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SOUTHWESTERN BELL TELEPHONE, L.P. D/B/A

SBC MISSOURI

CASE NO. TO-2004-0207

DIRECT TESTIMONY

OF

J. GARY SMITH

ST. LOUIS, MISSOURI
January 12, 2004

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of a Commission Inquiry into the Possibility of Impairment without Unbundled Local Circuit Switching When Serving the Mass Market	))))	Case No. TO-2004-0207

AFFIDAVIT OF J. GARY SMITH

STATE OF TEXAS)

COUNTY OF COLLIN)

I, J. Gary Smith, of lawful age, being duly sworn, depose and state:

1. My name is J. Gary Smith. I am presently a consultant to SBC Management Services, L.P.

2. Attached hereto and made a part hereof for all purposes is my Direct Testimony.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct to the best of my knowledge and belief.

J. Gary Smith

Subscribed and sworn to before me this 9 day of January, 2004.

Notary Public

My Commission Expires: June 19, 2004

LISA L. WALLACE
MY COMMISSION EXPIRES
June 19, 2004

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I. INTRODUCTION

A. WITNESS QUALIFICATION AND PURPOSE OF TESTIMONY

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is J. Gary Smith. My address is 8129 Lynores Way, Plano, Texas 75025.

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

A. I am an independent consultant working for Southwestern Bell Telephone, L.P. d/b/a SBC Missouri ("SBC Missouri").

Q. WHAT IS YOUR TELECOMMUNICATIONS EXPERIENCE?

A. Since November of 2001, I have owned and managed my own competitive analysis and regulatory consulting business in Dallas, Texas. Before then, I was employed by Southwestern Bell Telephone Company ("Southwestern Bell") from December 1977 through November 2001. From 1992 until 2001, I worked as Area Manager - Competitive Analysis. In this position, I was responsible for preparing competitor profiles, evaluating product and revenue impacts from competitive losses, advising management on strategic and policy issues raised by competitive activities, and providing analysis and testimony on competitive entry in Kansas, Arkansas, California and other SBC states. In that capacity, I examined and investigated the ways in which competing carriers developed their networks and provisioned services to their customers, including among other things dedicated transport and high-capacity loops. As part of these efforts, I spent time in the field observing competing carriers' network facilities, including identifying the location of competing carriers' fiber transport routes. Prior to my

experience in competitive analysis, I served as Area Manager - Long Range Technical Planning for Southwestern Bell. In this capacity, I was responsible for long-range planning and cost study analysis for interoffice transport facilities, which included determinations regarding the placement of fiber optic facilities between Southwestern Bell offices. I also worked as Network Supervisor – Outside Plant Construction, overseeing the underground and aerial installation of fiber and copper cable.

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. I will address SBC Missouri's showing that there is no impairment, and thus no basis for unbundling of dedicated transport, with respect to the dedicated transport routes identified in Schedule JGS-10THC and Schedule JGS-13THC. The Federal Communications Commission's ("FCC's") *Triennial Review Order*[1] directs state commissions to assess impairment for certain dedicated transport "routes" of incumbent local exchange carriers ("incumbent LECs" or "ILECs") such as SBC Missouri. The FCC's order establishes three alternative methods to show non-impairment: (1) a "self-provisioning trigger" based on existing transport facilities that competing providers use to serve their own customers; (2) a "wholesale trigger" based on existing facilities that competing providers offer to other carriers; and (3) a "potential deployment" analysis, which considers existing facilities and local engineering factors to determine whether carriers would not be impaired without unbundled access.

[1] In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, CC Docket No. 01-338, Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, CC Docket No. 96-98, Deployment of Wireline Services Offering Advanced Telecommunications Capability, CC Docket No. 98-147 (FCC 03-36), rel. August 21, 2003 ("*Triennial Review Order*").

In this testimony, I address the transport routes along which carriers are not impaired without access to unbundled dedicated transport. I demonstrate non-impairment with respect to DS-3 and dark fiber transport based on the self-provisioning trigger for 30 routes, which are listed on Schedule JGS-10THC. My testimony also demonstrates non-impairment with respect to DS-1, DS-3 and dark fiber transport based on the wholesale trigger for 43 transport routes, which are listed in Schedule JGS-13THC.

In addition, I discuss the potential deployment analysis established by the FCC for dedicated transport. There is a significant amount of competitive deployment of transport facilities in Missouri, which is a key factor in the FCC's potential deployment analysis. For one or more of the routes identified in Schedule JGS-10THC or Schedule JGS-13THC, a carrier or carriers could admit that they have established transport facilities, but contend that they are not actively providing transport service for their own end users or to other carriers along those routes. I show below that these routes nonetheless satisfy the FCC's potential deployment analysis.[2]

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. In Section I.B, I provide background information about dedicated transport and generally describe the development and extent of competitive transport facilities. Next, I discuss, in Section I.C, the pertinent provisions of the FCC's *Triennial Review Order*. In Section II, I apply the FCC's "triggers" for self-provisioned and wholesale transport

[2] SBC Missouri is not seeking a non-impairment determination at this time based on potential deployment for any routes not already identified in Schedule JGS-10THC or Schedule JGS-13THC.

(which are based on existing competitive facilities). I then discuss the FCC's analysis of potential deployment in Section III. Overall, I describe the evidence of competitive facilities that I considered, and demonstrate that such evidence demonstrates "non-impairment" for the dedicated transport routes I identify.

B. BACKGROUND

Q. WHAT IS DEDICATED TRANSPORT?

A. Dedicated transport facilities connect two points within a communications network, so that information can be transmitted between those two points. "Dedicated" transport means that all or part of the transport facilities are dedicated to a particular carrier or use.

Q. HOW ARE TRANSPORT FACILITIES CLASSIFIED?

A. Transport facilities are classified by the capacity of traffic they can carry. The basic building block of interoffice transport is the "DS-1" transmission level, which is equivalent to 24 voice-grade circuits (a voice-grade circuit is equivalent to a "DS-0" level circuit). A group of 28 DS-1 circuits (or "channels") forms a DS-3 level channel. DS-3 channels are typically the highest level of electrical signal processing deployed in SBC Missouri's network. To achieve higher capacity and greater efficiencies over longer distances, dedicated transport is generally provided over transmission facilities that use fiber optic cables. Fiber optic transmission systems use components, such as multiplexers and lasers, that are capable of transmitting digital signals as pulses of lightwave energy at very high transmission speeds. These components are sometimes

referred to as "optronics."[3] SONET-based optical fiber transmission systems are often described as "OC-n" facilities, with "OC" standing for "Optical Carrier" and the "n" serving as a placeholder for the applicable transmission level. For example, an OC-3 can carry three DS-3s of traffic (or 2,016 DS-0s), an OC-12 can carry 12 DS-3s, an OC-48 can carry 48 DS-3s, and an OC-192 can carry 192 DS-3s (the equivalent of over 129,000 voice-grade circuits).[4]

Once a fiber optic system is deployed, it can be "channelized" into separate DS-1, DS-3, and higher level channels that operate simultaneously. The amount of total capacity, and the number and capacity of the different channels, can be determined simply by adjusting the optronic equipment connected to the fiber. Optronic equipment is commercially available and provides a tremendous range of transmission speeds and bandwidth options. Adjusting such equipment to provide additional services is relatively inexpensive compared to the total cost of constructing fiber optic facilities.

Q. HOW DOES SBC USE DEDICATED TRANSPORT WITHIN ITS OWN NETWORK?

A. SBC Missouri's network architecture has traditionally used "central offices" (also known as "end offices" or "wire centers") which link end users in a given area to the network, and "tandem" offices, which connect central offices. Dedicated transport facilities run

[3] Although various other telecommunications technologies are used by carriers and other entities to provide high speed telecommunications transport (e.g., microwave radio, infrared point-to-point laser and satellite transmission), my testimony focuses on dedicated transport provided over fiber optics.
[4] The acronym "SONET" means Synchronous Optical Network, and it is an ANSI standard for transmission over fiber optics.

between SBC's central offices, between central offices and tandem offices, and between tandem offices. Such transport facilities are generally referred to as "interoffice transmission facilities" because they connect two of SBC Missouri's offices. Schedule JGS-1T provides an example of dedicated transport in SBC Missouri's network.

Q. WHAT IS "DARK" FIBER?

A. Dark fiber is fiber optic cable (or fiber strands within an existing fiber optic cable) deployed between two points. It is regarded as "dark" because the cable, or some of the fiber strands in the cable, have not been activated, or "lit," by optronic equipment on either end of the fiber (which would otherwise permit transmission of information in the form of lightwave pulses). In SBC Missouri's network, dark fiber *transport* is unlit fiber cable (or strands) between two SBC Missouri central offices; a dark fiber *loop* (which I discuss in separate testimony on high-capacity loops) is unlit fiber between a customer's location and an SBC Missouri central office.

Q. HAVE CARRIERS OTHER THAN SBC MISSOURI DEPLOYED TRANSPORT FACILITIES?

A. Yes. In its *Triennial Review Order*, the FCC determined that the record before it indicated that "competing carriers have deployed significant amounts of fiber transport facilities to serve local markets."[5] Its conclusion was amply supported by the record. Indeed, the FCC noted a 2002 report prepared by the Association for Local Telecommunications Services ("ALTS"), an industry organization comprised primarily

[5] *Triennial Review Order*, ¶ 378.

of CLECs, estimated that CLECs had deployed over 339,500 fiber route-miles.[6] Additionally, the record before the FCC demonstrated that "much of this deployment has occurred in more densely populated areas."[7]

There has been significant growth in competitive fiber over the last 20 years, and in particular since the federal Telecommunications Act of 1996 ("the 1996 Act"). The increase in competition in the long distance market following the 1984 divestiture of AT&T led to the development of several competing fiber networks, and to the expansion of transport facilities between and within those networks. The increase in local competition under the 1996 Act led to the emergence of still more fiber networks, and increased traffic brought about by that competition led to the expansion of existing networks as well. Between 1999 and 2002, in the 150 largest metropolitan statistical areas ("MSAs"), the number of fiber networks increased from approximately 1,100 to nearly 1,800.[8]

Q. HAVE COMPETING CARRIERS DEPLOYED TRANSPORT FACILITIES IN MISSOURI?

A. Yes. Competing carriers have deployed fiber optic transport facilities extensively in Missouri. They include carriers who "self-provision" fiber transport to carry their own traffic, wholesale providers who offer transport services to other carriers, and carriers who use fiber transport facilities for both self-provisioning and wholesale purposes.

[6] *Triennial Review Order*, ¶ 378 & n. 1158.
[7] *Triennial Review Order*, ¶ 378.
[8] UNE Fact Report, III-6 and III-7.

Schedule JGS-2T lists the principal competing providers in Missouri. As I will discuss in more detail in sections II and III of this testimony, these carriers have extensively deployed fiber optic facilities, particularly in urban and suburban high-density areas. They provide a wide range of high capacity, fiber-based transmission services and they serve a variety of customers, including other carriers and "enterprise" business customers.

Schedule JGS-3T graphically depicts the extent of fiber transport facilities in the Kansas City and St. Louis LATAs. The red lines represent fiber optic networks deployed by SBC's competitors. The colored symbols denote SBC Missouri central offices to which competing networks have connected their own transport facilities via "fiber-based collocation" which I describe below. Clearly, there is already a robust infrastructure in place, with several competing providers and competing fiber routes that cover much of the Kansas City and St. Louis areas.[9]

Q. DO THE TRANSPORT FACILITIES OF COMPETING PROVIDERS FOLLOW THE SAME PHYSICAL PATHS AS SBC MISSOURI'S NETWORK?

A. No. Competing carriers generally design their own network routes, although there is a certain amount of overlap between their networks and SBC Missouri's network, especially in urban and suburban areas. As I discussed above, SBC Missouri's interoffice

[9] The information used to prepare this map was obtained from two independent third parties, GeoResults and GeoTel, which provide information to assist telecommunications carriers and other buyers and sellers of fiber optic equipment and facilities. These companies are described in more detail in my separate testimony on High-Capacity Loops.

transport network was originally designed to carry traffic between SBC Missouri's central and tandem offices. On the other hand, competing carriers and wholesale providers have developed their own business plans and have deployed their fiber facilities to meet those needs and to serve their customers. In addition, competing carriers determine their own locations for aggregating traffic in a particular area, which are typically called points-of-presence ("POPs"), "hubs" or "gateways."[10] Thus, competing carriers do not duplicate SBC Missouri's central offices or wire centers, nor do they parallel SBC Missouri's transport routes, nor do they design their own routes entirely around SBC Missouri's central offices. For example, the website for Xspedius Communications LLC ("Xspedius") indicates that by "[a]dding e.spire to the fold," it has deployed a fiber optic network comprised of "more than 3,500 route miles of fiber[,]" in key metropolitan areas including Kansas City.[11] Another example is LightCore (formed by CenturyTel, Inc. ("CenturyTel"), headquartered in Chesterfield, Missouri, which has deployed fiber facilities in St. Louis, and lists on its website that it has more than 7,000 miles of fiber and 100 points-of-presence.[12]

Q. HOW DO COMPETING CARRIERS AND PROVIDERS OF WHOLESALE TRANSPORT SERVICES CONNECT THEIR TRANSPORT FACILITIES TO SBC MISSOURI'S NETWORK?

[10] The POP usually is the location where the carrier has installed its switch or router. The POP can be at a building owned or leased by the carrier, or at some other location designated by the carrier, such as at a carrier "hotel," which I describe below. Generally, POPs or "hubs" are locations where the carrier aggregates traffic from several other locations for routing to other locations, or access to backbone facilities, such as an inter-city or long haul network.
[11] See, Schedule JGS-4T.
[12] See, Schedule JGS-5T.

A. This can be accomplished in several ways. Many carriers use physical or virtual collocation of their transmission equipment in SBC Missouri's central offices. The carrier uses that transmission equipment to aggregate its traffic from the SBC Missouri central office location for transmission or "backhaul" to its hub or POP over an "entrance facility." Competing carriers often deploy their networks as a series of interconnected fiber "rings," each circling a different metropolitan area. The rings are connected to each other by "backbone" facilities. There are typically one or more hubs or POPs on each fiber ring. Where the carrier has deployed a collocation arrangement in SBC Missouri's central office, these hubs or POPs are connected to the collocation arrangement via "entrance facilities." Once traffic reaches the carrier's hub, it can generally be transported to any other point that is on or connected to that carrier's network.

Q. WHAT TYPES OF ENTRANCE FACILITIES ARE USED TO CONNECT POPS OR HUBS TO COLLOCATION ARRANGEMENTS?

A. There are several options. First, the collocating competing carrier may choose to provide its own entrance facility using a fiber optic cable. For example, the carrier can route its fiber optic cable to the nearest designated manhole outside SBC Missouri's central office. The fiber cable is then routed through the central office cable vault (which is also where SBC Missouri's own fiber and other cables enter the central office building). SBC Missouri then pulls the competing carrier's fiber into the cable vault and routes the fiber cable up to the carrier collocation space. A collocation arrangement that is "fed" with a competing carrier-provided fiber optic cable as its entrance facility is referred to as a

"fiber-based collocation." Schedule JGS-6T illustrates a typical fiber-based collocation arrangement.

Second, a collocated carrier may obtain the entrance facility from another competing carrier, such as a wholesale transport provider or "wholesaler." In that situation, the wholesaler routes its fiber to SBC Missouri's manhole to be pulled to the collocating carrier's collocation arrangement.

Third, a collocated carrier may interconnect with other collocated carriers in the same central office through a "collocation-to-collocation" connection. This enables the connected carriers to obtain transport services from each other (*e.g.,* carriers may lease each other's capacity, or make other arrangements such as transport capacity contracts or indefeasible rights of use). Fourth, a competing provider may connect its facilities via a POP, hub, or "carrier hotel." Finally, a carrier may purchase or "lease" entrance facilities from SBC Missouri through its access services tariffs. However, as I will explain below, this last method of obtaining entrance facilities is excluded from my analysis.

Q. WHAT IS A CARRIER HOTEL?

A. A carrier "hotel" is a building where two or more providers have deployed telecommunications equipment in a location other than the premises of the incumbent carrier. It is sometimes called a "collocation hotel" or "carrier-neutral" collocation facility. It allows carriers (as well as other entities like Internet Service Providers ("ISPs") and enterprise customers) to install their telecommunications equipment in a

centralized location, often near a major "central office" of the ILEC. Carrier hotels are designed to provide a suitable environment for telecommunications equipment (with, for example, heating and cooling to protect the equipment from extreme temperature and humidity), access to AC and DC electrical power, and interconnection to fiber optic transmission equipment and networks. In many cases, a wholesale fiber transport provider offers such "hotel" arrangements for its clients, including other carriers and/or enterprise customers, so that they can connect their own networks directly to the transport provider's network. Carrier hotels are sometimes located within the same building as a competing carrier's optical backbone "hub" or "gateway" location. Schedule JGS-7T depicts a typical carrier hotel arrangement.

Q. ARE THERE ANY "CARRIER HOTELS" OR COMPARABLE ARRANGEMENTS IN MISSOURI?

A. Yes, there are several examples in Missouri. One is Xspedius, which offers "collocation services" that allows companies "to avoid major expense associated with developing and maintaining a collocation facility" with "secure location and superior network connectivity."[13] Another example is Level 3 Communications, Inc. ("Level 3"), which offers "(3) Center ™ Collocation" and operates a "Gateway" facility in St. Louis and Kansas City. Level 3 "relies on its collocation buildings to operate its own intercity backbone."[14] An independent market has developed for these facilities, operating a website called "carrierhotels.com."[15]

[13] See, Schedule JGS-4T.
[14] See, Schedule JGS-7T.
[15] See, Schedule JGS-8T.

Q. WHAT IS THE SIGNIFICANCE OF CARRIER HOTELS AND OTHER ALTERNATIVE COLLOCATION FACILITIES?

A. My analysis of the FCC's "triggers" in Section II below focuses on competitive transport facilities that are connected to SBC Missouri's central offices by fiber-based collocation. But as I discussed above, competing providers' transport facilities do not precisely track the physical path of SBC Missouri's network or connect with all of SBC Missouri's central offices. Thus, by connecting to a carrier hotel, competing carriers can typically gain access to several (or many) other fiber optic transmission networks that connect with that hotel, thereby gaining direct access to those transport networks and indirect access to any SBC Missouri central or tandem offices that are connected to those transport networks. This is illustrated, for example, by the diagram on Level 3's website (Schedule JGS-7T). As the diagram shows, it is also possible for enterprise customers, like large businesses or ISPs , to be directly connected via fiber optic "loops" to the fiber transport facilities and to carrier hotels. The availability and prevalence of such collocation alternatives are important points to consider in assessing the full scope of facilities-based competition.

C. OVERVIEW OF FCC'S TRANSPORT CONCLUSIONS

Q. HOW DID THE FCC DEFINE "DEDICATED TRANSPORT" IN ITS *TRIENNIAL REVIEW ORDER*?

A. The FCC stated that "[d]edicated interoffice transmission facilities (transport) are facilities dedicated to a particular customer or competitive carrier that it uses for

transmission among incumbent LEC central offices and tandem offices."[16] The FCC departed from the broader definition (and thus the broader network element unbundling requirement) utilized in its previous orders by excluding "entrance facilities" [17] from the definition of unbundled dedicated transport which, as I described above, are the facilities that connect the competing carrier's POP to SBC Missouri's central office. Instead, the FCC limited its definition of the dedicated transport unbundled network element ("UNE") which ILECs must provide to "only those transmission facilities *within* an incumbent LEC's transport network, that is, the transmission facilities between incumbent LEC switches."[18]

Q. WHAT "IMPAIRMENT" FINDINGS DID THE FCC MAKE WITH RESPECT TO OC-N DEDICATED TRANSPORT?

A. With respect to dedicated OC-n local transport, the FCC found "on a national level that requesting carriers are not impaired without access to unbundled OCn transport facilities."[19] The FCC determined that a carrier with sufficient traffic to warrant dedicated transport at levels of OC-n, by definition, should also have enough revenue along that route to justify buying or building fiber optic facilities.[20] Accordingly, SBC is not required to offer unbundled access to OC-n level transport.

[16] *Triennial Review Order*, ¶ 361. It noted further that its various references to the term "transport" meant "dedicated transport." *Id.*
[17] *Triennial Review Order*, n.1116.
[18] *Triennial Review Order*, ¶ 366. (emphasis original).
[19] *Triennial Review Order*, ¶ 359.
[20] *Triennial Review Order*,. ¶ 388-89.

Q. WHAT "IMPAIRMENT" FINDINGS DID THE FCC MAKE WITH RESPECT TO OTHER CATEGORIES OF DEDICATED TRANSPORT?

A. With respect to dark fiber and DS-3 transport, the FCC stated that "on a national level requesting carriers are impaired without [unbundled] access," but that finding is "subject to both a granular route-based review by the states to identify available wholesale facilities and to identify where transport facilities can be deployed."[21] As to DS-3 dedicated transport, the FCC added that unbundling is not required beyond 12 DS-3 transport circuits for a given CLEC on a given route.[22]

With respect to DS-1 dedicated transport, the FCC found "on a national level that requesting carriers are impaired without access to unbundled DS1 transport facilities, subject to a granular route-based review by the states to identify available wholesale facilities."[23]

Q. WHAT REASONS DID THE FCC GIVE FOR THOSE DECISIONS?

A. The FCC recognized that "competitive DS1, DS3, and dark fiber transport facilities are available on a wholesale basis in some areas, and that competing carriers have deployed their own transport networks in some areas."[24] However, the FCC stated that "the record is not sufficiently detailed concerning exactly where these facilities have been deployed," and that "the nature of transport facilities requires a highly granular impairment analysis."[25] As a result, the FCC established "specific triggers for states to apply in

[21] *Triennial Review Order*,. ¶ 359.
[22] *Triennial Review Order*,. ¶ 388.
[23] *Triennial Review Order*,. ¶ 359.
[24] *Triennial Review Order*, ¶ 360.
[25] *Triennial Review Order*,*Id.*

conducting such an analysis."[26] It also established criteria for states to assess potential deployment of DS-3 and dark fiber transport based on existing facilities-based competition and local engineering and cost considerations.

Q. WHAT IS THE PURPOSE OF THE FCC'S ANALYSES?

A. The FCC stated that its methods are intended to identify "specific point-to-point routes" where (1) "carriers have the ability to use alternatives to the incumbent LEC's network" or (2) "self-provisioning transport facilities is economic."[27]

Q. WHAT IS A SPECIFIC POINT-TO-POINT "ROUTE" IN THE CONTEXT OF THE FCC'S RULE?

A. The FCC's Rule 51.319(e) states that "a 'route' is a transmission path between one of an incumbent LEC's wire centers or switches and another of the incumbent LEC's wire centers or switches." A "route between two points (*e.g.,* wire center or switch 'A' and wire center or switch 'Z') may pass through one or more intermediate wire centers or switches (*e.g.,* wire center or switch 'X')." However, the FCC stated that "[t]ransmission paths between identical end points (e.g., wire center or switch "A" and wire center or switch "Z") are the same 'route,' irrespective of whether they pass through the same intermediate wire centers or switches, if any."[28] In other words, for the purpose of applying the FCC Rule, a competing provider's transport network need not follow the

[26] *Triennial Review Order*,*Id*.
[27] *Triennial Review Order*,*Id*.
[28] 47 C.F.R. § 51.319(e).

exact same physical path as SBC Missouri's facilities between the two end points, so long as it connects at those same end points.

Q. WHAT ARE THE METHODS FOR ESTABLISHING NON-IMPAIRMENT FOR DS-3 AND DARK FIBER TRANSPORT?

A. The FCC Rule sets forth three alternative methods to establish non-impairment. The first, which is called the "self-provisioning trigger," is satisfied where three or more competing carriers are operationally ready to provide their own transport along the specified route, if those carriers satisfy certain conditions.[29] The second test, called the "competitive wholesale facilities trigger," is met where two or more wholesale transport providers are willing to provide transport on a generally available basis along the specified route, if those providers satisfy certain conditions.[30] If either trigger is satisfied for a particular route, then the state commission "*shall* find that a requesting telecommunications carrier is not impaired without access to dedicated DS3 [or dark fiber] transport on an unbundled basis" along that route.[31]

These first two triggers address *existing* transport facilities that have already been deployed by competing carriers, and that happen to connect to SBC Missouri's network (*e.g.*, via collocation). The FCC's rule also establishes criteria for evaluating *potential* deployment.

[29] 47 C.F.R. §§ 51.319(e)(2)(i)(A) and 51.319(e)(3)(i)(A).
[30] 47 C.F.R. §§ 51.319(e)(2)(i)(B) and 51.319(e)(3)(i)(B).
[31] 47 C.F.R. § 319(e)(2)(i) & (e)(3)(i) (emphasis added).

Q. PLEASE BRIEFLY DESCRIBE THE POTENTIAL DEPLOYMENT ANALYSIS.

A. The FCC's rule provides that: "[w]here neither trigger . . . is satisfied, a state commission shall consider whether other evidence shows that a requesting telecommunications carrier is not impaired without access to unbundled transport along a particular route" – that is, where engineering and cost considerations are such that carriers could economically build or obtain transport facilities along that route.[32] In other words, the FCC recognized that a requesting carrier could obtain or deploy transport facilities between two central offices, even where the number of carriers specified by the trigger have not already deployed fiber facilities into both of the central offices or are not actively using them. For example, carriers might have already deployed extensive transport facilities within SBC Missouri's serving wire center areas, but are not actively using them, or they might have decided not to establish fiber-based collocation (*e.g.*, the carrier may have established a collocation arrangement in SBC's central office, but decided not to extend its fiber as an entrance facility to that collocation arrangement). Such fiber facilities may terminate at the carrier's POPs, carrier hotels, or fiber hubs. In such cases, the competing carriers provide fiber-based transport between SBC Missouri's wire centers, and indeed between SBC Missouri's central offices (where they so choose), but do so through an alternative path.

Q. WHAT METHODS DID THE FCC ESTABLISH FOR EVALUATING IMPAIRMENT WITH RESPECT TO DS-1 DEDICATED TRANSPORT?

[32] 47 C.F.R. §§ 51.319(e)(2)(ii) and 51.319(e)(3)(ii).

A. For DS-1 dedicated transport, the FCC applied the same "wholesale" trigger discussed above for DS-3 and dark fiber transport.[33] However, the FCC did not define a "self-provisioning" trigger or a "potential deployment" analysis for DS-1 dedicated transport.[34]

D. SUMMARY OF ANALYSIS AND CONCLUSIONS

Q. HOW DID YOU GO ABOUT APPLYING THE FCC'S IMPAIRMENT TESTS?

A. I began with the "self-provisioning trigger", and identified 30 transport routes where at least three non-affiliated competing carriers have deployed their own fiber transport facilities and extended them into SBC Missouri's central offices. I then applied the "wholesale" trigger for DS-1, DS-3, and dark fiber transport, and determined that at least two providers offer wholesale transport services to competing carriers and have facilities in place along 43 transport routes. I describe each of these steps in more detail below.

Q. PLEASE EXPLAIN HOW YOU APPLIED THE FCC'S SELF-PROVISIONING TRIGGER.

A. As I described above, the self-provisioning trigger looks for instances where competing carriers have deployed *existing* DS3 and dark fiber transport facilities that connect two SBC Missouri central offices to form a dedicated transport "route" (the precise physical paths that the competing facilities take between SBC Missouri's central offices are irrelevant). Thus, the logical starting point was to identify those SBC Missouri central offices into which competing carriers have extended their fiber transport facilities

[33] 47 C.F.R. § 51.319(e)(1)(ii).
[34] 47 C.F.R. § 51.319(e)(1).

through collocation. SBC Missouri, of course, keeps records in the ordinary course of business regarding collocation arrangements established by competing carriers in its central offices. I also reviewed data that SBC has received from competing carriers thus far in discovery.[35]

The next step was to look for instances in which three or more competing carriers have deployed such collocation arrangements in a "pair" of SBC Missouri central offices (*e.g.*, central offices "A" and "Z", which identify the end points of a transport "route"). For example, if a given competing carrier has a fiber-based collocation arrangement in both central office "A" and central office "Z", it follows that the carrier has transport facilities connecting A and Z. This is consistent with the FCC's definition of a transport "route" as *any* connection between central offices A and Z; the precise physical path or intermediate points between A and Z are irrelevant. I describe each of these steps, and the results, in more detail in Section II.B below.

Q. PLEASE EXPLAIN HOW YOU APPLIED THE FCC'S WHOLESALE PROVIDER TRIGGER FOR DS1, DS3 AND DARK FIBER TRANSPORT.

A. As with the self-provisioning trigger, I looked for competing providers that have terminated their transport facilities at SBC Missouri's central office at both ends of a

[35] SBC Missouri is still analyzing CLECs' discovery responses received to date. Some responses were unclear or incomplete. In addition, some carriers have yet to respond to the discovery requests. Accordingly, SBC Missouri intends to continue pursuing any outstanding discovery, and will address this further in supplemental or rebuttal testimony.

"route." Under the wholesale trigger, though, the number of competing providers required to meet the trigger is only two (not three, as with the self-provisioning trigger). Thus, I again reviewed SBC Missouri's collocation records to identify pairs of central offices where at least two of the collocated carriers have established transport connections via fiber-based collocation. Then, I determined whether at least two of those carriers offer wholesale transport services to other carriers. I reviewed information from various public sources (such as the competing providers' own web sites) to determine which carriers offer wholesale transport services in the applicable markets. In addition, I reviewed information submitted by carriers in discovery regarding their wholesale transport offerings. I describe each of these steps, and the results, in more detail in Section II.C below.

Q. CAN A COMPETING PROVIDER BE BOTH A "SELF-PROVIDING" CARRIER AND A WHOLESALE PROVIDER?

A. Yes, competing carriers can and do use their fiber optic networks to carry traffic for their own end users *and* for other carriers. Fiber optic cables have enormous capacity to carry telecommunications traffic. Fiber networks are typically deployed with one or more cables on a route, and each cable consists of multiple fibers or strands (common quantities are 12, 24, 48, 72, or 92 fibers per cable). In fact, the capacity of the fiber itself is generally not a limiting factor in how much information can flow over the fiber; rather, the transmission capacity is primarily determined by the optronics that are connected to the fiber. American Fiber Systems, a wholesale fiber provider, claims that "a single strand of fiber . . . can now carry every phone call, e-mail and web page used by

every person in the world" (www.americanfibersystems.com.). In many cases, it simply makes business sense for a carrier to use some capacity on its fiber network to carry traffic for its own end users, and to offer some of the remaining capacity to other carriers as a "wholesale" offering. Thus, several competing carriers are actively providing wholesale transport, and offer a range of specific wholesale options ranging from DS-1 and DS-3 transport, high-speed bandwidth services (OC-3, OC-48 etc), and dark fiber. By "leasing" capacity on their networks, carriers gain additional revenue and increase the efficiency of their networks. The FCC has acknowledged that a carrier may be both a self-providing carrier and a wholesale provider, stating that the self-provisioning trigger is satisfied "when a state commission finds that . . . three competing carriers have self-provided transport facilities on that route *(irrespective of whether they make available wholesale capacity)*."[36]

Q. CAN YOU PROVIDE ANY EXAMPLES OF WHOLESALE TRANSPORT CARRIERS THAT ARE ALSO "SELF-PROVIDERS" IN MISSOURI?

A. Yes. As I discuss below, there are a number of competing carriers that do just that. Schedule JGS-2T summarizes competing providers and shows whether they are self-providers, wholesalers, or both. In addition, Schedule JGS-9T is an excerpt from AT&T's website that describes its wholesale offerings.

[36] *Triennial Review Order,*nn. 1184 & 1200 (emphasis added).

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS.

A. There is substantial data demonstrating that: (i) several competing providers have already deployed extensive transport facilities; (ii) these existing facilities satisfy the FCC's self-provisioning trigger for at least 30 specific "routes" as listed on Schedule JGS-10THC; and (iii) the FCC's wholesale trigger is satisfied for at least 43 routes, as listed in Schedule JGS-13THC.

II. TRIGGER ANALYSES

A. OVERVIEW OF FCC TRIGGER RULES

Q. PLEASE REVIEW THE FCC'S "TRIGGERS."

A. As I discussed, the FCC's rules contain two "trigger" tests: a "self-provisioning" trigger and a "wholesale" trigger. The self-provisioning trigger applies to determining non-impairment as to DS-3 and dark fiber transport. The wholesale trigger applies to determining non-impairment for DS-1, DS-3, and dark fiber transport.

B. APPLICATION OF SELF-PROVISIONING TRIGGER

Q. PLEASE DESCRIBE IN MORE DETAIL THE "SELF-PROVISIONING TRIGGER" FOR UNBUNDLED DS-3 AND DARK FIBER TRANSPORT.

A. The "self-provisioning trigger" is satisfied if the Commission finds "that three or more competing providers not affiliated with each other or the incumbent LEC, including intermodal providers of service comparable in quality to that of the incumbent LEC" satisfy two conditions:

(a) that each provider "has deployed its own transport facilities and is operationally ready to use those facilities" to provide dedicated transport along that route; and

(b) that the competing provider's facilities terminate either "at a collocation arrangement" (if the transport route ends at the incumbent's premises) or at "a similar arrangement" (if the end of the transport route is not located at an incumbent LEC's premises).[37]

Q. HAVE YOU EXAMINED SBC'S TRANSPORT ROUTES TO DETERMINE IF THE SELF-PROVISIONING TRIGGER HAS BEEN MET?

A. Yes.

Q. WHAT HAVE YOU CONCLUDED FROM YOUR EXAMINATION?

A. As shown in my Schedule JGS-10THC, the self-provisioning trigger has been satisfied along at least 30 routes. While other routes may pass this test, I cannot determine conclusively that they do from the discovery responses to date and from the data possessed by SBC Missouri. It is possible that additional information, possessed by the CLECs but not yet provided in discovery, would reveal additional routes that meet the trigger.

Q. HOW DID YOU APPLY THE FCC'S SELF-PROVISIONING TRIGGER?

A. As I discussed above, first, I identified where competing providers have established fiber-based collocation arrangements in SBC Missouri's central offices. A "route" is defined

[37] 47 C.F.R. § 319(e)(2)(i)(A) & (e)(3)(i)(A).

by its end points – a pair of two central offices (*e.g.*, A and Z). Thus, if at least three (3) competing providers have transport links at both central offices, and if they all satisfy certain other requirements (*e.g.*, the carriers are not affiliated with each other and they have established collocation at each central office end point), then the self-provisioning trigger has been satisfied for that route between those central offices and there is no impairment to warrant unbundled access. Schedule JGS-11T depicts a route for which the self-provisioning trigger is satisfied.

Although some collocated carriers obtain transport services from SBC Missouri pursuant to tariffs, in lieu of extending their own fiber into SBC's central offices, I did not include such arrangements in my analysis.

Q. PLEASE ILLUSTRATE THIS WITH AN EXAMPLE.

A. Let's say that SBC Missouri has four central offices, A, B, C and D. A review of the collocation records (and/or discovery responses) shows that three non-affiliated, self-provisioning carriers have established fiber-based collocation at central office A, and that the same three self-provisioning carriers also have fiber-based collocation at central offices B and C. That means that each carrier's fiber transport network connects to A, B, and C. Since those three carriers satisfy the FCC's other "trigger" criteria (*e.g.*, they are not affiliated with each other), then the self-provisioning trigger would be satisfied for the routes between A and B, A and C, and B and C.

Now let's look at central office D, and assume that there are fewer than three fiber-based collocation arrangements there. In that case, the routes involving central office D (*i.e.,* routes A-D, B-D, and C-D) would not meet the self-provisioning trigger, because there must be at least three fiber carriers collocated at *both* ends of the route, and in our example end point (D) has less than three such carriers. We would then proceed to the wholesale trigger for those routes, which I discuss further below in subsection C.

Q. PLEASE DESCRIBE THE LAYOUT OF SCHEDULE JGS-10THC.

A. Each line of Schedule JGS-10THC represents a transport route that satisfies the self-provisioning trigger. The first two columns, labeled "A CLLI" and –"Z CLLI," provide the SBC Missouri central offices at each end of the route, identified by the Common Language Location Identifier ("CLLI") code that corresponds to each office: for example, the last route runs between SBC's central offices STLSMO27 and STLSMO47. The subsequent columns, labeled "Competing Providers," list the self-provisioning carriers that have established fiber-based collocation at both central offices. Any carriers that SBC knows to be affiliated with each other are counted only once on a route – for example, affiliates MCI and Brooks Fiber would be counted only as one carrier and identified generically as "MCI." As the Schedule shows, there are at least three unaffiliated competing providers on each route.

The individual entries for each carrier on Schedule JGS-10THC are shaded to indicate the results of discovery, based on responses received to date. The shaded entries indicate that the carrier has confirmed fiber at both ends of the route in discovery. For the remaining,

non-shaded entries, SBC Missouri has either not yet received any response from the applicable competing provider or the competing provider has responded but its data response does not admit that it has self-provisioned transport facilities along that particular route.

Schedule JGS-12T graphically depicts the Missouri "self-provisioned" routes on a map. The colored squares denote the SBC Missouri central offices at the end of each route. The colored lines represent transport facilities connecting those offices. For ease of illustration, the routes are depicted by straight lines, as the precise physical path is irrelevant under the FCC Rule.

Q. HOW DO YOU KNOW THAT THESE CARRIERS ARE "SELF-PROVIDERS"?

A. Generally, these carriers' websites contain advertisements regarding the types of telecommunications services they offer to customers and end users. In addition, press releases and industry journal articles often provide information about competing carriers' networks, products, and customers.

Further, at each end of the transport routes I have identified, these carriers have deployed a fiber-based collocation arrangement in the SBC Missouri central office. To obtain collocation at an SBC central office, the competing carrier must either request interconnection with SBC's network and/or request unbundled access for the purpose of providing telecommunications services (as I noted above, SBC Missouri only included fiber-based collocation arrangements). It follows that any carrier that has applied for and

deployed fiber-based collocation is a "self-provider". Now, that carrier might also provide wholesale transport service to *other* carriers *in addition to* using transport facilities to serve its own end users – and in fact, I show below and on Schedule JGS-2T that several carriers are both self-providers and wholesalers.

Q. WHAT DATA HAVE YOU RELIED ON TO SUPPORT YOUR SELF-PROVISIONING TRIGGER ANALYSIS?

A. There are two primary sources of information for this portion of the analysis. The first source is SBC Missouri's own business records. SBC Missouri maintains information regarding collocation requests and the existence and type of collocation arrangements it provides to requesting carriers. SBC Missouri compiled a list of fiber-based collocation arrangements, sorted by central office, from its business records, and I used this information to determine which central offices had least three non-affiliated competing carriers which have established fiber-based collocation arrangements. The second source is the discovery responses SBC Missouri has received thus far from the competing providers.

Q. HOW DID YOU DETERMINE WHETHER THE COMPETING PROVIDERS ARE OPERATIONALLY READY TO PROVIDE TRANSPORT AT A DS-3 LEVEL ALONG EACH ROUTE, IN ACCORDANCE WITH RULE 51.319(E)(2)(I)(A)(1)?

A. In support of its petitions seeking pricing flexibility from the FCC for special access services, SBC Missouri physically verified fiber collocation arrangements throughout its 13-state service area (including the Missouri arrangements referenced above) in late 2002. SBC's collocation managers inspected each arrangement to verify that the collocation arrangement has been completed and the competing provider's fiber entrance facility has been pulled into the collocation arrangement.

Where a carrier has deployed such fiber optic transport facilities, it is capable of providing virtually any transmission level – including DS-3. In fact the DS-3 level is one of the building blocks of digital transmission – three DS-3s are combined to form an optical OC-3 – and a fiber cable is capable of carrying many times the capacity of a DS-3. Thus, several of the carriers referenced in Schedule JGS-2T expressly include DS-3 in the transport offerings and capabilities on their websites. For example, Xspedius advertises "networks at DS-1, DS-3 and OC-n." See Schedule JGS-4T.

Q. DO COMPETING CARRIERS' FIBER TRANSPORT FACILITIES ALSO CONTAIN "DARK" FIBER?

A. Yes. It is likely that competing carriers have deployed spare "dark" fibers where they have placed fiber optic cables. Dark fiber is fiber optic cable "that has not been activated through connections to optronics that light, and thereby render it capable of carrying communications."[38] It simply make engineering sense and economic sense that competing carriers' fiber transport facilities would also contain "dark" fiber because the

[38] *Triennial Review Order,* ¶ 381.

fiber cable itself is relatively inexpensive as compared to the overall cost of deploying a fiber-based system along a route. Put another way, it is simply cheaper to put in extra fibers to begin with, rather than to do so later. Thus, where competing carriers have self-provisioned "lit" fiber transport, those carriers typically deploy at least some "dark" fiber along that same route. An example of this is Level 3, which states on its website that it, "gives carriers and service providers the infrastructure required to "own" a fiber optic network with the burden of network construction." See Schedule JGS-2T. In addition, some carriers have confirmed in their discovery responses that they have provisioned dark fiber, or have stated that they have ample amounts of spare capacity.

Q. CAN THE SELF-PROVISIONING TRIGGER ALSO BE SATISFIED BY COMPETITIVE TRANSPORT FACILITIES THAT DO NOT CONNECT TO COLLOCATION ARRANGEMENTS AT SBC'S CENTRAL OFFICES?

A. Yes. The FCC Rule states that the self-provisioning trigger can also be satisfied by competitive facilities that terminate *outside* of SBC's premises, in an arrangement "similar" to collocation.[39] Although some information is publicly available via the carriers' websites, the bulk of the information on such alternative facilities resides with SBC Missouri's competitors, not with SBC Missouri. My analysis focused on transport facilities that terminate in collocation arrangements on SBC Missouri's premises, because SBC Missouri has access to certain information it maintains in the normal course of business regarding such collocation arrangements. For purposes of analyzing the self-

[39] 47 C.F.R. §§ 51.319(e)(1)(ii)(C), (e)(2)(i)(A)(2), (e)(2)(i)(B)(3).

provisioning and wholesale triggers, I did not consider "similar" arrangements that terminate outside of SBC Missouri's premises. Thus, my analysis is quite conservative.

Q. BASED ON THE ABOVE ANALYSIS OF SELF-PROVISIONING, WHAT SHOULD THE COMMISSION DECIDE?

A. Based on the evidence of self-provisioned transport, the Commission should hold that SBC Missouri is not required to provide DS-3 or dark fiber dedicated transport along the 30 routes listed in Schedule JGS-10THC.

C. APPLICATION OF WHOLESALE TRIGGER

Q. PLEASE DESCRIBE IN MORE DETAIL THE "WHOLESALE TRIGGER" FOR UNBUNDLED DS-1, DS-3 AND DARK FIBER TRANSPORT.

A. The "competitive wholesale facilities trigger" or "wholesale trigger" is satisfied if the state commission finds "that two or more competing providers not affiliated with each other or the incumbent LEC, including intermodal providers of service comparable in quality to that of the incumbent LEC" each satisfy four conditions:

- they have deployed their own transport facilities (including certain "dark fiber" facilities obtained on an unbundled or leased basis) and are operationally ready to use those facilities;
- they are willing immediately to provide, on a widely available basis, dedicated transport along the route;
- their facilities terminate in a collocation or similar arrangement, as appropriate; and
- requesting carriers may obtain reasonable and nondiscriminatory access to the provider's facilities through a cross-connect.[40]

[40] 47 C.F.R. 51.319(e)(1), (e)(2)(i)(B), (e)(3)(i)(B).

Q. WHICH ROUTES HAS SBC IDENTIFIED THAT SATISFY THE WHOLESALE TRIGGER?

A. The wholesale trigger has been satisfied for the 43 routes identified in Schedule JGS-13THC. Schedule JGS-14T graphically depicts the Missouri routes that satisfy the wholesale trigger. As with Schedule JGS-12T, the colored squares represent SBC's central offices and the colored lines connecting them represent transport routes.

Q. HOW DID YOU DETERMINE THAT THESE ROUTES SATISFY THE WHOLESALE TRIGGER?

A. I looked at several sources of information. As with the self-provisioning trigger, the first step is to identify which transport routes have carriers with fiber-based collocation at both ends. For the wholesale trigger, though, the number of carriers required is only two, not three. I reviewed SBC Missouri's collocation records and the responses received thus far in discovery to determine which pairs of central offices (the "ends" of a transport route) have at least two such carriers. I then determined whether those carriers are also wholesale transport service providers.

Q. HOW DID YOU DETERMINE WHETHER A COLLOCATED CARRIER WAS ALSO A PROVIDER OF WHOLESALE TRANSPORT SERVICES?

A. I looked at information from the carriers themselves: e.g., carriers' websites and press releases that describe their wholesale service offerings and the geographic areas in which they offer transport services The results of these analyses are summarized on Schedule JGS-2T. In addition, I have reviewed information provided by competing carriers in

discovery to confirm my findings. In some cases, the competing provider itself confirmed that it offers wholesale transport.

Q. PLEASE DESCRIBE THE LAYOUT OF SCHEDULE JGS-13THC.

A. The layout of Schedule JGS-13THC is similar to that of Schedule JGS-10THC, which listed the routes satisfying the self-provisioning trigger. Each line of Schedule JGS-13THC corresponds to a route that satisfies the trigger, and the routes are grouped by metropolitan area. The Schedule JGS-13THC provides the CLLI code for the SBC central office at each end of the route, and then identifies the wholesale carriers on that route. As with Schedule JGS-10THC, the individual entries are shaded to reflect the results of discovery. Where the carrier has acknowledged that it has facilities at both ends of a given route, its entry is shaded. Where the carrier acknowledges such facilities and also agrees that it provides transport service on the route, its entry is shaded with a speckled background. The remaining, non-shaded entries denote either (a) that SBC has not yet received a response from the competing provider, or (b) that the competing provider has responded, but has not confirmed that it has facilities on that particular route. SBC's analysis of the discovery responses is ongoing.

Q. DO ANY OF THE ROUTES THAT SATISFY THE WHOLESALE TRIGGER ALSO SATISFY THE SELF-PROVISIONING TRIGGER?

A. Yes. In fact, the wholesale trigger is satisfied, to the best of my knowledge, on all of the 30 routes that satisfied the self-provisioning trigger (and for many additional routes). Those 30 routes have at least three self-providers and at least two wholesale providers (as

I described earlier, some carriers are both self-providers and wholesale providers). For purposes of DS-3 and dark fiber transport, satisfaction of either trigger is sufficient to show non-impairment so it doesn't matter which trigger is met. For purposes of DS-1 transport, however, only the wholesale trigger can be applied to show non-impairment.

Q. HOW DID YOU VERIFY THAT THE COMPETING PROVIDERS ARE OPERATIONALLY READY TO PROVIDE TRANSPORT AT DARK FIBER, DS-1, AND DS-3 CAPACITY ALONG EACH ROUTE?

A. Plainly, a carrier would not publicly offer transport services along a route, and go to the time and expense of establishing and maintaining collocation arrangements at both ends, if it is not operationally ready to fulfill its offer. And as I described above, the existence of optical fiber facilities (which even in the most minimal case have capacity equal to at least 3 DS-3s or 84 DS-1s) certainly allows that carrier to provide multiple DS-3 and/or DS-1 transport services simultaneously. Indeed, fiber optic facilities are "channelized" by the type of electronic/optronic equipment that is attached to the fiber. In addition, carriers can and do offer their "unlit" fiber on a wholesale basis as dark fiber.

Q. ARE WHOLESALE PROVIDERS COLLOCATED IN SBC'S CENTRAL OFFICES?

A. Yes. My analysis looks only at providers that are collocated in SBC's central offices, so by definition that requirement of the trigger is satisfied.

Q. HOW DID YOU DETERMINE THAT THE WHOLESALE PROVIDERS ARE "WILLING IMMEDIATELY TO PROVIDE" DEDICATED TRANSPORT "ON A WIDELY AVAILABLE BASIS"?

A. As I noted above, I reviewed the competing providers' own websites to see whether they advertise wholesale transport offerings. See Schedule JGS-2T. Further, I reviewed the information provided to SBC thus far through discovery, in which at least one carrier has acknowledged that it currently provides dedicated transport on a wholesale basis**.**

Q. HOW DID YOU VERIFY THAT REQUESTING CARRIERS MAY OBTAIN "REASONABLE AND NONDISCRIMINATORY ACCESS" TO THE COMPETING PROVIDER'S FACILITIES THROUGH A CROSS-CONNECT?

A. Where the competing carrier is collocated in SBC Missouri's central office, it can request a connection to other collocated carriers in that same central office (e.g., a collocator-to-collocator connection). One way SBC Missouri makes such connections available is by interconnection agreements or its collocation tariff, where applicable (SBC Missouri Local Access Tariff P.S.C. Mo. - No. 42). My review indicated that some collocated carriers have already requested and obtained such connections in some of SBC Missouri's central offices in Missouri.

Q. BASED ON THE ABOVE ANALYSIS, WHAT SHOULD THE COMMISSION DECIDE?

A. Based on the evidence of wholesale transport, the Commission should hold that SBC is not required to provide DS-1, DS-3, or dark fiber transport along the routes listed in Schedule JGS-13THC.

D. "INTERMODAL" PROVIDERS

Q. PLEASE DEFINE "INTERMODAL PROVIDER" IN THE CONTEXT OF THE MARKET FOR DEDICATED TRANSPORT.

A. In this context, the term essentially describes methods of transporting telecommunications that use technologies and/or network architectures that are different from those in the traditional wireline, circuit-switched telephone network. Basically, in the context of interoffice transport, the traditional technologies have been metallic facilities, microwave radio and fiber optic carrier systems. Some carriers may use other methods, such as wireless technologies or satellite transmission.

Q. DOES YOUR ANALYSIS OF COMPETING TRANSPORT PROVIDERS INCLUDE "INTERMODAL PROVIDERS OF SERVICE COMPARABLE IN QUALITY TO THAT OF [SBC MISSOURI]"?

A. Although carriers have deployed intermodal transport alternatives, SBC Missouri has not yet examined this in detail, due to (i) the scope, complexity, and short timetable of this initial nine-month proceeding, and (ii) the fact that much of the information on intermodal providers resides with those providers, not with SBC Missouri. However, as additional information becomes available, SBC Missouri intends to present that information in the subsequent proceedings called for by the *Triennial Review Order*.

III. ANALYSIS OF POTENTIAL DEPLOYMENT

Q. PLEASE DESCRIBE THE FCC'S IMPAIRMENT ANALYSIS FOR DEDICATED TRANSPORT ALONG ROUTES WHERE NEITHER THE SELF-PROVISIONING OR WHOLESALE TRIGGER ARE MET?

A. For those transport routes where neither the self-provisioning trigger nor the wholesale trigger are satisfied, the FCC's rules require the state commission to examine "other evidence" (including actual deployment and certain operational factors) to determine whether requesting carriers are impaired without access to unbundled transport.[41]

Q. HOW IS EVIDENCE OF ACTUAL DEPLOYMENT RELEVANT?

A. It is relevant for several reasons. Once of the best indicators of whether alternative transport facilities *can* be deployed is by looking at where such facilities have *already* been deployed. If a competitor has already deployed fiber at or near an SBC central office (for example, at its POP, or at carrier hotel, that is within the same serving wire center), then that competitor has already examined the pertinent economic and engineering considerations and determined that it is economically and operationally feasible to deploy such transport. Further, the closer a competitor's fiber transport network comes to a SBC Missouri central office today, the less expensive (and more economic) it is to extend that network to the central office in the future, if it chooses to do so. FCC Rule 319(e)(2)(ii) recognizes this relationship, and thus requires the state commission to examine evidence of "existing facilities-based competition." Like the FCC's trigger tests, this factor looks to evidence of actual deployment in determining

[41] 47 C.F.R. §§ 51.319(e)(2)(ii) and 51.319(e)(3)(ii).

impairment, but unlike those triggers it does not require a set number of competing providers.

Q. WHAT DOES THE AVAILABLE EVIDENCE OF ACTUAL DEPLOYMENT SUGGEST WITH RESPECT TO POTENTIAL DEPLOYMENT?

A. The real-world evidence of actual deployment provides strong evidence that carriers can deploy, and have deployed, dedicated transport facilities. As I have discussed above, in extensive competing transport networks have been deployed in Missouri. As I showed in my analysis of the FCC's triggers, at least 30 transport routes have three or more fiber-based collocators at both ends, and at least 43 routes have two or more such collocations. Further, there are more than 91 additional routes in Missouri that already have one fiber-based collocator at each end.[42] Moreover, there are additional other competing providers that publicly offer service throughout Missouri and list Missouri locations as "POPs" or "hubs" within their fiber networks. Several of these carriers have established collocation arrangements in SBC Missouri central offices, although they have not yet extended their fiber into those collocations in every instance. As a whole, the evidence demonstrates that carriers have already considered the applicable engineering and cost factors and decided to deploy transport facilities along many routes.

[42] These additional routes were included in SBC Missouri's initial position filing on October 27, 2003, but because SBC Missouri's records show only one fiber-based collocated carrier on each end of the route, and due to the time constraints with preparing my direct testimony, they were not included in SBC's trigger analyses. Not all carriers have responded to discovery, so SBC Missouri cannot affirm whether any of those routes satisfy a trigger. Further, as I discuss herein, those additional routes are not included in SBC Missouri's present potential deployment analysis.

Q. HOW DID YOU APPROACH THE ANALYSIS OF POTENTIAL DEPLOYMENT FOR PURPOSES OF THE PRESENT FILING?

A. Much of the evidence that is pertinent to the potential deployment analysis is not within SBC Missouri's control, but rather in the hands of the competing carriers. Given the accelerated time frame of this proceeding, SBC Missouri is not seeking a determination of non-impairment based on potential deployment for any transport routes that are not already covered under one or both triggers above. Instead, I will consider the potential deployment analysis on a highly focused basis, considering only those routes where SBC Missouri has demonstrated that one or both triggers have been satisfied, and a competing provider admits that it has facilities on that route but claims that it is not presently self-provisioning transport using those facilities or offering wholesale dedicated transport services. Even if any carrier does make such a claim in its responsive testimony, and even if one takes those claims at face value, this still represents a textbook case for potential deployment – because there has already been *actual* deployment of the physical facilities, and the costs of deployment have already been incurred. All the carrier needs to do is take the last step of turning the facilities up to provide active service.

Q. WHAT FACTORS DID YOU CONSIDER IN ASSESSING POTENTIAL DEPLOYMENT ON THOSE ROUTES?

A. The first and foremost factor, as I described above, is "existing facilities-based competition." For each route, at least 2 competing providers have already deployed the physical facilities to connect to both central office "end points" via fiber-based

collocation. In addition to that factor, FCC Rule 319(e)(2)(ii)(B)(2) states that the Commission is to examine:

a. local engineering costs of building and utilizing transmission facilities;
b. the cost of underground or aerial laying of fiber or copper; the cost of equipment needed for transmission;
c. installation and other necessary costs involved in setting up service;
d. local topography such as hills and rivers;
e. availability of reasonable access to rights-of-way;
f. availability/feasibility of similar quality/reliability alternative transmission technologies along the particular route; and
g. customer density or addressable market;

Q. FOR THESE ROUTES, WHAT COSTS OF ENGINEERING, LAYING OF FIBER, AND INSTALLATION WOULD BE INVOLVED?

A. Little if any. For these routes, there are already fiber facilities in place at both ends of the route that would be sufficient to satisfy the triggers if such facilities were in active use. Thus, the engineering work has already been done, the fiber has already been laid and then pulled into the carrier's collocation space in SBC Missouri's central office, and installation is complete. At most, all that remains is to add multiplexing equipment to "channelize" the fiber to provide DS-3 service. The FCC has already stated that "attaching routine electronics, such as multiplexers . . . to high-capacity loops is already standard practice in most areas" and "is easily accomplished."[43] Further, the FCC has

[43] *Triennial Review Order*, ¶ 634.

expressly held that the costs of multiplexers and other optronic equipment are not the kind of "sunk costs" that it said could result in impairment.[44]

Q. WOULD LOCAL TOPOGRAPHY PREVENT THE CARRIER FROM PROVIDING ACTIVE SERVICE?

A. I can't see how that could have any impact in these situations. More than one carrier has already laid fiber and extended into its collocation arrangement in SBC Missouri's central office. There are no hills and rivers inside a central office to contend with.

Q. WHAT ABOUT RIGHTS-OF-WAY?

A. Given that the carrier has already deployed the fiber, it has not only obtained any necessary rights-of-way, but it also has used them.

Q. WOULD THE AVAILABILITY OF "ALTERNATIVE TECHNOLOGIES" BE A CONSIDERATION?

A. No. By definition, the very limited situation I address here involves traditional fiber optic facilities and fiber-based collocation. Such technology is readily available and in widespread use by carriers. To the extent alternative technologies are *also* available, they would simply bolster the showing of potential deployment.

[44] *Id.* ¶ 312 n.922.

Q. WOULD CUSTOMER DENSITY CONSTITUTE A BARRIER?

A. No. All of the routes considered are in urban or suburban areas. Moreover, the fact that carriers have already deployed facilities on these routes shows that they have considered customer density and market factors and decided to deploy fiber along the route.

Q. WHAT DO YOU CONCLUDE FROM YOUR ANALYSIS?

A. To the extent any competing providers with transport facilities along the routes addressed in my trigger analysis contend that they do not actively provide service along their existing fiber facilities, those routes satisfy at least the potential deployment analysis.

CONCLUSION

Q. PLEASE SUMMARIZE THE CONCLUSIONS YOU HAVE REACHED.

A. As shown above, SBC has demonstrated non-impairment with respect to DS-3 and dark fiber transport along the 30 routes identified in Schedule JGS-10THC, and with respect to DS-1, DS-3, and dark fiber transport along the 43 routes identified in Schedule JGS-13THC to my testimony.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.