AT&T EX. 7

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

IN THE MATTER OF THE INTERCONNECTION CONTRACT NEGOTIATIONS BETWEEN AT&T COMMUNICATIONS OF THE PACIFIC NORTHWEST, INC., AND GTE NORTHWEST INCORPORATED PURSUANT TO 47 U.S.C. SECTION 252	))))))	DOCKET NO. UT-960307

DIRECT TESTIMONY OF

TODD BOHLING

ON BEHALF OF

AT&T COMMUNICATIONS

OF THE PACIFIC NORTHWEST, INC.

AUGUST 16, 1996

I. BACKGROUND AND PURPOSE OF TESTIMONY

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Todd Bohling and my business address is 1875 Lawrence Street, Room 1433, Denver, Colorado 80202.

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

A. I am employed by AT&T as a District Manager in the Local Infrastructure & Access Management department. I am responsible for local negotiations and vendor management in the fourteen U S WEST states.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.

A. I graduated from DeVry Institute of Technology in 1984 with a Bachelor of Science Degree in Electrical Engineering Technology. In 1989, I received my Masters of Computer Science degree from Illinois Institute of Technology. In addition, I have attended numerous technical courses throughout my career.

Q. PLEASE DESCRIBE YOUR WORK EXPERIENCE.

A. I joined AT&T Bell Labs 5ESS Switch Division in 1984 as a Member of Technical Staff responsible for testing all aspects of features developed. I held numerous assignments in the 5ESS Switch Division including: Field Support engineer, First Office Application engineer, Switch Design engineer, ISDN Development engineer, and Automation call processing lead engineer. From 1992 until 1995, I held various assignments with U S WEST Advanced Technologies as

a Member of Technical Staff such as, ISDN Project Lead, Network Architect, Service Delivery System Engineer, and Advanced Intelligent Network Activation System Engineer. In September 1995 I accepted the position of Technology Development Manager in the AT&T Local Service Organization. On June 1, 1996, I was promoted to District Manager in the Local Infrastructure and Access Management Division.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS OR ANY OTHER COMMISSION?

A. Yes, I have.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. This testimony is divided into three parts. First, I will discuss unbundling of network elements. In that regard, I will: (1) identify which elements of GTE's network must be unbundled in order to enable competition in the local exchange market to develop, (2) explain why these elements are needed by AT&T, and (3) explain how the elements can be unbundled and the technical feasibility of doing so. Second, I will discuss additional technical capabilities which are essential to AT&T's provision of local service, namely, number portability, collocation, access to number resources, access to pathway facilities and ancillary services. Finally, I will explain why performance standards are critical to the development of a competitive local exchange market, and how AT&T is working on obtaining an agreement with GTE on these issues.

II. UNBUNDLING OF THE NETWORK

Q. WHAT IS UNBUNDLING?

A. Unbundling is the disaggregation of the physical and/or virtual components of the local exchange monopoly network into a set of discrete components that can be individually provided, costed, priced and interconnected in such a way as to enable AT&T to provide local and intraLATA toll services.

Q. PLEASE EXPLAIN THE TERM "UNBUNDLED NETWORK ELEMENTS."

A. Unbundled network elements are the basic network functions, i.e. the piece parts, needed to provide a full range of telecommunications services. Unbundled network elements are physical facilities, including all the features, functions and capabilities provided by those facilities, that will permit AT&T to design and offer competitive services in the marketplace as distinguished from simply the reselling of GTE's retail services.

Unbundling is an evolving concept. Thus, while my testimony describes the set of network elements which AT&T currently requests be unbundled, continuing advances in the technology used to provide communications services and the development of alternative suppliers will create a need for further unbundling. For this reason, procedures must be established to enable parties to request that

other network elements be unbundled in the future. Accordingly, in its recent Notice of Proposed Rulemaking ("NPRM"), CC Docket No. 96-98, the FCC stated, "We believe that as technology advances, the number of points at which interconnection is feasible may change and acknowledge that the federal standard for minimum interconnection points should change accordingly." NPRM, Para. 57. The same principle applies to the unbundling of network elements.

Q. DO THE TELECOMMUNICATIONS ACT OF 1996 (THE "FEDERAL ACT") AND THE RULES INTERPRETING THAT ACT ("FEDERAL RULES") OBLIGATE GTE TO PROVIDE AT&T ACCESS TO UNBUNDLED ELEMENTS?

A. Yes. First, Section 251(c)(3) of the Federal Act and §51.307(a) of the Federal Rules require GTE "to provide, to any requesting telecommunications carrier for the provision of a telecommunications service, nondiscriminatory access to network elements on an unbundled basis at any technically feasible point on rates, terms and conditions that are just, reasonable and nondiscriminatory..." Section 51.311 of the Federal Rules defines what "nondiscriminatory access" means. Section 3(a)(45) of the Act defines network element as "a facility or equipment used in the provision of a telecommunications service." That section, together with §51.307(c) of the Rules and Section V, ¶¶ 258-264 of the Order, further specifies that a network element includes the "features, functions and capabilities that are provided by means of such facility or equipment, including subscriber numbers, databases, signaling systems and information sufficient for billing and

collection or used in the transmission, routing, or other provision of a telecommunications service."

Section 251(c)(3) and §51.315(a) of the Rules provide that incumbent carriers "shall provide such unbundled network elements in a manner that allows requesting carriers to combine such elements in order to provide such telecommunications service." Finally, §51.309 bars GTE from restricting or limiting AT&T's requests for, or use of, the unbundled elements it receives.

A. UNBUNDLED NETWORK ELEMENTS

Q. WHAT NETWORK ELEMENTS MUST GTE UNBUNDLE TO ENABLE AT&T TO PROVIDE COMPETITIVE LOCAL SERVICE?

A. The following twelve network elements which, at least today, are available exclusively or almost exclusively from GTE, must be unbundled and available to AT&T, for purchase both individually and in combination with other elements:

1. Network Interface Device ("NID")
2. Loop Distribution
3. Loop Concentrator/Multiplexer
4. Loop Feeder
5. Local Switching
6. Operator Systems/Directory Assistance ("OS/DA")

7. Dedicated Transport

8. Common Transport

9. Tandem Switching

10. Signaling Links/Transport

11. Signal Transfer Points ("STP")

12. Service Control Points/Databases ("SCP")

AT&T's proposed interconnection agreement, attached to AT&T's Petition, contains more specific details regarding each of these elements. In addition, AT&T will supplement this filing with a multi-media CD-ROM "walk-through" which explains each of these elements and how they relate to each other.[1]

Q. WHAT CRITERIA WAS USED IN SELECTING THESE ELEMENTS?

A. AT&T used the following criteria in selecting these twelve unbundled elements:

1. Each network element must be, or have the potential to be, measurable and billable;

2. Each network element must utilize transmission and/or switching protocol and physical interconnection standards, either existing or under development, that are recommended by an acknowledged industry body;

3. Each network element must represent discrete, stand-alone physical or logical functions which can be supplied by a competitive service provider;

[1] The video was not yet ready at the time of this filing.

4. Each network element must have the potential to be ordered in combination with any other network element(s); and

5. The unbundling of each network element must be technically feasible.

Q. HAS THE FCC REQUIRED THE UNBUNDLING OF THESE ELEMENTS?

A. Yes. Under the Rules adopted by the FCC to implement the Act, the network elements that must be unbundled include, at a minimum, (1) local loops; (2) Network Interface Device (NID); (3) local and tandem switches (including all software features provided by such switches); (4) interoffice transmission facilities (dedicated and common transport); (5) signaling and call-related database facilities (6) operation support systems and functions; and (7) Operator Services and Directory Assistance.

The FCC Rules allow state Commissions, however, to require the incumbent local carrier to unbundle elements beyond these seven if technically feasible. §51.317. In fact, the Order provides that there is a presumption in favor of such further unbundling if such unbundling is technically feasible. Order Section V, ¶ 281. The Rules further prohibit GTE from restricting in any way the manner in which AT&T uses the unbundled elements or combines those elements. §§51.309; 51.315.

Q. PLEASE DEFINE EACH OF THE TWELVE NETWORK ELEMENTS THAT AT&T REQUESTS BE UNBUNDLED AND EXPLAIN WHY THE DEVELOPMENT OF COMPETITION MANDATES THAT THEY BE UNBUNDLED.

1. Sub-Loop Elements (Elements 1-4)

A. The first four network elements comprise what is commonly referred to as the "loop". The loop provides a transmission path between the subscriber's residence or business and his or her local serving wire center.

a. Network Interface Device - The NID is a single-line termination device or that portion of a multiple-line termination device required to terminate a single line or circuit. The fundamental function of the NID is to separate the customer's facilities from the carrier's facilities.

b. Loop Distribution - Loop Distribution (typically a pair of copper wires) connects the customer's premises to the equipment that joins loop distribution facilities from multiple subscribers. It accomplishes this by connecting the NID and the terminal block on the customer side of a Feeder Distribution Interface ("FDI"). The FDI terminates the Loop Distribution and the Loop Feeder and cross-connects them in order to provide a continuous transmission path between the NID and a telephone company central office. For loop plant that contains a Loop Concentrator/Multiplexer, the Loop Distribution may terminate at the FDI (if one

exists), or at a termination and cross connect field associated with the Loop Concentrator/Multiplexer. This termination and cross-connect field may be in the form of an outside plant distribution closure, remote terminal or fiber node, or an underground vault. The Loop Distribution may be copper twisted pair, coax cable, or single or multi-mode fiber optic cable.

c. Loop Concentrator/Multiplexer - The Loop Concentrator/Multiplexer multiplexes and concentrates traffic generated through the individual loop distribution facilities serving numerous customer locations. The concentrator function enables GTE to deliver traffic between the Concentrator/Multiplexer and the local end office at higher data speeds, using more cost-effective loop feeder facilities. The Concentrator/Multiplexer also disaggregates traffic coming over the Loop Feeder facilities from GTE's switch, so that calls can be directed to individual end users over the Loop Distribution plant. The Loop Concentrator/Multiplexer really consists of functionalities, not any particular facility, piece of equipment or portion or capacity of any physical equipment.

d. Loop Feeder - The Loop Feeder transmits the aggregated traffic from many Loop Distribution facilities to GTE's central office.

Q. YOU DEFINED THE LOOP FACILITY NETWORK ELEMENTS THAT AT&T REQUESTS BE UNBUNDLED. COULD YOU EXPLAIN MORE

SPECIFICALLY WHAT WILL UNBUNDLING OF THESE ELEMENTS ENTAIL?

A. AT&T requests that GTE provide unbundled access to both 2-wire and 4-wire loaded and non-loaded loops that will support voice, data, ISDN/DSL (Integrated Services Digital Network/Digital Subscriber Line), video, and other type services and that may be point to multi-point as well as point-to-point. In addition, if these loops are transported virtually, then the transport configurations must also be unbundled as loop components. Moreover, AT&T must have access to facility interconnection at both the main distribution frame in GTE's central office ("MDF") and also at other cross-connect points, such as at the Loop Concentrator/Multiplexer. In addition to the unbundled sub loop elements, a combined local loop made up of all three elements is required. The combined loop may or may not include the NID.

Q. WHY IS IT IMPORTANT TO CONSUMERS THAT SUB-LOOP UNBUNDLING BE MADE AVAILABLE?

A. Throughout the world, plans are being made and implemented for the deployment of synchronous optical network (SONET) and synchronous digital hierarchy (SDH) rings and SONET and SDH fiber transmission backbones. Most, if not all of these plans include large businesses and residential sub-divisions as nodes on the SONET rings. Sub-loop unbundling would allow residential business consumers to have a greater chance of benefiting from SONET technology. Without sub-loop unbundling, residential customers would only benefit from the

quality, reliability, multi-service environment, and service improvement that SONET technology brings. Sub-loop unbundling would allow competitive, facilities based exchange providers to provide the services and reliability that SONET brings much closer to a consumer's actual home or business. Additionally, sub-loop unbundling would make it much easier and faster for competitive, facilities-based local exchange carriers to provide residential and business consumers the benefit of higher bandwidth applications that SONET would allow.

Q. COULD SUB-LOOP UNBUNDLING HELP AVOID HELD ORDER PROBLEMS?

A. Yes, allowing new entrants to provide its own loop feeder, and unbundling the distribution, could relieve some of the loop feeder shortages that GTE may experience. Additionally, GTE may desire to purchase spare feeder capacity that a new entrant may have as a means of helping out with its held order problem.

Q. HAS GTE AGREED TO PROVIDE UNBUNDLED ACCESS TO ITS LOOP FACILITIES?

A. GTE has offered AT&T 2-wire and 4-wire loaded and non-loaded loops on physical twisted pairs, but has not agreed to loop unbundling when the loop will be provided or traverse on Universal Digital Loop Carrier (UDLC) and Integrated Digital Loop Carrier (IDLC) technologies. In addition, GTE will not allow virtual loop unbundling when the loop is provided or traverses on Hybrid Fiber Coax

(HFC) or Fiber In The Loop (FITL/TR-909) technologies. In addition, with the exception of the Network Interface Device (NID), GTE will not allow any unbundling of the sub-loop elements of the loop feeder, loop concentrator/multiplexer, and loop distribution. GTE will only provide a combined loop without acknowledging it is technically feasible to unbundle the loop beyond the combined elements even on an individual case basis.

In addition, GTE permits interconnection only at GTE's central office or wire center -- at the Trunk Distribution Frame, Main Distribution Frame and Digital Signal Crossconnect. Furthermore, when ordering a loop, AT&T should not be required to specify the type of line to be served or the type of service to be provided via Network Channel Interface (NCI) codes. This information is not only proprietary and market sensitive, but is not actually needed by GTE. The only exception may be where the service is provided from a Digital Loop Carrier type ("DLC") technology and therefore may require some special option settings to support ground start, loop start, etc. However, if AT&T were allowed to optimize the channel settings itself - either remotely or locally - or provide the physical channel units itself, GTE would not need access to this information.

The loop unbundling that GTE offers is unduly restrictive, anti-competitive, and does not provide service comparable to that which GTE provides to itself and its customers. GTE's proposal, therefore, is inconsistent with the Federal Act and Federal Rules requiring parity in the provision of services to new entrants.

Q. WHY DOES THE DEVELOPMENT OF COMPETITION MANDATE THAT THE FOUR ELEMENTS OF THE LOOP FACILITY BE UNBUNDLED?

A. First, the NID - which was agreed to by GTE - must be unbundled to permit AT&T to gain access to the customer's inside wiring.

Second, unbundling of the Loop Distribution element is necessary for providers, such as AT&T, which deploy local fiber rings and their own switches, but do not have local distribution facilities. For example, AT&T could use GTE's Loop Distribution plant, in conjunction with the Concentrator/Multiplexer to deliver traffic between an AT&T switch and an individual end user's equipment. This capability is especially important in apartment developments and other multi-family dwellings where the Concentrator/Multiplexer is located in the apartment building itself. In these circumstances, use of GTE's Loop Concentrator/Multiplexer, Loop Feeder and Distribution plant is the only economical way for AT&T to reach individual buildings.

Third, unbundled access to the Loop Feeder element enables providers, such as AT&T, which have their own distribution plant but rely on GTE's Concentrator/Multiplexer and Feeder capabilities to transport traffic to and from GTE's switch.

Finally, multiplexing or concentration capabilities are sometimes used in each of the above circumstances. However, while AT&T may need to purchase the Concentrator/Multiplexer element, it should not have to pay for other Loop functions that it does not need. Thus, the Concentrator/Multiplexer must be unbundled from the other three sub-loop elements I have discussed.

I should emphasize that the foregoing describes only the narrowband architecture of today. New architectures such as synchronous optical networks (SONET), fiber in the loop (FITL/TR-909), integrated digital loop carrier (IDLC/TR-303), switched digital video (SDV), hybrid fiber coax (HFC), etc. - which incorporate video distribution (whether broadcast or on demand) or broadband digital signals (whether dedicated or switched), may consist of different and/or additional network elements.

Q. IS UNBUNDLING OF THESE LOOP FACILITY ELEMENTS TECHNICALLY FEASIBLE?

A. Yes. In fact, that unbundling is discussed in various existing industry technical publications. In addition, GTE's own network is composed of each of the sub-loop elements I have outlined. Accordingly, unbundling of the Loop Facility elements is indeed technically feasible. Further, under Section V, ¶ 281 of the Commission's Order, because unbundling of the loop is technically feasible, a presumption exists in favor of unbundling each of these elements.

Q. IN ADDITION TO THE FEDERAL ACT, IS THERE OTHER SUPPORT FOR UNBUNDLING THE LOOP?

A. Yes. First, the Federal Rules require that the NID be unbundled. (Section 51.319(b)). In addition, the Rules allow AT&T to ask this Board to further unbundle elements, including unbundling the loop into its component parts. Further, the Joint Explanatory Statement accompanying the 1996 Act expressly cites the local loop as an example of a network element which should be unbundled

Finally, several states have ordered loops unbundled from local switching. Over the last two years the Iowa Board addressed issues pertaining to unbundling of essential facilities. In its first and most comprehensive order to date dealing with unbundling in Iowa Docket No. RMU-95-5, this Board directed that each LEC's initial tariff filing shall, at a minimum, unbundle essential facilities, including loops, ports and other elements.

The Public Utilities Commission in Colorado in Decision No. C96-655, held that:

> "It was not the intention of this Commission in the interconnection and unbundling rules that one and only one type of loop should be provided. Furthermore, this Commission's rules and the 1996 Act specify that interconnection is to be provided at every technically feasible point. Therefore, we will direct USWC to modify its LIS-LINK unbundled loop tariff to include 4-wire loops and both loaded and non-loaded loops."

The Colorado Commission also required that the point of interconnection should also include a crossconnect bay at which the integrated loop carrier [IDLC] can be connected.

In addition, in Oregon Order NO. 96-188, UM-351 (July, 1996), incumbent carriers were ordered to unbundle the following types of Network Access Channels (NACs) or loops: Basic NAC, ISDN NAC, DSI and Primary ISDN NAC, DS3 NAC, Jumper NAC 2-Wire, Jumper NAC 4-Wire, Jumper NAC Fiber, and Dark Fiber NAC. Finally, on page 46(e) of UM 351, the Oregon Commission requires that interconnection carriers must be allowed to crossconnect to IDLC (integrated digital loop carrier) and RSU (remote switching units). As far as sub-loop elements are concerned, the Commission noted that:

> "interconnection may still take place at locations other than a central office. For example, a customer could request the placement of a virtually collocated piece of equipment at [an incumbent carrier's] controlled environmental vault [CEV] and then purchase a DS1 or DS3 circuit from that point to the [incumbent carrier's] central office. This arrangement would essentially replicate the unbundling of feeder from a customer's own distribution system. Also, an effective unbundling of feeder and distribution may occur when a customer aggregates its own distribution systems and then connects to [an incumbent carrier] via a DS1 or DS3 circuit between the customer's premise and the [incumbent's] serving wire center."

Further, according to Wyoming Interconnection and Access Charges Rulemaking - PSC-95-24, Section 549.(b): Minimum unbundling requirements include unbundling the local loop and (i) "Incumbent local exchange carriers shall be

required to make available network elements to competing local exchange carriers on an unbundled, non-discriminatory basis; (ii) the unbundled loop tariff is not limited to 2-wire analog service. Non-loaded loops (2 and 4-wire) will be available."

2. Local Switching (Element 5)

Q. PLEASE DESCRIBE THE FIFTH NETWORK ELEMENT AT&T REQUESTS BE UNBUNDLED.

A. The fifth element, Local Switching, is the Network Element that provides the functionality required to connect the appropriate originating lines or trunks wired to a Distributing Frame such as a Main Distribution (MDF) or Digital Cross Connect (DSX) panel to a desired terminating line or trunk. Such functionality includes all of the features, functions, and capabilities that the underlying incumbent carrier's switch that is providing such Local Switching function is then capable of providing, including but not limited to all vertical features and functions such as call forwarding, call waiting and three-way calling. Local Switching also provides the line screen necessary to route a new entrant's traffic to other platforms such as operator services and directory assistance. Remote Switching Module functionality and access to AIN triggers is included in the Local Switching function.

Q. YOU MENTIONED THAT BECAUSE SWITCHING IS FEATURE-RICH, UNBUNDLING OF LOCAL SWITCHING MUST INCLUDE ALL OF ITS FEATURES. WHAT FEATURES ARE YOU REFERRING TO?

A. All vertical features and functions such as call forwarding, call waiting and three-way calling must be available. Remote Switching Module functionality is also included in the Local Switching function. AT&T, as a purchaser of the Local Switching function, should be capable of routing local, intraLATA and interLATA calls and calls to its international customer's preferred carrier.

Q. SHOULD GTE ALSO PROVIDE ROUTING FUNCTIONS AS PART OF UNBUNDLING OF THE SWITCHING ELEMENT?

A. Yes. AT&T must have the ability to route Operator Services, Directory Assistance and maintenance calls to the AT&T platform. AT&T local service customers must be able to dial "0+/0-" to obtain AT&T local Operator Services, "4-1-1" (or 555-1212) to obtain Directory Assistance, and "6-1-1" (or another appropriate number) to obtain repair services. Many switches currently used by GTE are capable of providing this routing. For example, the Lucent 5ESS® switch performs routing through the assignment of a Line Class Code ("LCC") and the Lucent 1A ESS can achieve the same result through special routing indexes. For other vendor switches (e.g., DMS-100, GTD5, etc.), the specific routing solution will depend on the characteristics of the particular switch.

Q. HAS GTE OFFERED TO UNBUNDLE LOCAL SWITCHING?

A. No. GTE is not willing to provide AT&T (or presumably any other new entrant) any Switching functions except the most rudimentary ability to bring an analog (not digital) voice call into one side of the switch and out the other through the switch ports. This allows the call to go to the same places the call has always gone instead of where AT&T wants the unbundled trunk side to go. In this manner, GTE attempts to limit the services and features AT&T and other purchasers of the unbundled switch provide. In addition, GTE has taken the position that all traffic on the trunk side of the switch is access. In summary, GTE proposes to provide only basic Switching functions such as signaling digit reception and translations, basic routing and rating, call supervision and access to interoffice services.

Q. HAS GTE AGREED TO ROUTE OPERATOR SERVICES, DIRECTORY ASSISTANCE, VOICE MESSAGING, AND MAINTENANCE CALLS TO AT&T'S PLATFORM?

A. No. GTE has not agreed to route those calls to AT&T for its unbundled switch port product or for resale. GTE states this is not technically feasible.

Q. DOES GTE'S OFFER TO UNBUNDLE LOCAL SWITCHING MEET AT&T'S NEEDS FOR UNBUNDLED LOCAL SWITCHING?

A. Absolutely not. GTE has offered to unbundle only the switch port. A switch port simply allows AT&T to gain access to the switch rather than unbundled access to the switch's individual features and capabilities. In this manner GTE restricts the

types of services AT&T is able to provide. The result is that AT&T is only able to offer the features that GTE offers its own end users, even though there are many additional features inherent in the local digital switches.

Q. SHOULD UNBUNDLING THE SWITCH ALSO PERMIT AT&T THE ABILITY TO HAVE ADVANCED INTELLIGENT NETWORK ("AIN") TRIGGERS PROVISIONED?

A. Yes.

Q. COULD YOU DEFINE AIN TRIGGERS AND EXPLAIN HOW THEY EVOLVED?

A. Traditionally, telephone features and services were based on feature logic and data within the switch's software. Thus, new features were dependent on the switch vendor's provision of new programs. However, software is costly and can take months or years to develop. With technology, AIN service logic is moved to data bases external to the switch. The network provider can develop new services without reliance on the vendor's software.

The process of identifying calls that require AIN processing is known as "triggering" A trigger is activated on a customer's line. The trigger temporarily suspends a call and sends a query to the Service Control Point ("SCP") for instructions. The SCP then determines which service is requested and sends back the appropriate information on how to continue processing the call.

Q. WHAT SERVICES MAY BE OFFERED THROUGH ACCESS TO AIN TRIGGERS?

A. The services that can be offered with direct network access to AIN triggers are limited only by one's imagination because service providers are no longer dependent upon the switch vendors to provide the network software necessary to meet their customers' needs. This trend toward AIN is somewhat analogous to the move away from the old IBM mainframe computer: the introduction and evolution of the PC and Local Area Network has created whole new industries, products, and resulting benefits to consumers.

The purpose of requesting access to AIN trigger for unbundled network elements can be described in two scenarios: 1) Until AT&T deploys its own AIN SCPs, it will rely on GTE's AIN SCP for call processing instructions. AT&T will need GTE to provision its customer line numbers so an AIN query is sent to the GTE AIN SCP. AT&T will need access to the GTE AIN SCP to customize and create services unique to AT&T. This access is accomplished via the Service Creation Environment (SCE) and Service Management System (SMS) support tools which AT&T will need access to via a gateway. 2) Once AT&T has deployed its own AIN SCPs, those databases will contain call processing instructions for its customers on its own switches and for its customers on GTE switches. The AIN SCP will be connected to AT&T's SS7 network and will be accessed by GTE switches via interconnection of the GTE STP and the AT&T STP. AT&T will need

GTE to send AIN query messages for its customers on GTE's switches to the AT&T AIN SCP. This will allow AT&T to return call handling instructions to GTE's switch.

Q. WHAT IS GTE'S POSITION REGARDING UNBUNDLING OF AIN TRIGGERS?

A. Currently, although GTE has the only access to AIN triggers, GTE has not agreed to provision AT&T customers for AIN triggers nor has it agreed to allow AT&T access to GTE's AIN SCP to create unique services for AT&T customers. GTE also has not agreed to interconnect its SS7 network with AT&T's SS7 network for the purpose of exchanging AIN TCAP messages from their switch to AT&T's AIN SCP. GTE's position is that the access to its AIN platform and interconnection of GTE's SS7 network and AT&T's SS7 network for the purpose of access to AT&T's AIN SCP is not technically feasible at this time.

This position is ironic in light of the fact that the incumbent carriers and Bellcore viewed AIN as a chance for the incumbents to break through a perceived vendor bottleneck on switch software feature development that inhibited them from quickly meeting customer needs. AT&T and other new entrants are now in essentially the same position GTE was a few years ago in its struggle to wrestle control of centralized switch intelligence from switch vendors, i.e., the new entrant's ability to define new services are now constrained by GTE.

Q. WHAT ARE THE IMPLICATIONS OF GTE'S POSITION REGARDING AIN TRIGGERS?

A. By restricting access to AIN triggers, GTE controls other carriers' ability to offer new features and services to its customers. The implications of this for the development of competition are clear: Unable to offer new services, new entrants will simply be forced to step aside and watch GTE take the lead in service offerings.

Q. CAN YOU CITE ANY STATE ORDERS REGARDING AIN TRIGGERS?

A. Yes, in Oregon Order NO. 96-188, UM-351 (July 19, 1996), the Commission ordered that "SS7 be aggressively unbundled to provide customers with new service options and to avoid duplication of services where customers have provided their own signaling systems." In addition, the Order goes on to say that "SS7 also allows advanced intelligent network applications (AIN) including virtual networking, centralized call accounting, and advanced network management."

Q. YOU HAVE DISCUSSED THE VARIOUS SWITCHING COMPONENTS WHICH MUST BE UNBUNDLED. COULD YOU NOW EXPLAIN WHAT THE FEDERAL ACT AND RULES REQUIRE IN REGARD TO UNBUNDLING OF LOCAL SWITCHING?

A. Yes. The Federal Act broadly defines the "network elements" that must be offered to include the "functions, features, and capabilities" that are provided by means of

such facility or equipment, including subscriber numbers, databases, signaling systems, and information sufficient for billing and collection or used in the transmission, routing, or other provision of a telecommunications service" of the purchased equipment. See Section 3(45). The features described above fall squarely within that definition. The reality is that when AT&T purchases "switching," it is not buying merely the right to connect one call to another, but rather the right to use the entire switch's functionality -- and all of the switch's capabilities -- to provide service to its customers and develop and offer new services.

The Federal Rules confirm GTE's obligation by requiring that the features, functions, and capabilities of the switch that must be unbundled include "but are not limited to

> (1) the basic switching function of connecting lines to lines, lines to trunks, trunks to lines, and trunks to trunks, as well as the same basic capabilities made available to the incumbent LEC's customers, such as a telephone number, white page listing and dial tone; and
>
> (2) all other features that the switch is capable of providing, including but not limited to custom calling, custom local area signaling service features, and Centrex, as well as any technically feasible customized routing functions provided by the switch.
>
> . . .
>
> (ii) the basic switching function of connecting trunks to trunks; and
>
> (iii) the functions that are centralized in tandem switches (as distinguished from separate end-office switches), including but not limited to call recording, the routing of calls to operator services, and signaling conversion features."

§51.319(c)(1)(C); 51.319(c)(2). The particular requirement of unbundling "custom local area signaling service" in §51.319(c)(1)(C)(2) requires GTE to unbundle AIN triggers. This requirement, and the technical feasibility of unbundling AIN, is confirmed in Section V, ¶¶ 486-488 of the Commission's Order. Further, the Rules directly support AT&T's request, and require GTE, to route operator services calls. §51.319(C)(2)(iii).

The Rules further require that unbundling of local switching includes unbundling line-side facilities and trunk-side facilities, and that unbundling of tandem switching requires unbundling trunk-connect facilities and the function of connecting trunks. §51.319(c)(1),(2).

Q. CAN YOU CITE ANY SPECIFIC STATE RULE REGARDING THE UNBUNDLING OF END OFFICE SWITCHING.

A. Yes, Colorado Rule 4 CCR 723-39-6 regarding unbundling states: "Each incumbent telecommunications provider shall provide, to any requesting telecommunications provider for the provision of a telecommunications service, nondiscriminatory access to essential facilities or functions. An incumbent telecommunications provider shall provide such unbundled essential facilities or functions in order to provide such telecommunications service."

In addition, in Oregon Order NO. 96-188, UM-351 (July, 1996), the Commission ordered that the incumbent carriers unbundle the following Network Access

Channel Connection (NACC): NACC (Basic) DS0 Switched Lineside, NACC (Basic) DS0 Switched Trunkside, NACC (Basic) DSO Dedicated, NACC DS1 Switched Lineside, NACC DS1 Switched Trunkside, NACC DS1 Dedicated, NACC DS3 Dedicated, NACC ISDN, NACC Frame Relay, NACC SMDS, and NACC ISDN Extension Technology. The Commission also required GTE and USWC to unbundle their existing telecommunications switch features into the building blocks listed in Appendix B of Order No. 96-188 which included 29 features from call waiting to call answering.

Q. DOES THE DEVELOPMENT OF COMPETITION ALSO MANDATE THAT SWITCHING BE UNBUNDLED?

A. Yes. As discussed above, Switching is an essential element in the provision of local exchange service. In addition, unbundling the Local Switching network element enables providers such as AT&T, who may choose to build their own Local Switching capabilities, to devote their resources to the purchase of only those other networks elements which it does not provide itself. Thus, only if Switching is unbundled will new entrants be able to efficiently provide the services their customers desire.

Q. ARE AT&T'S REQUESTS REGARDING UNBUNDLING OF LOCAL SWITCHING TECHNICALLY FEASIBLE?

A. Yes. As stated above, GTE's existing local switch contains the features and capabilities needed to offer the type of local service demanded by GTE's end

users. These features are already part of GTE's existing network architecture. Thus, contrary to the claims of GTE, unbundling its Switching simply requires GTE to provide other carriers the same access as it provides to itself. The only difference is that GTE will receive a service order from the new carrier's service center as opposed to its own GTE service centers. Thus, there is no technical reason that Switching cannot be immediately unbundled.

Q. DOES OFFERING THE CAPABILITIES OF THE ENTIRE LOCAL SWITCHING ELEMENTS AT COST-BASED RATES BENEFIT CONSUMERS?

A. Yes. If AT&T could avail itself of all of the Switching features and capabilities at cost-based rates, it could offer consumers vertical features, such as call waiting and call forwarding, at much more favorable rates than exist today. Another advantage to unbundling Switching is that it will lead to the development of new services and features as was previously discussed in the AIN section.

Q. ARE THERE ANY OTHER ISSUES RELATED TO SWITCHING?

A. Yes. Data switching is a sub-category of Local Switching. AT&T requires interconnection between local data networks and other data networks so it can transport our customer's data traffic. This network to network transport of data is accomplished through a defined industry standard called a Network to Network Interface (NNI).

Q. HAS GTE AGREED TO PROVIDE THIS INTERCONNECTION?

A. No. GTE has agreed to unbundle only the User Network Interface (UNI) interconnect function for data switching, not the Network to Network Interface (NNI). This is analogous to providing local calls but blocking toll calls.

3. Operator Systems (Element 6)

Q. WHAT IS OPERATOR SYSTEMS UNBUNDLING?

A. Unbundling in the case of Operator Systems is the routing of AT&T's local customer's 0+, 0- and 411 dialed calls to the AT&T network for call processing in a Total Services Resale (TSR) environment. The unbundled service allows AT&T to provide for operator and automated call handling and billing, certain special services, customer telephone listings and optional call completion. This system supports two types of functions: Operator Service (OS) and Directory Assistance (DA).

Q. PLEASE DESCRIBE OPERATOR SERVICE FUNCTIONS.

A. Operator Service includes: (1) Operator handling for call completion (for example, collect, third number billing, and manual calling card calls); (2) Operator or automated billing assistance after the customer has dialed the called number (for example, calling card calls); and (3) Special services, including but not limited to Busy Line Verification and Emergency Line Interrupt ("BLV/ELI"),

Emergency Agency Call, Operator-Assisted Directory Assistance, and Rate Quotes.

Q. PLEASE DESCRIBE DIRECTORY ASSISTANCE FUNCTIONS.

A. Directory Assistance provides local customer telephone number listings as well as the option to complete the call at the caller's direction.

Q. PLEASE DESCRIBE THE REQUIREMENTS FOR THE PROVISIONING OF EMERGENCY SERVICES SUCH AS BUSY LINE VERIFY AND EMERGENCY INTERRUPT WHEN THE OPERATOR SERVICES CALLS ARE ROUTED TO AT&T.

A. GTE's network must support calls from AT&T operators to perform such services as Busy Line Verify and Emergency Interrupt (BLV/EI). BLV/EI provides the capability to check busy lines and interrupt conversations based on customer requests and indications that an emergency exists that requires the customer who initiated the request to talk with the customer who is on the "busy" telephone. This capability should be available 24 hours a day and 7 days a week. In order to more efficiently serve local customers, AT&T should be provided the option to deploy segregated one-way trunk group(s) from its operator services positions to GTE's end offices to perform these functions without having to call the GTE operator on an "inward" basis.

Q. WHAT UNBUNDLING OF OPERATOR SERVICES DOES AT&T REQUEST?

A. AT&T interprets "nondiscriminatory access to operator services" to mean that a telephone service customer must be able to obtain Operator Services by dialing "0" or "0" plus the desired telephone number regardless of the identity of his or her local telephone service provider. AT&T believes that these Operator Services include any automated or live operator assistance in billing and/or completion of a telephone call through a method other than (1) automatic completion with billing to the telephone from which the call originated, or (2) completion through a consumer access code, where the call is billed to a previously established account.

Q. HAS GTE AGREED TO UNBUNDLE OPERATOR SERVICE OR DIRECTORY ASSISTANCE?

A. No. GTE has not agreed to unbundle either element of Operator Systems. It has simply stated it does not believe the Federal Act requires this unbundling.

Q. HOW DOES GTE PROPOSE TO PERFORM OPERATOR SERVICES/DIRECTORY ASSISTANCE FOR RESELLERS?

A. GTE will make its Operator Systems available to AT&T customers dialing 0+, 0- and 411 on an unbranded basis. In other words, it will not brand the service as GTE. However, the issue over the use of AT&T rates and processing of AT&T calling card calls is still of concern to AT&T in this scenario. Moreover, it is not the overall quality experience expected by AT&T's customers and required in a

competitive environment. In addition, this proposal leaves AT&T's platforms under utilized and ineffective in the local market.

Q. IS UNBUNDLING OF OPERATOR SYSTEMS TECHNICALLY FEASIBLE?

A. Absolutely. In fact, incumbent carriers provide unbundled Operator Services to other carriers today. For example, the Woodbury Telephone Company (an incumbent carrier) and TCG (a Competitive Access Provider) both purchase unbundled Operator Services from Southern New England Telephone. These services are also provided to local exchange carriers under contract with interexchange carriers such as AT&T and MCI. Furthermore, most incumbents currently provide Directory Assistance to independent local exchange carriers and interexchange carriers. Moreover, other carriers interface with the underlying provider's Operator Systems simply by purchasing interconnecting trunks. Finally, the FCC has also addressed this issue, requiring that various data supporting a local exchange carrier's Operator Services functions be made available to interexchange carriers. See FCC Docket No. 91-115 (May 13, 1993). Thus, unbundling GTE 's Operator Systems is clearly technically feasible.

Q. WHAT ARE SOME OF THE COMPONENTS REQUIRED TO ROUTE OPERATOR CALLS TO THE AT&T NETWORK?

A. In the case of the 5ESS switches, one technical solution is to use unique Line Class Codes for AT&T resold customer lines. This line class will have an

originating code and along with the dialed digit(s), will provide the ability to guide the call to a route index that points to the AT&T trunk group. There are other solutions for other switch types.

Q. WHAT IS A TYPICAL SOLUTION FOR ROUTING OPERATOR SYSTEM CALLS TO THE AT&T PLATFORM?

A. In the case of the Lucent 5ESS Switch, a solution consists of the provision of a line class code (LCC) for AT&T resold customers in the GTE end-office switch. This unique LCC will contain a Screening Code (SC) and a Digit Analysis Selector (DAS). The DAS will reference the same Local Digit Interpreter Table (LDIT) and Primary Digit Interpreter Table (PDIT) used by the existing lines in the switch. The call screening keyed by the SC and the LDIT/PDIT code index, will provide routing data for the call. For local 0+/0- calls, a unique Route Index will guide the call to an existing trunk group between the end-office and the AT&T Operator Service Position System (OSPS). Additionally, these same LCCs will allow AT&T local customers dialing 411 to be routed to AT&T's Directory Assistance Platform.

Q. WON'T THE REQUIREMENTS FOR ADDITIONAL LINE CLASS CODES CAUSE 5ESS SWITCH CAPACITY PROBLEMS?

A. No. In the interest of conservation of switch resources, AT&T is willing to initially limit the classes of service for which selective routing of Operator Service/Directory Assistance will be provided. Because AT&T does not have

access to GTE's switch parameters, some input parameters were approximated using several test points; by using this method, preliminary estimates are that AT&T requirements would fall between 32 - 320 LCCs dependent upon the number of LCCs being served by the switch. Today, the 5ESS is capable of assigning a maximum of 6000 Line Class Codes. (Lucent reference: AT&T 235-600-110 5ESS ®-2000 Switch Translations Data Manual, July, 1996).

Q. THIS MAY PROVIDE A TECHNICAL SOLUTION FOR THE 5ESS BUT, WHAT ABOUT OTHER TYPES OF SWITCHING EQUIPMENT?

A. In the case of the Lucent 1AESS Switch, a solution involves the replication of Class of Service Screening Tables (Chart and Columns) and the assignment of Special Route Indexes and Traffic Service Position System (TSPS) pairs and indices within those Tables (for 0- and 0+ calls respectively).

Q. WHAT IS THE CONSTRAINING RESOURCE FOR THE 1AESS?

A. The capacity limitation in the 1AESS is expected to be memory as well as TSP Indexes (AT&T selective routing to Operator Services would use one of the maximum eight indexes). AT&T is expected to consume 2-4K Words of memory out of the 64K capacity.

Q. ARE THERE OTHER CONSIDERATIONS IF THE SWITCH SOLUTIONS ARE EMPLOYED?

A. There are probably similar solutions for all switch types since basic switch functionality includes routing and screening options. All of the applications, however, would appear to have feasible alternatives including negotiable market strategies on a switch by switch basis. If it is determined that a particular switch type does in fact have a problem in unbundling either Operator or Directory services routing functions, that should not preclude the unbundling where it can be done. In that case a time table should be established to provide the desired capability. Because AT&T believes that there are multiple solutions to enabling these capabilities, it does not want to specifically prescribe any one solution for identifying AT&T customer's lines and subsequently routing those calls to AT&T's designated trunk groups. It is not AT&T's responsibility to solve GTE's routing issues.

AT&T is looking to GTE to expeditiously develop, along with its switch vendors, the appropriate solution(s) to allow AT&T the option of choosing which serving arrangement to employ in serving its local customer needs. AT&T's only requirement is that the solution must not result in any significant signaling delay that would increase call setup time.

Q. BESIDES THE SWITCH SOLUTION WHAT OTHER ALTERNATIVES CAN THE INDUSTRY UTILIZE?

A. A couple of options include the Advanced Intelligent Network (AIN) and the Advanced Services Interface (ASI) Feature.

Q. COULD YOU EXPLAIN THE USE OF AIN FOR OPERATOR SYSTEMS?

A. The fundamental architectural concept of AIN is to move control functions out of the local switch and into a programmable control processor to isolate the development of control-oriented service capabilities from traditional switch development cycles. At certain points in the call processing, triggers can be used to interpret the originating line-to-local service provider affiliation and based on selective routing intelligence would return routing instructions to invoke the appropriate routing treatment by the local switch.

Q. WHAT IS ASI?

A. ASI is a feature used to support selective routing for Directory Assistance calling. ASI is a method to interrupt normal call processing at the switch and to physically route the call to an Intelligent Peripheral (IP) for alternative treatment. Logic and data provisioned in the IP would generate instructions for the local switch to invoke alternate call routing for certain lines in the switch.

Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS REGARDING OPERATOR SYSTEMS.

A. GTE should provide for the routing of AT&T Operator System's calls to the AT&T platforms in a resale environment. GTE's current position to handle all operator and directory assistance services will impede AT&T's opportunity to 1) brand its calls with the AT&T brand and 2) offer any differentiating service

capability, including the utilization of separate and distinct rates from GTE's. The environment proposed by GTE does not promote competition, could create confusion for consumers who may not be able to determine the scope of services provided by AT&T and would deprive those customers of the full benefits of competition. Specifically, local calls to Operator Services and Directory Assistance from AT&T customers should be routed to AT&T via the designated trunk groups. AT&T has provided the technical framework that describes the industry solution to provide Operator Systems routing. GTE should determine its specific technical plan and the most cost efficient method for each switch type and then implement the solution.

Q. DOES THE FEDERAL ACT AND RULES REQUIRE UNBUNDLING OF OPERATOR SYSTEMS?

A. Yes. Section 251(b)(3) requires GTE to provide competing telecommunications services providers "nondiscriminatory access to telephone numbers, Operator Services, Directory Assistance, and directory listing, with no unreasonable dialing delays." Section V, ¶ 524 of the Commission's Order requires that Operator Services and Directory Assistance be unbundled and non-discriminatory access provided at any technically feasible point. The Order further requires that this element must be unbundled in a resale environment, and customized routing to competitive operator services and directory assistance must be provided. Section V, ¶ 536. In addition, §51.319(2)(iii) of the Rules require GTE to unbundle the switching functions necessary to route calls to operator services.

Q. HOW WILL THE DEVELOPMENT OF COMPETITION BE ASSISTED BY UNBUNDLING OF OPERATOR SYSTEMS?

A. In order for AT&T to attract customers, it must provide a full complement of the local services customers have come to expect. Many new entrants may not be able to duplicate the entire range of GTE Operator Systems and therefore require the use of GTE's unbundled Operator Services platforms.

At the same time, those new entrants that choose to invest in their own Operator Systems should be permitted to maximize the value of such investment and not be required to purchase GTE's Operator Systems simply because the new entrant utilizes GTE's unbundled Local Switching. This will foster competition in the provision of resold local service, by immediately interjecting into that competition the opportunity for new entrants, who would otherwise be dependent on GTE for operator call completion, to choose from among other carriers for Operator Service. No purpose is served, competitive entry will be frustrated and prices to consumers will be unnecessarily inflated, if AT&T and other new entrants are required to pay for network elements they do not use.

AT&T is fully prepared to immediately function as a facilities-based provider of Operator Service and Directory Assistance. AT&T has a world class Operator Service and Directory Assistance platform, with experience handling Local Operator Service and Directory Assistance calls which can provide services and

capabilities different from those currently provided by GTE. However, through use of its own Operator Services and Directory Assistance platforms, AT&T will be able to differentiate its otherwise resold services from GTE and other competitors by providing AT&T customers the same "look, sound and feel" which its customers have come to rely on in their long distance service. Thus, permitting AT&T and other resellers to use their own Operator Services and Directory Assistance platforms will both help to limit customer confusion regarding the identity of their provider and assist resellers in establishing a presence in the local service market.

Q. IS THERE PRECEDENT FOR AT&T'S REQUEST THAT OPERATOR SERVICES BE UNBUNDLED?

A. Yes. Concluding that access to Operator Services is critical to a new entrant's ability to enter the local exchange market, the Public Utility Commission of Colorado required Operator Services to be unbundled. See. In the Matter of Proposed Rules Regarding Implementation of §§ 40-15-101 *et.seq.*, Docket No. 95R-556T, Decision No. C96-347, Public Utility Commission of Colorado (March 29, 1996). (see rules 6.1 and 6.2).

The Iowa Utilities Board has also ordered that directory listings in the white and yellow pages, as well as inbound operator services be included in the initial list of unbundled essential facilities. (Order in RMU-95-5, p.13).

In Oregon Order NO. 96-188, UM-351 (July, 1996), the Commission ordered that "building blocks include...operator services...."and "that all building block services be made available for purchase separately or in combination with other network functions that customers provide themselves or buy from LECs or other telecommunications providers."

The Order issued in Illinois on June 26, 1996 concludes that: "Unbundling of OS/DA is a necessary requirement for effective competition. Ameritech's objections to AT&T's request in this regard are not adequately supported by the record. Ameritech argues that unbundling of OS/DA is not technically feasible, but has failed to provide persuasive evidence in support of that claim. Moreover, AT&T has presented what it deems a workable solution, i.e., the use of "line class codes" to route OS/DA calls, in opposition to Ameritech's claim that the separate routing of these calls is not possible at this time. Given the importance of this issue and the potential that competition will be the likely result of unbundling OS/DA from the wholesale offering, the Commission orders Ameritech and Centel to unbundle its OS/DA calls from total service resale offering pursuant to Section 251(c)(3)."

Finally, the Order Declaring Resale Prohibitions Void and Establishing Tariff Terms that was issued on June 25, 1996, states: "New York Telephone is directed to file tariffs to provide ISDN links, extended links, riser cable, combined

physical/virtual collocation, branded directory assistance/operator services, and self-provisioned (unbundled) directory assistance/operator services, on August 1, 1996 to be effective October 1, 1996. "

4. Transport Elements (Element 7)

Q. PLEASE DESCRIBE THE TRANSPORT ELEMENTS -- DEDICATED TRANSPORT, COMMON TRANSPORT AND TANDEM SWITCHING -- WHICH AT&T HAS REQUESTED BE UNBUNDLED.

A. Transport Elements enable an end office or tandem switch to connect any location with another end office, another tandem switch or an interexchange carrier's Point of Presence ("POP"). Through this connection, subscribers are able to reach each other even when they are not served out of the same switch or by the same carrier. There are three Transport Elements that must be made available on an unbundled basis: Common Transport, Dedicated Transport and Tandem Switching.

a. Common Transport - Common Transport is an interoffice transmission path between GTE 's switches which carries traffic for a variety of carriers and, by definition, is not dedicated to a single carrier.

b. Dedicated Transport - Dedicated Transport is used exclusively by a single carrier for the transmission of its traffic. Dedicated Transport involves an interoffice transmission path between locations designated by AT&T including

GTE central offices, other GTE equipment locations, AT&T network components, other carrier network components, or customer premises.

c. Tandem Switching - Tandem Switching establishes a communications path between two switching offices using a third switching office (the tandem switch).

Q. HAS AT&T REQUESTED THE UNBUNDLING OF DARK FIBER AS PART OF TRANSPORT UNBUNDLING?

A. Yes.

Q. HAS GTE AGREED TO UNBUNDLE DARK FIBER?

A. No, it has not.

Q. WHY IS THE UNBUNDLING OF DARK FIBER IMPORTANT TO AT&T AND END-USER CUSTOMERS?

A. It is important because there are no limitations (other than the electronics used to terminate the fiber) on the bandwidth and types of services (e.g., Interactive and Broadcast Video, Distance Learning, Asynchronous Transfer Mode (ATM), Frame Relay (FR), Integrated Services Digital Network (ISDN), Digital Data Services (DSI, DSO, DS3), Internet Access and other services) that can be delivered to end-user customers. Absent dark fiber, AT&T is forced to buy at

DS1, DS3 and SONET rates. With dark fiber, high bandwidth competition should flourish. (See Oregon PUC, UM351, Order #96-188, July 19, 1996).

Q. IS THERE A STATE PRECEDENT FOR AT&T'S REQUEST THAT DARK FIBER BE UNBUNDLED?

A. Yes, in Oregon Order NO. 96-188, UM-351 (July 19, 1996), the Commission ordered that incumbent carriers be required to unbundle various types of Network Access Channels (NACs) including Dark Fiber NAC. The Oregon Order (pg. 40) states: "Dark fiber is a fiber optic line which provides transmission functionality without the aid of LEC supplied electronics. Use of dark fiber is not limited to specific band width applications such as DS0, DS1, or DS3. Staff advocates [and the Commission ordered] unbundling dark fiber from LEC electronics where adequate facilities exist to permit such an application." The Order goes on to say "Dark fiber is equipment used to provide telecommunication services and falls squarely under the definition of "service" in ORS 756.010(8), discussed above. In addition, dark fiber is clearly a "network element" as that term is defined in Section 3(a)(45) of the Act. Accordingly, incumbent LECs are also obliged under the Federal Act to unbundle dark fiber just as they must unbundle other facilities and equipment used to provide telecommunications services."

Q. PLEASE EXPLAIN WHY THE DEVELOPMENT OF COMPETITION MANDATES THE UNBUNDLING OF TRANSPORT ELEMENTS.

A. Unbundling Transport Network Elements will facilitate increased competition by minimizing the cost incurred by new entrants in establishing the network interconnections needed to exchange traffic with GTE, interexchange carriers, and other new carriers. For example, AT&T may elect to purchase the Common Transport and Tandem Switching Network Elements to interconnect to AT&T'S dedicated transport which terminates in AT&T'S switch.

On the other hand, if AT&T exchanges sufficient traffic with particular end offices or POP switches, it may be more economical to selectively install and/or purchase its own Dedicated Transport and/or Tandem Switching capabilities to exchange traffic with those switches. Still, AT&T should be able to use GTE's Tandem Switching and Common Transport functionality to exchange traffic with those switches where traffic volumes would not justify such an arrangement.

Unbundling the Transport Network Elements may also encourage the development of a competitive market for the delivery of individual Transport Network Elements. If third parties are able to provide Dedicated Transport and/or Tandem Switching functions more cost-effectively than GTE, AT&T, other new entrants, interexchange carriers and perhaps even GTE would be encouraged to use such alternatives.

Q. IS UNBUNDLING OF THESE TRANSPORT ELEMENTS TECHNICALLY FEASIBLE?

A. Yes. Unbundled Dedicated Transport is currently available to interexchange carriers under GTE's access tariffs. There is no technical reason why this function could not be made available to other carriers. The technical feasibility of unbundling Transport Elements is also evidenced by the fact that the Federal Rules, as well as many state Commissions, including New York, Connecticut, Wyoming, and Colorado, require the incumbent carriers to unbundle Tandem Switching. Finally, there are published standards for interconnection of Common Transport with tandem and end office switches. Thus, there are no technical impediments that would preclude a decision to require the unbundling of the Transport Network Elements.

Q. HAS GTE AGREED TO UNBUNDLE THE TRANSPORT NETWORK ELEMENTS?

A. No. GTE has agreed to separately provide Dedicated and Common Transport; however, it will only do so through its existing access tariffs. AT&T is opposed to this. Making these elements available through access tariffs is simply not equivalent to unbundling them and GTE does not use cost based pricing as called for by the Act.

Further, with the exception of Digital Cross-Connect Systems ("DCS") interconnection via its Custom Network Controller ("CNC") tariffed product - GTE will not allow for the access to, or the provision of, network elements (e.g., SONET), operational interfaces for configuration management data, fault

management data, and/or performance management data associated with the operations, administration, maintenance, and provisioning (OAM&P). These are imperative with newer transport technologies, and the only way to provide parity as required by the Federal Rules.

Q. IS UNBUNDLING OF TRANSPORT ELEMENTS REQUIRED BY THE FEDERAL ACT AND RULES?

A. Yes. Section 251(c)(3) of the Act requires GTE to provide nondiscriminatory access to all network elements in an unbundled basis. The Federal Rules make clear that both dedicated and common transport (§51.319(d)) and tandem switching (§51.319(c)(2)) are included in the unbundling requirement, and are feasible to unbundle. See also Commission Order Section V, ¶¶ 425-426, 439-440.

Q. ARE YOU AWARE OF ANY STATES IN THE WESTERN REGION THAT HAVE ADDRESSED TRANSPORT ELEMENT UNBUNDLING?

A. Yes, I know of three - Wyoming, Colorado, and Oregon. In Wyoming, the Commission required that, at a minimum, Tandem Switched Local Transport, Dedicated Local Transport and Interoffice Transport be unbundled as separate elements. See Wyoming Interconnection and Access Charges Rulemaking, Docket No. 95-24, Wyoming Public Service Commission (Proposed Rules) (May 3, 1996) (at Section 549).

In Colorado the Commission held, In the Matter of Proposed Rules Regarding Implementation of §§ 40-15-101 *et.seq.*, Docket No. 95R-556T, Decision No. C96-347, Public Utility Commission of Colorado (March 29, 1996) that "Rules 6.1 and 6.2 require incumbent telecommunications providers to offer access to a number of network elements designated as essential facilities or functions. These include: loop, local switching, common transport links, dedicated transport links, local and toll tandem switching, operator systems, signaling links, signal transfer points, and access to each service control point via signal points."

In Oregon Order NO. 96-188, UM-351 (July 19, 1996), the Commission ordered incumbent carriers to unbundle the following Network Access Channel Connection (NACC): NACC (Basic) DS0 Switched Lineside, NACC (Basic) DS0 Switched Trunkside, NACC (Basic) DSO Dedicated, NACC DS1 Switched Lineside, NACC DS1 Switched Trunkside, NACC DS1 Dedicated, NACC DS3 Dedicated, NACC ISDN, NACC Frame Relay, NACC SMDS, and NACC ISDN Extension Technology.

5. Signaling Elements (Elements 10-12)

Q. PLEASE DESCRIBE THE SIGNALING ELEMENTS WHICH AT&T HAS REQUESTED BE UNBUNDLED.

A. These Signaling Elements include Signaling Links, Signal Transfer Points (STP), and Service Control Points (SCP). Each of the signaling Network Elements are specific functionalities as described below. They are not the equipment or wires or any defined portion of those facilities that provide those functions.

a. Signaling Links - Signaling Links are transmission facilities in a signaling network that carry "out-of-band" signaling messages,(i.e., signaling between an end office and a Signal Transfer Point, between two signal transfer points, between a tandem switch and a signal transfer point, and between a signal transfer point and a Service Control Point).

b. Signal Transfer Point ("STP") - An STP acts as a signaling switch. It enables the exchange of SS7 messages among and between switching elements, database elements and STP switches.

c. Service Control Point ("SCP" Database) - An SCP is a database that permits the storage, access, and manipulation of information required to offer a particular service and/or capability. Deployed in an SS7 network, an SCP directs and processes informational requests and provides operational interfaces to allow for provisioning, administration and maintenance of subscriber data and service application data. (e.g., an 800 database which stores customer record data needed to route 800 calls).

Q. PLEASE EXPLAIN WHY THE UNBUNDLING OF THE SIGNALING ELEMENTS IS ESSENTIAL TO THE DEVELOPMENT OF COMPETITION.

A. Unbundling the Signaling Elements will enable AT&T to provide signaling capabilities using combinations of GTE 's, AT&T's, and third party-owned signaling elements to support the AT&T's end user's originating and terminating traffic and advanced features. Unbundling will also benefit consumers by facilitating the development of new services. For example, if a new entrant is permitted to dip into GTE's 800 database by purchasing unbundled access to GTE's STP, it may be able to improve call set up performance or provide advanced services more efficiently. As another example, unbundling GTE's SCP will enable a new entrant to insert its own call control logic or interface its own SSP to GTE's SCP via its own STP and GTE's STP. Furthermore, the high costs of deploying, maintaining and interconnecting a signaling network necessitate that new entrants be able to purchase unbundled GTE signaling elements, singularly or in combination from GTE.

Q. IS UNBUNDLING OF THE SIGNALING ELEMENTS TECHNICALLY FEASIBLE?

A. Yes. In fact, the FCC's order that signaling networks be unbundled precipitated the interconnection of incumbent carriers and interexchange carriers, as well as the development of competitive, signaling networks. See FCC Docket No. 91-

346 (August 3, 1993). For example, AT&T is interconnected to STP pairs belonging to local exchange carriers and alternative signaling network providers in 191 LATAs. Most of those interconnections were accomplished during the 2-year period beginning October 1991, coincident with the FCC's order on 800 Number Portability. Thus, the industry has had considerable experience in unbundling signaling interconnection.

Additionally, receipt and return of messages transmitted between AT&T's signaling network and GTE's signaling network raises no proprietary information or network reliability issues. Such access is based on the signaling message generation function in GTE's network into which GTE itself inputs requested changes upon receipt of orders. Thus, AT&T will not have direct access to GTE's switch or any physical control over its operation.

Q. WHY HAS AT&T REQUESTED ARBITRATION ON UNBUNDLING THE SIGNALING ELEMENTS?

A. AT&T requires access to GTE's signaling databases SCPs in order to provide instructions on how to handle *i.e.,* route and process AT&T's customer calls that are switched on GTE's unbundled local switches. AT&T does not require real time access to GTE's SCP databases for maintenance or provisioning. A commitment to provide timely implementation of AT&T's instructions will be sufficient.

Q. WHAT HAS GTE PROPOSED REGARDING THE UNBUNDLING OF ITS SIGNALING NETWORK?

A. GTE is proposing access to and unbundling of its Signalling Links and STPs, however, it has not provided specifics on how this will be accomplished and it will not allow access to the SCP data. This is anti-competitive and unduly restrictive since it is being offered as a service - much like the current access service - rather than as an unbundled element. GTE also refuses to credit AT&T for the 800/888 database dip made when an AT&T customer calls a GTE 800/888 customer. This results in AT&T being billed for a query that it receives no revenue for. GTE would be the only entity receiving revenue for this type of call.

Q. DOES THE FEDERAL ACT AND RULES REQUIRE UNBUNDLING OF THE SIGNALING NETWORK?

A. Yes. First, Section 3(45) of the Federal Act expressly includes "databases" and "signaling systems" with the definition of network elements. The Federal Rules (§51.319(e)) require unbundling of the Signaling Network, including signaling links, signal transfer points, call-related databases (including AIN) and Service

Management Systems. See also Section V, ¶¶ 479-501 of Commission Order. The Federal Rules also allow AT&T to request, and this Board to require, further unbundling of the Signaling Network, including the SCP.

Q. CAN YOU CITE ANY SPECIFIC STATE RULINGS REQUIRING UNBUNDLING OF THE SIGNALING NETWORK?

A. Yes. Both Colorado and Wyoming require incumbent carriers to unbundle Signaling Links, STPs and SCPs. See In the Matter of Proposed Rules Regarding Implementation of Sections 40-15-101, et seq., Docket No. 95R-556T, Decision No. C96-347 Colorado Public Utility Commission (March 29, 1996); see also In the Matter of Interconnection and Access Charges Rulemaking (Proposed Rules). Docket No. 95-24, Wyoming Public Utility Commission (May 3, 1996).

In addition, in Oregon Order NO. 96-188, UM-351 (July 19, 1996), the Commission ordered that "SS7 be aggressively unbundled to provide customers with new service options and to avoid duplication of services where customers have provided their own signaling systems." The Commission also required that messages and protocols be delivered intact and without interference, at parity, with the incumbent carrier's processing of messages between its own Switching Network Elements today. The Order further provided that SS7 building blocks are as follows:

SS7 SSP (including ISUP and TCAP messages)

SS7 STP

SS7 SCP

SS7 Access Links

SS7 Bridge Links.

6. Performance Standards for Unbundling

Q. WHAT STANDARDS SHOULD BE USED TO EVALUATE THE PERFORMANCE OF THE UNBUNDLED ELEMENTS AND COMBINATIONS PROVIDED BY GTE?

A. GTE must provide AT&T with the same quality of service that it provides to itself or to any other carrier. Specific design, technology and performance standards which ensure that level of quality for each GTE unbundled element are listed in AT&T's proposed Interconnection Agreement with GTE that AT&T has filed with its Petition. Compliance with these standards will help ensure that GTE's unbundled elements are engineered to parameters that enable retail quality service to be provided.

Q. WHAT ARE SOME OF THE KEY PERFORMANCE AREAS THAT THESE STANDARDS MONITOR?

A. Some of the critical performance areas monitored by these standards include: transmission quality for voice data and fax messages, post dial delay, blocked calls, database query failures, and call recording failures.

Q. WHAT REDRESS DOES AT&T HAVE IF GTE FAILS TO PROVIDE UNBUNDLED ELEMENTS THAT MEET ESTABLISHED PERFORMANCE STANDARDS?

A. If GTE does not provide unbundled elements consistent with established standards, AT&T should receive special financial compensation. The terms and conditions under which this additional compensation should be provided are specified in AT&T's proposed Interconnection Agreement attached to its Petition, and in the testimony of its pricing witness to be filed later.

7. Other Unbundling Issues

a. Current Access Tariffs

Q. IF SPECIFIC ELEMENTS ARE CURRENTLY AVAILABLE IN ACCESS TARIFFS, DOES THAT IMPLY THAT THEY ARE ALREADY UNBUNDLED AND AVAILABLE TO AT&T?

A. No. The elements available in the GTE access tariff may provide some of the functions AT&T requires. However, they are not available at the cost-based rates required by the Federal Act. In addition, many of those tariffs contain unacceptable resale and use restrictions. Thus, the fact that they are tariffed does not imply that they are unbundled. The tariffing of these elements does, however, prove the feasibility of their unbundling.

b. Unbundling Restrictions

Q. MAY GTE RESTRICT THE MANNER IN WHICH IT MAKES UNBUNDLED NETWORK ELEMENTS AVAILABLE?

A. No. These elements must be unbundled without restrictions. Under Section 251(c)(3) and §51.315 of the Rules, AT&T may "combine" unbundled network elements in any manner that is "technically feasible" to provide any "telecommunications service." Accordingly, GTE is not allowed to place any limitations on AT&T's ability to combine unbundled elements or to use them in conjunction with any technically compatible equipment. §51.315; Section V, ¶¶ 293-295, Commission Order. Nor is GTE permitted to impose restrictions based on the services that AT&T proposes to offer. §51.309; Section V, ¶ 292, Commission Order. Moreover, GTE must not place any limitations on AT&T's resale of unbundled elements.

Q. MAY GTE IMPOSE ADDITIONAL CHARGES FOR THE INTERCONNECTION OF CONTIGUOUS NETWORK ELEMENTS?

A. No. When GTE combines contiguous network elements for AT&T in the same manner as it interconnects such elements for its own purposes, it should not be permitted to impose an additional charge.

Q. AFTER AT&T PURCHASES A NETWORK ELEMENT FROM GTE, WHAT ARE GTE'S CONTINUING RESPONSIBILITIES IN REGARD TO THAT ELEMENT?

A. In purchasing unbundled network elements from GTE, AT&T is essentially purchasing the functionality of that element and not the element itself. Thus, GTE must not only provide the element but must also maintain it on behalf of AT&T. The cost of performing these services for AT&T should be figured into the cost of the element(s). In addition, electronic interfaces must be established to guide the exchange of information which will be required between AT&T and GTE in the provision and maintenance of the unbundled elements. See §51.313(c) of the Federal Rules.

III. OTHER TECHNICAL REQUIREMENTS

Q. YOU'VE DISCUSSED THE IMPORTANCE OF UNBUNDLING NETWORK ELEMENTS. ARE THERE OTHER TECHNICAL AND OPERATIONAL CAPABILITIES ESSENTIAL TO AT&T'S ABILITY TO OFFER COMPETITIVE LOCAL EXCHANGE SERVICES?

A. Yes, these include: Interconnection, Cooperative Practices, Number Portability, Collocation, Access to Number Resources, Access to Pathway Facilities, and Ancillary Services.

A. Interconnection

Q. WOULD YOU EXPLAIN WHAT YOU MEAN BY "INTERCONNECTION"?

A. Yes. Unless AT&T is able to connect its network to GTE's network, the two companies' customers will not be able to communicate with each other. AT&T, therefore, seeks carrier-to-carrier interconnection arrangements similar to those that have historically existed between GTE and other local exchange providers. Simply put, these arrangements allow all local exchange service customers, regardless of their service provider, to reach each other through the public switched network. This is also called co-carrier interconnection.

Q. CAN YOU BRIEFLY SUMMARIZE WHAT PHYSICAL INTERCONNECTION GTE HAS AGREED TO PROVIDE?

A. GTE has agreed to treat AT&T as a co-carrier and will exchange traffic as AT&T has requested. However, GTE has taken the position that rates for interconnection are per their access tariffs. This is unacceptable as these tariffs do not use cost based pricing.

Q. WHAT INTERCONNECTION ISSUES REMAIN TO BE ARBITRATED?

A. GTE must agree to establish meet points for interconnection and be responsible for the costs of constructing facilities up to that meet point.

Q. WHAT DOES THE FEDERAL RULES REQUIRE REGARDING INTERCONNECTION?

A. The FCC Rules identify the minimum points at which incumbent carriers like GTE must provide nondiscriminatory interconnection. These minimum technically feasible points of interconnection include:

(i) the line-side of a local switch;
(ii) the trunk-side of a local switch;
(iii) the trunk interconnection points for a tandem switch;
(iv) central office cross-connect points;
(v) out-of-band signaling transfer points and access call-related databases; and
(vi) the points of access to unbundled network elements as described in §51.319, §51.305(a).

A state Commission, can, however, impose further interconnection requirements. Section IV, ¶ 180, Commission Order. GTE is required to provide any technically feasible method of interconnection or access requested by AT&T, including physical collocation, virtual collocation, and interconnection at meet points. §51.321(b). Interconnection must be provided on the same terms and conditions as GTE provides to itself or another party, and must be of superior quality if requested by a new entrant and if technically feasible. Section IV, ¶¶ 218-225, Commission Order.

Q. CAN YOU CITE AN EXAMPLE OF A STATE THAT HAS RECENTLY RULED ON INTERCONNECTION ISSUES?

A. Yes. In a recent proceeding, the Colorado Public Utility Commission directed USWC to include points of interconnection at the Digital Signal Crossconnect Frames, Fiber Distribution Panels, Light Guide Crossconnect Panels, Digital Crossconnect Systems [DCS], and other Crossconnect points as defined by

industry standards. The Commission also required USWC to provide direct interconnection at the DS1 level when using an integrated loop carrier (IDLC). Docket No. 96S-233T, Decision No. C96-655, Colorado Public Utility Commission.

Iowa law, too, recognizes the importance of interconnection. H.F. 518 requires a LEC "to provide equal access to, and interconnection with, its facilities..." (§476.101(2)). IAC 199-38.3 provides that interconnection shall be at "any technically feasible point" and that interconnection shall be "equal in quality" to that provided to other carriers including itself.

In addition, in Oregon Order NO. 96-188, UM-351 (July 19,1996), on page 46 (e) the Commission required that interconnection carriers must also be allowed to cross-connect to the Integrated Digital Loop Carrier ("IDLC") and Remote Switching Device ("RSD").

B. Cooperative Practices

Q. PLEASE EXPLAIN THE "COOPERATIVE PRACTICES" AT&T NEEDS FROM GTE TO ENABLE IT TO COMPETE IN THE LOCAL MARKET?

A. Cooperative engineering, maintenance and provisioning procedures need to be established and implemented in such a manner that AT&T is not disadvantaged when it interconnects with GTE's network or resells GTE's services. Particularly in the early stages of the development of competition, AT&T will have to rely on

GTE's cooperation if AT&T wishes to provide seamless high quality service to its customers.

C. Number Portability

Q. WHAT IS "NUMBER PORTABILITY"?

A. "Number portability" is the ability of customers to keep their telephone numbers when changing service providers ("Service Provider Local Number Portability") or when moving to a different physical location ("Location Number Portability"). At issue here is Service Provider Local Number Portability.

Q. WHAT DOES THE FEDERAL ACT REQUIRE IN TERMS OF LOCAL NUMBER PORTABILITY?

A. Section 251(b)(2) imposes a duty on all LECs "to provide, to the extent technically feasible, number portability in accordance with the requirements prescribed by the Commission." Section 3(30) defines number portability as "the ability of users of telecommunications services to retain, at the same location, existing telecommunications numbers without impairment of quality, reliability, or convenience when switching from one telecommunications carrier to another." In addition, Section 251(e)(2) mandates that the cost of number portability "be borne by all telecommunications carriers on a competitively neutral basis as determined by the Commission." This requirement helps to ensure that no single category of telecommunications carriers will be competitively disadvantaged by bearing all or substantially all of the costs of number portability.

Q. IS NUMBER PORTABILITY NECESSARY FOR LOCAL COMPETITION TO DEVELOP?

A. Yes. Recent studies indicate that the vast majority of consumers who would otherwise consider changing local service providers would not do so if it means having to change their telephone number. This is particularly true of business customers, many of whom have spent a great deal of time and money communicating their phone number to their customers.

A true or "permanent" number portability solution is being developed under the direction of the FCC; however, implementation is not scheduled to begin until late 1997. The FCC's proposed rules on number portability which require incumbent carriers to "provide transitional measure, which may consist of Remote Call Forwarding (RCF), Flexible Direct Inward Dialing (DID), ***or any other comparable and technically feasible method*** (emphasis added), as soon as reasonably possible upon receipt of a specific request by another telecommunications carrier until such time as the LEC implements a long term database method for number portability in the area" further clarifies this obligation Section 52.7

Q. WHAT INTERIM NUMBER PORTABILITY SOLUTION IS AVAILABLE?

A. Currently, there are two predominant "interim" portability arrangements, remote call forwarding ("RCF") and flexible direct inward dialing ("Flex DID"). Route Indexing (portability hub and directory number) and Local Exchange Routing Guide ("LERG") are also available. However, while they offer some relief, for the reasons discussed below, local competition cannot fully develop under any of these interim arrangements.

1. Remote Call Forwarding

The RCF portability arrangement uses GTE end office features to forward to AT&T calls that have been placed to a number previously served by GTE. RCF places serious limitations on AT&T.

First, RCF requires all calls placed to these "ported" customers to be routed first to GTE's network, effectively keeping the incumbent monopoly in the path of calls to AT&T's customers. This seriously constrains the ability of AT&T to efficiently route and terminate calls and -- by requiring additional transport over incumbent facilities -- diminishes network reliability, transmission quality, and network maintenance capabilities, and increases post-dialing delay and costs of call completion. In addition, because RCF relies on number translation, RCF typically disables many custom local area signaling services ("CLASS") features. RCF's reliance on number translation also means that two North American Numbering Plan numbers are required for every "ported" customer, placing undue

strain on numbering resources and exacerbating number exhaust. Finally, RCF is of limited utility to many business customers with call center applications, because it limits the number of calls that may be placed simultaneously to a single "ported" number.

2. Direct Inward Dialing (DID)

DID limits AT&T in many of the same ways that RCF does. The DID arrangement provides portability by causing GTE's end office switch to treat AT&T's switch as if it were a private branch exchange connected to GTE's network. Like RCF, DID requires that calls be routed through the incumbent's network, thereby similarly diminishing network reliability, transmission quality, and network maintenance capabilities, and increasing post-dialing delay and the costs of call completion. Indeed, because DID requires that AT&T switches supporting "ported" customers be directly trunked to GTE end offices, it constrains engineering of new entrants to an even greater degree than RCF. Moreover, DID does not allow the calling party number to be delivered to AT&T's switch, preventing AT&T from providing vertical features such as Caller Identification to its customers.

3. Route Indexing

Route Indexing uses only a single telephone number, rather than two telephone numbers as required for Remote Call Forwarding. Calls to "ported" numbers using Route Indexing are coded to identify the carrier to whose switch the call should be directed for completion and are routed to that carrier through the incumbent carrier's tandem. Route Indexing is most useful for businesses with multiple lines operating from a private branch exchange ("PBX").

Route Indexing, like Remote Call Forwarding, relies on the bottleneck switching functions of the incumbent carrier and, accordingly, shares many of the same disadvantages of reduced quality service, lack of control over customer proprietary information, and recovery of access charges. However, Route Indexing, unlike Remote Call Forwarding, does not hasten number exhaust and does not substantially interfere with custom calling features because it uses only a single telephone number. Route Indexing nevertheless is, at best, another flawed number portability solution.

4. LERG Reassignment

Local Exchange Routing Guide ("LERG") Reassignment is similar to Route Indexing in that it allows the use of a single ported number. The LERG is the means by which carriers identify and route calls to the end office to which a specific telephone number has been assigned. The first three digits of a seven-digit telephone number (called an "NXX") identifies a block of 10,000 individual telephone numbers and is assigned by the regional North American Numbering

Plan Administrator to a specific local exchange carrier, which then assigns that NXX to a particular end office. LERG Reassignment simply reassigns all or a portion of an NXX to a different carrier or different end office. Rather than being directed first to the incumbent carrier's switch, as is the case with Remote Call Forwarding and Route Indexing, LERG Reassignment routes calls directly from the originating carrier to the carrier serving the called telephone number.

LERG Reassignment does not rely on call processing through the incumbent carrier's switch and thus does not suffer the same disadvantages of Remote Call Forwarding and Route Indexing. The problems with LERG Reassignment derive from its technical limitations. LERG Reassignment is currently used to deal with low volume network rearrangements rather than the potentially large volumes of service provider moves. The LERG is only updated monthly and requires all carriers to update the routing translations in all of their switches and tandems, which could lead to delays of a month or more before the new routing begins, as well as inconsistent routing during the transition period, which could result in service disruptions. Operational interfaces with GTE again would be needed to minimize out-of-service conditions for numbers ported through LERG Reassignment. Finally, the LERG ordinarily avoids splitting NXXs across different offices and allows such a split across no more than 10 offices, further limiting LERG Reassignment's usefulness as a local number portability solution.

Q. WHAT HAS GTE PROPOSED FOR LOCAL NUMBER PORTABILITY?

A. GTE offered a tariffed number portability solution using only DID and RCF stating the need to use their local number portability resources on the permanent number portability solution. In addition, GTE has refused to provide LERG reassignment, Directory Number Routing Indexing (DN-RI), or Route Indexing Portability Hub (RI-PH). Finally - with the exception of California - GTE has not agreed to update the Automatic Location Identification ("ALI") database with both ported and pseudo/phantom numbers to the Public Safety Answering Point. Regarding a long-term number portability solution, GTE has stated it will follow the FCC's requirements.

For the reasons just discussed, and because GTE's provision of these services is of lower quality than that it offers its own end users, this DID/RCF solution is not acceptable and is not consistent with the requirements of the Federal Rules. AT&T requires the availability of the additional comparable and technically feasible methods: route indexing and LERG reassignment. Further, because of this quality concern, and because GTE's proposal requires dependency upon GTE's network, it is imperative that GTE be given the incentive - through mutually agreed upon remedies - to move forward as quickly as possible with the LRN database long term solution to which GTE has also agreed.

Finally, GTE expects to collect all terminating access on ported numbers with interim RCF and DID even though the call's final termination point is the AT&T switch. This is unacceptable and anti-competitive.

Q. IS AT&T WILLING TO WAIT UNTIL TRUE SERVICE PROVIDER LOCAL NUMBER PORTABILITY IS AVAILABLE BEFORE OFFERING LOCAL EXCHANGE SERVICE?

A. No. The frequency and magnitude of anti-competitive practices and inefficient pricing related to interim solutions underscore the need for a forthright permanent number portability solution. Due to a number of factors, some states have only infrequently been able to establish fair and pro-competitive rates for interim portability arrangements. Such circumstances will unnecessarily impede potential competition in certain local exchange markets and stimulate incumbent local exchange carriers in other markets to seek similar barriers.

Q. CAN YOU CITE SPECIFIC COMMISSION DECISIONS SUPPORTING AT&T'S NUMBER PORTABILITY POSITION?

A. Yes. In a recent FCC proceeding involving the development of the LNP data base solution, the FCC concluded that establishing performance criteria for the incumbent carriers' number portability architecture would better serve the public interest than choosing a particular technology or specific architecture. See In the Matter of Number Portability, CC Docket 95-116 (June 27, 1996). The Commission determined that the establishment of criteria for long-term number

portability methods will ensure an appropriate level of national uniformity, while maintaining flexibility to accommodate innovation and improvement. Moreover, the deployment of a uniform number portability architecture nationwide will be important to the efficient functioning of the public switched telephone network and will reduce the costs of implementing number portability nationwide by allowing switch vendors to spread the costs of development over more customers. Finally, a uniform deployment will allow switch manufacturers to work toward a single standard, thus avoiding the situation where different manufacturers partition the market among different methods.

In addition to the FCC's number portability proceeding, the state of Colorado has adopted an interim number portability solution which supports AT&T's position on this issue. See Colorado Rule 4 CCR 723-34-6. Colorado also adopted LRN as the long term database standard for the State of Colorado.

Further, since the enactment of H.F. 518 which requires LECs to provide interim number portability (see Iowa Code §476.101(4)(a)(3) (1995 Supp.)), the Iowa Utilities Board has taken significant steps to assure the availability of cost based interim number portability in Docket No. RPU-95-10.

Q. WHAT PERFORMANCE CRITERIA DID THE FCC ESTABLISH IN THE PROCEEDING YOU MENTIONED?

A. The FCC adopted nine minimum criteria for number portability architecture. Pursuant to that criteria, number portability must:

(1) support existing network services, features, and capabilities;

(2) efficiently use numbering resources;

(3) not require end users to change their telecommunications numbers;

(4) not require telecommunications carriers to rely on databases, other network facilities, or services provided by other telecommunications carriers in order to route calls to the proper termination point;

(5) not result in unreasonable degradation in service quality or network reliability when implemented;

(6) not result in any degradation of service quality or network reliability when customers switch carriers;

(7) not result in a carrier having a proprietary interest;

(8) be able to accommodate location and service portability in the future; and,

(9) not have significant adverse impact outside the areas where number portability is deployed.

D. Collocation

Q. WHAT IS "COLLOCATION"?

A. Collocation is a method for implementing interconnection between carriers. Through physical collocation, an interconnecting carrier obtains dedicated space in GTE's Local Serving Office ("LSO"), or other GTE location, and places equipment in that space in order to interconnect with GTE's network. The term "collocation" also encompasses virtual collocation -- GTE's provision of resources necessary for the operation and economical use of collocated equipment.

Q. WHY HAS AT&T REQUESTED ARBITRATION ON COLLOCATION?

A. AT&T has requested arbitration on collocation issues mainly because GTE has, to date, not offered non discriminatory access with respect to its local operations in its locations. GTE believes it has a right to a five year reservation on space within these locations. In addition, GTE has restricted the type of telecommunications equipment that may be collocated and how AT&T may interconnect with other new entrants that happen to be collocated at the same GTE premises.

Q. PLEASE EXPLAIN THE DIFFERENT TYPES OF COLLOCATION.

A. With physical collocation, the interconnector rents physical space in an incumbent's Central Office ("CO") and places its own interconnection equipment therein. The rented space is typically surrounded by a fence-type cage to keep it separate from space occupied by either GTE or other interconnectors.

Choosing the type of equipment to be collocated and maintaining that equipment is the responsibility of the interconnector. GTE may restrict the interconnector's choice of equipment and/or its maintenance activities only if GTE can demonstrate that the interconnector is performing some unauthorized activity in its cage or poses a potentially significant threat to GTE's network security. Further, unless GTE can show that collocated space has been provided only for limited services, architectures or use, then a connecting carrier can and must be able to use the collocated space as efficiently as it deems necessary. In this manner, a collocating carrier has the flexibility to design a network architecture with the potential to provide service at the same or better quality than GTE.

With virtual collocation, a similar architecture is established, but with important differences in control and maintenance responsibilities. In a virtual collocation environment, no segregated CO space is rented by the interconnector. Rather, CO equipment is dedicated to the interconnector, but the responsibility for choosing and installing the location for the equipment and performing maintenance on it resides with GTE. This method is used when space constraints exist at GTE's premises.

Q. IN ADDITION TO PHYSICAL AND VIRTUAL COLLOCATION, ARE THERE OTHER MEANS USED TO INTERCONNECT GTE AND AN INTERCONNECTING CARRIER?

A. Yes. There are other types of interconnection where the actual point of interconnection is not in a CO. These are generally called "mid-span meets." In a mid-span meet arrangement, each carrier builds and is responsible for operating trunk facilities out to some agreed upon point between their two COs. Another way of thinking about this arrangement is that each carrier provides one half of the circuit. The carriers are then jointly responsible for traffic traversing the circuit. Because of the need for symmetry in the two carriers' responsibilities, this arrangement is typically restricted to generic trunk-to-trunk interconnection. Moreover, because mid-span meet interconnection requires cooperative trunk engineering and maintenance, it is commonly used between non-competing incumbent carriers for the exchange of local and toll trunk traffic.

Q. PLEASE EXPLAIN THE ADVANTAGES OF PHYSICAL COLLOCATION IN DEVELOPING LOCAL EXCHANGE COMPETITION.

A. There are numerous advantages to physical collocation. First, with physical collocation, the interconnector owns and controls all portions of the circuits linking GTE's CO to its distant network. Because of this, the interconnector has the ability to differentiate its service offerings in quality and type from competing GTE services. In addition, there is less opportunity for disputes with GTE over who is responsible for outages, improper maintenance or other service difficulties.

Second, the price structure associated with physical collocation, as compared to that associated with virtual collocation, is more likely to promote the development of competition. This is because flat rates for cage rental, and modest rates for connections, closely mirror GTE's own cost structure. In addition, because responsibility for use of the space and equipment rests with the interconnector, the interconnector has the incentive both to use the space and equipment efficiently and to seek increased demand for the services it provides through that interconnection.

Finally, physical collocation provides relatively greater security and privacy for an interconnector's equipment and services. Because this equipment is segregated/caged and serviced by the interconnector's own personnel, the possibility that it will be damaged by others is minimized.

In addition, close physical examination of the interconnector equipment could reveal proprietary information about services offered or customers served. Thus, because access to physically collocated equipment is limited to interconnector personnel, the possibilities for inappropriate collection of proprietary information by GTE or other interconnectors is minimized.

Q. ARE THERE CORRESPONDING DISADVANTAGES ASSOCIATED WITH VIRTUAL COLLOCATION?

A. Yes. First, while the technical efficiencies of virtual collocation can, in theory, match those of physical collocation, they will only do so if the equipment, engineering, installation, maintenance and service choices of GTE just happen to match those that would have been selected by the interconnector. This confluence of interests will not always occur.

Second, interconnector equipment is less secure under virtual collocation. Because the equipment is uncaged, it may be more prone to damage than caged equipment. Furthermore, the interconnector is dependent on GTE's call-out process and personnel to obtain service to rectify any damage that does occur. Because the interconnector has no right of access to GTE's CO, it cannot examine its equipment to determine whether damage is the result of improper maintenance or simple ordinary wear and tear.

Third, under virtual collocation, it is possible that pieces of interconnector equipment might not be placed contiguously. This difference becomes very important when service failures arise due to the inability of different pieces of equipment to work together properly. When a service failure occurs, the technicians must determine what equipment is at fault. Often, this determination is made by testing the responses of different pieces of equipment to different settings on other pieces of equipment. If all of the equipment is placed contiguously, a single technician may adjust the setting on one piece of equipment and observe directly the response generated on another interconnected piece of

equipment. If the equipment is dispersed throughout the CO, such a test could require coordinated inspections by multiple technicians, each observing physically separated pieces of equipment, and each reporting the results back to the other technicians. Clearly, the latter process is slower, more costly, and more prone to error.

Fourth, another relative disadvantage of virtual collocation relates to maintenance standards. Under current FCC rules governing virtual collocation, GTE need not maintain an interconnector's dedicated equipment at a standard higher than its own. Because of this, an interconnector may be precluded from offering services that are of higher quality than GTE's. For example, an interconnector may wish to offer a service that guarantees four hour reconfiguration of circuits. If GTE's standard interval for responding to service requests, however, is six hours, the interconnector is precluded from offering its customers a response faster than six hours.

Finally, perhaps the most troubling aspect of virtual collocation is that GTE is able to unfairly gain knowledge of an interconnector's innovative equipment or new service capabilities. GTE can examine the equipment to determine its capabilities and note which customer lines are set up to offer what services. In this manner, not only can GTE examine the interconnector's technology, it can also determine the level of customer demand that the interconnector expects for its different services. GTE may then unfairly use these advantages to imitate

interconnector services, more effectively target its marketing, or prepare other anti-competitive responses to its competitors' actions.

Q. ARE THERE ANY ADVANTAGES OF VIRTUAL COLLOCATION?

A. Yes. Some relatively positive aspects of virtual collocation may be that it places less responsibility on the interconnector and is a more efficient use of space in GTE CO space. These advantages could result in cost savings to GTE, and also ultimately to the interconnector, provided some of GTE's savings are passed on via reduced charges for virtual collocation services. Such lightened responsibility and reduced charges could ease the burdens of competitive entry faced by small scale interconnectors. However, in most cases the many negative aspects of virtual collocation, discussed above, outweigh the positive.

Q. WHAT CHARGES WILL GTE IMPOSE ON THE INTERCONNECTING CARRIER FOR PHYSICAL COLLOCATION?

A. The GTE existing tariff only offers virtual collocation at this time. The physical section expired in 1994. The following items represent what the expired rates in GTE's physical collocation tariff are. Foremost among them are recurring charges for rental of the CO space, the provision of DC power, and cable space. In addition, GTE also imposes nonrecurring charges for cable pull, office arrangement, and building modification. Beyond these charges, designed to recover the costs of providing cage real estate and environmental services, GTE also charges per loop, or per VG, DS1 and per DS3 "connection" charges for

connecting the interconnector's circuits that are terminated in the cage to GTE's facilities or connecting services in the CO or wire center or to other collocated carriers.

Q. PLEASE DESCRIBE HOW INCUMBENT CARRIERS HAVE USED PHYSICAL COLLOCATION IN THE PAST.

A. The method by which the incumbents traditionally interconnect with Interexchange Carriers ("IXCs") is via physical collocation. In those interconnection arrangements, the incumbent requires the IXC to grant the incumbent physical space at its Point of Presence ("POP") in order to terminate access circuits from the incumbent. The incumbent owns this access circuit termination equipment and has sole authority for its selection and maintenance. Furthermore, GTE's tariffs require the IXC to provide GTE's equipment with space, power, and other environmental services at no charge to GTE.

GTE also uses physical collocation to interconnect with its end users. Under those interconnection arrangements, GTE places a network interface box at the end user's premises, requires the end user to supply electrical power and maintains exclusive control over access to that box. As in the IXC context, GTE does not pay the end user for these collocation services.

Thus, physical collocation is not only familiar to GTE, but has in many circumstances been its preferred method of interconnection. Consequently, not

providing AT&T with the same opportunity to interconnect through physical collocation as GTE uses in provisioning its own services, or in interconnecting with noncompeting carriers, unfairly discriminates against AT&T.

Q. HOW DO THE FEDERAL ACT AND RULES ADDRESS COLLOCATION?

A. The Federal Act places a number of requirements on GTE which are intended to eliminate technical or structural barriers to entry. One such requirement is providing collocated space in GTE's facilities to a requesting interconnecting carrier. Section 251(c)(6) requires GTE to provide, on rates, terms, and conditions that are just, reasonable, and nondiscriminatory, physical collocation of equipment necessary for interconnection or access to unbundled network elements. This collocation must be at least equal in quality to that which GTE provides to itself or any other party. Section 251(c)(2) of Act; Section 51.305(a)(3) of Rules. GTE may, however, provide virtual collocation if it demonstrates to the appropriate State Commission that physical collocation is not technically feasible or not possible due to space limitations. Section 251(c)(6) of Act; Section 51.321(e) of Rules; Section VI, ¶¶ 549-550 of Commission Order. GTE may not, however, limit the type of equipment a new entrant collocates, and new entrants must be permitted to connect their collocated equipment to GTE's unbundled network elements and to interconnect their networks to other collocator's networks. Section VI, ¶¶ 579-580, 590-594, Commission Order.

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frames. In addition, transmission and switching maintenance centers, test centers, and alarm centers that were often collocated in the individual wire centers and central offices are now often remoted to distant combined network operations centers. All of the aforementioned has left a glut of floor space in many of GTE's wire centers and central offices which must be made available to new entrants under the Federal Act.

Q. HOW WOULD GTE DEMONSTRATE THAT ITS SPACE IS INADEQUATE TO ACCOMMODATE PHYSICAL COLLOCATION?

A. First, GTE must demonstrate that the equipment taking up space in the CO is actively used and not merely warehoused. Second, GTE must also demonstrate that there is no practical way of offering additional physical collocation through, for example, rearrangement of GTE equipment or leasing of additional space. Further, the Federal Rules require that GTE must submit detailed floor plans or diagrams to the state commissions of any premises that it argues is insufficient for physical collocation. Section 51.321(f).

Q. HOW SHOULD THE SPACE LIMITATION ISSUE BE ADDRESSED IN THIS ARBITRATION?

A. Space limitation is an industry question. Therefore, AT&T suggests that an inter-company panel be formed to resolve the issues at an industry-wide level.

Q. IF GTE IS UNABLE TO PROVIDE PHYSICAL COLLOCATION, HOW SHOULD IT ACCOMMODATE AN INTERCONNECTOR'S COLLOCATION NEEDS?

A. In the event physical collocation at the designated premises is genuinely not available, GTE should be required to provide virtual collocation arrangements. If neither physical nor virtual collocation arrangements are possible, GTE should provide, at no extra cost to AT&T, the necessary trunking to enable AT&T to connect to designated equipment in alternative facilities. In addition, to enable AT&T to get maximum utility from such alternative collocation arrangements, GTE should include, for initial space availability, space expansions, power delivery, network cabling and capacity expansions to meet cross-connect demand and circuit establishment intervals for cross-connects.

Q. HOW SHOULD THE TECHNICAL STANDARDS GOVERNING PHYSICAL COLLOCATION BE DEVELOPED?

A. As discussed above, physical collocation has been performed in a variety of circumstances across the industry over the years. As competing carriers now begin to interconnect, it is important that the terms of interconnection through physical collocation be clearly delineated. Fortunately, industry standards have already been developed to govern most, if not all, of the terms of interconnection in a physical collocation context. Reference to these industry standards will aid the resolution of conflicts arising regarding the physical collocation of competing carrier equipment. However, those standards are only a starting point. New

services are being offered and current services are being offered in innovative ways. Thus, the terms of physical collocation must be delineated anew.

Q. ARE THE TECHNICAL REQUIREMENTS REQUESTED BY AT&T AND OUTLINED IN THE INTERCONNECTION AGREEMENT CONSISTENT WITH EXISTING INDUSTRY STANDARDS?

A. Yes. These requirements actually derive from existing industry standards and from the Federal Act and Rules. Therefore, the majority of technical issues contested by GTE are in essence moot. In fact, as I mentioned before, many of the issues involved in the current dispute have already been considered in previous proceedings. It is important to note, however, that at the time the industry standards were adopted, there was no express statutory duty requiring GTE to offer physical or virtual collocation. Moreover, at that time, other interconnection rights of competing carriers were far more limited than they are under the Federal Act. Thus, while the experience of those proceedings can provide a useful starting point, the discussion of collocation issues must now be substantially broadened.

Q. HOW HAS GTE OBJECTED TO AT&T'S COLLOCATION PROPOSALS?

A. To date, GTE has refused to commit to allowing non discriminatory access to the placement of equipment in its buildings and controlled environmental vaults (CEVs). GTE believes it must only treat new entrants equally to each other, but

not equally to GTE , and believes that it may favor its own operations by reserving space for itself for five years. These notions are directly contrary to Section 51.323 of the Federal Rules.

While GTE has stated that it will offer physical collocation, it feels that the Federal Act does not provide clear direction on this issue and that network integrity may be compromised. In addition to claiming that there is insufficient power and floor space, and that it needs its own 5 year forecast, GTE is also attempting to restrict the types of network service providing equipment that AT&T can place in the physically collocated areas to channel terminating equipment. It refuses to allow switching equipment or digital crossconnect systems (DCS) even though the latter are considered by industry standards to be transmission and channel terminating equipment. Finally, interconnection facilities in the collocated area are limited to DS-0, DS-1, DS-3, and unbundled loops at access tariff prices. These strategies are directly contrary to the Federal Rules. One can only conclude that the real reason for these restrictions is to drive up the costs to GTE's competitors in order to obtain a competitive advantage, a strategy which is, of course, contrary to the competition promoting purposes of the Federal Act.

Q. WHAT TYPE OF EQUIPMENT SHOULD AT&T BE PERMITTED TO PLACE IN A PHYSICALLY COLLOCATED AREA?

A. A major advantage of physical collocation is that it enables the connecting carrier to make the most efficient use of its network and network equipment. For this reason, there should be no restrictions on the type of transmission, transmission support, digital loop carrier, digital loop carrier support, switching, or switching support equipment that is collocated, except of course that the equipment must meet the industry technical specifications. The Federal Rules confirm that no restrictions should exist. Section VI, ¶¶ 579-580, Commission Order.

Q. WHAT ACCESS TO THE PHYSICALLY COLLOCATED SPACE OR EQUIPMENT DOES AT&T REQUIRE?

A. AT&T needs access to collocated space or equipment twenty-four hours per day, 365 days per year. Moreover, if AT&T utilizes virtual collocation, the incumbent local exchange provider's employees that have access to collocated spaces or equipment should be certified by the equipment manufacturer and the new entrant to ensure that they meet desired network performance and quality standards.

Q. YOU MENTIONED THE FEDERAL ACT AND RULES SUPPORT AT&T'S POSITION REGARDING COLLOCATION. CAN YOU ALSO CITE A SPECIFIC STATE RULING WHICH SUPPORTS THAT POSITION?

A. Yes. Iowa law has recognized the importance of physical collocation to the development of local exchange competition. In Docket No. RPU-95-10, the Board recognized that the Federal Act requires physical collocation except where

it is technically not feasible and ordered that it be priced at ASIC without mark-up.

Colorado, too, requires providers to offer physical collocation, except where the Commission determines that it is not practical. See In the Matter of Proposed Rules Regarding Implementation of Sections 40-15-101 *et. seq*. Docket No. 95R-556T, Decision No. C96-347, Colorado Public Utility Commission March 29, 1996. In that proceeding, the Commission stated,

> "We find that this requirement will promote competition in the local exchange market, consistent with the intent of HB 1335, while affording a mechanism for an alternative in circumstances where the specific facts compel a different result." Id.

Furthermore, the Commission clarified that physical collocation should not be limited in the manner suggested by GTE.

> "USWC also suggested that collocation requirements be limited to equipment needed to terminate calls (e.g., circuit terminating). Notably, USWC interprets the Act's reference to 'equipment necessary for interconnection or access to unbundled network elements' as restrictive provisions. We clarify that the rule is not intended to limit collocation in the manner suggested by USWC. We agree with the comments by the new entrants that USWC's proposed limitations upon the type of equipment which may be collocated may substantially impair the ability of new providers to compete. This result would be contrary to HB 1335 and the Act.". Id.

E. Access to Number Resources

Q. WHAT NUMBERING RESOURCES DOES AT&T NEED?

A. AT&T, like all providers of local exchange service, needs telephone numbers to assign to its customers. It should have the same access to those resources as GTE has so it can provide its customers with the same access to and choice of numbers that GTE customers enjoy.

Q. HOW DOES THE FEDERAL ACT AND RULES ADDRESS ACCESS TO NUMBER RESOURCES?

A. The Federal Act imposes a duty on all local exchange carriers to permit competing providers "to have nondiscriminatory access to telephone numbers." Section 251(b)(3). The Federal Rules interpret this requirement to permit "competing providers access to telephone numbers that is identical to the access the LEC provides itself."

F. Access to Pathway Facilities

Q. HOW DOES ACCESS TO PATHWAY FACILITIES IMPACT EMERGING COMPETITION IN THE LOCAL EXCHANGE MARKET?

A. If the competitive market for local exchange telecommunications services is to develop beyond the resale stage, new entrants to the local exchange telecommunications marketplace must be able to deploy their own facilities. In order to do so, however, they must have access to GTE's pathway facilities at nondiscriminatory cost-based rates. These pathways include utility poles, conduit, ducts and rights-of-way.

Q. WHAT ARE RIGHTS-OF-WAY?

A. A right-of-way is the right to place poles, conduits, cables, or other equipment on the property of another, as well as to obtain physical access to that equipment. A right-of-way may run under, to, on, or above public or private property (including air space), and may include the right to use discrete spaces in buildings or at other locations.

Q. WHAT ARE POLE ATTACHMENTS AND WHAT FUNCTION DO THEY PERFORM?

A. Pole attachments are the connection of facilities, such as mechanical hardware, grounding and transmission cable, and equipment boxes, to a utility pole. Currently, most poles are owned and maintained by monopoly telecommunications providers. In some cases, they are jointly owned by telecommunications and electric utilities.

Q. WHAT ARE CONDUITS AND DUCTS AND WHAT FUNCTION DO THEY PERFORM?

A. Conduit is protected tubing or piping used to house communications or electrical cables. It can be either above or below ground and may contain one or more inner ducts. Conduit systems are found within buildings, under road and rail crossings, under rivers and streams, and in other locations where repeated excavation for

maintenance or replacement of cable facilities is not desirable or where added protection for the cables is needed.

Q. WHY DOES AT&T NEED ACCESS TO GTE'S PATHWAY FACILITIES?

A. As a monopoly provider of telecommunications services, GTE has been able to obtain access to the public and private pathways necessary for its construction of critical network facilities. In fact, it has had decades in which to accumulate these pathways. Moreover, because they are a limited resource, by virtue of the finite amount of space available as well as limitations on the extent that local governing authorities and residents are willing to tolerate the inconveniences and intrusions that constructing and accessing these pathways can cause, these pathways are a limited resource. For these reasons, AT&T often has no alternative but to use GTE's pathways.

For example, in many areas GTE owns and maintains riser-cabling (cables which connect floors and rooms inside a large building). The denial of access to these facilities will make it literally impossible to serve large blocks of customers except through resale of GTE's services. Similarly, GTE can effectively deny access to customers located in multiple dwelling units ("MDUs"), such as condominiums or apartment complexes, by refusing to provide AT&T space in the GTE equipment room located in that building.

Q. WHAT ACCESS TO THESE PATHWAY FACILITIES HAS AT&T REQUESTED?

A. AT&T proposes contract terms and conditions under which it can obtain nondiscriminatory access to GTE's pathway facilities on the same terms and conditions as GTE applies to itself. In addition, procedures for requesting and providing the necessary facilities, including ordering, price quotations, provision of maps and prints, and installation and testing of facilities, must be established in the contract. AT&T's proposal for these procedures are set forth in of AT&T's proposed Interconnection Agreement attached to AT&T's Petition.

Q. WHY MUST GTE'S CHARGES FOR ACCESS TO PATHWAY FACILITIES BE COST-BASED?

A. Not only can GTE impede competitive development by restricting physical access to its facilities, it can also do so by imposing unreasonable access rates. Therefore, GTE must be required to price access to pathway facilities at cost-based, nondiscriminatory rates.

Q. WHAT HAS GTE PROPOSED WITH RESPECT TO THIS ACCESS?

A. GTE has informed AT&T that, while it will lease interduct and poles, it will not lease conduit or an entire duct. Furthermore, it will not do so until it has satisfied its own needs based on its own five (5) year forecast and will not do so on a nondiscriminatory basis wherein AT&T is treated equally with GTE' s own operations. GTE also would not agree to controlled environmental vaults or

Rights-of-Way (ROW). GTE further believes it is not required to augment conduit for new entrants even though the Act specifically excludes only electrical utilities from augmentation.

Q. WHAT DOES THE FEDERAL ACT AND FEDERAL RULES PROVIDE REGARDING ACCESS TO PATHWAY FACILITIES?

A. Section 251(b)(4) imposes upon GTE the "duty to afford access to the poles, ducts, conduits, and rights-of-way of such carrier to competing providers of telecommunications services on rates, terms, and conditions that are consistent with section 224." Section 224, which predates the enactment of the Federal Act, states that the Commission "shall regulate the rates, terms, and conditions for pole attachments to provide that such rates, terms, and conditions are just and reasonable, and shall adopt procedures necessary and appropriate to hear and resolve complaints concerning such rates, terms, and conditions." Thus, although section 224 required GTE's rates, terms, and conditions to be just and reasonable, it did not require GTE to provide access to poles, ducts, conduits and rights-of-way. Clearly then, in enacting the Federal Act, Congress intended to broaden the incumbent's responsibility, obligating them to provide access to pathway facilities.

The Commission, in its Rules, recognized the necessity of accommodating requests for access but did not enumerate specific Rules beyond those in the Act. Section XI.B, ¶¶ 1123, 1143.

Q. HAVE ANY STATE COMMISSIONS CONSIDERED THIS ISSUE?

A. Yes. In a recent proceeding, the Colorado Commission held that all telecommunications providers must provide reasonable access to poles, ducts, conduits, and rights of way when feasible and when access is necessary for other telecommunications providers to provide service. See In the Matter of Proposed Rules Regarding Implementation of Sections 40-15-101 et. seq., Docket No. 95R-556T, Decision No. C96-347. (March 29, 1996).

In addition, in Oregon Order NO. 96-188, UM-351 (July, 1996), the Commission ordered that "interconnection may still take place at locations other than a central office. For example, a customer could request the placement of a virtually collocated piece of equipment at a LEC's controlled environmental vault [CEV].

G. Ancillary Services

Q. WHAT ARE "ANCILLARY SERVICES"?

A. Ancillary services are services which are not technically fundamental to the provision of local exchange service but are fundamental in the opinion of local customers. These are services that customers have come to expect as a normal part of receiving phone service.

Q. WHAT ANCILLARY SERVICES HAS AT&T REQUESTED THAT GTE SUPPLY?

A. AT&T requests that GTE provide the following ancillary services: (1) White and Yellow Pages customer listings for AT&T customers; (2) AT&T customers' opportunity to place Yellow Pages advertisements; (3) Provision of Directories to AT&T customers; (4) AT&T branding in information pages (or customer provide) sections of the White and Yellow Page directories (to the extent such branding is enjoyed by GTE); (5) AT&T customers' access to, and inclusion in, Directory Assistance; (6) access to 9-1-1 emergency service; and (7) Busy Line Verification and Busy Line Interrupt Services.

Q. WHAT DOES AT&T REQUEST FROM GTE IN THE PROVISION OF THESE SERVICES?

A. All telecommunications customers expect to receive each of the above listed services. This expectation should continue to be satisfied, regardless of who that customer has chosen for its carrier. Additionally, those services should be provided to AT&T's customers at rates and conditions identical to the rates and conditions under which GTE provides such services to its own customers.

Q. HAS AN INCUMBENT CARRIER'S PROVISION OF THE ANCILLARY SERVICES REQUESTED BY AT&T BEEN DISCUSSED IN OTHER PROCEEDINGS?

A. Yes. In fact, U S WEST Communications agreed by stipulation to provide these services in Oregon. See Stipulation, In re Application of ELI, MFS and MCI for Certificate of Authority, CP 1, CP 14, CP 15, Public Utility Commission of

Oregon (January 12, 1996). In addition, after considering the issue, both this Commission and the Iowa Board have required U S WEST to provide these services. See Washington Docket No. UT-941464, 4th Supplemental Order, (August 31, 1995.) See also IUB Order, Docket No. RMU-95-5 (April 5, 1996). Thus, not only has this issue been considered in other proceedings, it has also been resolved in those proceedings in a manner consistent with the requests made in this arbitration by AT&T.

III. SERVICE PERFORMANCE STANDARDS

Q. WHAT ARE SERVICE PERFORMANCE STANDARDS?

A. Service performance standards typically focus on timeliness and accuracy, including how long it takes to complete a specific service and the action, mistakes, and errors committed in executing it. For example, a timeliness performance standard could measure how long it takes a customer to reach an operator, how long it takes to complete a repair once it has been reported, and how long it takes for an electronic system-to system validation of a credit card. Accuracy performance standards could measure the number of bills that have the correct charges, the number of correct customer records in a database, and the number of Severely Errored Seconds on a digital facility during a 24 hour period.

Q. IS AT&T REQUESTING THAT THIS COMMISSION ARBITRATE THE ISSUE OF PERFORMANCE STANDARDS?

A. No, not at this time. AT&T initially requested from GTE the inclusion of performance standards in the comprehensive interconnection agreement between AT&T and GTE. Over the course of negotiations, as in all major business negotiations, compromises were made with the expectation of reaching a final agreement. One such area of compromise between AT&T and GTE was the DMOQ performance standards. AT&T and GTE agreed to a somewhat different approach than that originally proposed by AT&T. The parties agreed to develop and deploy mutually beneficial network performance standards, quality measures and approaches for key processes between AT&T's retail and GTE's wholesale operations. AT&T proposes to conclude an agreement with GTE on these performance standards, quality measures and approaches by September 1, 1996. Absent such agreement by that date, AT&T will pursue in these proceedings a direction to incorporate in the arbitrated interconnection agreement AT&T's proposed performance standards.

Q. CAN YOU PLEASE DESCRIBE THE PERFORMANCE STANDARDS MORE FULLY SO THAT THE COMMISSION HAS ALL NECESSARY INFORMATION?

A. Yes. Following is additional information on these performance standards.

Q. HOW ARE THESE PERFORMANCE STANDARDS USED TO DETERMINE IF A PARTICULAR PROCESS OR SERVICE IS PERFORMED ADEQUATELY?

A. The standards have specific objectives that serve as a benchmark for performance expectations. The objectives are based on customer expectations, the specific process or service performance that is being targeted, feasibility of achieving the objectives, and financial considerations. Objectives can change over time. For example, as customer expectations change and technology improves, objectives typically become more stringent.

Q. COULD YOU GIVE SOME EXAMPLES OF HOW THESE PERFORMANCE STANDARDS ARE USED?

A. They are used within an organization or company to gauge how well the company is providing service and meeting customer expectations. They are also used between companies to establish a common understanding of expectations for contracted service. In addition, end users may issue Requests for Proposals ("RFPs") for corporate telecommunications networks which specify certain performance standards for service availability, provisioning, and maintenance, with associated penalties or compensation that would apply if those standards were not achieved.

Most companies that have reputations for providing quality products and services have recognized that performance standards are a critical ingredient to a broader internal quality program that determines and tracks what characterizes satisfactory performance based on incorporating customer requirements. For example, AT&T has extensive experience in addressing product quality by establishing objectives

using statistical sampling and tracking. AT&T refers to performance standards as Direct Measures of Quality ("DMOQs").

Q. SHOULD TRADITIONAL MEASURES OF PERFORMANCE LEVELS AND OBJECTIVES FOR LOCAL EXCHANGE SERVICE CONTINUE TO BE USED AS A BENCHMARK FOR QUALITY?

A. No. Customer expectations and satisfaction criteria continually evolve. In today's environment a customer does not just assess the performance of a product or service. That customer also weighs the satisfaction experienced when interfacing with a vendor's personnel and interacting with its operational processes. Competition within an industry in which there is some degree of differentiation available affords the customer an opportunity to influence the quality of products, services, and the customer experience by choosing those that come closest to their expectations. In addition, customer expectations are shaped by choices available from various vendors within an industry and also by experiences with vendors in dissimilar industries. A customer's expectations for what should be the standard for problem resolution may be formulated by experience in dealing with a particular department store.

Likewise, the standard for determining the current status of a contracted for service may be formed by experience with Federal Express' ability to track packages. In a competitive environment, this cross-pollination of experiences and expectations among vendors within an industry and across industries serves as a

catalyst for the continuous improvement of the quality of specific products and services as well as the satisfaction customers experience. A good example of cross-pollination of quality metrics and expectations is the "six sigma" quality levels for product performance initiated by Motorola. In the manufacturing environment, "six sigma" equates to a product defect rate of 3.2 parts per million. While this was initially viewed as a very difficult target to achieve it served as a rallying point for quality initiatives within the company. Soon, "six-sigma" quality levels were routinely being achieved and more stringent quality objectives were then set. Motorola also began using "six-sigma" quality metrics with its various vendors, including telecommunications providers. The 3.2 parts per million concept was applied to the availability and quality of Motorola's voice and data network. Subsequently, AT&T also adopted the "six-sigma" quality objective as a benchmark for completion of switched calls and for nationwide transport facility availability.

Q. ARE THESE PERFORMANCE STANDARDS PERTINENT TO AT&T'S PROVISION OF LOCAL EXCHANGE SERVICE?

A. Of course. Without them, it would be impossible to monitor and manage the customer experience process which is critical to achieving customer satisfaction and business goals. Performance standards provide the means to set objectives, track performance, and provide the necessary insight for corrective action and future decision making.

Q. HOW SHOULD THESE PERFORMANCE STANDARDS BE IMPLEMENTED TO TRACK GTE'S PERFORMANCE OF TECHNICAL INTERCONNECTION REQUIREMENTS?

A. They may be used to measure operations GTE performs on behalf of AT&T as a well as to measure the quality of interfaces between AT&T and GTE. These standards may also be used to measure the technical performance of a GTE service. In general, these standards will provide AT&T with the ability to monitor GTE's service as a vendor to AT&T. Then, in turn, these performance standards will enable AT&T to meet the expectations of its own customers.

Q. ARE DMOQs CONSISTENT WITH THE INTENT OF THE FEDERAL ACT?

A. The Federal Act requires the incumbent Local Exchange Company to provide service to an alternative local exchange company that is at least equal in quality to that provided by the local exchange carrier on behalf of itself. DMOQs will establish, track and enforce that standard.

Moreover, the underlying policy of the Federal Act is to foster competition, ultimately providing customers with more choices, greater value, and improved quality of service. Through DMOQs, all parties will be able to measure that improvement.

Q. DOES GTE CURRENTLY USE DMOQs?

A. GTE uses its own measurements to monitor quality and customer satisfaction. However, these measurements or statistics provide only a small subset of the type of metrics which must be established to track, monitor, and manage products and services to ensure customer satisfaction.

IV. CONCLUSION

Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS.

A. This Commission should adopt AT&T's proposed Interconnection Agreement which requires that twelve network elements be unbundled and provides penalties for failing to do so. In addition, GTE should not be permitted to restrict AT&T's access to those elements or AT&T's ability to order them in combinations. Further, GTE must provide the other technical capabilities I discussed that are critical to AT&T's provision of competitive local service. Finally, DMOQs must be implemented to assure that consumers receive high quality services.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.