

1 SUPRA TELECOMMUNICATIONS & INFORMATION SYSTEMS, INC

2 REBUTTAL TESTIMONY OF MARK C. GRAHAM

3 BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

4 DOCKET NO. 980800-TP

5 September 21, 1998

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RECORDS AND REPORTING

7 Q. PLEASE STATE YOUR NAME AND ADDRESS.

8 A. My name is Mark C. Graham. My business address is 2620 S.W. 27th
9 Avenue, Miami, Florida 33133.

11 Q. BY WHOM ARE YOU EMPLOYED?

12 A. I am employed by Supra Telecommunications and Information Systems,
13 Inc., as Vice President, Voice Mail.

15 Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

16 A. During my telecommunications career, I have attended numerous technical
17 courses related to my work with various employers.

19 Q. WHAT IS YOUR TECHNICAL EXPERIENCE?

20 A. I have attached as exhibit MCG-RT1 my resume detailing my technical
21 experience. In 1979, I began my career in the telephone business with GTE
22 Automatic Electric as a field installer. Automatic Electric was a telephone
23 company switch manufacturer. That position primarily involved installing
24 central office additions to older mechanical early electronic switches. My next
25 position was with GTE of the Southwest based in Bryan, Texas. There I

- ACK _____
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- LIN 3tag _____
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1 continued working in GTE central offices throughout the region installing
2 smaller projects such as remote line test equipment.

3 In 1984, I began work for Northern Telecom as a field installer and later
4 as an installation supervisor based in Richardson, Texas. During this period
5 I installed a number of DMS250 switches for various long distance companies
6 including MCI, Sprint and others. The DMS250 is very similar physically to the
7 DMS100s and DMS200s located at both the North Dade Golden Glades and
8 the West Palm Beach Gardens central offices. I was the installation
9 supervisor for the first DMS300 international switch in the United States for
10 Sprint in New York City.

11 After three years, I took a position in the technical assistance group at
12 Northern Telecom in Morrisville, North Carolina, supporting their DMS100
13 product line and requiring occasional on-site support throughout the area from
14 Virginia to Florida.

15 I left Northern Telecom in 1989 for a position at Siemens Public
16 Switching in Boca Raton, Florida. My first position there was as an installation
17 supervisor for Siemens' EWSD product, installing local central office switches
18 at sites in Illinois, Florida, Pennsylvania and Wisconsin. Although the product
19 was very different from Northern Telecom's DMS series, the installation
20 requirements within the central office environment were identical.

21 I was later promoted to First Office Application engineer for Siemens
22 where I designed test plans for new products and features and then tested
23 those products in the field.

24 In 1992, I left Siemens to work for Boston Technology, a voicemail
25 system manufacturer based in Wakefield, Massachusetts. Boston Technology

1 has since been acquired by Comverse and is now known as Comverse
2 Network Systems. My employment at Comverse for the past eight years has
3 been as a Senior Field Engineer. Although my headquarters was based in
4 Massachusetts, my primary responsibility was in the BellSouth region from
5 North Carolina to Louisiana. The job consisted of installing new systems,
6 typically five cabinets, within the central offices and upgrading these systems
7 with additional hardware and software.

8

9 Q. WHAT EXPERIENCE HAVE YOU HAD INSIDE LOCAL EXCHANGE
10 COMPANY CENTRAL OFFICES?

11 A. I have spent much of my career installing equipment in central offices for
12 various RBOCs over the past nineteen years. I have also spent a good deal of
13 time in many BellSouth central offices over the past eight years.

14

15 Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY BEING
16 FILED TODAY?

17 A. My testimony is filed in rebuttal to direct testimony filed in this proceeding
18 by Mr. W. Keith Milner, Mr. James D. Bloomer, Mr. David Thierry, and Mr. T.
19 Wayne Mayes, on Issues 1-5 in this proceeding.

20

21 Q. DO YOU AGREE WITH MR. MILNER'S CONCLUSION THAT THERE IS
22 NOT SUFFICIENT SPACE TO PERMIT SUPRA PHYSICAL COLLOCATION
23 IN THE NORTH DADE GOLDEN GLADES AND WEST PALM BEACH
24 GARDENS CENTRAL OFFICES?

25

1 A. No. Based on my review of documents and other materials in this
2 proceeding and my own walk-through of the North Dade Golden Glades and
3 West Palm Beach Gardens central offices, it is my opinion that BellSouth has
4 failed to take many actions which could increase the amount of available
5 space for physical collocation in these central offices.

6

7 Q. WHAT SPECIFIC ACTION COULD BELLSOUTH TAKE IN THESE TWO
8 CENTRAL OFFICES WHICH COULD INCREASE THE AMOUNT OF
9 AVAILABLE SPACE FOR PHYSICAL COLLOCATION?

10 A. From my observations during the walk-throughs of both of these central
11 offices, it is clear that BellSouth is utilizing out-dated arrangements of work
12 stations that require more space than is necessary. These work stations are
13 wasteful because the individual employees do not require numerous desks
14 and terminals to perform the tasks required. The great majority of the time, no
15 employee will be sitting at most of the terminals in the central office. It is
16 technically feasible to monitor all of the switches in a central office from a
17 remote location. Therefore, it is technically feasible to monitor those switches
18 from a single location in the central office. BellSouth could greatly increase
19 the amount of available space by consolidating the numerous maintenance
20 and administrative or "MAP" positions throughout both of these central offices.
21 There are numerous technical options that can be utilized. One such option is
22 BellSouth could install computer work stations that are set up to monitor
23 numerous switches as opposed to having a separate work station and DEC
24 VT220 or equivalent computer terminal for almost every switch in the central
25 office. One technology I have seen used to reduce terminal and work station

1 space requirements is a switchbox used to allow one terminal to access
2 multiple computers. The specific example I have seen involves the use of
3 equipment from Black Box corporation. This same configuration could
4 drastically reduce the space requirements of the terminal and work stations
5 within these central offices at a minimal expense to BellSouth and resulting in
6 easier and quicker access by the technicians in the process.

7 BellSouth could also incorporate many more of the monitoring computer
8 work stations into the frames, which would eliminate the need for so many
9 MAP positions to be scattered throughout these central offices.

10

11 Q. IS THERE ANY OTHER ACTION BELLSOUTH COULD TAKE TO
12 INCREASE THE AMOUNT OF SPACE AVAILABLE IN THESE TWO
13 CENTRAL OFFICES?

14 A. Yes. Based on my observations during the walk-throughs of these two
15 central offices, BellSouth could remove inoperable equipment and cables to
16 increase available space.

17

18 Q. ARE THERE STILL OTHER ACTIONS THAT BELLSOUTH COULD TAKE
19 TO INCREASE THE AVAILABLE SPACE IN THE NORTH DADE GOLDEN
20 GLADES AND THE WEST PALM BEACH GARDENS CENTRAL OFFICES?

21 A. It is apparent from my observations during the walk-throughs of these two
22 central offices that BellSouth has scattered supply cabinets and file cabinets
23 and piles of various equipment and supplies throughout these central offices in
24 a disorganized fashion. The North Dade Golden Glades central office has a
25 supply room that could be redesigned to accommodate a much greater

1 amount of storage than the storage for which it is currently being utilized. This
2 would permit the removal of the clutter and cabinets spread throughout the
3 central office.

4 The West Palm Beach Gardens central office has an extremely large
5 supply room with a very high ceiling that could easily be redesigned and
6 reorganized to accommodate all of the supply storage needs of this central
7 office. This reorganization and redesign would free up a significant amount of
8 space in many areas of this central office.

9 BellSouth also stated that several areas of space were being utilized as
10 "staging" areas for current projects being done by vendors. While working for
11 Siemens, one of our installations in Pontoon Beach, Illinois, had very little
12 existing space and no room in the central office for support materials such as
13 cables, installation hardware, and tools. Our solution was to leave the support
14 materials in a truck outside the central office until needed. This eliminated the
15 need for us to maintain space within the central office for such materials. A
16 similar method could be used by BellSouth to reduce the floorspace
17 requirements of vendors within the central offices in question.

18

19 Q. HAS IT BEEN YOUR EXPERIENCE THAT MORE TECHNOLOGICALLY
20 ADVANCED EQUIPMENT REQUIRES LESS AND LESS PHYSICAL SPACE?

21 A. Yes.

22

23 Q. HAS IT BEEN YOUR EXPERIENCE THAT THE NEED FOR SPACE IN
24 CENTRAL OFFICES HAS INCREASED OR DECREASED IN THE LAST
25 FEW YEARS GENERALLY SPEAKING?

1 A. It has been my experience over the last nineteen years that the trend in
2 telecommunications equipment utilized by local exchange carriers is for that
3 equipment to become smaller and smaller with larger and larger capacity.

4

5 Q. BASED ON THIS EXPERIENCE, WOULD YOU EXPECT THE GROWTH
6 FIGURES AND THE CONCOMITANT NEED FOR SPACE FOR A LOCAL
7 EXCHANGE CARRIER TO BE INCREASING OR DECLINING ON A YEARLY
8 BASIS, SPEAKING IN GENERAL TERMS?

9 A. I would expect growth figures to be declining and, therefore, the local
10 exchange carrier's need for future space to be decreasing on a yearly basis.

11

12 Q. IN YOUR WALK-THROUGHS OF THE NORTH DADE GOLDEN GLADES
13 AND THE WEST PALM BEACH GARDENS CENTRAL OFFICES, DID YOU
14 NOTICE ANY FIRE WALLS BETWEEN BELL SOUTH'S
15 TELECOMMUNICATIONS EQUIPMENT AND THAT OF ANY OTHER
16 COMPANY LOCATED IN THESE CENTRAL OFFICES?

17 A. No. I did not observe any fire walls between BellSouth's
18 telecommunications equipment and that of other companies located in these
19 central offices.

20 In fact, I have personally observed the equipment of a BellSouth
21 subsidiary physically collocated in a BellSouth central office within the past
22 twelve months and I did not observe any fire wall construction of any sort.

23

24 Q. DO YOU HAVE ANY COMMENT BASED ON YOUR EXPERIENCE ON
25 THE REASONABLENESS OF A THREE MONTH TIME FRAME FOR

1 BELLSOUTH TO COMPLETE THE PREPARATION OF THE SPACE FOR
2 THE PHYSICAL COLLOCATION OF SUPRA'S TELECOMMUNICATIONS
3 EQUIPMENT IN THESE TWO CENTRAL OFFICES?

4 A. Supra is not requesting an enclosed space in BellSouth's central offices
5 and, as I previously stated, I have not observed fire wall construction around
6 the equipment of other companies in these central offices or in other BellSouth
7 central offices. Therefore, the preparation of the space for the type of
8 equipment Supra wishes to physically collocate should not involve
9 "construction" or other elaborate measures. Therefore, a three month time
10 frame should be very generous.

11

12 Q. ARE YOU FAMILIAR WITH THE TELECOMMUNICATIONS EQUIPMENT
13 LOCATED IN CENTRAL OFFICES AND UTILIZED BY LOCAL EXCHANGE
14 CARRIERS?

15 A. Yes. I have installed and worked with similar equipment for long distance
16 carriers throughout my career. I have also installed voicemail equipment for
17 BellSouth in various BellSouth central offices through the nine state BellSouth
18 territory.

19

20 Q. IN YOUR EXPERIENCE, DO LOCAL EXCHANGE CARRIERS HAVE
21 REMOTE ACCESS CONCENTRATORS AND ROUTERS LOCATED IN
22 THEIR CENTRAL OFFICES THAT ARE UTILIZED FOR THE ROUTINE
23 PROVISION OF LOCAL EXCHANGE TELECOMMUNICATIONS SERVICES?

24 A. Yes.

25

1 Q. WHY WOULD A LOCAL EXCHANGE CARRIER NEED REMOTE
2 ACCESS CONCENTRATORS AND ROUTERS TO PROVIDE LOCAL
3 EXCHANGE TELECOMMUNICATIONS SERVICES?

4 A. Local exchange carriers use this equipment to send and receive
5 information inside central offices for basic local exchange telecommunications
6 services. Remote access concentrators consist of banks of modems. As an
7 example, the Boston Technology voicemail systems I installed for BellSouth
8 typically had a bank of modems installed. These modems were used to
9 deliver data to and from surrounding central offices for delivery of Message
10 Waiting Indication (Stutter Dialtone) to the switches from the voicemail system.
11 Also, these modems were used as remote access ports for remote alarm
12 monitoring, mailbox provisioning, billing data acquisition and remote
13 maintenance.

14 The FCC has recognized the importance of national standards for the
15 attachment of electronic equipment in central offices and has specifically
16 addressed this issue in Paragraph 163 of the FCC's Order 98-188, as follows:

17 ***To facilitate competition in the local loop, we***
18 ***tentatively conclude that there should be***
19 ***uniform national standards for attachment of***
20 ***electronic equipment (such as modems and***
21 ***multiplexers) at the central office end of a loop***
22 ***by incumbent LECs and new entrants. The***
23 ***requirements would apply to both incumbent***
24 ***LEC and new entrant equipment. The***
25 ***requirements would serve the same role, for the***

1 ***attachment of equipment to the central office***
2 ***end of a loop, as do the Part 68 – Connection of***
3 ***Terminal Equipment to the Telephone Network***
4 ***– rules for the attachment of customer***
5 ***premises equipment. Currently, each***
6 ***incumbent LEC set its own requirements for***
7 ***central office equipment, and each has its own***
8 ***processes for certifying equipment before it***
9 ***can be connected to loop plant. This increases***
10 ***new entrants’ costs and time to market. A***
11 ***simple set of national requirements would***
12 ***reduce new entrants’ costs, speed their time to***
13 ***market, and reduce confusion. We seek***
14 ***comment on the content of these requirements.***
15 ***We also seek comment on whether central***
16 ***office equipment complying with these***
17 ***requirements should be certified, and if so,***
18 ***how.***

19 The above quotation indicates that the FCC has recognized the importance of
20 national standards in how central office equipment is connected. It is apparent
21 that the FCC recognizes the necessity of modems and multiplexers as
22 equipment necessary for the provision of local exchange telecommunications
23 services. If Supra is denied the opportunity to utilize such basic equipment in
24 the provision of its services, it will not be able to provide useful competition to
25

1 BellSouth, which is the point of Supra's desire to physically collocate in these
2 two central offices.

3

4 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

5 A. Yes.

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VoiceMail and TelCo. Hardware and Software Installation and Support
Experienced in Unix Scripts, Netware, MS Access, Paradox and Visual Basic
Small Office Network Design, installation and Maintenance
Experienced with Bell Operating Company Policies and Practices
Self-Starting, Motivated and Reliable

October, 1992 to present –

Senior Field Engineer - \$63,000/yr
Comverse Network Systems (Formerly Boston Technology) – Wakefield, MA

As a Senior Field Engineer for CNS, I am involved in all field activities in the Bell South region of the U.S. Although my company is based in Massachusetts, I am based in South Florida. I plan, install and test hardware and software upgrades for voicemail systems throughout the southeastern U.S. In this position, I am given a general plan of action and I implement that plan, coordinating with local Bell managers and performing the installations. I also write procedures and code utilities for other field engineers throughout the country as well as train and offer technical assistance to them. In my spare time, I also manage a small business computer network as a technical support consultant.

March 1989 to October 1992 –

First Office Applications Engineer - \$51,000/yr
Siemens Public Switching – Boca Raton

In my former job as FOA Engineer for Siemens, I designed and executed test plans for new features and new software releases for their local telephone company switch. During this time I became proficient at coding applications in the Paradox database as well as learning the latest telephone company features including Siemens' LSDN products and applications. Half of the year would typically be spent planning and testing in the lab environment, then going into field locations and testing with real-world trials.

August 1984 to February 1989 –

Technical Support Engineer - \$45,000/yr
Northern Telecom – Research Triangle Park, N.C.

My employment with Northern Telecom started as a field installer and graduated to field manager and finally as a senior technical support engineer. As a field installer, I learned the installation and operations of digital central office equipment. I moved on to managing field installations where I coordinated installation activities and testing, primarily with new long distance providers MCI and Sprint.

I was the manager of the first Northern Telecom DMS300 International switch installation in the U.S. in downtown Manhattan.

Shortly afterwards, however, I decided to move to a technical support position as it afforded me an opportunity to live in a more stable situation and get off the road. As a technical support engineer, I coordinated troubleshooting efforts with Northern Telecom's R&D group and handled most of the easier service requests on my own. During this time I became familiar with Northern's programming language - Protel.

July 1979 to August 1984 -

Field Installer - \$30,000/yr
GTE Automatic Electric - Northlake, IL.

As a field Installer with GTE Automatic Electric, I installed and tested various electro-magnetic, electronic and digital telephone company switching systems manufactured by my company. This experience trained me in telephone company operating practices and procedures as well as allowing me to become proficient in electronic troubleshooting techniques. As the switches became more digital in nature, I became familiar and adept at program patching and troubleshooting of software components.