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Re: Docket No. 000075-TP (Phase II)

Dear Ms. Bayó:

Enclosed for filing on behalf of MCI WorldCom are the original and fifteen copies of the Direct Testimony of Mark Argenbright for Phase II of this docket.

By copy of this letter, this testimony has been furnished to the parties on the attached service list.

If you have any questions regarding this filing, please call.

Very truly yours,

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1                   **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2                   **DIRECT TESTIMONY OF MARK ARGENBRIGHT**

3                   **ON BEHALF OF MCI WORLDCOM**

4                   **DOCKET NO. 000075-TP**

5                   **MARCH 12, 2001**

6

7   **Q.**    **Please state your name and business address.**

8    A.    My name is Mark E. Argenbright. My business address is Six Concourse  
9           Parkway, Suite 3200, Atlanta, Georgia 30328.

10 **Q.**   **By whom are you employed and in what capacity?**

11 A.    I am employed by WorldCom, Inc. in the Law and Public Policy group and hold  
12       the position of Senior Staff Specialist, State Regulatory Policy. In my current  
13       position, I assist in the development and coordination of WorldCom's regulatory  
14       and public policy initiatives for the company's domestic operations. These  
15       responsibilities require that I work closely with our state regulatory groups  
16       across the various states, including Florida.

17 **Q.**   **Please summarize your telecommunications background and education.**

18 A.    My previous position within WorldCom was Senior Manager, Regulatory  
19       Analysis, in which I was responsible for performing regulatory analysis in  
20       support of a wide range of company activities. Prior to that, I was employed by  
21       the Anchorage Telephone Utility (now known as Alaska Communications  
22       Systems) as a Senior Regulatory Analyst and American Network, Inc. as a Tariff  
23       Specialist. I have worked in the telecommunications industry for sixteen years,  
24       with the majority of my positions in the area of regulatory affairs. I received a  
25       Bachelor of Science Degree in Business Administration from the University of

1 Montana in 1980.

2 **Q. What is the purpose of your testimony?**

3 A. I am going to address Issues 11, 12 and 18. First I will discuss the types of  
4 network architectures utilized by ILECs and ALECs, with a focus on the  
5 differences. Then I will review the FCC's rules regarding reciprocal  
6 compensation and explain their proper application with regard to geographic  
7 comparability and functional similarity. Next I will suggest a method for  
8 determining the geographic scope of an ALEC's network and address functions  
9 that may be considered in reviewing the functionality of an ALEC's network for  
10 similarities with the ILEC's tandem. Finally I will propose an efficient way for  
11 the Commission to implement the payment, where appropriate, of the tandem  
12 interconnection rate.

13

14 *Issue 11 What types of local network architectures are currently employed by*  
15 *ILECs and ALECs and what factors affect their choice of architectures?*

16

17 **Q. Please describe the network architecture generally deployed by ILECs.**

18 A. ILECs have deployed a hierarchical network architecture that consists of end  
19 office switches, tandem switches and transport facilities. End office switches  
20 provide connectivity for all of the ILEC's customers within a particular  
21 geographic area. These end office switches, in turn, are connected to each other  
22 and to tandems via interoffice transport. The mix of these components in the  
23 ILEC's network is dependent on a variety of factors including the number of  
24 customers to be served and where they are located relative to the existing  
25 network.

1 **Q. From a historical perspective, please address the demand, technology and**  
2 **cost factors that influenced the ILECs' network design.**

3 A. Being the monopoly provider of local telephone service required the ILECs to  
4 choose a network architecture that would allow them to serve the entire market.  
5 Based on the technologies available at the time, and the economic relationships  
6 among those technologies, the ILECs selected and deployed an architecture that  
7 would enable them to serve the entire market in the most efficient manner  
8 possible. At the time, engineers were faced with technological challenges, with  
9 distance limitations on the capability of copper facilities (i.e., the transport  
10 element) being a significant factor. These technological challenges were  
11 balanced against the need to serve a large customer base. This resulted in the  
12 ILECs' decision to deploy networks that placed switching facilities (i.e., end  
13 offices) far out into the network, near concentrations of the customer base.

14 Of course, the need to have connectivity between and among all these  
15 customers required further placement of higher capacity transport facilities  
16 between and among these end office switches. In connecting these end offices it  
17 was also more efficient to place another level of switching (i.e., tandem  
18 switches), creating a "hub and spoke" arrangement, than it was to provide  
19 transport between each and every combination of end offices.

20 **Q. How does this historical choice of network architecture impact the ILECs'**  
21 **choices today for meeting new demand?**

22 A. Today, the economic relationship between switching and transport has changed  
23 due to the availability of fiber transport, which is relatively inexpensive and can  
24 transport traffic over great distances. However, the ILECs cannot simply  
25 abandon their existing networks in favor of technology available today. Instead,

1 the ILECs are incorporating the new technologies in the context of their existing  
2 architecture. For example, additional interoffice transport capacity may well be  
3 accomplished through the use of fiber technologies (e.g., SONET transmission  
4 systems), and the extension of the network to a new or expanding area of the  
5 market may be accomplished with the use of host / remote switching  
6 arrangements, where the host switch provides the actual switching functionality  
7 to the remote.

8 **Q. Please generally describe the process used by ALECs to develop their**  
9 **network architecture.**

10 A. While the ILECs must incorporate the available technologies and their economic  
11 relationships into their existing networks, ALECs have only recently been faced  
12 with the making the decisions necessary to plan and deploy a local network.  
13 Accordingly, while the ALECs use the same general planning process as the  
14 ILECs (i.e., considering what technologies are available to serve their existing  
15 and anticipated customer base in the most efficient manner possible), the  
16 ALECs' decisions on network architecture yield a different answer due to their  
17 level of anticipated demand and their lack of an embedded "hub and spoke"  
18 network.

19 **Q. What is the general network architecture deployed by ALECs?**

20 A. Because fiber has overcome the distance limitations of copper and provides a  
21 much higher capacity of transport, ALECs typically have deployed networks  
22 which rely on expansive fiber transport networks combined with a limited  
23 number of switches. This network design also reflects the ALEC's position in  
24 the local market, that of new entrant. While the ILECs still serve virtually 100%  
25 of their respective local markets, ALECs must invest and build networks to

1           serve a realistic and obtainable level of customers and to meet their associated  
2           demands on the network.

3   **Q.    How does this chosen network architecture impact an ALEC’s future**  
4   **network choices relative to increased demand?**

5   A.    Of course, in a competitive market, increased demand is not guaranteed.  
6           Nevertheless, in meeting present and future demand requirements, ALECs will  
7           to continue to use their existing architecture, which relies on extensive fiber  
8           transport facilities combined with few switches. Just as ILECs must always  
9           consider their existing network architecture, so too must an ALEC. While both  
10          ALECs and ILECs continue to engineer their networks for anticipated and  
11          realized demand utilizing available technologies, neither entity can avoid the  
12          impact of its historical choices in network architecture. The goal is to seek  
13          efficiencies in the context of the existing network.

14   **Q.    Are there any other factors that drive differences in ILEC and ALEC**  
15   **network architecture, other than differences in the technologies available**  
16   **when those networks were first being deployed?**

17   A.    Yes, another difference between ILECs and ALECs is that ALECs have had to  
18          make all network decisions in the context of a competitive marketplace. An  
19          ILEC has only recently been faced with this added factor. ALECs have always  
20          sought to control costs, knowing that such control impacts the ability to  
21          compete. Over time, assuming that the market is allowed to operate, the ILEC  
22          too will be faced with responding to such competitive pressures in its network  
23          decisions.

24

25   *Issue 12:       Pursuant to the Act and FCC’s rules and orders:*



- 1                   (a)     *Under what condition(s), if any, is an ALEC entitled to be*  
2   *compensated at the ILEC's tandem interconnection rate?*
- 3                   (b)     *Under either a one-prong or two-prong test, what is "similar*  
4   *functionality?"*
- 5                   (c)     *Under either a one-prong or two-prong test, what is*  
6   *"comparable geographic area?"*

7

8   **Q.     As a threshold matter, is there an obligation for an ALEC to be**  
9           **compensated at any rate for the use of its network by another local**  
10          **exchange carrier?**

11   A.     Absolutely. Section 251(b)(5) of the Telecommunications Act of 1996 ("Act")  
12           imposes on each local exchange carrier "[t]he duty to establish reciprocal  
13           compensation arrangements for the transport and termination of  
14           telecommunications." Section 252(d)(2)(A) of the Act further provides as  
15           follows:

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

- 20                   (i)     Such terms and conditions provide for the mutual and  
21   reciprocal recovery by each carrier of costs associated  
22   with the transport and termination on each carrier's  
23   network facilities of calls that originate on the network  
24   facilities of the other carrier; and
- 25                   (ii)    such terms and conditions determine such costs on the

1 basis of a reasonable approximation of the additional  
2 costs of terminating such calls.

3 **Q. Given that there is to be reciprocal compensation by the originating carrier**  
4 **to the terminating carrier for the transport and termination functions**  
5 **performed by that carrier, has the FCC addressed the level of compensation**  
6 **that is to be applied?**

7 A. Yes. After establishing how reciprocal compensation rates would be determined  
8 for ILECs, the FCC turned to the question of what rates should apply to ALECs.  
9 The FCC concluded that the ILECs' reciprocal compensation rates should be  
10 adopted as the "presumptive proxy" for the ALEC's rates - in other words, the  
11 rates were required to be the same. *In re: Implementation of the Local*  
12 *Competition Provisions in the Telecommunications Act of 1996*, First Report and  
13 Order, CC Docket No. 96-98, released August 8, 1996 (the "*Local Competition*  
14 *Order*,") ¶ 1085. The only exception to this rule arises when an ALEC  
15 establishes that its transport and termination costs are higher than those of the  
16 ILEC. *Local Competition Order*, ¶ 1089; FCC Rule 51.711(b).

17 **Q. What reasons did the FCC give for ordering symmetrical treatment?**

18 A. The FCC provided a number of reasons for ordering symmetrical treatment,  
19 including the following:

- 20 1. Typically the ILEC and ALEC will be providing service in the same  
21 geographic area, so their forward-looking costs should be the same in  
22 most cases. *Local Competition Order*, ¶ 1085.
- 23 2. Imposing symmetrical rates would not reduce carriers' incentives to  
24 minimize their internal costs. ALECs would have the correct incentives  
25 to minimize their costs because their termination revenues would not

1 vary directly with changes in their costs. At the same time, ILECs would  
2 have the incentive to reduce their costs because they could be expected to  
3 transport and terminate much more traffic originating on their own  
4 networks than on ALEC's networks. Thus, even assuming ILEC cost  
5 reductions were immediately translated into lower transport and  
6 termination rates, any reduction in reciprocal compensation revenues  
7 would be more than offset by having a more cost-effective network.  
8 *Local Competition Order*, ¶ 1086.

9 3. Symmetrical rates might reduce ILEC's ability to use their bargaining  
10 power to negotiate high termination rates for themselves and low  
11 termination rates for ALECs. *Local Competition Order*, ¶ 1087.

12 **Q. How does the FCC's reasoning in establishing symmetrical treatment for**  
13 **reciprocal compensation relate to your earlier discussion about network**  
14 **decisions made by ILECs and ALECs?**

15 A. As I indicated above, ALECs have always made network decisions with a focus  
16 on controlling costs due, in part, to their new entrant status in the marketplace  
17 whereas ILECs are just beginning address network decisions with a heightened  
18 sensitivity to cost control as they face these new competitors. The FCC  
19 correctly views the application of symmetrical rates as providing both ALECs  
20 and ILECs the proper incentives to reduce costs. Abandoning symmetrical rates  
21 removes the incentives for cost control and would give a competitive advantage  
22 to one of the carriers.

23 Payment of the lower end office rate to an ALEC when the tandem rate  
24 should apply is an abandonment of symmetrical rates and would result in both of  
25 these negative outcomes. Simply put, the ILEC will not be driven to reduce its

1 own network costs because the use of another carrier's "tandem network" is  
2 available for the price of the ILEC's own end office cost. And, of course, the  
3 ILEC's new competitor, the ALEC, is now under-compensated for the transport  
4 and termination services being provided.

5 **Q. What did the FCC conclude concerning symmetry of tandem**  
6 **interconnection rates?**

7 A. The FCC stated the following in paragraph 1090 of the *Local Competition*  
8 *Order*:

9 We find that the "additional costs" incurred by a LEC when transporting  
10 and terminating a call that originated on a competing carrier's network  
11 are likely to vary depending on whether tandem switching is involved.  
12 We, therefore, conclude that states may establish transport and  
13 termination rates in the arbitration process that vary according to whether  
14 the traffic is routed through a tandem switch or directly to the end-office  
15 switch. In such event, states shall also consider whether new  
16 technologies (e.g., fiber ring or wireless networks) perform functions  
17 similar to those performed by an incumbent LEC's tandem switch and  
18 thus, whether some or all calls terminating on the new entrant's network  
19 should be priced the same as the sum of transport and termination via the  
20 incumbent LEC's tandem switch. *Where the interconnecting carrier's*  
21 *switch serves a geographic area comparable to that served by the*  
22 *incumbent LEC's tandem switch, the appropriate proxy for the*  
23 *interconnecting carrier's additional costs is the LEC tandem*  
24 *interconnection rate.*

25 (Emphasis added)

1 **Q. Please explain what this language means in practical terms.**

2 A. The FCC reached three conclusions. First, it is appropriate to establish an  
3 additional rate for ILECs when they use a tandem switch in the transport and  
4 termination of ALECs' local traffic. Second, states may consider whether some  
5 or all calls terminated by an ALEC may be priced at that higher rate if the ALEC  
6 uses alternative technologies or architectures to perform functions similar to  
7 those performed by the ILEC's tandem switch. Third, the higher rate *must* be  
8 applied when the ALEC's switch serves a geographic comparable to that served  
9 by the ILEC's tandem switch.

10 **Q. Does this FCC ruling have a bearing on the proper definition of "similar  
11 functionality" and "comparable geographic area?"**

12 A. Yes. It is important to note that under the FCC's approach, an ALEC need rely  
13 on proving the similar functionality of its network in order to be compensated at  
14 the tandem rate *only if* its network does not serve a geographic area comparable  
15 to that served by the ILEC's tandem. If the ALEC serves a comparable  
16 geographic area, the "functionality" inquiry is simply unnecessary.

17 **Q. Does the FCC's codification of this principle confirm your reading of the  
18 Local Competition Order?**

19 A. Yes, it confirms my analysis. FCC Rule 51.711(a) provides as follows:

20 (a) Rates for transport and termination of local telecommunications  
21 traffic shall be symmetrical, except as provided in paragraphs (b)  
22 and (c) of this section. [These exceptions do not apply here.]

23 (1) For purposes of this subpart, symmetrical rates are rates that a  
24 carrier other than an incumbent LEC assesses upon an incumbent  
25 LEC for transport and termination of local telecommunications

1 traffic equal to those that the incumbent LEC assesses upon the  
2 other carrier for the same services.

3 (2) In cases where both parties are incumbent LECs, or neither party  
4 is an incumbent LEC, a state commission shall establish the  
5 symmetrical rates for transport and termination based on the  
6 larger carrier's forward-looking costs.

7 (3) *Where the switch of a carrier other than an incumbent LEC*  
8 *serves a geographic area comparable to the area served by the*  
9 *incumbent LEC's tandem switch, the appropriate rate for the*  
10 *carrier other than an incumbent LEC is the incumbent LEC's*  
11 *tandem interconnection rate.*

12 (Emphasis added)

13 The FCC could not have been more clear. The geographic comparability rule  
14 was adopted without exception or qualification.

15 **Q. Do the ILECs share this understanding of the FCC's order and rule?**

16 A. No, at least BellSouth does not. BellSouth has argued that the FCC did not  
17 establish an one-prong "either-or" test for determining entitlement to  
18 compensation at the tandem rate, but instead established a two-prong "both-and"  
19 test." In deciding Issue 12, it is critical for the Commission to clearly state its  
20 understanding that the FCC has announced an "either-or" test. Without a clear  
21 decision, BellSouth will continue to refuse to pay tandem compensation to  
22 ALECs.

23 **Q. Does the choice of network architectures selected by the ILEC and ALEC**  
24 **impact an analysis of similar functionality?**

25 A. Absolutely. Based on the network descriptions above, the comparison of ILEC

1 and ALEC networks is an “apples to oranges” comparison. As I stated, both the  
2 ILEC and ALEC are committed to their network architectures and adjust those  
3 architectures to meet demand. Adoption of a test for "similar functionality"  
4 which requires the networks to be "technically identical" would force the ILEC's  
5 network architecture on ALECs which, as described, are committed to a  
6 technically different architecture.

7 For example, this testimony was created through the use of a computer  
8 and word processing software. When reading a hard copy of this testimony it is  
9 impossible to tell whether it was created with an Apple or IBM compatible  
10 computer. A review of the technical treatment by these two types of computers  
11 of the keystrokes involved in creating this document would reveal technical  
12 differences in their processors and operating systems. However, at the end of  
13 the day, both computers can produce the document. Even in light of their  
14 technical differences, it can be said that these computers share similar  
15 functionality.

16 **Q. What is one of the potential consequence of adopting a “technically**  
17 **identical” standard for comparing an ILEC tandem switch and an ALEC**  
18 **network?**

19 A. Comparison of functionality must recognize and accept the technical differences  
20 between ILEC and ALEC networks. Failure to do so creates the situation where  
21 the ILEC would be able to avoid the cost of using of its own tandem for  
22 transport and termination while receiving the similar functionality from the  
23 ALEC's network and paying only the lower cost of end office transport and  
24 termination. This structure would remove the incentives that the FCC found in  
25 directing that rates are to be symmetrical.

1 **Q. Given this, are there functional similarities that exist between the ALEC**  
2 **network and the ILEC's tandem switch?**

3 A. Yes. Network differences aside, there are several functions performed by the  
4 ALEC's network that are performed by the ILEC's tandem switch as well. One  
5 of these is the function of traffic aggregation. An ALEC's network collects  
6 traffic from across many exchanges in various rate centers allowing the efficient  
7 switching and transporting of traffic originating and terminating among these  
8 exchanges and rate centers. Traffic aggregation is a central function of the  
9 ILEC's tandem switch.

10 Also similar to the ILEC tandem, an ALEC's network provides for a  
11 centralized point of interconnection for access to operator services platforms and  
12 facilities, allowing all operator traffic to be aggregated and routed for processing  
13 by a common platform(s).

14 An ALEC's network also measures and records traffic, creating call  
15 records for billing purposes, just as is done by the ILEC's tandem switch.

16 An ALEC's network that performs these functions should be found to be  
17 providing "similar functionality" for purposes of determining the appropriate  
18 rate the ALEC should receive for the transport and termination functions  
19 provided to the ILEC. In recognition of the network differences discussed  
20 above, if these activities are performed by the ALEC's network, it must be  
21 entitled to compensation at the tandem rate without the additional requirement to  
22 physically include a tandem switch in that network.

23 **Q. What is the relationship between "similar functionality" and "comparable**  
24 **geographic area?"**

25 A. While these both require an analysis of the characteristics of the ALEC's



1 network relative to the ILEC's tandem switch, the "similar functionality" review  
2 was established by the FCC as an alternative showing that an ALEC could make  
3 in the event its network did not serve a geographic area comparable to that of the  
4 ILEC's tandem. However, it is exactly that, an alternative. If the ALEC's  
5 network provides transport and termination to a "comparable geographic area"  
6 no additional review of functionality is required. As cited above, this is the  
7 specific meaning of the FCC's Rule 51.711(a).

8 **Q. As background, please describe generally how ALECs determine what**  
9 **geographic area their networks will serve.**

10 A. Going back in time somewhat, many ALECs today were once competitive  
11 access providers (CAPs), which were known in Florida as alternative access  
12 vendors (AAVs). CAPs originally had fiber transmission resources that were  
13 utilized to provide competitive offerings of dedicated private line / special  
14 access services. When changes in the law gave them the opportunity to compete  
15 for customers in the switched services market, many companies, such as  
16 WorldCom, looked at their CAP operations and determined how well the  
17 geographic reach of those fiber facilities matched the location of the perceived  
18 demand for local switched services. If it was determined that the existing fiber  
19 facilities, perhaps supplemented with additional fiber, had a geographic scope  
20 that reached a sufficient potential market share, a local switch was deployed.  
21 Once the switch was deployed, numbering resources (NPA/NXXs) were  
22 acquired and opened up for those rate centers which were within the physical  
23 reach of the network.

24 **Q. Explain what you mean by physical reach of the network.**

25 A. Simply that if an ALEC has opened an NPA/NXX and established network

1 facilities which allow end users within rate centers to originate and terminate  
2 local exchange service, such rate centers would be considered within the physical  
3 or geographic reach of the ALEC's network regardless of the number of  
4 customers the ALEC has been able to attract.

5 **Q. How does an ALEC go about expanding the geographic reach of its local**  
6 **network?**

7 **A.** Most ALECs look to four methods of placement and/or leasing of facilities to  
8 expand their geographic service areas:

- 9 a) establishment of a collocation arrangement within an ILEC wire center  
10 and the provision of transport facilities between the collocation  
11 arrangement and the ALEC switch;
- 12 b) establishment of a local node which establishes a physical point on the  
13 fiber transport facilities that allows customer access to local switched  
14 services;
- 15 c) extension of the fiber network (also potentially a component of the  
16 previous two options); and
- 17 d) the purchase of enhanced extended links (EELs) which are used to reach  
18 geographic areas where the network does not currently reach.

19 It is important to note that, due to the ALEC's choice of network architecture,  
20 placement of a new switch is not considered in conjunction with expanding the  
21 geographic reach of the local network. Consistent with the network architecture  
22 discussions above, the reason for this is that the cost of placing a new switch to  
23 expand geographic reach is cost prohibitive relative to the deployment of  
24 additional fiber. Accordingly any requirement to have multiple switches as  
25 evidence of a "geographically comparable" network is not only inconsistent with

1 the FCC's rules but fails to recognize the differences in network architectures.

2 **Q. What would be a reasonable approach in considering whether an ALEC is**  
3 **entitled to reciprocal compensation at the tandem rate based on geographic**  
4 **comparability?**

5 A. Of course, the proper review should take into consideration the network utilized  
6 by an ALEC. As described above, when an ALEC establishes or extends its  
7 geographic reach, an investment in the network is made and then NPA/NXXs are  
8 activated for the rate centers that are within the "reach" of that network. This  
9 allows the ALEC to provide originating and terminating local exchange service to  
10 customers in those rate centers. Accordingly, if the geographic area represented  
11 by the combination of rate centers that have been opened on an ALEC's network  
12 is served by the ILEC with a tandem switch (and subtending end offices) the  
13 ALEC must be found to be providing geographically comparable coverage and  
14 therefore compensated at the tandem rate.

15 This standard is (and should be) technologically neutral and should  
16 accommodate present and future technologies that might be deployed in the local  
17 network. Additionally, it is this goal of technological neutrality that would direct  
18 that an ALEC should not be precluded from demonstrating geographic  
19 comparability via alternative methods to the rate center review.

20

21 *Issue 18 How should the policies established in this docket be implemented?*

22

23 **Q. How should the Commission's decision on the payment of tandem**  
24 **compensation and the proper application of the "geographic coverage" and**  
25 **"similar functionality" tests be implemented?**

1 A. The Commission should implement a procedure that can proceed with little or no  
2 further Commission involvement. If Commission involvement is required to  
3 settle disputes, the Commission should resolve those disputes on an expedited  
4 basis.

5 **Q. What type of procedure would minimize Commission involvement?**

6 A. If the Commission is clear that the FCC rule establishes a "one-prong" test and is  
7 also clear that the "geographic comparability" standard is met when an ALEC has  
8 opened NPA/NXXs that give its switch the ability to serve a combination of the  
9 rate centers served by an ILEC's tandem, it should be a simple matter for the  
10 ILECs to determine what ALECs meet the geographic coverage test by  
11 examining the list of NPA/NXXs that an ALEC has opened. If the parties are  
12 unable to reach agreement within a short period of time -- say 30 days from the  
13 Commission's order -- then the parties should be permitted to bring their dispute  
14 to the Commission for resolution on an expedited basis.

15 **Q. Does this conclude your testimony?**

16 A. Yes it does.