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DIRECT TESTIMONY OF DREW CAPLAN

ON BEHALF OF

MCI TELECOMMUNICATIONS CORPORATION AND
MCImetro ACCESS TRANSMISSION SERVICES, INC

DOCKET NO. 960846-TP

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Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Drew Caplan, and my business address is 8521 Leesburg
Pike, Vienna, Virginia 22182.

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

A. I am employed by MCI Telecommunications Corporation as Director of
Local Services Network Engineering.

Q. PLEASE GIVE A BRIEF DESCRIPTION OF YOUR BACKGROUND AND
WORK EXPERIENCE.

A. I have been employed in the telecommunications field since 1983,
starting with MCI as a traffic engineer and moving on to hold a variety of
staff and management positions in the areas of traffic engineering,
computer system design, switch routing and database administration,
plant utilization management, and access management. The positions I
have held include: Supervisor of network routing systems development;
Manager of Network Management systems development; heading a task
force on network plant utilization; Senior Manager of product

1 development, customer network management products; and on the staff
2 of the Vice President of Network Administration. From 1992 to 1994, I
3 was Senior Manager, Eastern Region Access Management, where I was
4 responsible for servicing and optimizing MCI's access network in the
5 NYNEX and Bell Atlantic regions. In this position, I directed MCI's
6 network reconfiguration pursuant to the FCC-mandated Local Transport
7 Restructure, as well as directed MCI's efforts to convert the NYNEX and
8 Bell Atlantic access networks to CCS#7 signalling.

9 Since July 1994, I have held my current position of Director of
10 Network Engineering, which entails managing the organization
11 responsible for planning, designing, and coordinating the installation of
12 MCImetro's networks. My daily responsibilities include hands-on
13 involvement in the implementation of interconnection of MCI's local
14 network with the network of the Incumbent Local Exchange Company
15 ("ILEC"), collocation, and access to unbundled elements. Through my
16 experience over the last two and a half years, I have first hand
17 knowledge of the items necessary to make local competition possible
18 from an engineering perspective. As Director of Network Engineering, I
19 have also been part of MCI's team which negotiated MCImetro's local
20 interconnection and unbundling arrangements with ILECs.

21

22 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

23 A. The purpose of my testimony is to address the following topics: (1) *the*
24 *MCI Local Network*: an overview of the local network that MCI is
25 installing; (2) *the Interconnection of Networks*: the steps necessary to

1 interconnect MCI's local network with the ILEC network so that all forms
2 of traffic can be exchanged between the networks; (3) *Access to*
3 *Unbundled Network Elements*: a description of unbundled network
4 elements that MCI is requesting and how MCI proposes to gain access to
5 these unbundled elements; and (4) *Collocation*: a description of
6 collocation arrangements required under the Act and under the FCC's
7 recent order. I will also discuss related issues such as ordering and
8 provisioning that play a critical role in the success or failure of
9 interconnection and use of unbundled elements.

10 Network unbundling will allow MCI and other competitive local
11 exchange companies ("CLECs") to provide a wide variety of new
12 products to a broad array of customers using portions of the ubiquitous
13 ILEC network combined with differentiating network elements provided
14 by the CLEC. Interconnection, effective network unbundling, and
15 procedures to make collocation viable are essential in order for
16 competition to become a reality in the local exchange market.

17

18 MCI'S LOCAL NETWORK

19 Q. PLEASE DESCRIBE THE LOCAL NETWORK MCI IS INSTALLING.

20 A. To understand MCI's need for interconnection, access to unbundled
21 elements and collocation, it is necessary to understand MCI's local
22 network and how MCI plans to use that network to provide local service.

23 MCImetro is MCI's subsidiary in charge of constructing local networks
24 and, from a technical perspective, interconnecting MCI's local network
25 with the ILEC's network. To understand MCImetro's network, how it

1 has evolved, and how it will continue to evolve, it is necessary to
2 understand the history of MCImetro. MCImetro began its corporate life
3 as a special access provider, also known as a competitive access
4 provider (CAP). Special access providers provide high capacity network
5 facilities to mid and large business customers for the purpose of
6 originating and terminating interexchange traffic directly to or from the
7 interexchange carrier. As such, MCImetro's original network consisted of
8 a limited set of fiber optic rings in several urban areas.

9 In January 1994, MCI made the decision to expand MCImetro to
10 offer switched local services. Beginning with the fiber rings, MCI
11 embarked on a capital construction program with two major goals. First,
12 MCImetro had to expand its existing fiber ring facilities to reach more
13 customer buildings and construct new rings in other urban areas.
14 Second, MCImetro had to install local switches to provide switched
15 services. (MCI's interexchange switches were not suitable for handling
16 local traffic without significant modifications.) Over the last two and one
17 half years, MCI has invested over \$700 million in its local network. As a
18 result, as of the date of my testimony, MCI's local networks, nationwide,
19 consist of approximately 2,600 route miles of fiber rings and 13
20 switches.

21 While MCI's local network is growing, it is still small compared to
22 the ubiquitous reach of the ILECs' networks. While MCImetro has been
23 building local networks for just over 2 years, the ILECs have been
24 building local networks for over one hundred years. While MCI's local
25 network passes by several thousand buildings in mostly urban areas, the

1 ILECs' networks reach into practically every building and home in the
2 country. While MCImetro has installed 13 local switches, the ILECs
3 collectively own over 23,000 local switches. It is not an overstatement
4 to say that the ILECs' networks are practically everywhere.

5

6 Q. WHAT IS MCI'S GOAL IN PROVIDING LOCAL SERVICE?

7 A. MCI's goal is to reach a broad array of customers, business and
8 residential, to provide local services that are consistent across geographic
9 areas and are differentiated from today's monopoly offerings. Thus, while
10 total service resale is part of MCI's local efforts and will in some
11 circumstances be MCI's vehicle for initial entry into the local market,
12 resale alone will not allow MCI to differentiate its service or develop
13 consistent services across geographic areas. In order to reach that goal,
14 and enable true competition in the local services market, MCI and other
15 competitive local exchange carriers (CLECs) must be able to create and
16 offer their own services. The primary means of achieving this is through
17 deployment of MCI's own local facilities. This has been the path that
18 MCI has chosen to date. However, as mentioned earlier, MCI's
19 significant investment in switching and network construction over the
20 past two plus years has only allowed it to reach a maximum of several
21 thousand buildings, mostly in urban areas. Network unbundling,
22 discussed in more detail below, will allow MCI and other CLECs to
23 provide a broad array of new products to a much larger group of
24 customers using portions of the ubiquitous ILEC network combined with
25 differentiating network elements provided by the CLEC. Without

1 effective ILEC network unbundling, real competition will not become a
2 reality.

3 One further item is worth noting. MCI's local network has a
4 substantially different architecture than that of the ILEC. ILEC networks,
5 developed over many decades, employ an architecture characterized by a
6 large number of switches within a hierarchical system, with relatively
7 short subscriber loops. By contrast, MCI's local network employs state-
8 of-the-art equipment and design principals based on the technology
9 available today, particularly optical fiber rings, that does not require the
10 deployment of as many switches. In general, there is a trade-off
11 between the number of switches and the length of the local loop. The
12 fewer the switches deployed in any given territory, the longer the loop
13 length necessary to serve customers, and vice versa. In any given
14 service territory, MCI will have deployed fewer switches than the ILEC.
15 In general, at least for now, MCI's switches all serve areas at least equal
16 in size if not greater than the serving area of the ILEC tandem. For
17 example, in Baltimore, Bell Atlantic uses two access tandems to serve
18 the Baltimore local calling area. MCI uses just one. Thus, MCI's one
19 switch in Baltimore serves an area actually greater than the service area
20 of either of BA's tandems. Similarly, in New York, NYNEX has six
21 tandems access that serve the New York Metropolitan LATA; initially,
22 MCI has deployed one switch to serve the same geography. This last
23 point becomes critical later in my testimony as I discuss reciprocal
24 compensation arrangements for transport and termination of traffic.

25 In sum, MCI's recent but very real experience in deploying local

1 services gives it a unique perspective on what it takes to make
2 competition a reality. Our "hands on" experience allows us to be very
3 clear on what will be required in the areas of implementing network
4 interconnection and gaining access to unbundled ILEC network elements.

5

6 INTERCONNECTION OF NETWORKS

7 Q. WHAT IS INTERCONNECTION AND WHY IS IT IMPORTANT?

8 A. Building a local network means nothing unless that network can be
9 seamlessly interconnected with the ILEC's network and with the
10 networks of other telecommunications carriers. In the context of my
11 testimony, interconnection means the linking of networks. The point at
12 which MCI's local network physically connects to the ILEC's network is
13 called the interconnection point (IP), or sometimes the point of
14 interconnection (POI). This definition of "interconnection" is consistent
15 with how the FCC defined that term at Paragraph 176 of the First Report
16 and Order in CC Docket No. 96-98, In the Matter of Implementation of
17 the Local Competition Provisions in the Telecommunications Act of 1996
18 (the "Order"). Connection of unbundled elements ("access to unbundled
19 elements") to the MCI network is discussed later in my testimony.

20 The IP plays a critical role in overall interconnection. From a
21 financial perspective, the IP represents the "financial demarcation" -- the
22 point where MCI's network ends and the ILEC's "transport and
23 termination" charges begin. From an engineering perspective, there are
24 variety of things that must happen at the IP to make interconnection
25 seamless and complete. In my testimony, I focus on the engineering

1 aspects, but obviously the financial ramifications have a significant
2 impact on how we interconnect and exchange traffic with the ILEC.
3 Therefore, there also is a later discussion about the financial implications
4 of interconnection.

5

6 Q. WHAT IS REQUIRED TO PHYSICALLY LINK MCI'S LOCAL NETWORK
7 WITH THE NETWORKS OF INCUMBENT LOCAL EXCHANGE CARRIERS?

8 A. From MCI's viewpoint, physical linking of networks is not a daunting
9 engineering task. Carriers have interconnected networks -- local network
10 to local network and interexchange network to local network -- for years.
11 Thus, physical linking is neither new nor overly complicated.

12

13 Physical linking of networks involves the following steps:

14

15 • The physical connection of MCI's facilities to the ILEC facilities at
16 the interconnection point (IP).

17

18 • The establishment of trunking arrangements for the exchange of
19 local traffic, for the exchange of intraLATA and interLATA toll
20 traffic, for "operator-to-operator" calls, for directory assistance
21 calls, for 911/E911 calls, and for "transit" traffic.

22

23 • The physical connection of MCI's signaling network and the ILEC's
24 signaling network so that signaling information can be exchanged.

25

1 I discuss these steps in more detail below.

2

3 1. Interconnection Point (IP) for exchange of traffic

4 Q. WHAT ISSUES ARE INVOLVED IN THE ESTABLISHMENT OF AN
5 INTERCONNECTION POINT (IP)?

6 A. From an engineering perspective, establishment of the IP includes
7 *determination of where the IP is located, the method of interconnection,*
8 *and the types of facilities that will be used to carry traffic back and forth*
9 *over the IP.*

10

11 a. *Location of the IP*

12 Q. PLEASE DISCUSS THE LOCATION OF THE IP.

13 A. As the Act and the FCC Order states, the ILEC must provide
14 interconnection "at any technically feasible point within the ILEC's
15 network." (Final Rules, Section 51.305(a)(2)) Thus, MCI, as the new
16 entrant, is permitted to select the IP from any point in the ILEC's network
17 where it is technically feasible to physically interconnect networks and
18 exchange traffic. (Order, at Paragraph 220, footnote 464) Specifically,
19 MCI must have the ability to select the location or locations of any IP so
20 long as it is within the LATA that contains the end offices for which
21 traffic will be exchanged. Moreover, as the FCC Order notes,
22 "technically feasible" under this definition "refers solely to technical or
23 operational concerns, rather than economic, space, or site
24 considerations." Thus, so long as the ILEC can -- from a technical
25 perspective -- take the traffic from the IP and terminate it to any

1 particular end office, then that IP is technically feasible.

2 I raise this because of a special problem MCI has faced in New
3 York with NYTEL. NYTEL has attempted to make MCI establish IPs at
4 each of their access tandems in the LATA that covers the Metropolitan
5 New York City area. There are six such access tandems in that LATA.
6 Clearly, for a new entrant such as MCI, physically building out facilities
7 to establish an IP at each of those access tandems would be a time
8 consuming and expensive proposition, delaying the ability of MCI to offer
9 service in that LATA and making it more expensive than necessary to
10 offer that service.

11 The "technical feasibility" portion of the FCC Order precludes
12 NYTEL from insisting on this build out, and here's why. MCI already has
13 established an IP with NYTEL in Manhattan. Because of NYTEL's
14 extensive transport network in the LATA, it is technically feasible for
15 NYTEL to take traffic from that IP and transport it to any end office in
16 the LATA, regardless of which access tandem that end office subtends.
17 Therefore, that IP can -- and at MCI's discretion should -- serve as the IP
18 for the entire LATA. I also note that Ameritech and MFS have agreed to
19 a single IP per LATA.

20 Naturally, however, any decision on where an IP is located or
21 whether to use more than one IP will have an impact on the transport
22 portion of any transport and termination compensation paid to the ILEC.
23 If MCI chooses to have only one IP in the LATA, for example, the
24 transport charges that MCI must pay as part of "transport and
25 termination" for local calls will reflect the increased distance that calls

1 must travel from the IP to the particular end office where they terminate.
2 This will be discussed in more detail later in my testimony where I
3 address the financial implications of network interconnection.

4 At section 51.305(a)(2) of its Rules, the FCC identifies the
5 minimum set of places where the ILECs must provide interconnection,
6 but explicitly states in that section that interconnection must be provided
7 at "at any technically feasible point within the incumbent LEC's
8 network." Thus, the FCC explicitly did not limit potential IPs to these
9 locations (Order at paragraphs 209, 549, 550, 551, 552, 553, and 54).
10 It is technically feasible to establish an IP at most points on the ILEC
11 network where ILEC facilities meet each other or meet other facilities
12 (either the ILEC's or some other entity's facilities).

13 In engineering terms, facilities are always connected with each
14 other at what are called "cross-connect points." Cross-connect points,
15 as the name implies, are places in any network where one facility can be
16 connected to another, either manually or electronically. With a manual
17 cross connect, two facilities are physically connected by means of a third
18 piece called a "jumper." Simply put: Wire A comes in to a point on the
19 cross to connect apparatus, and Wire B comes in on another point. Then
20 a jumper is used connect Wire A to Wire B. A main distribution frame
21 (MDF) or any similar "patch panel" is an example of a manual cross-
22 connect device. With an electronic cross-connect, there is no jumper
23 wire, rather, the "jumper connection" is performed electronically. A DCS
24 (digital cross connect system) is an example of an electronic cross
25 connect.

1 IP's do not have to be limited to residing at an ILEC tandem or end
2 office switch. The FCC's Order specifies some potential interconnection
3 points; each one of those is a "cross-connect point," as I have defined
4 that term, in either a tandem switch or an end office switch. There are
5 other cross-connect points in the ILEC network, however. For example,
6 MCI's switches are generally located in commercial office buildings. For
7 any particular MCI switch, the ILEC will also have network facilities into
8 that building that end at what is called a "telco closet." A telco closet in
9 this sense includes -- or can technically support -- a cross-connect
10 device. Thus, an ILEC telco closet in a commercial building can also
11 serve as an IP. In fact, MCI interconnects with Ameritech at such telco
12 closets now in Detroit. Thus, this type of IP is certainly technically
13 feasible.

14

15 *b. Methods of Interconnection*

16 Q. PLEASE DISCUSS THE VARIOUS METHODS OF INTERCONNECTION.

17 A. The FCC permits any method of interconnection that is technically
18 feasible. (Order at paragraph 549) In its Order, the FCC discusses three
19 specific methods of interconnection: physical collocation, virtual
20 collocation, or meet point. (Order at paragraph 553) Collocation, either
21 virtual or physical, is well known from a technical perspective and is
22 discussed later in my testimony.

23 Meet point arrangements are also well known. Under a typical
24 "meet point" arrangement, MCI and the ILEC would each "build out" to a
25 meet point. Under this type of arrangement the official "IP" -- as I have

1 been using that term -- is the point where the ILEC build out connects to
2 the rest of the ILEC network. The "limited build out" to the meet point is
3 the financial responsibility of each party and is part of what the FCC calls
4 the "reasonable accommodation of interconnection." (Order at paragraph
5 553)

6 A variation of this is what I refer to as "mid-span meet." Under
7 this arrangement, MCI and the ILEC would jointly provision the fiber
8 optic facilities that connect the two networks and share the financial and
9 other responsibilities (as detailed below) for that facility. In this situation,
10 the facilities do not actually join at a "cross-connect point" but are
11 spliced together. This is essentially the method of interconnection that
12 MFS and Ameritech agreed to. Thus, it is certainly technically feasible.

13

14 *c. Types of facilities at the IP*

15 Q. WHAT TYPES OF FACILITIES CAN BE USED AT THE IP?

16 A. Having determined the location of the IP, it is necessary, from an
17 engineering perspective to determine the types of facilities that will be
18 used to interconnect. The types of facilities that are used to link the
19 networks, regardless of the types of traffic carried, are well known both
20 to MCI and to the ILECs. Network interconnection may occur at light
21 (fiber) level, or at DS3, DS1, or voice-grade levels.

22

23 **2. Trunking and Interconnection of Signaling Networks**

24 Q. WHAT ARRANGEMENTS SHOULD BE PROVIDED FOR THE TRUNKING
25 OF TRAFFIC?

1 A. Once networks are physically connected via the facilities and
2 arrangements as described above, then it is necessary from an
3 engineering perspective to partition those facilities into various types of
4 trunk groups required to carry the different types of traffic that are
5 necessary for complete interconnection. Based on our experience, MCI
6 believes that traffic should be segregated as follows:

- 7 • a separate trunk group that carries local traffic, non-equal access
8 intraLATA interexchange traffic, and local transit traffic to other
9 LECs.
- 10 • a separate trunk group for equal access interLATA or intraLATA
11 interexchange traffic that transits the ILEC network.
- 12 • separate trunks connecting MCI's switch to each 911/E911
13 tandem.
- 14 • a separate trunk group connecting MCI's switch to the ILEC's
15 operator service center. This permits MCI's operators to talk to
16 the ILEC's operators. Operator-to-operator connection is critical
17 to ensure that operator assisted emergency calls are handled
18 correctly and to ensure that one carrier's customer can receive
19 busy line verification or busy line interrupt if the other end user is
20 a customer of a different LEC.
- 21 • a separate trunk group connecting MCI's switch to the ILEC's
22 directory assistance center where MCI is purchasing the ILEC's
23 unbundled directory assistance service.

24 With regard to the first requested trunk group, the Commission should
25 note that there is no technical requirement to segregate local and

1 intraLATA interexchange traffic on separate trunk groups. Indeed, it is
2 often more efficient to "pack" a trunk with both local traffic and
3 interexchange traffic. Because these types of traffic are "rated"
4 differently, however, the receiving carrier would either have to discern
5 between types itself or have to rely on reporting by the sending carrier,
6 via a "percent local usage" (PLU) or similar reporting mechanism. The
7 trunk segregation detailed above is an initial architecture that meets
8 MCI's immediate needs for interconnection. As MCI's network evolves,
9 and as we seek to provide new services, there may be a requirement for
10 a further or different combination of traffic types. For example, it may
11 be efficient for MCI to aggregate local and interexchange traffic on a
12 single trunk. It is incumbent upon the ILEC to prove that a request for a
13 revised traffic combination is technically infeasible.

14
15 Q. WHAT SIGNALLING SHOULD BE PROVIDED WITH RESPECT TO THESE
16 TRUNK GROUPS?

17 A. The trunk groups that connect the networks will require specific signaling
18 characteristics. The trunks that carry local and interexchange traffic are
19 generally similar to the industry standard Feature Group D trunks with
20 CCS7 signaling. MCI requires CCS7 signaling on all trunks used to pass
21 local and interexchange traffic. The specific details about the
22 interconnection of signaling networks is discussed later in my testimony
23 where I address access to unbundled elements. MCI also requires that
24 the trunks used to carry local and interexchange traffic are configured
25 with B8ZS Extended Superframe (ESF). B8ZS ESF is required to support

1 the transmission of 64Kbps ("Clear Channel") traffic between the
2 networks of ILECs and CLECs. Without Clear Channel transmission,
3 subscribers of ILECs and CLECs would not be able to terminate various
4 types of switched data traffic, including some ISDN applications.

5 Trunks can also be either one-way or two-way. Generally, two-
6 way trunking is more efficient than one-way trunking for traffic that
7 flows in both directions (for example, local and interexchange traffic),
8 since, with two-way trunking, fewer trunks are needed to establish the
9 interconnection than are needed when ILECs insist only on one-way
10 trunking. The FCC has recognized the benefits of two-way trunking by
11 ordering ILECs to make them available upon a CLEC's request (Order,
12 Paragraph 219).

13
14 Q. YOU PREVIOUSLY MENTIONED THAT THE FINANCIAL IMPLICATIONS
15 OF INTERCONNECTION MUST BE CONSIDERED. WHAT ARE THE
16 FINANCIAL IMPLICATIONS WHICH ARISE IN CONNECTION WITH THE
17 PHYSICAL LINKING OF NETWORKS?

18 A. Whenever networks are interconnected and traffic is exchanged, a major
19 issue between the parties -- bluntly stated -- is "Who pays for what?"
20 Fortunately, the FCC Order provided some very specific definitions that
21 help determine financial responsibility. As noted above, the IP is the
22 point where the MCI network physically connects with the ILEC network.
23 Generally, therefore, each carrier is responsible for bringing or getting its
24 facilities to the IP.

25 When an MCI customer makes a local call to an ILEC customer,

1 MCI will hand off that call to the ILEC at the IP. MCI then must pay the
2 ILEC compensation for the "transport and termination" of that local call.
3 (Final Rules, Section 51.701) The FCC has separately -- and specifically
4 -- defined "transport" and "termination" in this context. (Order at
5 Paragraph 1039) "Transport" is defined as "the transmission and any
6 necessary tandem switching of local telecommunications traffic ... from
7 the interconnection point between the two carriers to the terminating
8 carrier's end office switch that directly serves the called party...." (Final
9 Rules, Section 51.701(c)) "Termination" is defined as "the switching of
10 local telecommunications traffic at the terminating carrier's end office
11 switch...." (Final Rules, Section 51.701(d)) Thus, the IP determines the
12 point at which MCI (when it is terminating local traffic to the ILEC) must
13 begin paying transport and termination compensation to the ILEC:

14 Conversely, when an ILEC must hand over local traffic to MCI for
15 MCI to "transport and terminate," the ILEC must use the established IP.
16 For the ILEC to be allowed to do anything else would eviscerate the
17 FCC's requirement that the ILEC permit the use of two-way trunking.
18 Thus, the IP also serves as the point at which the ILEC must begin
19 payment of "transport and termination" to MCI when it terminates a local
20 call on MCI's local network.

21 It is important to note that in Section 51.711 of the Final Rules
22 the FCC has determined that "rates for transport and termination of local
23 telecommunications traffic shall be symmetrical." In addition, the FCC
24 has decided that "where the switch of a carrier other than an incumbent
25 LEC serves a geographic area comparable to the area served by the

1 incumbent LEC's tandem switch, the appropriate rate for the carrier other
2 than the incumbent LEC is the incumbent LEC's tandem interconnection
3 rate." I noted previously that MCI's switch clearly serves a geographic
4 area comparable to the area served by the ILEC's tandem. Therefore,
5 MCI believes it is appropriate for it to charge the ILEC the tandem
6 interconnection rate (defined as tandem switching plus the average
7 transport between an ILEC tandem and the subtending end offices plus
8 the local switching rate) for calls terminating to MCI's network. In
9 addition, the ILEC and MCI will share the cost of the facilities used to
10 interconnect the networks as defined by the location of the IP.

11 The FCC also determined, in section 51.709 of the Final Rules,
12 that "the rate of a carrier providing transmission facilities dedicated to
13 the transmission of traffic between two carriers networks shall recover
14 only the costs of the proportion of that trunk capacity used by an
15 interconnecting carrier to send traffic that will terminate on the providing
16 carrier's network."

17

18 Q. COULD YOU GIVE AN EXAMPLE OF HOW THE SELECTION OF AN IP
19 AFFECTS THE FINANCIAL ARRANGEMENTS?

20 A. Yes, given all this, it is possible to walk through two examples to
21 describe how the selection of the IP affects the "transport and
22 termination" charge that both MCI and the ILEC must face.

23 *Example 1: MCI Collocates at the Wire Center Housing an*
24 *Access Tandem to Which MCI Needs to Trunk.*

25 In this example, MCI has established a collocation at the wire

1 center housing a tandem; the collocation will be designated as the IP.
2 Two-way trunking will be established between the MCI switch and the
3 ILEC tandem via the collocation facilities.

4 o The Transport and Termination Charges to MCI for calls
5 terminating on the ILEC network are:

6 (1) tandem switching and transport from the tandem to the end
7 office where the call terminates (based on average transport
8 from ILEC tandem to subtending end offices); plus
9 (2) termination at the end office.

10 The total rate paid by MCI in this case is also known as the
11 Tandem Transport and Termination rate or Tandem
12 Interconnection Rate.

13

14 o The Transport and Termination Charges to the ILEC for calls
15 terminating on MCI's network are:

16 (1) Transport from the IP to the MCI switching center (as
17 discussed in Final Rules, Section 51.709), plus
18 (2) The symmetrical Tandem Transport and Termination.

19 In this example, the ILEC pays for the transport from the IP at its
20 access tandem to the MCI switching center because MCI has
21 provided the facilities from that switching center to the IP, and the
22 ILEC is using those facilities to transport local traffic from the IP
23 back to the MCI switching center. Once the call reaches the MCI
24 switching center, however, MCI is permitted to charge the ILEC a
25 transport and termination rate equal to the ILEC's tandem

1 interconnection rate since MCI's switch serves an area comparable
2 (if not larger) than the area served by the ILEC's tandem switch.
3 (Final Rules, Section 51.711(3))

4 As detailed above, the specific symmetrical tandem transport and
5 termination rate should be calculated as follows:

- 6 • Tandem switching rate, plus
- 7 • Shared transport based on average mileage from the ILEC
8 tandem to the various end offices that subtend that
9 tandem.

10

11 ***Example 2: IP At an Agreed to Meetpoint***

12 In this example, MCI will jointly provision interconnect facilities to
13 an agreed to meetpoint at a technically feasible location on the ILEC's
14 network. The IP is at this meetpoint. MCI and the ILEC will establish
15 two-way trunking to both and access tandem and an end office via these
16 interconnection facilities.

- 17 o The Transport and Termination charges to MCI for traffic
18 terminating to the ILEC via the tandem switch are:
 - 19 (1) transport from the IP to the access tandem; plus
 - 20 (2) the Tandem Interconnection/Transport and Termination
21 Rate, as described in Example 1.

22

- 23 o The Transport and Termination charges to ILEC for traffic
24 terminating to MCI via the tandem switch are:
 - 25 (1) transport from IP to the MCI switching center; plus

1 (2) the symmetrical ILEC Tandem Interconnection/Transport
2 and Termination Rate.

3

4 o The Transport and Termination charges to MCI for traffic
5 terminating to the ILEC via direct end office trunking (bypassing
6 the tandem switch) are:

7 (1) transport from the IP to the ILEC end office switch, plus

8 (2) the local termination rate.

9

10 o The Transport and Termination charges to the ILEC for traffic
11 terminating to MCI via the direct end office trunking are:

12 (1) transport from the IP to the MCI switching center, plus

13 (2) the symmetrical ILEC Tandem Interconnection/Transport
14 and Termination Rate.

15 There are, of course, other options and possibilities, but the concept will
16 be the same. The IP will delineate not only the physical point where one
17 network ends and another begins, but also will determine the transport
18 and termination charges that each carrier must pay to one another.

19

20 ACCESS TO UNBUNDLED NETWORK ELEMENTS

21 Q. WHY IS IT IMPORTANT FOR MCI TO HAVE ACCESS TO THE
22 UNBUNDLED ELEMENTS OF THE INCUMBENT LOCAL EXCHANGE
23 COMPANIES' NETWORKS?

24 A. As noted previously, MCI desires to offer local service as broadly as
25 possible to both residential and business customers. MCI's local

1 network, however, currently consists of high capacity fiber rings in
2 downtown areas. While some residential apartment buildings may be
3 accessible via MCI's fiber ring, this network, by itself, simply does not
4 have the reach to serve a broad base of residential and business
5 customers. Additionally, although MCI continues to implement local
6 service switching centers throughout the nation, its capacity for
7 providing switched services is extremely limited. Each of the 13 switches
8 that MCI has implemented to date is capable of serving only 30,000 to
9 50,000 customers -- a drop in the bucket compared to the national base
10 of over 100 million customers. To reach this larger base, MCI must have
11 access to the unbundled elements of the ILEC's ubiquitous network.

12

13 Q. WHAT IS THE EFFECT OF THE FCC ORDER ON THE ISSUE OF WHICH
14 UNBUNDLED ELEMENTS MUST BE MADE AVAILABLE BY THE ILECS?

15 A. The FCC's order mandates a set of seven unbundled elements that the
16 ILEC must make available. The FCC ordered this first set of elements
17 with the explicit recognition that further unbundling may be appropriate
18 today, but it did not have the necessary information on the record to
19 make such judgments, and therefore left that to the states to determine.
20 It also indicated that further unbundling will be appropriate in the future.
21 The FCC rules explicitly allows the states to order more unbundling on a
22 case by case basis. MCI, in this arbitration, requests the Florida
23 Commission to order unbundling beyond the minimum set in the FCC's
24 order since there are additional elements that meet the FCC criteria. In
25 addition, as networks evolve, it will be necessary on occasion to request

1 additional unbundled elements. MCI is requesting an expedited bona fide
2 request process to accomplish that future unbundling. That process is
3 described in the testimony of MCI witness Don Price. The FCC's
4 minimum set of elements includes some network elements, as defined in
5 the Act, such as operator services and directory assistance, that are
6 discussed in Mr. Price's testimony.

7

8 Q. WHAT ARE THE UNBUNDLED NETWORK ELEMENTS REQUESTED BY
9 MCI AND HOW DOES MCI PROPOSE TO GAIN ACCESS TO THEM?

10 A. The FCC rules require the ILECs to unbundle a set of elements, but do
11 not specify a method of implementation to ensure the unbundled
12 elements are usable to requesting carriers. This task must be performed
13 by state commissions. Although access to these elements is necessary,
14 it is not sufficient for CLECs to be viable providers: the terms and
15 conditions at which they are available also effect our viability. In the
16 following testimony, I will review each element to give this Commission
17 some direction on how to best ensure proper implementation by the
18 ILECs. I will also describe the additional elements that meet the FCC
19 criteria and that the Florida Commission should include in the ILEC's
20 initial unbundling requirements. For each element, I will provide a basic
21 description of the element, why that element is necessary to be
22 unbundled, and how MCI proposes to gain access to that element from
23 an engineering perspective.

24

25 A. *Connecting Unbundled Elements*

1 Q. PLEASE DESCRIBE HOW UNBUNDLED NETWORK ELEMENTS ARE
2 CONNECTED.

3 A. Physical unbundled network elements (elements other than call
4 processing databases) interconnect to other network elements or to
5 CLEC collocations in a similar fashion. The elements terminate at some
6 type of cross-connect devices (these devices can be Main Distribution
7 Frames, or DS-1 or DS-3 cross-connect devices, for example). To
8 connect the unbundled network element to either another element or to
9 an MCI collocation (which also terminates at a cross-connect device), the
10 ILEC must supply connecting cabling, which includes jumper wires to
11 connect positions within a cross-connect device as well as house cabling
12 running between the two cross-connect devices. Both the jumper
13 cabling and house cabling are, very simply, just wires. There are no
14 electronics or other intelligence associated with this cabling. Arranging
15 this cabling may appear to be a minor issue in the larger scheme of
16 unbundling of the network -- in fact, identical connection cabling and is
17 routinely provisioned by the ILECs to connect its own network elements
18 today. However, we have found, through first-hand experience, that the
19 untimely, inaccurate and expensive provisioning of such cabling can be a
20 significant bottleneck to network unbundling.

21 Each physical network element detailed below must also include
22 the cabling required to make it operational, unless otherwise noted.

23

24 ***B. Elements the FCC Ordered to be Unbundled***

25 1. Local Loop

1 Q. WHAT ARE LOCAL LOOPS AND HOW SHOULD THEY BE
2 PROVISIONED?

3 A. The FCC defines the local loop as "a transmission facility between a
4 distribution frame [cross-connect], or its equivalent, in an incumbent LEC
5 central office, and the network interface device at the customer
6 premises. This includes, but is not necessarily limited to, two- wire
7 analog voice-grade loops, and two-wire and four-wire loops that are
8 conditioned to transmit the digital signals needed to provide ISDN, ADSL,
9 HDSL, and DS1-level signals. " (Order at paragraph 380)

10 As the definition implies, unbundled loops end at the distribution
11 frame of the ILEC. As discussed earlier, appropriate cabling will be
12 required to connect the unbundled loop's frame appearance to other
13 cross-connect points to access other network elements or MCI's or a
14 third party's collocation. This cabling must be efficient and available in a
15 timely fashion. Otherwise, it will not be financially feasible for MCI to
16 utilize unbundled loops and MCI's ability to reach residential and small
17 business customers will be extremely curtailed.

18 MCI anticipates provisioning unbundled loops in a variety of ways,
19 each of which is clearly supported by the FCC rules. These methods
20 include, but are not limited to:

- 21 • connecting the unbundled loop to an MCI collocation where MCI
22 has placed digital loop carrier equipment (DLC) or other subscriber
23 loop electronics of its choice. The DLC or DLC-type equipment will
24 then be connected to interoffice transport facilities, either owned
25 by MCI or leased from the ILEC or third party, that connect the

- 1 collocated space to MCI's network
- 2 • combining the unbundled loop to other unbundled network
- 3 elements, such as ILEC provided transport or switching
- 4 • connecting the unbundled loop to a third party collocation for
- 5 provision of transport or other services

6 Several things are critical to make these arrangements work. First, there

7 *must not be unreasonable delays in establishing collocation, and the*

8 costs for collocation must be economically sound. In New York, for

9 example, establishing collocations can sometimes take up to nine months

10 and cost over \$50,000 to just build the "collocation cage." This kind of

11 delay and expense is intolerable. Second, MCI must have the ability to

12 place the electronics of its choice in the collocated space. Some ILECs,

13 such as Pacific Bell, have denied MCI's request to have this choice and

14 thus in essence hold "veto power" over MCI's network design. Not only

15 will this restriction prevent MCI and other CLECs from efficiently

16 capturing the unbundled loop, it will delay the deployment state of the

17 art network and limit our ability to differentiate our services from the

18 ILEC. All of these issues are later in my testimony in the collocation

19 discussion.

20

21 Q. WHAT ARRANGEMENTS SHOULD BE MADE FOR TRANSFERRING

22 SERVICE TO MCI FROM AN ILEC?

23 A. Another issue is important when it comes to gaining access to unbundled

24 loops -- coordinated (or "hot") cutovers. When MCI gains an existing

25 ILEC customer and needs that unbundled local loop to serve that

1 customer, then that local loop will need to be "cut over" from the ILEC to
2 MCI. Mechanically, this is not a complex task; it only involves the
3 movement of jumper wires on the MDF. Most importantly, however, the
4 cutover cannot result in significant "downtime" for the customer's
5 telephone line. Not only could that customer's safety be jeopardized, but
6 such a degradation of service would be a significant disadvantage in
7 switching service to MCI.

8 MCI proposes the following procedure for coordinated cutovers:

9 (1) On a per order basis, the ILEC and Metro will agree on a
10 scheduled conversion time, which will be a designated two-hour time
11 period within a designated date.

12 (2) The ILEC will coordinate activities of all ILEC work groups
13 involved with the conversion. This coordination will include, but not be
14 limited to, work centers charged with manual cross-connects, electronic
15 cross-connect mapping, and switch translations (including, but not
16 limited to, implementation of interim local number portability
17 translations).

18 (3) The ILEC will notify MCI when conversion is complete.

19 (4) End user service interruptions will be minimized and should
20 not exceed five minutes.

21

22 **2. Network Interface Device**

23 **Q. PLEASE DESCRIBE THE UNBUNDLED ELEMENT KNOWN AS THE**
24 **NETWORK INTERFACE DEVICE.**

25 **A. The Network Interface Device (NID) is "the cross-connect device used to**

1 connect LEC loop facilities to inside wiring not belonging to the LEC.”
2 The FCC Order, at paragraphs 392 and 393, describes the need for
3 access to the NID. In summary, it is necessary on many occasions when
4 serving large residential or office buildings in order to gain access to the
5 inside wiring that is not owned by the ILEC.

6 According to the FCC Order, MCI should be able to gain access to
7 the ILEC NID by connecting its own NID to the ILEC NID. This form of
8 NID-to-NID connection is technically feasible and does not raise reliability
9 concerns. It will be incumbent upon the ILEC to demonstrate that such
10 connection is not feasible, and, if not, to detail the specific building
11 locations at which such connection is not feasible. We expect that
12 generally cabling to connect the NIDs will be provided by the ILECs.

13 If connection to the NID involves a cutover of live customer traffic
14 at that premise, then the cutover procedures described above must be
15 followed.

16

17 3. Switching Capability

18 Q. WHAT SWITCHING CAPABILITY SHOULD BE UNBUNDLED?

19 A. Switching capability unbundling is defined in the FCC Rules by two
20 distinct switch functions: local switching and tandem switching.

21

22 a. Local Switching

23 Q. WHAT IS LOCAL SWITCHING AND HOW SHOULD IT BE PROVISIONED?

24 A. In Section 51.319(c)(1)(i) of the FCC Rules, “the local switching
25 capability network elements is defined as:

1 (A) line-side facilities, which include but are not limited to, the
2 connection between a loop termination at a main distribution frame and a
3 switch line card;

4 (B) trunk-side facilities, which include but are not limited to, the
5 connection between trunk termination at a trunk-side cross-connect panel
6 and a switch trunk card; and

7 (C) all features, functions, and capabilities of the switch, which
8 include, but are not limited to:

9 (1) the basic switching function of connecting lines to
10 lines, lines to trunks, trunks to lines, and trunks to trunks, as well
11 as the same basic capabilities made available to the incumbent
12 LEC's customers, such as a telephone number, white page listing,
13 and dial tone; and

14 (2) all other features that the switch is capable of
15 providing, including but not limited to custom calling, custom local
16 area signaling service features, and Centrex, as well as any
17 technically feasible customized routing functions provided by the
18 switch."

19 In this context, features, functions, and capabilities includes: i) all
20 basic switching functions, ii) telephone numbers, iii) directory listing, iv)
21 dial tone, v) signaling, and vi) access to directory assistance, vii) access
22 to operator services, viii) access to 911, ix) all vertical features the
23 switch is capable of providing; and x) any customized call routing
24 features.

25 Access to local switching is at the ILEC end office. There are two

1 points of access: the main distribution frame (or equivalent) and the
2 trunk-side cross-connect. ILEC switching may be connected to MCI-
3 provided loops, MCI-provided transport facilities, ILEC-provided loops,
4 ILEC-provided transport facilities, or loops or transport facilities provided
5 by a third party. MCI will require the ILEC to connect these elements as
6 described above in "Connecting Unbundled Elements."

7

8 Q. WHO SHOULD DETERMINE HOW CALLS PLACED BY MCI CUSTOMERS
9 ARE ROUTED?

10 A. MCI will be responsible for establishing how its customers calls will
11 route, and for specifying in advance a trunking scheme to make such
12 routing possible. Such trunking will be either supplied by MCI, or will be
13 comprised of other unbundled network transport elements (dedicated or
14 shared), or a combination of the two. The ILEC must make available to
15 MCI any switch-supported trunk interface for the provision of network
16 trunking, including SMDI interfaces for MCI-supplied voice mail services.
17 Customer specific routing will be implemented via line class codes or
18 equivalent switch-specific methods. Such routing will allow MCI to
19 designate routing for that customer's service, for each of the following
20 call types:

- 21 • 0+ /0- calls
- 22 • 911 calls
- 23 • 411/DA calls
- 24 • InterLATA calls specific to PIC or regardless of PIC
- 25 • IntraLATA calls specific to PIC or regardless of PIC

- 1 • 800/888 calls, prior to database query
- 2 • Call forwarding of any type supported on the switch, to a
- 3 line or a trunk
- 4 • Any other customized routing that may be supported by the
- 5 ILEC switch

6

7 On the line side, MCI must be able to purchase any line service

8 available on the switch, including but not limited to POTS services,

9 Centrex services, and ISDN BRI services, with all of their vertical features

10 and signaling options. On the trunk side, MCI must be able to purchase

11 any customer trunk service available on the switch, including but not

12 limited to DID, DOD, 2-way, and ISDN PRI trunk services.

13

14 ***b. Tandem switching***

15 **Q. WHAT IS TANDEM SWITCHING AND HOW SHOULD IT BE**

16 **PROVISIONED?**

17 **A. The tandem switching capability network element is defined by the FCC**

18 **as:**

19 (1) trunk connect facilities, including but not limited to the

20 connection between trunk termination at a cross-connect panel and a

21 switch trunk card;

22 (2) the basic switching function of connecting trunks to trunks;

23 and

24 (3) the functions that are centralized in tandem switches (as

25 distinguished from separate end-office switches), including but not

1 limited to call recording, the routing of calls to operator services, and
2 signaling conversion features.

3 This unbundled element is necessary to be able to perform a
4 variety of functions including transit functions. The transit function is
5 critical for new entrants to efficiently interconnect with other CLECs,
6 IXC's and small independent carriers that home off the ILEC tandem.
7 Until traffic levels justify the direct connection of these carriers, the ILEC
8 tandem is the only method to interconnect all carriers in a market. (See
9 also the FCC Order at paragraph 425)

10 MCI should be able to gain access to this unbundled element at
11 the tandem switch location. Access will always be at a trunk cross-
12 connect device serving the tandem switch. This cross-connect point will
13 be connected to other unbundled elements, third party networks or MCI's
14 collocation as described in "Connecting Unbundled Elements."

15

16 4. Interoffice Transmission Facilities

17 Q. WHAT ARE INTEROFFICE TRANSMISSION FACILITIES AND HOW
18 SHOULD THEY BE PROVISIONED?

19 A. The FCC defines interoffice transmission facilities "as incumbent LEC
20 transmission facilities dedicated to a particular customer or carrier, or
21 shared by more than one customer or carrier, that provide
22 telecommunications between wire centers owned by incumbent LECs or
23 requesting telecommunications carriers, or between switches owned by
24 incumbent LECs or requesting telecommunication carriers." Interoffice
25 transmission facilities are customarily defined as either shared facilities or

1 dedicated facilities.

2 The shared interoffice transmission is the path between end
3 offices and a tandem, or between end offices, that is shared by multiple
4 carriers. This element is necessary to connect the tandem switching
5 function to the local switching function. (See FCC Order at paragraph
6 441) In addition, MCI will purchase the shared transport element
7 between ILEC end offices in conjunction with the purchase of the
8 unbundled local switching element.

9 MCI will gain access to the shared interoffice transport facilities at
10 the trunk cross-connect at the end office and/or the trunk cross connect
11 at the tandem switch. This cross-connect point will be connected to
12 other unbundled elements, third party networks or MCI's collocation as
13 described in "Connecting Unbundled Elements."

14 Dedicated transmission facilities are transport facilities used
15 exclusively for the requesting carrier's traffic and connect one or more of
16 the following points: ILEC end offices, ILEC tandems, ILEC serving wire
17 centers, other carrier wire centers or switching centers, IXC points of
18 presence, collocated equipment at any ILEC end or tandem office. Such
19 facilities shall be all technically feasible transmission capabilities,
20 including but not limited to: DS0, DS1, DS3, and all optical levels.

21

22 Q. SHOULD MCI BE PROVIDED ACCESS TO DARK FIBER AS AN
23 UNBUNDLED ELEMENT?

24 A. Although the FCC did not specifically require that the ILECs make
25 available unbundled optical fiber or "dark fiber," MCI contends that

1 dedicated transport must also include dark fiber, which from an
2 engineering perspective is simply another level in the transmission
3 hierarchy. Because network construction for the initial placement of
4 fiber facilities is timely and costly since it involves permits, road work,
5 conduit placement, etc., telecommunications carriers typically install
6 large quantities of fiber cables. Therefore, we believe that many of the
7 ILECs have the dark fiber available where they have upgraded their
8 facilities from copper plant and should be required to provide plant
9 records to detail where excess capacity exists.

10 Dark fiber is necessary for MCI to expand its network reach with
11 the flexibility of installing electronics that comport to its network
12 architecture. This flexibility is essential for MCI to strategically deploy
13 efficient new technologies into its network. Without this network
14 element, MCI's only choices are to undertake the timely and expensive
15 construction effort to place its own fiber in the ground or to purchase the
16 use of "lit" (fiber with electronics) transport services from the ILEC. It
17 does not make sense to require MCI to purchase the use of ILEC
18 electronics where spare fiber capacity is available; in fact, using the
19 ILEC's existing electronic technology forces MCI to be held captive to the
20 ILEC's network technology and design rather than being allowed to
21 deploy new, more efficient technologies that are consistent across
22 geographic locations.

23 MCI and other carriers should be able to request availability of dark
24 fiber on a particular route. The ILEC should respond to that request
25 within 10 days on availability on that route or comparative alternative

1 route and specify all available splice points and specifications of the fiber
2 optic plant. If the fiber is available, MCI will meet the ILEC at its
3 specified splice points (usually in a manhole) with its own fibers. MCI
4 will then deploy its own electronics at its network sites.

5 Q. WHAT ARE DIGITAL CROSS-CONNECT SYSTEMS, AND HOW SHOULD
6 THEY BE PROVIDED?

7 A. The FCC Order, at paragraph 444, requires that ILECs provide requesting
8 carriers access to digital cross connect system functionality. They
9 describe the DCS as a device that "aggregates and disaggregates" high-
10 speed traffic. In general, the DCS provides for transmission level
11 changes within a transport route, or where two transport routes meet.
12 Aside from providing electronic software controlled multiplexing of
13 facilities at different transmission levels, DCS also provides automated
14 cross connection of transmission facilities at like levels, for the purposes
15 of "grooming" facilities to optimize network efficiency. Types of DCSs
16 include but are not limited to DCS 1/0s, DCS 3/1s, and DCS 3/3s, where
17 the nomenclature 1/0 denotes interfaces typically at the DS1 rate or
18 greater with cross-connection typically at the DS0 rate. This same
19 nomenclature, at the appropriate rate substitution, extends to the other
20 types of DCSs specifically cited as 3/1 and 3/3. Types of DCSs that
21 cross-connect Synchronous Transport Signal level 1 (STS-1s) or other
22 Synchronous Optical Network (SONET) signals (for example, STS-3) are
23 also DCSs, although not denoted by this same type of nomenclature.
24 DCS may provide the functionality of more than one of the
25 aforementioned DCS types (for example, DCS 3/3/1 which combines

1 functionality of DCS 3/3 and DCS 3/1).

2 Devices that provide similar aggregation and disaggregation
3 functions via manual cross-connections are generally referred to as
4 "multiplexors." Because of their functional similarity to the DCS, we
5 interpret the FCC's DCS directive to include multiplexors such as M13s
6 and channel banks.

7 ILECs routinely provide both DCS (including multiplexor) functions
8 today to interexchange carriers in conjunction with dedicated transport
9 services. MCI agrees that DCS supports transport services, but also
10 requests that the ILEC be required to provide this function in combination
11 with dedicated transport or separately so MCI can combine DCS with its
12 own transport or that supplied by other parties.

13 MCI will gain access to the digital cross-connection system at the
14 appropriate (optical, DS3, DS1, voice grade level) cross-connection
15 device serving the DCS. This cross-connect point will be connected to
16 other unbundled elements, third party networks or MCI's collocation as
17 described in "Connecting Unbundled Elements."

18

19 **5. Signaling Networks, Call-Related Databases, and Service**

20 **Management Systems**

21 *a. Signaling Systems*

22 **Q. WHAT ARE UNBUNDLED SIGNALING SYSTEMS AND HOW SHOULD**
23 **SIGNALING NETWORKS BE INTERCONNECTED?**

24 **A. As explained in the FCC Order, signaling systems "facilitate the routing**
25 **of telephone calls between switches SS7 networks use signaling links to**

1 transmit routing messages between switch, and between switches and
2 call-related databases." (at paragraphs, 455, 456) The Order goes on to
3 state that "incumbent LECs are required to accept and provide signaling
4 in accordance with the exchange of traffic between interconnecting
5 networks." It concludes that "the exchange of signaling information may
6 occur through an STP to STP interconnection." (at paragraph, 478)

7 The FCC also identifies a need for the ILECs to offer unbundled
8 access to their STP and signaling link elements. (Order at Paragraph
9 479) MCI concurs that such access is *required on non-discriminatory*
10 *terms and conditions*. However, it is clear from the ensuing discussion in
11 paragraphs 479 - 483 that access to unbundled signaling links and STP
12 ports is intended to allow new entrants to obtain signaling services from
13 the ILEC. This eliminates the CLEC's burden of installing their own
14 signaling networks. This requirement is clearly distinct from the
15 requirement to connect signaling networks for support of traffic
16 exchange as described in the previous paragraph of this paper.

17 Interconnection of the signaling networks facilitates routing of
18 telephone calls flowing from the ILEC to the CLEC and from the CLEC to
19 the ILEC. It also is required for the provision of certain CLASS services
20 such as caller ID, automated callback, and automated recall, as well as
21 the transmission of 64 kbps ("clear channel") calls flowing in both
22 directions. Thus, the connecting carriers must share the burden of
23 signaling network interconnection in support of traffic exchange.

24 MCI proposes that this be accomplished as follows:

- 25
- In each LATA, there will be two signaling points of

1 interconnection (SPOIs). The requirement for two SPOIs is
2 driven by the critical importance attached by all parties to
3 signaling link diversity.

- 4 • Each party will designate one of the two SPOIs in the
5 LATA. A SPOI can be any existing cross-connect point in
6 the LATA. Since each party will designate a SPOI, we
7 believe that both parties will be incented to select
8 reasonable and efficient SPOI locations.
- 9 • Each signaling link requires a port on each party's STP. We
10 propose that each party provide the necessary ports on its
11 STPs without explicit charge.

12 The SS7 interconnection shall provide connectivity to all
13 components and capabilities of the ILEC SS7 network. These include:

- 14 • ISDN Services User Part (ISUP) signaling for calls between
15 MCI and ILEC switches
- 16 • ISUP signaling for calls between MCI and other networks
17 that transit through the ILEC switched network.
- 18 • Translations Capability Applications Part (TCAP) messaging
19 in support of querying SCP-housed databases, and TCAP
20 messaging in support of CLASS services

21
22 *b. Call Related Databases*

23 Q. WHAT ARE CALL RELATED DATABASES AND WHY ARE THEY
24 IMPORTANT?

25 A. As defined by the FCC, call related databases are databases, other than

1 operations support systems, that are used in signaling networks for
2 billing and collection or the transmission, routing, or other provision of a
3 telecommunications service. An incumbent LEC shall provide access to
4 its call-related databases, including, but not limited to, the Line
5 Information database, Toll Free Calling database, downstream number
6 portability databases, and Advanced Intelligent Network databases, by
7 means of physical access at the signaling transfer point linked to the
8 unbundled database.

9 Access to Call-Related databases provides for the centralized
10 intelligence that governs the disposition of calls. Additionally, service
11 control points (SCPs) serve as the means by which subscriber and
12 service application data is provided, and maintained. The databases
13 provide, in response to an SS7 inquiry, the information necessary to
14 provide a service or deliver a capability.

15 For MCI to be able to gain access to call-related databases, the
16 following requirements must be met:

- 17 • The ILEC must provide MCI billing and recording information to
18 track database usage.

19

20 *Specific to LIDB:*

21 • The ILEC must enable MCI to store in the ILEC's LIDB any
22 customer line number or special billing number record, whether ported or
23 not, for which the NPA-NXX is supported by that LIDB.

24

- 25 • The ILEC must perform the following LIDB functions for MCI's

- 1 customer records:
- 2 - billing number screening
- 3 - calling card validation
- 4 - data screening function

5

6

Specific to LNP Database:

7

- The ILEC LNP SCP must return to the MCI switch:

8

- appropriate routing for ported numbers

9

- industry specified indication for non-ported numbers, and

10

- industry specified indication for non-ported NPA-NXX

11

12

Specific to AIN Applications:

13

- The ILEC must provide MCI with descriptive and detailed technical information regarding each of the ILEC's AIN applications housed in its AIN SCPs.

14

15

16

17

- The ILEC must routinely provide MCI with information regarding database and application capacity available on each of its AIN SCPs.

18

19

20

21

- The ILEC must allow MCI to gain access to another party's applications housed in the ILEC AIN SCPs, assuming that MCI has gained written notification from that third party permitting MCI to make use of its applications.

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c. Service Management Systems

Q. WHAT ARE SERVICE MANAGEMENT SYSTEMS AND HOW SHOULD THEY BE PROVISIONED?

A. The FCC defines Service Management Systems as computer databases or systems not part of the public switched network that, among other things, interconnect to the service control point and send to that service control point the information and call processing instructions needed for a network switch to process and complete a call, and provide a telecommunication carrier with the capability of entering and storing data regarding the processing and completing of a call.

The FCC ordered that the ILEC make its SMS and AIN Service Creation Environment available to CLECs for creation and downloading of AIN applications, on a non-discriminatory basis. (Paragraph 493) It is MCI's belief that, in order for this requirement to be met:

- The ILEC must make SCE hardware, software, testing, and technical support resources available to MCI in a similar fashion to how they make such resources available to themselves.
- The ILEC must partition its SCP so as to protect MCI's service logic and data from unauthorized access or execution.
- The ILEC must provide training and documentation to MCI at parity with that provided to itself.
- The ILEC must provide MCI secure LAN/WAN and dial-up remote access to its SCE/SMS.
- The ILEC must allow MCI to create applications and download data without ILEC intervention.

1 The Operations Support Systems Functions and Operator Services
2 Directory Assistance are addressed in the testimony of Don Price.

3

4 **C. Additional Unbundled Elements**

5 **Q. WHAT ADDITIONAL UNBUNDLED ELEMENTS SHOULD THE**
6 **COMMISSION ORDER BELLSOUTH TO PROVIDE?**

7 **A. MCI requests the Florida Commission to immediately order at least one**
8 **additional unbundled element beyond the FCC minimum set: Loop**
9 **Distribution. This element, described below, meets the guidelines**
10 **detailed in the FCC rules that give the state authority to order additional**
11 **elements. MCI plans to pursue further unbundled network elements in the**
12 **future that include, but are not limited to: additional AIN (advanced**
13 **intelligent network) unbundling, data switching, and further unbundling of**
14 **the local loop.**

15

16 **1. AIN**

17 **Q. WHY IS NONDISCRIMINATORY ACCESS TO AIN CAPABILITY**
18 **IMPORTANT?**

19 **A. The elimination of all discriminatory access to AIN capability will become**
20 **increasingly important as more and more innovative new services depend**
21 **on that capability. MCI expects to be introducing such services within a**
22 **year, and to be able to move forward with our plans we must have**
23 **appropriate access to the capability. In particular, in order to provide**
24 **new services that are consistent across geographic locations and make**
25 **the most creative use of MCI's existing intelligent network platforms, we**

1 believe that it is extremely important the state commissions order the
2 ILECs to interconnect their signaling systems to MCI
3 applications/databases housed in MCI AIN SCPs. The FCC noted that the
4 record on the technical feasibility of such interconnection was not clear,
5 and encouraged state commissions to consider this issue. (Order at
6 paragraph 502) MCI believes that such interconnection is technically
7 feasible, and plans to present detailed testimony on this issue, and to
8 propose appropriate industry trials, in several states that have been at the
9 forefront of Local Number Portability implementation. We then plan to
10 use the results of those proceedings to extend the interconnection
11 practice to other states via the BFR process. The BFR process is
12 discussed fully in the testimony of Mr. Price.

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14 **2. Loop Distribution**

15 *a. Definition*

16 Q. PLEASE DEFINE THE LOOP DISTRIBUTION THAT MCI WANTS THE
17 COMMISSION TO REQUIRE BELLSOUTH TO UNBUNDLE AT THIS TIME.

18 A. Loop Distribution is the portion of the loop from the network interface
19 device at the customer premise to the feeder distribution interface. Per
20 Belcore specifications, there are three basic types of feeder-distribution
21 connection: i) multiple (splicing of multiple distribution pairs onto one
22 feeder pair); ii) dedicated ("home run"); and iii) interfaced ("cross-
23 connected"). While older plant uses multiple and dedicated approaches,
24 newer plant and all plant that uses DLC or other pair-gain technology
25 necessarily uses the interfaced approach. The feeder-distribution

1 interface (FDI) in the interfaced design makes use of a manual cross-
2 connection, typically housed inside an outside plant device ("green box")
3 or in a vault or manhole.

4
5 *b. The need for unbundled loop distribution plant*

6 **Q. WHY DOES MCI NEED UNBUNDLED LOOP DISTRIBUTION PLANT?**

7 **A.** Loop distribution is necessary to give MCI flexibility in deploying loop
8 facilities by permitting MCI to use its own loop feeder plant where
9 available. (See FCC Order at paragraph 390) Lack of loop distribution
10 will impair MCI's ability to provide local service because it will increase
11 MCI's costs unnecessarily in those instances where it does not require
12 the ILEC's loop feeder plant, but nonetheless requires the ILEC's
13 distribution plant. As MCI and other CLECs expand their facilities-based,
14 efficient SONET networks, they may be located very near an FDI and
15 only require the loop distribution to reach multiple customer premises.
16 However, without this sub-loop element available for purchase, CLECs
17 will be forced to purchase the whole loop, even though they have their
18 own facilities that could be used for a portion of the loop. MCI does not
19 want to have to purchase functional elements in the ILEC's networks
20 that it can efficiently provide itself using new technologies. Thus, an
21 appropriate level of granularity is required for the unbundled local loop so
22 CLECs can make a rational lease vs. build decision in smaller increments.
23 Without this sub-loop element, competitive carriers will be forced to build
24 full loops to multiple customer premises on a speculative basis (which is
25 timely and costly) rather than economically and efficiently replace

1 portions of the leased network with constructed facilities. Replacin,
2 feeder portion of the loop is the most efficient method for CLECs to
3 evolve to a facilities based carriers.

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c. Access to loop distribution

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Q. HOW SHOULD ACCESS TO UNBUNDLED LOOP DISTRIBUTION BE PROVIDED?

8

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A. Access to loop distribution is technically feasible in general for feeder distribution connections in the interface design. The ILEC can make available connecting block capacity within its Interfaced FDI for connection of MCI's copper feeder facilities. This can either be capacity within its terminal block or an additional terminal block. MCI will require an interval of 30 days to make a FDI ready for provisioning. These make-ready activities include:

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- Review of available capacity and other engineering issues and confirmation of committed make-ready date (5 days after order).
- Interval of 5 days from request for make ready to delivery of a make-ready firm order commitment (FOC).
- Physical preparation of the FDI, including making available feeder block capacity through block expansion, addition of an additional block, or removal of unneeded ILEC feeder facilities, and preparation of the FDI for entrance of MCI's feeder cable.
- Delivery of feeder block designation and assignments to MCI.
- Testing the installation of MCI's feeder cables through the feeder

1 block via cooperatively developed loopback tests.

2 MCI's responsibilities will include delivery of copper feeder cable
3 to the ILEC designated manhole or other interface point serving the FDI,
4 with enough spare cable to extend from the interface point to the FDI.
5 MCI may elect to include spare copper pairs in the cable for repair and
6 growth.

7 Once in place, MCI will order distribution elements to all addresses
8 served by the FDI on a customer order basis. MCI will be responsible for
9 selecting the feeder cable assignment within the order. The ILEC will be
10 responsible for manually cross-connecting the appropriate distribution
11 cable to MCI's selected feeder and cooperatively testing service between
12 the customer demarcation point and MCI's selected feeder termination
13 point. The standard interval for this activity should be two business days.

14 Feeder/Distribution unbundling in situations where the ILEC has
15 deployed Multiple or Dedicated designs, as well as unbundled purchase
16 of Loop Electronics and Loop Feeder, will be requested via a bona fide
17 request process.

18

19 **COLLOCATION**

20 **Q. WHAT ARE THE ARRANGEMENTS WHICH MUST BE IN PLACE FOR**
21 **COLLOCATION TO BE VIABLE?**

22 **A. The terms and conditions for collocation for interconnection and access**
23 **to unbundled network elements are different -- broader -- than those that**
24 **were needed in the past for competitive access providers. As of today,**
25 **the terms and conditions surrounding collocation serve as a barrier to**

1 enable competitive entry. The FCC has recognized this and has taken
2 four corrective measures. We urge this Commission to ensure proper
3 procedures are put in place to make collocation viable:

4
5 **1. Ability to collocate subscriber loop electronics, such as Digital**
6 **Loop Carrier, in the Central Office.** The current collocation rules, terms
7 and conditions that only allow the placement of basic transmission
8 equipment in the Central Office were not designed with access to
9 unbundled elements in mind, and give the ILEC a de facto bottleneck
10 veto on CLEC network design plans. (Order at paragraph 580)

11
12 **2. Ability to purchase unbundled dedicated transport to the**
13 **collocation facility, rather than physically construct from the**
14 **CLECs network to the ILEC Central Office.** (Order at paragraph
15 590)

16
17 **3. Ability to interconnect with other collocators in the same**
18 **Central Office.** This ability is necessary to allow the expedient and
19 economic interconnection of CLECs networks for the exchange of
20 local traffic or for the use of one another's facilities via negotiated
21 business arrangements. (Order at paragraph 594)

22
23 **4. Ability to collocate via physical or virtual facilities.** (Order
24 at paragraph 565)

25 As mentioned earlier in my testimony, MCI has experienced

1 unacceptably long intervals in establishing collocations. Because
2 collocation is such a fundamental requirement for competitive
3 entry, we request this Commission to mandate a maximum three
4 month interval for physical and a two month interval for virtual
5 collocations.

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7 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

8 A. Yes.

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