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March 22, 1996

## FCC RELEASES REPORT ON QUALITY OF SERVICE

The FCC has released a report entitled "Quality of Service for the Local Operating Companies Aggregated to the Holding Company Level." The report summarizes quality-of-service data through the third quarter of 1995. It includes data submitted by the Bell Operating Companies, GTE and Sprint.

This report is available in the reference room maintained by the Common Carrier Bureau at 1919 M Street, N.W. or may be downloaded electronically [file name: QUAL95.ZIP] from the **FCC-State Link** computer bulletin board, which can be reached directly at (202) 418-0241. Because of the voluminous nature of the paper filings, the raw study area data has also been made available to the public on the **FCC-State Link** bulletin board. The **FCC-State Link** can also be reached by using a gateway feature available through FedWorld, via direct dial access at (703) 321-3399 or via internet telnet access (fedworld.gov). Copies may be purchased by calling ITS, Inc. at (202) 857-3800.

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Update on Quality of Service for the Local Operating Companies

Aggregated to the Holding Company Level

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## Introduction and Overview

This report presents quality-of-service data filed by local telephone companies through the third quarter of 1995.<sup>1</sup> It presents an overview of the quality-of-service information available to date.

At the end of 1983, in conjunction with AT&T's divestiture of its local operating companies, the Commission directed the Common Carrier Bureau to establish a monitoring program that would provide a basis for detecting any adverse trends in service quality. During 1985, the Bureau modified the quality-of-service submission requirements to reduce unnecessary paperwork and to ensure that the information needed by the Commission would be provided, where possible, in a more uniform format. The data was received semiannually, typically in March and August, and was the basis for FCC summary reports in June 1990 and July 1991.

With the implementation of price-caps for local exchange carriers, several major changes were made to the service quality monitoring program by the Commission beginning with reports filed in 1991. First, while only the Bell operating companies had previously filed quality-of-service reports, other companies subject to price caps were also required to begin submitting reports on service quality. Thus operating companies now owned by GTE and Sprint began to file reports. Second, quality-of-service reports were included as part of the Commission's Automated Reporting and Management Information System (ARMIS).<sup>2</sup> Third, there was a considerable change in the data reported, with some items being deleted and many new items being added. Summary reports covering this data were released in February 1993 and March 1994.

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<sup>1</sup> This report is a follow-up to a report released March 25, 1994 (mimeo number 42211), which covered data through the third quarter of 1993.

<sup>2</sup> The ARMIS database includes a variety of financial and infrastructure company mechanized reports in addition to the quality-of-service reports. Most data are available disaggregated to a study area or state level.

New technologies have resulted in a higher concentration of telephone traffic on a smaller number of higher capacity switches and facilities, and outages on those facilities, although infrequent, could be disastrous. This became apparent with the large AT&T switching system failures and other significant switching failures in the operating areas of Bell Atlantic and Pacific Telesis during 1990 and 1991. The above changes in the quality-of-service monitoring program thus included revisions to deal with the requirements associated with regulation under price-caps and to respond to specific issues relating to outages.

The impact of new technology has also reduced the significance of some of the data collected since 1985. For example, dial-tone-delay data that is now contained in the ARMIS 43-06 filing appears to be less useful with the increasing number of digital switches, in which service is not as likely to be affected by the kind of slowed dial-tone response that affected electromechanical switches.

While overall quality has generally remained high, specific problem areas within certain companies are evident in the complaint data. Complaint levels are a sensitive overall measure that can readily reflect uneven service levels. It appears that increases in complaint levels for certain companies correlate with items related to installation and maintenance (such as trouble reports, outage levels, and repair intervals). These areas of concern, to some extent, appear to be related to unexpected areas of growth and to downsizing and consolidation efforts within the companies. While the companies have a record of responding to problems, in an era of increased competition it will be increasingly important to ensure that adequate resources are devoted to service quality for all customers. Consistency in the monitoring process and in the quality and preparation of filed data, especially in areas of concern, will be increasingly important.

#### Data Presented in This Report

The complete source data upon which this report is based are available on the FCC-State Link electronic bulletin board system operated by the Industry Analysis Division of the Common Carrier Bureau. The electronic bulletin board can be reached by dialing (202) 418-0241. It is available 24 hours daily, but is limited to federal and state regulatory personnel between 10:30 A.M. and 1:30 P.M., Eastern Time. The data are also available from ITS, Inc. at (202) 857-3800. Selected paper filings are available in the Common Carrier Bureau public reference room at 1919 M Street, NW.

The bulletin board files are posted in compressed format to group files and to conserve space but can be easily decompressed on a personal computer by using a program posted on the board. Compression also reduces the time necessary to transmit the data and allows related files to be grouped in single compressed files. There is a separate file within each compressed file for each study area, usually a state or portion of a state. A second posted file can be used to view the raw quality-of-service data as a spreadsheet table with appropriate titles and annotations added.<sup>3</sup>

Tables 1-3 cover customer satisfaction surveys performed by the Bell companies. These data were prepared from semi-annual printed reports associated with the companies' 43-06 filings. Table 4 shows the percentage of offices providing less than a three-second dial-tone delay.

In an attempt to provide a consistent data series, the Bell company composites shown in Tables 1-4 are calculated in a manner consistent with earlier reports (as the unweighted average of the available data compiled for the individual Bell holding companies). The data, therefore, may differ from data provided in company rollups. One should also note that data for 1991 and later may differ from the earlier part of the series. Such discontinuity is due to changes in reporting procedures. Other discontinuities resulting from changes in reporting procedures and sample sizes may also be noted; however, the effects of these changes are often too subtle to be reflected in obvious discontinuities and are typically obscured by normal statistical variations associated with the measurement and sampling process itself. Copies of customer perception survey data are still

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<sup>3</sup> The bulletin board operates from a standard personal computer presently equipped to handle data transfers of up to 14,400 baud. Most files on the board are small enough so that they can be downloaded using a 2400 baud modem in the allotted 30-minute session. The time required to download a file at the 2400 baud data rate is approximately one minute for every 10 kilobytes of file size. The compressed files comprising the ARMIS 43-05 reports contain the raw data from which this paper was prepared. They are typically about 15 kilobytes, but range in size from several thousand bytes for companies operating in a few states to sizes exceeding 80 kilobytes for companies operating in numerous states or study areas. A viewer file "QVIEW2.ZIP" can be downloaded to view the raw data filed prior to 1994, and a similar viewer file "QVIEW4.ZIP" can be downloaded to view data starting with 1994. Also available for downloading is a generic decompressing program "PCUNZP.COM."

filed as part of the 43-06 report paper filings, but not all of the customer perception data filed in paper form is available in the mechanized form.<sup>4</sup>

Overall data trends are highlighted in Charts 1-5. Each chart shows the maximum, minimum, and average of the data provided by the Bell companies. Maximum and minimum values provide some insight into the range of outlier data, but also suggest possible internal differences in data collection and processing. Many more observations can be made from the more detailed data summaries shown in Tables 1-15. This information is provided to enable the reader to use this report as a starting point for further analysis of service quality, subject to the qualifications discussed below.

Tables 1-4 cover the period from 1987 through the first half of 1995. Data for 1985 and 1986 are available in an earlier quality of service summary report released March 25, 1994 (mimeo number 42211). While we are continuing to receive some limited data on transmission quality in the ARMIS 43-06 report, this information has not been included in this report because the data reported does not cover transmission quality on the increasing number of digital facilities that

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<sup>4</sup> While customer perception surveys tend to be the most visible measures of service quality, there are a number of significant pitfalls in relying solely on this kind of data. First, there are differences in customer perception in different parts of the country and procedural variation among companies and over time in developing the data. Second, general frustration or stress levels in the population can be targeted and translated into poorer overall perception levels for the same service quality. Finally, not all perception measures are of equal statistical validity because some of the companies use very small sample sizes, particularly with business customers. Furthermore, we have noted significant declines in sample sizes of residence and small business customers for several companies, including US West, Southwestern Bell, and BellSouth. Southwestern Bell reports, for example, that its new sample size increases its confidence range from plus or minus 0.2% to plus or minus 0.4% with a 95% confidence, but significantly reduces survey cost. The reduced sample sizes reduce the value of the data but may still provide a sufficiently reliable measure of customer perception, if done in accordance with accepted statistical sampling procedures. It is recommended, however, that customer perception data be used in the context of other more objective measures to determine, for example, the impact of known problems. Despite these shortcomings, the data show that customer perception levels for NYNEX are lower than that of other companies to a degree that most likely exceeds the impact of the above factors. US West data for the first half of 1995 and the second half of 1994 reflect overall satisfaction levels only. Earlier data were based on a composite reported measure that is no longer filed. Ameritech overall residential satisfaction levels reported for the first half of 1995 were the same for its five operating companies.

presently comprise most of the interoffice network. Furthermore, this data is indexed to internal company standards and exhibited a larger data discontinuity from the earlier data series than did the data shown in Tables 1-4. This appears to have resulted from changes in reporting procedures and data formats. Data on blocking and on-time installations have been modified considerably and are not comparable to the prior data series.

Most quality-of-service data now being reported to the Commission appear in the ARMIS 43-05 report, which through 1995, is filed quarterly. The ARMIS 43-05 became an annual report starting in 1996. The information contained in these filings for the period from the third quarter of 1993 through the third quarter of 1995 is summarized in Tables 5-14 of this report. Similar data back to the third quarter of 1991, when the reporting requirements first became effective, is contained in the last quality of service summary report released March 25, 1994. These tables highlight some of the data now received in the ARMIS 43-05 report. Tables are shown for each major holding company: the seven regional Bell companies, GTE (including Contel), and Sprint.<sup>5</sup> The data summarized for each holding company reflect weighted averages of data contained in individual states or study areas and may be useful in assessing overall trends. Some of the data items filed have contained errors, particularly in the earlier quarters. Many of the obvious errors have been corrected with data sets that have been refiled by the companies, but less obvious ones may still be present.

The items summarized in Tables 5-14 reflect the current emphasis on data items that are not indexed by the companies and are therefore closer to the measurement source. For example, the companies file a fairly extensive amount of raw data on switching outages, including durations and number of lines affected. The data items presented in this summary have been derived from individual study area data submitted by the companies by adding the numerical quantities and appropriately weighting the percentage figures. For example, the percent of commitments met is weighted by the corresponding number of orders provided in the filed data. The items contained in Tables 5-14 are summarized below.

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<sup>5</sup> In February 1992, United Telecommunications Inc. became Sprint Corporation [Local Division]; and in March 1993, Sprint Corporation acquired Centel Corporation.

More detailed information is contained in the raw data sets and spreadsheet viewers that are maintained on the electronic BBS described above. The row numbers and columns associated with the raw source data in the ARMIS 43-05 report are included in the descriptions below.<sup>6</sup>

1. Percent of installation commitments met:

This data item provides the percent of installations which were met by the date promised by the company to the customer. It is shown separately for residential and business customers' local service (row 132, columns f and i, respectively) and separately for access services provided to carriers (row 112, columns a and c).

2. Average missed installation in days:

This is the average number of days beyond the commitment date that the missed installations were late. It is shown separately for access services provided to carriers (row 113, column a and c) and for residential and business customers' local service (row 133, columns f and i, respectively). This data item is no longer provided.

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<sup>6</sup> For rows 110-121 in the raw machine readable data sets, column a is the first column; for rows 130 to 151, column d is the first column; for rows 180 to 190, column k is the first column; for rows 200 to 214, column n is the first column; for rows 220 to 319 and 333-500, column t is the first column; and for rows 320 to 332, column aa is the first column. The companies also file printed copies of their submissions where rows 110-121 are designated as Table I, rows 130-143 are designated as Table II, rows 180-190 are designated as Table III, rows 200-214 are designated as Table IV, rows 220-319 and 333-500 are designated as Table IV-A, and rows 320-332 are designated as Table V. Note that some of the row numbers in the data such as row 142 and 143 do not appear in numerical order. The reader should note that there are variations in numbers of switches and access lines in the various ARMIS reports that may lead to inconsistencies when comparing data sources; however, these variations are not believed to be significant enough to alter the observations made in this report.

3. Average repair interval:

This data item is the average time (in hours) for the company to repair access lines and includes subcategories for switched access, high-speed special access, and all special access. Only data for switched and special access services provided to carriers are shown. (See row 121, column a and c.)

4. Initial Trouble reports per thousand access lines:

This data item is calculated as the total count of distinct trouble reports reported as "initial trouble reports" divided by the number of access lines in thousands. (Note that multiple calls within 30 days associated with the same unresolved trouble are counted once and the number of access lines reported and used in the calculation is the total number of access lines divided by 1,000.) This item is subcategorized by MSA (the sum of row 141, column d and row 141, column g divided by the sum of row 140, column d and row 140, column g); non-MSA (the sum of row 141, column e and row 141, column h divided by the sum of row 140, column e and row 140, column h); residence (row 141, column f divided by row 140, column f); and business (row 141, column i divided by row 140, column i).

5. Troubles found per thousand access lines:

This data item is calculated as described in item 4 above and represents the number of trouble reports in which the company identified a problem (row 141, column j less row 143, column j divided by row 140, column j).

6. Repeat trouble as a percent of initial trouble reports:

This data item is calculated as the number of trouble reports that recur, or remain unresolved, within 30 days of the initial trouble report divided by the number of initial trouble reports as described above (row 142, column j divided by row 141, column j). It provides a measure of the effectiveness of the company in resolving troubles at the outset. This item is subcategorized by MSA, non-MSA,

residence, and business. (Also refer to the section of this report entitled, "Observations, Notes and Data Qualifications.")

7. Complaints per million access lines:

These data items provide the number of residential and business customer complaints per million access lines conveyed to state or federal regulatory bodies during the reporting period. (Total residence is the sum of row 331, column aa and row 332, column aa, multiplied by 1,000; total business is the sum of row 321, column aa and row 322, column aa, multiplied by 1,000.)

8. Number of access lines, trunk groups and switches:

These data items provide the underlying counts of access lines in thousands (row 140, column j), trunk groups (row 180, column k), and switches (the sum of row 200, column n and row 201, column n or the sum of row 210, column n through row 214, column n). Trunk groups only include common trunk groups between Local Exchange Carrier (LEC) access tandems and LEC end offices.

9. Switches with downtime:

This data item provides the number of switches experiencing downtime and the percentage of the total number of network switches experiencing downtime (row 210, column o through row 214, column o or the sum of row 200, column o and row 201, column o).

10. Average switch downtime in seconds per switch:

Total switch downtime divided by the total number of company switches indicates the average switch downtime in seconds per switch. It is shown for all occurrences (the sum of row 200, column p and row 201, column p, multiplied by 60 and divided by the sum of row 200, column n and row 201, column n) and for unscheduled occurrences greater than 2 minutes (data derived from rows 220 through 319 and rows 333 through 500, columns t through z in the source data divided by the sum of rows 200 and 201, column n).

11. Unscheduled downtime over 2 minutes per occurrence:

These data items provide the number of occurrences of more than 2 minutes duration that were unscheduled, the number of occurrences per million access lines, the average number of minutes per occurrence, the average number of lines affected per occurrence, the average number of line-minutes per occurrence in thousands, and the outage line-minutes per access line. For each outage, the number of lines affected was multiplied by the duration of the outage to provide the line-minutes of outage. The resulting sum of these data items represents the total outage line-minutes. This number was divided by the total number of access lines to provide the line-minutes per access line and by the number of occurrences to provide the line-minutes per occurrence. This categorizes the normalized magnitude of the outage in two ways and provides a more realistic means to compare the impact of such outages between companies. A separate table is provided for each company showing the number of outages and outage line-minutes by cause. (These items are derived from data in rows 220 through 319 and 333 through 500, columns t through z, in the source data).

12. Scheduled downtime over 2 minutes per occurrence:

This data item is identical to item 11 above, except that it consists of scheduled occurrences rather than unscheduled occurrences. (These items are derived from data contained on rows 220 through 319, and rows 333 through 500, columns t through z, in the source data).

13. Trunk groups with blocking over 3-month objective as a percent of total trunk groups:

This data item provides the percentage of trunk groups exceeding an industry standard for blocking for 3 consecutive months (row 184, column k divided by row 180, column k in data sets prior to 1994 and the sum of row 189, column k and row 190, column k, divided by row 180, column k beginning with 1994 data). The trunk groups measured and reported are interexchange access facilities. These represent only a small portion of the total trunk groups in service.

## Analysis of the Data

In evaluating the data one should first note that the FCC itself does not impose standards; instead, the FCC focuses on its oversight role and provides for greater company accountability.<sup>7</sup> In general, slower responsiveness to problems in service quality should not be confused with a lack of responsiveness. Therefore, changes from quarter to quarter that could be caused by seasonal changes or weather-related problems must be considered in analysis of the data, and one should be cautious in making premature judgments. Trouble report levels in particular appear to be sensitive to adverse weather conditions, and response times appear to be affected by company size and other company characteristics.<sup>8</sup> Longer term trends, therefore, provide a better measure of company performance than short-term changes.

Having said this, there are several patterns in the data that appear significant. First, it has been noted that trouble reports have followed a pattern that exhibits peaks in the third quarter of each year, and prior to 1995 switching outages generally exhibited a similar pattern with peaks in the second quarter. Regulatory complaints have risen over the level exhibited prior to 1994 but in the aggregate have since remained fairly level through the second quarter of 1995. Data for the third quarter of 1995, however, again show an increase. This item therefore merits continued observation. In general, complaints appear to correlate most with switching outages and trouble reports, as well as installation and maintenance related activities. Trouble report levels have exhibited modest declines over the two-year period shown; however, this may be due in part to changes in the way troubles are reported to the Commission in response to a Common Carrier Bureau order released in October 1993. (See the section on data qualifications.) Seasonal increases in switching outages and trouble reports for the two-year period shown

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<sup>7</sup> Quality-of-service standards that the companies have committed to providing the customer can be included in their local or access service tariffs, but often are not.

<sup>8</sup> Southwestern Bell (SBC), for example, has reported a high level of customer trouble reports for the fourth quarter of 1994 and attributes this to severe weather and flooding in Texas during the period. Similarly, Pacific Telesis attributes high first quarter 1995 trouble reports to weather-related problems.

appear to correlate with corresponding patterns for regulatory complaints. There are, however, clear differences in the patterns of different companies that can be seen in the data.<sup>9</sup>

A recent improvement in outage performance by a number of companies following a rise in outages appears to be associated with efforts to improve switch reliability. The companies' downsizing efforts have motivated them to work more closely with manufacturers to replace poorly performing switches and to improve performance of existing ones.<sup>10</sup> The continuing impact of these trends will be manifested in future outage data.

There is other evidence of consolidation and downsizing within the companies and a trend toward greater reliance on mechanized processes. For example, US West has indicated that it is consolidating 265 customer service centers into 13 by using new software and other mechanized processes. In the short term, this actually appears to have contributed toward a greater number of missed customer installation and repair commitments because, according to a company representative, skilled technical personnel often did not elect to move with their jobs. This led to a shortage of skilled people in some areas and poorer overall performance. In the future, correction of these problems should lead to improved performance in this area. These kinds of phenomena can only be observed where longer term trending is possible. They illustrate the importance of consistency in the data collection process.

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<sup>9</sup> Ameritech reports that it may have included troubles outside its regulated business or troubles that were not the fault of the company prior to 1994. Similar changes to remove certain classes of troubles being reported could explain some of the fluctuations in the data. Other causes for fluctuation were not disclosed. No clear cause could be identified for recent increased outages; however, company procedural errors, conceivably associated with installations of new software, showed up in a few instances as being a significant factor. Other areas of concern involving specific companies not highlighted in this report have been noted in the data.

<sup>10</sup> BellSouth, for example, reports that it is upgrading and replacing older vintage switches in its South Central states and that it is working with the manufacturers of problem switches to improve reliability and reduce maintenance requirements.

## Observations, Notes, and Data Qualifications

This report is a follow-up to two earlier reports<sup>11</sup> that were primarily designed to facilitate a focus on data quality and to enable both the Commission and the companies to address issues associated with price cap regulation. In October 1993, the Common Carrier Bureau issued an order<sup>12</sup> modifying the data definitions and requirements and significantly changing the data formats.<sup>13</sup> These changes are reflected in data filed beginning with the 1994 reporting periods. The summary format presented here is consistent with the last summary issued in March 1994 and was primarily designed to provide continuity with data prior to 1994. Because analysis of quality-of-service is typically dependent on availability of data that support long-term trending, changes to quality-of-service filing requirements will impact the frequency and usefulness of quality-of-service summary reports.<sup>14</sup>

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<sup>11</sup> See "Quality-of-Service for the Local Operating Companies Aggregated to the Holding Company Level," released Feb. 26, 1993, mimeo # 31885, and Mar. 25, 1994, mimeo #42211.

<sup>12</sup> See Policy and Rules Concerning Rates for Dominant Carriers, Memorandum Opinion and Order, 8 FCC Rcd 7474 (Oct. 12, 1993).

<sup>13</sup> Changes to the report include a replacement of average missed installation interval with average installation interval for local and interexchange access (see rows 134 and 114 in the source data, respectively), clarification of the repeat trouble definition, and new categories of initial and repeat troubles (rows 144-147 and rows 148-151, respectively, in the source data), addition of the date and time of specific outages (beginning with row 221 in the source data), and new Feature Group D (rows 185, 187, and 189) and other categories (rows 186, 188, and 190) of trunk groups exceeding threshold and objective levels. Viewing the newly formatted raw data extracted from the electronic BBS system referenced earlier in this report is facilitated by use of a BBS spreadsheet template with built in customized menus (see BBS file QVIEW4.ZIP) that can be downloaded along with the data. A similar template file, QVIEW2.ZIP is also available for data prior to 1994. The new spreadsheet template file highlights the changes referenced above.

<sup>14</sup> Although it has been necessary to modify filing requirements in accordance with Commission needs, the benefits of such changes are often offset by reducing availability of data for long-term time series and increasing resource requirements to prepare summaries such as this one. In view of these constraints, greater user reliance on the source data sets which are available to the public on the FCC-State Link electronic bulletin board system is encouraged. This report presents selected data items that extend the time series of those trended in earlier reports. The author wishes to thank the companies and Commission staff for assisting in the data evaluation process to date and making this report possible, especially considering the magnitude of the effort.

One should be aware of the potential pitfalls in using of the quality-of-service data presented here. First, data sets are periodically revised by the carriers as problems are discovered, and data presented here may still contain errors or may not reflect the latest updates. Although many specific problems with the data have already been identified and corrected through the many revised filings by the carriers (see Table 14), there are still potential flaws in the data that will only become apparent when users subject the data to further analysis or compare it to other sources. Although the data sets are subject to an initial screening by the Commission and the companies have had a chance to respond to obvious problems with earlier data presented in the last report, additional problems may exist that become apparent over time. Holding company totals or composites and, in some cases, trended data items that have been calculated by the Commission may not necessarily match company filed totals or composites. This is primarily due to different weighting methods. In some of the early data sets not included in this report, the carriers have updated their earlier filings numerous times. In a few isolated instances the most recent update could not be used or required minor adjustment. The data presented here typically reflect the updates filed with the Industry Analysis Division as of January 1996. The reader should therefore be aware that it is possible that some of the problems evident in the data presented here have already been corrected.

Second, although much thought has gone into the definitions of the data items, some erroneous or omitted responses have been identified. Some of these have resulted from an improper reading of the instructions or a misunderstanding of the data definitions. Many of these errors have been corrected by updated filings. In a few instances data from subsequent quarters may reflect the correction or omission. Some of the errors may be in the process of being corrected or may not be evident until one performs further analysis with the data. We expect this report will enhance company accountability and thereby continue to assist in the elimination of errors which were not identified by earlier screenings or which can only be identified by the companies themselves. We therefore have typically not deleted or adjusted data, and we expect that the process of data correction should follow a normal learning curve and be resolved over time as such problems are identified and corrected.

One particular problem relating to interpretations of the definitions had to do with the terms "initial" and "repeat" trouble reports. This and other issues were addressed in the October 1993 order changing filing requirements and modifying some item definitions.<sup>15</sup> These changes became effective with 1994 data. In the October 1993 order, the Common Carrier Bureau clarified the definition of initial and repeat trouble reports. The "initial trouble report" category is meant to exclude subsequent multiple calls relating to the same trouble during the first 30 days (sometimes referred to as subsequent troubles). Repeat troubles as clarified in the order are those recurring trouble reports that are called in within 30 days of the initial trouble whether they have been resolved or not. Most companies internally classify repeat troubles as those troubles that recur within 30 days of being resolved or "closed out." Filing variation and possible confusion appears to center on whether subsequent troubles are included in the count of repeat troubles filed. Although the intent of the order was to remove inconsistencies in the repeat category, it appears that not all companies are consistently able to comply with the requirement. At least one company has filed for a waiver of the requirement to include subsequent troubles in the count of repeat troubles. In other cases, company reevaluation of filing practices may thus have resulted in discontinuities in the repeat trouble report data beginning with 1994 data.<sup>16</sup>

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<sup>15</sup> See Policy and Rules Concerning Rates for Dominant Carriers, Memorandum Opinion and Order, 8 FCC Rcd 7474 (Oct. 12, 1993), paragraph 26 and attachments.

<sup>16</sup> Ameritech reports that it has not changed its reporting procedures for repeat troubles as a result of the Common Carrier Bureau's order. Although it cannot confirm this, it may have included troubles that were not company-caused or associated with unregulated services in pre-1994 data. Ameritech classifies a trouble when the trouble has been investigated or corrected and is "closed out." If a trouble is called in prior to being acted upon, it is counted as a subsequent trouble and not reported as a repeat trouble. If a trouble is called in again after being investigated and addressed, but within the first 30 days, it is classified as a repeat trouble. Any trouble recurring more than 30 days after initially being reported and resolved is treated as a new "initial" trouble. The company believes that it is possible that it included subsequent troubles in its pre-1994 data but does not think so. US West does not include subsequent troubles in its count of repeat troubles. It filed for a waiver on November 12, 1993 so that it did not have to include subsequent troubles with its count of repeat troubles. Bell Atlantic began including subsequent troubles in its count of repeat troubles beginning in 1994. Pacific Telesis also reports that it began including subsequent troubles in its repeat trouble count in 1994 as part of a change of its internal record keeping procedures. BellSouth reports that it has never included subsequent troubles in its count of repeat trouble reports; however, prior to 1994 it included repeat troubles in its count of trouble reports and subsequently does not include repeat troubles in its initial trouble count. Similarly Southwestern Bell reports that

Third, although the Commission has attempted to standardize the data requirements among reporting companies, one should not be lulled into the assumption that comparable data items for different companies are exactly the same. Different companies may have different procedures for collecting and presenting the data that may affect the quality and meaning of the data provided to the Commission.<sup>17</sup>

Earlier quality summary reports have cautioned against direct comparisons between companies and have suggested that comparisons should only be made on the basis of trends. While this still holds to some extent, an attempt to remove indexing and preprocessing of data as much as possible has somewhat alleviated this problem. Nonetheless, caution should be exercised when attempting to make direct comparisons.

Relating to this is the problem of continuity of measurement. While an attempt has been made to preserve continuity up to this point, detection of errors and changes in reporting requirements that are deemed necessary to deal with price cap requirements will introduce discontinuities into certain time series data or eliminate certain items of data entirely. It is also important to note that since quality monitoring programs impose costs on the companies, they have historically been vulnerable when they are perceived as having outlived their usefulness. In addition, changes in technology have led to changes in the nature of measurements required to adequately monitor service quality. Compounding this problem is the fact that the companies themselves periodically wish to change their internal measurement procedures from which regulatory data are drawn, adding difficulty to long-term measurement.<sup>18</sup> In some cases procedural changes in the data measurement and collection process may be subtle enough so that they are not immediately noticeable in the data. Significant procedural changes, however, usually result in clearly noticeable and abrupt changes in data levels. It appears that at least some of these changes are not reported to the Commission. These factors tend to limit the number of years of data available to track service quality trends and will affect the frequency and availability of summary reports that are

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prior to 1994 it included repeat troubles in its count of trouble reports but subsequently does not.

<sup>17</sup> The reader should refer also to footnotes in the raw data filings.

<sup>18</sup> Bell Atlantic, for example, reported changes to its customer perception surveys that were reflected in its post-1990 data, and Pacific Telesis had noted changes which were effective in January 1992. Other companies also indicated that they have made or are contemplating making similar changes that may be reflected in data discontinuities.

prepared by the Commission. Since the current monitoring program is largely dictated by concerns associated with price cap regulation, the future direction of this new mode of regulation will largely determine the future of the current quality of service monitoring program.

Since the present program is an offshoot of an earlier more limited one, an attempt was made to relate measurements of the two programs. Of the five areas of measurement during the period 1985-90, only two have survived in a form which allows a longer term trend to be established. These are overall customer perception levels as surveyed by the companies and dial-tone-delay. These items provide a very limited view of long-term trends and reflect possible data discontinuities beginning with data collected since 1991 due to changes in the customer perception surveys and in the way the data have been developed. As presented, much of this data shows no obvious adverse trend over the period; however, in a few instances customer perceptions have exhibited a decline over recent measurement periods.

Finally, one should generally be cautious in responding too quickly to glitches or apparent sudden changes in the data, especially before getting a sense of the data. Reliability data is expected to be somewhat more erratic than the other data items. Even here, longer term patterns may be identifiable which could assist the companies in gaining a better insight into any identified problems. Such insights should lead to more cost-effective solutions. Although the data presented in this report was collected on a quarterly basis and permits detection of problems sooner, it also may lead an observer to draw conclusions prematurely. For example, data errors or company responses requiring more than one quarter to be implemented may have resulted in apparent abnormalities which in fact are normal occurrences. As more experience is gained in looking at the data, one should be able to recognize anomalies from normal seasonal patterns and other patterns in the data reflecting the companies' normal response in maintaining adequate service to customers. As noted in earlier quality of service reports, one should still view the data in the context of trend analysis and consider internal company response times in dealing with problems.

The data presented here are available on a more detailed study area basis, usually a state or a portion of a state. Further analysis supplemented with data from state regulatory commissions may be needed to address the existence of localized problems. It is hoped that this report will help to address important issues relating to quality-of-service and that it will further assist in identifying errors or problems with the data.

This report is available in the Common Carrier Bureau's Public Reference Room, 1919 M Street, N.W., Room 509, Washington, D.C. 20554. For more information, Jonathan Kraushaar may be contacted at (202) 418-0947 or (202) 418-0940.

Chart 1

# Trouble Reports per 1,000 Access Lines Bell Companies

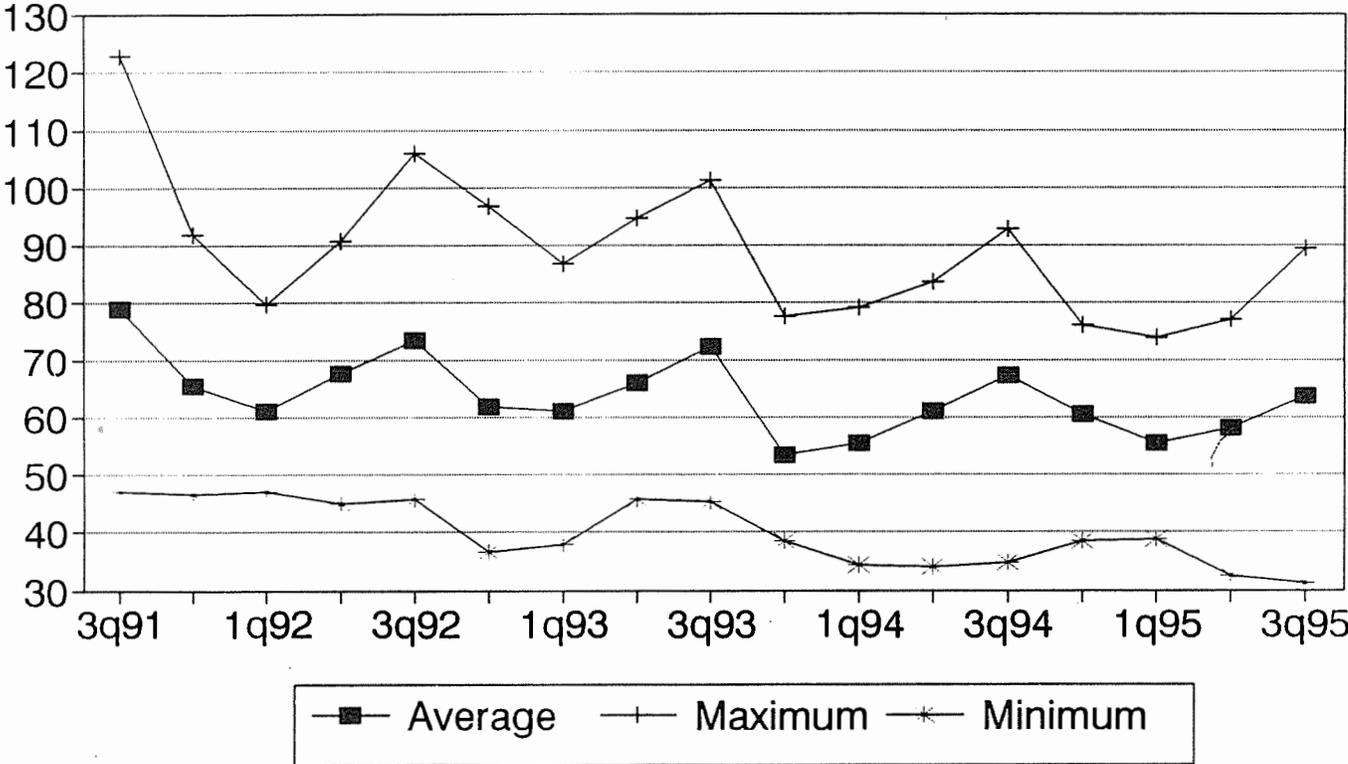


Chart 2

# Regulatory Complaints per Million Lines Bell Companies

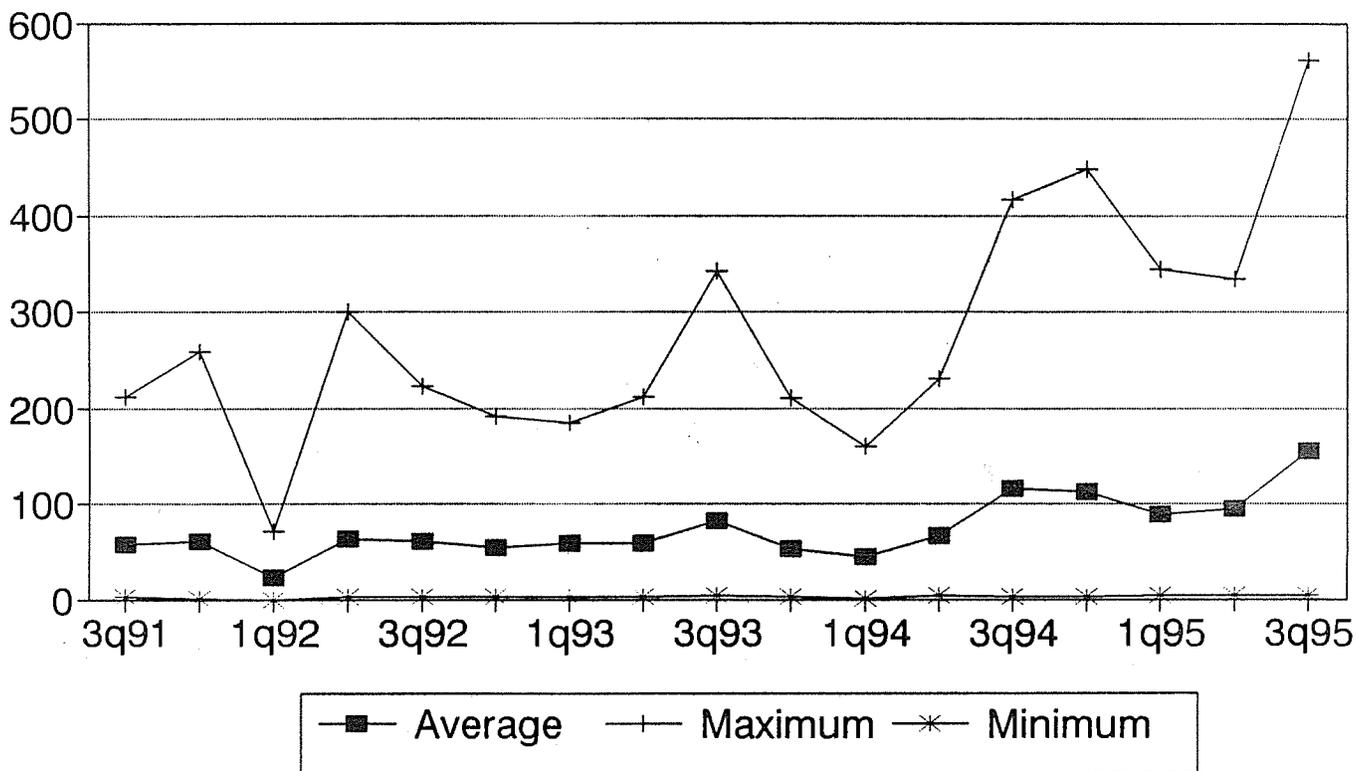


Chart 3

# Percent of Switches with Outages Bell Companies

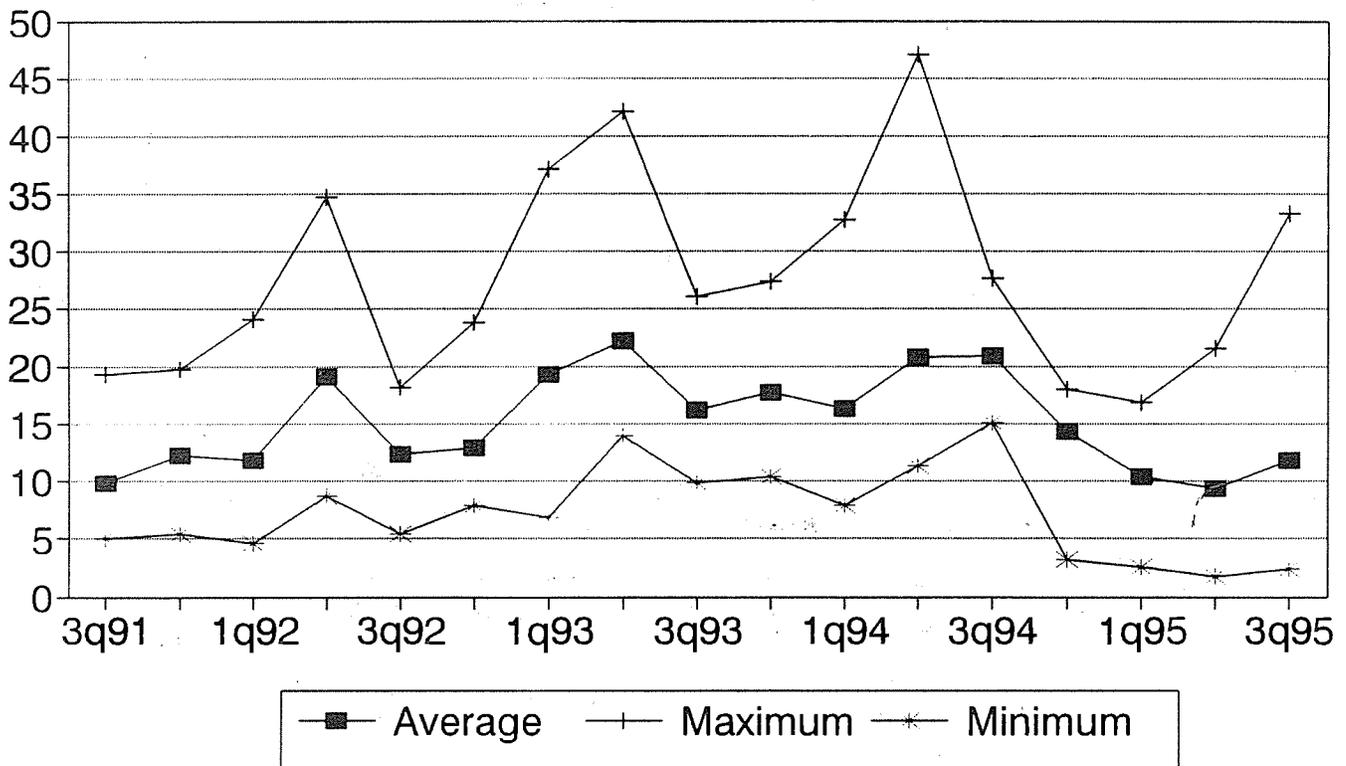


Chart 4

# Outage Line-Minutes Per Access Line Bell Companies

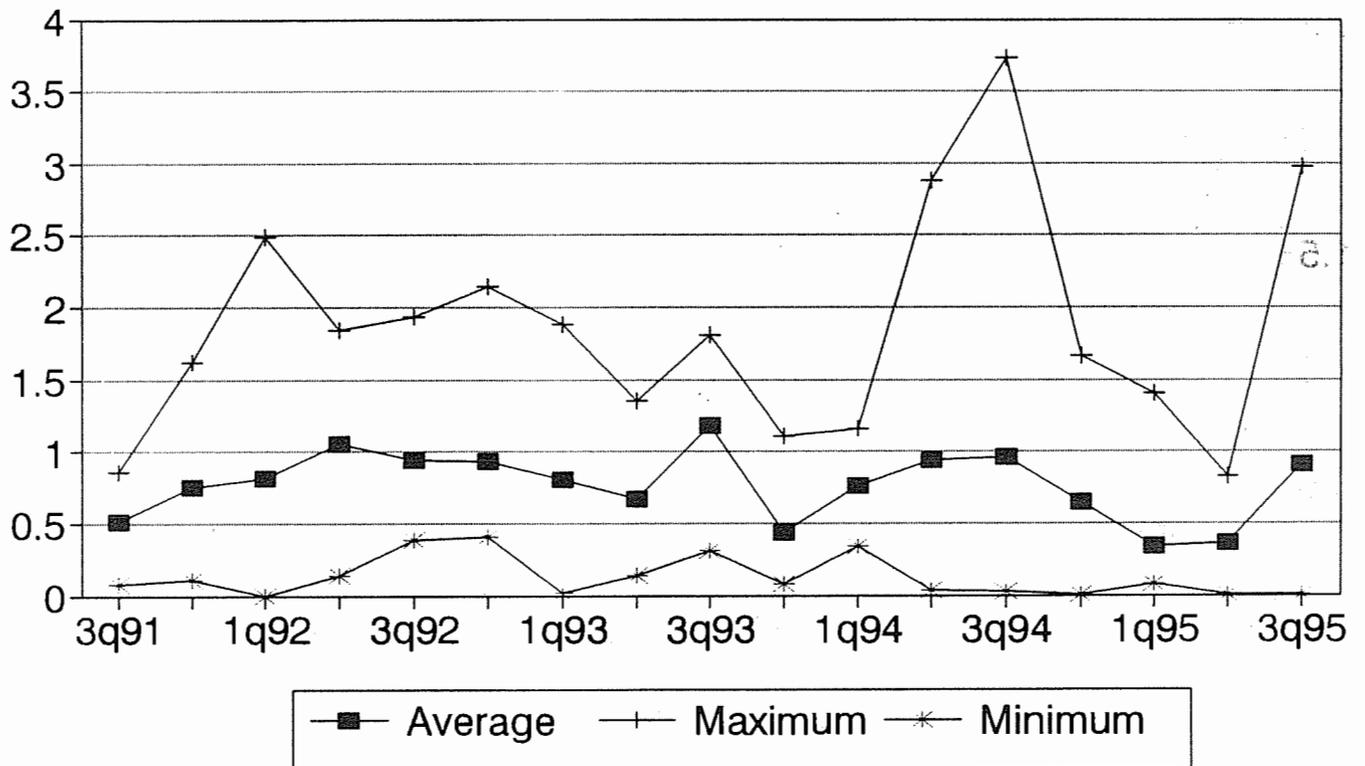
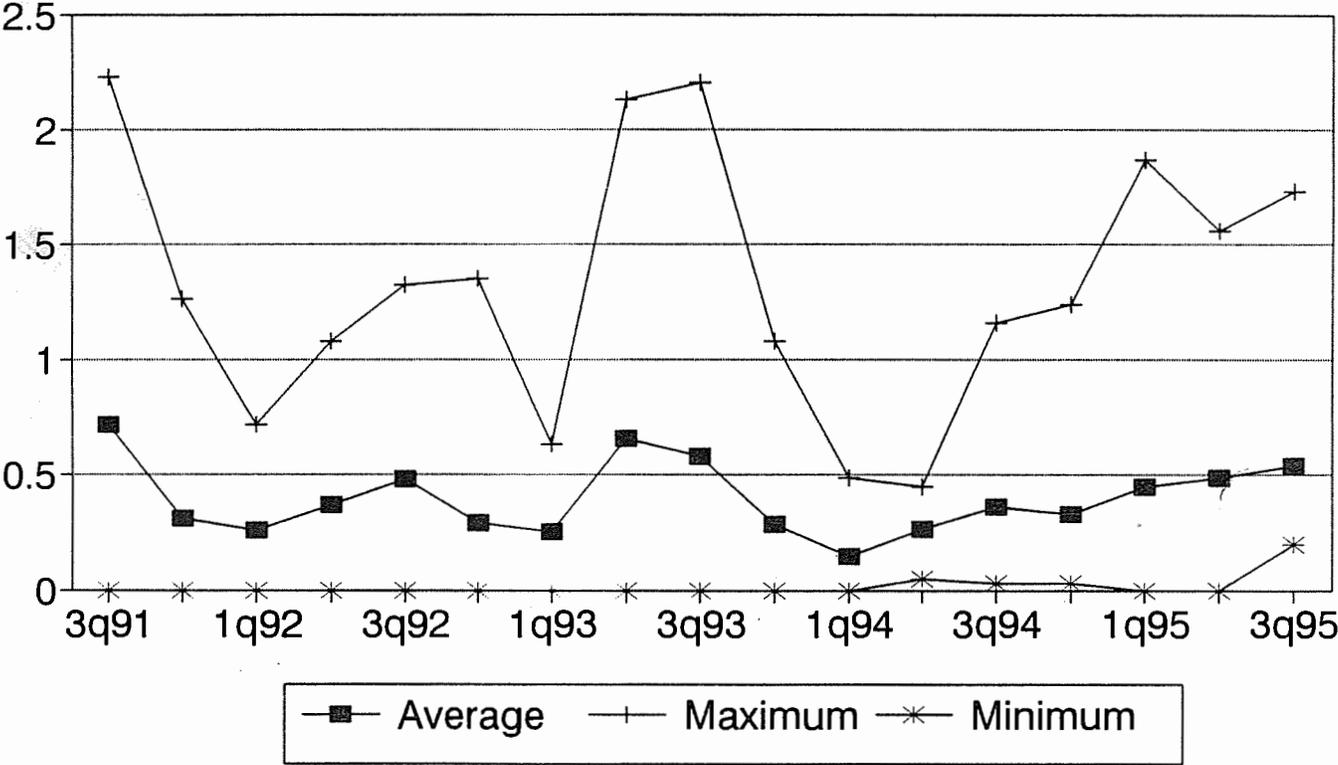


Chart 5

# Pct. Trunk Groups > Blocking Criteria

## Bell Companies -- IXC Access Trunks



**Table 1: Percent of Customers Satisfied -- Residential**

Company/Year	1987		1988		1989		1990		1991		1992		1993		1994		1995
	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H
AMERITECH	94.7	94.1	95.0	94.2	94.8	93.6	94.4	94.3	95.3	94.9	95.4	96.2	96.8	96.7	97.6	97.0	99.0
BELL ATLANTIC	94.4	90.2	92.3	92.1	91.8	93.3	94.6	93.9	95.6	95.7	94.9	93.8	93.6	92.8	92.8	92.9	92.5
BELLSOUTH	94.2	94.0	93.9	93.6	94.1	93.2	94.9	94.9	95.5	95.5	92.7	93.6	94.1	92.8	93.5	92.8	98.7
NYNEX	93.6	93.6	94.5	94.0	94.2	94.1	92.8	93.7	94.7	93.6	92.6	92.1	85.1	84.1	84.8	84.0	84.3
PACIFIC TELESIS	95.6	96.1	95.8	95.7	96.9	96.0	96.5	95.5	96.7	96.7	95.5	93.0	92.3	92.0	93.8	91.8	91.6
SOUTHWESTERN	96.1	95.8	96.3	96.3	96.5	96.4	96.8	96.6	96.8	96.5	96.6	96.4	94.1	94.3	89.8	93.9	93.7
U S WEST	93.3	94.1	93.3	93.3	92.1	91.4	91.8	91.2	93.6	93.6	92.4	92.7	92.6	92.3	92.0	95.2	96.0
<b>COMPOSITE</b>	94.5	94.0	94.4	94.2	94.3	94.0	94.5	94.3	95.5	95.2	94.3	94.0	92.6	92.1	92.0	92.5	93.7

*Holding company data in this table is derived as an unweighted average of available operating company results.*

*Composites are unweighted averages of holding companies.*

*Please refer to text for accompanying notes and data qualifications.*

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**Table 2: Percent of Customers Satisfied -- Small Business**

Company/Year	1987		1988		1989		1990		1991		1992		1993		1994		1995
	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H
AMERITECH	94.4	94.4	94.6	93.9	94.6	94.0	94.6	94.9	95.7	95.4	95.8	95.8	96.5	97.0	96.9	96.7	97.7
BELL ATLANTIC	93.3	90.7	92.3	92.0	NA	NA	NA	NA	94.9	95.1	93.8	93.2	92.2	91.7	92.1	92.2	92.4
BELLSOUTH	94.5	94.5	95.0	94.8	94.7	94.7	95.2	95.7	94.9	94.9	94.5	94.1	94.2	94.1	94.3	93.5	96.1
NYNEX	92.3	92.2	93.9	93.4	93.7	93.5	91.9	92.7	93.9	92.9	92.2	91.5	85.1	84.2	84.9	82.8	82.6
PACIFIC TELESIS	94.5	94.0	93.9	94.1	95.6	95.3	95.9	94.9	96.1	96.1	94.0	92.7	92.2	91.7	91.9	91.7	91.5
SOUTHWESTERN	95.0	95.0	95.8	95.6	95.8	95.5	95.9	95.7	96.4	96.2	96.4	96.1	93.0	93.1	88.8	93.8	93.5
U S WEST	92.1	93.5	92.6	92.4	90.4	89.8	90.7	89.8	92.1	92.1	92.2	91.4	91.5	89.8	90.3	94.7	93.4
<b>COMPOSITE</b>	93.7	93.5	94.0	93.7	94.1	NA	94.0	94.0	94.9	94.7	94.1	93.5	92.1	91.7	91.3	92.2	92.5

*Holding company data in this table is derived as an unweighted average of available operating company results.*

*Composites are unweighted averages of holding companies.*

*Please refer to text for accompanying notes and data qualifications.*

**Table 3: Percent of Customers Satisfied -- Large Business**

Company/Year	1987		1988		1989		1990		1991		1992		1993		1994		1995
	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H
AMERITECH	90.0	91.4	95.1	93.6	93.9	94.7	94.7	95.1	95.9	96.2	96.2	NA	95.3	91.1	89.5	86.4	95.2
BELL ATLANTIC	94.0	95.0	96.0	95.7	98.0	96.0	97.3	97.0	97.6	97.1	98.2	96.9	91.1	91.3	91.2	91.3	90.0
BELLSOUTH	95.0	94.9	95.4	93.9	93.9	94.1	94.6	94.6	95.8	95.8	94.8	95.2	94.6	94.9	94.6	94.6	94.7
NYNEX	91.5	91.6	93.3	92.0	94.0	93.5	93.5	93.2	94.2	94.1	90.9	94.4	87.2	83.1	86.2	88.0	85.0
PACIFIC TELESIS	94.3	NA	92.7	94.7	95.0	NA	93.0	94.0	94.3	94.3	90.0	89.7	91.7	NA	NA	NA	NA
SOUTHWESTERN	93.9	94.4	95.4	95.4	94.3	94.0	94.6	95.3	97.4	97.3	96.6	97.3	95.5	92.6	94.5	96.4	96.8
U S WEST	NA	96.3	NA	95.5	92.1	89.0	91.1	92.4	NA	94.3							
COMPOSITE	93.1	NA	94.6	94.4	94.5	NA	94.1	94.5	95.9	95.8	94.5	94.7	92.5	NA	NA	NA	NA

Holding company data in this table is derived as an unweighted average of available operating company results.

Composites are unweighted averages of holding companies.

Please refer to text for accompanying notes and data qualifications.

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**Table 4: Percent of Offices Providing Dial Tone in Less Than Three Seconds**

Company/Year	1987		1988		1989		1990		1991		1992		1993		1994		1995
	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H	2 H	1 H
AMERITECH	98.6	99.1	99.0	99.6	99.4	99.0	98.3	98.2	99.4	98.8	99.5	99.6	99.5	99.4	99.5	99.9	100.0
BELL ATLANTIC	97.8	98.8	99.0	99.3	99.3	99.1	98.4	99.2	99.5	99.6	99.8	99.5	99.7	99.8	98.2	98.2	99.3
BELLSOUTH	95.0	96.0	97.4	97.6	97.8	98.2	98.4	98.0	99.2	99.2	99.3	98.6	98.6	NA	NA	NA	NA
NYNEX	99.8	99.6	99.7	99.7	99.8	99.8	99.5	99.7	99.9	99.6	99.8	99.3	99.6	100.0	99.2	99.7	99.5
PACIFIC TELESIS	99.7	99.7	99.7	99.7	99.7	99.1	99.7	99.6	99.7	99.7	100.0	100.0	100.0	NA	NA	NA	NA
SOUTHWESTERN	98.4	98.1	99.3	99.4	99.3	99.4	99.2	99.3	97.8	97.7	98.1	97.4	97.9	98.9	98.0	98.7	98.9
U S WEST	98.2	98.4	98.8	99.1	98.9	99.4	99.0	98.9	99.3	99.3	99.6	97.9	97.3	99.8	97.7	98.0	97.6
COMPOSITE	98.2	98.5	99.0	99.2	99.2	99.1	98.9	99.0	99.2	99.1	99.4	98.9	98.9	NA	NA	NA	NA

Holding company data in this table is derived as an unweighted average of available operating company results.

Composites are unweighted averages of holding companies.

Please refer to text for accompanying notes and data qualifications.

**Table 5 (a): Ameritech -- Installation, Maintenance, & Customer Complaints**

Reporting Period:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>ACCESS SERVICES PROVIDED TO CARRIERS -- SWITCHED ACCESS</b>									
Percent Installation Commitments Met	99.9%	99.6%	97.6%	95.7%	93.5%	92.5%	87.2%	83.5%	79.9%
Average Missed Installation (days)	4.4	5.4	NA						
Average Repair Interval (hours)	1.9	1.8	8.9	6.7	20.9	29.3	29.6	31.7	26.1
<b>ACCESS SERVICES PROVIDED TO CARRIERS -- SPECIAL ACCESS</b>									
Percent Installation Commitments Met	99.2%	98.4%	95.7%	94.3%	94.9%	88.3%	83.1%	83.4%	76.0%
Average Missed Installation (days)	1.6	2.2	NA						
Average Repair Interval (hours)	1.9	1.9	2.1	2.3	2.3	3.2	3.6	3.8	4.6
<b>LOCAL SERVICES PROVIDED TO RESIDENTIAL AND BUSINESS CUSTOMERS</b>									
Percent Installation Commitments Met	99.5%	99.5%	99.6%	99.6%	98.8%	99.0%	99.2%	99.6%	99.2%
Residence	99.6%	99.6%	99.7%	99.7%	98.9%	99.1%	99.3%	99.8%	99.2%
Business	99.0%	99.1%	98.9%	99.1%	98.6%	98.9%	98.9%	99.0%	98.8%
Average Missed Installation (days)	3.1	3.3	NA						
Residence	2.8	2.6	NA						
Business	2.7	3.1	NA						
Initial Trouble Reports per Thousand Lines	54.4	38.6	46.7	56.8	58.9	46.8	49.5	62.4	66.3
Total MSA	NA								
Total Non-MSA	NA								
Total Residence	67.2	47.4	57.2	70.9	73.2	57.1	60.3	77.0	82.6
Total Business	27.8	21.0	25.7	27.6	30.1	26.1	27.7	32.9	33.4
Troubles Found per Thousand Lines	27.3	20.7	28.6	34.2	34.8	26.4	30.5	39.8	40.9
Repeat Troubles as a Pct. of Trouble Reports	33.5%	32.0%	16.9%	17.3%	18.5%	17.9%	18.2%	19.0%	18.2%
Total Residence	33.5%	32.2%	17.0%	17.3%	18.6%	18.0%	18.3%	19.1%	18.1%
Total Business	33.6%	31.2%	16.2%	17.9%	18.1%	17.4%	17.9%	18.3%	18.5%
Customer Complaints per Million Access Lines									
Residential	7.2	3.4	2.7	4.8	6.0	3.9	6.0	11.4	105.8
Business	2.9	1.7	1.0	2.4	0.2	2.7	2.0	2.5	28.6

Please refer to text for notes and data qualifications

**Table 5 (b): Ameritech -- Switch Downtime & Trunk Blocking**

Reporting Period:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>Total Access Lines in Thousands</b>	16,889	17,500	17,500	17,500	17,500	18,122	18,122	18,122	18,122
<b>Total Trunk Groups</b>	1,309	1,335	1,334	1,332	1,296	1,288	1,283	1,297	1,284
<b>Total Switches</b>	1,442	1,430	1,442	1,431	1,424	1,432	1,413	1,422	1,415
<b>Switches with Downtime</b>									
<b>Number of Switches</b>	148	149	135	264	303	189	204	271	331
<b>As a Percentage of Total Switches</b>	10.3%	10.4%	9.4%	18.4%	21.3%	13.2%	14.4%	19.1%	23.4%
<b>Average Switch Downtime in Seconds per Switch</b>									
<b>For All Occurrences or Events</b>	95.9	19.0	24.7	58.5	68.3	32.9	30.0	39.4	51.4
<b>For Unscheduled Events Over 2 Minutes</b>	68.8	4.4	5.5	19.2	29.9	13.7	17.2	26.0	36.5
<b>For Unscheduled Downtime More Than 2 Minutes</b>									
<b>Number of Occurrences or Events</b>	42	10	8	21	11	12	22	15	8
<b>Events per Million Access Lines</b>	2.49	0.57	0.46	1.20	0.63	0.66	1.21	0.83	0.44
<b>Average Outage Duration in Minutes</b>	39.4	10.4	16.4	21.8	64.5	27.2	18.5	41.0	107.6
<b>Avg. Lines Affected per Event in Thousands</b>	15.2	10.3	19.6	20.4	18.9	25.9	14.8	11.8	21.1
<b>Outage Line-Minutes per Event in Thousands</b>	711	135	277	316	397	472	1,156	965	6,744
<b>Outage Line-Minutes per 1,000 Access Lines</b>	1,767	77	127	379	250	312	1,403	798	2,977
<b>For Scheduled Downtime More Than 2 Minutes</b>									
<b>Number of Occurrences or Events</b>	61	87	102	209	212	101	60	54	34
<b>Events per Million Access Lines</b>	3.61	4.97	5.83	11.94	12.11	5.57	3.31	2.98	1.88
<b>Average Outage Duration in Minutes</b>	10.2	3.4	4.2	3.8	3.1	3.5	2.8	3.2	5.2
<b>Avg. Lines Affected per Event in Thousands</b>	18.9	22.9	33.2	25.9	18.7	25.0	27.1	17.8	24.0
<b>Outage Line-Minutes per Event in Thousands</b>	181	84	159	90	59	86	79	51	115
<b>Outage Line-Minutes per 1,000 Access Lines</b>	653	419	927	1,077	711	479	263	153	217
<b>% Trunk Grps. Exceeding Blocking Obj. 3 Months</b>	0.69%	0.22%	0.00%	0.45%	0.31%	0.08%	0.00%	0.15%	0.31%

Please refer to text for notes and data qualifications

**Table 5 (c): Ameritech -- Switch Downtime Causes**

REPORTING PERIOD:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>TOTAL NUMBER OF OUTAGES</b>									
1. Scheduled	61	87	102	209	212	101	60	54	34
2. Procedural Errors -- Telco. (Install./Maint.)	6	0	3	6	3	0	1	1	0
3. Procedural Errors -- Telco. (Other)	1	0	0	0	0	0	0	4	1
4. Procedural Errors -- System Vendors	1	3	0	2	0	5	0	0	0
5. Procedural Errors -- Other Vendors	1	0	0	1	0	0	4	0	0
6. Software Design	7	3	2	5	5	5	11	7	5
7. Hardware Design	2	0	3	1	0	0	0	0	0
8. Hardware Failure	16	4	0	4	3	2	6	3	1
9. Natural Causes	0	0	0	2	0	0	0	0	1
10. Traffic Overload	2	0	0	0	0	0	0	0	0
11. Environmental	0	0	0	0	0	0	0	0	0
12. External Power Failure	0	0	0	0	0	0	0	0	0
13. Massive Line Outage	3	0	0	0	0	0	0	0	0
14. Remote	2	0	0	0	0	0	0	0	0
15. Other/Unknown	1	0	0	0	0	0	0	0	0
<b>TOTAL OUTAGE LINE-MINUTES PER THOUSAND ACCESS LINES</b>									
1. Scheduled	653.0	419.1	927.3	1,076.9	711.1	478.7	263.0	152.9	216.5
2. Procedural Errors -- Telco. (Install./Maint.)	387.6	0.0	19.7	167.1	116.2	0.0	1,326.4	1.1	0.0
3. Procedural Errors -- Telco. (Other)	1.5	0.0	0.0	0.0	0.0	0.0	0.0	762.4	2,527.7
4. Procedural Errors -- System Vendors	3.0	1.8	0.0	14.3	0.0	217.1	0.0	0.0	0.0
5. Procedural Errors -- Other Vendors	81.8	0.0	0.0	0.9	0.0	0.0	6.6	0.0	0.0
6. Software Design	210.2	3.3	4.4	72.8	71.8	82.0	45.6	19.6	5.6
7. Hardware Design	5.3	0.0	102.5	48.4	0.0	0.0	0.0	0.0	0.0
8. Hardware Failure	1,014.3	72.0	0.0	15.1	61.6	13.2	24.7	15.3	441.5
9. Natural Causes	0.0	0.0	0.0	60.8	0.0	0.0	0.0	0.0	2.2
10. Traffic Overload	32.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11. Environmental	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12. External Power Failure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13. Massive Line Outage	22.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14. Remote	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15. Other/Unknown	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Please refer to text for notes and data qualifications

**Table 6 (a): Bell Atlantic -- Installation, Maintenance, & Customer Complaints**

Reporting Period:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>ACCESS SERVICES PROVIDED TO CARRIERS -- SWITCHED ACCESS</b>									
Percent Installation Commitments Met	99.8%	99.8%	98.0%	98.1%	98.0%	99.4%	96.0%	91.7%	86.4%
Average Missed Installation (days)	9.7	2.0	NA						
Average Repair Interval (hours)	7.1	4.4	7.4	4.1	4.2	6.8	6.8	5.7	8.4
<b>ACCESS SERVICES PROVIDED TO CARRIERS -- SPECIAL ACCESS</b>									
Percent Installation Commitments Met	99.2%	98.7%	98.2%	97.3%	96.8%	95.8%	95.4%	94.4%	93.7%
Average Missed Installation (days)	3.4	4.2	NA						
Average Repair Interval (hours)	1.9	1.8	2.1	2.1	2.2	2.0	2.1	2.2	2.3
<b>LOCAL SERVICES PROVIDED TO RESIDENTIAL AND BUSINESS CUSTOMERS</b>									
Percent Installation Commitments Met	99.6%	99.6%	99.6%	99.7%	99.6%	99.7%	99.7%	99.8%	99.6%
Residence	99.7%	99.7%	99.6%	99.7%	99.7%	99.7%	99.8%	99.8%	99.6%
Business	99.6%	99.4%	99.3%	99.4%	99.2%	99.4%	99.5%	99.5%	99.2%
Average Missed Installation (days)	2.7	3.4	NA						
Residence	2.3	2.7	NA						
Business	3.2	4.7	NA						
Initial Trouble Reports per Thousand Lines	77.3	62.9	59.6	60.0	71.3	53.7	52.4	61.0	67.7
Total MSA	NA								
Total Non-MSA	NA								
Total Residence	90.8	72.6	70.1	69.8	84.2	61.5	58.9	70.6	79.3
Total Business	52.1	44.6	40.3	42.1	47.5	39.4	40.5	43.8	46.8
Troubles Found per Thousand Lines	61.9	49.5	43.4	44.4	51.8	38.6	38.4	45.5	50.1
Repeat Troubles as a Pct. of Trouble Reports	15.9%	15.6%	30.0%	29.1%	34.3%	30.9%	26.7%	25.7%	28.5%
Total Residence	16.2%	16.0%	31.9%	31.1%	36.7%	33.3%	28.5%	27.3%	30.3%
Total Business	14.7%	14.5%	23.9%	23.0%	26.4%	24.0%	21.8%	21.1%	23.1%
Customer Complaints per Million Access Lines									
Residential	10.3	8.4	11.3	13.2	17.4	13.2	14.2	9.3	10.7
Business	5.1	2.1	3.5	4.3	5.9	4.7	3.7	3.7	3.1

Please refer to text for notes and data qualifications

**Table 6 (b): Bell Atlantic -- Switch Downtime & Trunk Blocking**

Reporting Period:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>Total Access Lines in Thousands</b>	18,180	18,180	18,644	18,644	18,644	18,644	19,167	19,167	19,167
<b>Total Trunk Groups</b>	1,456	1,456	1,448	1,498	1,525	1,528	1,494	1,489	1,531
<b>Total Switches</b>	1,416	1,416	1,405	1,405	1,405	1,405	1,408	1,408	1,408
<b>Switches with Downtime</b>									
<b>Number of Switches</b>	197	275	296	249	249	239	148	87	112
<b>As a Percentage of Total Switches</b>	13.9%	19.4%	21.1%	17.7%	17.7%	17.0%	10.5%	6.2%	8.0%
<b>Average Switch Downtime in Seconds per Switch</b>									
<b>For All Occurrences or Events</b>	37.9	40.7	44.8	15.7	48.1	20.1	8.4	9.1	18.0
<b>For Unscheduled Events Over 2 Minutes</b>	28.6	24.6	19.6	1.3	34.9	7.1	3.3	6.5	13.3
<b>For Unscheduled Downtime More Than 2 Minutes</b>									
<b>Number of Occurrences or Events</b>	18	19	15	7	24	16	11	6	6
<b>Events per Million Access Lines</b>	0.99	1.05	0.80	0.38	1.29	0.86	0.57	0.31	0.31
<b>Average Outage Duration in Minutes</b>	37.5	30.5	30.7	4.5	34.1	10.4	7.1	25.3	52.1
<b>Avg. Lines Affected per Event in Thousands</b>	13.8	18.5	27.1	22.9	19.5	24.6	20.7	32.5	29.1
<b>Outage Line-Minutes per Event in Thousands</b>	313	258	610	153	391	160	185	887	1,167
<b>Outage Line-Minutes per 1,000 Access Lines</b>	310	270	491	58	504	137	106	278	365
<b>For Scheduled Downtime More Than 2 Minutes</b>									
<b>Number of Occurrences or Events</b>	46	63	90	76	58	45	12	7	12
<b>Events per Million Access Lines</b>	2.53	3.47	4.83	4.08	3.11	2.41	0.63	0.37	0.63
<b>Average Outage Duration in Minutes</b>	3.1	4.1	5.4	3.0	3.5	4.4	4.7	2.4	2.7
<b>Avg. Lines Affected per Event in Thousands</b>	19.9	19.2	20.4	21.9	25.2	23.9	34.7	25.6	22.1
<b>Outage Line-Minutes per Event in Thousands</b>	63	63	74	67	91	100	118	61	64
<b>Outage Line-Minutes per 1,000 Access Lines</b>	159	219	355	272	283	241	74	22	40
<b>% Trunk Grps. Exceeding Blocking Obj. 3 Months</b>	0.07%	0.21%	0.28%	0.40%	0.46%	0.26%	0.33%	0.87%	0.20%

Please refer to text for notes and data qualifications

**Table 6 (c): Bell Atlantic -- Switch Downtime Causes**

REPORTING PERIOD:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>TOTAL NUMBER OF OUTAGES</b>									
1. Scheduled	46	63	90	76	58	45	12	7	12
2. Procedural Errors -- Telco. (Install./Maint.)	3	1	0	0	0	1	1	1	1
3. Procedural Errors -- Telco. (Other)	1	2	0	2	4	0	0	0	1
4. Procedural Errors -- System Vendors	3	5	1	1	1	0	1	0	1
5. Procedural Errors -- Other Vendors	1	0	0	0	0	0	0	0	0
6. Software Design	4	4	0	2	6	3	2	1	1
7. Hardware Design	0	1	0	0	7	0	0	1	0
8. Hardware Failure	2	5	14	1	6	12	7	3	1
9. Natural Causes	1	0	0	1	0	0	0	0	1
10. Traffic Overload	0	0	0	0	0	0	0	0	0
11. Environmental	0	0	0	0	0	0	0	0	0
12. External Power Failure	0	0	0	0	0	0	0	0	0
13. Massive Line Outage	0	0	0	0	0	0	0	0	0
14. Remote	0	0	0	0	0	0	0	0	0
15. Other/Unknown	3	1	0	0	0	0	0	0	0
<b>TOTAL OUTAGE LINE-MINUTES PER THOUSAND ACCESS LINES</b>									
1. Scheduled	158.6	218.8	355.5	271.8	283.1	241.1	74.2	22.1	40.1
2. Procedural Errors -- Telco. (Install./Maint.)	125.6	0.2	0.0	0.0	0.0	27.1	22.5	0.8	15.4
3. Procedural Errors -- Telco. (Other)	9.1	42.3	0.0	3.5	248.5	0.0	0.0	0.0	83.1
4. Procedural Errors -- System Vendors	12.7	26.6	151.1	2.0	1.5	0.0	23.8	0.0	7.2
5. Procedural Errors -- Other Vendors	15.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6. Software Design	101.5	94.6	0.0	8.3	207.9	33.9	7.2	179.8	11.2
7. Hardware Design	0.0	16.3	0.0	0.0	7.4	0.0	0.0	7.8	0.0
8. Hardware Failure	24.2	89.6	339.7	1.4	38.6	76.0	52.8	89.2	8.9
9. Natural Causes	13.4	0.0	0.0	42.3	0.0	0.0	0.0	0.0	239.4
10. Traffic Overload	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11. Environmental	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12. External Power Failure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13. Massive Line Outage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14. Remote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15. Other/Unknown	8.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Please refer to text for notes and data qualifications

**Table 7 (a): BellSouth -- Installation, Maintenance, & Customer Complaints**

Reporting Period:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>ACCESS SERVICES PROVIDED TO CARRIERS -- SWITCHED ACCESS</b>									
Percent Installation Commitments Met	99.7%	99.7%	99.5%	99.4%	99.0%	98.3%	99.4%	99.0%	99.2%
Average Missed Installation (days)	4.7	6.3	NA						
Average Repair Interval (hours)	3.2	2.4	2.1	2.4	3.0	3.8	3.0	2.9	3.8
<b>ACCESS SERVICES PROVIDED TO CARRIERS -- SPECIAL ACCESS</b>									
Percent Installation Commitments Met	99.0%	98.7%	97.3%	98.1%	96.9%	94.3%	93.8%	91.1%	89.8%
Average Missed Installation (days)	2.8	3.7	NA						
Average Repair Interval (hours)	3.5	2.5	2.5	2.7	2.7	2.8	2.8	3.0	3.1
<b>LOCAL SERVICES PROVIDED TO RESIDENTIAL AND BUSINESS CUSTOMERS</b>									
Percent Installation Commitments Met	98.5%	98.6%	98.7%	98.8%	98.7%	98.6%	98.7%	98.9%	98.6%
Residence	98.5%	98.6%	98.7%	98.8%	98.7%	98.6%	98.8%	99.0%	98.7%
Business	98.6%	98.6%	98.6%	98.8%	98.7%	98.5%	98.4%	98.5%	98.2%
Average Missed Installation (days)	5.5	5.7	NA						
Residence	5.7	5.9	NA						
Business	5.0	5.1	NA						
Initial Trouble Reports per Thousand Lines	95.5	65.4	71.6	73.0	78.4	68.2	65.7	72.3	80.1
Total MSA	NA								
Total Non-MSA	NA								
Total Residence	107.9	72.9	80.9	81.8	88.1	76.3	72.9	81.0	89.5
Total Business	65.5	47.0	49.2	51.9	55.1	48.9	48.6	51.8	57.9
Troubles Found per Thousand Lines	58.2	33.5	39.3	40.9	43.0	33.9	31.6	37.0	41.2
Repeat Troubles as a Pct. of Trouble Reports	14.2%	15.5%	14.8%	14.5%	16.1%	15.3%	14.8%	14.9%	16.3%
Total Residence	14.1%	15.5%	14.8%	14.3%	15.9%	15.1%	14.6%	14.8%	16.2%
Total Business	14.6%	15.6%	14.8%	15.1%	16.8%	16.1%	15.2%	15.2%	16.4%
Customer Complaints per Million Access Lines									
Residential	35.8	17.2	16.1	19.0	22.1	23.2	19.5	16.1	13.3
Business	13.9	7.7	9.5	12.8	17.0	9.6	10.2	10.2	8.5

Please refer to text for notes and data qualifications

**Table 7 (b): BellSouth -- Switch Downtime & Trunk Blocking**

Reporting Period:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>Total Access Lines in Thousands</b>	18,775	18,775	19,392	19,392	19,392	19,392	20,168	20,168	20,168
<b>Total Trunk Groups</b>	3,617	3,646	3,780	3,835	3,771	3,720	3,444	3,818	3,792
<b>Total Switches</b>	1,662	1,662	1,658	1,658	1,658	1,661	1,634	1,633	1,669
<b>Switches with Downtime</b>									
<b>Number of Switches</b>	402	336	186	189	338	252	79	61	47
<b>As a Percentage of Total Switches</b>	24.2%	20.2%	11.2%	11.4%	20.4%	15.2%	4.8%	3.7%	2.8%
<b>Average Switch Downtime in Seconds per Switch</b>									
<b>For All Occurrences or Events</b>	134.2	101.2	178.0	90.3	217.0	53.4	51.1	75.1	69.8
<b>For Unscheduled Events Over 2 Minutes</b>	106.3	72.1	82.3	76.0	86.2	24.5	38.3	31.2	25.9
<b>For Unscheduled Downtime More Than 2 Minutes</b>									
<b>Number of Occurrences or Events</b>	88	53	67	57	58	42	30	28	18
<b>Events per Million Access Lines</b>	4.69	2.82	3.46	2.94	2.99	2.17	1.49	1.39	0.89
<b>Average Outage Duration In Minutes</b>	33.5	37.7	33.9	36.8	41.1	16.1	34.8	30.3	40.0
<b>Avg. Lines Affected per Event in Thousands</b>	8.7	16.8	9.8	9.4	14.9	16.5	6.5	14.5	12.5
<b>Outage Line-Minutes per Event in Thousands</b>	163	171	227	154	298	204	140	190	348
<b>Outage Line-Minutes per 1,000 Access Lines</b>	762	483	785	453	890	441	208	264	310
<b>For Scheduled Downtime More Than 2 Minutes</b>									
<b>Number of Occurrences or Events</b>	88	109	83	98	231	143	6	11	10
<b>Events per Million Access Lines</b>	4.69	5.81	4.28	5.05	11.91	7.37	0.30	0.55	0.50
<b>Average Outage Duration in Minutes</b>	2.9	2.9	25.4	3.1	15.1	4.7	49.1	106.1	119.9
<b>Avg. Lines Affected per Event in Thousands</b>	19.6	17.2	22.2	18.6	19.2	18.0	3.3	7.2	20.6
<b>Outage Line-Minutes per Event in Thousands</b>	55	52	123	55	71	56	88	174	340
<b>Outage Line-Minutes per 1,000 Access Lines</b>	260	302	528	276	850	416	26	95	169
<b>% Trunk Grps. Exceeding Blocking Obj. 3 Months</b>	0.11%	0.08%	0.00%	0.05%	0.03%	0.03%	0.12%	0.18%	0.26%

Please refer to text for notes and data qualifications

**Table 7 (c): BellSouth -- Switch Downtime Causes**

REPORTING PERIOD:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>TOTAL NUMBER OF OUTAGES</b>									
1. Scheduled	88	109	83	98	231	143	6	11	10
2. Procedural Errors -- Telco. (Install./Maint.)	0	0	0	0	0	0	0	0	0
3. Procedural Errors -- Telco. (Other)	18	6	7	5	17	12	6	5	4
4. Procedural Errors -- System Vendors	6	5	5	7	9	7	3	2	3
5. Procedural Errors -- Other Vendors	3	1	2	1	2	1	1	0	0
6. Software Design	24	18	25	19	8	15	11	6	6
7. Hardware Design	4	1	2	5	1	2	0	1	1
8. Hardware Failure	23	19	26	17	18	5	9	14	4
9. Natural Causes	4	0	0	3	3	0	0	0	0
10. Traffic Overload	0	0	0	0	0	0	0	0	0
11. Environmental	1	0	0	0	0	0	0	0	0
12. External Power Failure	0	0	0	0	0	0	0	0	0
13. Massive Line Outage	0	0	0	0	0	0	0	0	0
14. Remote	0	0	0	0	0	0	0	0	0
15. Other/Unknown	5	3	0	0	0	0	0	0	0
<b>TOTAL OUTAGE LINE-MINUTES PER THOUSAND ACCESS LINES</b>									
1. Scheduled	259.7	302.0	527.6	275.9	850.4	416.4	26.1	94.7	168.7
2. Procedural Errors -- Telco. (Install./Maint.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. Procedural Errors -- Telco. (Other)	147.3	110.0	92.0	38.1	235.1	216.9	49.0	51.2	41.5
4. Procedural Errors -- System Vendors	31.1	30.0	256.7	12.5	127.1	42.1	48.9	3.1	13.2
5. Procedural Errors -- Other Vendors	19.7	27.1	51.1	5.4	195.9	4.1	28.0	0.0	0.0
6. Software Design	258.6	141.3	113.8	122.2	25.2	153.6	43.8	48.5	203.1
7. Hardware Design	14.8	0.1	1.1	14.1	3.5	11.1	0.0	1.5	24.3
8. Hardware Failure	139.3	152.1	270.6	225.7	252.2	13.7	37.9	159.4	28.4
9. Natural Causes	117.8	0.0	0.0	34.5	51.4	0.0	0.0	0.0	0.0
10. Traffic Overload	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11. Environmental	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12. External Power Failure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13. Massive Line Outage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14. Remote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15. Other/Unknown	31.6	22.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Please refer to text for notes and data qualifications

**Table 8 (a): NYNEX -- Installation, Maintenance, & Customer Complaints**

Reporting Period:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>ACCESS SERVICES PROVIDED TO CARRIERS -- SWITCHED ACCESS</b>									
Percent Installation Commitments Met	99.8%	99.5%	99.9%	99.7%	98.9%	99.1%	99.3%	99.6%	94.6%
Average Missed Installation (days)	4.5	14.2	NA						
Average Repair Interval (hours)	3.3	3.5	3.0	2.4	6.0	13.6	12.6	11.0	39.5
<b>ACCESS SERVICES PROVIDED TO CARRIERS -- SPECIAL ACCESS</b>									
Percent Installation Commitments Met	98.8%	98.5%	98.8%	98.2%	96.5%	91.9%	91.5%	93.7%	86.0%
Average Missed Installation (days)	8.2	8.8	NA						
Average Repair Interval (hours)	6.7	6.9	5.8	5.3	6.2	7.1	8.3	7.3	7.9
<b>LOCAL SERVICES PROVIDED TO RESIDENTIAL AND BUSINESS CUSTOMERS</b>									
Percent Installation Commitments Met	98.7%	98.4%	98.0%	98.2%	97.8%	97.6%	98.1%	98.0%	98.2%
Residence	98.9%	98.6%	98.1%	98.3%	98.0%	98.0%	98.4%	98.6%	98.5%
Business	97.2%	97.0%	96.6%	97.0%	96.5%	94.9%	96.2%	94.1%	96.4%
Average Missed Installation (days)	5.1	5.0	NA						
Residence	5.1	5.1	NA						
Business	5.2	5.2	NA						
Initial Trouble Reports per Thousand Lines	101.3	77.7	79.2	79.6	92.7	76.1	73.9	77.1	89.4
Total MSA	NA								
Total Non-MSA	NA								
Total Residence	115.2	87.4	90.4	90.7	107.9	85.9	84.3	88.0	104.2
Total Business	67.0	53.7	52.7	53.2	56.6	53.0	49.8	51.9	55.2
Troubles Found per Thousand Lines	74.4	54.2	40.0	54.8	62.6	51.0	49.9	52.2	61.5
Repeat Troubles as a Pct. of Trouble Reports	14.1%	16.4%	17.7%	18.0%	18.1%	17.8%	17.5%	16.9%	17.2%
Total Residence	14.0%	16.3%	17.6%	17.8%	17.9%	17.4%	17.2%	16.5%	16.8%
Total Business	14.9%	17.1%	18.0%	18.7%	19.4%	19.2%	18.6%	18.4%	18.8%
<b>Customer Complaints per Million Access Lines</b>									
Residential	226.9	139.9	102.3	134.5	273.3	259.5	218.9	216.6	218.0
Business	115.3	70.4	57.4	96.6	153.5	188.9	125.0	118.6	110.1

Please refer to text for notes and data qualifications

**Table 8 (b): NYNEX -- Switch Downtime & Trunk Blocking**

Reporting Period:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>Total Access Lines in Thousands</b>	15,133	15,133	15,613	15,613	15,613	15,613	15,959	15,959	15,959
<b>Total Trunk Groups</b>	991	1,023	1,037	1,043	1,031	1,047	1,068	1,090	1,100
<b>Total Switches</b>	1,331	1,325	1,318	1,325	1,324	1,295	1,291	1,298	1,290
<b>Switches with Downtime</b>									
Number of Switches	132	149	104	154	200	41	33	39	34
As a Percentage of Total Switches	9.9%	11.2%	7.9%	11.6%	15.1%	3.2%	2.6%	3.0%	2.6%
<b>Average Switch Downtime in Seconds per Switch</b>									
For All Occurrences or Events	89.9	59.1	113.2	131.5	146.9	79.3	15.4	38.8	100.9
For Unscheduled Events Over 2 Minutes	79.4	43.6	96.0	113.7	10.0	36.5	7.2	27.2	54.8
<b>For Unscheduled Downtime More Than 2 Minutes</b>									
Number of Occurrences or Events	38	25	27	26	15	9	10	4	12
Events per Million Access Lines	2.51	1.65	1.73	1.67	0.96	0.58	0.63	0.25	0.75
Average Outage Duration in Minutes	46.4	38.6	78.1	96.6	14.7	87.5	15.6	147.3	98.3
Avg. Lines Affected per Event in Thousands	13.9	18.8	14.1	19.4	18.2	23.2	14.3	19.4	15.1
Outage Line-Minutes per Event in Thousands	631	669	671	1,246	225	2,838	126	3,304	1,533
Outage Line-Minutes per 1,000 Access Lines	1,584	1,106	1,160	2,075	216	1,636	79	828	1,152
<b>For Scheduled Downtime More Than 2 Minutes</b>									
Number of Occurrences or Events	55	64	49	55	76	21	10	9	12
Events per Million Access Lines	3.63	4.23	3.14	3.52	4.87	1.35	0.63	0.56	0.75
Average Outage Duration in Minutes	3.4	4.2	7.1	5.8	36.1	43.3	16.2	25.1	39.0
Avg. Lines Affected per Event in Thousands	26.5	31.0	24.2	19.9	17.5	23.1	17.1	16.0	10.9
Outage Line-Minutes per Event in Thousands	87	113	140	109	341	426	311	345	286
Outage Line-Minutes per 1,000 Access Lines	317	480	439	383	1,659	573	195	195	215
<b>% Trunk Grps. Exceeding Blocking Obj. 3 Months</b>	0.61%	0.29%	0.10%	0.38%	1.16%	1.24%	1.87%	1.56%	1.73%

Please refer to text for notes and data qualifications

**Table 8 (c): NYNEX -- Switch Downtime Causes**

REPORTING PERIOD:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>TOTAL NUMBER OF OUTAGES</b>									
1. Scheduled	55	64	49	55	76	21	10	9	12
2. Procedural Errors -- Telco. (Install./Maint.)	3	6	5	8	4	2	3	0	3
3. Procedural Errors -- Telco. (Other)	0	0	0	0	0	0	0	0	0
4. Procedural Errors -- System Vendors	0	2	4	1	0	0	0	0	0
5. Procedural Errors -- Other Vendors	0	0	0	0	0	0	0	0	0
6. Software Design	3	4	7	11	4	2	1	2	1
7. Hardware Design	7	5	6	4	2	5	6	0	6
8. Hardware Failure	6	3	5	2	5	0	0	1	0
9. Natural Causes	0	0	0	0	0	0	0	1	2
10. Traffic Overload	1	0	0	0	0	0	0	0	0
11. Environmental	0	0	0	0	0	0	0	0	0
12. External Power Failure	2	0	0	0	0	0	0	0	0
13. Massive Line Outage	0	0	0	0	0	0	0	0	0
14. Remote	1	1	0	0	0	0	0	0	0
15. Other/Unknown	15	4	0	0	0	0	0	0	0
<b>TOTAL OUTAGE LINE-MINUTES PER THOUSAND ACCESS LINES</b>									
1. Scheduled	317.4	479.8	439.5	382.6	1,659.1	573.0	195.0	194.5	215.3
2. Procedural Errors -- Telco. (Install./Maint.)	7.3	27.4	158.4	50.1	110.6	3.8	26.5	0.0	9.7
3. Procedural Errors -- Telco. (Other)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. Procedural Errors -- System Vendors	0.0	36.3	17.4	34.8	0.0	0.0	0.0	0.0	0.0
5. Procedural Errors -- Other Vendors	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6. Software Design	325.9	399.1	756.8	1,773.5	14.6	194.8	0.7	8.2	258.5
7. Hardware Design	790.3	563.0	203.8	210.5	43.6	1,437.1	51.5	0.0	837.5
8. Hardware Failure	179.3	14.6	23.2	5.9	46.9	0.0	0.0	671.5	0.0
9. Natural Causes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	148.6	46.8
10. Traffic Overload	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11. Environmental	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12. External Power Failure	55.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13. Massive Line Outage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14. Remote	0.2	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15. Other/Unknown	225.3	58.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Please refer to text for notes and data qualifications

**Table 9 (a): Pacific Telesis -- Installation, Maintenance, & Customer Complaints**

Reporting Period:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>ACCESS SERVICES PROVIDED TO CARRIERS -- SWITCHED ACCESS</b>									
Percent Installation Commitments Met	99.1%	97.7%	97.1%	97.6%	97.8%	95.6%	98.6%	89.2%	90.9%
Average Missed Installation (days)	60.4	4.1	NA						
Average Repair Interval (hours)	2.5	4.2	3.1	3.4	3.5	5.0	5.5	5.3	7.9
<b>ACCESS SERVICES PROVIDED TO CARRIERS -- SPECIAL ACCESS</b>									
Percent Installation Commitments Met	98.1%	98.2%	98.8%	97.7%	97.2%	96.8%	98.9%	95.4%	96.4%
Average Missed Installation (days)	4.2	3.2	NA						
Average Repair Interval (hours)	5.5	4.6	3.5	3.2	2.9	3.0	3.7	3.2	3.8
<b>LOCAL SERVICES PROVIDED TO RESIDENTIAL AND BUSINESS CUSTOMERS</b>									
Percent Installation Commitments Met	99.2%	99.3%	99.3%	99.3%	99.2%	99.1%	99.0%	99.2%	99.1%
Residence	99.3%	99.3%	99.3%	99.4%	99.3%	99.2%	99.0%	99.3%	99.2%
Business	99.0%	99.3%	99.2%	99.2%	99.1%	98.9%	98.9%	99.0%	98.8%
Average Missed Installation (days)	3.9	3.9	NA						
Residence	3.4	3.7	NA						
Business	4.9	5.0	NA						
Initial Trouble Reports per Thousand Lines	45.4	42.9	36.3	34.0	34.9	38.5	58.5	32.6	31.3
Total MSA	NA								
Total Non-MSA	NA								
Total Residence	52.5	50.9	43.3	40.3	41.0	46.5	75.7	39.1	37.3
Total Business	33.0	29.2	24.1	23.2	24.3	24.6	28.9	21.5	20.9
Troubles Found per Thousand Lines	32.0	31.9	25.7	23.8	24.0	26.4	41.8	22.6	22.7
Repeat Troubles as a Pct. of Trouble Reports	16.2%	15.9%	19.7%	19.4%	20.8%	21.6%	21.2%	17.9%	15.6%
Total Residence	15.2%	15.3%	19.2%	18.6%	20.3%	21.5%	21.3%	17.3%	14.3%
Total Business	18.8%	18.0%	21.3%	21.5%	22.3%	22.1%	21.0%	20.1%	19.4%
Customer Complaints per Million Access Lines									
Residential	2.2	1.5	0.0	2.6	2.2	2.4	2.5	3.6	2.6
Business	1.1	0.7	0.4	0.9	0.7	0.6	1.1	0.5	1.1

Please refer to text for notes and data qualifications

**Table 9 (b): Pacific Telesis -- Switch Downtime & Trunk Blocking**

Reporting Period:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>Total Access Lines in Thousands</b>	14,634	14,636	14,639	14,642	14,648	14,648	17,687	17,690	17,693
<b>Total Trunk Groups</b>	1,493	1,507	1,453	1,505	1,566	1,537	1,545	1,608	1,747
<b>Total Switches</b>	854	848	845	845	842	833	836	836	778
<b>Switches with Downtime</b>									
<b>Number of Switches</b>	222	232	162	181	219	136	106	15	19
<b>As a Percentage of Total Switches</b>	26.0%	27.4%	19.2%	21.4%	26.0%	16.3%	12.7%	1.8%	2.4%
<b>Average Switch Downtime in Seconds per Switch</b>									
<b>For All Occurrences or Events</b>	2.0	1.0	1.0	9.8	38.8	9.1	30.1	3.9	3.2
<b>For Unscheduled Events Over 2 Minutes</b>	59.2	8.0	23.0	6.4	20.6	0.7	25.1	0.8	1.4
<b>For Unscheduled Downtime More Than 2 Minutes</b>									
<b>Number of Occurrences or Events</b>	8	8	16	12	7	1	7	2	3
<b>Events per Million Access Lines</b>	0.55	0.55	1.09	0.82	0.48	0.07	0.40	0.11	0.17
<b>Average Outage Duration in Minutes</b>	105.3	14.1	20.3	7.5	41.3	10.4	50.0	5.5	6.0
<b>Avg. Lines Affected per Event in Thousands</b>	32.3	22.0	30.7	13.1	21.3	1.5	16.3	17.8	11.0
<b>Outage Line-Minutes per Event in Thousands</b>	3,322	266	947	42	64	16	731	62	38
<b>Outage Line-Minutes per 1,000 Access Lines</b>	1,816	145	1,035	34	30	1	289	7	6
<b>For Scheduled Downtime More Than 2 Minutes</b>									
<b>Number of Occurrences or Events</b>	92	88	29	39	33	13	7	3	4
<b>Events per Million Access Lines</b>	6.29	6.01	1.98	2.66	2.25	0.89	0.40	0.17	0.23
<b>Average Outage Duration in Minutes</b>	4.2	3.2	2.9	3.6	3.3	3.1	3.6	11.2	3.1
<b>Avg. Lines Affected per Event in Thousands</b>	21.8	18.5	21.9	22.4	32.7	19.0	18.3	23.0	17.6
<b>Outage Line-Minutes per Event in Thousands</b>	112	59	65	60	103	61	53	107	56
<b>Outage Line-Minutes per 1,000 Access Lines</b>	705	357	128	159	233	54	21	18	13
<b>% Trunk Grps. Exceeding Blocking Obj. 3 Months</b>	0.40%	0.00%	0.00%	0.27%	0.13%	0.13%	0.52%	0.25%	0.34%

Please refer to text for notes and data qualifications

**Table 9 (c): Pacific Telesis -- Switch Downtime Causes**

	REPORTING PERIOD:									
	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95	
<b>TOTAL NUMBER OF OUTAGES</b>										
1. Scheduled	92	88	29	39	33	13	7	3	4	
2. Procedural Errors -- Telco. (Install./Maint.)	1	0	1	0	1	0	0	0	1	
3. Procedural Errors -- Telco. (Other)	0	1	1	0	0	0	0	0	0	
4. Procedural Errors -- System Vendors	1	0	1	6	1	0	0	1	1	
5. Procedural Errors -- Other Vendors	1	1	0	0	0	0	1	0	0	
6. Software Design	0	1	2	3	2	0	1	0	0	
7. Hardware Design	0	0	0	0	0	0	0	0	0	
8. Hardware Failure	5	2	8	2	3	1	5	1	1	
9. Natural Causes	0	0	1	1	0	0	0	0	0	
10. Traffic Overload	0	0	0	0	0	0	0	0	0	
11. Environmental	0	0	0	0	0	0	0	0	0	
12. External Power Failure	0	0	1	0	0	0	0	0	0	
13. Massive Line Outage	0	0	0	0	0	0	0	0	0	
14. Remote	0	0	0	0	0	0	0	0	0	
15. Other/Unknown	0	3	1	0	0	0	0	0	0	
<b>TOTAL OUTAGE LINE-MINUTES PER THOUSAND ACCESS LINES</b>										
1. Scheduled	704.6	356.9	127.8	158.6	233.0	54.3	20.9	18.2	12.6	
2. Procedural Errors -- Telco. (Install./Maint.)	294.0	0.0	36.4	0.0	0.3	0.0	0.0	0.0	1.5	
3. Procedural Errors -- Telco. (Other)	0.0	53.7	1.4	0.0	0.0	0.0	0.0	0.0	0.0	
4. Procedural Errors -- System Vendors	59.9	0.0	13.9	15.6	14.2	0.0	0.0	1.5	3.9	
5. Procedural Errors -- Other Vendors	1,365.8	55.6	0.0	0.0	0.0	0.0	93.1	0.0	0.0	
6. Software Design	0.0	12.5	21.0	8.4	9.2	0.0	112.3	0.0	0.0	
7. Hardware Design	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
8. Hardware Failure	96.6	6.2	58.1	6.4	6.8	1.1	83.8	5.5	1.1	
9. Natural Causes	0.0	0.0	619.9	3.9	0.0	0.0	0.0	0.0	0.0	
10. Traffic Overload	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11. Environmental	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12. External Power Failure	0.0	0.0	278.5	0.0	0.0	0.0	0.0	0.0	0.0	
13. Massive Line Outage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
14. Remote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
15. Other/Unknown	0.0	17.3	5.6	0.0	0.0	0.0	0.0	0.0	0.0	

Please refer to text for notes and data qualifications

**Table 10 (a): Southwestern Bell -- Installation, Maintenance, & Customer Complaints**

Reporting Period:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>ACCESS SERVICES PROVIDED TO CARRIERS -- SWITCHED ACCESS</b>									
Percent Installation Commitments Met	98.1%	96.2%	95.7%	97.5%	97.6%	98.5%	98.0%	97.0%	96.4%
Average Missed Installation (days)	9.3	NA							
Average Repair Interval (hours)	3.8	3.2	5.2	6.4	6.7	2.9	3.6	4.8	2.9
<b>ACCESS SERVICES PROVIDED TO CARRIERS -- SPECIAL ACCESS</b>									
Percent Installation Commitments Met	97.6%	80.1%	81.1%	83.0%	85.6%	85.8%	88.8%	90.2%	88.0%
Average Missed Installation (days)	3.7	NA							
Average Repair Interval (hours)	2.8	2.7	2.1	2.4	2.2	2.6	2.0	2.1	2.2
<b>LOCAL SERVICES PROVIDED TO RESIDENTIAL AND BUSINESS CUSTOMERS</b>									
Percent Installation Commitments Met	99.5%	99.5%	98.9%	98.9%	99.5%	99.4%	99.3%	99.3%	99.1%
Residence	99.6%	99.6%	99.0%	99.0%	99.6%	99.5%	99.4%	99.4%	99.2%
Business	98.8%	98.9%	98.5%	98.7%	99.0%	99.1%	98.1%	98.7%	98.7%
Average Missed Installation (days)	5.4	NA							
Residence	5.3	NA							
Business	5.6	NA							
Initial Trouble Reports per Thousand Lines	73.2	48.6	45.0	54.8	54.7	73.0	49.5	55.8	59.0
Total MSA	NA								
Total Non-MSA	NA								
Total Residence	86.7	55.6	52.4	64.4	64.2	85.5	58.0	70.2	70.1
Total Business	38.6	30.6	27.7	31.8	32.2	43.4	30.1	27.9	33.6
Troubles Found per Thousand Lines	55.4	33.8	30.7	37.9	37.6	49.5	32.9	38.6	41.0
Repeat Troubles as a Pct. of Trouble Reports	11.0%	13.0%	12.2%	13.6%	14.2%	14.5%	13.1%	13.5%	13.7%
Total Residence	11.0%	13.3%	12.4%	13.7%	14.5%	14.9%	13.4%	13.7%	13.9%
Total Business	11.1%	11.9%	11.2%	12.8%	12.5%	12.9%	11.9%	12.3%	12.7%
<b>Customer Complaints per Million Access Lines</b>									
Residential	11.1	6.8	8.9	9.5	10.4	14.6	9.7	9.7	15.5
Business	7.3	4.5	5.4	3.3	4.6	6.9	4.4	5.6	5.9

Please refer to text for notes and data qualifications

**Table 10 (b): Southwestern Bell -- Switch Downtime & Trunk Blocking**

Reporting Period:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>Total Access Lines in Thousands</b>	12,685	12,685	13,180	13,180	13,180	13,180	13,611	14,361	13,611
<b>Total Trunk Groups</b>	1,365	1,297	1,231	1,208	1,165	1,115	1,088	1,073	1,067
<b>Total Switches</b>	1,390	1,390	1,437	1,437	1,437	1,437	1,437	1,511	1,511
<b>Switches with Downtime</b>									
<b>Number of Switches</b>	179	204	185	265	265	259	157	162	155
<b>As a Percentage of Total Switches</b>	12.9%	14.7%	12.9%	18.4%	18.4%	18.0%	10.9%	10.7%	10.3%
<b>Average Switch Downtime in Seconds per Switch</b>									
<b>For All Occurrences or Events</b>	102.8	115.6	135.1	99.7	91.2	101.1	102.8	79.6	25.4
<b>For Unscheduled Events Over 2 Minutes</b>	65.0	50.1	86.3	29.7	59.8	59.5	11.9	56.6	16.7
<b>For Unscheduled Downtime More Than 2 Minutes</b>									
<b>Number of Occurrences or Events</b>	38	21	17	24	47	50	30	12	14
<b>Events per Million Access Lines</b>	3.00	1.66	1.29	1.82	3.57	3.79	2.20	0.84	1.03
<b>Average Outage Duration in Minutes</b>	39.6	55.3	121.6	29.7	30.5	28.5	9.5	118.9	30.0
<b>Avg. Lines Affected per Event in Thousands</b>	14.1	11.6	11.3	8.8	11.8	8.6	8.3	9.0	10.5
<b>Outage Line-Minutes per Event in Thousands</b>	278	228	499	346	298	95	110	218	80
<b>Outage Line-Minutes per 1,000 Access Lines</b>	833	378	644	630	1,064	359	243	182	82
<b>For Scheduled Downtime More Than 2 Minutes</b>									
<b>Number of Occurrences or Events</b>	34	52	84	120	101	111	64	48	27
<b>Events per Million Access Lines</b>	2.68	4.10	6.37	9.10	7.66	8.42	4.70	3.34	1.98
<b>Average Outage Duration in Minutes</b>	3.1	3.3	12.6	13.8	4.8	6.2	32.7	9.9	3.4
<b>Avg. Lines Affected per Event in Thousands</b>	21.2	22.7	18.0	7.2	17.4	7.7	9.8	9.2	15.6
<b>Outage Line-Minutes per Event in Thousands</b>	67	86	57	117	89	22	116	119	47
<b>Outage Line-Minutes per 1,000 Access Lines</b>	180	352	360	1,067	683	185	547	399	93
<b>% Trunk Grps. Exceeding Blocking Obj. 3 Months</b>	2.20%	1.08%	0.49%	0.17%	0.17%	0.09%	0.00%	0.00%	0.37%

Please refer to text for notes and data qualifications

**Table 10 (c): Southwestern Bell -- Switch Downtime Causes**

REPORTING PERIOD:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>TOTAL NUMBER OF OUTAGES</b>									
1. Scheduled	34	52	84	120	101	111	64	48	27
2. Procedural Errors -- Telco. (Install./Maint.)	1	2	3	10	7	2	13	4	3
3. Procedural Errors -- Telco. (Other)	1	0	2	0	0	4	1	0	0
4. Procedural Errors -- System Vendors	1	0	1	0	0	2	0	0	1
5. Procedural Errors -- Other Vendors	3	0	0	2	0	3	0	1	1
6. Software Design	9	9	5	6	27	32	12	6	6
7. Hardware Design	14	1	0	1	1	0	0	0	0
8. Hardware Failure	7	9	5	4	11	7	4	1	3
9. Natural Causes	2	0	1	1	1	0	0	0	0
10. Traffic Overload	0	0	0	0	0	0	0	0	0
11. Environmental	0	0	0	0	0	0	0	0	0
12. External Power Failure	0	0	0	0	0	0	0	0	0
13. Massive Line Outage	0	0	0	0	0	0	0	0	0
14. Remote	0	0	0	0	0	0	0	0	0
15. Other/Unknown	0	0	0	0	0	0	0	0	0
<b>TOTAL OUTAGE LINE-MINUTES PER THOUSAND ACCESS LINES</b>									
1. Scheduled	180.4	351.7	360.1	1,067.3	683.0	184.5	546.7	398.7	92.8
2. Procedural Errors -- Telco. (Install./Maint.)	58.5	6.1	10.5	9.8	476.9	6.4	36.0	102.1	3.7
3. Procedural Errors -- Telco. (Other)	20.2	0.0	25.6	0.0	0.0	65.3	147.5	0.0	0.0
4. Procedural Errors -- System Vendors	8.7	0.0	13.1	0.0	0.0	4.9	0.0	0.0	2.7
5. Procedural Errors -- Other Vendors	29.2	0.0	0.0	107.7	0.0	12.5	0.0	1.5	58.7
6. Software Design	482.2	55.2	447.8	36.8	117.4	91.6	16.5	69.5	11.0
7. Hardware Design	40.9	2.7	0.0	25.4	12.5	0.0	0.0	0.0	0.0
8. Hardware Failure	153.3	314.0	86.6	332.3	449.1	178.5	42.9	8.8	6.1
9. Natural Causes	40.4	0.0	60.6	118.4	8.6	0.0	0.0	0.0	0.0
10. Traffic Overload	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11. Environmental	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12. External Power Failure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13. Massive Line Outage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14. Remote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15. Other/Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Please refer to text for notes and data qualifications

**Table 11 (a): US West -- Installation, Maintenance, & Customer Complaints**

Reporting Period:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>ACCESS SERVICES PROVIDED TO CARRIERS -- SWITCHED ACCESS</b>									
Percent Installation Commitments Met	78.6%	80.0%	84.2%	83.7%	86.4%	67.5%	71.6%	76.3%	67.7%
Average Missed Installation (days)	16.4	9.5	NA						
Average Repair Interval (hours)	2.7	3.1	5.9	5.7	6.9	10.6	5.7	10.3	13.2
<b>ACCESS SERVICES PROVIDED TO CARRIERS -- SPECIAL ACCESS</b>									
Percent Installation Commitments Met	94.7%	93.8%	93.6%	91.4%	86.0%	86.0%	83.5%	75.8%	56.3%
Average Missed Installation (days)	9.6	8.4	NA						
Average Repair Interval (hours)	3.5	3.4	3.0	3.1	3.4	4.3	4.2	5.6	7.6
<b>LOCAL SERVICES PROVIDED TO RESIDENTIAL AND BUSINESS CUSTOMERS</b>									
Percent Installation Commitments Met	97.8%	97.5%	98.1%	97.7%	97.5%	97.2%	97.8%	97.8%	97.0%
Residence	98.1%	97.8%	98.4%	98.1%	97.8%	97.6%	98.1%	98.2%	97.5%
Business	96.0%	95.7%	96.6%	95.7%	95.2%	95.3%	95.9%	95.8%	93.6%
Average Missed Installation (days)	7.9	8.5	NA						
Residence	7.7	8.2	NA						
Business	8.3	9.8	NA						
Initial Trouble Reports per Thousand Lines	59.7	39.1	34.3	43.6	46.9	43.8	38.8	46.5	52.8
Total MSA	NA								
Total Non-MSA	NA								
Total Residence	67.5	44.6	38.1	49.4	53.4	49.4	43.1	52.4	60.0
Total Business	40.4	25.5	24.8	28.9	30.8	29.9	28.0	31.8	34.9
Troubles Found per Thousand Lines	45.8	27.6	24.1	31.0	32.7	30.1	25.8	31.1	34.4
Repeat Troubles as a Pct. of Trouble Reports	17.0%	36.4%	33.9%	34.8%	35.6%	35.6%	24.4%	26.1%	27.8%
Total Residence	16.7%	35.9%	33.5%	33.9%	34.6%	34.6%	23.6%	25.1%	26.5%
Total Business	18.5%	38.6%	35.5%	38.5%	39.9%	40.0%	27.6%	30.4%	33.0%
Customer Complaints per Million Access Lines									
Residential	97.9	70.8	65.1	119.2	206.2	176.7	131.0	164.0	361.7
Business	43.3	34.4	30.4	47.7	98.5	80.4	74.2	98.4	199.8

Please refer to text for notes and data qualifications

**Table 11 (b): US West -- Switch Downtime & Trunk Blocking**

Reporting Period:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>Total Access Lines in Thousands</b>	13,268	13,268	13,710	13,710	13,710	13,710	14,309	14,309	14,309
<b>Total Trunk Groups</b>	2,501	2,990	2,910	2,612	2,524	2,621	2,489	2,479	2,497
<b>Total Switches</b>	1,831	1,832	1,830	1,771	1,762	1,737	1,696	1,689	1,661
<b>Switches with Downtime</b>									
<b>Number of Switches</b>	289	390	532	748	386	300	285	365	553
<b>As a Percentage of Total Switches</b>	15.8%	21.3%	29.1%	42.2%	21.9%	17.3%	16.8%	21.6%	33.3%
<b>Average Switch Downtime in Seconds per Switch</b>									
<b>For All Occurrences or Events</b>	73.2	76.8	76.2	109.7	383.8	112.9	57.1	17.0	178.4
<b>For Unscheduled Events Over 2 Minutes</b>	60.6	64.9	47.6	50.5	321.5	62.5	29.2	6.8	161.4
<b>For Unscheduled Downtime More Than 2 Minutes</b>									
<b>Number of Occurrences or Events</b>	28	50	24	47	75	46	24	15	71
<b>Events per Million Access Lines</b>	2.11	3.77	1.75	3.43	5.47	3.36	1.68	1.05	4.96
<b>Average Outage Duration in Minutes</b>	66.1	39.6	60.5	31.7	125.9	39.4	34.3	12.8	62.9
<b>Avg. Lines Affected per Event in Thousands</b>	13.2	4.0	6.5	7.2	3.8	8.4	3.4	13.3	2.9
<b>Outage Line-Minutes per Event in Thousands</b>	556	163	196	106	301	496	57	143	297
<b>Outage Line-Minutes per 1,000 Access Lines</b>	1,173	616	344	365	1,644	1,664	95	150	1,476
<b>For Scheduled Downtime More Than 2 Minutes</b>									
<b>Number of Occurrences or Events</b>	43	31	93	218	83	27	31	23	140
<b>Events per Million Access Lines</b>	3.24	2.34	6.78	15.90	6.05	1.97	2.17	1.61	9.78
<b>Average Outage Duration in Minutes</b>	4.9	4.1	6.6	4.2	19.9	49.5	18.9	4.0	3.4
<b>Avg. Lines Affected per Event in Thousands</b>	19.1	17.5	10.5	7.4	9.5	20.7	11.9	10.5	4.6
<b>Outage Line-Minutes per Event in Thousands</b>	73	72	90	38	93	633	648	91	20
<b>Outage Line-Minutes per 1,000 Access Lines</b>	236	167	613	598	561	1,247	1,404	146	195
<b>% Trunk Grps. Exceeding Blocking Obj. 3 Months</b>	0.00%	0.10%	0.17%	0.15%	0.28%	0.50%	0.32%	0.40%	0.56%

Please refer to text for notes and data qualifications

**Table 11 (c): US West -- Switch Downtime Causes**

REPORTING PERIOD:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>TOTAL NUMBER OF OUTAGES</b>									
1. Scheduled	43	31	93	218	83	27	31	23	140
2. Procedural Errors -- Telco. (Install./Maint.)	5	1	8	5	36	8	2	5	23
3. Procedural Errors -- Telco. (Other)	0	2	0	7	0	1	2	1	1
4. Procedural Errors -- System Vendors	0	1	2	15	0	0	0	2	0
5. Procedural Errors -- Other Vendors	0	1	0	2	18	1	0	0	3
6. Software Design	4	34	3	8	10	23	6	1	9
7. Hardware Design	1	0	1	0	0	0	0	0	0
8. Hardware Failure	4	6	10	10	11	13	14	6	34
9. Natural Causes	0	0	0	0	0	0	0	0	1
10. Traffic Overload	0	0	0	0	0	0	0	0	0
11. Environmental	0	0	0	0	0	0	0	0	0
12. External Power Failure	1	0	0	0	0	0	0	0	0
13. Massive Line Outage	0	0	0	0	0	0	0	0	0
14. Remote	1	0	0	0	0	0	0	0	0
15. Other/Unknown	12	5	0	0	0	0	0	0	0
<b>TOTAL OUTAGE LINE-MINUTES PER THOUSAND ACCESS LINES</b>									
1. Scheduled	235.8	167.1	613.2	598.0	561.2	1,247.3	1,404.5	145.6	194.8
2. Procedural Errors -- Telco. (Install./Maint.)	386.0	0.4	123.0	59.4	618.2	1,009.5	21.1	39.6	330.4
3. Procedural Errors -- Telco. (Other)	0.0	20.5	0.0	71.7	0.0	11.6	13.3	4.3	3.5
4. Procedural Errors -- System Vendors	0.0	2.3	16.7	54.3	0.0	0.0	0.0	33.2	0.0
5. Procedural Errors -- Other Vendors	0.0	5.3	0.0	6.7	129.8	4.3	0.0	0.0	1.3
6. Software Design	187.0	553.9	5.6	96.0	46.1	269.7	25.7	0.9	881.9
7. Hardware Design	5.3	0.0	11.2	0.0	0.0	0.0	0.0	0.0	0.0
8. Hardware Failure	53.9	13.4	187.1	76.9	849.9	368.9	34.8	72.5	258.8
9. Natural Causes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
10. Traffic Overload	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11. Environmental	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12. External Power Failure	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13. Massive Line Outage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14. Remote	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15. Other/Unknown	532.4	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Please refer to text for notes and data qualifications

**Table 12 (a): GTE/CONTEL -- Installation, Maintenance, & Customer Complaints**

Reporting Period:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>ACCESS SERVICES PROVIDED TO CARRIERS -- SWITCHED ACCESS</b>									
Percent Installation Commitments Met	96.4%	93.2%	94.3%	93.3%	95.9%	93.7%	93.2%	91.8%	92.5%
Average Missed Installation (days)	15.7	12.5	NA	NA	NA	NA	NA	NA	NA
Average Repair Interval (hours)	NA	NA	NA						
<b>ACCESS SERVICES PROVIDED TO CARRIERS -- SPECIAL ACCESS</b>									
Percent Installation Commitments Met	96.9%	96.9%	96.6%	96.2%	95.0%	93.3%	100.0%	93.2%	91.6%
Average Missed Installation (days)	12.1	9.8	NA	NA	NA	NA	NA	NA	NA
Average Repair Interval (hours)	NA	NA	NA						
<b>LOCAL SERVICES PROVIDED TO RESIDENTIAL AND BUSINESS CUSTOMERS</b>									
Percent Installation Commitments Met	97.2%	97.5%	98.1%	98.0%	97.8%	97.9%	98.3%	98.4%	98.2%
Residence	97.4%	97.8%	98.4%	98.3%	98.1%	98.3%	98.7%	98.7%	98.6%
Business	96.1%	95.5%	96.4%	95.9%	95.5%	95.3%	96.2%	96.7%	95.9%
Average Missed Installation (days)	2.3	2.1	NA	NA	NA	NA	NA	NA	NA
Residence	2.7	3.3	NA	NA	NA	NA	NA	NA	NA
Business	1.7	1.4	NA	NA	NA	NA	NA	NA	NA
Initial Trouble Reports per Thousand Lines	61.2	50.6	50.9	53.7	61.5	83.8	76.7	106.3	66.3
Total MSA	NA	NA	NA						
Total Non-MSA	NA	NA	NA						
Total Residence	2.6	49.4	51.6	55.2	63.6	87.5	80.2	112.1	69.3
Total Business	2.0	14.2	48.7	49.4	55.2	73.1	66.7	90.1	57.9
Troubles Found per Thousand Lines	50.0	40.1	40.8	44.2	50.9	68.9	63.9	90.6	55.8
Repeat Troubles as a Pct. of Trouble Reports	13.5%	12.7%	12.1%	12.1%	13.5%	16.3%	19.8%	18.9%	19.9%
Total Residence	13.1%	12.3%	11.7%	11.5%	13.0%	15.9%	19.7%	18.5%	19.6%
Total Business	15.1%	14.1%	13.5%	14.2%	15.1%	17.7%	20.4%	20.2%	20.9%
Customer Complaints per Million Access Lines									
Residential	1.1	19.3	NA	17.7	26.4	22.9	22.9	20.8	30.1
Business	0.9	4.3	NA	15.6	20.7	22.0	20.9	26.2	21.2

Please refer to text for notes and data qualifications

**Table 12 (b): GTE/CONTEL -- Switch Downtime & Trunk Blocking**

Reporting Period:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>Total Access Lines in Thousands</b>	15,000	15,000	15,195	15,286	15,416	16,252	16,294	16,315	16,504
<b>Total Trunk Groups</b>	2,049	NA	2,367	2,350	2,253	2,478	2,350	2,295	2,234
<b>Total Switches</b>	4,012	3,992	3,943	3,948	3,921	4,191	4,191	4,337	4,370
<b>Switches with Downtime</b>									
Number of Switches	230	418	352	383	236	203	194	182	195
As a Percentage of Total Switches	5.7%	10.5%	8.9%	9.7%	6.0%	4.8%	4.6%	4.2%	4.5%
<b>Average Switch Downtime in Seconds per Switch</b>									
For All Occurrences or Events	153.7	73.4	117.0	62.1	56.3	60.4	39.6	61.3	61.3
For Unscheduled Events Over 2 Minutes	149.3	67.7	112.7	44.8	48.6	46.0	32.6	54.7	38.5
<b>For Unscheduled Downtime More Than 2 Minutes</b>									
Number of Occurrences or Events	143	135	93	83	69	70	78	62	57
Events per Million Access Lines	9.53	9.00	6.12	5.43	4.48	4.31	4.79	3.80	3.45
Average Outage Duration in Minutes	69.8	33.4	79.7	35.5	46.0	45.9	29.2	63.7	49.2
Avg. Lines Affected per Event in Thousands	4.8	5.2	4.5	5.7	4.4	9.4	6.7	7.1	6.0
Outage Line-Minutes per Event in Thousands	227	153	353	138	126	288	126	337	131
Outage Line-Minutes per 1,000 Access Lines	2,168	1,375	2,162	750	565	1,241	602	1,282	452
<b>For Scheduled Downtime More Than 2 Minutes</b>									
Number of Occurrences or Events	22	9	11	8	11	2	1	9	9
Events per Million Access Lines	1.47	0.60	0.72	0.52	0.71	0.12	0.06	0.55	0.55
Average Outage Duration in Minutes	10.1	10.8	4.8	15.4	33.6	13.9	5.9	21.4	43.7
Avg. Lines Affected per Event in Thousands	7.9	2.9	4.2	6.3	3.6	42.7	2.8	5.6	7.0
Outage Line-Minutes per Event in Thousands	66	29	16	84	66	593	16	50	71
Outage Line-Minutes per 1,000 Access Lines	97	17	11	44	47	73	1	28	39
<b>% Trunk Grps. Exceeding Blocking Obj. 3 Months</b>	0.49%	NA	0.30%	0.43%	0.36%	0.40%	0.55%	1.18%	0.85%

Please refer to text for notes and data qualifications

Table 12 (c): GTE/CONTEL -- Switch Downtime Causes

REPORTING PERIOD:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>TOTAL NUMBER OF OUTAGES</b>									
1. Scheduled	22	9	11	8	11	2	1	9	9
2. Procedural Errors -- Telco. (Install./Maint.)	10	19	12	16	13	2	3	5	4
3. Procedural Errors -- Telco. (Other)	9	0	1	3	6	8	10	8	1
4. Procedural Errors -- System Vendors	2	4	0	5	0	5	0	4	3
5. Procedural Errors -- Other Vendors	1	0	3	2	0	0	0	0	2
6. Software Design	43	49	23	24	19	29	35	17	11
7. Hardware Design	13	7	3	5	12	1	4	3	0
8. Hardware Failure	46	52	48	25	19	25	25	25	35
9. Natural Causes	18	0	3	3	0	0	1	0	1
10. Traffic Overload	0	1	0	0	0	0	0	0	0
11. Environmental	0	1	0	0	0	0	0	0	0
12. External Power Failure	1	0	0	0	0	0	0	0	0
13. Massive Line Outage	0	2	0	0	0	0	0	0	0
14. Remote	0	0	0	0	0	0	0	0	0
15. Other/Unknown	0	0	0	0	0	0	0	0	0
<b>TOTAL OUTAGE LINE-MINUTES PER THOUSAND ACCESS LINES</b>									
1. Scheduled	96.7	17.4	11.4	43.7	47.0	73.0	1.0	27.6	38.9
2. Procedural Errors -- Telco. (Install./Maint.)	158.5	51.1	125.1	137.2	41.8	31.4	3.1	28.3	3.5
3. Procedural Errors -- Telco. (Other)	109.0	0.0	2.0	24.3	70.3	39.0	83.0	4.4	56.0
4. Procedural Errors -- System Vendors	30.6	37.2	0.0	15.0	0.0	4.2	0.0	16.6	22.2
5. Procedural Errors -- Other Vendors	0.0	0.0	11.5	2.3	0.0	0.0	0.0	0.0	48.2
6. Software Design	614.0	343.2	349.6	265.7	68.0	499.6	164.9	692.9	91.6
7. Hardware Design	119.8	2.7	0.7	19.1	69.1	38.2	116.9	164.9	0.0
8. Hardware Failure	924.0	918.4	1,443.4	274.2	316.0	628.8	231.8	374.5	219.0
9. Natural Causes	212.1	0.0	229.5	12.5	0.0	0.0	2.3	0.0	11.5
10. Traffic Overload	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11. Environmental	0.0	17.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12. External Power Failure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13. Massive Line Outage	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14. Remote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15. Other/Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Please refer to text for notes and data qualifications

**Table 13 (a): Sprint -- Installation, Maintenance, & Customer Complaints**

Reporting Period:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>ACCESS SERVICES PROVIDED TO CARRIERS -- SWITCHED ACCESS</b>									
Percent Installation Commitments Met	100.0%	96.0%	97.7%	97.4%	95.7%	94.5%	96.1%	95.5%	95.1%
Average Missed Installation (days)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Average Repair Interval (hours)	4.3	2.6	2.9	3.9	4.2	3.3	2.5	3.8	3.3
<b>ACCESS SERVICES PROVIDED TO CARRIERS -- SPECIAL ACCESS</b>									
Percent Installation Commitments Met	94.7%	93.7%	96.3%	95.4%	94.6%	94.3%	95.9%	94.7%	94.8%
Average Missed Installation (days)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Average Repair Interval (hours)	3.1	2.0	2.3	2.6	3.1	2.9	2.8	3.1	2.9
<b>LOCAL SERVICES PROVIDED TO RESIDENTIAL AND BUSINESS CUSTOMERS</b>									
Percent Installation Commitments Met	99.0%	99.2%	99.1%	99.2%	99.0%	98.9%	98.8%	99.0%	98.8%
Residence	99.1%	99.3%	99.3%	99.4%	99.2%	99.1%	98.8%	99.1%	99.0%
Business	98.2%	98.4%	97.7%	98.2%	98.0%	97.7%	98.6%	97.9%	97.5%
Average Missed Installation (days)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Residence	NA	NA	NA	NA	NA	NA	NA	NA	NA
Business	NA	NA	NA	NA	NA	NA	NA	NA	NA
Initial Trouble Reports per Thousand Lines	84.3	65.6	67.1	78.4	90.0	57.3	59.0	56.7	68.1
Total MSA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Non-MSA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Residence	91.7	70.6	73.1	85.5	99.7	61.5	63.8	61.4	75.8
Total Business	61.4	49.6	49.0	56.5	61.5	44.5	45.2	43.4	46.6
Troubles Found per Thousand Lines	78.1	62.4	49.2	60.1	69.2	42.4	45.9	42.2	50.1
Repeat Troubles as a Pct. of Trouble Reports	4.3%	3.5%	9.5%	17.0%	11.4%	10.3%	8.4%	11.3%	13.2%
Total Residence	4.4%	3.5%	9.7%	18.7%	11.6%	10.6%	8.6%	11.8%	13.8%
Total Business	4.0%	3.6%	8.4%	9.0%	10.0%	8.9%	7.6%	9.4%	10.6%
Customer Complaints per Million Access Lines									
Residential	18.8	12.0	9.3	13.0	21.3	17.4	30.4	37.0	36.2
Business	8.8	7.3	10.2	11.1	10.0	12.4	15.7	21.3	31.7

Please refer to text for notes and data qualifications

**Table 13 (b): Sprint -- Switch Downtime & Trunk Blocking**

Reporting Period:	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95
<b>Total Access Lines in Thousands</b>	5,568	5,675	5,980	5,900	5,962	6,239	6,470	6,532	6,601
<b>Total Trunk Groups</b>	730	732	1,462	1,482	1,465	1,420	1,386	1,360	1,329
<b>Total Switches</b>	253	253	1,615	1,624	1,638	1,527	1,646	1,642	1,644
<b>Switches with Downtime</b>									
<b>Number of Switches</b>	23	30	97	94	136	63	82	59	38
<b>As a Percentage of Total Switches</b>	9.1%	11.9%	6.0%	5.8%	8.3%	4.1%	5.0%	3.6%	2.3%
<b>Average Switch Downtime in Seconds per Switch</b>									
<b>For All Occurrences or Events</b>	NA	NA	113.9	186.2	249.8	87.8	37.4	38.4	85.7
<b>For Unscheduled Events Over 2 Minutes</b>	3.1	2.4	70.4	137.9	182.6	60.1	13.3	24.7	35.5
<b>For Unscheduled Downtime More Than 2 Minutes</b>									
<b>Number of Occurrences or Events</b>	3	1	35	34	40	33	20	21	23
<b>Events per Million Access Lines</b>	0.54	0.18	5.85	5.76	6.71	5.29	3.09	3.21	3.48
<b>Average Outage Duration in Minutes</b>	4.3	10.0	54.1	109.8	124.6	46.4	18.3	32.1	42.3
<b>Avg. Lines Affected per Event in Thousands</b>	9.6	2.2	3.8	2.6	5.0	3.2	7.3	9.7	6.5
<b>Outage Line-Minutes per Event in Thousands</b>	39	22	157	265	285	285	164	198	376
<b>Outage Line-Minutes per 1,000 Access Lines</b>	21	4	920	1,527	1,915	1,506	508	637	1,310
<b>For Scheduled Downtime More Than 2 Minutes</b>									
<b>Number of Occurrences or Events</b>	2	3	40	49	52	23	22	15	6
<b>Events per Million Access Lines</b>	0.36	0.53	6.69	8.31	8.72	3.69	3.40	2.30	0.91
<b>Average Outage Duration in Minutes</b>	34.1	2.0	28.5	28.2	33.7	30.3	28.8	23.0	42.3
<b>Avg. Lines Affected per Event in Thousands</b>	16.2	3.7	13.1	10.6	7.4	3.2	5.1	3.1	2.9
<b>Outage Line-Minutes per Event in Thousands</b>	212	7	130	147	89	37	50	19	102
<b>Outage Line-Minutes per 1,000 Access Lines</b>	76	4	870	1,217	772	137	169	44	93
<b>% Trunk Grps. Exceeding Blocking Obj. 3 Months</b>	0.00%	0.00%	0.07%	0.40%	0.41%	0.28%	0.14%	0.66%	0.60%

Please refer to text for notes and data qualifications

**Table 13 (c): Sprint -- Switch Downtime Causes**

	REPORTING PERIOD:									
	3Q93	4Q93	1Q94	2Q94	3Q94	4Q94	1Q95	2Q95	3Q95	
<b>TOTAL NUMBER OF OUTAGES</b>										
1. Scheduled	2	3	40	49	52	23	22	15	6	
2. Procedural Errors -- Telco. (Install./Maint.)	1	0	13	3	8	4	3	7	4	
3. Procedural Errors -- Telco. (Other)	0	0	2	3	1	0	1	1	1	
4. Procedural Errors -- System Vendors	0	0	1	5	1	4	1	1	1	
5. Procedural Errors -- Other Vendors	0	0	1	0	1	1	5	1	2	
6. Software Design	0	0	3	13	7	9	3	3	2	
7. Hardware Design	0	0	1	0	1	2	2	0	0	
8. Hardware Failure	0	0	13	2	7	12	5	5	8	
9. Natural Causes	2	0	1	8	14	1	0	3	5	
10. Traffic Overload	0	0	0	0	0	0	0	0	0	
11. Environmental	0	0	0	0	0	0	0	0	0	
12. External Power Failure	0	0	0	0	0	0	0	0	0	
13. Massive Line Outage	0	0	0	0	0	0	0	0	0	
14. Remote	0	0	0	0	0	0	0	0	0	
15. Other/Unknown	0	1	0	0	0	0	0	0	0	
<b>TOTAL OUTAGE LINE-MINUTES PER THOUSAND ACCESS LINES</b>										
1. Scheduled	76.2	3.9	869.6	1,217.3	772.1	137.5	168.6	44.1	92.5	
2. Procedural Errors -- Telco. (Install./Maint.)	3.2	0.0	134.7	52.6	87.0	43.2	4.9	149.3	7.2	
3. Procedural Errors -- Telco. (Other)	0.0	0.0	13.0	12.4	0.4	0.0	6.1	0.9	0.1	
4. Procedural Errors -- System Vendors	0.0	0.0	4.2	34.7	6.7	12.0	15.0	314.3	1.2	
5. Procedural Errors -- Other Vendors	0.0	0.0	3.9	0.0	4.1	1.4	20.8	0.9	3.9	
6. Software Design	0.0	0.0	19.9	748.6	227.7	37.8	292.1	21.7	36.3	
7. Hardware Design	0.0	0.0	12.1	0.0	166.1	4.2	102.4	0.0	0.0	
8. Hardware Failure	0.0	0.0	434.0	87.9	438.5	64.5	66.5	69.2	777.6	
9. Natural Causes	17.9	0.0	297.7	590.6	984.7	1,343.2	0.0	80.8	484.0	
10. Traffic Overload	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11. Environmental	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12. External Power Failure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
13. Massive Line Outage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
14. Remote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
15. Other/Unknown	0.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Please refer to text for notes and data qualifications

