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January 31, 2000

Mrs. Blanca S. Bayo, Director  
Division of Records and Reporting  
Florida Public Service Commission  
2540 Shumard Oak Boulevard  
Tallahassee, Florida 32399-0850

Re: Docket No. 991237-TP

Dear Mrs. Bayo:

Enclosed for filing in the above-referenced docket are an original and fifteen (15) copies each of the direct testimony of Jerry J. Langin-Hooper and Richard Guepe on behalf of AT&T Communications of the Southern States, Inc.

Copies of the foregoing are being served on all parties of record in accordance with the attached Certificate of Service.

Thank you for your assistance with this matter.

Yours truly,

*Tracy Hatch*  
Tracy Hatch

- AFA \_\_\_\_\_
- APP \_\_\_\_\_
- CAF \_\_\_\_\_
- CMU \_\_\_\_\_
- CTR \_\_\_\_\_
- EAG \_\_\_\_\_
- LEG \_\_\_\_\_
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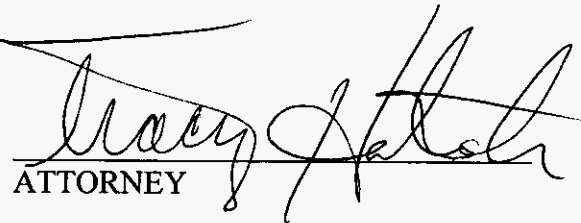


**CERTIFICATE OF SERVICE**  
**DOCKET NO. 991237-TP**

I HEREBY CERTIFY that a true and correct copy of the foregoing was furnished  
via U.S. Mail to the following parties of record on this 31st day of January, 2000:

Nancy B. White  
c/o Nancy Sims  
BellSouth Telecommunications, Inc.  
150 S. Monroe Street, Suite 400  
Tallahassee, FL 32301-1556

Diana Caldwell  
FPSC  
2540 Shumard Oak Blvd.  
Room 301D  
Tallahassee, FL 32399-0850

  
ATTORNEY

ORIGINAL

**BEFORE THE  
FLORIDA PUBLIC SERVICE COMMISSION  
DOCKET NO. 991237-TP  
DIRECT TESTIMONY  
OF  
JERRY J. LANGIN-HOOPER  
ON BEHALF OF  
AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC.**

January 31, 2000

DOCUMENT NUMBER-DATE

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**DIRECT TESTIMONY OF**  
**JERRY J. LANGIN-HOOPER**  
**ON BEHALF OF**  
**AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC.**  
**DOCKET NO. 991237-TP**

**Q. PLEASE STATE YOUR NAME, POSITION, EMPLOYER, AND BUSINESS ADDRESS.**

A. My name is Jerry J. Langin-Hooper. I am the owner and principal consultant of Langin-Hooper Associates, a professional consulting firm providing services primarily to the telecommunications industry. My business address is 6940 N. Academy Boulevard, #520, Colorado Springs, Colorado.

**Q. PLEASE REVIEW YOUR EDUCATION, PROFESSIONAL BACKGROUND AND WORK EXPERIENCE.**

A. I hold a Ph.D. and three other degrees in Economics. My primary areas of study have been econometrics and regulatory economics. I have spent most of the past twenty-three years as a professional consultant. During that period, I also spent five years as a Manager for AT&T, one year as Chief of Population Projections for the State of Colorado and was a part-time instructor in Economics at Rutgers University and Metropolitan State College.

1                   During the past ten years, I have specialized in consulting for  
2                   telecommunications firms. My clients have included most of the major  
3                   local and long distance telephone companies in the United States and  
4                   Canada. I have provided analytical consulting services to AT&T Bell  
5                   Laboratories. I have also worked on behalf of several smaller cellular,  
6                   PCS and local interconnection companies.

7                   I have prepared numerous professional reports, some of which  
8                   have been published while others have been presented at industry  
9                   conferences. A complete summary of my background, work experience  
10                  and professional reports are attached as Exhibit JLH-1.

11

12   **Q.   ON WHOSE BEHALF ARE YOU TESTIFYING?**

13   A.   I am testifying on behalf of AT&T Communications of the Southern  
14       States, Inc.

15

16   **Q.   WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

17   A.   The purpose of my testimony is to describe the following:

- 18       1.    The nature of certain optional services offered by BellSouth which  
19       involve vendor "interception" of a call before it reaches the called party  
20       and which provide customers with features and functions that are not  
21       otherwise available over plain old telephone service ("POTS") lines;  
22       2.    The nature of other specific services offered by BellSouth which

1 provide customers with features and functions that are not otherwise  
2 available over POTS lines;

3 3. The interaction of these services with AT&T's long distance calls;

4 4. The purpose of Carrier Common Line Charges ("CCLCs");

5 5. The appropriate application of CCLCs to AT&T calls which  
6 interact with these services; and

7 6. The misapplication by BellSouth in billing CCLCs for AT&T calls  
8 which interact with these services.

9

10 **I. Description of BellSouth Services**

11

12 **Q. WHAT NAME HAS BEEN USED BY AT&T TO DESIGNATE THE**  
13 **BELLSOUTH SERVICES DESCRIBED ABOVE?**

14 A. The term "Vendor Intercepted Services" ("VIS") has been used to  
15 designate those services since most of them involve BellSouth's  
16 "interception" of a call before it reaches the called party or they involve  
17 the "interception" and routing of a call by BellSouth in a manner which is  
18 distinctly different from the routing used for a call placed over a POTS  
19 line (i.e., an end user's local loop or common line).

20

21 **Q. WHAT SERVICES OFFERED BY BELLSOUTH HAVE BEEN**  
22 **INCLUDED UNDER THE VIS DESIGNATION FOR YOUR**

1           **TESTIMONY?**

2    A.    Those services include Call Forwarding ("CF"), Call Waiting ("CW"),  
3           Three-way Calling ("3W"), Foreign Exchange ("FX"), Voice Messaging  
4           ("VM"), Fax Processing ("FP"), and Paging services.

5

6    **Q.    PLEASE DESCRIBE THE CALL FORWARDING SERVICE.**

7    A.    Call Forwarding is an optional service offered by BellSouth that allows a  
8           customer to re-direct the delivery of an incoming call to another telephone  
9           number. The customer may choose from a variety of options or conditions  
10          under which the call will be forwarded. These options include  
11          unconditional CF where every call is re-directed to a predetermined  
12          number and variable CF where the customer may control whether or not  
13          the forwarding feature is enabled. Conditions for forwarding a call may  
14          include "busy" and "no answer" for the designated line.

15                 BellSouth provides the CF service to its customers for a monthly  
16                 fee. BellSouth's service offering makes it clear to any customer who  
17                 subscribes to the CF service that additional charges for routing the call,  
18                 such as intraLATA toll charges, are the customer's responsibility. For any  
19                 type of forwarded call, the customer chooses and designates the carrier  
20                 which will deliver the forwarded portion of the call, paying the standard  
21                 rate charged by that carrier for delivery of a similar, stand-alone call.

22                 When CF is activated, calls that ordinarily would terminate at the

1 number which was originally dialed (the "Initially Called Number") are  
2 routed by the BellSouth CF service to another number (the "Alternate  
3 Location Number"). The CF service "intercepts" the call at the central  
4 office serving the Initially Called Number and redirects the call to the  
5 appropriate carrier that provides the service connection to the Alternate  
6 Location Number. The common line connecting BellSouth's central office  
7 to the customer premises of the Initially Called Number is not used in the  
8 completion of the call.

9 A chart demonstrating BellSouth's Call Forwarding service is  
10 attached as Exhibit JLH-3: Chart 1.

11

12 **Q. PLEASE DESCRIBE THE CALL WAITING SERVICE.**

13 A. Call Waiting is an optional service offered by BellSouth that allows a  
14 customer to receive a second call while already on the line with another  
15 call. A audible tone in the receiver signals the customer of the arrival of  
16 the second call. With standard CW, the customer activates the service by  
17 a switchhook flash (momentarily depressing the switchhook) to place the  
18 first call on hold in order to answer the second one. Flashing again places  
19 the second call on hold and returns the connection to the first call.

20 BellSouth provides the CW service to its customers for a monthly  
21 fee.

22 The CW service "intercepts" the second call at the central office



1 serving the customer, providing a "hold" function which is not available  
2 on regular POTS lines. When CW is activated, one of the two calls is  
3 always on hold at the BellSouth central office. The other call is active  
4 over the common line connected to the customer's premises. As long as  
5 neither of the calling parties disconnects, both calls are available to the  
6 customer but only one of them actually uses the common line at any time.

7 A chart demonstrating BellSouth's Call Waiting service is attached  
8 as Exhibit JLH-3: Chart 2.

9

10 **Q. PLEASE DESCRIBE THE THREE-WAY CALLING SERVICE.**

11 **A.** Three-way Calling is an optional service offered by BellSouth that allows  
12 a customer to place a second call while already on the line with another  
13 call. If desired, the customer can join both calls into a single, conferenced  
14 connection. The customer activates the three-way (3W) service by a  
15 switchhook flash, placing the first call on hold in order to dial the second  
16 one. The second call can proceed independently (with the first call  
17 remaining on hold) or, by flashing again, the customer can join both calls  
18 together. The joint connection continues until one of the parties  
19 disconnects.

20 The 3W service is provided by BellSouth to its customers for a  
21 monthly fee or on a per use basis. BellSouth's service offering makes it  
22 clear to any customer who subscribes to the 3W service that additional

1 charges for placing calls, such as intraLATA toll charges, are the  
2 customer's responsibility. For any type of call placed in conjunction with  
3 the 3W service, the customer chooses and designates the carrier which will  
4 deliver that call, paying the standard rate charged by that carrier for  
5 delivery of a similar, stand-alone call.

6 The 3W service "intercepts" the customer's calls at the central  
7 office, providing a conferencing function. When 3W is activated, the first  
8 call is placed on hold at the BellSouth central office. The second call is  
9 then active over the common line connected to the customer's premises. A  
10 second switchhook flash connects both calls. The first call does not use  
11 the customer's common line while it is on hold; both calls simultaneously  
12 use the single common line when joined together.

13 A chart demonstrating BellSouth's Three-Way Calling service is  
14 attached as Exhibit JLH-3: Chart 3.

15

16 **Q. PLEASE DESCRIBE THE FOREIGN EXCHANGE SERVICE.**

17 A. Foreign Exchange service is a service that uses a private line to connect a  
18 subscriber's location with a distant (or "foreign") central office located  
19 outside the subscriber's local calling area. A phone number in the distant  
20 central office creates the appearance of the subscriber's presence in that  
21 distant central office. The private line connection between the subscriber's  
22 premises and the distant central office is known as the "closed end" while

1 the term "open end" denotes the dial-tone end of the FX service located in  
2 the distant central office.

3 Calls originating from the subscriber of the FX service are billed as  
4 if they had been dialed from the distant central office. Calls terminated to  
5 the subscriber are dialed to the subscriber's number in the distant central  
6 office and billed as if the distant central office had received the calls.  
7 BellSouth provides IntraLATA FX service while InterLATA FX service is  
8 provided by an interexchange carrier (IXC) using BellSouth's access  
9 connections.

10 BellSouth provides IntraLATA FX service to its customers for a  
11 combination of fixed monthly fees and usage charges. BellSouth's service  
12 offering makes it clear to any customer who subscribes to the FX service  
13 that additional charges for calls made from the open end of the FX service,  
14 such as intraLATA toll charges, are the customer's responsibility.

15 InterLATA FX service is provided by an IXC using BellSouth's  
16 Feature Group A ("FGA") connection to the local network. FGA  
17 connections are charged per minute of use. An interLATA private line  
18 links the FGA connection to the subscriber's premises.

19 When a call is placed to an FX telephone number, the FX service  
20 "intercepts" the call at the distant central office and redirects the call over a  
21 private line to the subscriber's premises. No common line is used to  
22 terminate the call from the distant central office to the FX customer's

1 premises.

2 When a call is placed from an FX telephone number, a private line  
3 connects the call from the subscriber's premises to the distant central  
4 office. No common line is used to originate the call.

5 A chart demonstrating an FX connection in a BellSouth end office  
6 is attached as Exhibit JLH-3: Chart 4.

7

8 **Q. PLEASE DESCRIBE THE VOICE MESSAGING AND FAX**  
9 **PROCESSING SERVICES.**

10 A. Voice Messaging and Fax Processing services are services offered by  
11 BellSouth and other providers to allow a customer to record (and retrieve)  
12 voice messages and faxes. These VM and FP services use BellSouth's  
13 Call Forwarding services to re-direct the delivery of an incoming call  
14 (either voice or fax, as appropriate) to the automated message storage  
15 systems. Usually, busy/no answer CF services are used for VM and FP,  
16 and are typically ordered by the VM or FP service provider on behalf of  
17 the VM or FP subscriber.

18 BellSouth provides the busy/no answer CF service for a monthly  
19 fee. The characteristics of the busy/no answer CF service are the same as  
20 was previously described for CF services in general.

21 When busy/no answer CF is activated, calls that ordinarily would  
22 terminate at the number that was originally dialed (the "VM or FP

1 Subscriber's Number") are routed by BellSouth's CF service to the VM or  
2 FP systems. The CF service "intercepts" the calls at the central office  
3 serving the VM or FP Subscriber's Number and redirects the calls over the  
4 appropriate carrier's facilities to the VM and FP systems' locations. The  
5 common line connecting BellSouth's central office to the customer  
6 premises of the VM or FP subscriber is not used in the completion of the  
7 call.

8 In addition, VM and FP systems are often collocated in BellSouth's  
9 central offices and are connected to the central office switch via a transport  
10 link, not a common line. Even non-collocated VM and FP systems may  
11 use other types of connections, such as FX lines, which are not common  
12 lines.

13 A chart demonstrating the use of BellSouth's Call Forwarding  
14 service for Voice Messaging or Fax Processing is attached as Exhibit JLH-  
15 3: Chart 5.

16

17 **Q. PLEASE DESCRIBE PAGING SERVICES.**

18 A. Paging services are offered by BellSouth and other paging service  
19 providers to transmit alphanumeric and other types of messages to  
20 subscribers over a radio link. A phone number (sometimes including an  
21 additional access code) is assigned to the paging subscriber. Calls to the  
22 paging subscriber's number are routed through BellSouth's network to the



1 processing or routing of AT&T calls to standard POTS lines. However,  
2 BellSouth's billing of access charges to AT&T on these calls generally  
3 treat them as though they had been originated from or terminated to  
4 standard POTS lines, i.e. common lines.

5  
6 **Q. WHICH TYPES OF AT&T CALLS INTERACT WITH**  
7 **BELLSOUTH'S VIS SERVICES?**

8 A. Any AT&T call which might use a common line can interact with the VIS  
9 services. For example, interactions could occur on either end of MTS  
10 (Message Telecommunications Service) and MTS-like calls or the open  
11 ends of WATS (Wide Area Telecommunications Service), 800 Service,  
12 Megacom, and SDN (Software Defined Network) calls. Such AT&T calls  
13 could be interLATA or intraLATA in nature.

14  
15 **Q. HOW DOES AN AT&T CALL INTERACT WITH BELLSOUTH'S**  
16 **CALL FORWARDING SERVICE?**

17 A. When CF is activated, an AT&T call that ordinarily would terminate at the  
18 Initially Called Number is routed by the BellSouth CF service to an  
19 Alternate Location Number. The CF service "intercepts" the call at the  
20 central office serving the Initially Called Number and redirects the call to  
21 the appropriate carrier that provides service connecting to the Alternate  
22 Location Number.

1           BellSouth's access billing system treats an AT&T call interacting  
2           with the CF service as though it had been completed over the common line  
3           connecting BellSouth's central office to the customer premises of the  
4           Initially Called Number. However, that common line is not used in the  
5           completion of the AT&T call. To the extent that the common line is not in  
6           use, AT&T is being overcharged CCLCs by BellSouth.

7           A chart demonstrating that CCLCs should not be billed for an  
8           AT&T call forwarded through BellSouth's CF service is attached as  
9           Exhibit JLH-3: Chart 7.

10

11   **Q.   WHAT ADDITIONAL ISSUE DOES THE INTERACTION OF AN**  
12   **AT&T CALL WITH BELLSOUTH'S CALL FORWARDING**  
13   **SERVICE RAISE?**

14   **A.   When an AT&T customer places a call, AT&T's obligation is to transport**  
15   **that call to the called party as requested. Otherwise, AT&T would not be**  
16   **justified in charging its customer for the call. When AT&T requests that**  
17   **BellSouth complete the call through access connections, the obligation**  
18   **extends to BellSouth to complete the call as dialed. However, when**  
19   **BellSouth's central office CF service intercepts a call, the CF customer**  
20   **assumes responsibility for any charges associated with subsequent**  
21   **processing and delivery of the call. BellSouth's CF tariffs clearly state**  
22   **this responsibility for CF subscribers.**



1 **Q. HOW DOES AN AT&T CALL INTERACT WITH BELLSOUTH'S**  
2 **CALL WAITING SERVICE?**

3 A. When the CW service is activated, it "intercepts" a second call at the  
4 central office serving the customer. If the first call is an AT&T call, it  
5 may be placed on hold while the CW subscriber answers the second. The  
6 first AT&T call stays on hold until the subscriber signals the central office  
7 to return to that call. If the second call is an AT&T call, it is connected  
8 when the subscriber flashes the switchhook but may be placed on hold  
9 while the subscriber returns to the first call.

10 Whether the first call or the second (or both) are AT&T calls, one  
11 call is always on hold at the BellSouth central office for the period when  
12 the two calls are simultaneously active. The other call is connected over  
13 the common line to the customer's premises. As long as neither of the  
14 calling parties disconnects, both calls are available to the customer but  
15 only one of them actually uses the common line at any time.

16 BellSouth's access billing system treats an AT&T call interacting  
17 with the CW service as though it alone had been completed over the  
18 common line connecting BellSouth's central office to the customer's  
19 premises for the full duration of the call. However, that common line is  
20 not used at all times in the completion of the AT&T call. To the extent  
21 that the common line is not used, AT&T is being overcharged for CCLCs  
22 by BellSouth.

1                   A chart demonstrating that CCLCs should not be billed for an  
2                   AT&T call placed on hold at the central office by BellSouth's CW service  
3                   is attached as Exhibit JLH-3: Chart 8.

4

5   **Q.   HOW DOES AN AT&T CALL INTERACT WITH BELLSOUTH'S**  
6   **THREE-WAY CALLING SERVICE?**

7   A.   The 3W service "intercepts" the subscriber's calls at the central office,  
8           providing the appearance of a second line with an associated conferencing  
9           function. During an existing AT&T call, activation of the 3W service  
10          places that call on hold while a second call is originated. The second call  
11          may be conferenced with the first or may proceed independently. The  
12          second call may also be an AT&T call.

13               Whether the first call or the second (or both) are AT&T calls,  
14               either the first call is on hold at the BellSouth central office or both calls  
15               are simultaneously connected over the common line to the customer's  
16               premises. For the overlapping period when both calls are active, only one  
17               common line connecting to the subscriber's premises is actually in use.

18               BellSouth's access billing system treats an AT&T call interacting  
19               with the 3W service as though it alone had been connected over the  
20               common line to the customer's premises. However, that common line is  
21               not used exclusively in the completion of the AT&T call. When both calls  
22               are handled by AT&T, BellSouth bills AT&T for two minutes of use for

1 each minute that the common line is actually used. To the extent that the  
2 common line is jointly and simultaneously used by more than one carrier,  
3 AT&T is being overcharged for CCLCs by BellSouth.

4 A chart demonstrating that full CCLCs should not be billed for an  
5 AT&T call joined with another call by BellSouth's 3W service is attached  
6 as Exhibit JLH-3: Chart 9.

7

8 **Q. HOW DOES AN AT&T CALL INTERACT WITH FOREIGN**  
9 **EXCHANGE SERVICE IN BELLSOUTH'S TERRITORY?**

10 A. The dialtone associated with FX service allows both incoming and  
11 outgoing AT&T calls to be placed. AT&T calls placed to the FX number  
12 are "intercepted" by the FX service and routed over a private line to the  
13 FX subscriber. AT&T calls placed by the FX subscriber are routed from  
14 the subscriber to AT&T over a private line. In either case, no common  
15 line is used to connect the AT&T call from the distant central office to the  
16 FX customer's premises.

17 BellSouth's access billing system treats an AT&T call interacting  
18 with the FX service as though it had been connected over a common line  
19 to the customer's premises. However, no common line is used in the  
20 completion of the AT&T call. To the extent that no common line is used,  
21 AT&T is being overcharged for CCLCs by BellSouth.

22 A chart demonstrating that CCLCs should not be billed for an

1 AT&T call that is connected to an FX number in a BellSouth end office is  
2 attached as Exhibit JLH-3: Chart 10.

3

4 **Q. HOW DOES AN AT&T CALL INTERACT WITH BELLSOUTH'S**  
5 **CONNECTIONS TO VOICE MESSAGING AND FAX**  
6 **PROCESSING SERVICES?**

7 A. Voice Messaging and Fax Processing services use BellSouth's CF  
8 services. When a VM or FP subscriber's line is busy or doesn't answer, an  
9 AT&T call that ordinarily would terminate at the VM or FP Subscriber's  
10 Number is routed by the BellSouth CF service to the automated message  
11 storage systems. The CF service "intercepts" the AT&T call at the central  
12 office serving the VM or FP Subscriber's Number and redirects the call  
13 over the appropriate carrier's facilities to the VM or FP systems' locations.  
14 The common line connecting BellSouth's central office to the customer  
15 premises of the VM or FP subscriber is not used in the completion of the  
16 call.

17 BellSouth's access billing system treats an AT&T call re-directed  
18 to a VM or FP service as though it had been completed over the common  
19 line connecting BellSouth's central office to the customer premises of the  
20 Initially Called Number. However, that common line is not used in the  
21 completion of the call. To the extent that the common line is not used,  
22 AT&T is being overcharged for CCLCs by BellSouth.

1           A chart demonstrating that CCLCs should not be billed for an  
2           AT&T call forwarded to VM or FP systems by BellSouth's CF service is  
3           attached as Exhibit JLH-3: Chart 11.

4           Moreover, AT&T has requested that BellSouth complete the call to  
5           the VM or FP Subscriber's Number but BellSouth's central office CF  
6           service has intercepted the call. All direct and indirect expenses incurred  
7           for transporting, switching and delivering the call to the VM or FP system  
8           should be assessed against the carrier designated to deliver the call to the  
9           VM or FP system and recovered from charges to the VM or FP subscriber  
10          (either directly or through indirect charges to the VM or FP providers).

11          Finally, VM and FP systems are often collocated in BellSouth's  
12          central offices and are connected to the central office switch via a transport  
13          link, not a common line. Even non-collocated VM and FP systems may  
14          use other types of connections, such as FX lines, which are not common  
15          lines. Thus, even direct AT&T calls to the VM and FP systems (such as  
16          for remote message retrieval) do not use a common line. To the extent  
17          that a common line is not used, AT&T is being overcharged by BellSouth  
18          for CCLCs.

19

20   **Q.    HOW DOES AN AT&T CALL INTERACT WITH BELLSOUTH'S**  
21   **CONNECTIONS TO PAGING SERVICES?**

22   **A.    AT&T calls may be placed to a telephone number associated with a paging**

1 service connected through a BellSouth central office. Such an AT&T call  
2 is "intercepted" by the BellSouth's central office and routed over a non-  
3 common line to the paging service provider. No common line is used to  
4 connect the AT&T call to the paging subscriber's receiver.

5 BellSouth's access billing system has previously treated (and may  
6 still treat) an AT&T call interacting with paging service as though it had  
7 been connected over a common line to the subscriber's pager. However,  
8 no common line is used in the completion of the AT&T call. To the extent  
9 that a common line is not used, AT&T is being overcharged for CCLCs by  
10 BellSouth.

11 A chart demonstrating that CCLCs should not be billed for an  
12 AT&T call that is connected to a paging number in a BellSouth end office  
13 is attached as Exhibit JLH-3: Chart 12.

14 BellSouth has indicated to AT&T that access billing for calls to  
15 paging services was corrected around the end of the first quarter of 1996.  
16 Prior to that period, BellSouth had been inappropriately billing access on  
17 AT&T calls as though they terminated over common lines.

18

19 **III. Purpose of Carrier Common Line Charges**

20

21 **Q. WHAT IS THE PURPOSE OF CARRIER COMMON LINE**  
22 **CHARGES?**

1 A. CCLCs were established in the federal and state jurisdictions as access  
2 tariff usage charges designed to generate revenue to recover, at least in  
3 part, the costs of providing common line connections to end users. In  
4 addition to access charges to interexchange carriers the FCC designed a  
5 monthly charge, the Subscriber Line Charge (SLC), that is imposed  
6 directly to end-users.

7

8 **Q. HOW ARE THE ACCESS USAGE CHARGES ASSESSED?**

9 A. The CCLCs are assessed on a time-interval, minute of use basis (usually  
10 recorded to a tenth of a second) to carriers for the use of a common line  
11 which connects a designated end user premises through BellSouth's central  
12 office. Common lines are the only facilities for which CCLCs may be  
13 imposed. Other types of connections to end users, including dedicated  
14 (private) access lines and radio links, do not incur CCLCs since they are  
15 not common lines.

16 Actual use of a common line is also required to assess CCLCs  
17 since they are usage charges. The requirements of actual usage of a  
18 common line and specific timing of that usage are clearly demonstrated by  
19 the distinctive assessment of originating CCLCs. Those CCLCs are  
20 assessed from the time that a dialing sequence is delivered by BellSouth to  
21 a carrier until the call (or call attempt) is disconnected. Originating  
22 CCLCs are billed even if the call attempt is never completed and no call

1 occurs. The specific time interval of common line use in originating, but  
2 non-completed, call attempts incurs CCLCs regardless of the "call's"  
3 characteristics since there is no call. Thus, the timing and usage of a  
4 common line are the key determining factors in the assessment of CCLCs.

5 Were CCLCs to be charged to a carrier any time that a subscriber  
6 had the benefit of being able to activate a call to that carrier over a  
7 common line, every carrier could be charged CCLCs for nearly every  
8 second of every day for each of its presubscribed lines since its customers  
9 could activate calls at virtually any time.

10 A non-discriminatory assessment process for CCLCs based on  
11 actual common line usage has been applied across all carriers and types of  
12 calls which use common lines, regardless of the "value" of any specific  
13 call. A premium carrier, person-to-person, collect call is billed the same  
14 CCLCs as a direct-dialed call over a discount carrier.

15

16 **Q. WHAT IS A PRIMARY CHARACTERISTIC OF COMMON LINE**  
17 **COSTS?**

18 **A.** The primary characteristic of common line costs is that those costs are not  
19 sensitive to the levels of use of the common lines. A common line  
20 imposes a fixed cost on BellSouth whether it is used for only one minute  
21 per month or for more than ten thousand minutes per month. Recognition  
22 of this cost characteristic has persuaded the FCC and many state



1 regulatory agencies to adopt and expand fixed, monthly Subscriber Line  
2 Charges or End User Common Line Charges.

3

4 **Q. WERE CCLCs INTENDED TO CORRESPOND WITH THE**  
5 **CAUSATION OF COMMON LINE COSTS?**

6 A. CCLCs, when greater than zero, were never intended to correspond with  
7 the causation of common line costs since those costs do not vary with  
8 usage. Instead, CCLCs were created as an arbitrary (although historically  
9 based) revenue-generating mechanism which assists in recovering, at least  
10 in part, BellSouth's costs of providing common line connections to end-  
11 users.

12

13 **IV. Appropriate Application of CCLCs**  
14 **to AT&T's Long Distance Calls**  
15 **which Interact with BellSouth's VIS Services**

16

17 **Q. WHAT IS THE BASIS OF AT&T'S COMPLAINT IN THE**  
18 **INSTANT PROCEEDING?**

19 A. The basis of AT&T's complaint in this proceeding is the primary principle  
20 that the use of common line facilities should determine the application of  
21 usage-based CCLCs, as follows:

22

- 1           1.       When AT&T requests from BellSouth a connection to a specific  
2           end user and that end user's common line is not used in completing the  
3           call, no CCLCs should apply to AT&T;  
4
- 5           2.       When an AT&T end user customer requests from BellSouth a  
6           connection to an AT&T call and that end user's common line is not used in  
7           making that connection, no CCLCs should apply to AT&T;  
8
- 9           3.       When AT&T requests from BellSouth a connection to a specific  
10          end user and no common line is used in completing the call, no CCLCs  
11          should apply to AT&T;  
12
- 13          4.       When an AT&T end user customer requests from BellSouth a  
14          connection to an AT&T call and no common line is used in making that  
15          connection, no CCLCs should apply to AT&T;  
16
- 17          5.       When AT&T requests from BellSouth a connection to a specific  
18          end user and that end user's common line is not used for the full duration  
19          of the AT&T call, CCLCs should apply to AT&T only for that period of  
20          time when the common line is actually used by AT&T;  
21
- 22          6.       When an AT&T end user customer requests from BellSouth a

1 connection to an AT&T call and that end user's common line is not used  
2 for the full duration of the AT&T call, CCLCs should apply to AT&T only  
3 for that period of time when the common line is actually used by AT&T;

4

5 7. When AT&T requests from BellSouth a connection to a specific  
6 end user and that end user's common line is jointly and simultaneously  
7 used for the AT&T call and other calls, CCLCs should be apportioned  
8 between AT&T and the other carriers for that period of time when the  
9 common line is jointly and simultaneously used; and

10

11 8. When an AT&T end user customer requests from BellSouth a  
12 connection to an AT&T call and that end user's common line is jointly  
13 and simultaneously used for the AT&T call and other calls, CCLCs should  
14 be apportioned between AT&T and the other carriers for that period of  
15 time when the common line is jointly and simultaneously used.

16

17 **Q. FOR EACH VIS SERVICE, WHAT IS THE APPROPRIATE**  
18 **APPLICATION OF CCLCs TO AN AT&T LONG DISTANCE**  
19 **CALL WHICH INTERACTS WITH THAT SERVICE?**

20 A. For an AT&T call to an Initially Dialed Number which is intercepted by  
21 BellSouth's CF service, the end user's common line at the Initially Dialed  
22 Number is not used to terminate the AT&T call so no terminating CCLCs

1 should be assessed against AT&T for that call.

2 When an AT&T end user customer subscribes to BellSouth's CF  
3 service and specifies that calls are to be forwarded to an Alternate  
4 Location Number using AT&T's services, for a subsequently intercepted  
5 and forwarded call the end user's common line at the Initially Dialed  
6 Number is not used to originate the AT&T call so no originating CCLCs  
7 should be assessed against AT&T for that call.

8 For an AT&T call to a BellSouth CW subscriber, the CW end  
9 user's common line is not used in terminating the full duration of the  
10 AT&T call. Terminating CCLCs should be assessed to AT&T only for  
11 that period of time when the common line is actually used by AT&T.

12 When an AT&T end user customer who is also a BellSouth CW  
13 subscriber originates an AT&T call that is subsequently interrupted by  
14 another, incoming call, that end user's common line is not used in  
15 originating the full duration of the AT&T call. Originating CCLCs should  
16 be assessed to AT&T only for that period of time when the common line is  
17 actually used by AT&T.

18 For an AT&T call to a BellSouth 3W subscriber, the 3W end user's  
19 common line is not used in terminating the AT&T call when the 3W  
20 subscriber flashes the switchhook to make a second call. Terminating  
21 CCLCs should be assessed to AT&T only for that period of time when the  
22 common line is actually used by AT&T. If the 3W subscriber joins the

1 second call with the AT&T call, CCLCs should be apportioned between  
2 AT&T and the other carrier(s) for that period of time when the common  
3 line is jointly and simultaneously used.

4 When an AT&T end user customer who is also a BellSouth 3W  
5 subscriber originates an AT&T call (as either the first or the second call)  
6 that is subsequently joined with another outgoing call through the 3W  
7 service, that end user's common line may not be used in originating the  
8 full duration of the AT&T call. Originating CCLCs should be assessed to  
9 AT&T only for that period of time when the common line is actually used  
10 by AT&T. If the 3W subscriber joins another call with the AT&T call,  
11 CCLCs should be apportioned between AT&T and the other carrier for  
12 that period of time when the common line is jointly and simultaneously  
13 used.

14 For an AT&T call to an FX number, the connection to the FX  
15 subscriber is not a common line. Since a common line is not used to  
16 terminate the AT&T call to the FX subscriber, no terminating CCLCs  
17 should be assessed against AT&T for that call. In addition, since a  
18 common line is not used in the foreign exchange to originate the call, any  
19 charges assessed or imputed against the FX subscriber or its carrier (such  
20 as FGA charges) for that presumed use of a common line in originating the  
21 call are inappropriate.

22 For an AT&T call placed from an FX number, the connection to

1 the FX subscriber is not a common line. Since a common line is not used  
2 to originate the AT&T call, no originating CCLCs should be assessed  
3 against AT&T for that call. In addition, since a common line is not used  
4 in the foreign exchange to terminate the call, any charges assessed or  
5 imputed against the FX subscriber or its carrier (such as FGA charges) for  
6 that presumed use of a common line in terminating the call are  
7 inappropriate.

8 For an AT&T call to a VM or FP Subscriber's Number which is  
9 intercepted by BellSouth's CF service and forwarded to the VM or FP  
10 message system, the end user's common line at the VM of FP Subscriber's  
11 Number is not used to terminate the AT&T call so no terminating CCLCs  
12 should be assessed against AT&T for that call.

13 For an AT&T call to a VM or FP message system, the connections  
14 between the central office switch and the message system is a transport  
15 link, not a common line. Since a common line is not used to terminate the  
16 AT&T call to the VM of FP system, no terminating CCLCs should be  
17 assessed against AT&T for that call.

18 For an AT&T call to a pager number, the connection to the paging  
19 subscriber is not a common line. Since a common line is not used to  
20 terminate the AT&T call to the paging subscriber, no terminating CCLCs  
21 should be assessed against AT&T for that call.

22

1 **V. Misapplication of CCLCs by BellSouth**  
2 **to AT&T's Long Distance Calls**  
3 **which Interact with BellSouth's VIS Services**  
4

5 **Q. WHAT IS THE FUNDAMENTAL NATURE OF AT&T'S**  
6 **COMPLAINT IN THE INSTANT PROCEEDING?**

7 A. BellSouth's billing systems have generally misapplied CCLCs for AT&T  
8 calls which interact with the VIS services. On such calls, CCLCs have  
9 been incorrectly applied by BellSouth as though no interactions occurred.  
10 BellSouth's billing systems have ignored the ramifications of services that  
11 BellSouth itself provides. CCLCs have been billed for AT&T calls as  
12 though every call was processed in a non-intercepted manner. The billing  
13 systems simply presume that every AT&T call was individually connected  
14 using a non-shared common line for the entire duration of the AT&T call.  
15 As has been shown above, that is simply not the case; BellSouth's billing  
16 of CCLCs to AT&T has been faulty.

17  
18 **Q. WHAT DOES AT&T SEEK FROM THIS COMPLAINT?**

19 A. AT&T's complaint seeks to rectify BellSouth's inappropriate billing of  
20 CCLCs in two ways. First, BellSouth should refund amounts which have  
21 been improperly collected from AT&T through the CCLC switched access  
22 rate elements for AT&T calls which have interacted with the VIS services

1 described here. Second, BellSouth should cease the improper billing and  
2 collecting of CCLCs from AT&T on calls that interact with the VIS  
3 services.

4  
5 **Q. WHAT LEVEL OF REFUNDS FOR DAMAGES DOES AT&T**  
6 **EXPECT?**

7 A. I have conducted preliminary studies that quantify the overcharges of  
8 CCLC to AT&T. The amount of overcharges and the basis for my  
9 calculations is shown in Exhibit JLH-2. However, those results are my  
10 best estimates based on the information available to AT&T. AT&T has  
11 requested specific data from BellSouth which should allow me to refine  
12 those estimates and create much more precise estimates of past, current  
13 and future overcharges.

14

15 **VI. Evaluation of the FCC's Decision**

16 **Regarding AT&T's Interstate VIS Complaint**

17

18 **Q. HAS THE FCC RENDERED A DECISION REGARDING AT&T'S**  
19 **INTERSTATE VIS COMPLAINT AGAINST BELLSOUTH?**

20 A. The FCC bifurcated the complaint into two parts – a liability component  
21 and a damages component. On December 9, 1988 the FCC released its  
22 decision on the liability component. The damages phase was initiated in



1 early 1999 and is still pending.

2

3 **Q. HAS AT&T CHALLENGED THE FCC'S DECISION REGARDING**  
4 **LIABILITY ISSUES IN THE VIS COMPLAINT?**

5 A. Yes, AT&T filed a Petition for Partial Reconsideration of the FCC's  
6 liability decision on January 8, 1999. A decision on that petition is still  
7 pending.

8

9 **Q. WOULD YOU SUMMARIZE THE FCC'S DECISION PLEASE?**

10 A. The FCC's decision was completely consistent with the discussion I've  
11 presented here for paging services and for FX services which use private  
12 lines between the FX subscriber and the open end in the foreign exchange.

13 The FCC's decision regarding call forwarding also was consistent  
14 with my discussion here. "First, we find that the LECs' application of  
15 intermediate CCL charges, both originating and terminating, on forwarded  
16 calls with at least one interLATA, interstate portion violates Section  
17 69.105(a) of our rules." [FCC Order at ¶44.] The FCC's Order on call  
18 forwarding deferred to the damages phase a decision on the arguments  
19 regarding LEC double recovery. Another argument raised by MCI  
20 regarding unanticipated charges was rejected by the FCC. I have used  
21 neither the deferred argument regarding double recovery nor MCI's  
22 argument in my discussion of call forwarding.

1           The voice messaging and fax processing portion of the FCC's  
2           decision largely followed its call forwarding decision. "... the LECs'  
3           assessment of CCL charges on these calls attributable to the unused  
4           common line between the subscriber's premises and the LEC end office ...  
5           violates Section 69.105(a) for the reasons discussed above in connection  
6           with call forwarding." [FCC Order at ¶54.] The decision continues "This  
7           second portion of the call may also be terminated by non-common line  
8           facilities, however, and we agree with the IXC's general proposition that  
9           in this instance, such calls should not incur a terminating CCL charge."  
10          [FCC Order at ¶56.] My preceding discussion of VM and FP services is  
11          consistent with the FCC's decision.

12           My analysis regarding call waiting has been distinctly different  
13          from the FCC's decision on that service. Frankly, I find the FCC's  
14          decision incomprehensible. For instance, "... the call waiting option  
15          effectively furnishes two entirely distinct calls to the subscriber over a  
16          common line." [FCC Order at ¶65.] Only one call is "furnished" or  
17          delivered to the CW subscriber at any time, so I strongly disagree with the  
18          FCC's assertion. AT&T has petitioned the FCC for review of the portion  
19          of the decision regarding call waiting.

20           Finally, my discussion regarding three-way calling is also different  
21          from the FCC's decision. The FCC's decision appears to be founded on  
22          the position that "Three-way calling enables the subscriber to participate in

1 two wholly separate calls at any given time ..." [FCC Order at ¶44.] The  
2 FCC recognizes that more than one call is simultaneously using the  
3 common line but asserts that "independent, beneficial use" by more than  
4 one call is sufficient for one minute of common line use to be billed by the  
5 LECs as two (or more) CCL minutes of use. My presentation follows the  
6 common sense rule that a minute is a minute; if more than one call is  
7 associated with a minute of common line use, each call should share in the  
8 payment of a single minute of CCL Charges. AT&T's petition for  
9 reconsideration to the FCC also seeks review of the decision regarding  
10 three-way calling.

11

12 **Q. DO YOU HAVE ANY FURTHER THOUGHTS ON THE FCC'S**  
13 **DECISION?**

14 **A.** Yes, I do. In many of its policies and decisions the FCC has stressed the  
15 creation (and implementation) of pricing structures which establish  
16 incentives for efficient use of the telecommunications network. However,  
17 in the case of call waiting, the FCC's decision applies exactly the same  
18 CCLCs to the use of one common line with the more efficient call waiting  
19 service as would apply when an end user tied up two common lines to  
20 provide comparable "hold" functionality with customer premises  
21 equipment.

22 Even more perplexing, the FCC's decision does not provide for

1 equivalent billing of CCLCs for two teleconferencing services which are  
2 equally efficient in their use of the common line connecting a party to the  
3 conferenced call. Whether a conference call is bridged at an AT&T switch  
4 or at a BellSouth switch, only one common line is used to connect a  
5 participant to the call. However, only one CCLC is billed for the use of a  
6 common line connecting to an AT&T conference call while two CCLCs  
7 are billed if the conference capability is provided by BellSouth's three-  
8 way calling service.

9 These significant inconsistencies are part of the reason that I am  
10 convinced AT&T will prevail in its Petition for Reconsideration.

11

12

## **VII. Conclusion**

13

14 **Q. WOULD YOU SUMMARIZE YOUR CONCLUSIONS, PLEASE?**

15 **A.** In summary, BellSouth has been inappropriately billing AT&T for Carrier  
16 Common Line Charges on calls which interact with a specific group of  
17 services, designated by AT&T as the Vendor Intercepted Services. When  
18 these interactions occur, BellSouth is billing full CCLCs for common lines  
19 which are not used in full by AT&T. In some cases, the line associated  
20 with an AT&T call is not a common line. In others, a common line is not  
21 used by AT&T at all or one is used by AT&T for only part of the time  
22 interval for which CCLCs were assessed. In a few cases, BellSouth bills

1 full CCLCs even when the use of the common line is shared with other  
2 carriers. As a result, BellSouth should be directed to refund historic  
3 overcharges of CCLC and to cease improper application of the CCLC in  
4 the future.

5

6 Q. Does this conclude your direct testimony?

7 A. Yes.

## **PROFESSIONAL QUALIFICATIONS**

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Dr. Langin-Hooper has more than 23 years experience in econometric demand forecasting, sophisticated model development, and financial analysis. He has provided consulting services to utility and manufacturing companies and to federal, state, and local agencies of government. His firm has specialized in the telecommunications industry with major studies in demand analysis, competitive market structure, financial modelling, and emerging regulatory options. Other projects have included the energy industry, computer software industry, and local area economic development. In addition to consulting, Dr. Langin-Hooper has personal experience in corporate, federal government, state government and small business environments.

## **PROFESSIONAL EXPERIENCE**

**Langin-Hooper Associates, Colorado Springs, Colorado**

**Owner and Principal    1977-Present**

Evaluated alternative Universal Service support mechanisms and created support benchmarks using hybrid landline and cellular technologies. Audited internal access expense tracking systems for a major IXC. Acted as arbitrator for several local interconnection agreements including U S WEST/AT&T, U S WEST/Sprint, and GTE/Western Wireless under the requirements of the 1996 Telecommunications Act.

Served as primary consultant to the New Mexico State Corporation Commission on two additional arbitration proceedings.

Created a wholesale pricing plan for Microcell Connexions, a Canadian PCS service provider with an emphasis on rapid market development and integrated pricing with Microcell's retail arm.

Evaluated and proposed alternatives for regulatory oversight of telephone companies. Designed and conducted studies of access charge for non-standard call routing arrangements. Developed theoretical approaches and modelled results for revised toll settlements procedures in Canada.

Developed advanced econometric procedures for telecommunications demand analysis including Bayesian and Kalman filtering techniques; created sophisticated analytical systems for telecommunications research organizations; prepared studies of telecommunications demand and competitive effects for several Long Distance and Local Exchange Carriers and the FCC; developed a seminar course in telecommunications demand analysis and forecasting; created detailed economic data series for telephone demand analysis for AT&T, the FCC, and several Local Exchange Carriers; and designed software systems for the processing of interstate tariff data.

Created market forecasts for Pacific Bell Information Services as part of a California PUC project to determine the business value of those operations. Evaluated the effects of presubscription on long distance market shares in the U.S. Also determined the effect of long distance competition in the U.S. on small and rural customers and drew parallels to the likely effects for proposed long distance competition introduction in Canada. Created sophisticated econometric systems for detailed evaluation of long distance services demand. Developed analytical procedures and systems for competitive market behavioral analysis, particularly applied to the personal computer market. Prepared an evaluation of competitive market results on rural/urban subsidies in the U.S.

Initiated and directed the development of special research projects including analytical market systems for AT&T, revenue risk evaluation from interstate carrier common line depooling for Citizens Telephone and the Bellcore National Forecasting Conference, and business risk analysis of regulatory reform.





## EDUCATION

Doctor of Philosophy, Economics, Rutgers University, 1985  
Master of Philosophy (Honors), Economics, Rutgers University, 1983  
Graduate Studies, Economics, Princeton University, 1980  
Master of Arts, Economics, University of Colorado, 1979  
Bachelor of Arts (Magna Cum Laude), Economics,  
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## PROFESSIONAL HONORS AND ASSOCIATIONS

American Economics Association  
International Institute of Forecasters

## PUBLICATIONS, PRESENTATIONS AND TECHNICAL REPORTS

"Universal Service Plans Compatible with Technological Progress", to be presented at ITS 2000, the Thirteen Biennial Conference of the International Telecommunications Society, Buenos Aires, Argentina, July, 2000.

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"Long Distance Competition and Local Rates in Rural and Low Income America", prepared for the Biennial Conference of the International Telecommunications Society, Seville, Spain, June, 1996.

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"BOC Industry Forecasts: Interim Report", prepared for GTE, February, 1993.

"Community of Interest in Telecommunications Demand Analysis", presented at the National Telecommunications Demand Study, Round 3, December, 1992.

"Relative Revenue Contributions of 800 Service Customer Groups", prepared for AT&T Bell Labs, April, 1992.

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"Company Benchmark Performance", presented at the National Telecommunications Demand Study, Round 3, February, 1992.

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"800 Service Customer Retention", prepared for AT&T Bell Labs, October, 1991.

"The September 1991 Best View Forecasts", prepared for Rochester Telephone, September, 1991.

"Life-Cycle Analysis of 800 Service Customers", prepared for AT&T Bell Labs, July, 1991.

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**ESTIMATED OVERCHARGES OF INTRASTATE  
CARRIER COMMON LINE CHARGES  
TO AT&T BY BELLSOUTH  
IN FLORIDA**

**ESTIMATED OVERCHARGES OF INTRASTATE CCLCs  
TO AT&T BY BELLSOUTH IN FLORIDA.**

The following discussion describes the methodology AT&T used in estimating the overcharges arising from the inappropriate billing to AT&T of intrastate CCL charges for call waiting, three-way calling, call forwarding, foreign exchange (FX), voice mail, fax processing, and paging services by BellSouth in Florida.

**I. OVERVIEW**

In 1993, AT&T became aware that the BellSouth had apparently been overbilling for access charges when certain types of calling arrangements interacted with each other. The characteristics of such call interactions were evaluated against the historical background of access charge development and prior regulatory decisions. Several services sold by BellSouth were determined to intercept the routing and/or processing of AT&T long distance calls resulting in carrier common line (CCL) access charges when a common line was not used by the call. Among those services were call waiting, three-way calling, call forwarding, foreign exchange (FX), voice mail, fax processing, and paging services. AT&T developed preliminary estimates of the magnitudes of the problems for BellSouth in late 1993 and attempted to address the issues directly with BellSouth in an effort to resolve the problems.

A more complete analytical study was prepared in 1994 to better assess the magnitude of the overbillings. Those estimates of overbilled access charges were refined in 1995. They were further updated in 1999 to incorporate additional information which was not available at the time of the original study and to reflect changes in industry characteristics and CCL access rates.

CCL access charges overbilled by BellSouth were estimated based on an evaluation of AT&T long distance calls which appeared to interact with call waiting, three-way calling, call forwarding, foreign exchange (FX), voice mail, fax processing, and paging services. AT&T identified those calls using long distance billing data and other information from early April, 1994. A sample of NPA-NXXs was chosen for BellSouth across all its state study areas. AT&T long distance calls to and from the NPA-NXXs were screened to

determine telephone numbers which appeared to be associated with BellSouth-offered call waiting, three-way calling and call forwarding services. A small sample of telephone numbers for foreign exchange (FX) services were identified from AT&T interLATA FX service records. Telephone numbers for BellSouth voice mail and fax processing services were identified by sample subscriptions to those services. For the sample of identified telephone numbers, average daily summaries per NPA-NXX of the time intervals (in minutes of use) and relevant call characteristics were compiled for each state in BellSouth's territory.

The daily sample summaries of call intervals were expanded to create quarterly estimates of the total number of minutes overbilled to AT&T by BellSouth arising from all occurrences of such calls. This process included an estimation procedure for those calls which were overbilled but which could not be identified through scrutiny of just AT&T's data. The expansion was accomplished through multiplying by factors which reflected the market and calling characteristics of BellSouth. The daily NPA-NXX totals were expanded to the quarterly state level by multiplying by the number of NPA-NXXs served by BellSouth in that state and by the number of days in that quarter. The resulting quarterly minute totals were multiplied by average CCL rates for the state during that quarter to create estimates of overbilled CCL charges. Quarterly overbilling amounts were summarized in annual totals for the state of Florida and for BellSouth across all the states which it served. Estimated growth rates for the overbilling occurrences were applied in conjunction with the actual CCL rates from '94 through '99 to yield estimates of overbilled CCL charges for the years after the initial sampling period.

## **II. DESCRIPTION OF ASSESSMENT**

### **A. Estimation of Occurrences of Overbilling**

Complete estimation of overbilled CCL access charges required an analysis of all calling arrangements which would result in inappropriate charges. Through such an analysis, estimation procedures were developed to quantify the magnitude of the total occurrences of overbilling relative to those instances which could be observed solely from AT&T data.

For example, AT&T data could be used to identify those instances where an AT&T customer placed a call to another AT&T customer who subscribed to call forwarding and

who forwarded the call to another location using AT&T's services. However, AT&T data alone could not identify an instance where an AT&T customer's call to the customer of another carrier was forwarded via that other carrier's services. Further, while AT&T was inappropriately billed in the first instance for both terminating and originating CCL access charges at the forwarding number, AT&T was inappropriately billed only for terminating charges in the second instance. Another possible configuration for similar calls included calls from customers of other carriers to an AT&T customer who forwarded those incoming calls. In that case, AT&T was inappropriately billed for originating charges on the forwarded portion of the calls.

Similar identification procedures were developed for call waiting and three-way calling to enumerate the occurrence of AT&T call interactions with those services.

Assuming that calls to any particular call forwarding number with AT&T as forwarded carrier were distributed across all carriers in proportion to each carrier's share of total call volume, then the number of calls from all carriers to that forwarding number could be estimated as  $1/(\text{AT\&T Market Share})$  times  $(\text{Total Calls})/(\text{Access-Billed Calls})$  times the number of AT&T calls to that number. Thus, the estimate of the number of occurrences where AT&T was billed inappropriately for originating access on the forwarded portions of calls from all carriers would be greater than the observed instances of AT&T calls forwarded through AT&T services by the multiplicative factor described above.

Similarly, customers subscribing to call forwarding could be assumed to have the call forwarded through a given carrier in proportion to each carrier's market share, so the number of AT&T calls forwarded through all carriers could be estimated as  $1/(\text{AT\&T Market Share})$  times  $(\text{Total Calls})/(\text{Access-Billed Calls})$  times the number of AT&T calls forwarded over AT&T services. Similar to the overbilled originating charges described above, the estimate of the number of occurrences where AT&T was billed inappropriately for terminating access on the initial portions of AT&T calls which were forwarded through all carriers would be greater than the observed instances of AT&T calls forwarded through AT&T services by the same multiplicative factor.

For an estimated AT&T market share of 60% and when Access-Billed calls comprise 10% of all calls (a fairly typical value), AT&T was overbilled for an estimated 16.66 originating CCL access minutes of use on the second portion of the call relative to every minute where AT&T observed that it provided both the first and second portions of

the call. Similarly, on the termination of the first portion of the call, AT&T was overbilled for an estimated 16.66 terminating CCL access minutes of use for each minute that AT&T observed. Combining the terminating and originating components for the assumptions above, AT&T was overbilled for 33.3 times the number of minutes observed from AT&T's data alone. For each state study area, the magnitude of the total overbilling for call forwarding was estimated by expanding the observed totals by the specific factor calculated as described above to reflect the expected ratio of total occurrences for each observed occurrence.

For call waiting and three way calling, similar expansion factors were used to assure that the instances of observed call interactions in AT&T's data for these services was expanded to estimate the total volume of all call interactions involving these services.

For AT&T calls to and from specific telephone numbers associated with other services such as FX, voice mail, fax processing, and paging services, the data was severely limited by the small sample of telephone numbers available. BellSouth was unwilling to cooperate in making the complete set of such numbers available for AT&T's analysis. Accordingly, assumptions were developed which reflected a reasonable estimate of the occurrence of inappropriate access billing associated with those services.

In general, it was assumed that each NPA-NXX of BellSouth served an average of 3000 single-line business and residence analog lines; this assumption was based on the approximately 110,000,000 such lines in service at the end of 1993 and the nearly 36,000 NPA-NXXs served by the major LECs. Of those lines, .2% (two-tenths of a percent) were assumed to be FX and FX-like lines. Five percent (5%) were assumed to subscribe to voice mail service, and .5% (one half of one percent) were assumed to be associated with paging services. Thus, 6 FX (and FX-like) lines were assumed for each NPA-NXX, as were 150 subscribers to voice mail service and 15 paging subscribers.

Each FX line was assumed to receive or originate about one and one-quarter (1.25) AT&T intrastate calls per day. From AT&T's data, many of the FX numbers that AT&T was able to identify were shown to have made or received dozens of long distance calls per day. The assumption of one and a quarter calls per day was made to reflect a conservative estimate until more complete data became available. Similarly, fewer than one of every six voice mail subscribers was assumed to receive an AT&T intrastate call each day which was forwarded to the voice mail system for a total of about twenty-one (21) such calls for each

NPA-NXX each day. Fewer than one of every forty voice mail subscribers was assumed to retrieve messages from the voice mail system each day using AT&T intrastate service, resulting in about three and two-tenths (3.2) such calls per NPA-NXX daily. About six (6) AT&T intrastate calls were assumed to be completed to paging numbers in each NPA-NXX every day. The duration of the calls were assumed to be 4 minutes for FX (and FX-like) calls, 2 minutes for voice mail messages, 5 minutes for voice mail retrieval, and 1 minute for paging calls. These assumptions appeared to reasonably (and conservatively) estimate the likely occurrence of such calls on a daily basis.

In 1999, the estimates of CCL overbilling associated with paging services were adjusted to reflect new information provided to AT&T by various LECs. The adjustment increased the incidence of AT&T intrastate calls terminated to paging service to about 32 calls per day per NPA-NXX but reduced the duration of such calls to one-half minute each.

Also in 1999, observed data in a specific sub-category of call waiting from the 1994 study was shifted to the call forwarding category. This adjustment did not change the total number of calls or minutes observed in AT&T's original study, it simply changed the reporting category. This adjustment also was driven by new information provided by various LECs.

The daily NPA-NXX totals were expanded to the quarterly state level by multiplying by the number of NPA-NXXs served by the BellSouth in Florida and by the number of days in a three month period. The resulting quarterly minute totals were multiplied by average CCL rates for the state during that quarter to yield the estimated overbilled CCL charges.

#### **B. AT&T Data Sources**

In order to estimate the magnitude of the overbilling for access charges in the cases of call waiting, three-way calling and call forwarding described above, AT&T conducted a review of its own call records for interstate and intrastate services. Detail of the calling and called numbers for all calls going to and from customers in a selected sample of NPA-NXXs were reviewed to determine if the call characteristics indicated that the telephone number was likely to have been subscribed to one of the three services.

The sample of NPA-NXXs was created through a multiple step process. Initially, a 5% sample of about 2500 NPA-NXXs was randomly selected from the more than 40,000 active end office NPA-NXXs for all LECs in the Local Exchange Routing Guide (LERG) file. Segmentation criteria was established to assure that almost every major LEC serving area was represented by at least 40 sample NPA-NXXs. For some especially large LECs, such as Pacific Bell, the segmentation criteria set larger sample sizes to be randomly selected; in a few cases, such as very small study areas, smaller samples were chosen.

The volume of calls associated with the initial random samples was hundreds of millions of calls and was so large that it created significant processing difficulties. Operational limitations prevented the required analysis of that volume of calls, so simplifying procedures were adopted.

The key adjustment was to isolate the NPA-NXX selection to the second position of the NXX; the value of "4" was randomly chosen. Any specific value for the second position would be unlikely to be associated with a particular geographic distribution of LEC exchanges, maintaining the random nature of the selection. By isolating the second position, processing requirements were reduced by about a factor of ten, making the analytical process computationally viable. In order to maintain the large sample size, for those randomly chosen NPA-NXXs with a "4" in the second position of the NXX, all possible values for the final numeral of the NXX. A total of 1851 active NPA-NXXs met this criteria, and 1538 were associated with the BOCs and major independents, yielding an average 3% sample for each LEC study area.

For the selected NPA-NXXs, all AT&T long distance calls for the fourteen day period of April 1, 1994 through April 14, 1994 were extracted. The fourteen day period was chosen to represent two full weeks of calling activity. In addition, the period included the 1994 Easter holiday which offered some of the variation in calling patterns associated with holidays while not swamping the sample data series with vast differences in calling patterns as would have been the case for holidays with more significant calling volumes such as Mother's Day or Christmas.

### **C. Basis for Determining Overlapping Calls**

For the sample described above, all calls were screened to find those calls associated with a given telephone number for which the time periods of the calls overlapped. For all

overlapping calls, a further screening was incorporated to remove those calls which were unlikely to be associated with call waiting, three-way calling or call forwarding services. In particular, if more than two calls were active for a given number at any time during the sample period, that number was determined to be associated with a service offering other the specified services. Accordingly, if over the fourteen day sample interval a telephone number exhibited more than two simultaneous calls, that number was removed from the sample for all subsequent analysis.

The calling characteristics of the overlapping calls were evaluated for assignment to the most likely local optional service category. For instance, if the time of connection of a call to a specific number was followed within a few seconds by the origination of a second call from that number and the calls' disconnect times were within a few seconds of each other, call forwarding was concluded to be active.

Average daily summaries of the overlapping time intervals (in minutes) for the NPA-NXXs in each BellSouth study area were created for the call categories described above. The observed instances of call waiting, three-way calling and call forwarding (and the associated durations of the overlapping call periods) were accumulated for the NPA-NXXs in each study area over the fourteen day sample period. The totals were divided by the number of sample NPA-NXXs in the study area and by the number of days in the evaluation period to create an estimated average daily occurrence by category for the "average" NPA-NXX in the study area.

Average daily occurrences by NPA-NXX of FX, call forwarding to voice mail systems, voice mail retrieval, and paging services were estimated as described above based on assumptions developed, in part, from analysis of observed instances for a very small sample of calls. Fax processing services were determined to be too limited for any meaningful assumptions about daily occurrence to be developed.

#### **D. Basis for Determining Overbilling**

In general, only a small portion of AT&T's long distance calls that were inappropriately billed for CCL access charges due to call waiting, three-way calling or call forwarding service could be observed directly from AT&T's data alone. Information on summary market characteristics and calling distributions from published industry reports were used to make reasonable estimates of the number of occurrences which could not be



observed. For call forwarding, each identified instance was determined to represent the overbilling of terminating access on the completion of the first portion of a forwarded call and originating access on the initiation of the second portion of the forwarded call. Similar procedures were used to estimate overbilling of terminating access for call waiting and originating access for three-way calling.

For FX, call forwarding to voice mail, voice mail retrieval, and paging services, the average daily estimated occurrences were assumed to represent the full extent of any overbilling and were not adjusted to correct for difficulties in observing the occurrences.

**E. Calculation of Quarterly Estimates**

Estimation of overbilled CCL charges for periods other than the initial sample period required several corrections to accurately reflect the likely magnitude of the overcharges for those periods. The first component of the adjustment was correction for overall growth in the long distance minute volumes affected by the overbilling. In conjunction with overall growth, AT&T's portion of the market changed as was reflected in changes to AT&T's market share; the second component of the adjustment incorporated the changes in AT&T's portion of the long distance market. Finally, overbilled minute volumes were affected by the substantial growth in subscription to those services which created the overbilling conditions. The third component of the adjustment compensated for that growth.

From the '94 base estimation, the magnitude of the overbilled minute volumes for each quarter were calculated as follows:

$$\text{Overbilled Minutes}_{qu} = \text{Overbilled Minutes}_{base}$$

$$\begin{aligned} & \left( \text{AT\&T Market Share}_{qu} \right) \\ & * \frac{\text{-----}}{\left( \text{AT\&T Market Share}_{base} \right)} \\ & * \left( 1 + \text{LD Market Growth} \right) \\ & * \left( 1 + \text{Feature Growth} \right) \end{aligned}$$

where LD Market Growth reflected the change in the overall size of the long distance market between the base period and the specified quarter and Feature Growth reflected the estimated growth in the market penetration of the services which created the overbilling conditions. The updated estimates prepared in 1999 used quarterly data on AT&T's market share taken from the FCC's 1998 Statistics of Communications Common Carriers (SOCCC), Table 8.7. Quarterly growth in the long distance market by state was calculated from the annual market volumes reported in Table 2.6 of the annual SOCCCs. Feature growth was estimated based on assumptions derived from general industry reports of local service volumes.

The estimated daily NPA-NXX totals for each quarter were expanded to the state level by multiplying by the number of NPA-NXXs served by BellSouth in that state and by the number of days in that quarter. Resulting quarterly minute totals were multiplied by average CCL rates for the state during that quarter to create estimates of overbilled CCL charges.

Estimates of overbilled CCL access minutes for 1992 back through 1988 were created by removing each year's estimated growth in overbilled CCL minutes for each identified service category from that year's volumes. By sequentially applying the process, an estimate of each of the previous year's volumes for each service category was developed. For year's prior to 1990, the volumes associated with voice messaging service was set to zero.

#### **F. Calculating and Applying CCL Charges**

For the estimation period of 1993 through 1999, quarterly minute totals of estimated overbilled CCL minutes were multiplied by BellSouth's average Florida CCL rates during that quarter to create estimated overbilled CCL charges. Average CCL rates for the quarter were calculated as the arithmetic average of the rates in effect at the beginning of each month for the three months of the quarter. The quarterly overbilled amounts were summarized in annual totals.

For years preceding 1993, BellSouth's Florida CCL rates were conservatively assumed to be no higher than those in effect at the beginning of 1993.

**III. RESULTS**

The resulting estimates of overbilled intrastate CCL access charges by BellSouth in Florida for the period of 1988 through 1999 were as follows:

BellSouth Florida	\$52,340,000
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Summary analysis back to the beginning of 1984 indicates that about an additional \$5 million in CCL charges were inappropriately billed to AT&T by BellSouth in Florida during those four years.

The estimated intrastate CCL access charges overbilled to AT&T by BellSouth in Florida by service category for the years 1988 through 1999 are as follows:

VIS OVERCHARGES ESTIMATES

Company: BellSouth Florida

(Figures in \$Millions)

STATE	'88	'89	'90	'91	'92	'93
CW	\$0.60	\$0.72	\$0.87	\$1.05	\$1.26	\$1.48
3W	\$0.57	\$0.69	\$0.82	\$0.99	\$1.19	\$1.43
CF	\$0.12	\$0.14	\$0.17	\$0.20	\$0.25	\$0.29
FX	\$0.26	\$0.27	\$0.28	\$0.30	\$0.31	\$0.32
VM--CF	\$0.00	\$0.00	\$0.22	\$0.28	\$0.35	\$0.42
VM--MR	\$0.00	\$0.00	\$0.08	\$0.10	\$0.13	\$0.16
Paging	\$0.05	\$0.07	\$0.08	\$0.10	\$0.13	\$0.16
TOTAL	\$1.60	\$1.89	\$2.54	\$3.03	\$3.62	\$4.25

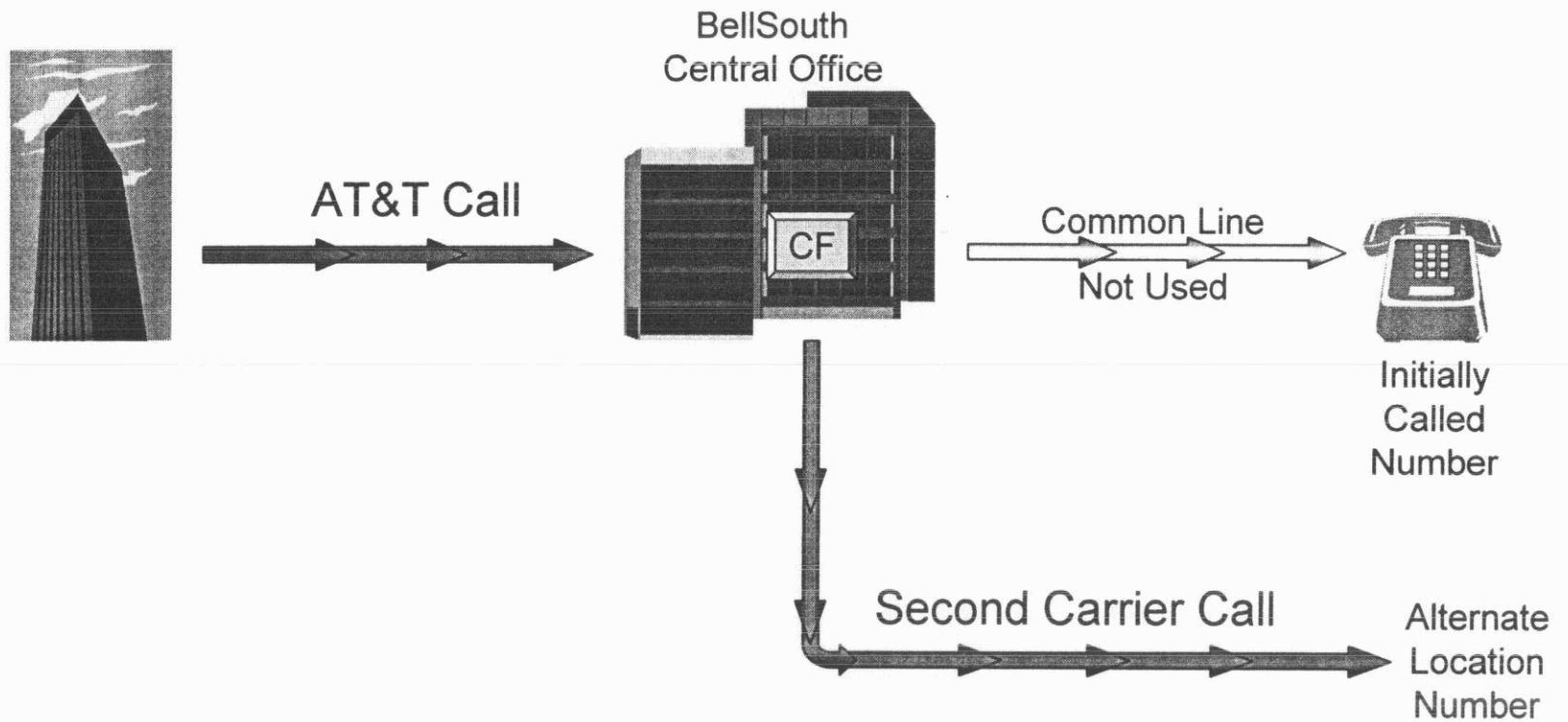
STATE	'94	'95	'96	'97	'98	'99
CW	\$1.66	\$2.00	\$2.16	\$1.66	\$2.14	\$2.80
3W	\$1.80	\$2.17	\$2.23	\$1.33	\$1.72	\$2.25
CF	\$0.33	\$0.40	\$0.43	\$0.32	\$0.41	\$0.54
FX	\$0.31	\$0.33	\$0.31	\$0.22	\$0.24	\$0.28
VM--CF	\$0.46	\$0.58	\$0.67	\$0.60	\$0.81	\$1.11
VM--MR	\$0.17	\$0.22	\$0.25	\$0.23	\$0.30	\$0.41
Paging	\$0.17	\$0.22	\$0.25	\$0.23	\$0.30	\$0.41
TOTAL	\$4.91	\$5.90	\$6.30	\$4.58	\$5.94	\$7.80

BSFL	'88 - '99
	TOTAL
CW	\$18.40
3W	\$17.20
CF	\$3.59
FX	\$3.43
VM--CF	\$5.49
VM--MR	\$2.06
Paging	\$2.18
TOTAL	\$52.34

**CHARTS DEMONSTRATING THE INTERACTION**  
**OF AT&T CALLS WITH**  
**BELLSOUTH'S VIS SERVICES**

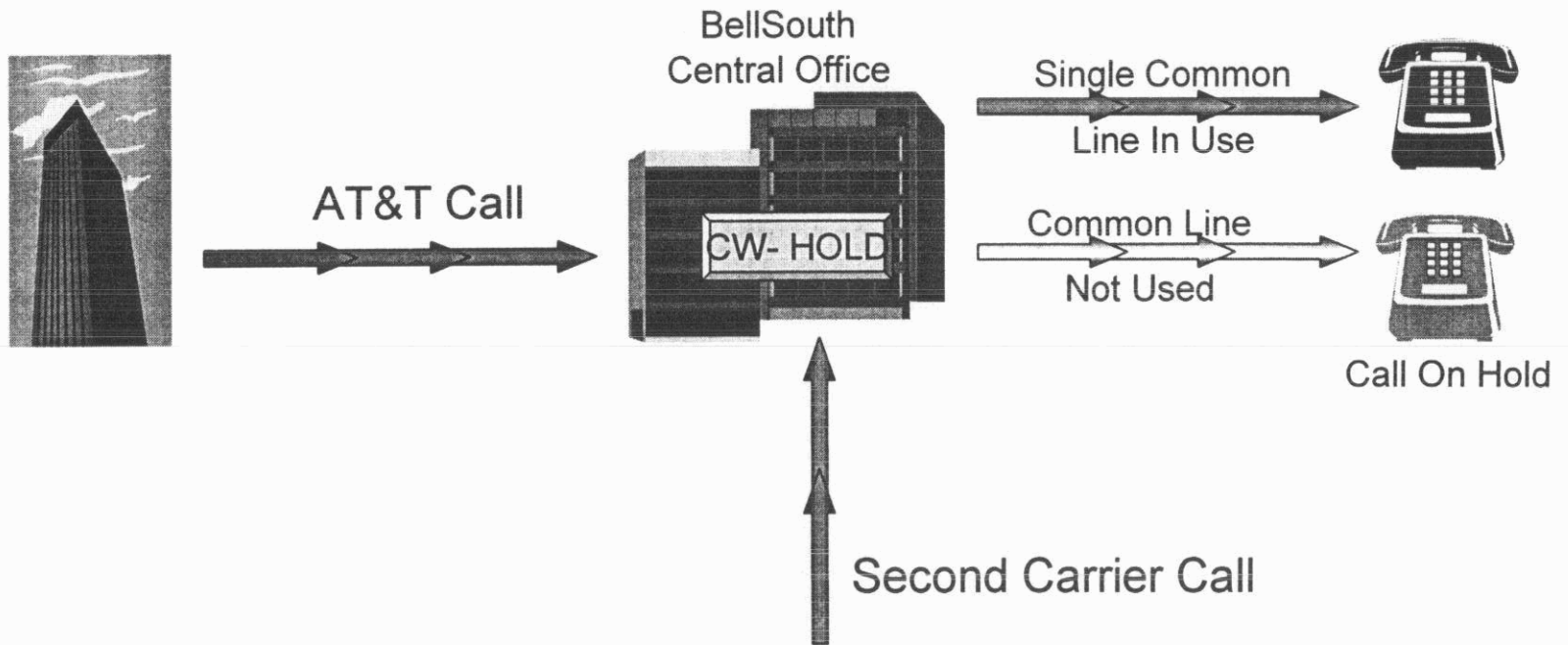
# Call Forwarding

## AT&T Call Forwarded to an Alternate Location Number



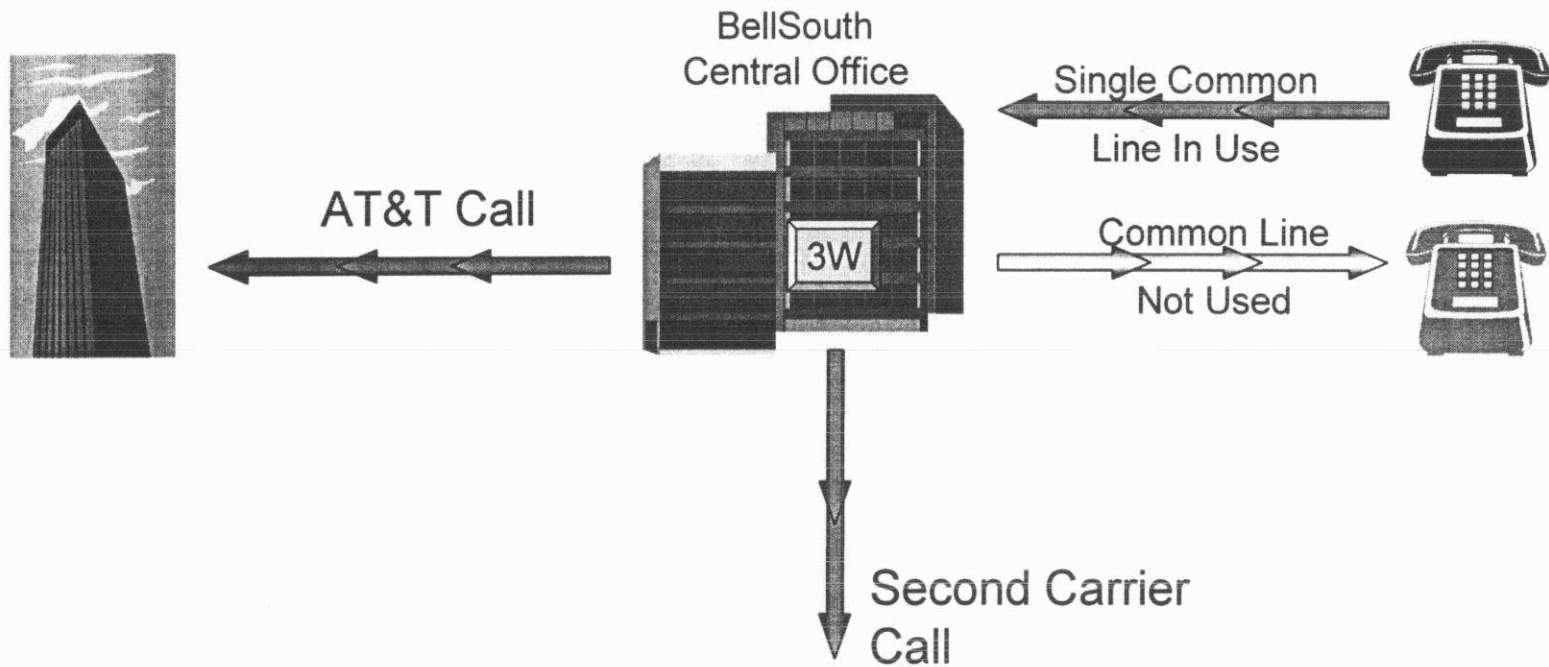
# Call Waiting

## AT&T Call On Hold At The Central Office



# Three-Way Calling

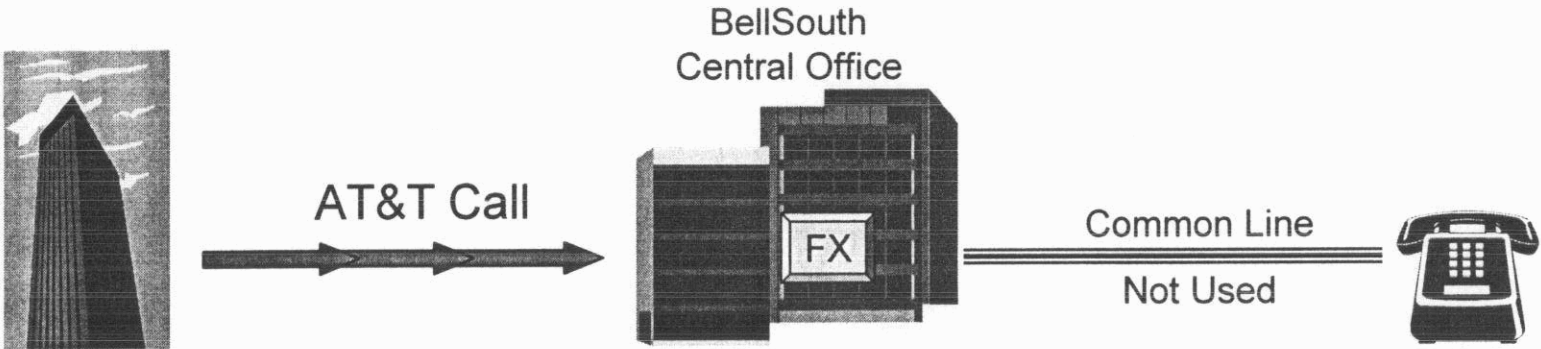
## AT&T Call Joined with Another Call at the Central Office





# Foreign Exchange

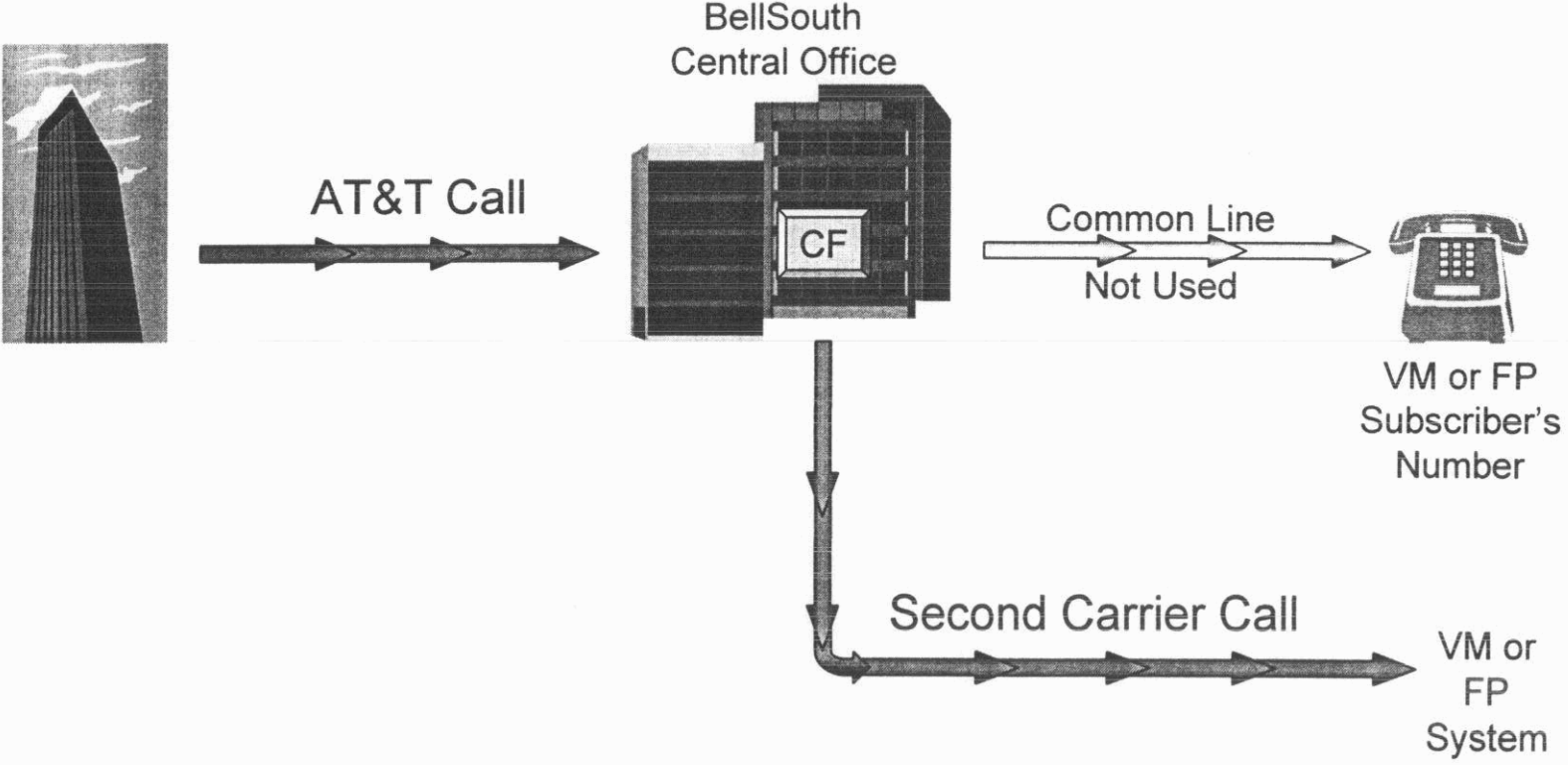
## AT&T Call Connected to an FX Number



Indicates a  
Private Line

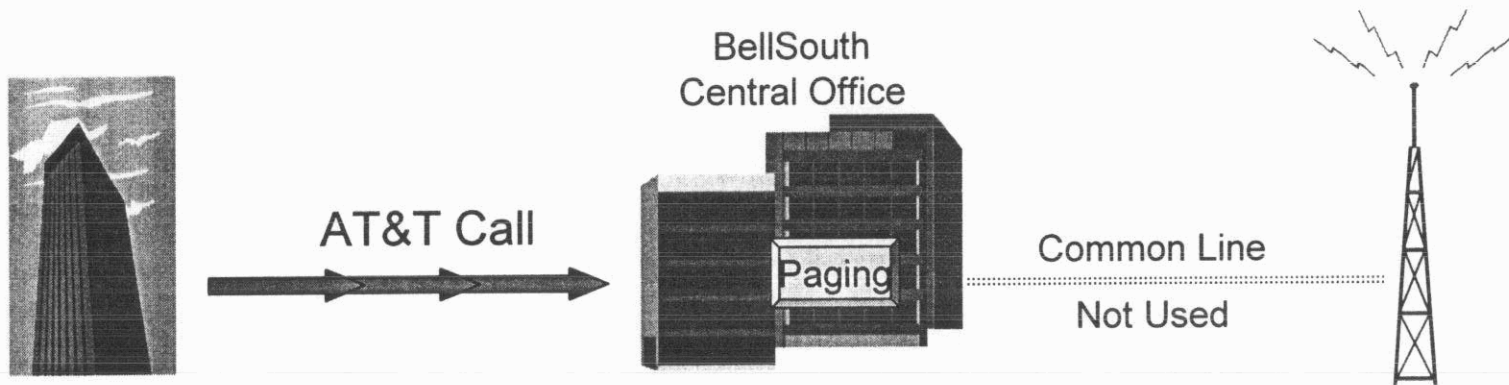
# VM or FP Call Forwarding

AT&T Call Forwarded to a Voice Messaging  
or Fax Processing System



# Paging

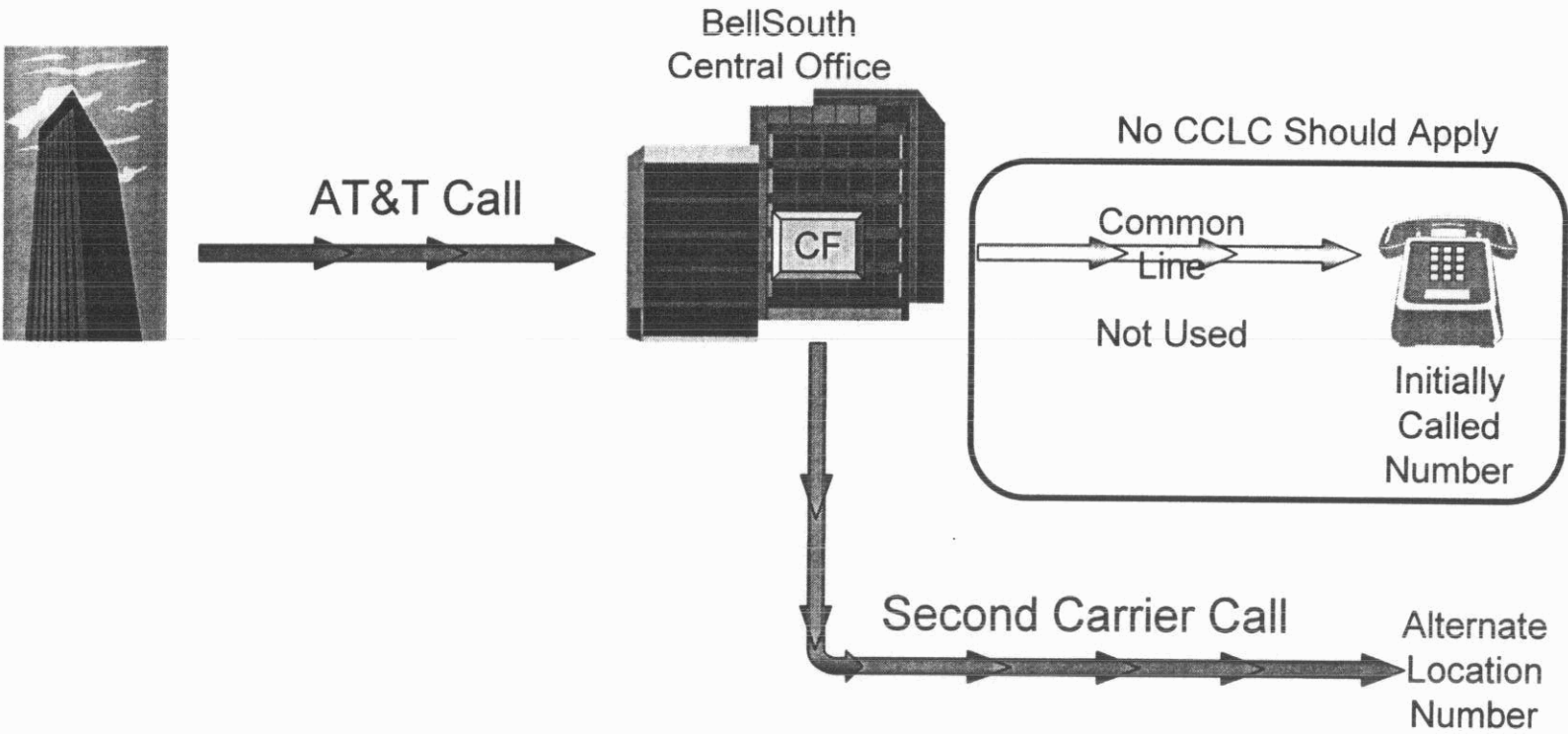
## AT&T Call Connected to a Paging Number



Indicates Connection  
.....  
To a Radio Common Carrier

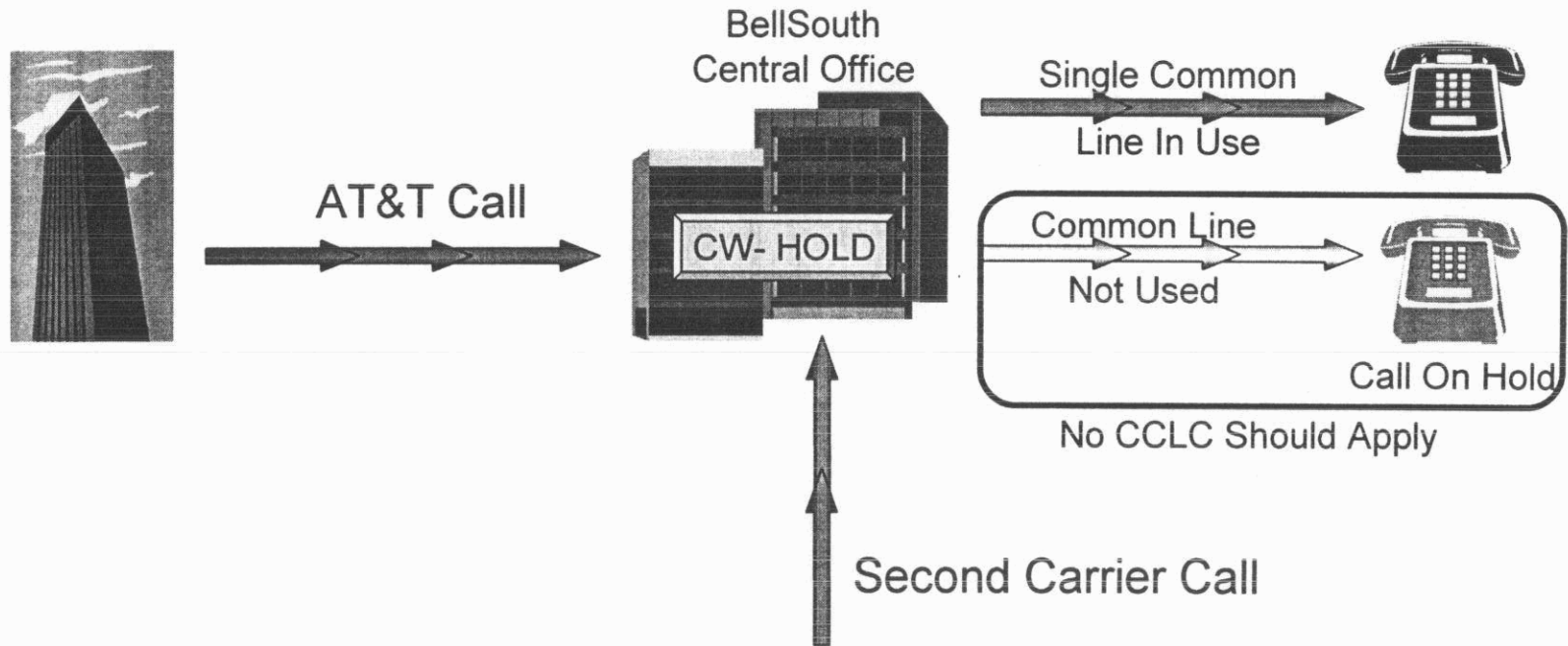
# Call Forwarding

CCLC Should Not Be Billed for an AT&T Call Forwarded to an Alternate Location Number



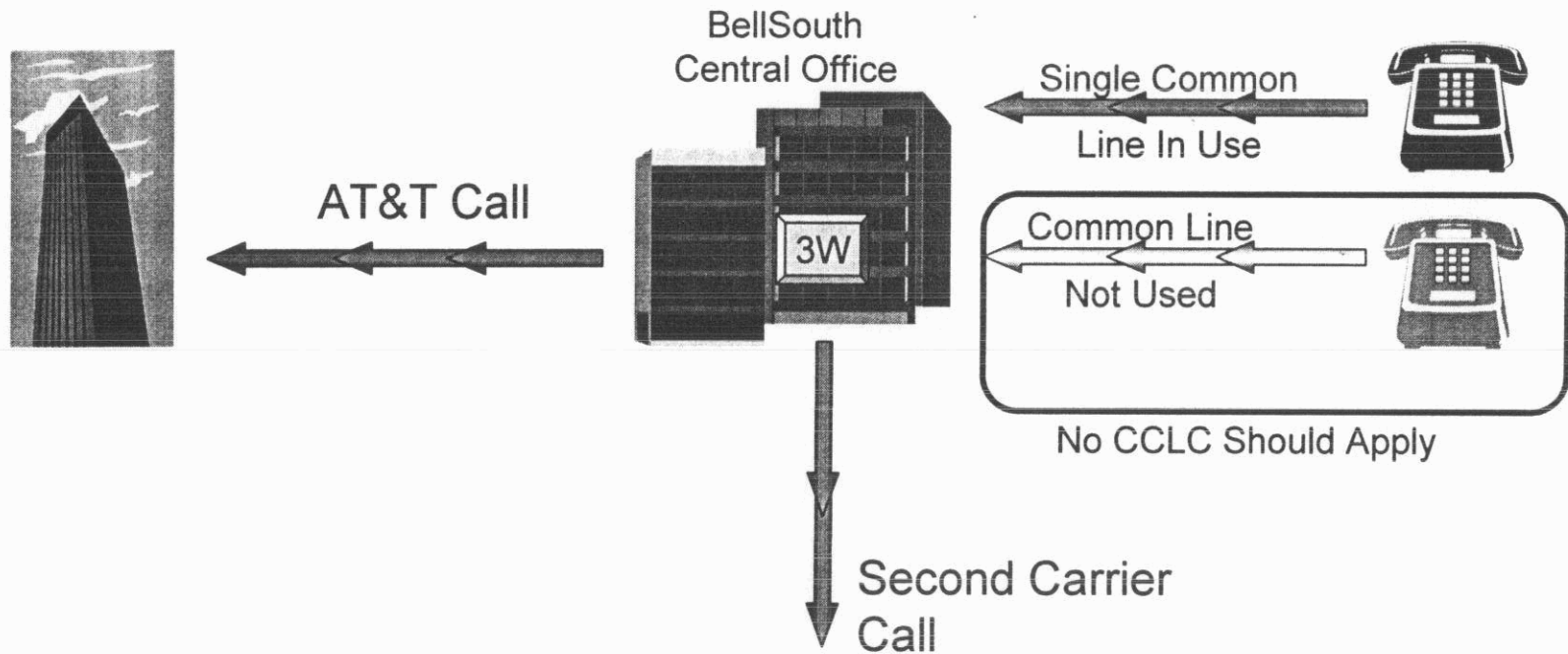
# Call Waiting

CCLC Should Not Be Billed for an AT&T Call On Hold  
at the Central Office



# Three-Way Calling

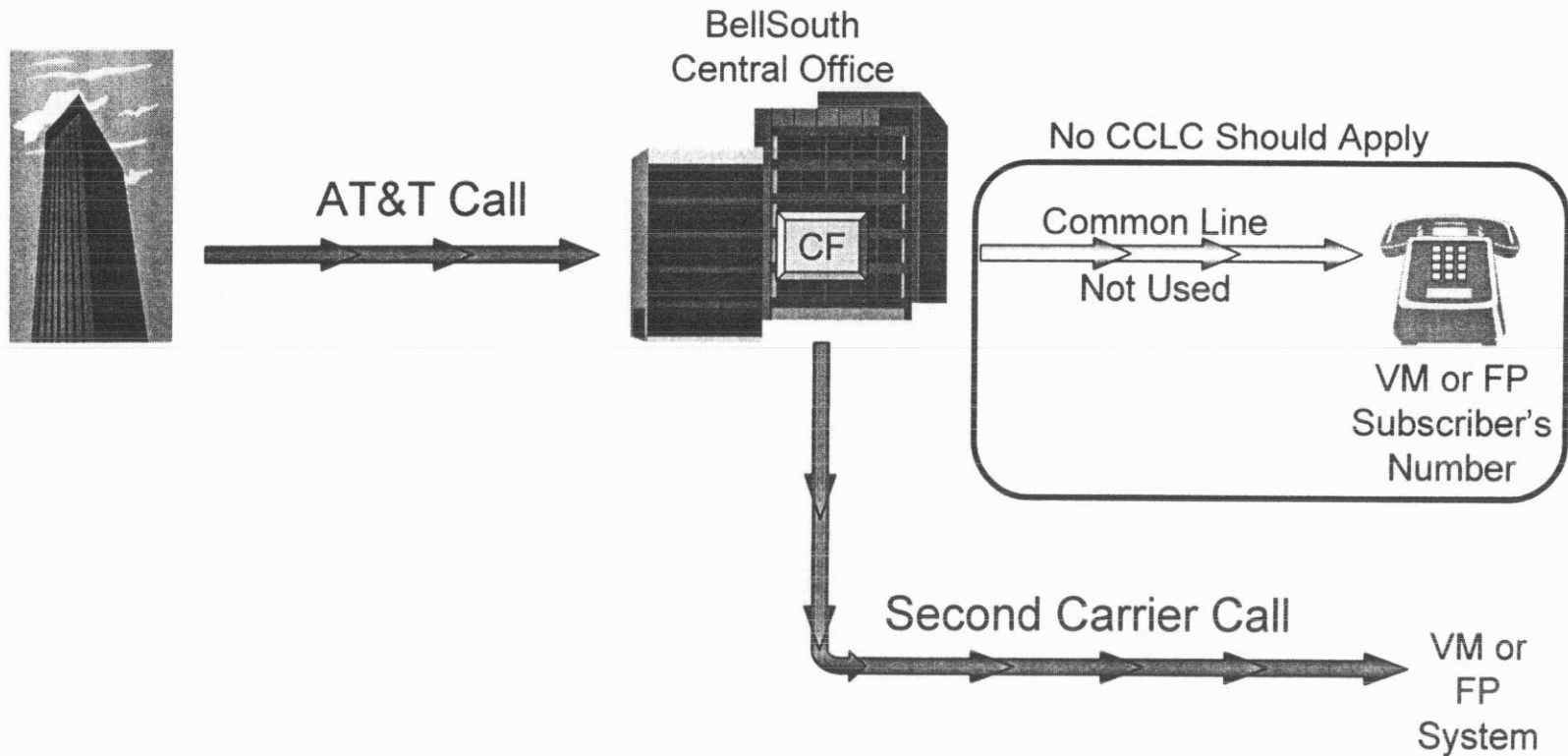
CCLC Should Not Be Billed for an AT&T Call Joined  
with Another Call at the Central Office





# VM or FP Call Forwarding

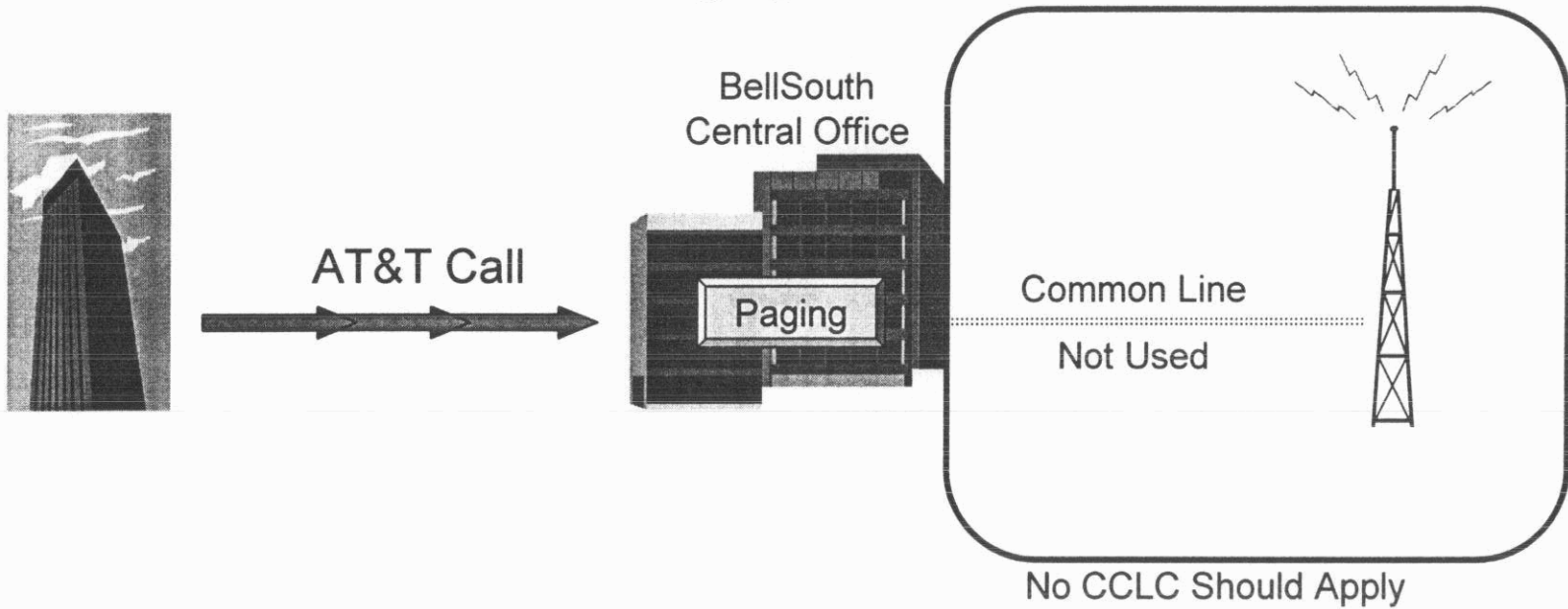
CCLC Should Not Be Billed for an AT&T Call Forwarded to a  
Voice Messaging or Fax Processing System





# Paging

CCLC Should Not Be Billed for an AT&T Call Connected  
to a Paging Number



.....  
Indicates Connection  
.....  
To a Radio Common Carrier