BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION

SOCKET TELECOM, LLC,	)
	)
COMPLAINANT,	)
	)
V.	) **CASE NO. TC-2008-0225**
	)
CENTURYTEL OF MISSOURI, LLC DBA	)
CENTURYTEL AND SPECTRA	)
COMMUNICATIONS GROUP, LLC DBA	)
CENTURYTEL	)
	)
RESPONDENTS.	)

SURREBUTTAL TESTIMONY OF

STEVEN E. TURNER ON BEHALF OF

SOCKET TELECOM, LLC
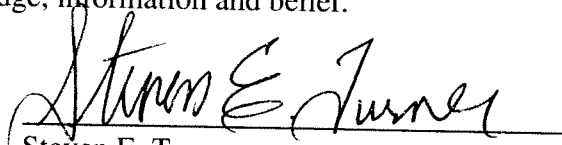
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ATTORNEYS FOR SOCKET TELECOM, LLC

February 18, 2009

~~STATE OF~~ _____)
District
~~COUNTY~~ OF Columbia   )   SS.
)

BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION

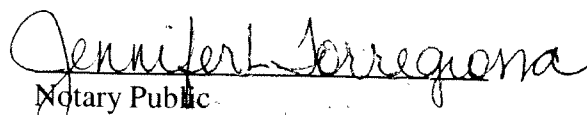|	
Socket Telecom, LLC,	)
	)
Complainant,	)
	)
v.	) **Case No. TC-2008-0225**
	)
CenturyTel of Missouri, LLC dba	)
CenturyTel and Spectra Communications	)
Group, LLC dba CenturyTel	)
	)
Respondents.	)

AFFIDAVIT OF STEVEN E. TURNER

COMES NOW STEVEN E. TURNER, of lawful age, sound of mind and being first duly sworn, deposes and states:

1. My name is Steven E. Turner. I am a consultant for Socket Telecom, LLC and employed by FTI Consulting.

2. Attached hereto and made a part hereof for all purposes is my Surrebuttal Testimony in the above-referenced case.

3. I hereby swear and affirm that my statements contained in the attached testimony are true and correct to the best of my knowledge, information and belief.

_____
Steven E. Turner

SUBSCRIBED AND SWORN to before me, a Notary Public, this 5th day of February, 2009.

_____
Notary Public

(SEAL)

1   **I.   BACKGROUND AND EDUCATION**

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

3   A.   My name is Steven E. Turner. My business address is FTI Consulting, 1101 K Street

4   NW, Washington, DC 20005.

5   **Q.   Are you the same Steven E. Turner that submitted Direct Testimony in this**

6   **proceeding?**

7   A.   Yes.

8   **Q.   How is your testimony organized?**

9   A.   My Direct Testimony primarily addressed the provisions of Article V: Interconnection

10   and Transport and Termination of Traffic – an article within the Interconnection

11   Agreement between Socket Telecom and CenturyTel. Specifically, Section 4.0 of this

12   article addresses when Socket Telecom and CenturyTel are to establish Points of

13   Interconnection ("POIs") in instances when they directly interconnect.   My Direct

14   Testimony focused on the technical aspects of the terms and conditions in this section of

15   the Agreement between Socket Telecom and CenturyTel. CenturyTel witness Fleming

16   responded to my testimony. As such, my Surrebuttal Testimony will primarily address

17   the assertions made in his testimony, but will likewise address testimony by the other

18   CenturyTel witnesses to the extent that such testimony relates to these technical matters.

19   **Q.   Could you please generally summarize your testimony in this regard?**

20   A.   CenturyTel makes a fundamental error with respect to the interpretation of the language

21   in Article V that pervades all of its testimony. Section 4.3 and its subsections are clearly

22   defined to determine when Socket must establish additional POIs after an initial POI has

1   been established.[1] The language of this section does not address how *many* trunks are to

2   be included in the trunk group between two switches – a question that Erlang-B traffic

3   engineering principles can assist in addressing. Instead, the language of this section only

4   addresses whether a new POI should be added[2] or an existing POI should be removed.[3]

5   For this question, the Agreement calls for determining the monthly peak usage for a

6   particular exchange and whether that peak usage has exceeded a threshold for three

7   months in a row. This is the measurement that Socket Telecom has implemented in a

8   straightforward manner.   However, as my testimony will detail below, CenturyTel

9   consistently wants to complicate the process with calculations related to the number of

10   trunks that are required between two switches – an examination that is inappropriate and

11   unnecessary for implementing the language in Section 4.3.

12   A second and related problem that I will address is that CenturyTel has portrayed

13   that it does not have a tandem switching arrangement in place as described in my

14   testimony. As I will detail below, the reality is that CenturyTel absolutely does have

15   such a network structure. The reality is that today traffic is passing to exchanges through

16   an intermediate switch (typically referred to as a tandem switch) and the language of

17   Section 4.3 addresses whether an additional POI should be established. The initial route

18   through the tandem switch does not go away. As I will describe in detail below, this

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[1]   CenturyTel – Socket Telecom Interconnection Agreement, Article V: Interconnection and
       Transport and Termination of Traffic, Section 4.3.

[2]   CenturyTel – Socket Telecom Interconnection Agreement, Article V: Interconnection and
       Transport and Termination of Traffic, Sections 4.3.3 and 4.3.4.

1   existing route through the CenturyTel tandem should be accounted for in trunk sizing

2   calculations, but has nothing to do with the application of the POI thresholds established

3   in the interconnection agreement.

4   **Q.   Mr. Fleming spends a considerable amount of time in his testimony explaining the**

5   **basis and use for the Erlang-B engineering principles, as did you. Where does he**

6   **make it clear that these are used for determining the *sizing* of trunk facilities?**

7   A.   Throughout his testimony, Mr. Fleming focuses on his "experience in trunk facility

8   sizing," noting that he "engineered switching systems including the sizing of trunk

9   facilities and other switch components based on historical and trended traffic usage using

10   statistical blocking and delay based tables."[4] Mr. Fleming goes on to explain when

11   discussing Section 4.3 that CenturyTel used a calculation approach to "determine the

12   necessary *size* of each interconnection trunk group."[5] There are clear problems with the

13   calculation approach used by CenturyTel which I will detail later in this testimony, but

14   the primary point here is that CenturyTel is not implementing the requirements of Section

15   4.3 regarding the peak *traffic*, but instead is attempting to *size* the trunk groups that

16   would go between two switches if Erlang-B calculations were applied solely to that link.

17   Further, in criticizing Socket Telecom's approach to Section 4.3, Mr. Fleming

18   notes the following: "The offered traffic and an objective grade of service (B.01) along

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[3]   CenturyTel – Socket Telecom Interconnection Agreement, Article V: Interconnection and
       Transport and Termination of Traffic, Sections 4.3.5.

[4]   Fleming Rebuttal Testimony, p. 4.

[5]   Fleming Rebuttal Testimony, p. 7 (emphasis added).

1   with the industry standard trunk engineering methods and trunking tables are necessary in

2   order to accurately determine the *quantity of interconnection trunks required*."[6] Again,

3   Mr. Fleming's approach is not measuring or calculating the peak traffic, but by his own

4   admission instead is calculating the quantity of interconnection trunks required. The

5   determination of whether a POI is required or not is made separately from the

6   determination of the number of trunks that should be established for a POI.

7 **Q.** **Do other CenturyTel witnesses suffer from the same fundamental problem of**

8   **approach?**

9 A.   Yes. When Ms. Powell describes the approach that CenturyTel used in performing the

10   calculations on the traffic between CenturyTel and Socket Telecom, she ultimately

11   concludes that she is calculating the required number of trunks to engineer between two

12   switching points to meet the Erlang-B blocking criteria – not measuring the actual

13   amount of traffic that existed between the two locations.[7]

14   Ms. Smith takes exception with the approach used by Socket Telecom, asserting it

15   "would not be used for any other purpose including traffic engineering or the final

16   determination of the actual minimum amount of trunks required to be established per

17   Article V, Section 11.1.6."[8] Here is the point: Section 4.3 does not require a

18   determination of the minimum number of *trunks* required, but instead calls for

19   identification of the peak amount of traffic for an exchange for the determination of

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[6]   Fleming Rebuttal Testimony, p. 8 (emphasis added).

[7]   Powell Rebuttal Testimony, p. 5.

[8]   Smith Rebuttal Testimony, p. 22.

1   whether an additional POI is required. Once that additional POI determination is made

2   (according to Section 4.3), the subsequent calculation of the number of trunks required is

3   based on the language in Section 11.1.6. While I do not agree with the approach

4   CenturyTel's witnesses are describing as it pertains even to Section 11.1.6, the important

5   point here is that Section 4.3 is an evaluation of whether an additional POI is required or

6   not – it is not an evaluation of the minimum number of trunks required.

7 **Q. Can you give an example that illustrates why these two calculations – peak traffic**

8   **versus Erlang-B minimum trunk calculations – produce disparate results?**

9 A.   Yes. For the sake of discussion, let us assume that Socket Telecom is providing service

10   to a small call center that has 16 representatives each using one line, and this is the only

11   customer that Socket Telecom has in an exchange. Also, assume that these 16

12   representatives during the busiest part of the day are on the phone non-stop, such that

13   they all talk for the entire hour. During this hour of the day, the amount of traffic is 16

14   hours of conversation time. Now according to the language in Section 4.3, the peak

15   traffic at any point in time is 16 conversations. There cannot be any more than that in

16   that Socket Telecom only has 16 people on 16 lines that it is serving in this small

17   exchange. As such, according to Section 4.3, when Socket Telecom evaluates whether

18   there should be an additional POI in this exchange, Socket Telecom would conclude that

19   there is no justification for the new POI in that the peak usage is 16 channels or 0.75

20   DS1s.

21   However, if one were to consider placing trunking facilities to this exchange and

22   assume (as CenturyTel assumes) that there is no alternative tandem path to get to that

1   exchange, the number of trunks that would be required according to Erlang-B traffic

2   engineering principles with 0.01 blocking is 25 trunks. If this exchange were a Class I

3   exchange or a small Class II exchange (less than 2400 lines), Socket Telecom would be

4   required to implement a new POI according to CenturyTel's calculations. Erlang-B

5   traffic engineering principles do not take into account issues such as the average holding

6   time of customer calls or the number of customers behind an exchange in making its

7   calculations. Erlang-B traffic engineering principles simply take into account the sum of

8   conversation time, apply a blocking factor, and calculate the number of trunks – 25 in

9   this instance at 0.01 blocking. It may be the right answer from an Erlang-B calculation,

10   but it does not determine the peak usage to an exchange which in the case of this example

11   cannot be greater than 16 conversations at any one time.

12 **Q.   Was the purpose of the language in Article V Section 4.3 to determine the number**

13   **of trunks that would be required between two switching locations?**

14 A.   Absolutely not. The language of Section 4.3 makes clear that the purpose is to determine

15   whether in instances of direct interconnection an additional POI is required or not: "As

16   the volume of traffic exchanged between the parties increases, Socket must establish

17   additional POIs as follows."[9] Quite simply, the purpose of the language in Section 4.3 is

18   to determine whether there is sufficient peak usage in three consecutive months that

19   Socket Telecom should then expend the additional resources to establish an additional

20   POI and directly interconnect with the exchange. Conversely, the language provides for

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[9]   CenturyTel – Socket Telecom Interconnection Agreement, Article V: Interconnection and
Transport and Termination of Traffic, Section 4.3.

1   the option that if a POI exists in an exchange where the traffic does not warrant

2   (presumably because Socket Telecom has lost its customer base in an area), Socket

3   Telecom is allowed to eliminate a POI.

4   **Q.**   **Does the method used by Socket Telecom implement a determination of the peak**

5   **usage in consecutive months as required by Article V Section 4.3?**

6   A.   Yes. As explained in my Direct Testimony, Socket Telecom tracks for each of the

7   LATAs and each exchange behind those LATAs the peak usage in DS0s that it has for

8   each of the exchanges. This information is based on the Detailed Call Records that are

9   taken off of the billing records from the switch. This information provides the exchange

10   in CenturyTel's network that was involved in either originating or terminating the call.

11   Based on this information, it is possible to determine the maximum number of

12   simultaneous calls that existed to each of the exchanges and simply track this value by

13   month.

14   The way that Socket Telecom tracks this information is to literally look second-

15   by-second through the month to see the number of simultaneous calls that are in process

16   between the Socket Telecom switch and the CenturyTel exchange. During the 2.6

17   million seconds that occur in a 30-day month, Socket Telecom identifies the second or

18   seconds that have the highest number of simultaneous calls between the Socket Telecom

19   switch and the CenturyTel exchange and records this value. This number of used trunks

20   or circuits is then compared to the relevant threshold from Sections 4.3.3 and 4.3.4 to

21   determine if the peak number of trunks used in three consecutive months exceeds the

22   threshold required by the Agreement.

1   **Q.   Mr. Fleming asserts that Socket Telecom has erred in its approach in that it has not**

2   **accounted for the requirements of Article V Section 11.1.6 and 11.3 in its**

3   **calculations.[10] Could you comment on his assertion?**

4   A.   Yes. If one reads through the entirety of Article V, it becomes clear that there are several

5   different issues related to Interconnection that are addressed. Section 4 addresses

6   "Requirements for Establishing Points of Interconnection."[11] A POI is the physical

7   interconnection that occurs between two networks and the language in this section sets

8   out the requirements that when the parties directly interconnect there must be at least one

9   POI in each CenturyTel LATA and how to determine if additional POIs within that

10   LATA are required based on the growth in traffic. Section 7 addresses the alternative of

11   indirect interconnection.

12   Section 6 addresses the next logical issue for Direct Interconnection. If you have

13   determined that you are going to have a POI – a physical point of interconnection

14   between two networks – there must then be terms and conditions to govern how that

15   physical interconnection point can be established. Section 6 sets forth the

16   "Interconnection Methods" including Physical Collocation (Section 6.1.1), Virtual

17   Collocation (Section 6.1.2), Fiber Meet Point (Section 6.1.3), Socket Self-Provisioning

18   and/or Leasing of Facilities from a Third Party (Section 6.1.4), and Leasing of Dedicated

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[10]   Fleming Rebuttal Testimony, pp. 5-6.

[11]   CenturyTel – Socket Telecom Interconnection Agreement, Article V: Interconnection and
        Transport and Termination of Traffic, Section 4.

1   Transport Facilities from CenturyTel (Section 6.1.5) as the five alternatives available.[12]

2   In my experience, these are the typical alternatives that are set forth in contracts for how

3   the direct physical interconnection of networks can be established. Essentially, these

4   terms and conditions establish how facilities will be implemented between the two

5   carriers' networks at a POI.

6   When connecting switches, simply having a POI and facilities established to that

7   POI are not sufficient for exchanging traffic – one must also establishing trunking

8   between the switches. A trunk is the path between two time-division-multiplexing

9   (TDM) switches that is selected to establish a call. A one-way trunk is a trunk that can

10   only be selected by one of the switches in control of that trunk. A two-way trunk is a

11   trunk that can be selected by either one of the switches (whichever seizes that trunk first).

12   Facilities must be established between the two switches as required in Section 6, but the

13   question of how many resources to tie up in the switches themselves in terms of the

14   number of trunk ports required is set for in Section 11 – "Trunking."[13] It is this section

15   that outlines that the Erlang-B blocking requirement of B.01 grade of service applies

16   (Section 11.1.6). It is this section of the Article that also explains that SS7 signaling will

17   be used where available and that Multi-Frequency Signaling (MF) will only be used

18   where SS7 is unavailable (Section 11.1.7). Other issues related to the trunking between

19   the switches are spelled out in this section as well.

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[12]   CenturyTel – Socket Telecom Interconnection Agreement, Article V: Interconnection and Transport and Termination of Traffic, Section 11.

[13]   CenturyTel – Socket Telecom Interconnection Agreement, Article V: Interconnection and Transport and Termination of Traffic, Section 5.

1   The point in going through this discussion is that Article V clearly contemplates a

2   specific standard for determining whether a POI is required or not in instances of direct

3   interconnection – peak usage for an exchange in three consecutive months in excess of a

4   threshold – that is completely separate from questions of how the facilities will be

5   established to the POI and the number of trunks that will be required. CenturyTel and its

6   witnesses are inappropriately attempting to pull language from disparate sections of the

7   Agreement to argue for more POIs than are required by the language of Section 4 of

8   Article V.

9   **Q.   Mr. Fleming identifies three reasons in his testimony for why he believes that the**

10   **method used by Socket Telecom to determine if a POI is required is erroneous.**

11   **Could you summarize his reasons and respond?**

12 A.   Yes. Mr. Fleming first asserts that "a count of simultaneous calls at a specific second is

13   not an adequate measure of 'traffic' because it omits the average call holding time which

14   is a necessary element for determining the total usage and occupancy of a trunk group."[14]

15   This is entirely incorrect. The approach used by Socket Telecom actually accounts for

16   the holding time of each and every call by looking second-by-second through the month

17   to see how many calls are in process by the switch. In this way, Socket Telecom actually

18   accounts for the holding time of every call to determine the peak number of simultaneous

19   calls for an exchange that occur in a month. On the other hand, contrary to Mr.

20   Fleming's assertion, the approach used by CenturyTel simply sums up the total traffic in

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[14]   Fleming Rebuttal Testimony, p. 7.

1   the busy hour of a month to determine the trunk sizing requirements for that exchange.

2   This approach does not account for whether there are a few number of calls with very

3   long holding times or a large number of calls with short holdings times. It is the

4   CenturyTel method that ignores call holding times in performing its calculations in that it

5   only looks at the total amount of traffic in an hour – not the peak usage at any given

6   moment in time.

7   Second, Mr. Fleming claims that the Commission's use of a three consecutive-

8   month criteria is "consistent with standard industry practices of measuring the average

9   peak busy hour over the three busiest month (*sic*.) of the year."[15] When I was a switch

10   engineer for AT&T, we did not use an "average peak busy hour over the three busiest

11   months of the year" as an industry standard practice (nor is this what the Commission

12   applied with its POI thresholds). In fact, the determination of trunk group sizing was

13   dependent on the type of market that was being served. College towns had busy hour

14   usage that was very much tied to when students returned back to school at the start of

15   semesters. The usage at the start and end of the semesters would typically be much larger

16   than during the semester for obvious reasons. Areas of Florida (one of the territories for

17   which I was responsible) had busy hours that were very much tied to the snowbird

18   migrations from the northern areas of the country. We would literally grow trunks during

19   the winter months to certain areas of the state that attracted many snowbirds and reduce

20   those trunks during the summer months when the snowbirds went back north. My point

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[15]   *Id*.

1   here is that the use of three consecutive months of busy hour usage is not an industry

2   standard for sizing trunks. Instead, the busy hour usage – regardless of the usage pattern

3   for a market – is what drove the sizing of the trunk groups.

4   However, the Commission in Section 4.3 is attempting to evaluate something

5   different – the increase in traffic directly exchanged between Socket Telecom and

6   CenturyTel over time. In other words, the Commission anticipated that as Socket

7   Telecom's market penetration grew, if the parties' networks were directly interconnected,

8   there would be a need to establish additional POIs in the market. The sizing of the trunks

9   between the switches (through the new POI) is an entirely different matter and addressed

10   in a different section of Article V. However, Mr. Fleming's claim that the three-month

11   measure referenced by the Commission is somehow tied to trunk engineering principles

12   simply does not hold up to the experience that I have had in this regard or standard

13   engineering practices for trunking.

14   Third, Mr. Fleming again erroneously combines the determination of whether a

15   new POI is required with the sizing of the trunks that would be established to the new

16   POI if one were established.[16] I have addressed the problems with CenturyTel's

17   confusion in this regard previously and will not repeat that discussion. In short, Mr.

18   Fleming's claim that the approach used by Socket Telecom is erroneous is unfounded and

19   should be rejected by the Commission.

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[16]   Fleming Rebuttal, pp. 7-8.

1 **Q. Is Mr. Fleming's assertion that Socket Telecom's approach only counts calls and**

2 **ignores the duration of the call correct?[17]**

3 A. No. I have previously recounted how Socket Telecom determines the number of

4 simultaneous calls. Socket Telecom's approach accounts both for the number of calls

5 and how long the calls last, in that the approach accounts for the number of simultaneous

6 calls in any second in the month. To do this, Socket Telecom must account for how long

7 each call lasts as well as the number of calls that occur. CenturyTel simply sums up the

8 number of minutes across all of the calls in an hour. Instead, Socket Telecom looks at

9 every second to see how many calls were in progress in that second, accounting for both

10 the number of calls and how long they last.

11 **Q. Mr. Fleming generally agreed with your discussion of Erlang-B engineering**

12 **principles but claimed that your discussion was incomplete.[18] Did you have any**

13 **comment on his discussion?**

14 A. Yes. I do not think the issue here is the accuracy or completeness of Mr. Fleming's or

15 my recapping of Mr. Erlang's importance to telecommunications engineering. The issue

16 is whether the principles Mr. Erlang developed and are used in industry apply to the

17 determination of new POIs as required by the language in Article V, Section 4 of the

18 CenturyTel-Socket Telecom Interconnection Agreement. To this end, these engineering

19 principles do not apply.

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[17] Fleming Rebuttal, p. 10.

[18] Fleming Rebuttal, p. 11.

1   Mr. Erlang's experience and the principles he developed were related to

2   determining initially the number of operators that were needed to handle a level of calls

3   presented. His work was done during a period when each call was established manually

4   by an operator patching the calls together on a switch board. The point being that the

5   operators were acting as circuits to complete calls. His work then extended to

6   determining the number of circuits required as the principles are used today with trunk

7   sizing. However, his engineering principles were *not* used to determine how many

8   operator centers or switches were required (the rough equivalent of determining a new

9   POI), but instead how many operators or circuits would be required for an offered

10   amount of traffic. This does not diminish the usefulness or importance of his engineering

11   principles. They simply do not relate to the calculations set out by this Commission for

12   Section 4 of Article V.

13 **Q.** **Mr. Fleming and other CenturyTel witnesses take issue with your assertions**

14   **regarding the use of a tandem switching network between CenturyTel and Socket**

15   **Telecom and the implications this has on trunk sizing.[19] Could you please respond?**

16 A.   Yes. Mr. Teasley's main point appears to be that CenturyTel does not use a tandem

17   network for its own traffic and that it does not use an overflow network for its own

18   traffic. As such, he contends Socket Telecom should not expect to receive the benefits of

19   such a network for its interconnection with CenturyTel. One of the diagrams I provided

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[19]   Fleming Rebuttal, pp. 12-13 and Teasley Rebuttal, pp. 3-4.

1   to illustrate a tandem based network in my Direct Testimony is provided again below for

2   reference.
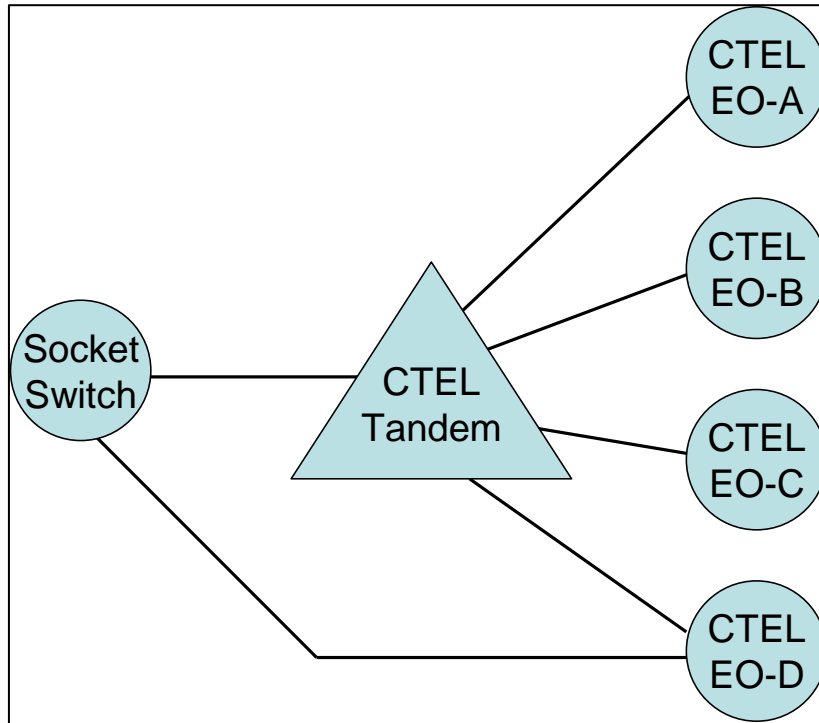
13   The problem with Mr. Teasley's testimony is that it contradicts the reality of what is

14   occurring between Socket Telecom and CenturyTel presently. CenturyTel may not refer

15   to the main interconnection point between Socket and CenturyTel as a local tandem, but

16   this switch is still operating as such. Specifically, there are a large number of CenturyTel

17   exchanges with which Socket Telecom presently does not directly connect. That is the

18   point of this present dispute, how to calculate whether a POI must be established in an

19   exchange. For traffic exchanged between Socket Telecom's switch and these exchanges

20   where Socket Telecom does not presently have a POI, the traffic is exchanged through

21   another intermediate CenturyTel switch. This switch is functioning within CenturyTel's

22   network as a tandem. It may be that the local calling scopes within CenturyTel's network

1   are so small that the direct switching model that Mr. Teasley describes is what actually

2   occurs. However, between CenturyTel and Socket Telecom, this is not how the network

3   is presently operating.

4   It was within this context that my statements about how to address trunk sizing

5   when a network has a tandem in it relate. Specifically, looking at the above diagram, if

6   there are two paths available to CenturyTel's End Office-D (as would be the case if

7   Socket Telecom were required to establish a POI at End Office-D), then the overall

8   trunking arrangements between Socket Telecom and this end office should meet the B.01

9   Erlang engineering requirement identified in Section 11.1.6. However, if the direct route

10   alone is engineered to the B.01 standard (meaning that only one call in 100 is blocked

11   during the busy hour), then for all practical purposes, the route through the CenturyTel

12   tandem switch is never used (except in theory for that one blocked call) to End Office-D

13   even though it is still available. This is why in practice direct routes (when tandem

14   routes are also available) are often engineered to a higher level of blocking (thereby using

15   fewer trunks) because the blocked traffic that will occur during the busy hour can still be

16   completed through the tandem path. It appears that Mr. Fleming and Mr. Teasley either

17   did not understand the context in which my testimony was made (the existing network

18   between Socket Telecom and CenturyTel) or chose to ignore this reality in their rebuttal

19   testimony.

20   The bottom line is that these matters do not directly bear on the question of

21   whether a new POI is required at End Office-D or not, in that the calculations for this

22   determination are not based on Erlang engineering principles. This has been detailed

1   above in earlier testimony. However, even if Erlang engineering principles were to be

2   applied, my testimony is correct that a B.01 standard would not be used for the direct

3   connection between Socket Telecom's switch and CenturyTel's End Office-D because

4   this would place too many trunks in the path in light of the existence of the alternative

5   path through the switch acting as a CenturyTel local tandem. This discussion also

6   illustrates that trunk sizing must be determined based on the POI arrangements in place

7   from time to time, but not to determine when additional POIs are required.

8 **Q.**   **Mr. Fleming implies through one of his questions in his testimony that you maintain**

9   **"that a high usage/alternate route trunk group architecture is required to 'promote**

10   **network efficiency' and subsequently to minimize the number of additional POIs."**

11   **Did you testify to this in any way?**

12 A.   No. I never said in my Direct Testimony that a tandem architecture (or a high

13   usage/alternate route trunk group architecture, as Mr. Fleming prefers to label the

14   architecture) is used to minimize the number of additional POIs. I was simply indicating

15   that this type of architecture is used to reduce the number of *trunks* (not *POIs*) that are

16   required in the direct path between the two switches in that an alternative path is also

17   available through the tandem switch. It appears that Mr. Fleming even agrees with this

18   point. My testimony is clear that Section 4.3 of Article V has a different set of metrics

19   that are to be used to determine if an additional POI is required for direct interconnection.

20 **Q.**   **Mr. Fleming makes the following statement: "Socket takes that position that trunk**

21   **facility sizing is simply – just count how many channels are in use in the peak**

1   **second, and that's how many you need."[20] Is Socket Telecom using its evaluation of**

2   **peak simultaneous conversations to perform "trunk facility sizing?"**

3   A.   No. This is merely another example of Mr. Fleming confusing the issue of determining

4   whether an additional POI is required (the calculations detailed in Section 4.3 of Article

5   V) with the determination of how many trunks should exist in a trunk group once the

6   decision to place those trunks has been established (the calculations detailed in Section

7   11.1.6 of Article V). The two issues are distinct and CenturyTel repeatedly confuses

8   them in its testimony.

9   Mr. Fleming repeats this confusion in the following complaint against Socket

10   Telecom's approach:

11   The third is that calls alone, or for that matter the number of channels in
12   use at a peak second simply does not give enough information to *size the*
13   *trunk group* to the Commission's ordered service standard of a one percent
14   probability of blocking. Socket erroneously suggests that if you had 10
15   calls at the peak second, you only need 10 circuits, regardless of whether
16   there were 10 calls every second or only at one second.[21]

17   The point here is that Section 4.3 and Socket Telecom's implementation in this regard

18   has nothing to do with the *size of the trunk group* as Mr. Fleming suggests. Instead, these

19   calculations are to determine whether an additional POI is required or not.   If a

20   determination is made that an additional POI is required, then the parties will separately

21   decide how to engineer the new arrangement (including accounting for the presence of

22   the tandem switch) to a 0.01 blocking standard.

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[20]   Fleming Rebuttal, p. 15.

[21]   Fleming Rebuttal, p. 15 (emphasis added).

1 **Q.   Does Socket Telecom only count calls in its method as Mr. Fleming suggests or does**

2   **it also account for the holding time of those calls?[22]**

3 A.   This has been addressed earlier, but Socket Telecom's approach accounts for both the

4   number of calls and the holding time of those calls in that it evaluates for every call the

5   quantity that are in process simultaneously.   To do this, Socket Telecom not only

6   accounts for the number of calls, but also accounts for how long those calls last. In this

7   way, Socket Telecom is able to identify the peak usage (the peak simultaneous calls to an

8   exchange) in each month and compare this to the thresholds called for in Section 4.3 of

9   Article V.

10 **Q.   Please comment on the following assertion from Mr. Fleming: "Mr. Turner would**

11   **have us believe that the number of simultaneous calls during a particular second is**

12   **adequate to measure the 'total traffic' with no indication of whether those calls**

13   **lasted on average one second or 30 minutes."[23]**

14 A.   This statement unfairly represents my Direct Testimony and does not accurately reflect

15   the approach used by Socket Telecom. As I have testified repeatedly, Socket Telecom's

16   approach accounts for both the number of calls as well as the duration of those calls by

17   looking at how many calls are in simultaneous operation at any second in time. As such,

18   if in Mr. Fleming's hypothetical there were 10 calls that lasted on average one second,

19   the Socket Telecom approach would evaluate whether those 10 one-second calls occurred

20   in the same second (thereby having a peak usage of 10 circuits or 0.4 DS1s) or were

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[22]   Fleming Rebuttal, p. 15.

1   spread out with none being simultaneous (thereby having a peak usage of one circuit or

2   0.04 DS1s). The same would be the case if in Mr. Fleming's hypothetical there were 10

3   calls that lasted on average 30 minutes. Socket Telecom would evaluate second-by-

4   second whether these 10 calls overlapped (which would be more likely with long holding

5   times) and determine if the peak usage was the 0.4 DS1s (the highest possible) or 0.04

6   DS1s (the lowest possible) or somewhere in between. The point here is that the Socket

7   Telecom approach, completely contrary to what Mr. Fleming testifies, does not ignore

8   holding time, but carefully accounts for it in the determination of peak usage.

9 **Q.   Is Mr. Fleming correct when he claims that you assert at pages 7 to 9 of your Direct**

10   **Testimony that "peak simultaneous calls provide the necessary information to**

11   **determine how many trunks are needed?"[24]**

12 A.   No. My testimony does not say this at all. Instead, I note at page 8 of my Direct

13   Testimony the following: "In other words, Socket Telecom and CenturyTel should be

14   monitoring the maximum (peak) number of simultaneous call paths or trunks that are

15   occupied for each exchange in CenturyTel's network each month and determine whether

16   this value exceeds the defined threshold (based on line count) for three consecutive

17   months to *determine whether a new POI is required*." I have added the emphasis at the

18   end of this quote to make clear that I was only speaking to the question of using a

19   measure of simultaneous calls as Socket Telecom has done to determine if an additional

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[23]   Fleming Rebuttal, p. 17.

[24]   Fleming Rebuttal, p. 17.

1   POI is required – not the number of trunks needed between two switches. These are two

2   different calculations in Article V of the CenturyTel-Socket Telecom Interconnection

3   Agreement. Mr. Fleming is simply confused when he asserts that Erlang-B trunk sizing

4   calculations should be used to determine whether an additional POI is required.

5   It is for this reason that his extensive example at pages 17-19 of his testimony is

6   irrelevant to the issue of whether an additional POI is required. The only question that is

7   being answered with the evaluation of the number of simultaneous calls is whether there

8   should be an additional POI. If, in Mr. Fleming's example there were 59 simultaneous

9   calls in a 2412-line Class II exchange for three months in a row, then Section 4.3 of

10   Article V would require an additional POI for this exchange. Once this determination

11   was made then the remainder of Article V would come into play, such as how this POI

12   will be established (Physical Collocation, Virtual Collocation, Meet-Point Fiber, or

13   leased arrangement), and then ultimately how many trunks should be established over the

14   facilities going through the POI. The number of trunks required is an engineering

15   decision that should account for the B.01 blocking criteria, the engineering of the

16   network (such as the presence of the tandem switch), and a forecast of busy hour usage.

17   But the question of whether there should be an additional POI or not is purely related to

18   whether there are more than 58 simultaneous calls during some period (*i.e.* a second) in

19   three consecutive months.

1   **Q.   It would seem then that it is reasonable that you and Mr. Kohly would not claim**

2   **that you use this approach for trunk engineering within Socket Telecom or your**

3   **experience with other companies.[25]**

4   A.   That is correct. When it comes to the issue of how many trunks should be established

5   between two switches, there are many other factors that come into play that are unrelated

6   to the calculation of the number of simultaneous calls for an exchange in CenturyTel's

7   network. However, for the purpose of determining whether an additional POI is required

8   for direct interconnection arrangements, this measure of simultaneous calls is precisely

9   the metric that is required by the interconnection agreement.

10 **Q.   At the end of Mr. Fleming's testimony he goes through two hypothetical situations**

11 **in an attempt to demonstrate that the calculation of simultaneous calls improperly**

12 **determines the number of trunks.[26] Could you comment on his examples?**

13 A.   First, let me reiterate that I have not at any time indicated that the use of simultaneous

14 calls should be used to determine the number of trunks between two switches for trunk

15 sizing purposes – only that the calculation should determine whether an additional POI is

16 required. That said, there are still several issues with Mr. Fleming's examples that are

17 worth noting.

18 *First*, according to Section 4.3 of the agreement, regardless of whether this

19 hypothetical exchange was a Class I or Class II Exchange (of at least more than 1000

20 lines), a maximum of 10 simultaneous calls would not require an additional POI and

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[25]   *See* Fleming Rebuttal, p. 19.

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1   therefore engineering trunking arrangements into this hypothetical exchange would not

2   even come into play.

3   *Second*, even if I grant Mr. Fleming the benefit of the doubt on his examples and

4   assume that trunking would be established, it is typical in the industry to establish and

5   grow trunks in DS1 increments. Moreover, Section 11.1.6 of Article V requires as much

6   noting: "Reciprocal traffic exchange arrangement trunk connections shall be made at a

7   DS-1 or multiple DS-1 level, DS-3, (Synchronous Optical Network (SONET) where

8   technically available) and shall be jointly engineered to the appropriate industry grade of

9   service standard." In other words, the minimum size trunk group would have 24 trunks

10   for his example. As such, the probability of blocking in his first scenario (all 10 trunks

11   busy for one second and in the remaining 3599 seconds only four trunks busy) would be

12   0.00%. The probability of blocking in his second scenario (all 10 trunks busy for 20

13   minutes and eight trunks busy for the remaining 40 minutes) even with the dramatic

14   increase in total usage in this hypothetical would still only be 0.00%. In other words, the

15   usage in these two examples still fail to register as a significant level of usage for the

16   purposes of calculating trunking requirements.

17   *Third*, even if you were to place this level of usage into an Erlang-B calculator in

18   the first or second scenario, the number of trunks that would be required would be 10 in

19   the first scenario and only 16 in the second scenario. Of course, this is part of the

20   challenge with using an Erlang-B calculator approach for small usage information – it

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[26]   *See* Fleming Rebuttal, pp. 20-22.

1   can often require more trunks (16) than your anticipated number of simultaneous calls

2   (10). In this case, six trunks would sit completely idle all of the time in Mr. Fleming's

3   approach.

4   I have never proposed that the simultaneous calls metric be used to *size* the

5   number of *trunks* between two switches. However, it is a reasonable (and ordered)

6   metric for how to determine if an additional POI is required. In this case, it would

7   correctly determine that there is no need for a new POI for this exchange. That said, the

8   main point that can be drawn from Mr. Fleming's examples is that he is entirely confused

9   about the difference between determining if a POI is required and determining the

10   number of trunks that would be established with the switch behind that POI.

11   **Q.   Do you hold the opinions you express in this testimony to a reasonable degree of**

12   **certainty as an expert regarding telecommunications matters?**

13   A.   Yes.

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

15   A.   Yes, it does.