Exhibit No:	
Issue:	DS3, DS1 and Dark Fiber Loop Deployment
Witness:	Gary O. Smith
Type of Schedule:	Rebuttal Testimony
Sponsoring Party:	Southwestern Bell Telephone, L.P. d/b/a/ SBC Missouri
Case No.:	TO-2004- 0207 Phase III
Date Testimony Prepared.:	March 1, 2004

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

SBC MISSOURI

CASE NO. TO-2004-0207

REBUTTAL TESTIMONY

OF

GARY O. SMITH

ST. LOUIS, MISSOURI

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 GARY O. SMITH

STATE OF MISSOURI)

COUNTY OF JACKSON)

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

1. My name is Gary O. Smith. I am presently Area Manager-Engineering/Construction for SBC Southwest.

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

Gary O. Smith

Gary O. Smith

Subscribed and sworn to before me this 26th day of February, 2004.

Notary Public

My Commission Expires:

6-2-04

I. INTRODUCTION AND PURPOSE OF TESTIMONY

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Gary O. Smith. My business address is 9444 Nall, Overland Park, Kansas 66207.

Q. ARE YOU THE SAME GARY O. SMITH WHO PROVIDED DIRECT TESTIMONY IN THIS PROCEEDING?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. My testimony rebuts the assertions made by the only competing provider to have filed direct testimony in Phase III of this case. Specifically, it rebuts the assertions of Sean Minter in his direct testimony filed on behalf of AT&T Communications of the Southwest, Inc., TCG Kansas City, Inc., and TCG St. Louis, Inc. (collectively, "AT&T"). My rebuttal testimony shows, with respect to DS3 and dark fiber loops, that:

- Because it is both economically and commercially advantageous to do so, a CLEC that provisions loops at the OC(n) capacity level typically also provisions them to accommodate service provisioning at the DS1 or DS3 level.
- Even where optronics utilized by a CLEC currently may be configured to provide OC(n) service, the CLEC can use these optronics to provision DS1 or DS3 circuits simply and quickly.

- The work necessary to construct a fiber lateral from a fiber backbone cable into a building, including installation of optronics, is typically completed within ninety days.
- Efficient telecommunication providers engineer their fiber facilities so as to enable them to provide service for entire buildings.

Q. MR. MINTER CLAIMS THAT, WHEN CONSIDERING SELF-PROVISIONING OF DS3 LOOPS TO A PARTICULAR CUSTOMER LOCATION, A CARRIER THAT HAS DEPLOYED OPTICAL LEVEL LOOP FACILITIES WOULD NOT COUNT TOWARD THE SELF PROVISIONING TRIGGER (MINTER, DIRECT, PAGE 21, LINES 19-23, PAGE 22, LINES 1-2). DO YOU AGREE?

A. No. Mr. Minter's claim has no basis. Deploying an OC(n) system allows a carrier the ability to self-provision services at a variety of levels (*i.e.* OC(n), DS3, DS1) and combinations. While a particular carrier initially might have configured the system to provision OC(n) services (*e.g.* OC3s), the system can be reconfigured relatively easily to provision lower transmission level services like DS3s and DS1s, if there is still available capacity in the multiplexer. The process to re-configure an OC(n) system to provision other services involves correcting the inventory system, rewiring the backplane of the system to account for the new services, adding the appropriate cards, and testing. In my experience, the total process to reconfigure a system can be done in a few weeks. Thus, a carrier that is currently provisioning OC3 loops clearly has the capability to provision DS3 and DS1 loops. It is common practice in the industry for carriers to "channelize"

their OC(n) high-capacity loop facilities into separate DS-3 and/or DS-1 channels, as needed, by adjusting the equipment that is connected to the fiber.

Q. COULD YOU PLEASE ADDRESS WHY AN EFFICIENT CARRIER WOULD WANT TO DEPLOY AN OC(n) LOOP?

A. Yes. Typically, the whole idea behind provisioning an OC(n) loop is to aggregate large amounts of DS0, DS1, and DS3 capacity loops into a single OC(n) loop. For illustrative purposes, consider a rope. The weight capacity of a rope (*i.e.*, how much it can hold) depends on the number of individual cotton strands that make up that rope. Two cotton strands interlaced (*i.e*., aggregated) have limited strength and thus are capable of carrying only a limited amount of weight. However, two thousand cotton strands interlaced are capable of carrying quite a bit more weight. An OC(n) loop is analogous to a rope in this regard. An efficient carrier examines the telecommunications needs at a particular building (such as voice, data, and video), and builds its loop infrastructure accordingly. While some customers in the building will only need voice service (DS0), others will want voice and data (DS0 and DS1). Some customers may need voice, data, and video (DS0 through DS3). An efficient carrier will not build multiple DS0, DS1 and DS3 loops to that building. Rather, it will analyze the total capacity needed for that building, factor in additional capacity for future growth, and build accordingly so as to aggregate all of that building's telecommunications traffic onto a single loop (*i.e.*, OC(n)). Additionally, as the FCC noted in its *Triennial Review Order*, "the cost to deploy fiber does not vary

based on capacity."[1] For these reasons, it is more economical and resourceful for a carrier to construct a single OC(n) loop than to construct multiple DS0, DS1, and DS3 loops.

Q. CAN YOU EXPLAIN HOW AN OC(N) LOOP CAN BE CONFIGURED IN ORDER TO AGGREGATE MULTIPLE DS0, DS1, AND DS3 LOOPS?

A. Yes. For simplicity I will use OC3 and OC12 loops for my example. Below is a chart reflecting the available capacity at the OC3 and OC12 loop levels:

OC Capacity Level	DS0 Equivalent	DS1 Equivalent	DS3 Equivalent
OC3	2,016	84	3
OC12	8064	336	12

As shown from the chart, an OC3 holds quite a bit of capacity. While an OC3 can be configured to provision a single OC3, it would be inefficient to do so, as the entire bandwidth is utilized, restricting future growth opportunities. Instead, the OC3 can be broken up into, for example, three "drop groups." Each drop group is equivalent to a DS3 worth of capacity. Each of the three drop groups could be configured for DS1s (*i.e.*, set up to provision 84 DS1s). Alternatively, each of the three drop groups could be configured for DS3s (set up to provision 3 DS3s). Of course, other drop group combinations are available, such as two DS3s and 28 DS1s or one DS3 and 56 DS1s.

[1] *Triennial Review Order,* ¶ 303; see also, n. 884 ("loop construction costs do not vary by the capacity of the loop").

Obviously, the number of options for drop groups that would be associated with loops at higher than an OC3 level is even greater. For an OC12, for example, a carrier typically has the ability to provision four OC3s, totaling twelve lower level drop groups, or a combination of OC3s and lower level drop groups. Thus, applying the same logic above, one can quickly see that the possible number of OC3, DS3 and DS1 combinations is quite large. For the same reasons, the number of possible combinations available for loops whose capacities exceed the OC12 level is even greater.

Q. MR. MINTER SUGGESTS THAT LOOP CONSTRUCTION IS TIME-CONSUMING AND COULD TAKE AS LONG AS SIX TO NINE MONTHS, AND THAT THIS AND RELATED CONSIDERATIONS CONSTITUTE A BARRIER TO COMPETITIVE CARRIERS' DEPLOYMENT OF LOOPS. (MINTER DIRECT, PAGE 14, LINES 7-13). WHAT IS YOUR RESPONSE?

A. Mr. Minter's suggestion does not counter SBC Missouri's evidence relative to potential deployment of loops. Although Mr. Minter cites ¶ 304 of the *Triennial Review Order*, which references a time frame of "between 6-9 months," it is important to note that this reference is made specifically with respect to "constructing local loops." A local loop typically encompasses the transmission facility between a distribution frame (or its equivalent) in a central office and the loop demarcation point at end end-user's premises.[2] In this proceeding, however, SBC Missouri has not advocated an analysis of potential deployment from the context of constructing an entire local loop. Instead, SBC Missouri

has only advocated the extension of a short lateral (typically less than 500 feet) from an existing fiber optic cable backbone into a building.

Similarly, SBC Missouri's potential deployment analysis is focused upon a specific type of environment that does not encompass far flung rural and suburban areas. Rather, its analysis is focused on densely populated urban environments where competitive carriers' existing fiber optic cables are within 300 feet of a building. It is in these environments where alternative providers have already determined that the revenue opportunities outweigh the expense of constructing the backbone fiber cable already in place.

Q. IN YOUR EXPERIENCE, HOW LONG SHOULD IT TAKE TO EXTEND A SHORT FIBER LATERAL FROM THE BACKBONE IN THE CONTEXT YOU DESCRIBE?

A. In my experience, the amount of time necessary to do this work is typically no longer than ninety days.

Q. PLEASE DESCRIBE THE NECESSARY ACTIVITIES THAT OCCUR DURING THESE NINETY DAYS

A. At a minimum, the activities to extend a short lateral from the fiber cable backbone include:

[2] 47 CFR § 51.319 (a).

- Complete a planning package for the configuration of the optronics, the path into the building, and the specific fiber strands to be used (this can generally be completed within one week).
- Design construction work prints, gather necessary permits (in Kansas City and St. Louis, this can generally be completed within three weeks).
- Place conduit (if necessary) and place and splice fiber cable (this can generally be completed within three to four weeks).
- Install the optronics at both the central office and at the customer location (this can generally be completed within two weeks).
- Testing and turn-up of optronics (this can generally be completed within one week).

These same activities are further described in my direct testimony on pages 14 – 17, 19, 20.

Q. DO CUSTOMERS TYPICALLY WAIT UNTIL THE LAST MINUTE BEFORE ORDERING A HIGH-CAPACITY LOOP?

A. No. It is my experience that customers who order high-capacity loops, especially OC(n) loops, are sufficiently sophisticated and knowledgeable about their telecommunications needs that they plan their high-capacity needs months in advance, whether they are

changing service providers or acquiring new service.[3] Ninety calendar day builds are generally sufficient to provide this service.

Q. MR. MINTER STATES THAT SBC HAS MISINTERPRETED THE DEFINITION OF A LOOP FOR THE PURPOSES OF THE SELF PROVISIONING TRIGGER (MINTER, DIRECT, PAGE 24, LINES 10-17). HE ASSERTS THAT IN ORDER FOR THE TRIGGER TO BE SATISFIED, A CUSTOMER LOCATION WOULD HAVE TO BE SERVED BY TWO OR MORE COMPETING PROVIDERS. HE FURTHER DEFINES THIS BY STATING THAT A "CUSTOMER UNIT AT THE LOCATION" IS ONLY A SUBSET OF THE BUILDING "LOCATION". WHAT IS YOUR RESPONSE?

A. Mr. Minter is mistaken. Nowhere in the FCC's self-provisioning rules does it appear that a building cannot meet the self-provisioning trigger unless the two CLECs have access to the entire building. While there is a requirement in the FCC's wholesale trigger rules that "[t]he competing provider has access to the entire customer location, including each individual unit within that location,"[4] the fact that the requirement does not appear in the FCC's self-provisioning rules demonstrates that the FCC deliberately chose not to impose this requirement for the self-provisioning trigger.

[3] *Triennial Review Order*, fn. 937 (referring to planning generally commencing "months in advance" in connection with OCn loops).

[4] 47 CFR § 51.319 (a)(4)(ii)(B)(DS1 loops); 47 CFR § 51.319 (a)(5)(i)(B)(2) (DS3 loops).

In addition, Mr. Minter's position does not reflect sound engineering practices. No efficient carrier would design its fiber facilities such that it would gain access to only one unit in a building. Otherwise, it would ultimately have to place a separate fiber cable for every unit in the building. Then to suggest that two competing providers would need to follow this same plan of deployment to the same unit makes even less sense. An efficient carrier would provision its fiber for the entire building, allowing for future access to each individual unit.

Q. WOULD THE PROVIDERS SBC MISSOURI IDENTIFIED IN THE CORRIDOR APPROACH LIKELY HAVE CONSIDERED ACCESS TO ALL UNITS WHEN PLACING FIBER INTO BUILDINGS?

A. Yes. When SBC Missouri considered the corridor approach, it looked at CLEC providers that have already placed fiber backbone facilities to within 300 feet of buildings. In my experience, all carriers (whether they be CLEC or ILEC) deploy facilities in a manner that allows them the ability to maximize the use of those facilities. The reason a carrier goes to the time and expense of placing fiber backbones is so the carrier can serve building locations along those backbone routes. No efficient carrier would spend the money to place the backbone fiber only to choke itself off at the building entrance. The total building forecast would have been considered and planned for when the carrier placed the fiber cable into the building.

Q. WHAT PLAN WOULD AN EFFICIENT CARRIER USE WHEN DEPLOYING FIBER INTO A BUILDING?

A. An efficient carrier would negotiate with the building owner to have access to the equipment room. It would place a sufficiently sized fiber cable to the equipment room and terminate it on a fiber distribution panel, or there would be a fiber splice closure placed to provide for access to all of the fibers. It would also negotiate a pathway from this equipment room to the customer's unit to complete the loop. This would provide the carrier's customer use of the loop and also leave the fiber cable accessible to the carrier for other units in the building. It would also recognize that the conduit pathway from the street into the building is generally limited in quantity and size. This would require the carrier to either place the maximum size fiber cable anticipated to serve the entire building or consider placing additional innerducts to allow for pulling in future fibers.

Q. ARE THERE ANY VARIATIONS TO THIS PLAN?

A. Yes. In some cases, the end customer will want the fiber cable protected all of the way to their unit, but this is not the norm. If this happened, the provider would have to pull in spare innerduct so there is a path from the street to the equipment room for future fiber requests.

Q. WHAT IF A CARRIER PLACED A FIBER CABLE TO JUST A SINGLE UNIT? HOW WOULD IT STILL HAVE ACCESS TO THE REST OF THE BUILDING?

A. In most cases the fiber cable would be placed within conduit leading to the equipment room and then placed through a pathway to the unit being served. Generally, the efficient carrier would ensure that the fiber cable has splicing slack either in the equipment room or in the handhole. The handhole slack could be pulled into the equipment room, opened

up in a splice case and be available to splice the spare fibers to another unit. The carrier would only need to obtain a pathway from the equipment room to any other unit in the building. If there was no slack, there is also a method of opening up the fiber cable by just making a sheath opening, pulling out the fibers and splicing them to another fiber cable that extends on.

Q. WHAT DOES SBC MISSOURI DO?

A. Typically SBC Missouri will place a sufficient size fiber cable from the street to the equipment room and terminate it in a fiber distribution panel or fiber splice closure. As each customer requests service, the building owner or the customer will provide a pathway from their unit to the equipment room. SBC Missouri will then place its loop facilities along that pathway.

Q. DOES THE TESTIMONY OF ANY OTHER PARTY DISCUSS THE DIFFERENCE BETWEEN A CUSTOMER LOCATION AND UNIT?

A. Yes, the direct testimony of James M. Maples filed on January 12, 2004, on behalf of Sprint Missouri, Inc. ("Sprint") states (page 10), that "Sprint believes that the term 'customer location' refers to a building or unit of property. A customer location can house one or more individual customers." He also acknowledged that the "self-provisioning trigger for DS3 loops and dark fiber loops require that competing providers have deployed facilities to the customer location but does not include the additional requirement that the providers have access to each individual unit with the location." While Sprint has since sought to withdraw this testimony, Sprint's admission is

consistent with SBC Missouri's position regarding the requirements of the *Triennial Review Order*.

Q. DOES YOUR DISCUSSION ALSO APPLY TO THE WHOLESALE TRIGGER FOR HIGH CAPACITY LOOPS?

A. Yes, the same logic, thought process and engineering would apply even more so to the wholesale trigger, since a provider of wholesale services would especially be inclined to maximize their facilities at a location in order to maximize its potential revenue.

Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes.