (or its equivalent) in an incumbent LEC central office and the loop demarcation point at an end-user customer premises, including inside wire owned by the incumbent LEC. The local loop network element includes all features, functions, and capabilities of such transmission facility. Those features, functions and capabilities include, but are not limited to, dark fiber, attached electronics (except those electronics used for the provisioning of advanced services, such as Digital Subscriber Line Access Multiplexers), and line conditioning. The local loop includes, but is not limited to, DS1, DS3, fiber, and other high-capacity loops.

To be relieved of their obligation to provide local loops as an unbundled network element to a specific customer location, an incumbent LEC must demonstrate, using one of the FCC's specified trigger analyses, that (1) two or more competitive LECs have actually self-provisioned loops to that location at the appropriate capacity level or that (2) two or more competitive LECs are providing wholesale high-capacity loops at the appropriate capacity level at a specific location. In addition, the FCC has held that the wholesale trigger only applies to DS1 and DS3 loops, but not to dark fiber loops. The following table summarizes the Commission's responsibilities under the loop triggers:

LOOP TRIGGER ANALYSIS

The Presence of:	Trips the Following Loop Triggers and May Establish a Finding of No Impairment @ the Specific Customer Location		
	DS1	DS3	Dark Fiber
2 Self Providers @ a specific customer location.		X	X
2 Wholesale Providers @ a specific customer location.	X	X	

Q. DO YOU HAVE SIMILAR DEFINITION AND TABLE FOR DEDICATED TRANSPORT?

A Yes. Dedicated interoffice transmission facilities (dedicated transport) are facilities dedicated to a particular customer or carrier that are used to provide dedicated transmission paths between pairs of incumbent LEC central offices or wire centers without the use of any switching. Incumbent LEC transmission facilities include all technically feasible capacity-related services including, but not limited to, DS1, DS3, dark fiber and OCn levels. However, the FCC held that CLECs are not impaired in the absence of access to OCn facilities (provided that dark fiber is available) for dedicated transport, and that CLECs are not impaired without access to DS3 level facilities above a maximum of 12 DS3s of capacity per dedicated transport route.

To be relieved of their obligation to provide DS1, DS3 or dark fiber transport as an unbundled network element on a route between two specified incumbent LEC central offices or wire centers, the incumbent LEC must demonstrate, using the FCC's specified trigger analyses, that (1) three or more competitive LECs have actually self-provisioned dedicated transport at the appropriate capacity levels (less than 12 DS3s) on that route or (2) two or more non-affiliated competitive LECs are providing wholesale dedicated transport services at the appropriate capacity level (less than 12 DS3s) on the specific route. A route is defined as a connection between two wire centers (A and Z) with the connection at both A and Z terminating in a collocation and able to provide transport into or out of each wire center. The following table thus summarizes the Commission's responsibilities under the transport triggers:

TRANSPORT TRIGGER ANALYSIS

The Presence of:	**Trips the Following Transport Triggers and May Establish a Finding of No Impairment on the Specific ILEC CO to ILEC CO Route**		
	DS1	**DS3**	**Dark Fiber**
3 Self Providers on a specific ILEC CO to ILEC CO route and having collocations in each of the COs.		**X**	**X**
2 Wholesale Providers on a specific ILEC CO to ILEC CO route and having collocations in each of the COs.	**X**	**X**	**X**

Q. IS THE ILEC'S OBLIGATION TO PROVIDE UNBUNDLED DS3 HIGH CAPACITY LOOPS AND DS3 DEDICATED TRANSPORT LIMITED AS A RESULT OF THE TRO?

A. Yes. An ILEC is obligated to provide only 2 DS3 loops to a given customer location for a given CLEC (TRO ¶ 324) and only 12 DS3s of transport on a given route to a given CLEC (TRO ¶ 388). Thus, a carrier having one or more customers at a given location with a combined demand requiring 3 or more DS3s <u>may not obtain more than two DS3s from the ILEC as a UNE</u>, and a carrier that has aggregated demand at a collocation requiring 13 or more DS3s of dedicated transport <u>may not obtain more than 12 DS3s from the ILEC as a UNE</u>.

Q. WHY SHOULD THE COMMISSION BE INTERESTED IN THESE LIMITS?

A. These limits establish where and to what evidence the Commission must look in applying both the trigger tests and potential deployment tests.

Q. PLEASE EXPLAIN.

A. In setting these limits, the FCC has made the determination that CLECs are not impaired in their ability to deploy DS3s for high-capacity loops and dedicated transport at certain quantity levels. Thus the ILEC must demonstrate under the trigger tests that the requisite number of CLECs have deployed DS3s while only providing quantities that are *at or below* the 2 DS3 limit for high-capacity loops and 12 DS3 limit for dedicated transport. Evidence that any number of CLECs

have deployed, for example, 4 or more DS3s to a customer location or 13 or more DS3s of dedicated transport between a pair of ILEC central offices does not demonstrate that any other CLEC is not impaired economically if it needs to build, from scratch, 1 or 2 DS3s to serve a customer location or fewer than 12 DS3s of dedicated transport between a pair of ILEC wire centers.

For example, under the high-capacity loop self-provisioning triggers test, the ILEC must demonstrate that 2 CLECs have actually constructed facilities that serve only 1 or 2 DS3s of demand at a specific customer location in order to obtain relief from providing unbundled high-capacity loop facilities at those capacity levels to any other CLEC. If the ILEC identifies two CLECs that have built high-capacity loop facilities to a customer location each providing 6 DS3s, such information is not pertinent to the self-deployment trigger and the trigger test has not been met. This is because the FCC determined that CLECs are not impaired in constructing facilities at that (6 DS3) capacity level. Contrary to the ILECs' claims, this makes perfect sense. If complete unbundling relief were granted in such circumstances, it would permanently preclude all CLECs whose business plans and marketing efforts are directed to serving smaller enterprise customers whose demand is at the 1 to 2 DS3 level of capacity from utilizing ILEC unbundled high-capacity loop facilities. Such an outcome is not consistent

with the goals of the TRO or the obligations of this Commission to foster the development of competition.[2]

As FCCA's witness Mr. Gary Ball discusses more comprehensively in his rebuttal testimony, also being filed today, these capacity limits also play a significant role in evaluation of any potential deployment claims made by the ILECs. As discussed by Mr. Ball, in any potential deployment claim at the DS3 capacity level, an ILEC must demonstrate that the competitive providers would earn sufficient revenues relative to their significant fixed and sunk costs of providing two (or fewer) DS3s of traffic for high-capacity loops to a building location or 12 (or fewer) DS3s of traffic for dedicated transport between ILEC wire centers. These are the maximum amount of high-capacity loops and dedicated transport that CLECs may purchase as UNEs under the TRO.

Q. WHAT HAVE BELLSOUTH AND VERIZON REPORTED ABOUT AT&T IN THEIR VARIOUS DIRECT AND SUPPLEMENTAL DIRECT FILINGS?

A. The following table summarizes the ILECs' reporting:

BELLSOUTH AND VERIZON REPORTING OF AT&T's HIGH CAPACITY LOOP AND DEDICATED TRANSPORT IN FLORIDA

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[2] Relief under the wholesale trigger, however, may be available if at least two of the "large" providers at the location meet the requirements for the wholesale triggers, because in such cases the "small" CLEC will have multiple options to the ILEC's special access services.

High Capacity Loop Reporting by:	**Reports AT&T as Follows:** **Type of Provisioner (Self-Provisioner (SP) or Wholesaler (W) and Number of Locations**		
	DS1	**DS3**	**Dark Fiber**
BellSouth	**W (14)**	**SP & W (14)**	**SP (14)**
Verizon	**-**	**SP (5)**	**SP (9)**
Dedicated Transport Route Reporting by:	**Reports AT&T as Follows:** **Type of Provisioning (SP or W), with Number of [Collocations] and Number of (Routes)**		
	DS1	**DS3**	**Dark Fiber**
BellSouth	**W [38] (434)***	**SP & W [38] (434)***	**SP & W [38] (434)***
Verizon	**W [5] (10)**	**SP [5] (10)** **W [6] (15)**	**SP [5] (10)** **W [6] (15)**

* There is a mathematical expression for determining the number of routes necessary to directly connect any number of points: [n times (n-1) divided by 2]. This calculation can not be used in this table to find the number of routes reported in BellSouth's territory as the reporting covers several LATAs in which the routes must be calculated independently. The formula does, however, apply to Verizon's reporting, as all those collocations are in the same LATA. **Sources: BellSouth - Supplemental Exhibits SWP-1 through SWP-10. Verizon – Supplemental Exhibits F-1 through F-5**

Q. THIS SUMMARY TABLE REVEALS THAT BELLSOUTH HAS REPORTED AT&T AS BOTH A SELF-PROVISIONER AND A WHOLESALER OF BOTH HIGH CAPACITY LOOPS AND DEDICATED TRANSPORT AND THAT VERZION HAS REPORTED AT&T AS A SELF-PROVIDER OF HIGH CAPACITY LOOPS AND DEDICATED TRANSPORT AND A WHOLESALER OF DEDICATED TRANSPORT. DO YOU AGREE WITH THIS REPORTING?

A. **No. AT&T is not a wholesaler of either high capacity loops or dedicated transport.** In addition, AT&T is not a self-provider of dedicated transport as that functionality is defined by the TRO. Both BellSouth and Verizon knew this information well in advance of the preparation of their supplement direct testimony and exhibits. Moreover, all of the high capacity loops that AT&T has deployed at the identified locations are were provisioned to carry in excess of the 2 DS3s, the maximum limit for DS3 UNE high-capacity loop availability set by the FCC in the TRO. Accordingly, the data and information presented by both BellSouth's and Verizon's regarding AT&T does not demonstrate that AT&T qualifies as a self-provider "trigger firm" for purposes of the trigger analyses.

Additionally the inclusion of this information in the ILECs' cases with *knowledge* that it was contrary to information provided by AT&T in discovery, and without even a mention of that fact (or any other attempt to address this essential issue) creates a serious concern regarding the accuracy and reliability of the ILECs' other information and their commitment to presenting a case that complies with the requirements of the TRO. Indeed, the inaccuracies in what was reported by BellSouth and Verizon, which I will discuss later in my testimony, should cast serious doubt over all the information the ILECs have presented for consideration in their trigger claims regarding high-capacity loop and dedicated transport self-providers and wholesalers.

Q. PLEASE EXPLAIN WHY YOU HAVE STATED THAT AT&T IS NOT A WHOLESALER OF EITHER HIGH CAPACITY LOOPS OR DEDICATED TRANSPORT.

A. AT&T has made a business decision *not* to offer dedicated transport facilities to other CLECs connecting to any ILEC wire center in Florida. AT&T thus cannot qualify as a wholesale supplier of dedicated transport even if AT&T had dedicated transport facilities as defined by the TRO, which it does not, as I will explain below.

In fact, as AT&T has explained in its discovery responses provided to BellSouth and Verizon, AT&T does not self-provide *any* "dedicated transport" facilities in Florida as that term is defined in the TRO. The only transport facilities that AT&T has self-provisioned in Florida are entrance facilities that connect an ILEC wire center and AT&T's own switch -- which are expressly *excluded* from the revised definition of dedicated transport under the TRO. *TRO* ¶¶ 365-67.

Moreover, AT&T's local fiber networks are not configured to enable it to carry traffic from its collocation facilities in one ILEC wire center to its collocation facilities in another ILEC wire center passed by its fiber ring. The AT&T network, as are most CLEC networks, is more logically thought of as a hub-and-spoke arrangement where traffic flows from the AT&T collocation arrangement to the AT&T local switch. This is a central-point-to-any-point architecture, not an any-point-to-any-point architecture.

The reason for this architecture is simple. There is insufficient demand for AT&T to self-provision DS1 or DS3 dedicated transport between ILEC wire centers. In fact, AT&T buys access from BellSouth and Verizon to connect many of its off-net collocations to AT&T's fiber network. Given that any wire-center-to-wire-center demand is not likely to exceed 12 DS3s on any one particular route it is, in most instances, more economical to purchase these facilities from the ILEC rather than to self-provision the facilities The fact that wire center to wire center demand is not likely to exceed 12 DS3s od demand and justify self-provisioning of dedicated transport is confirmed by the FCC's national finding that CLECs are impaired for transport below 13 DS3s per CLEC and per route. Rather, AT&T's fiber transport network is configured to flow traffic between an AT&T switch and (1) either an ILEC tandem or end office switch (for example, for purposes of interconnection) or (2) an AT&T collocation arrangement at an ILEC wire center. The latter is commonly known as "backhaul" traffic and is discussed at length in my and other's testimony in the Mass Market Switching Docket No 030851-TP (See also Exhibit No ____, JMB-R1, AT&T Ex Parte Letter of November 25, 2002, to the FCC.)

The backhauling of traffic to a CLEC switch is the defining characteristic of modern CLEC networks. The FCC has ruled that the facilities used by CLECs for backhaul are not "dedicated transport" for purposes of access to unbundled network elements under § 251(c)(3) of the Telecommunications Act of 1996. *TRO* ¶¶ 365-67.

In terms of the FCC's self-provisioning triggers for dedicated transport, therefore, the AT&T fiber facilities connecting AT&T's collocation arrangements with the AT&T switch that are in place cannot reasonably be construed to begin and terminate at two collocation arrangements at ILEC wire centers. As a result, AT&T's self-provisioned transport fails to meet the requisite definition of a dedicated transport "route", as that term is used in the TRO. In addition, there is no evidence that AT&T meets the requirement of being "operationally ready" or is "immediately able to provision" dedicated transport service between each of the pairs of collocation arrangements claimed by BellSouth and Verizon.

Nor is it permissible under the TRO to assert that two such paths – for example, between collocation A and AT&T switch X, and between collocation Z and AT&T switch X – could be cobbled together at the location of switch X to constitute a dedicated transport route between A and Z. A transport circuit that requires the intervention of a switch between 2 locations is, by definition, not a dedicated transport route as described in the TRO. A switched route does not fit the definition of "dedicated" transport.

All of AT&T's transport routes in Florida are "entrance facilities" that directly connect an ILEC wire center to the AT&T switch and do not qualify as dedicated transport under the TRO. AT&T has no facilities in Florida that directly connect two ILEC wire centers. Thus, AT&T has no dedicated transmission paths between ILEC wire centers; rather, such connections can only be made through its switch, which is *not* dedicated transport.

Thus, AT&T has not self-provisioned any dedicated transport between two ILEC wire centers, which is the only transport defined to be "dedicated transport" in the TRO. Because AT&T does not self-provide any dedicated transport, it does not qualify as a "self-provider" on any transport route in Florida, and therefore cannot be considered a wholesaler of dedicated transport on any of the routes listed by BellSouth or Verizon.

Q. AS SUPPORT FOR THEIR POSITION THAT AT&T PROVIDES WHOLESALE TRANSPORT, MR. FULP AND MR. WHITE OF VERIZON POINT TO STATEMENTS ON AT&T'S OWN WEBSITE. ARE THEY CORRECT TO RELY ON THESE STATEMENTS TO SUPPORT THEIR POSITION?

A. No. AT&T does offer *some* services on a wholesale basis to other carriers, including some that involve forms of transport. However, AT&T does *not* offer at wholesale any services that fall under the TRO's definition of dedicated transport.

Carriers that obtain transport services from AT&T desire a particular kind of transport. They want the ability to move traffic between *their switches* to an ILEC wire center, which does not comply with the definition of dedicated transport created in the TRO. In fact, AT&T never has offered transport *between two ILEC wire centers*, which is the only type of transport defined in the TRO as "dedicated transport."

Q. MS. PADGETT OF BELLSOUTH ALSO ASSERTS THAT AT&T IS A WHOLESALE PROVIDER OF HIGH-CAPACITY LOOPS. DO YOU AGREE WITH MS. PADGETT'S CONCLUSION THAT AT&T IS A WHOLESALER OF HIGH-CAPACITY LOOPS?

A. No. There is a simple reason AT&T does not satisfy the wholesale trigger for loops: AT&T offers no high-capacity loops at wholesale. AT&T has made a choice not to engage in the wholesale business of providing high-capacity loops to other carriers.

Again, this information was available to both BellSouth and Verizon well in advance of their supplemental direct testimony in the form of discovery responses made by AT&T.

Q. YOU HAVE STATED THAT AT&T IS ALSO NOT A SELF-PROVIDER OF DEDICATED TRANSPORT AS DEFINED BY THE TRO. IN DISCUSSING THE FACT THAT AT&T IS NOT A WHOLESALE PROVIDER OF DEDICATED TRANSPORT, YOU PROVIDED INFORMATION SUPPORTING YOUR STATEMENT. IS THERE ADDITIONAL INFORMATION YOU WOULD LIKE TO PRESENT REGARDING BELLSOUTH'S AND VERIZON'S REPORTING OF AT&T AS A SELF-PROVIDER OF DEDICATED TRANSPORT?

A. Yes. Both BellSouth and Verizon have chosen to ignore AT&T's discovery responses in which AT&T specifically denied that AT&T self-provides dedicated

transport as defined by the TRO. They further fail to inform the Commission that they have ignored these discovery responses or their reasons for doing so.

Generically, dedicated transport is any carrier transmission facility that is dedicated to a particular customer for the provision of telecommunications services and requires no switching. It is contrasted to "common" or "shared " transport, which is a facility that may be shared among a number of customers and always requires the use of some form of switching.[3]

Despite AT&T's explicit denial that it provides its own dedicated transport between ILEC wire centers on its local fiber rings, both BellSouth and Verizon have elected to assume that each "fiber based", or "on-net" collocation AT&T has in a LATA (BellSouth) or in an MSA (Verizon) has dedicated connectivity to every other collocation operated by AT&T. It appears that they have made this same assumption with regard to other CLECs whom they have identified as having fiber-based or on-net collocations.

Q. DOES AT&T SELF-PROVIDE HIGH CAPACITY LOOPS TO CUSTOMER LOCATIONS TO PROVIDE 1 OR 2 DS3S OF SERVICE, WHICH WOULD MEET THE FCC'S TRIGGER TEST REQUIREMENTS?

A. No. When AT&T is deploying its own loops, it faces not only all of the hurdles that it faces when building interoffice transport, but a number of additional hurdles as well. Because loops generally serve only a single location (and often

[3] This is only natural, because whenever a circuit is switched it ceases to be dedicated to the use of a particular customer.

only one or a few customers at that location), it is even more difficult to accurately identify instances where the potential demand, the costs to build, and the difficulty of construction indicate that AT&T should make the investment in self-provisioning high-capacity loop facilities to a building location.

AT&T has determined that it is - at best - rarely economic to deploy a high capacity loop to a customer location unless there are at least 3 DS3s of traffic and revenue committed from that location[4]. And, in fact, none of the self-provisioned loop facilities that AT&T has built in Florida provides less than 3 DS3s of service. As a result, these self-provisioned high-capacity loops do not qualify under the triggers test in the TRO and are not indicative of the ability of any CLEC to self-provide either 1 or 2 DS3s to a customer location under a potential deployment claim by the ILECs.

Q. YOU HAVE STATED THAT BELLSOUTH AND VERIZON BOTH KNEW THE FACTS CONCERNING AT&T'S WHOLESALING POLICY AND NON-DEPLOYMENT OF DEDICATED TRANSPORT WELL BEFORE THE SUBMISSION OF THEIR RESPECTIVE SUPPLEMENTAL DIRECT TESTIMONY FILINGS. PLEASE EXPLAIN.

A. The facts concerning these issues were provided in responses to BellSouth discovery requests, filed on November 6, 2003 and December 15, 2003, and in responses to the Commission Staff filed on January 6, 2004; there simply is no reason for BellSouth and Verizon to have misrepresented the facts other than the

[4] See Exhibit No ____, JMB-R1, AT&T Ex Parte Letter of November 25, 2002, to the FCC.

obvious one: since the facts did not support their case, they elected to ignore them. The ILECs failure to note AT&T's actual answers to the discovery served or to make any attempt to demonstrate any defects in AT&T's responses is a clear indication that the ILECs simply do not care what the facts are. Verizon did not even seek to serve discovery until it was too late for any responses to be used in the preparation of its initial direct testimony. This sort of behavior by BellSouth and Verizon demonstrates a blatant attempt to shift their burden of proof to the CLECs and should cause the Commission to question the intent of both BellSouth and Verizon to construct their cases regarding high-capacity loop and dedicated transport triggers in compliance with the requirements of the TRO.

Q. YOU HAVE STATED THAT THE ILECS' REPORTED INFORMATION ABOUT AT&T ALSO CONTAINS INACCURACIES. PLEASE EXPLAIN.

A. As explained above the Commission cannot consider AT&T as a self-provider or wholesale provider for purposes of BellSouth's or Verizon's high-capacity loops and dedicated transport trigger claims. It should further be noted that even the data regarding AT&T that was presented by BellSouth and Verizon contain significant inaccuracies. These inaccuracies should cast further doubt on the accuracy and reliability of the information presented by BellSouth and Verizon concerning the other CLECs that they have identified as trigger candidates.

Q. WHAT ARE THE INACCURACIES IN THE INFORMATION THAT BELLSOUTH AND VERIZON HAVE PRESENTED WITH REGARD TO AT&T?

Both BellSouth and Verizon claim to have constructed their dedicated transport route determinations based upon the CLECs deployment of "fiber-based" or "on-net" collocations. As demonstrated in the table below, both have provided inaccurate data concerning the number and location of AT&T's on-net collocations.

***** Begin Confidential – Shaded Cells Contain Confidential Information**

LATA/ILEC	**Reported Number of On-Net Collocations**	**Actual Active On-Net Collocations per AT&T's Discovery Response**	**ILEC Reported Calculated Routes Possible**	**Maximum Calculated Routes Possible***
Jacksonville BellSouth	3		3	
Orlando BellSouth	6		15	
SE Florida BellSouth	29		406	
Tampa Verizon	SP 5 W 6		SP 10 W 15	

*This is a calculation of the maximum possible number of routes, it is not the number of routes actually in existence, which in all cases for AT&T is zero (0).

***** End Confidential – Shaded Cells Contain Confidential Information**

Thus, even if AT&T did provide dedicated transport between ILEC wire centers, which it does not, BellSouth's inaccurate reporting overcounts on-net collocations by *** **Begin Confidential** *** [redacted] *** **End Confidential** *** and asserts that the triggers are met on *** **Begin Confidential** *** [redacted] *** **End Confidential** *** routes that can not possibly exist.

There is no reason to believe that the same types of errors do not exist in data presented by BellSouth and Verizon regarding the other CLECs' on-net collocations. The burden to produce accurate data in this case is on BellSouth and

Verizon who are required to present evidence to overcome the FCC's national finding of impairment for high-capacity loops and dedicated transport. They have simply failed to do so in this case and should not be allowed to shift that burden onto the CLECs.

Q. ONE OF THE "THEMES" IN THE TESTIMONY OF MR. GRAY AND MS. PADGETT OF BELLSOUTH, AND OF MR. FULP AND MR. WHITE OF VERIZON, IS THAT A CARRIER HAVING AN OCN FACILITY IS "OPERATIONALLY READY" TO PROVIDE LOOPS AND/OR TRANSPORT AT THE DS3 AND DS1 LEVELS. IN EFFECT, THEY EQUATE OCN FACILITIES AS BEING DS3 AND/OR DS1 FACILITIES. DO YOU AGREE?

A. No. Both BellSouth's and Verizon's witnesses agree that there is additional, unique equipment that must exist for dedicated DS3s and DS1s to exist on an OCn facility. But they then go on to attempt to trivialize this need. Mr. Gray does this in two ways. On page 4 of his direct testimony he states that such equipment components "are relatively inexpensive, are widely available and can be quickly installed". Second, in his exhibits (AWG-2 and AWG-5), while admitting that there are two ends to each dedicated loop or transport route, he depicts only one end in a manner that over simplifies reality.

While there are a number of vendors that manufacture the required equipment components, they are not free, cannot be procured at the corner electronics store and are not self-installing. Each application to "channelize" an OCn facility to either a DS3 or DS1 level requires design, engineering, procurement, and installation. Where the installation is to occur in an ILEC wire center, it must be performed by installers certified by the ILEC and coordinated with the ILEC under the security requirements that they have imposed on CLECs.

In Exhibit No, ____, JMB-R2, I have replicated portions of Exhibits AWG-2 and AWG-5 and then combined them in ways that better depict the full requirements for channelization. Without the full complement of specific DS3 and DS1 equipment at both ends of either a loop arrangement or a transport arrangement, the exchange of DS3 and DS1 signals is simply not possible.

If AT&T were to be a self-provider of dedicated transport, which it is not, using the BellSouth data discussed above, AT&T would have to invest in 406 pairs of DS3 and DS1 equipment in the Southeast Florida LATA alone to have the channelization that BellSouth simply assumes would exist.

In addition, to be operationally ready to provide or offer DS3 and DS1 services, a CLEC must develop and invest in Operations Support Systems, methods and procedures, and a sales and marketing effort, all of which are conveniently ignored in the BellSouth and Verizon testimony. FCCA's witness Gary Ball provides additional detail on this aspect of operational readiness in his rebuttal testimony that is also being filed today.

Q. ANOTHER THEME IN THE TESTIMONY OF BOTH ILECS IS THAT THE FACT THAT THERE IS LIT FIBER MEANS THAT THERE IS AVAILABLE DARK FIBER. DO YOU AGREE?

A. No. Mr. Gray makes the statement that "CLECs typically deploy 144 fiber strands or more when extending a cable to large commercial buildings or ILEC wire centers." (Gray, Direct, page 9, lines 21-23) Ms. Padgett states "our billing records indicate that most CLECs that pulled fiber into BellSouth's wire centers requested 2 cables of 24 strands each, leaving plenty of spare strands to wholesale." (Padgett, Direct, page 19, lines 16-19). Verizon's witnesses Fulp and White at page 22, lines 2-3 of their joint direct testimony state "evidence of 'lit' fiber automatically is evidence that a carrier has self-provisioned dark fiber." None of these statements actually demonstrates that there is any available dark fiber on any specific route, or to any specific building.

Mr. Gray's and Ms. Padgett's testimony do, however, help to illustrate some of the problem. If a physical fiber ring contains, as Mr. Gray states, 144 strands, and if at every wire center it passes, the CLEC pulls 2 cables of 24 strands each (48 strands) into the building, as Ms. Padgett states, something has to give. In actuality, not all strands pulled into a building (either customer location or wire center) are in fact connected to the ring. The connection between the ring and any building is commonly called a "lateral." While a CLEC may build its lateral with, for example, 24 fibers, only the fibers necessary to deliver service are spliced into the ring. Once a ring fiber has been spliced to a lateral it is either "lit" or "dark," but most commonly "lit." If a ring fiber has not been spliced to a lateral or "lit"

directly when it passed through a collocation or a building directly on the ring, it is simply "unavailable", not dark. Un-spliced fibers, left "dead" are <u>not</u> available dark fibers.

Q. PLEASE SUMMARIZE THE KEY POINTS OF YOUR REBUTTAL TESTIMONY.

A. AT&T is not a wholesale provider of either high capacity loops or dedicated transport. AT&T is not a self-provider of dedicated transport. The high-capacity loops that AT&T self-provides all carry three or more DS3s of demand and therefore are not relevant as self-provisioning triggers under the prescribed actual deployment tests and provide no probative data for use in the prescribed potential deployment analysis. The ILECs were aware of, but chose to ignore, the facts about AT&Ts operations in Florida. The ILECs' actual reporting contains significant inaccuracies. The ILECs' conclusions that OCn facilities are the equivalent of DS3 and DS1 facilities, and that dark fiber must exist because there is lit fiber, are incorrect. The ILECs have failed to provide the evidentiary demonstration required by the FCC in the TRO for relief of their obligations to provide high-capacity loops and dedicated transport as UNEs.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

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November 25, 2002

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

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

Dear Ms. Dortch:

In recent *ex partes*, AT&T has stated that the absolute minimum "crossover" point at which it becomes economically rational for a requesting competitive carrier to consider constructing its own interoffice transport facilities is reached when the carrier can aggregate approximately 18 DS3s of *total* traffic in a Local Serving Office (LSO), including all local, data, exchange access and interexchange traffic routed through the office. At Staff's request, AT&T has developed a detailed explanation of the methodology used to develop that estimate which can be found in Attachment A to this letter.

One of the critical points to note is that in developing the "crossover" point, AT&T did *not* attempt to assess the ILECs' TELRIC costs of providing transport to themselves and their affiliates (and thus the actual cost disadvantage that requesting carriers face in using such facilities to offer services that compete with the ILECs' services). Rather, AT&T compared the costs of provisioning its own transport to its average costs for purchasing ILEC *special access services*, which are admittedly *not* offered at cost-based rates. Indeed, they are priced at exorbitant levels. Thus, this analysis is highly favorable to the ILECs. Given that TELRIC costs are actually between half and two-thirds of the prevailing special access rates, the crossover point for facilities construction necessary for a competitive carrier not paying special access rates to achieve cost parity with the ILECs is between 28 and 36 DS3s of total traffic. *See* Attachment A.

As is also obvious from Attachment A, transport construction represents a high fixed cost. Moreover, nearly two-thirds of interoffice transport costs are fixed.[1] Thus, a carrier cannot be expected to begin construction of its own transport facilities until it is reasonably certain that it will have the necessary scale to recover its construction costs.[2] Otherwise, such construction would simply be wasteful.

In this regard, it is essential that CLECs be able to achieve a cost structure comparable to the ILEC's even where the incumbent's existing prices are well above costs. Where a CLEC has significantly higher costs than the ILEC, the CLEC knows that the ILEC could simply drop its prices below the CLEC's costs, but still above the ILEC's costs, and remain profitable. But by setting prices below the CLEC's costs, the ILEC would make it impossible for the entrant to remain economically viable. The prospect of such a pricing strategy is particularly high where, as is the case for services provided to businesses, the ILEC can price discriminate. This allows the ILEC to lower prices selectively, *i.e.*, only to those customers that could potentially be served by the CLEC, and thus to keep prices high for all other customers. Thus, because transport constitutes a sizeable percentage of the overall cost of telecommunications services, facilities-based entry is generally viable only where a CLEC can self-deploy transport at a cost that is not well in excess of the ILEC's costs.[3]

Finally, a carrier's analysis of whether to construct a fiber backbone ring (and thus provide its own transport) is very different from its analysis as to whether to build a Building Ring or a Customer Lateral off an existing Building Ring to provide the equivalent of a loop for large customer buildings. Accordingly, the amount of committed traffic necessary to support the construction of loops for large business customers – which AT&T has indicated is about 3 DS3s of traffic – is substantially less than the amount needed to support the construction of a backbone ring. The assumption here is that the existing transport ring is justified for other purposes and that the loop is addressed by incrementally attaching a small ring to serve a specific building and, where necessary, a short lateral extension. In support of AT&T's claim that 3 DS3s of traffic is required to support an economically rational lateral fiber build-out, and to ensure that the record is complete, AT&T is also submitting with this *ex parte* a detailed discussion regarding AT&T's estimation of loop construction costs, which is appended as Attachment B.

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[1] *See ex parte* letter from C. Frederick Beckner to Marlene Dortch dated November 14, 2002, attaching white paper prepared by Professor Robert D. Willig entitled "Determining 'Impairment' Using the *Horizontal Merger Guidelines* Entry Analysis," p. 13.

[2] *Id.* at 5.

[3] *Id.* at 7-8.

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

Sincerely,

Joan Marsh

cc: Michelle Carey
Thomas Navin
Robert Tanner
Jeremy Miller
Dan Shiman
Julie Veach
Don Stockdale

Attachment A

DETAILED DESCRIPTION OF CLECS' COLLOCATION AND BACKHAUL INFRASTRUCTURE COSTS

Introduction:

A CLEC seeking to enter the market using its own facilities must incur collocation and transport costs to "backhaul" traffic from an ILEC serving office where its customers' loops terminate to its own switch. In a recent filing, AT&T explained that the costs associated with collocation and backhaul average about $33,000 per month and that at least 18 DS3s in traffic volume is required to make such investment prudent. This document provides detailed information on how these figures were developed.

In simple terms, collocation costs arise from three key sources: (1) the backhaul facility, (2) the collocation space itself, and (3) the equipment placed within the collocation. The derivation of costs for each component is described below.

Backhaul Facilities:

Backhaul facilities comprise the largest component of a CLEC's infrastructure costs. These include the costs of deploying an interoffice fiber facility in a ring architecture. The absolute cost of such a ring is predominantly a function of the length of the fiber cable, the nature of the structure employed to support the cable (aerial/buried/underground) and the density zone where the fiber facility is deployed. The number of strands deployed impacts the carrier's costs to only a minor degree.[1]

The following table lists the key assumptions underlying AT&T's calculation of structure costs and identifies the HAI material discussing the derivation of the input cost:

Item	Aerial	Buried	U/G	ref (HAI 5.2)
Placement/ft		$ 1.77	$ 16.40	p.102
Added Sheathing/ft		$ 0.20		p.102
Conduit			$ 0.60	p.102
Pull Box (per ft, 1 per 2000 ft)			$ 0.25	p.104
Poles (per ft, 1 per 150ft)	$ 2.78			pp.104-105
U/G excavation/restoration			$ 23.74	p.140
Buried excavation/restoration		$ 6.71		p.143
Total construction	$ 2.78	$ 8.68	$ 40.99	

[1] In fact, the variable cost per fiber strand is $0.032/foot (See HAI 5.2 inputs, page 100) and the average cost of the cable (installation and engineering) is about $1.00 per foot. In sharp contrast, the cost of supporting structures for a cable can be as high as $45/foot (for buried cable) or $75/foot (for underground cable). For the purposes of analysis, although large quantities of dark strands would be deployed with the initial build, no cost of this dark capacity is attributed to the interoffice transport

The buried and underground (U/G) placement costs in the above table are derived from the HAI model input data. They represent a weighted average of the four highest density zones in the model. These zones were selected because they are the zones covering more metropolitan areas, where CLEC facility construction is most likely to occur first. This is also consistent with the RBOCs' data on existing placements of fiber-based collocations.[2] The following weightings were applied by density zone:

Weighting Factor	
Density Zone	Weighting
0-5	0.00%
5-100	0.00%
100-200	0.00%
200-650	0.00%
650-850	0.00%
850-2250	65.00%
2250-5000	20.00%
5000-1000	10.00%
>10000	5.00%

The weighted unit costs were developed by multiplying the density zone weighting and the appropriate structure placement unit cost (note that the aerial placement was not a function of density zone). The placement unit costs employed and the resulting weighted averages are shown below:

Buried Excavation, Installation, and Restoration (p.143)	
Density Zone	Cost/ft
0-5	$ 1.77
5-100	$ 1.77
100-200	$ 1.77
200-650	$ 1.93
650-850	$ 2.17
850-2250	$ 3.54
2250-5000	$ 4.27
5000-1000	$ 13.00
>10000	$ 45.00

Minimum	$ 1.77
Maximum	$ 45.00
Employed	$ 6.71

U/G Excavation, Installation, and Restoration (p.140)	
Density Zone	Cost/ft
0-5	$ 10.29
5-100	$ 10.29
100-200	$ 10.29
200-650	$ 11.35
650-850	$ 11.88
850-2250	$ 16.40
2250-5000	$ 21.60
5000-1000	$ 50.10
>10000	$ 75.00

Minimum	$ 10.29
Maximum	$ 75.00
Employed	$ 48.90

[2] The RBOC UNE Fact Report (page III-2, Table I) shows that 13% of the RBOCs' wire centers have fiber collocators present. The cut off for the top 13% of RBOC offices is in the range of 36,000 lines. Given that loops are generally less than 3 miles in length, a central office service area will be about 27 square miles (or less in metropolitan areas). Thus the RBOCs' own data show that CLEC facility builds are occurring in areas where line density is no lower than 36,000/27, or no less than about 1,400 lines per square mile. Thus, using the entire 850-2250 line density zone is conservative.

Because structure proportions vary by density zone, it was necessary to establish the weighted average structure presence in order to develop a single weighted average unit cost. The structure proportion by density zone was obtained from HAI 5.2 inputs and are shown below:

Fiber Feeder Structure Proportions (HAI 5.2 p/59)			
density zone	aerial	Buried	U/G
0-5	35%	60%	5%
5-100	35%	60%	5%
100-200	35%	60%	5%
200-650	30%	60%	10%
650-850	30%	30%	40%
850-2250	20%	20%	60%
2250-5000	15%	10%	75%
5000-1000	10%	5%	85%
>10000	5%	5%	90%

These proportions were then multiplied by the above density zone weighting and yielded the following weighted presence of structures for the purposes of the study:

Weighted Structure Distribution			
Density Zone	Aerial	Buried	U/G
0-5	0.0%	0.0%	0.0%
5-100	0.0%	0.0%	0.0%
100-200	0.0%	0.0%	0.0%
200-650	0.0%	0.0%	0.0%
650-850	0.0%	0.0%	0.0%
850-2250	13.0%	13.0%	39.0%
2250-5000	3.0%	2.0%	15.0%
5000-1000	1.0%	0.5%	8.5%
>10000	0.3%	0.3%	4.5%
Weighted	17.3%	15.8%	67.0%

The cost of the fiber cable placed within the structure was also derived from HAI inputs. Fiber feeder cost were used as a proxy (see HAI 5.2 inputs, page 100):

	Fixed (per cable)/foot		Variable
	Installation	Engineering	per strand
Buried	$ 0.970	$ 0.040	$ 0.030
Aerial	$ 0.880	$ 0.040	$ 0.037
Underground	$ 1.020	$ 0.040	$ 0.032

Finally, it was necessary to establish the lives for the various types of facility placement, the salvage and the annual maintenance cost in order to quantify the full cost of the conductor. These inputs are listed below, together with the source:

Item	Aerial	Buried	U/G	ref (HAI 5.2)
Life	26.14	26.45	25.91	p.129
Salvage	-17.5%	-8.6%	-14.6%	p.129
Maintenance	0.7%	0.8%	0.6%	FCC Synthesis Model Input

In order to generate a single set of factors covering the three alternative structures, the individual results were combined as a weighted average. This was accomplished by weighting each unit cost and the salvage, life and maintenance factor by the proportion of structures in the density zones under consideration. This was done by using the weighted average structure distribution developed above.

The following elements were the resulting weighted element inputs:

Weighted Life		26.03	
Weighted Salvage		-14.1%	
Weighted Maintenance		0.67%	
Total Installed Cost	$	30.34	per foot
	$	0.033	per strand per foot

In order to quantify the investment, the total length of cable and the total number of strands needed to be specified. For the analysis, an average span cost assignment equivalent to 8.94 miles was employed, based upon AT&T's experience.[3] Thus, the total assigned investment is $1.435 million per span.[4] The associated monthly maintenance expense is 0.67% of the investment amount assigned to the node divided by 12, or $798 per month per node.[5]

The monthly capital recovery was amortized over the life of the investment after the investment was grossed-up for the net salvage. A 14.24% cost of money was employed, which is very conservative, as it does not reflect the higher risk associated with the CLEC

[3] By the end of 2001 AT&T had deployed 17,026 route miles of local fiber in which 1,905 spans were active (unique point pairs) Accordingly, the average route miles per active span in AT&T's network is 8.94 miles. While this does not mean that each physical segment is that length, it provides a reasonable means to allocate, among active uses, the cost of a shared facility.

[4] The calculation is (8.94*($30.34 + 2*.033)*5280) for a total of $1.435M.

[5] The calculation is ($1.435M*0.67%)/12.

operations (compared to the 10% cost of money assumed for the incumbents).[6] These factors yielded a monthly investment recovery cost of $19,937 for the facility.[7] The total monthly costs for the facility, including maintenance, is $20,806 per month. Another 5% was added to account for non-income tax coverage requirements for a total of $21,771 per month.

Collocation Space:

Collocation costs are simply the costs associated with renting and securing conditioned Central Office space within an ILEC office. The collocation space is the area where the CLEC places its transmission equipment and terminates its interoffice facility for cross-connection to other interoffice or loop facilities. The collocation costs are comprised of two main components: (1) the cost of initially preparing and securing the space, and (2) the on-going cost of renting the space (which not only includes the physical space but also heating, ventilation, air conditioning and power).

The space preparation cost is treated as an investment and recovered over the life of the equipment placed within the collocation. For the purposes of this analysis, 10.24 years was employed, which is the average useful life of digital circuit equipment (see HAI 5.2 inputs, page 129). The same cost of money and treatment of taxes employed for the facility analysis above was utilized here as well. Neither gross salvage nor cost of removal were assumed.

Because HAI inputs are oriented to ILEC operations, no collocation costs are reflected as cost inputs. Accordingly, internal estimates of collocation preparation costs were employed. Internal estimates indicated that the preparation costs are in the range of $200,000 to $250,000. This, in turn, yields a $3,488 monthly cost for the preparation alone.

The monthly physical collocation rental costs were developed from ILEC billing to AT&T. When analyzed on the LEC-LATA level, the average monthly expense was $4,083 although the true mean could be expected to lie anywhere in the range of $3,579 to $4,586 (at a 95% level of confidence). The average figure was employed for the analysis.[8] Accordingly, the monthly costs attributable to collocation in total were $7,950 per month after taking into account taxes other than income taxes.

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[6] For simplicity in the study, a pre-tax cost-of-money was employed. The figure is entirely consistent with the ILEC cost of money of 10.01% employed in the HAI model The 14.24% cost of money is derived by the following equation: %debt*cost of debt+%equity*cost of equity/(1-effective income tax rate). In this instance the % debt was 45%, the cost of debt was 7.7%, the cost of equity was 11.9% and the effective income tax rate was 39.25%.

[7] The calculation was the EXCEL PMT function: @PMT((14.24%/12),(26.03*12),(($1 435M)*(1-(-14.1%)). The multiplication by 1.1418 grosses the initial investment up for gross salvage less cost of removal which, in this case, is negative.

[8] As with other expense, this figure was increased by 5% to account for taxes other than income taxes

Transmission Equipment:

When operating at the interoffice transport level, there is relatively little equipment placed within the collocation. The necessary equipment includes: optical path panels (to terminate and cross-connect the fiber facility), optical multiplexers, and power distribution (e.g., power filtering and fuses) equipment.

The optical path panel costs are described in HAI 5.2 inputs (p.97). The panels cost $1,000 each, and the cost of cross–connecting to the equipment is $60/strand. In this instance, 2 cross-connections are required per panel (one in and one out) and 2 panels are employed (one for each strand to assure no single point of failure). Accordingly, the capital investment for the panels is $2,240.

The HAI input lists the investment associated with an optical multiplexer (see page 96). The base unit cost is $40,000 (12 DS3 capacity) and the fully equipped unit cost is $50,000 (48 DS3s). Thus, the investment is $40,000, $43,333.33, $46,666.67 or $50,000 depending upon whether 12, 24, 36, or 48 DS3s are in service. This is the only aspect of the investment that is demand sensitive (i.e., if fewer than 48 DS3s are assumed) but this amounts to little more than $3 per DS3. Two multiplexers are assumed to provide redundancy and, as set forth in HAI 5.2 inputs, it is assumed that there is $1,760 invested to engineer, furnish and install each multiplexer and associated optical panel (see page 97). The total investment in the optical multiplexers (24 DS3s assumed) is $90,187.[9]

The installed cost of the last remaining equipment item – the battery distribution fuse bay (BFDB) – is estimated at $62,500.[10]

The total installed equipment cost is therefore $2,240 for the distribution panels, $90,187 for the multiplexers and $62,500 for the BFDB, yielding a total of $154,927. Amortizing this amount over the average useful life of circuit equipment, applying a 1.69% net salvage (HAI 5.2 p 130) and the same cost of money as above, yields an investment recovery cost of $2,443 per month. Maintenance costs are derived by applying a 2% annual maintenance factor (see FCC Synthesis Model for circuit equipment) to the $154,927 gross investment (with the result divided by 12), for a maintenance cost of $258 per month. Combining these two figures and providing for 5% non-income tax related costs yields a total cost of $2,836 per month.

Rationale for the 18 DS3 Minimum:

Adding all of the above figures yields a monthly average cost of $32,557. Given that the monthly costs of facility-based collocation are effectively insensitive to volume, the average unit cost is simply the $32,557 monthly figure divided by the number of DS3s in service.

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[9] 2*(43,333.33+1760)

[10] This is an internal estimate, because there is no equivalent identified in the HAI inputs.

Assuming that unbundled transport is not available as an unbundled network element, and in the absence of market-based competition for connectivity between the necessary points, a CLEC's only practical alternative to building its own facilities is to use ILEC special access service. In today's market, given the continuing imposition of use and commingling restrictions, this special access would be likely be bought under a term plan of either three or five years. Assuming that the special access interoffice mileage would be equivalent to the average span, then a comparison of alternatives is possible. Note, however, that this is *not* a comparison between actual ILEC costs for existing transport facilities and anticipated CLEC costs for new construction. Rather, it is a comparison between anticipated CLEC construction costs and ILEC special access rates, which are admittedly well above the ILEC's costs.

AT&T's experience is that a DS3 interoffice facility plus one channel termination[11] will cost approximately $2,363 per month under a 36-month term agreement and $1,780 per month under a 60-month term agreement. Thus, at least 14 DS3 would be required to break-even compared to a 36-month term special access rate and at least 18 DS3s would be required compared to a 60-month term special access rate. Given that the collocation was assumed to have a 10-year useful life, comparison to the 60-month term agreement was judged most relevant, making the 18 DS3 figure the appropriate comparison.

In fact, AT&T has demonstrated that special access is priced (exorbitantly) well above economic cost. Further, AT&T has demonstrated that a carrier cannot viably enter a local market on a facilities-basis if it incurs costs for a key input that are well above the cost that the ILEC itself incurs for that input. Given that the ILEC's economic costs of transport are in the range of half to two-thirds of prevailing special access rates, then 28 to 36 DS3s would be required to "prove-in" a transport facilities build if the competitive carrier were to achieve cost parity with the ILEC.[12]

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[11] If a facility is not build, not only is the interoffice transport required but a connection from the final LSO to the switch location (i.e., a high capacity channel term or entrance facility) is also required.

[12] If the unit cost alternative were 50% to 67% lower, then the revised break-even point is simply the originally calculated break-even point divided by the preceding price ratio.

Attachment B

ESTIMATING THE COST OF LOOP CONSTRUCTION

Introduction:

Loop facilities are one of the most basic components of a telecommunications network and are used in the provision of all services, whether switched or dedicated. These facilities provide the physical connection between the customer location and the network of the serving carrier. Because much of the investment is dedicated to one or a very small number of customers, and because the facilities have very high initial costs to deploy, only the very largest customer locations (in terms of service demand) can be economically reached through an over-build. The focus of this paper is upon such "large" customer locations. As shown below, a CLEC must have the potential to serve a **large number of buildings (about 20) within a consolidated geographic area, with each** building generating at least 3 DS3s of demand before a build is economic. Even then, serving the location will involve significant investment – approximately $6.7M for the building ring, plus approximately $3M for the premises and node equipment. And all of this analysis assumes that the CLEC considering the build can reach the buildings in the area with rights of way and building access comparable to the ILEC.

Before discussing the costs of building it is first important to share a common understanding of the general architecture of the outside plant employed by a CLEC. Figure 1 below provides a general representation of this plant:

Typical Configuration of "Local" Fiber Rings

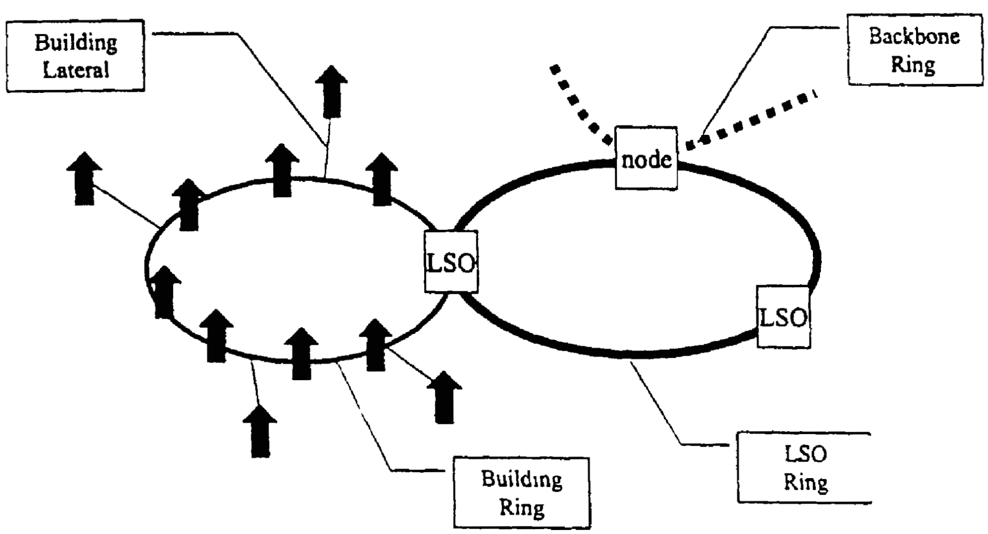

Figure 1.

A self-provided CLEC "loop" is actually composed of two to three interconnected facilities. The first is the LSO Ring. This ring connects the network locations (*e.g.*, facility/switch nodes and collocations) within a metropolitan area. The cost of connecting these locations is discussed in a related paper quantifying the costs of transport and will not be repeated here.[1] The LSO Ring interfaces with two other ring types: backbone rings and building rings. Because the loop is constructed to reach the service provider's network, which effectively starts and ends at the backbone ring (for dedicated services) or the switch connecting to the backbone ring (for switched services), the costs of the backbone ring are not relevant to the discussion of loop costs. On the other hand, the building rings are a significant consideration in quantifying loop costs. A Building Ring extends the CLEC network from a very aggregated demand point (*i.e.*, the facility-based collocation in an LSO) to (or near) customers' premises.

The final component of the loop infrastructure is the Customer Lateral. When a Building Ring is constructed, every effort is made to run the ring facility directly though critical buildings. In fact, Building Rings tend to be about 30 route miles long and tend to have 10 to 15 buildings on each.[2] Whether or not a building is placed on a ring is highly dependent upon factors such as the following: (1) whether the location was identified as a "high volume" location early enough in the planning to permit its inclusion, (2) whether access to the building could be secured from the landlord in a timeframe consistent with the overall project time line, and (3) whether building access costs were not judged prohibitive. If a building is not placed directly on the building ring as part of the initial build, it may still be possible to add a building at a later point. Such buildings are added by extending a short segment of fiber that is spliced to the ring and extends to the building. Because these segments are not shared with any other users other than the single building connected, and because the segment generally is not protected via diverse routing of redundant facilities, laterals tend to be very short.[3]

To recap: an LSO Ring is a highly aggregated facility that is shared among a wide variety of customer locations and services; a Building Ring is a facility whose use is shared among 10 to 15 buildings; a Customer Lateral is a facility useful only for the particular building connected.

In order to quantify the cost of these loops, a general understanding of the essential equipment components is important. The key components are shown in Figure 2:

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[1] See Attachment A to this Submission, referred to herein as the Transport *ex parte*.

[2] These characteristics tend to vary by specific metropolitan area. However, the AT&T Outside Plant Engineering organization believes these parameters reasonably reflect the conditions across its local markets. Other carriers may have different experiences due to different market strategies and less robust local fiber facility deployment.

[3] AT&T seeks to limit laterals to less than 500 feet in order to contain customer-dedicated investment and to reduce the risk of facility damage (*i.e.*, the longer the facility the greater the probability that some form of mechanical harm may be experienced).

Typical Configuration of An On-Net Building "Loop"

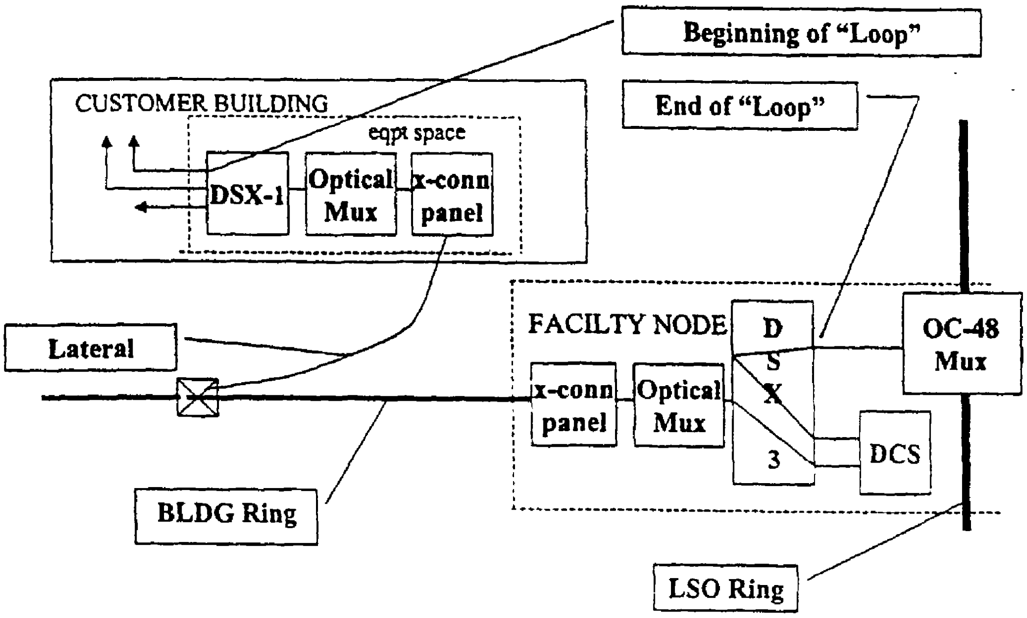

Figure 2

The functions of the individual components are relatively straightforward:

DSX-1 or DSX-3: Provides a cross-connection point between facilities operating at the DS1 level (DSX-1) or the DS3 level (DSX-3) without requiring that the facility be de-multiplexed to a lower bandwidth. The DSX frames allow relatively non-disruptive addition and removal of equipment, reasonable physical test access, and provide efficient means for cross-connecting circuits.

Optical Mux (and OC-48 Mux): Transmission equipment that aggregates (*i.e.*, multiplexes or "muxes") multiple lower bandwidth services onto a very high bandwidth facility. An Optical mux generally also supports signal conversions between optical and electrical based transmissions.

Digital Cross-Connection System (DCS): Provides for the grooming of facilities without the need to de-multiplex and re-multiplex the individual "channels" of the connecting facilities. For example, it permits the moving of DS1 #5 contained within DS3 #2 in facility segment A to DS1#17 within DS3 #3 on facility segment B. DCS allows improved utilization of very high capacity facilities.

X-conn Panel (or Fiber Distribution Panel): Provides a point of termination and cross-connection of a fiber facility to transmission equipment that manages the communications carrier within a fiber conductor.

Quantification of Cost of Self-provided Loops:

The cost of a self-provided loop can be conveniently analyzed based upon the following categories:

Lateral facility
Building Ring facility
LSO Ring transport
Building location costs
Node costs (interfacing between a Building Ring and an LSO Ring)

Each of these categories is reasonably subdivided into subcategories of investment costs, maintenance costs, and taxes.

Customer Lateral Facility:

As discussed above, the lateral facility is a short fiber that is dedicated to an individual building connected to a Building Ring. Because CLEC-provided loop facilities are typically placed in dense metropolitan areas, such facilities are virtually always placed in an underground structure. Consistent with the LSO Ring analysis, the building connected will be in one of the four most dense cells as defined in the HAI 5.2 model. Accordingly, the unit cost for the fiber lateral is the same as that underlying the analysis of the LSO Ring costs and is $40.99 per foot and $0.033 per strand foot. A twelve-strand fiber is assumed although this assumption does not materially impact the overall cost of the fiber lateral. Accordingly, the gross investment is $20,690[4] and converts to an investment cost of $342 per month.[5] As with the LSO transport model, a 0.61% per year per gross investment dollar maintenance assumption is applied, and 5% of investment and maintenance costs were added to cover non-income taxes. This results in a maintenance expense of about $11 and tax expense of $17 per month associated with the lateral. The total cost is $370 per month.[6]

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[4] The actual calculation is as follows: 500 feet* ($40.99/foot+ 12 strands *($0.033/strand-foot)).

[5] The calculation is the same as employed in the LSO transport cost analysis in the Transport *ex parte* and employs the EXCEL PMT function. The actual calculation is PMT(cost of money, recovery period, gross investment*(1-salvage)). The cost of money employed in this analysis is based upon the pre-tax cost of money employed in the LSO transport cost analysis (*i e.*, 14.24%) increased by 20% to account for the greater risk associated with the loop plant investment (*i.e.*, the actual cost of money employed is 17.09% per year). The recovery period for the building-dedicated investment is 6 years. Net salvage is the same as that used for fiber facilities and is identical to that underlying the LSO transport analysis for underground fiber (*i.e.*, -14.58%).

[6] If the lateral life is assumed to be the same as that of an underground fiber, the overall cost declines to $91 per month, distributed $76 for investment recovery, $11 for maintenance and $4 taxes. However, such a long life is unreasonably conservative given the volatile nature of demand from a single customer location (customer contracts typically run only 2 to 3 years). Accordingly, even the 6-year figure assumes at least one contract renewal, and the figure presented is this footnote is offered strictly for sensitivity analysis purposes.

Building Ring:

As stated above, Building Rings are typically about 30 miles in total length and connect 10 to 20 buildings to the LSO transport node. As with the Customer Lateral, the Building Ring is assumed to be an underground fiber placed within one of the four highest density zones of the HAI model. Accordingly, the same unit cost per foot and per strand is employed as was used for determining the investment cost of the lateral. The cost modeling assumes 2 strands per building. Accordingly, the gross investment in the Building Ring is about $6.7 million.[7] Because this facility is shared among 20 buildings, the assigned investment cost per building is $334,952 of gross investment. Note that the maximum number of buildings typically placed on a ring was employed. As a result, this generates the lowest likely gross investment attribution.

A consistent approach was used to develop the monthly cost for the Building Ring component as was employed for the Customer Lateral. The only exception is that the life for the Building Ring was assumed to be that of underground fiber, *i.e.*, about 26 years, rather than the 6-year life for the lateral. While the life of an individual lateral may be relatively short, the assumption here is that as individual buildings drop off the ring (due to lack of demand) others are added to replace them, resulting in a stable number of on-net buildings. The monthly investment recovery cost is $5,533 and the associated monthly maintenance and tax-related costs are $170 and $285, respectively. The total Building Ring assigned cost is, therefore, $5,988 per month per building.

LSO Ring Transport:

The last component of physical connectivity associated with the CLEC loop is the LSO Ring transport. This is the same connectivity that would be employed by any other service configuration or loop connecting to the CLEC network through the node. As such, the cost previously developed for the Transport *ex parte* is employed here. Because the costs are basically fixed at the node, the issue is simply one of determining the total DS3 volume presented to the node and then determining the number of DS3s that an individual building contributes. For the purposes of this analysis, the fixed costs of the node are assumed to be the same as that developed in the Transport *ex parte* or $32,557 per month. Furthermore, in order to present the most conservative evaluation of the cost of a CLEC loop, the analysis assumes that the facility is used to 90% of capacity, or $740 per DS3 per month.

Customer Location Costs:

The customer location costs are primarily equipment and space related. The equipment costs are related to those elements shown at the customer location in Figure 2: the DSX-1, the Optical Mux and the Fiber Distribution Panel (FDP). The FDP investment is the

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[7] The calculation is as follows: 30 miles * 5280 ft/mi*($40..99/ft + 20 buildings*(2 strands/building)*($0.033/strand-foot)

same as that used in the Transport *ex parte*, *i.e.*, $1000 per panel and 2 connections per multiplexer at $60 per connection ($1120 per connected panel). The Optical Mux cost is that for an OC-3 and is found in the HAI inputs (p. 96). The common cost is $20,000 plus $500 per 7 DS1s, up to a maximum of 84 DS1s. No cost was available in HAI for the DSX-1; however, costs were available on the ADC website for such equipment (www.adc.com). Specifically, a DSX-1 shelf with a capacity of 84 DS1s is priced at $2,085 (see item: Di M2GU1). Most customer building connections are at the OC-3 level. Accordingly, the investment at a customer premise is $23,205 plus $500/7 DS1s. This converts to a monthly cost of $407 plus $9 for every 7 DS1s active.[8] Thus, the total monthly investment cost for equipment at a customer location is in the range of $416 to $513 if from 1 to 84 DS1 (84 DS1s equal 3 fully utilized DS3s) are active. This investment cost results in a maintenance cost of $40 to $49 and taxes of $23 to $28 per month.

The final cost that must be considered is that for space rental. For the purposes of this analysis, space rental at each building adds about $678 per month.[9] Because no site preparation costs are explicitly included, there is no associated gross investment and, accordingly, no maintenance assumed. Taxes, however, account for $34/month.

The customer location costs are summarized below:

Item	Investment Cost	Maintenance	Other	Taxes	Total
Equipment	$416 to $513	$40 to $49	$0	$23 to $28	$479 to $590
Space	$0	$0	$678	$34	$712
Total at Premise	$416 to $513	$40 to $49	$678	$57 to $62	$1,191 to $1,302

Node Costs:

As shown in Figure 2, the equipment at the node necessary to interface with the LSO Ring transport included a FDP, an OC-3 multiplexer, a DSX-3 cross-connection device and a DCS. The FDP and OC-3 have the same cost, maintenance and tax implications as for the customer premises. The cost of the DCS is found in HAI 5.2 inputs (p. 99) and reflects a gross investment of $30,000 per DS3. HAI inputs do not explicitly list a DSX-3 cost. The same ADC website referenced for the DSX-1 also contains a cost for a DSX-3 (see DSX-4B-24-7A), which is $8,463 and can accommodate 24 DS3s. Because this function is shared at the node, rather than incurring the full cost of a shelf, the study

[8] The equipment lives, gross salvage and maintenance factors are those used for circuit equipment as described in the Transport *ex parte*, *i.e.*, 10.24 years, -1.69% and 2%, respectively

[9] AT&T's internal records relating to common space rentals indicate a national average monthly cost of $678.30.

assumes that sharing occurs and that the cost will be incurred on a DS3 basis (or $353 per DS3 port). Based on Figure 2, 5 ports are required per DS3 at the node. Accordingly, the gross investment formula for the node is $21,120+$500 per 7 DS1s+ $30,863 per 84 DS3s.[10] Thus, the node costs are largely a function of the number of DS3s delivered from the building. The table below summarizes the node related costs for various demand levels at the building:

Building Volume (DS1s)	investment cost	maintenance	taxes	total
0-7	$922	$87	$50	$1059
8-14	$931	$88	$51	$1070
15-21	$940	$89	$51	$1080
22-28	$949	$90	$52	$1091
29-35	$1516	$144	$83	$1743
36-42	$1525	$145	$83	$1753
43-49	$1534	$145	$84	$1763
50-56	$1543	$146	$84	$1773
57-63	$2110	$200	$115	$2425
64-70	$2119	$201	$116	$2436
71-77	$2128	$202	$116	$2446
78-84	$2137	$203	$117	$2457

[10] The investment cost equation, based on the same life and salvage assumptions applied to the customer node equipment is $355+$558/DS3+$9/7 active DS1. The fixed cost is slightly different compared to the customer premises, because rather than one FDP there are two and the cost of those two are shared among 20 buildings.

With all the components of the cost now established, it is possible to develop the total cost of connecting a building that provides varying levels of demand:

	Monthly Costs By Source						
DS1s active	cust location eqpt	lateral	bldg ring	node eqpt	LSO Backhaul	total	avg cost/DS1
1	$ 1,191	$ 370	$ 5,988	$ 1,059	$ 740	$ 9,348	$ 9,348
7	$ 1,191	$ 370	$ 5,988	$ 1,059	$ 740	$ 9,348	$ 1,335
14	$ 1,201	$ 370	$ 5,988	$ 1,070	$ 740	$ 9,369	$ 669
21	$ 1,211	$ 370	$ 5,988	$ 1,080	$ 740	$ 9,389	$ 447
28	$ 1,221	$ 370	$ 5,988	$ 1,091	$ 740	$ 9,410	$ 336
35	$ 1,231	$ 370	$ 5,988	$ 1,743	$ 1,480	$ 10,812	$ 309
42	$ 1,241	$ 370	$ 5,988	$ 1,753	$ 1,480	$ 10,832	$ 258
49	$ 1,251	$ 370	$ 5,988	$ 1,763	$ 1,480	$ 10,852	$ 221
56	$ 1,261	$ 370	$ 5,988	$ 1,773	$ 1,480	$ 10,872	$ 194
63	$ 1,271	$ 370	$ 5,988	$ 2,425	$ 2,220	$ 12,274	$ 195
70	$ 1,281	$ 370	$ 5,988	$ 2,436	$ 2,220	$ 12,295	$ 176
77	$ 1,291	$ 370	$ 5,988	$ 2,446	$ 2,220	$ 12,315	$ 160
84	$ 1,301	$ 370	$ 5,988	$ 2,457	$ 2,220	$ 12,336	$ 147

Having the total cost and unit cost for a constructed loop now permits an evaluation of when it is reasonable to substitute a build for an alternative facility. Because AT&T has generally been unable to obtain high capacity UNEs, particularly UNE DS1 loops multiplexed onto UNE DS3 facilities, the only possible comparison is to ILEC special access.

Special Access Alternative:

Other than access to a UNE loop, the alternative to constructing loops is a special access configuration from the customer premises to the CLEC network. Given the volumes, the configuration would most likely be a combination of DS1 channel terminations, DS3:1 multiplexing and DS3 interoffice transport. The approximate cost of such a configuration, under a long term pricing arrangement, is approximately the following:

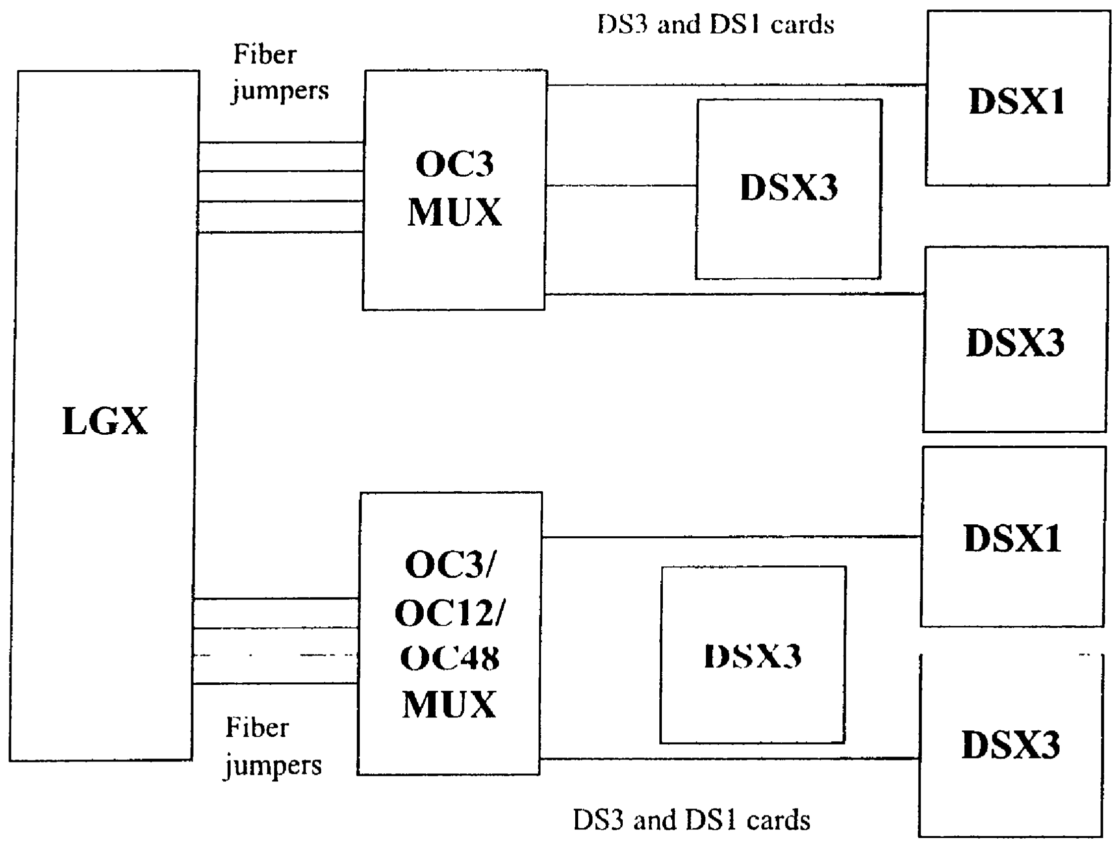
DS1 Channel Term (with NRC amortized): $113 to $127 per DS1/month
DS3 fixed with mux (NRC amortized): $850 to $1,018 per DS3/month
DS3 interoffice mileage: $53 to $73 per mile per DS3/month

The figure represents the approximate rate, averaged across RBOC territories, for a three-year term agreement, and the lower figure represents the average rate for a 5-year term agreement. This is, therefore, a highly conservative estimate of the ability of a CLEC to self-deploy a loop because special access rates are well-above the RBOCs' economic costs. As AT&T has explained, a CLEC needs to achieve costs comparable to the RBOC's economic costs in order to deploy economically its own facilities.

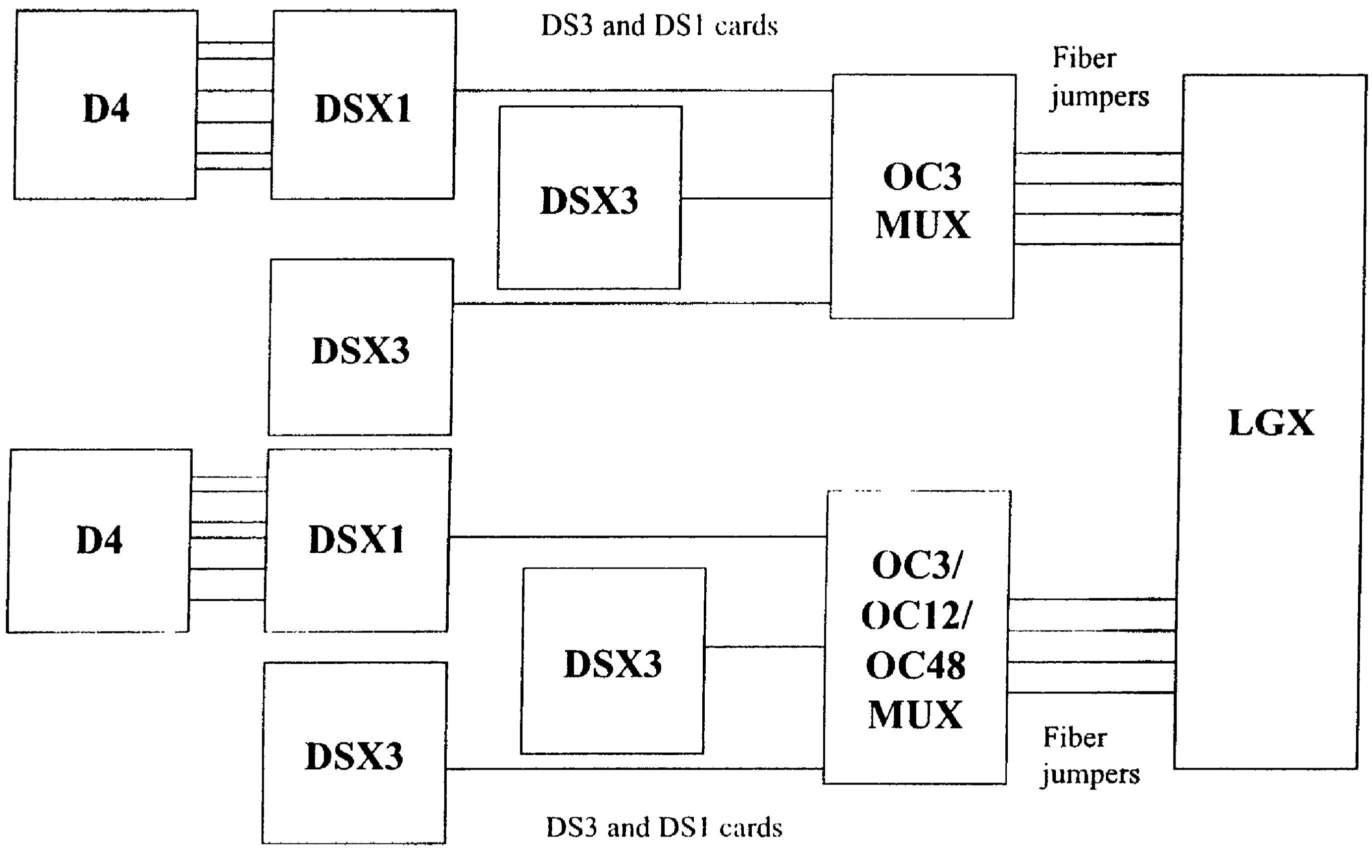
These unit costs can be used to develop the average (per DS1) cost of a special access configuration. The only additional information required is the inter office mileage. For the analysis, the same mileage was used as is employed for the transport *ex parte* (8.94 miles). The following table compares the average cost per DS1 under an overbuild assumption (build) compared to the average cost of obtaining the equivalent capacity as a DS1 Channel Termination + DS3 interoffice transport using access obtained under a 5-year term agreement (SA-5) or a 3-year term agreement (SA-3). The table shows that the average cost of the self-provided loops are not less than special access pricing until a third DS3 is activated (each DS3 represents 28 DS1s). At 63 active DS1 loops, the build has a superior cost structure compared to the 3-years special access average unit cost ($195/DS1 compared to $206/DS1). Similarly, compared to the 5-year special access average unit cost, it is not until the 77th DS1 is activated that the build unit cost are an improvement over the special access rate ($160/DS1 compared to $165/DS1). All this leads to the conclusion that a CLEC requires at least 3 DS3s of customer demand at a building before a facility build can generally be proven in as financially prudent.

DS1s	build	SA-5	SA-3
7	$ 1,335	$ 302	$ 365
14	$ 669	$ 208	$ 246
21	$ 447	$ 176	$ 206
28	$ 336	$ 160	$ 187
35	$ 309	$ 189	$ 222
42	$ 258	$ 176	$ 206
49	$ 221	$ 167	$ 195
56	$ 194	$ 160	$ 187
63	$ 195	$ 176	$ 206
70	$ 176	$ 170	$ 198
77	$ 160	$ 165	$ 192
84	$ 147	$ 160	$ 187

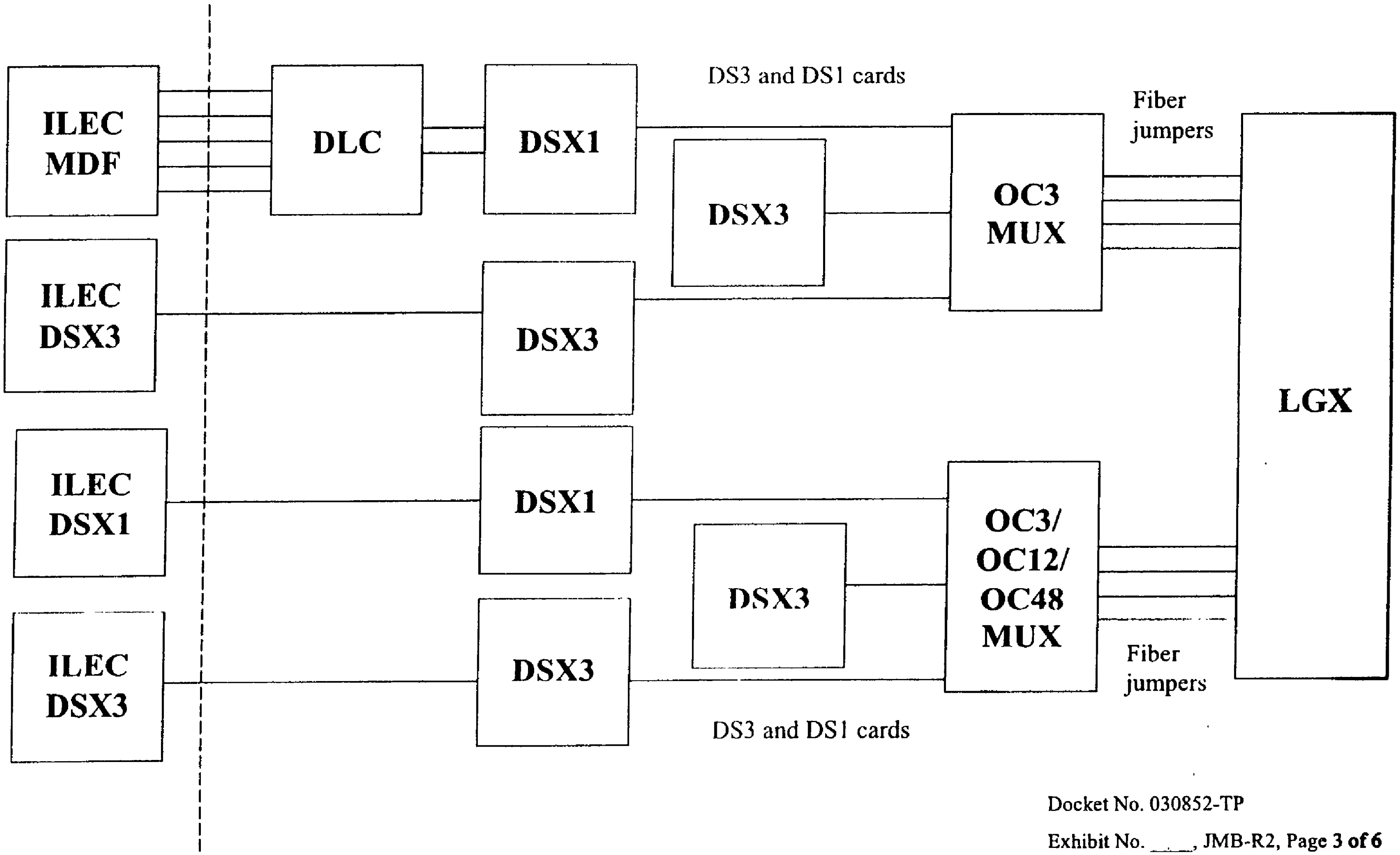
Key Network Architecture Equipment Needed for High Capacity Loops Or Dedicated Transport for Full Channelization Collocations and CLEC Node



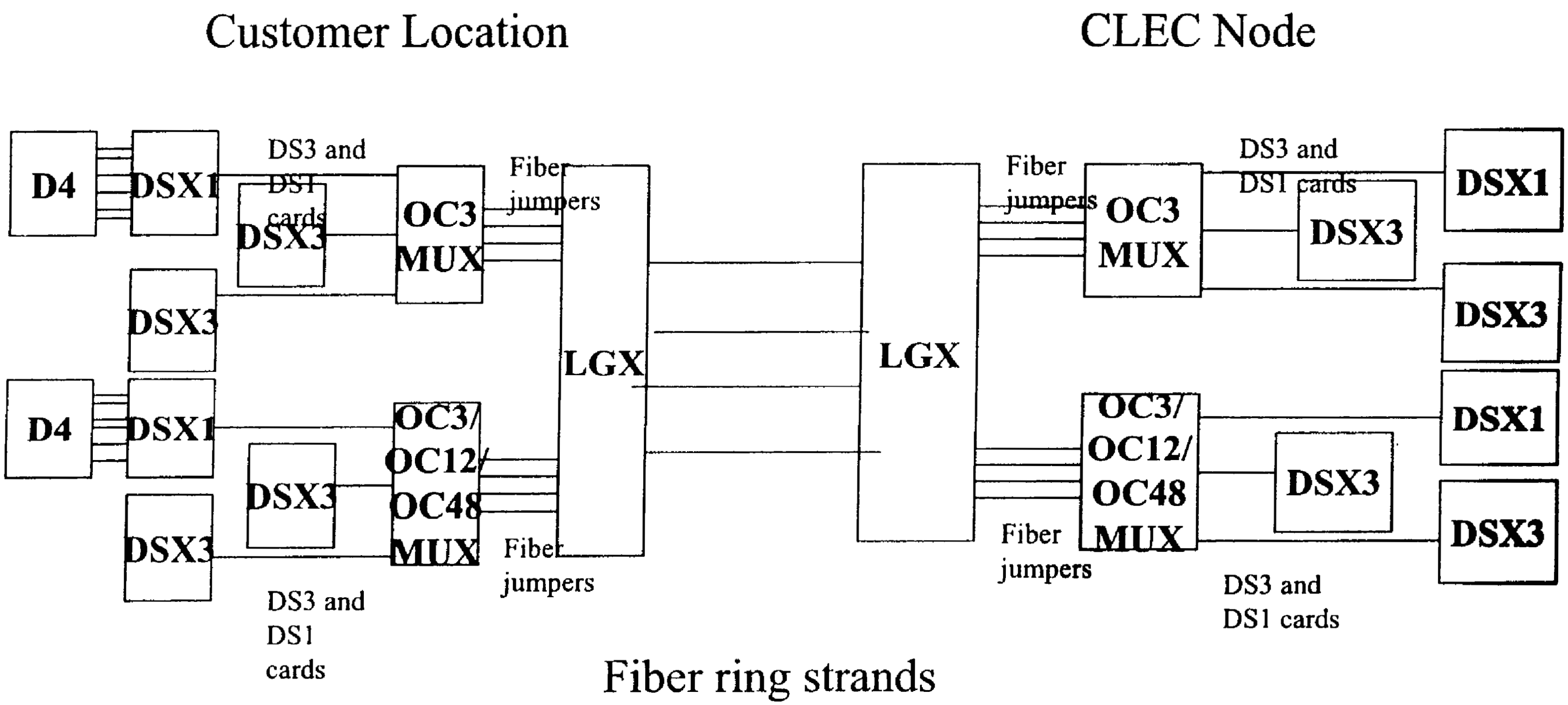
Key Network Architecture Equipment Needed for High Capacity Loops Or Dedicated Transport for Full Channelization Customer Locations



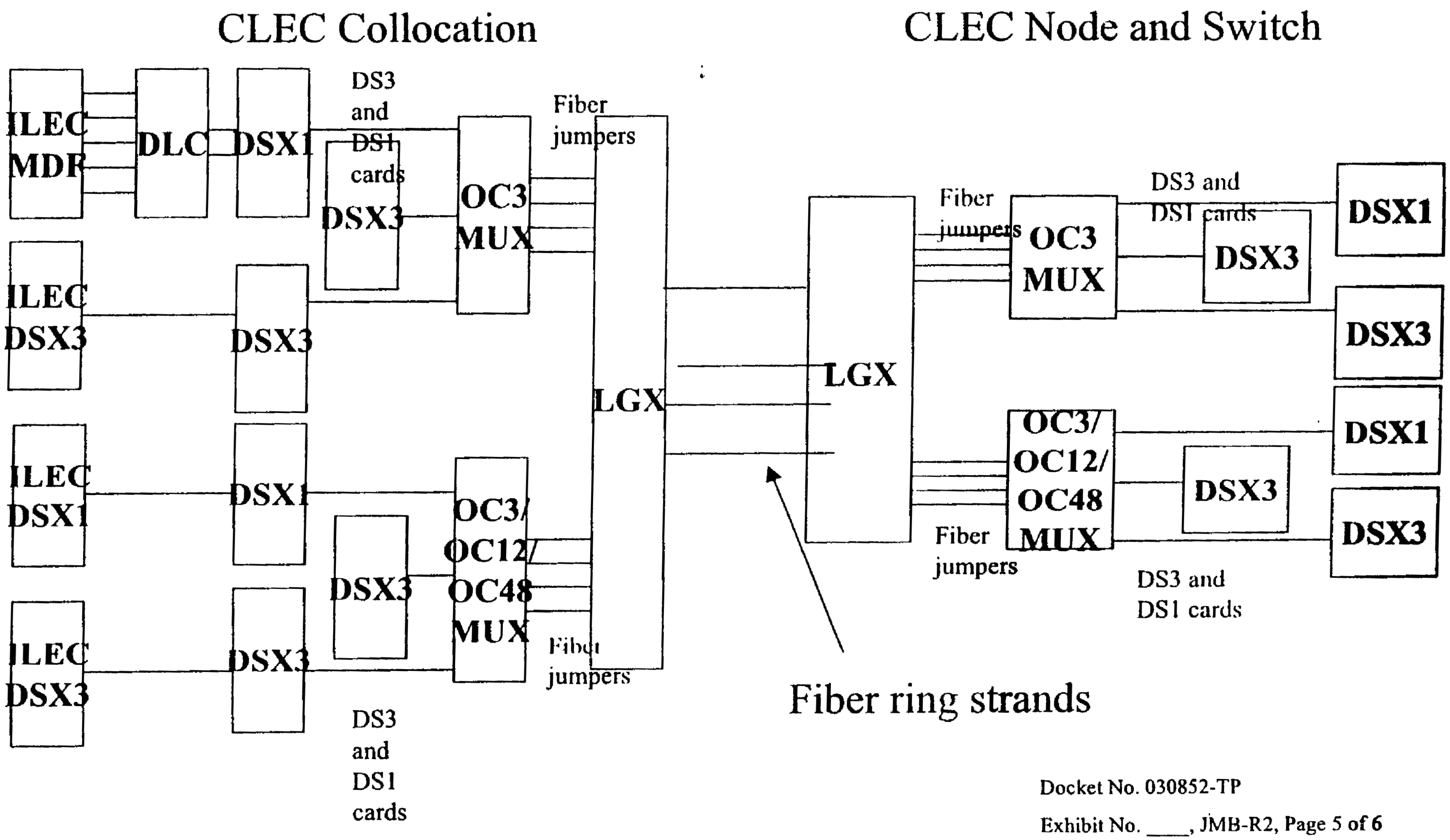
Key Network Architecture Equipment Needed for High Capacity Loops Or Dedicated Transport for Full Channelization CLEC Collocation with DLCs



Without specific dedicated DS3 and DS1 equipment components at both the customer location and CLEC node neither DS3 or DS1 signals can be exchanged.



AT&T aggregates loops at its collocations for delivery to its switch. Without specific dedicated DS3 and DS1 equipment components at both ends neither DS3 or DS1 signals can be exchanged.



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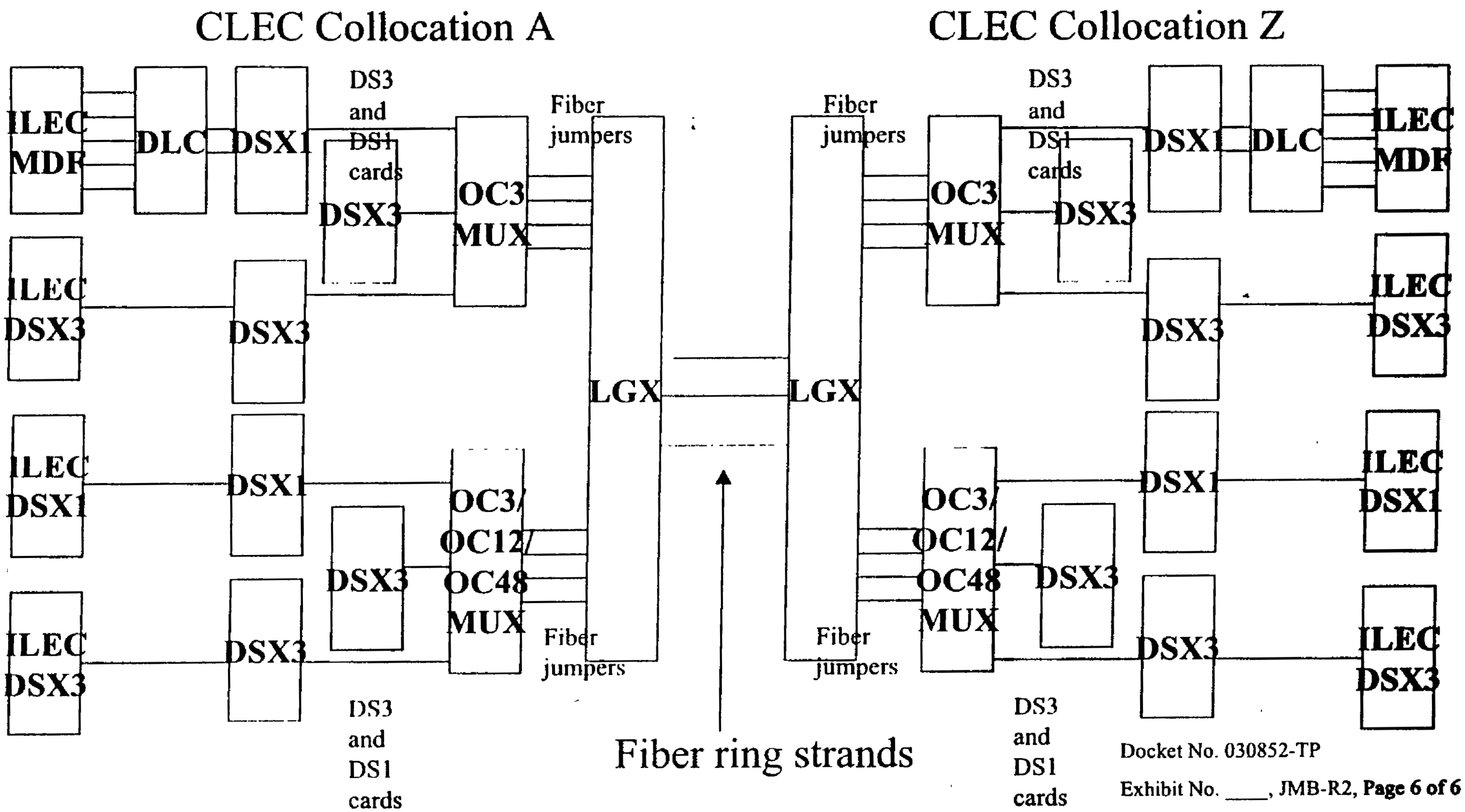
Key Network Architecture Equipment

AT&T does not self-provide transport between its collocations. However for any CLEC that might, without specific dedicated DS3 and DS1 equipment components at both ends neither DS3 or DS1 signals can be exchanged.



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Key Network Architecture **Equipment**