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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION
REBUTTAL TESTIMONY
OF
SANDRA A. KHAZRAEE

Q. Please state your name, business address and title.

A. My name is Sandra A. Khazraee. My business address is Sprint-Florida, Incorporated, 1313 Blair Stone Road, Tallahassee, Florida 32301.

Q. By whom are you employed, and what are your current responsibilities.

A. I am employed by Sprint-Florida, Incorporated as Regulatory Manager. My current responsibilities include coordinating responses to FPSC data requests and interrogatories and ensuring compliance with all FPSC orders. I interface regularly with Sprint employees at all levels within network, marketing and engineering in order to carry out my job responsibilities.

Q. Please describe your education and work experience.

1 A. I received a Bachelor of Science Degree in Mathematics
2 from McNeese State University, Lake Charles, LA. Over
3 the past 20 years, I have attended numerous industry
4 schools and seminars covering a variety of technical,
5 economic and regulatory issues. The industry courses I
6 have taken include "Fundamentals of Digital Switching,"
7 "DMS Overview," "AT&T Switch Overview," "NTI: Method of
8 Operation," "5EDOPs," "Switch Network Design Tool," and
9 "Cellular Communications."

10

11 In my twenty years of experience in the telecommunication
12 industry, I have worked as an outside plant engineer (6+
13 years), long range switch planner (4 years), technology
14 planner (1 $\frac{1}{2}$ years), supervising engineer-network
15 planning (1 $\frac{1}{2}$ years) and pricing and costing manager (5
16 + years).

17

18 Q. Have you previously filed testimony in this proceeding?

19

20 A. No.

21

22 Q. Have you read the Prefiled Testimony of Mr. John Meyer of
23 Wireless One Network, L.P., that was filed in this
24 proceeding?

25

1 A. Yes, I have.

2

3 Q. What is the purpose of your rebuttal testimony?

4

5 A. The purpose of my rebuttal testimony is to address the
6 functionality of Sprint-Florida's end office switches in
7 response to the testimony of John Meyer.

8

9

10 Q. What is an end office switch?

11

12 A. An end office switch is a central office switching system
13 that provides for the termination of line and trunk
14 facilities and that performs the switching connections of
15 lines with lines, lines with trunks, and trunks with
16 trunks. End office switches also provide the features,
17 functions and capabilities that enable telephone services
18 to be provided to the customers.

19

20 Q. What type of end office switches does Sprint-Florida use
21 in its network?

22

23 A. Sprint-Florida uses Nortel DMS-10, DMS-100, AT&T 5ESS and
24 Alcatel 1210 switches for its end office switching
25 systems.

1

2 Q. What is the definition of switching?

3

4 A. Switching is the function of establishing a connection
5 between two or more parties using the switching matrix of
6 the end office. The dedicated central processor (CPU)
7 located in each end office switch controls the switching
8 function. The CPU accomplishes this using the
9 information received from the calling line or trunk
10 regarding the called line or trunk. In contrast to these
11 switching functions, we also have subscriber line carrier
12 (SLC) units which can establish connections between
13 feeder lines or trunks and distribution lines. However,
14 these types of connections are not the same as the
15 switching functions performed by an end office switch.
16 In the case of a SLC, the only connections possible are
17 those between the end users served by the SLC and the
18 feeder circuits which carry their traffic back to the
19 "host" end office switch. As an end user subscriber goes
20 off hook to make a phone call, the SLC will randomly
21 assign a vacant channel on the feeder route to carry the
22 call back to the end office switch. In the end office
23 switch, the call will be switched to the called line or
24 trunk. Additionally, SLCs do not contain any features,
25 recordings or call processing capabilities.

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Q. Between the end office switch and Sprint's end user customer are there any devices that perform a switching function?

A. No. Between the end office switch and the end user Sprint uses various types of equipment and facilities for termination of calls to the end users' premises. In some cases the end user is connected directly to Sprint's end office switch using a dedicated pair of copper wires. However, in many cases Sprint places equipment closer to the end users in order to reduce the number of circuits needed to connect all the way to the central office.

The types of equipment that I am referring to are line concentration devices generally called subscriber line carrier (SLC) systems. These SLCs provide Sprint with the ability to concentrate the usage of a larger number of customers over a smaller number of circuits using carrier systems. Carrier systems allow multiple service channels to be provided via fiber or digital T1 connections. Sprint uses fiber optic systems in ring architectures that connect different switching systems and in some cases customers directly to the network.

1 Where ring architecture is used, if there is a problem
2 somewhere along the ring, services can be rerouted in the
3 opposite direction on the ring. In this way, barring
4 multiple problems on the ring, 100% reliability of
5 Sprint's transmission facilities is maintained.

6
7 Q. You say that in a ring architecture that services are
8 rerouted in the opposite direction. Isn't this end
9 office switching?

10
11 A. No. This is just a change in the transmission path so
12 that a call in progress may continue, and new calls can
13 be made or received. The electronic equipment in the
14 ring is built with this capability to change the
15 transmission path if it sees that there is a need to do
16 so. However, this does not affect the end office
17 switch's connection of the call nor its ability to switch
18 other calls.

19
20 Q. Does Sprint also use remote switches in its network?

21
22 A. Yes, it does. These are generally smaller switches where
23 the intelligence in the host is shared with the remotes.
24 However, most remotes have the call processing capability
25 that allows them to switch POTS calls within the remote

1 in the event the host/remote umbilical is lost.

2

3 Q. Earlier you stated that Sprint's end office switch
4 provides features, functions, and capabilities that allow
5 telephone services to be provided to end users. Please
6 explain what you mean by features.

7

8 A. By features I mean call processing and control
9 capabilities that are provided to Sprint's subscribers
10 for their use in addition to the basic capability to
11 place and receive calls. Among these are features such
12 as call waiting, call forwarding, three-way calling and
13 speed dialing.

14

15 Q. How does the end office switch provide these features?

16

17 A. The central office switch manufacturers have developed
18 software packages that are available to a purchaser of
19 the switching system. These software packages are
20 installed into the memory of the end office switch.
21 Then, through the process of developing tables within the
22 end office switch CPU the features are activated and made
23 available for assignment to any of the subscribers served
24 by that end office switch. Then, for any given line, the
25 particular features that subscriber wants are assigned to

1 that line.

2

3 Q. Is any of the information regarding the subscriber's
4 features stored or maintained at the loop concentration
5 devices?

6

7 A. No, since the CPU in the end office switch controls the
8 processing of calls and the features related to those
9 calls, this feature information resides in memory at the
10 end office switch.

11

12 Q. Please explain what you mean when you say that the end
13 office switch provides functions and capabilities.

14

15 A. The first function, that I've already described, is
16 switching. In relation to switching calls, the end
17 office switch performs functions such as digit
18 recognition and translation so that it can accurately
19 determine what to actually do with the call.

20

21 For instance, the end office switch must determine if the
22 called number is served by that end office switch. If
23 so, the end office switch determines the location of a
24 called subscriber by using the telephone number received
25 from the calling line or trunk. Further, the end office

1 switch will reference any features, such as call
2 forwarding, that may be activated that would impact the
3 determination of where to switch the call for
4 termination. The switch will also determine if the
5 called subscriber is already using their telephone. Once
6 the central processor dedicated to the end office switch
7 makes these various determinations, then it will
8 establish a connection of the calling line or trunk to
9 the called party through its switching matrix.

10

11 Q. Are there other functions and capabilities provided by
12 Sprint's end office switch?

13

14 A. Yes. The end office switch provides connections to
15 recordings and announcements to inform the calling party
16 about conditions that impact the end office switch's
17 ability to complete the call. Examples of these
18 recordings/announcements are: "that number is no longer
19 in service," "the number you dialed has been changed, the
20 new number is ...," and "we're sorry, it is not necessary
21 to dial 1 or 0 when calling this number."

22

23 Additionally, the end office switch performs the
24 recording function to capture details regarding the call
25 so that billing can occur if necessary. Generally, this

1 is needed for billing of terminating charges for traffic
2 from other carriers, or for originating access, toll or
3 local charges to carriers or subscribers related to the
4 origination of traffic.

5
6 Q. Can another carrier directly connect to Sprint's end
7 office switch with trunks for the delivery of traffic to
8 Sprint's subscribers?

9
10 A. Yes, the trunk side of the end office switch allows the
11 connection of trunks for the interconnection of another
12 carrier's network to that end office switch so that calls
13 from that carrier's subscribers to Sprint's subscribers
14 served by that switch can be terminated directly at the
15 switch. As I have described, the end office switch
16 performs the necessary functions to establish the
17 connection between the calling line or trunk and the
18 called line.

19
20 Q. In Mr. Meyer's testimony, he refers to the Wireless One
21 cell sites as end offices. Mr. Meyer also claims that
22 Sprint's end office switches and Wireless One's cell
23 sites perform the same or similar functions. Do you
24 agree with Mr. Meyer?

25

1 A. No, I do not.

2

3 Q. Please explain why you disagree with Mr. Meyer.

4

5 A. First and foremost, Sprint's end office switches perform
6 the switching function of connecting a calling line or
7 trunk to the called line. To do so, the central
8 processor performs the steps that I have described. The
9 Wireless One cell sites do not perform the switching
10 function nor do they contain the central processor that
11 is used to perform that switching function.

12

13 Additionally, the Wireless One cell sites are not capable
14 of a direct interconnection of trunks from Sprint's end
15 office switches for the termination of calls. Although
16 Wireless One may have some transmission equipment located
17 in the same building where the electronics of the cell
18 site are housed, this equipment is used for the
19 completion of the trunk circuits to the Wireless One end
20 office switch, their DMS 250. The presence of
21 transmission equipment does not make the cell site an end
22 office.

23

24 Also, the feature information and capability that I
25 described in Sprint end office switches located in the

1 Ft. Myers LATA is not present in Wireless One's cell
2 sites. This functionality would be resident in the
3 centrally located Wireless One switch commonly known as
4 a MTSO. All feature interactions and capabilities are
5 controlled by the CPU at the switch, not by the
6 electronics at the cell site.

7
8 Finally, the other functions and capabilities that I
9 discussed, such as the recording function, digit
10 recognition and translation, messages and announcements,
11 are all provided by the Wireless One switch rather than
12 the electronics at the cell site.

13
14 Given the fact that Sprint's end office switch performs
15 these functions and that the Wireless One cell site and
16 its electronics do not, I cannot agree that Sprint's end
17 office switch and Wireless One's cell sites perform
18 equivalent functions.

19
20 Q. Does this conclude your testimony?

21
22 A. Yes it does.
23