

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE TARIFF FILING OF SOUTH CENTRAL)
BELL TELEPHONE COMPANY TO ESTABLISH)
PULSELINK PUBLIC PACKET SWITCHING) CASE NO. 10321
NETWORK SERVICE AND DATA TRANSPORT)
ACCESS CHANNEL SERVICE)

O R D E R

IT IS ORDERED that South Central Bell Telephone Company ("SCB") shall file an original and 12 copies of the following information with the Commission, with a copy to all parties of record. Each copy of the data requested should be placed in a bound volume with each item tabbed. When a number of sheets are required for an item, each sheet should be appropriately indexed, for example, Item 1(a), Sheet 2 of 6. Include with each response the name of the witness who will be responsible for responding to questions relating to the information provided. Careful attention should be given to copied material to insure that it is legible.

The information requested is due no later than February 24, 1989. If the information cannot be provided by this date, a motion or an extension of time must be submitted stating the reason for the delay and the date by which the information can be furnished. The Commission will give due consideration to such motions.

1. Identify all service elements and/or service arrangements in the tariff filing that are functionally equivalent to other tariffed service elements and/or service arrangements. Reference each item to its tariff section and show a rate comparison for each functional equivalent.

2. (See tariff section A29.5.2.C.3). Why is it necessary to allow direct access to be ordered from Bell South's FCC #1 interstate access services tariff?

3. (See response to Item No. 6 of the Commission's first information request.) Identify the price or prices of a comparable service offered by a competitor.

4. In response to Item No. 12b of the Commission's first data request, it is stated that "The thrust of the market will be asynchronous to 4.25 conversion (approximately 70 percent based on market research)" conducted. Is a written summary of the methodology available? Please provide to Staff if available.

5. In response to Item No. 2c of the Commission's first data request, you provided the usage forecast for 1987, 1988 and 1989. Please state the assumptions that were used to develop these estimates. Please describe the justification for these assumptions or the usage characteristics. What is the value of the usage forecast for 1987? What growth rate did you use for 1988 and 1989? What is the source of the growth rate?

6. What steps will SCB take to insure that cross subsidization of the proposed services by local exchange customers does not occur?

7. Please reference the Federal Communications Commission's ("FCC") Memorandum Opinion and Order in FCC 85-101 (a copy of which was supplied in response to Item No. 13 of the Commission's October 7, 1988 information request). Paragraph 110 requires that a contract be entered for compensation of the telephone company for installation and repair of protocol conversion equipment, and that it be filed with the FCC, and accepted, prior to the waiver becoming effective. Please provide a copy of the contract accepted by the FCC. If none has been accepted or filed, please explain and provide a demonstration of how the regulated operations are compensated for performing these functions.

8. Paragraph 131 of FCC 85-101 requires that "connections to the basic service of transporting signals from end-user's premises to the central office, and through any central office circuit switching that may be involved, should be offered to and received by the affiliate on a tariffed basis that reflects the cost of such connections (including any economies arising from within-office wiring.)" Assuming that this requirement is reflected by the Dial Access Line element, please explain how this rate reflects the "cost of such connections" when the rates are derived from a statewide average B1 rate, which is residually priced, and not cost-based.

a. Will Dial Access Lines only be available from central offices which are equipped for PulseLink access?

b. If Dial Access Lines will initially be used primarily in large metropolitan areas, such as Louisville, please explain why B1 rates and the average loop costs in these areas

should not be used to develop the Dial Access Line rate, rather than statewide averages?

c. What would be involved in developing a Dial Access Line rate that has a rate grouping structure similar to other local exchange services, such as the LFB rates?

d. Would not a rate grouping structure similar to that of LFB rates be capable of maintaining the same level of contribution from, or subsidy to, LFB rates, as well as incorporating "value of service" into the Dial Access Line rate?

9. Paragraph 114 of FCC 85-101 states in part: "Each BOC will be required to make a submission that demonstrates acceptance of the conditions we are adopting below, and we shall require them each additionally to select and justify an appropriate technique for apportioning the investment and expenses associated with the PADs." Please provide a copy of this submission and the FCC's response to this submission, which indicates that the FCC accepted South Central Bell's (or BellSouth's) technique for apportioning the investment and expenses associated with protocol conversion equipment.

10. Paragraph 124 of FCC 85-101 indicates that the FCC will specify a minimum percentage for the Network Utilization Rate Element, and that specified percentage will be a condition on the waiver granted by the FCC. Please provide the percentage specified by the FCC and include the documentation used to support this percentage.

11. Please reference pages 7 and 8 of the Testimony of John F. Dorsch, which states in part that "the inefficiencies derived from packet networks that perform asynchronous to X.25 protocol conversions when compared to a network that allows only X.25/X.75 transmission. Based on early information from Northern Telecom, the packet switch vendor, the rate element was priced at seven percent of the usage-based X.25 data transmission charge. However, subsequent to South Central Bell's determination of the market prices to be included in the proposed tariffs, the architecture of the packet network was modified to eliminate the relative inefficiency, and the FCC has removed its requirement for this rate element (Feb.88)."

a. Please provide a copy of the FCC Order which removed its requirement for the Network Utilization Rate Element.

b. Please explain how the elimination of the relative inefficiency was accomplished. Is this in any way related to the use of an intranetwork protocol? If so, does this not simply increase the inefficiency of using the X.25 protocol, rather than eliminating the inefficiency of using an asynchronous protocol?

c. In FCC 85-101, paragraph 98, the FCC summarized an analysis made by Northern Telecom concerning the inefficiencies related to protocol conversions. Part of this summary states that the "processors implementing a packet switched network node have finite capacity, and more of that capacity is utilized by ports requiring asynchronous/X.25 protocol conversion than by ports not requiring such conversion, leaving less capacity available to handle communications at remaining ports ... In sum,

communications efficiency is reduced for the user of all the terminals seeking to use the node simultaneously and for the packet switched network as a whole, when asynchronous/X.25 protocol conversion is being performed."

Does the modification of the architecture of the packet network result in a network node being able to simultaneously handle just as many asynchronous ports as basic ports? Please explain.

12. The response to Item No. 14 of the Commission's October 7, 1988 information request states in part: "Services provided to an affiliate under tariff are offered to all users, general public and affiliates, on the same basis."

a. Please indicate which elements of the PulseLink tariff are only available to affiliates, such as BellSouth Advanced Network ("BSAN".)

b. Of the following list of rate elements from the PulseLink tariff, please indicate the estimated percentage of usage by affiliates such as BSAN.

- (1) Dial Access Line
- (2) Data Sets, Dial Access Channel
- (3) Data Sets, Direct Access, Analog
- (4) Data Sets, Direct Access, Digital
- (5) Service Ordering Charge, Dial Access Line
- (6) Basic Protocol Transport, Per segment
- (7) Basic Protocol Transport, Fast Select
- (8) Asynchronous Transport, Per segment

- (9) Asynchronous Transport, Fast Select
- (10) Basic Protocol Access Ports
- (11) Asynchronous Protocol Access Ports

c. For the PulseLink elements listed above which will be used primarily by an affiliate, please explain why the tariffed rates should not be based on fully allocated costs.

d. For the PulseLink elements listed above which will be used primarily by an affiliate, please explain how the risk of the investments used to provide the service is shared with the affiliate.

13. What are the functions of the PulseLink Center in Birmingham?

14. Attachment 1, page 3, to the letter dated June 29, 1988 which accompanied the tariff filing, is a diagram of the PulseLink network. This diagram shows a 56 kps digital facility between the access concentrator and the packet switch. Please demonstrate how the costs of such interoffice channels are recovered, including the costs of the link to the PulseLink Center in Birmingham. The cost information already provided does not clearly identify any of these costs, so if these costs are included in this information, further clarification or break-downs, such as into USoA accounts, are required.

a. Are these channels dedicated to PulseLink?

b. Provide a sketch showing the planned locations of the packet switch and access concentrators, the routing of interoffice facilities used to provide PulseLink service in Kentucky, and approximate distances.

c. Do the X.25 and X.75 protocols specify the data transmission rates? If so, what are these rates?

15. Please describe the functions of the data sets, access ports, and access concentrators. Certain things are still unclear, such as:

a. Central office data sets are described as being "Optional" (see cost support and page 4 of the Testimony of John F. Dorsch). In what sense are these data sets optional? For instance, are there any circumstances where data sets are not required? Please explain.

b. Which piece of equipment performs modulation/demodulation functions? It appears that these functions are performed by the data sets, when necessary. If so, the rate structure would appear to discourage end-users from obtaining digital capabilities, unless the transmission speed is 56 kps. Please explain. Perhaps a comparison of the outputs (with the end-user side viewed as inputs) of the various data sets would be useful in illustrating their functions.

c. The access ports are described as the interfaces to the PulseLink network. The response to Item No. 11c of the Commission's October 7, 1988 information request provides a description of some of the functions of the access ports, however this response is confusing because of the lack of a common reference point. For instance, if it is assumed that a common reference was used in describing these functions, this creates the impression that asynchronous protocol access ports are chained to basic protocol access ports, because the response indicates that

the asynchronous port converts asynchronous to a Northern Telecom intra-network protocol, while the basic port converts this protocol to X.25. However, costs and rates do not reflect this. Using a common reference such as viewing the end-users' side as the inputs to the access ports, it would be more reasonable to assume that the asynchronous port converts asynchronous protocols to the intra-network protocol, that the basic ports convert X.25 protocol to the intra-network protocol, and that it is this protocol that is utilized by the packet switch. Please clarify this.

d. Does multiplexing occur only in the access concentrators? Again, if the end-users are viewed as inputs, the output of the access concentrator appears to be 56 kpbs (see Attachment 1, page 3, of the letter dated June 29, 1988), whereas the inputs to the data sets are of varying speeds. Are access concentrators able to accept all of these varying speeds, or do the data sets provide any intermediate multiplexing? If not, do the costs of access ports vary depending upon the input data rate? Please explain.

e. Is a central office considered to be equipped for PulseLink access if the office contains an access concentrator? If not, please explain.

16. Could the network elements of a local packet switching network be assembled by utilizing existing tariffed network services?

a. Is the assembly of such a network permitted by the tariffs? That is, would resale and interconnection restrictions prohibit this usage of network facilities?

b. Are existing tariffed services sufficiently unbundled to make the assembly of a packet switching network economically feasible?

17. Please reference the Commission's October 7, 1988 information request.

a. Please reference the response to Item No. 1, which states in part that "each account specific investment was multiplied by each component of its corresponding account average annual cost factor." Please provide this analysis for the following PulseLink elements:

- (1) Basic Protocol Transport, Per segment
- (2) Basic Protocol Transport, Fast Select
- (3) Asynchronous Transport, Per segment
- (4) Asynchronous Transport, Fast Select
- (5) Basic Protocol Access Ports
- (6) Asynchronous Access Ports

Also, show the components (depreciation, maintenance, etc.) for each account average annual cost factor.

b. Please reference the response to Item No. 2(c). Attached to this response is information related to usage characteristics used to generate the total usage forecasted. Is it correct that these usage characteristics are not Kentucky specific? Is the "total usage forecasted" Kentucky specific?

c. Please reference the response to Item No. 6, which states in part "the total rate must be competitive with the price of a comparable service offered by a competitor." What competitors of central office data sets are being referred to here?

d. Please reference the response to Item No. 9a. Apparently this question was misunderstood. The intent was to discover why the tariff requires that the service be marketed, not why the service needs to be marketed. Taking this clarification into consideration, please provide a revised response to this question.

e. Please reference the response to Item No. 11b.

(1) The second paragraph of the response on Sheet 1 states in part: "The ESP subscribes to Local Exchange Service from South Central Bell, probably 1FB service, to provide the telephone number for the end user to dial." Is it SCB's position that it is permissible for enhanced service providers to resell 1FB service?

(2) In Sheet 2, the description of "Option 2" indicates that an enhanced service provider orders the end-users' interface from BSAN. Why cannot the enhanced service provider obtain the end-users' interface directly from SCB? For instance, is the use of BSAN as an intermediary necessary to avoid having a situation where regulated enhanced services are being provided by SCB?

Done at Frankfort, Kentucky, this 10th day of February, 1989.

PUBLIC SERVICE COMMISSION


For the Commission

ATTEST:

Executive Director