REBUTTAL TESTIMONY OF ANTHONY V. PECORARO

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. ██████-TP

AUGUST 30, 1996

Q. PLEASE STATE YOUR NAME, ADDRESS AND POSITION.

A. My name is Anthony V. Pecoraro. My address is 3100 Braddock Drive, Raleigh, North Carolina 27612. I am a Partner Emeritus at Rendall and Associates. I am a consultant to the telecommunications industry on technical matters.

Q. PLEASE DESCRIBE YOUR PROFESSIONAL BACKGROUND AND EXPERIENCE.

A. I have worked with telephone switching systems for over 30 years. I was employed by Northern Telecom (Nortel) for 18 years. The most recent assignment at Nortel was as Director of Advanced Switching Systems for both DMS-10 and the DMS-100 family of products. In this position I was responsible for assessing the market demand for switching products in terms of capabilities and features and planning the DMS evolution to meet the market needs.

Since 1985 I have consulted with telecommunications companies

1   regarding evolving technological changes in the industry, business and

2   technology issues resulting from regulatory change and business

3   strategies that involve both network design and commercial implications.

4   I have presented papers at numerous industry conferences including

5   various state telephone association meetings, USTA conferences and

6   NARUC meetings. The general theme of these papers was either

7   networking technology or the impact of regulatory change. I have

8   published articles on network reliability and network evolution in

9   Telephony and Telephone Engineer and Management. In addition, while

10   at Nortel, I represented the Switching Group in the information meetings

11   for the Exchange Carriers Standards Association (ECSA) T1 committees

12   which were established to develop consensus on industry technical

13   issues.

14

15   Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY BEING FILED

16   TODAY?

17

18   A. My testimony is filed in rebuttal to direct testimony filed in this proceeding

19   by Mr. James A. Tamplin, Jr. of AT&T. I make reference to Mr.

20   Tamplin's direct testimony beginning on Page 25, discussing the topics

21   of Local Switching, Operator Systems, Common Transport and

22   Dedicated Transport. Mr. Tamplin's discussion of these topics concludes

23   on Page 29 of his direct testimony. I should note that in rebutting Mr.

24   Tamplin's testimony, my testimony also supports the direct testimony

25   filed in this proceeding by Mr. Keith Milner of BellSouth regarding these

-2-

1   same topics.

2

3   My testimony provides an assessment of the feasibility of using central

4   office switching capabilities to provide for the selective routing of 0-, 411

5   and 611 calls.   More specifically I assess the viability and effects of

6   using Line Code Screening within the switch software translations to

7   allow the routing of 0-, 411 and 611 calls to different places based solely

8   on the identity of the Alternative Local Exchange Company (ALEC)

9   serving the particular subscriber line involved.

10

11 Q. MR. TAMPLIN'S DIRECT TESTIMONY ASSERTS THAT THE USE OF A

12   SWITCH SOFTWARE FEATURE CALLED "LINE CLASS CODES"

13   COULD BE USED TO ALLOW CARRIER SPECIFIC ROUTING OR

14   "SELECTIVE ROUTING" FOR 0-, 411 AND 611 CALLS. DO YOU

15   AGREE WITH MR. TAMPLIN'S ASSERTIONS?

16

17 A. No. My testimony will show that the Line Class Code capability is not

18   sufficient to allow for selective routing on any substantive basis. I will

19   further show that BellSouth has exercised prudent conservation of this

20   limited capability and that attempts to utilize Line Class Codes in the

21   manner suggested by Mr. Tamplin would significantly jeopardize call

22   processing reliability.

23

24   Before I explain the fallacies in Mr. Tamplin's claims I would like to first

25   discuss the general architecture of a stored program control switching

1   system with special emphasis on the computer memory and translation

2   areas. This background should assist in understanding a very

3   complicated process with which Mr. Tamplin evidently wants this

4   Commission to tamper.

5

6   Q. WHAT ARE THE MAIN COMPONENTS OF A TYPICAL STORED

7   PROGRAM CONTROLLED LOCAL SWITCHING SYSTEM THAT ARE

8   RELEVANT TO THE ISSUES BEING CONSIDERED HERE?

9

10   A.   A local switching system such as the Lucent Technologies 5ESS,

11   Siemens EWSD or Nortel DMS-100 is basically a large computer. Like

12   all computers, including the personal computer that you may have on

13   your desk, a switching system consists of two primary parts: the

14   hardware and the software.

15

16   Q. PLEASE BRIEFLY DESCRIBE THE HARDWARE?

17

18   A. The switching system is composed of three major sub-systems. They

19   are:

20   1.   The switching matrix

21   2.   The computing complex

22   3.   The peripheral complex

23

24   The switching matrix is the part of the switch which allows connections to

25   be made between different parts of the switch. This is the hardware that,

1   when properly connected, allows the completion of calls. The computing

2   complex controls the switching matrix and all other aspects of the actual

3   local switching functions. This is the equivalent of the personal

4   computer's "chip" or central processor. The peripheral complex of the

5   switching system is a large set of port circuits. These ports are interface

6   devices that connect the switching matrix to various external and internal

7   elements. In plain English, ports are the doorways in and out of the

8   switch. The external elements may be (1) transmission facilities used to

9   connect the switch to subscribers' telephones or (2) trunk circuits which

10   connect the switch to other switching systems or operator platforms. The

11   internal elements are service circuits which provide various tones,

12   announcements, and other internal functions.

13

14   Q. WILL YOU DESCRIBE THE SOFTWARE COMPONENTS OF THE

15   TYPICAL SWITCH?

16

17   A. Yes. The software system represents the brain of the local switching

18   system. Just as a personal computer is useless without its software, a

19   switching system cannot function without software. There are two

20   primary categories of software. The first includes the operating programs

21   which contain all of the logic to perform all of the functions which the

22   local switching system must perform. For virtually all of the switching

23   systems of a particular type, i.e., DMS-100 local switches, the operating

24   programs are identical in most respects. I say these programs are

25   virtually identical because all of these switches perform essentially

1   identical logical steps.

2

3   The second category of software deals with translation information.

4   Each switch will have translations software, but the information the

5   software processes will be different. The translation software can be

6   thought of as a database, with predefined "tables" containing specific

7   kinds or types of information. For example, the information which

8   differentiates the switching system in Courtland Street in Atlanta from the

9   switching system in North Raleigh, is in the translation information.

10

11   Q. WHAT IS TRANSLATION INFORMATION?

12

13   A. To continue the personal computer example, the translation information

14   is analogous to the data you input representing your financial records,

15   your letters and documents. By comparison, the local switching

16   operating programs are analogous to the Disk Operating System

17   (DOS®), Microsoft Windows® and Lotus 123® programs used on your

18   personal computer.

19

20   Q. WHAT TYPE OF INFORMATION IS INCLUDED AS TRANSLATION

21   INFORMATION?

22

23   A. Translation information includes all the information which identifies a

24   particular end user, his or her services, telephone number,

25   presubscriptions, billing arrangements and similar things. In addition,

1   every trunk circuit in a particular switching system must be recorded in

2   the translation information for that switching system. I should note that,

3   although the information within the tables has to be customized for the

4   specific geographic area served by each switch, the arrangement of the

5   tables and the structure of the translations software is rigidly defined to

6   work with the call processing software.

7

8   Q. WHAT ARE THE MAIN CONSIDERATIONS OF A SWITCH

9   MANUFACTURER IN DESIGNING THE TRANSLATION SYSTEM?

10

11 A. In designing the translation system for a switching system, most

12   manufacturers have two primary objectives. First, the translation

13   systems and its supporting subsystems are designed for flexibility. The

14   more flexible the translation system, the more useful it tends to be for the

15   operating telephone company. Secondly, the translation system is

16   designed for very rapid access by the operating programs during call

17   processing. The speed of access directly impacts the speed of response

18   to subscribers' input and the total capacity of the switching system. The

19   net result is that translation systems for all local switching systems are

20   extremely complex.

21

22 Q. DO ALL TELEPHONE COMPANIES FILL IN THE TRANSLATION

23   INFORMATION IN THE SAME WAY?

24

25 A. No. It may help to think of the translation software and information as

1   being analogous to the way an individual chooses to fill out a Microsoft

2   Excel or Lotus 123 spreadsheet. The form (the operating program) is

3   preset, but the column and row labels, and the data in the columns and

4   rows can be customized. Just as there are many ways of building a PC

5   spreadsheet to implement a particular accounting system, there are

6   many ways to enter data into a local switching system translation data

7   system to implement the same services and features for the same set of

8   subscribers. Each telephone company enters the data in its own way in

9   the manner which will optimize its own objectives.

10

11   Q. CAN YOU GIVE US A DESCRIPTION OF WHAT A TYPICAL SET OF

12   TRANSLATIONS TABLES MIGHT CONTAIN?

13

14   A. Certainly. One table that the switch will have will contain the office

15   parameter data. This table will identify the type of physical equipment in

16   the office and will establish the location of the equipment in the switch.

17   Other tables will contain information showing how trunks are arranged in

18   the office. Another table will have individual subscriber data for

19   subscribers taking service. You can see that the number of tables can

20   be quite extensive.

21

22   Q. HOW IS THIS INFORMATION USED DURING CALL PROCESSING?

23

24   A. You will recall that I mentioned that there were two types of software.

25   The first type, which I refer to as call processing software, receives the

1   digits the subscriber has dialed, and, on the basis of the office parameter

2   information and the data contained in the trunk and subscriber tables, as

3   well as any other relevant tables, completes the call. Using the simplest

4   example, if a call is placed from one subscriber to another served by the

5   same switch, the call processing software receives the dialed digits,

6   looks up the relevant information in the translations tables and completes

7   the call. If the called number is busy, the call processing software then

8   looks up an alternative destination for the call, perhaps a busy signal.

9   Remember that these switches are just computers and the processing

10 software simply looks at alternatives until the call either reaches its

11 destination or is otherwise handled. For instance, if the subscriber who

12 was called in the example above was on his or her telephone when the

13 second call came in, but had subscribed to call forwarding of some type,

14 the computer would learn this as it searched the translation tables and

15 would complete the call accordingly.

16

17 I have made the example as simple as possible, but you have to

18 understand that, in fact, the process is very complicated. There is not a

19 single translation table that is used in processing the typical call, but

20 rather there may be a significant number of them. For instance, each

21 table has a specific function and therefore in order to complete a call, the

22 call completion software has to move from table to table, in sequence. It

23 may be helpful to think of the process as a "decision tree," with choices

24 at one level dictating which path the call processing follows to get to the

25 next level.

1

2 Q. HOW DO THE TRANSLATION TABLES DIRECT THE CALL

3   PROCESSING SOFTWARE TO THE NEXT STEP OR CHOICE?

4

5 A. Without getting overly technical, it may help to use the Nortel DMS-100

6   as an example. The switch has internal translation tables, which consist

7   of vertical columns and horizontal rows. The intersection of the columns

8   and rows create fields or spaces where information can be stored and

9   subsequently located by the call processing software. These fields may

10   contain data expressed in the form of numeric or alphanumeric strings of

11   information, or they may simply point the way to another designated

12   table. By processing the information in the designated fields, the call

13   processing software works its way through the switch and delivers the

14   call to the appropriate place.

15

16 Q. CAN YOU EXPLAIN IN MORE DETAIL HOW A CALL WOULD BE

17   PROCESSED USING A SUBSCRIBER SERVED BY A DMS-100

18   SWITCH AS THE EXAMPLE?

19

20 A. Yes. When a subscriber picks up his telephone handset and dials a

21   number, the call processing begins in a table called Line Equipment

22   Number Lines (LENLINES). This table stores all the basic information

23   related to the subscriber line. This table associates the equipment

24   location or address for the subscriber with the subscriber's telephone

25   number, lists the features the subscriber has taken, such as call waiting,

1   and provides a pointer to another table called the Line Attribute

2   (LINEATTR) Table. In this latter table, each subscriber's line is

3   associated with a specific Class of Service (Line Class Code). For

4   instance, for the basic residential flat rated line there is a specific Line

5   Class Code which happens to be designated or identified as 1FR. Other

6   examples of Line Class Codes are:

7   ● Residential Enhanced Services (RES)

8   ● Dial Tone First Coin Service (CDF)

9   ● Zero Minus Denied Service (ZMD)

10

11   Q. PLEASE EXPLAIN HOW THESE LINE CLASS CODES ARE USED.

12

13   A. When a residential customer, who has a 1FR Line Class Code dials 0-,

14   the Line Attributes Table points to another table, the Position Table for 0-

15   calls. This table in turn identifies a route to various operator positions.

16   For calls requiring a number pretranslation such as 411 or 611, the Line

17   Attributes Table points the call to the appropriate pretranslator table, and

18   these tables then point the call to the appropriate destination. Obviously

19   a separate Line Class Code is not needed for each subscriber for each

20   function, but rather the same Line Class Code can be used for multiple

21   subscribers, sending each of them (for the appropriate call) to the same

22   destination.

23

24   Q. HOW MANY LINE CLASS CODES ARE THERE WHICH CAN BE USED

25   IN THE LINE ATTRIBUTES TABLE?

1

2   A. There are 256 different Line Class Codes in the Nortel DMS-100. Each

3   of the 256 codes can be associated with up to 20 additional variables.

4   These variables can be considered as pointers that send the call to other

5   tables. Each unique combination of a Line Class Code and these other

6   variables requires a separate entry in the Line Attributes Table. While

7   this would seem to allow practically a limitless number of combinations,

8   the DMS-100 Line Attributes Table will only allow a maximum of 1024

9   entries. Therefore, for the purpose of the discussion we are having, it

10   would be accurate to think of there being 1024 different opportunities to

11   use a Line Class Code-type function in the DMS-100.

12

13   Q. IF THERE ARE 1024 POSSIBLE SELECTIVE ROUTING

14   POSSIBILITIES, IT SEEMS REASONABLE TO CONCLUDE THAT

15   THERE ARE PLENTY OF OPPORTUNITIES, AS MR. TAMPLIN

16   SUGGESTS, TO USE THESE CODES TO ROUTE 0- TRAFFIC TO

17   AT&T. CAN YOU COMMENT ON THIS?

18

19   A. First, you must realize that the existing telephone system uses a number

20   of these Line Attributes, perhaps, let's say, as many as 300 of the total of

21   1024 in a given DMS-100 switch. One could mistakenly conclude, I

22   suppose, that if AT&T wanted to have all of its customers sent to its

23   operators when they dial 0-, that it would be a simple matter of adding

24   one new attribute, that is, utilizing one more of the 1024 opportunities,

25   and that there would be plenty left. However, this is simply not accurate.

1   One would assume that AT&T, who has gone to the trouble of having its

2   own operators available, would like all of its customers, irrespective of

3   the type of service that customer has, to be able to reach the operators.

4   Therefore, there would have to be a new attribute created in the Line

5   Attributes Table, for every class of customer service that AT&T chooses.

6   To make this clear, there is currently a Line Class Code for residential

7   services and dialing 0- sends the call to BellSouth's operators. To route

8   0- to AT&T's operators, the Line Attribute Table would have to use

9   another of the 1024 opportunities, but with a different variable assigned

10   to the 1FR Line Class Code. The same would also be true for AT&T's

11   1FB customers. Of course, this would not only have to be done for every

12   combination of line features chosen, but also for every other ALEC which

13   wanted to provide this type of service. There is a finite number of these

14   codes. You could perhaps proceed on a first come, first served basis,

15   but at some point, the last fellow on is going to come up short.

16

17   Q. WOULD THIS SITUATION ALSO ADVERSELY IMPACT THE

18   INTRODUCTION OF NEW SERVICES?

19

20   A. Absolutely. The easiest way to demonstrate this is to consider what

21   happens when a new service or feature is added to the network. Let's

22   use a new optional EAS plan or a regional calling plan. It is not simply a

23   matter of adding one additional attribute, to account for the new plan.

24   That is, residential customers might (or might not) want to use the new

25   plan, and business customers might (or might not) want the service as

1   well. Customers who presently have flat rate service might want the new

2   service (or they might not). As a result, when a new service is added like

3   this, all of the existing entries would have to be duplicated to offer these

4   options.

5

6   Q. ARE THERE OTHER PROBLEMS WITH THIS SELECTIVE ROUTING

7   CAPABILITY BEYOND THAT WHICH YOU HAVE JUST DESCRIBED?

8

9   A. Yes. The DMS-100, for example, is configured such that there are only

10   16 possible routes (pointers to outgoing trunk groups) to operators for 0-

11   calls. Moreover, there is only a single route available for 411 and a

12   single route for 611 calls. Here again, even if the Line Class Code

13   problem could be overcome, at some point all of these routes would be

14   assigned and some ALECs could not be accommodated.

15

16 Q. WHAT DO YOU MEAN WHEN YOU SAY THAT THERE IS ONLY A

17   SINGLE ROUTE FOR 411 AND A SINGLE ROUTE FOR 611 CALLS IN

18   THE DMS-100 SWITCH?

19

20 A. In the DMS-100 switch 411 and 611 are "hard coded" in software, that is,

21   they cannot be changed by the telephone company. Nortel has

22   conducted a number of tests for the DMS-100 to determine if 411 could

23   be code converted and properly routed to an AT&T operator. None of

24   these tests were successful.

25

1 Q. YOU HAVE BEEN DISCUSSING LINE CLASS CODES AND LINE

2   ATTRIBUTE TABLES. IS THERE ANOTHER OPTION THAT COULD

3   BE USED TO SELECTIVELY ROUTE CALLS?

4

5 A. Yes. It is possible to screen and route a call specifically on the Line Class

6   Code assigned in the LINEATTR Table. In this case an entirely new

7   Class of Service would be assigned to the AT&T lines. The LINEATTR

8   Table can point these classes to Class Of Service Screening sub-tables

9   which can identify preferred trunk routes on the basis of the Line Class

10   Code. Each unique Line Class Code would require a separate sub-

11   table. The DMS-100 is limited to 256 of these sub-tables which

12   effectively sets the limit of 256 Line Class Codes in the LINEATTR Table.

13   Of course, that new class of service would consume one of the 1024

14   fields in the Line Attribute Table but is also subject to the additional

15   limitation of a maximum of 256 classes of service. Thus the option of

16   creating new classes of service gets you nowhere. In summary, there is

17   simply not enough translation capability to provide selective routing for

18   the quantity of ALECs that would request it.

19

20 Q. HOW MANY POTENTIAL ALECs MIGHT BE EXPECTED TO DEMAND

21   SELECTIVE ROUTING?

22

23 A. My expertise is in the area of switching system technology however I

24   would expect all the larger resellers (namely AT&T, Sprint, MCI,

25   Worldcom, BTI) to want to extend their existing operator systems,

-15-

1   respectively, to also handle the operator services for local calls.

2

3   Q. WHY DO YOU BELIEVE THAT?

4

5   A. AT&T has already made its intent known by initiating these proceedings.

6   In addition, I spoke to the other four companies. The view of those

7   companies I discussed this issue with is that if AT&T gets the capability,

8   they would want it too. This would require the replication and exhaust of

9   limited capabilities.

10

11   Q. PLEASE EXPLAIN HOW THIS REPLICATION LEADS TO

12   EXHAUSTION OF LIMITED CAPABILITIES.

13

14   A. If these five resellers wanted to provide their own operator services,

15   additional codes would have to be provided. I would expect these

16   companies to want to resell all or most of the same types of services

17   BellSouth offers. In this case, therefore, BellSouth would have to provide

18   500% more Line Attribute codes.

19

20   Q. WOULD YOU EXPECT ANY OTHER DEMAND BEYOND THESE FIVE

21   COMPANIES?

22

23   A. Yes. Again, though my main expertise is in the area of switching system

24   technology, my experience in service development and deployment lead

25   me to believe that there will be other companies wanting to provide

1   operator services. Further, the additional requirement for individualized

2   branding for the smaller resellers (which do not provide their own

3   operator services) would increase the demand on line class codes.

4

5   Q. IS BELLSOUTH USING REASONABLE CONSERVATION METHODS

6   IN ASSIGNING ITS TRANSLATION TABLES.

7

8   A. I believe they are. Since they have limited the possible combinations of

9   Line Class Codes and the other 20 variables in the same table to a few

10   hundred it would seem BellSouth has been efficient in its assignments. In

11   addition, I have discussed this with Nortel representatives who indicate

12   that many telephone companies are already approaching exhaust of the

13   LINEATTR table's capacity of 1024.

14

15 Q. COULD BELLSOUTH POSSIBLY REDUCE ITS LINEATTR ENTRIES

16   AND RECOVER THIS CAPACITY FOR OTHER ALECs?

17

18 A. No. Although some translation tables allow for reassignment or reuse of

19   entries the LINEATTR Table does not. Nortel documentation strongly

20   cautions against reclamation or reassignment within the LINEATTR

21   Table because of call processing reliability concerns. You will recall my

22   description of linking of translation areas as resembling a "decision tree"

23   where the decision at one level points to a different table or function.

24   Nortel strongly advises against removing, reassigning or reusing entries

25   in the LINEATTR Table in order to avoid a situation where pointers are

1   left in that do not point to anything and thus could inadvertently cause

2   major disruptions in call processing or even switch "crashes".

3

4   Q. WHAT HAPPENS WHEN THESE CAPABILITIES ARE EXHAUSTED?

5

6   A. Two things occur. First, as I mentioned earlier, the ability of BellSouth to

7   offer new services such as Extended Area Service or Regional Calling

8   Plans is severely, negatively impacted. Second, BellSouth would be

9   unable to provide selective routing for any other ALECs.

10

11 Q. ARE THERE ANY OTHER SERVICES OR CALL TYPES THAT

12 SHOULD BE CONSIDERED BESIDES 0-, 411, AND 611 FOR

13 SELECTIVE ROUTING THAT ARE LIKELY TO BE REQUIRED BY

14 RESELLERS?

15

16 A. Yes. I believe there is a whole class of incoming calls that could be

17 negatively affected by the exhaust of limited capabilities due to the

18 introduction of selective routing that should be considered in this

19 proceeding. Some examples would be routing of incoming calls to an

20 announcement when service has been disconnected, or to intercept

21 when a number has been changed.

22

23 Q. DID YOU DISCUSS SELECTIVE ROUTING WITH OTHERS AND DID

24 THEY HAVE A SOLUTION?

25

1   A. I discussed this with the other possible resellers, MCI, Sprint, WorldCom

2   and BTI. In addition I have seen Ameritech's submission to the Illinois

3   Commerce Commission and some correspondence from Nortel and

4   Lucent Technologies regarding this capability.

5

6   Q. DID THESE OTHER POSSIBLE RESELLERS IDENTIFY A POSSIBLE

7   SOLUTION?

8

9   A. No.

10

11   Q. DID THE AMERITECH SUBMISSION INDICATE THEY HAD A

12   SOLUTION?

13

14   A. No, on the contrary they indicated it was at present not feasible.

15

16   Q. DID NORTEL INDICATE THEY HAD A SOLUTION?

17

18   A. No. Nortel's letter said what they called Alternate Local Exchange

19   Routing Capability is not currently available and would require major

20   development effort of the DMS-100 system.

21

22   Q. DID LUCENT TECHNOLOGIES INDICATE THEY HAD A SOLUTION?

23

24   A. No. In a letter to BellSouth dated July 8, 1996, Lucent Technologies said

25   Alternate Local Exchange Routing Capability or Third PIC is not currently

1   available on the 5ESS switch. Lucent Technologies did not provide any

2   estimate of development effort but only said they were investigating the

3   resources, time frames and costs of developing this feature.

4

5   Q. YOU HAVE EXTENSIVELY DISCUSSED THE CAPABILITIES OF THE

6   NORTEL DMS-100 IN TERMS OF ITS ABILITIES TO PROVIDE FOR

7   SELECTIVE ROUTING. WHAT OTHER SWITCH TYPES ARE USED IN

8   BELLSOUTH'S NETWORK?

9

10 A. I understand that BellSouth uses the following switch types in addition to

11 the DMS-100:

12

13   • Lucent Technologies 1AESS

14   • Lucent Technologies 2BESS

15   • Lucent Technologies 5ESS

16   • Nortel DMS-10

17   • Siemens Stromberg Carlson DCO

18   • Siemens EWSD

19

20 Q. DO THESE SWITCHES HAVE THE SAME CAPABILITIES

21 CONCERNING CAPACITIES OF LINE CLASS CODES?

22

23 A. No. Though all of these switch types have a capability analogous to Line

24 Class Codes or line types, the size of the capability varies significantly.

25 For example, the 2BESS has a capacity of only 256 while the 5ESS has

-20-

1   a capacity of 4,096.

2

3   Q. DOES THIS MEAN THAT SWITCHES WILL VARY IN THEIR ABILITY

4   TO ACCOMMODATE SELECTIVE ROUTING?

5

6   A. Yes. In fact, the FCC's Order comments at Paragraph 418 that "We

7   recognize that the ability of an incumbent LEC to provide customized

8   routing to a requesting carrier will depend on the capability of the

9   particular switch in question." Thus those switch types will smaller Line

10   Class Code capacities are more constrained in their ability to

11   accommodate selective routing or "customized routing" as described in

12   the FCC's Order.

13

14   Q. DOES THE FCC'S ORDER MENTION ANY PARTICULAR SWITCH

15   TYPE(S) IN ITS DISCUSSION OF SELECTIVE ROUTING?

16

17   A. Yes, at Paragraph 418, the Order states that "AT&T acknowledges that,

18   although the ability to establish customized routing in 1AESS switches

19   may be affected by "call load" in each office, only 9.8% of the switches

20   used by the seven RBOCs, GTE and SNET are 1AESS switches."

21

22   Q. WHAT IS THE LINE CLASS CODE CAPACITY OF THE 1AESS?

23

24   A. The capacity is 1024, the same as for the Nortel DMS-100. Further, the

25   capacity of Line Class Codes is frequently less than for the 1AESS in the

-21-

1   cases for example of the Nortel DMS-10 (512), Stromberg Carlson DCO

2   (512). Even for those switch types with higher Line Class Code

3   capacities such as the Lucent 5ESS and Siemens EWSD, the replication

4   of Line Class Codes for additional ALECs will ultimately lead to exhaust

5   of the capability as was shown in Mr. Milner's direct testimony.

6

7   Q. PLEASE SUMMARIZE YOUR TESTIMONY.

8

9   A. In my opinion, the selective routing of 0- calls can technically be

10   accomplished only with significant, severe limitations on the total

11   number of ALECs that could be accommodated, the service variations

12   these ALECs could offer and the ability of BellSouth to provide new

13   socially desirable services. Solutions for selective routing of 411 and

14   611 service code calls is not viable since the routing of these calls is

15   relatively fixed by the software design of the system.

16

17   Both Lucent Technologies, the manufacturer of the 5ESS system and

18   Nortel, the manufacturer of the DMS-100, assert the capability of

19   "Alternate Local Exchange Routing Capability" does not currently exist

20   within their respective systems.

21

22   In summary, the use of Line Code Screening techniques to

23   accommodate selective routing of 0-, 411, and 611 calls though possible

24   is not practical.

25

1   Q. DOES THIS CONCLUDE YOUR TESTIMONY?

2

3   A. Yes.

4

5

6

7

8

9

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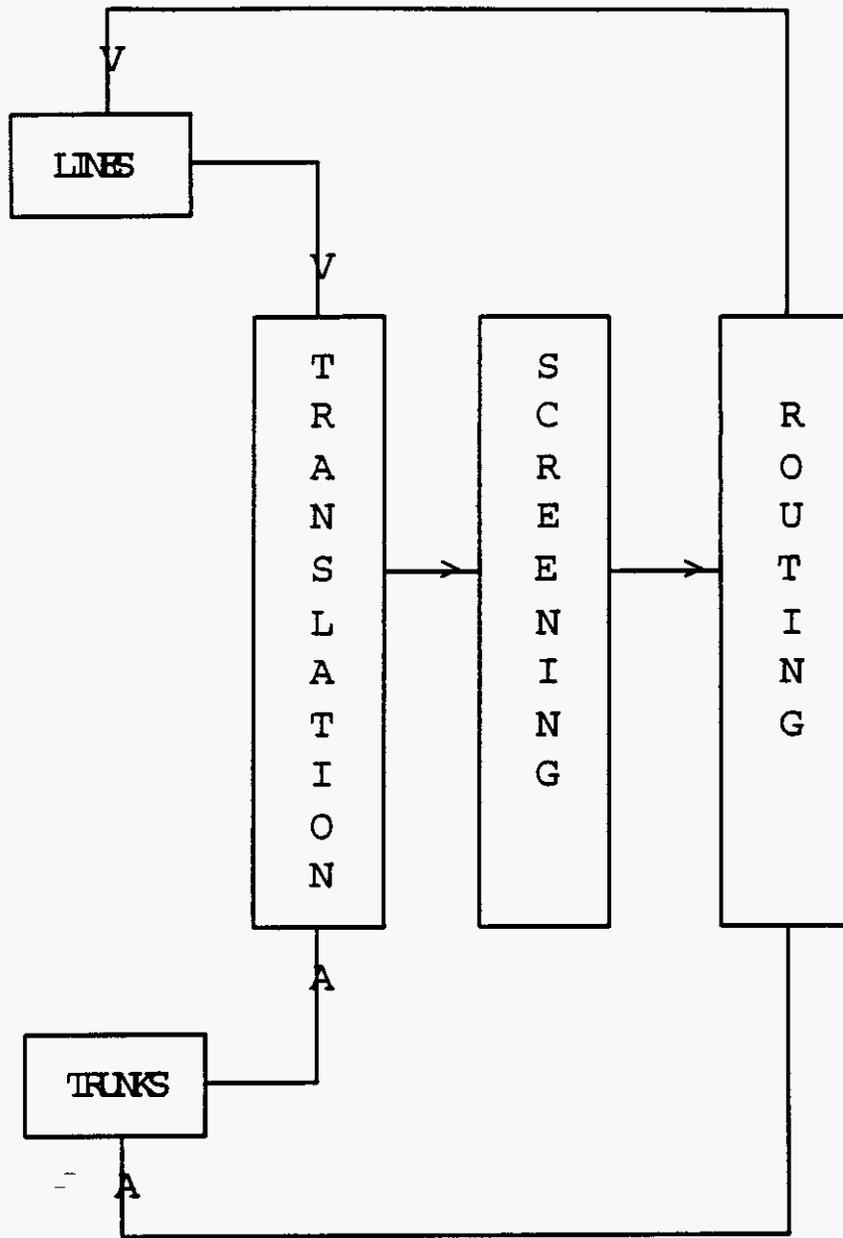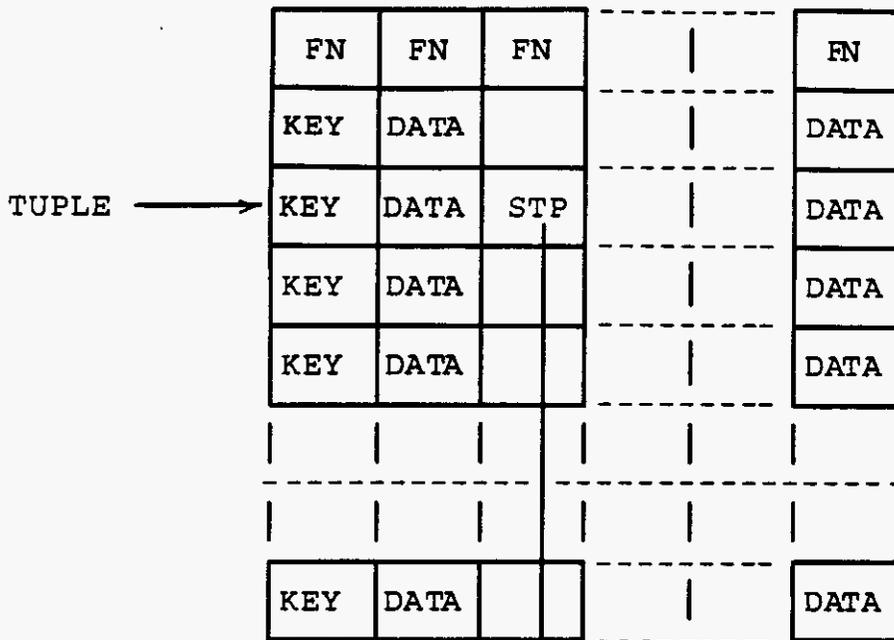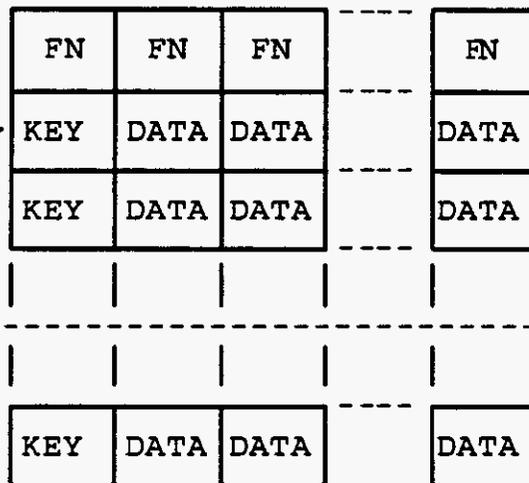13

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Exhibit AVP 1-   Call Translation Blocks

TABLE

FN	FN	FN			FN
KEY	DATA				DATA
KEY	DATA	STP			DATA
KEY	DATA				DATA
KEY	DATA				DATA

TUPLE ⟶

FIELDS

SUBTABLE

FN	FN	FN		FN
KEY	DATA	DATA		DATA
KEY	DATA	DATA		DATA
KEY	DATA	DATA		DATA

FN	Field Name; a name associated with a column of data.
STP	Subtable Pointer; an entry in a field that points to a subtable.
TUPLE	A horizontal data line.
KEY FIELD	The smallest quantity of data required to uniquely identify a tuple.
DATA FIELD	Supporting information and routing to other tables.

Exhibit AVP- 2 Terms Used in TranslationTable Descriptions

Translations Table Association Chart

Note 1: Refer to equal access flow chart.
Note 2: NSC selector, refer to E800 flow chart.

n↔t northern telecom **Technical Education Center**

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EXHIBIT AVP-3