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FCC RELEASES REPORT ON QUALITY OF SERVICE OF LOCAL PHONE COMPANIES

Washington, D. C. – The FCC has released a report entitled *Quality of Service of the Local Operating Companies*. This report summarizes data submitted by major incumbent local operating companies, which collectively serve about 90% of the nation's access lines, on their quality of service for 1999 and 2000. Such data include measures of service quality provided to business and residential end user customers, as well as service quality provided to access customers, namely interexchange carriers.

Following is a summary of various quality of service indicators:

- The percentages of residential installation commitments met have remained fairly stable over the past five years at around 98% or better.
- Residential out of service repair intervals ranged from a low of 13 hours to a high of 49.0 in the year 2000.
- Residential installation intervals ranged from a low of 0.8 days to a high of 3.9 days in the year 2000.
- In 1997, three out of nine reporting entities averaged more than 100 complaints per million lines; in 2000, seven out of nine averaged more than 100 complaints per million lines.

The report is available for reference in the FCC's Reference Information Center, Courtyard Level, 445 12th Street, S.W. Copies may be purchased by calling Qualex International at (202) 863-2893. The report can be downloaded from the **FCC-State Link** Internet site at <http://www.fcc.gov/ccb/stats> on the World Wide Web.

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For additional information, contact the Industry Analysis Division, Common Carrier Bureau at (202) 418-0940, or for users of TTY equipment, call 202-418-0484.

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QUALITY OF SERVICE OF THE LOCAL OPERATING COMPANIES

DECEMBER 2001

Industry Analysis Division
Common Carrier Bureau
Federal Communications Commission



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Quality of Service of the Local Operating Companies Aggregated to the Holding Company Level

Introduction

This report summarizes various kinds of service quality data filed by certain incumbent local exchange telephone companies for calendar years 1999 and 2000. The data track both the quality of service provided to retail customers (business and residential) and to access customers (interexchange companies).¹

The Federal Communications Commission (FCC or Commission) does not impose service quality standards on communications common carriers. Rather, the Commission annually monitors data submitted by incumbent carriers that collectively serve about 90% of the nation's access lines and periodically publishes this report on quality of service trends.² The data contained in this report provide a summary of recent quality of service indicators including customer-initiated trouble reports and company responses. This report publishes information about company performance and statistics about company responsiveness to network failures and associated consumer complaints. We include, in the charts and tables following the text, comparative data about various service parameters including installation, maintenance, switch downtime, and trunk blocking, along with associated customer perception data.

Background

At the end of 1983, anticipating AT&T's imminent 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 adverse trends in network service quality. Throughout 1985, the Bureau modified the service quality reporting requirements to reduce unnecessary paperwork and to ensure that needed information would be provided in a more uniform format. The data were received semiannually, typically in March and August, and formed the basis for FCC summary reports published in June 1990 and July 1991.

1 The Commission has sought comment on whether to modify service quality reporting requirements. *See 2000 Biennial Regulatory Review – Telecommunications Service Quality Reporting Requirements*, CC Docket No. 00-229, Notice of Proposed Rulemaking, 15 FCC Rcd 22113 (2000). *See also Performance Measurements and Standards for Interstate Access Services*, CC Docket No. 01-321 *et. al.*, Notice of Proposed Rulemaking, FCC 01-339 (rel. Nov. 19, 2001).

2 The last report was released December 1, 1999 (mimeo number 96662), which covered data for 1996, 1997 and 1998.

With the implementation of price-cap regulation for certain local exchange carriers, the Commission made several major changes to the service quality monitoring program beginning with reports filed in 1991. First, the Commission expanded the class of companies filing reports to include non-Bell carriers subject to price-cap regulation.³ Second, the Commission included service quality reports in the Automated Reporting Management Information System (ARMIS).⁴ Third, the Commission ordered significant changes to the kinds of data these carriers had to report.⁵ Following these developments, the Commission released service quality summary reports in February 1993, March 1994, March 1996, September 1998, and December 1999.

In 1996, pursuant to requirements in the Telecommunications Act of 1996,⁶ the Commission reduced the frequency of the filed data from quarterly to annual submissions.⁷ In May 1997, relevant definitions were clarified further. These changes have been reflected starting with data covering the 1997 calendar year.

3 *See Policy and Rules Concerning Rates for Dominant Carriers*, Second Report and Order, 5 FCC Rcd 6786, 6827-31 (1990) (*LEC Price Cap Order*) (establishing the current service quality monitoring program and incorporating the service quality reports into the ARMIS program), Erratum, 5 FCC Rcd 7664 (Com. Car. Bur. 1990), *modified on recon.*, 6 FCC Rcd 2637 (1991); *aff'd sub nom.*, *Nat'l Rural Telecom Ass'n v. FCC*, 988 F.2d 174 (D.C.Cir. 1993). The incumbent local exchange carriers that are rate of return regulated are not subject to federal service quality reporting requirements.

4 *LEC Price Cap Order*, 5 FCC Rcd 6786, 6827-30. The ARMIS database includes a variety of mechanized company financial and infrastructure reports in addition to the quality-of-service reports. Most data are available disaggregated to a study area or state level.

5 *LEC Price Cap Order*, 5 FCC Rcd 6786, 6827-30; *See Policy and Rules Concerning Rates for Dominant Carriers*, Memorandum Opinion and Order, 6 FCC Rcd 2974 (Com. Car. Bur. 1991) (*Service Quality Order*), *reconsideration* 6 FCC Rcd 7462 (Com. Car. Bur. 1991). Previously the Common Carrier Bureau had collected data on five basic service quality measurements from the Bell Operating Companies. These were customer satisfaction levels, dial tone delay, transmission quality, on time service orders, and percentage of call blocking due to equipment failure.

6 Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996 Act).

7 Orders implementing filing frequency and other reporting requirement changes associated with implementation of the Telecommunications Act of 1996 are as follows: *Implementation of the Telecommunications Act of 1996: Reform of Filing Requirements and Carrier Classifications*, Order and Notice of Proposed Rulemaking, 11 FCC Rcd 11716 (rel. Sep. 12, 1996); *Revision of ARMIS Quarterly Report (FCC Report 43-01) et al.*, Order, 11 FCC Rcd 22508 (Com. Car. Bur., rel. Dec. 17, 1996); *Policy and Rules Concerning Rates for Dominant Carriers*, Memorandum Opinion and Order, 12 FCC Rcd 8115 (rel. May 30, 1997); *Revision of ARMIS Annual Summary Report (FCC Report 43-01) et al.*, Order, 12 FCC Rcd 21831 (Com. Car. Bur., rel. Dec. 16, 1997).

The Data

The source data used in preparing this report may be useful for further investigation and can be readily extracted from the ARMIS 43-05 and 43-06 tables on the online database maintained on the FCC website at www.fcc.gov/ccb/armis/db. The data are also available from Qualex International, at (202) 863-2893. This data summary report is available in the FCC's Reference Information Center (Courtyard Level) at 445 12th Street, SW, Washington, D.C. 20554.

The data presented in this report summarize the most recent ARMIS 43-05 and 43-06 carrier reports. The tables accompanying this report highlight many of the data elements now received by the Commission. Tables include data from each major holding company of the regional Bell companies, along with GTE which is now part of Verizon, and Sprint.⁸

The data items summarized in the tables largely contain raw data measurements that are not scaled by company indexing processes. This removes a degree of procedural variation among companies. For example, companies file a fairly extensive amount of raw data about switching outages, including outage durations and number of lines affected. A number of useful measures can be calculated from these data elements such as outage line-minutes per access line and average outage duration.

The data summarized in the tables of this report contain sums, or weighted averages, of data reported at the state or study area level of aggregation. Such data are useful in assessing overall trends. Where information is reported in terms of percentages or average time intervals, data presented in the tables are based on a composite of individual study area data that are calculated by weighting the percentage or time interval figures. For example, we weight the percent of commitments met by the corresponding number of orders provided in the filed data.⁹

8 In February 1992, United Telecommunications Inc. became Sprint Corporation [Local Division]; and in March 1993, Sprint Corporation acquired Centel Corporation. Bell Atlantic and NYNEX merged in August 1997, and then merged with GTE in 2000. Verizon Communications is shown separately for GTE, Verizon North (the former NYNEX companies), and Verizon South (the former Bell Atlantic Companies). SBC, Pacific Telesis and Ameritech are shown separately despite the merger of SBC and Pacific Telesis in April 1997 and SBC and Ameritech in October 1999.

9 Company composite data were typically recalculated on a consistent basis from study area data, particularly to assure that averages are calculated in a consistent manner. Although the companies have prepared their own company rollups, we have discovered various inconsistencies or inaccuracies in some of these company-prepared composites. We have therefore weighted data involving percentages or time intervals in order to arrive at the more consistent composite data shown in the tables and expect that the companies will want to review their procedures for preparing composites. Parameters used for weighting in this report were appropriate for the composite being calculated and were based on the raw data filed by the carriers but are not necessarily shown in the tables. For example, we calculate composite installation interval data by summing the individual study area results multiplied by the number of installation orders reported for each study area and then dividing the result by the total number of orders.

The key items contained in the tables are summarized in greater detail in Appendix A. Installation, maintenance and customer complaint data are shown in Tables 1a and 2a, and switch downtime and trunk servicing data are shown in Tables 1b and 2b. Installation and maintenance data are presented separately for services provided to end users and for interexchange carrier access facilities. Outage data categorized by cause are shown in Table 1c and 2c. Customer perception data are contained in Tables 1d and 2d and the associated survey sample sizes are contained in Tables 1e and 2e. Each set of tables covers data for 1999 and 2000. Six charts are included in this report which highlight company trends. Chart 1 summarizes trends in complaint levels, Chart 2 summarizes trends in initial trouble reports, Chart 3 summarizes trends in residential installation dissatisfaction, Chart 4 summarizes trends in the percentage of installation commitments met, Chart 5 summarizes trends in residential installation intervals, and Chart 6 summarizes trends in residential repair dissatisfaction. Some of the companies presented in these charts exhibit trends continuing for 2 or more years.¹⁰

Qualifications and Analysis

This report presents data submitted by the carriers in the April 2000 and 2001 ARMIS filings covering calendar years 1999 and 2000. As in the past, we have identified several infirmities and general qualifications in using quality of service data that are presented below.

Overall, we caution readers to be aware of potential methodological shortcomings and inconsistencies associated with use of the service quality data presented in this report. First, carriers periodically revise submitted data if problems are discovered. Data presented here reflect valid updates available as of August 2001. Second, although the data are subject to screening by Commission staff, and certain problems have been corrected in carrier-submitted revised filings, there may still remain some inaccuracies in the data that could become apparent when users subject the data to further analysis or compare it with data from other sources.¹¹

Third, Commission staff has recalculated holding company totals or data composites, and these might not match company-filed totals or composites.¹² This is primarily due to calculation variations

10 Chart 1 data is from ARMIS 43-05 report , rows 330-332 and 320-322, column da.
Chart 2 data is from ARMIS 43-05 report, row 141, column aj.
Chart 3 data is from ARMIS 43-06 report, row 40, column ac.
Chart 4 data is from ARMIS 43-05 report, row 132 column aj.
Chart 5 data is from ARMIS 43-05 report, row 134, column af.
Chart 6 data is from ARMIS 43-06 report, row 60, column ac.

11 For example, small variations between Verizon's GTE composites and those that we calculated independently appeared to have been caused by inclusion or exclusion of data from study areas such as Micronesia (GTMC) and Alaska (GTAK).

12 Recent Commission orders have modified definitions in the data collection process in an attempt to remove perceived ambiguities. We note, however, that because the tables in this report contain many items whose composites are calculated as weighted sums or averages, we have recalculated a number of company composites for this report to improve consistency. We have pointed out general cautions in using the data.

regarding, *e.g.*, percentages or average intervals that require weighting in the calculations. We caution the reader that some of the problems that may be discovered in connection with the data presented here resulted from differences in aggregation methodologies, errors including data irregularities, or data revisions that either could not be used or were not available in time for use in this report.¹³

Fourth, outage measurements should be considered in context. For example, the average number of lines affected per event would tend to favor a company with a larger number of smaller or remote switches with lower line counts per switch, while the average outage duration might favor a company with larger switches. Thus, using the average number of lines per event measurement, one 25,000 line switch that is out of service for five minutes would appear to have a greater service impact than ten 2,500 line switches that are out of service for five minutes. That is why we present a grouping of outage measurements that include the outage line-minutes per event and per 1,000 access lines. We have also added the number of outages per switch as another metric for measuring a company's performance.

Except in the calculation of company composites, we have not, in most cases, deleted or adjusted data. It is expected that the process of data correction will continue as problems are further identified and corrected.

This report presents data that reflect several different ways of measuring switch outages, including line-minutes-per-access line and line-minutes-per-event. Outage line-minutes is a measure that combines both duration and number of lines affected in a single parameter. We derived this parameter from the raw data by multiplying the number of lines involved in each outage by the duration of the outage, summing the resulting values and dividing the sum by the total number of access lines or events. Because outage measurements tend to exhibit more variability than other measurements, we have shown in the tables several ways of presenting the results. Improvements in responding to outages by some of the reporting companies may be associated with efforts to improve switch reliability, including working with manufacturers to replace poorly performing switches and to improve performance of existing ones.¹⁴

Because performance within any single data category may fluctuate over time, evaluating a given company's performance by looking at data trends in more than one measurement is an effective way to

13 We have noted in some cases that total access lines as reported in the last column of row 140 does not agree with the sum of the first column entry of rows 320 and 330. Variations in access line and switch counts may affect normalized outage data reported in the tables. In some instances irregularities inherent in the underlying data at the study area level may have resulted in other undetected errors in the calculated composites.

14 Representatives from what is now Verizon's GTE operations previously expressed concerns about presentation of its outage data in this report, asserting that the raw number of outages taken out of context would result in GTE appearing worse than other companies due to the large number of small and remote switches in its territory. The use of a menu of data elements as a description of outage performance actually tends to portray performance more equitably for all companies and reduces reporting bias that would tend to result from a more limited description of the data.

evaluate performance which can account for the typical lead times that might be needed to correct certain problems. In a regime of annual reporting, adverse trends in complaint levels of significant duration can serve as a warning indicator of problems, particularly where problem areas are not included in the more objective measurements. For these reasons, and because data are now filed annually rather than quarterly at the Federal level, we recommend the use of trend analysis of service quality and complaint data along with pattern analysis to get a holistic assessment of a company's overall performance.

Finally, one of the measurements for which service quality data are collected is the number of service affecting troubles reported by customers. Because of the various classifications of trouble reports, the Commission's May 1997 Order addressed problems relating to subtleties in the definitions associated with the terms "initial" and "repeat" trouble reports.¹⁵ This and other issues were addressed in an October 1993 Order modifying filing requirements and were the subject of further clarification and expansion in subsequent orders leading to the reporting of a new category of recurring trouble reports.¹⁶

We note that changes in service quality measurements also may be dictated by changes in technology and that the companies themselves periodically may change their internal measurement procedures, from which regulatory data are drawn, adding difficulty to analyzing measurements over time.¹⁷ 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 changes in company data collection procedures, however, usually result in noticeable and abrupt changes in the data. 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 may affect the frequency and availability of summary reports that are prepared by the Commission. Although the Commission has made every effort to standardize and rationalize data reporting over the years, given the number of changes to the reporting regimes and predictable future changes, one should not assume exact comparability on all measurements for data sets as they are presented year by year. In spite of all of the

15 This issue was discussed in the last report on service quality and was addressed in prior Commission orders. *See Policy and Rules Concerning Rates for Dominant Carriers*, Memorandum Opinion and Order, 12 FCC Rcd 8115, 8133 (rel. May 30, 1997); *Revision of ARMIS Annual Summary Report (FCC Report 43-01) et al.*, Order, 12 FCC Rcd 21831, 21835 (Com. Car. Bur., rel. Dec. 16, 1997). *See also* Federal Communications Commission, Industry Analysis Division, *Quality-of-Service for the Local Operating Companies Aggregated to the Holding Company Level*, released March 22, 1996 (mimeo 60268) for further discussion.

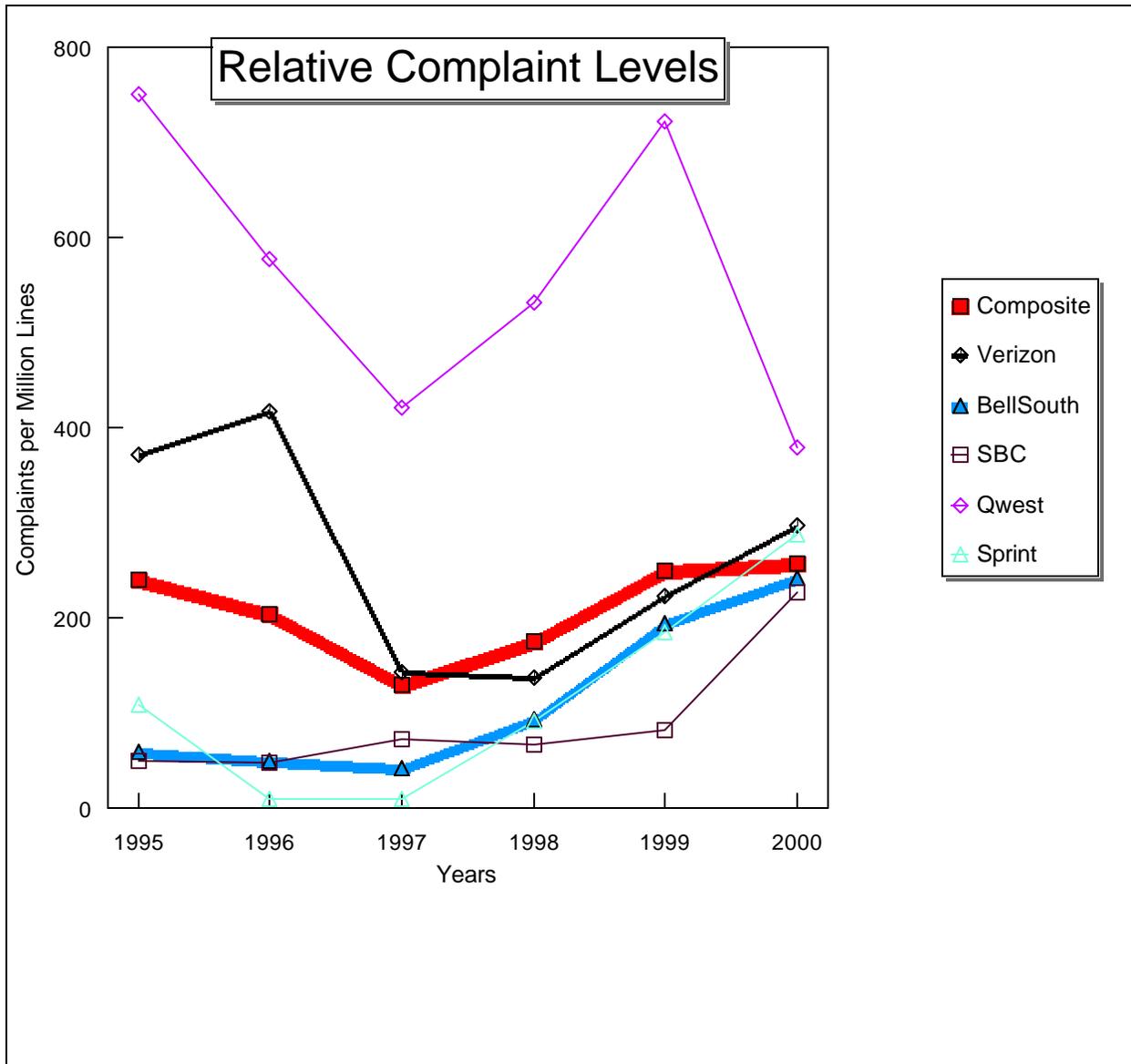
16 *See Policy and Rules Concerning Rates for Dominant Carriers*, Memorandum Opinion and Order, 8 FCC Rcd 7474, ¶ 26 and attachments (1993). *See also Revision of ARMIS Annual Summary Report (FCC Report 43-01) et al.*, 12 FCC Rcd 21831 (introducing reporting of "subsequent" troubles).

17 For those interested in trending customer perception data in this report with that available in prior Reports it should be noted that 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 effective in January 1992.

foregoing, deteriorating or improving service quality trends that persist for more than a year or two usually become obvious and can provide a critical record for state and local regulators.

It is our experience that service reliability and to a lesser extent customer satisfaction data are, by their nature, subject to greater volatility than other types of company data. As a general rule, one should be cautious about interpreting individual measurements until one develops a sense of what the data measurements disclose about company performance. Because data tends to fluctuate from year to year, data interpretation must take into consideration filing intervals and lag times in data filing and preparation. Drawing conclusions from the data provided should consider the possibility that a downturn of short duration observed at the time of data evaluation may be followed by improvement. Such may be the case with the sharp increase in customer complaints observed in the SBC Ameritech Region in 2000. Conversely, dramatic improvement in a single year, as seen in the case of Qwest for the year 2000 reporting period may provide the basis of cautious optimism. Such improvements need to be sustained for more than one year, however, before any definitive assessment can be made, since such changes can, for example, result from changes in data collection processes and methodology. Finally, while our objective measurements do not presently reveal definitive long-term trends, we have observed trends for some of the companies in customer feedback measures which are highlighted by increases in complaint levels over more than one or two years.

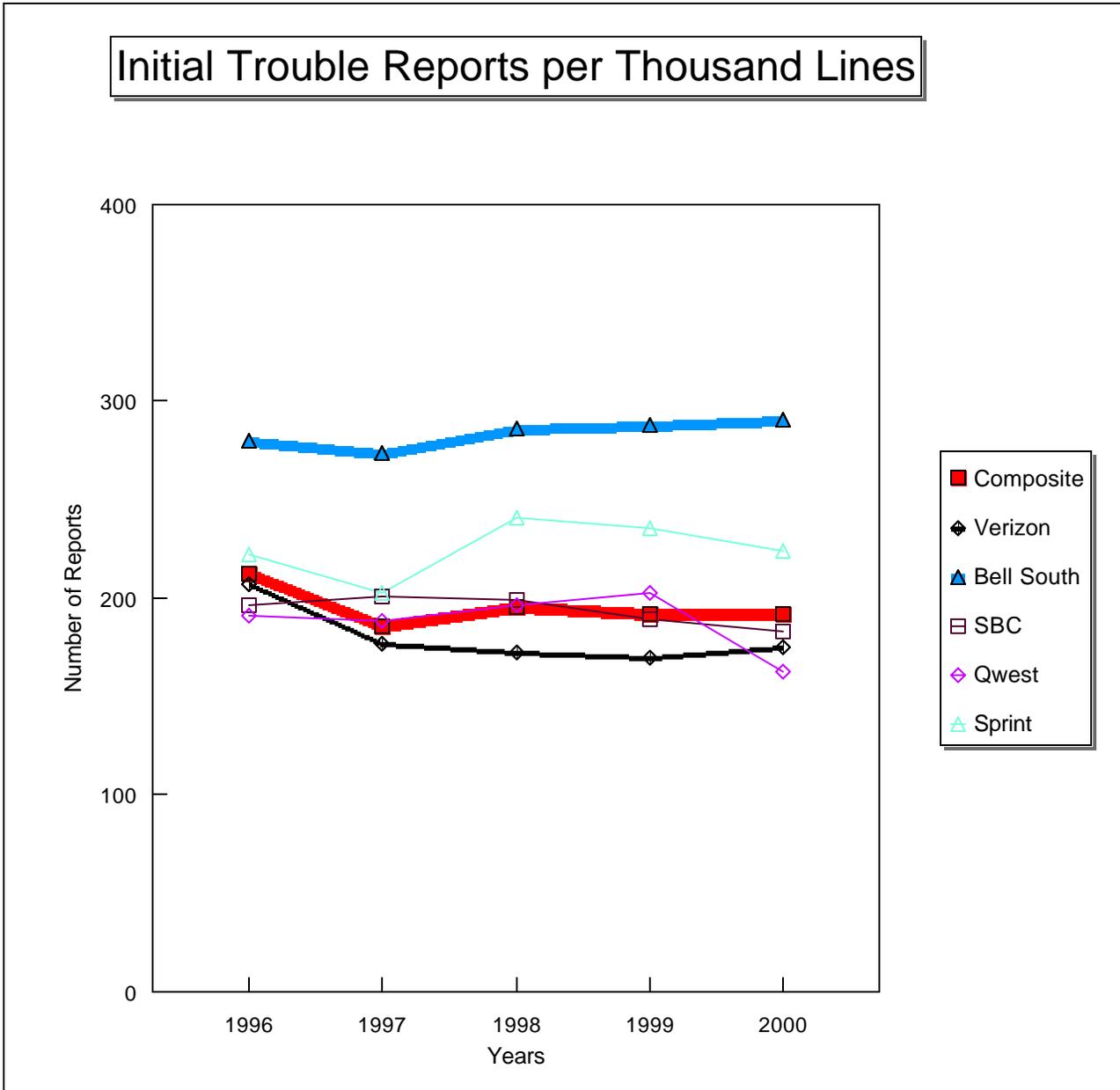
Chart 1



Average of Residential and Business Complaints per Million Access Lines
(Using Calculated Composites from Tables)

	1995	1996	1997	1998	1999	2000
BellSouth	57.8	48.5	40.8	92.6	192.9	241.6
Qwest	749.0	575.6	420.0	530.6	722.1	379.2
SBC Ameritech	109.8	101.7	145.3	127.8	178.4	613.3
SBC Pacific	7.4	9.3	33.8	32.6	36.1	39.2
SBC Southwestern	32.8	29.9	38.4	38.1	28.6	28.1
Verizon GTE	107.9	126.3	85.1	129.5	86.1	106.8
Verizon North	707.4	763.5	216.8	177.3	205.0	237.0
Verizon South	32.5	68.6	69.7	94.4	240.2	354.6
Sprint	107.4	8.7	9.1	91.7	183.9	287.9

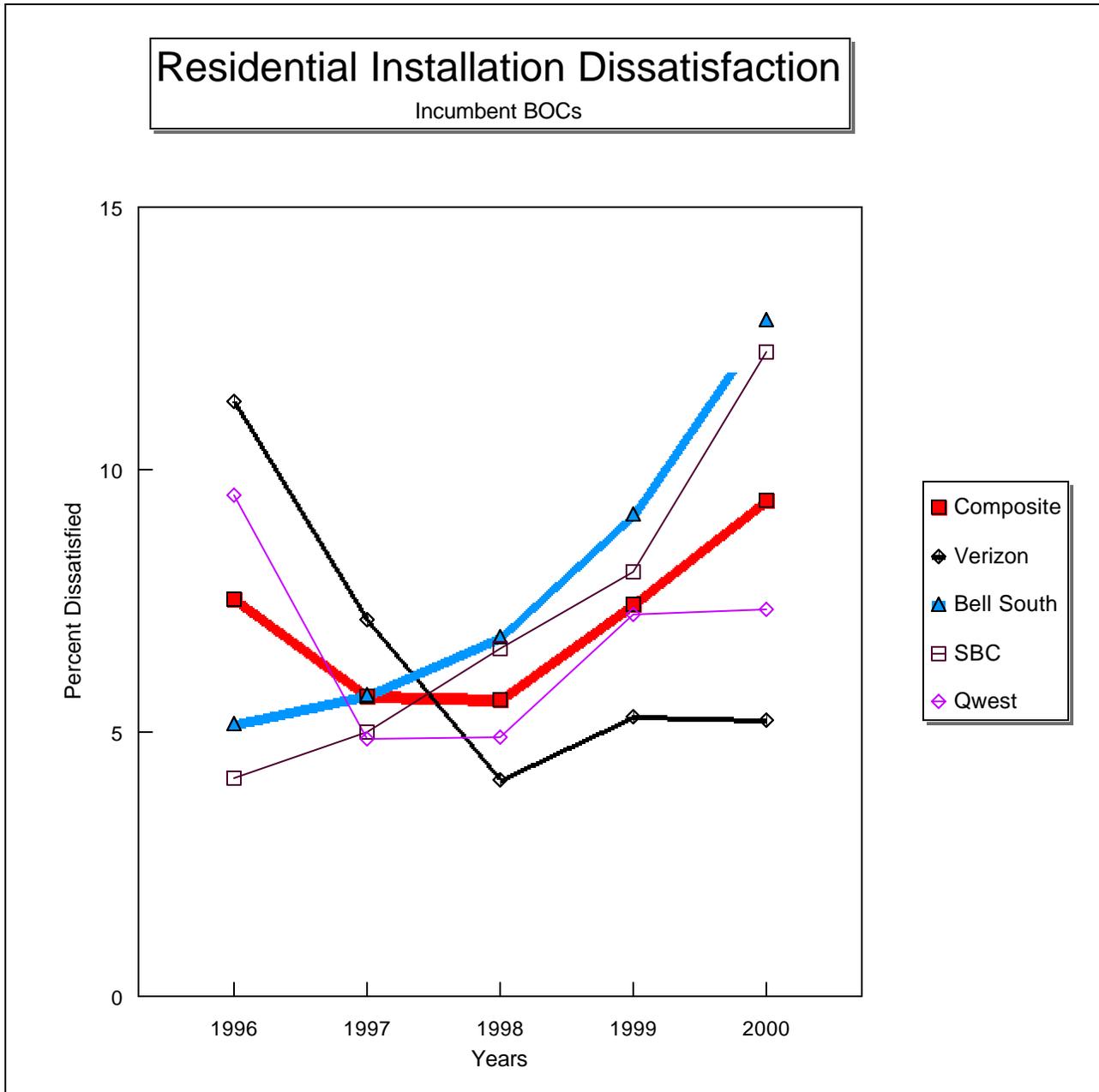
Chart 2



Average Initial Trouble Reports
(Using Calculated Composites from Tables)

	1996	1997	1998	1999	2000
BellSouth	280.3	274.1	286.5	287.8	290.9
Qwest	191.2	188.3	196.0	202.2	163.0
SBC Ameritech	218.9	205.3	216.9	208.3	177.5
SBC Pacific	126.3	156.7	155.7	153.3	157.7
SBC Southwestern	244.3	241.4	223.9	205.1	212.8
Verizon GTE	201.0	186.8	201.9	173.7	177.1
Verizon North	237.7	187.4	190.7	182.6	194.7
Verizon South	176.4	166.1	154.6	156.1	156.2
Sprint	222.6	202.5	240.7	235.8	223.7

Chart 3

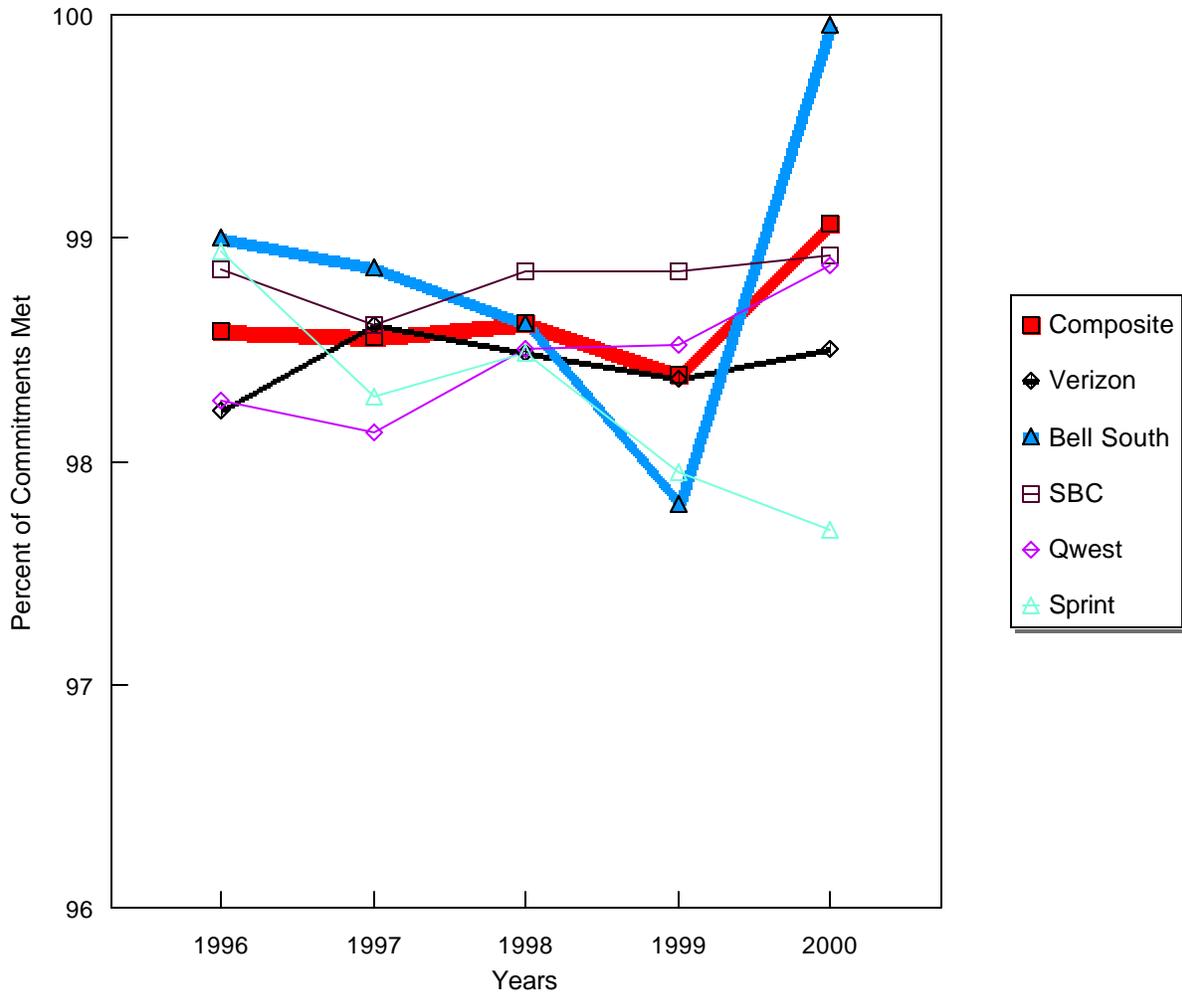


Percent Dissatisfied -- Residential Installations (Using Company Provided Composites)

	1996	1997	1998	1999	2000
BellSouth	5.2	5.7	6.8	9.2	12.8
Qwest	9.5	4.9	4.9	7.3	7.4
SBC Ameritech	3.5	5.4	7.6	7.7	16.4
SBC Pacific	3.1	4.2	7.2	10.8	13.5
SBC Southwestern	5.8	5.5	5.0	5.7	6.8
Verizon GTE	7.5	7.8	7.4	7.4	4.4
Verizon North	14.1	(Combined with Verizon South)			
Verizon South	8.5	7.2	4.1	5.3	5.2

Chart 4

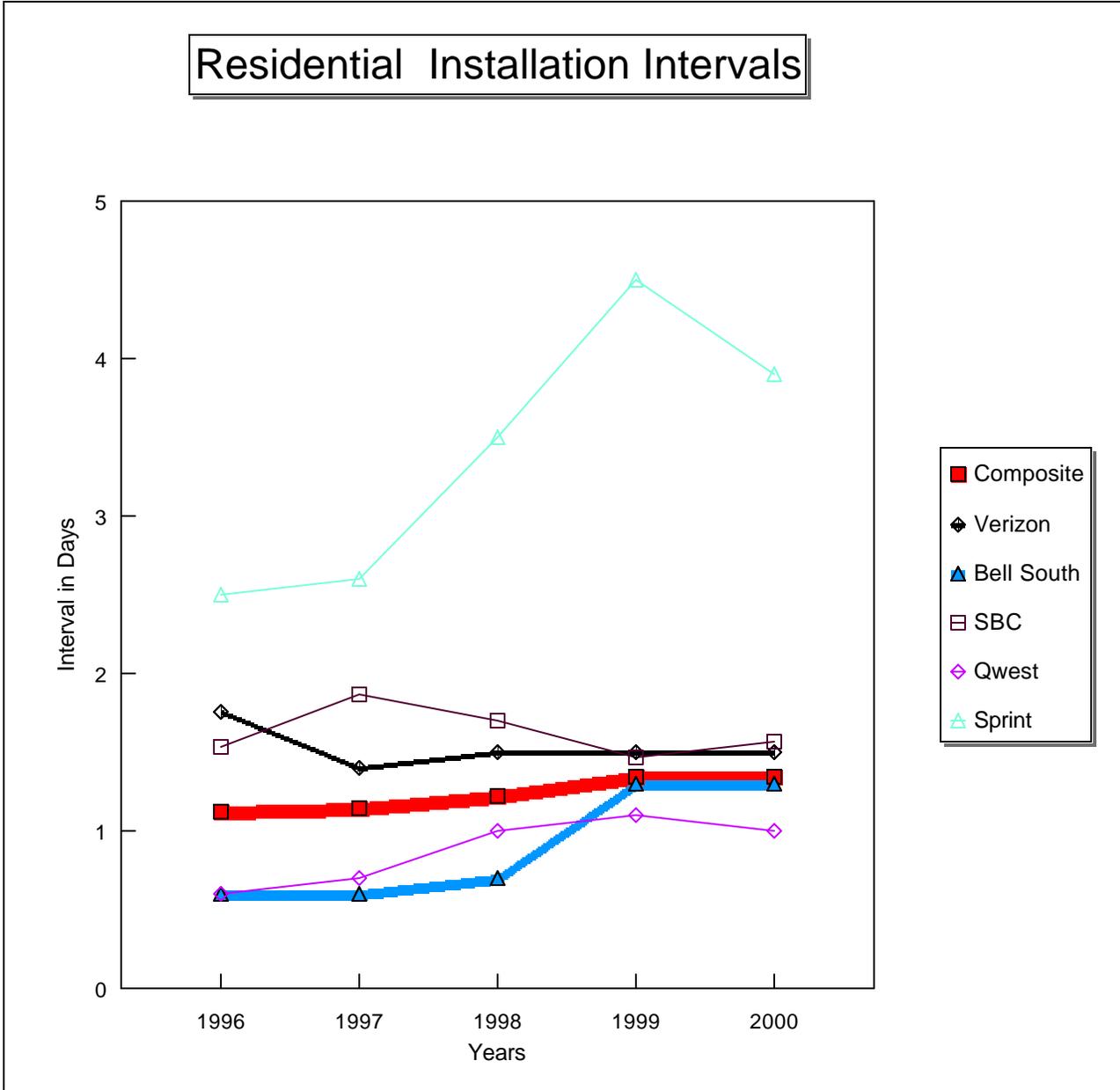
Percent Installation Commitments Met



Percent Installation Commitments Met -- Residential Services
(Using Company Provided Composites)

	1996	1997	1998	1999	2000
BellSouth	99.0	98.9	98.6	97.8	100.0
Qwest	98.3	98.1	98.5	98.5	98.9
SBC Ameritech	98.4	98.6	98.8	99.0	98.9
SBC Pacific	99.0	98.3	98.8	99.0	99.1
SBC Southwestern	99.1	98.9	98.9	98.6	98.8
Verizon GTE	98.2	98.6	98.4	95.6	96.2
Verizon North	98.3	(Combined with Verizon South)			
Verizon South	98.2	98.6	98.5	98.4	98.5
Sprint	98.9	98.3	98.5	98.0	97.7

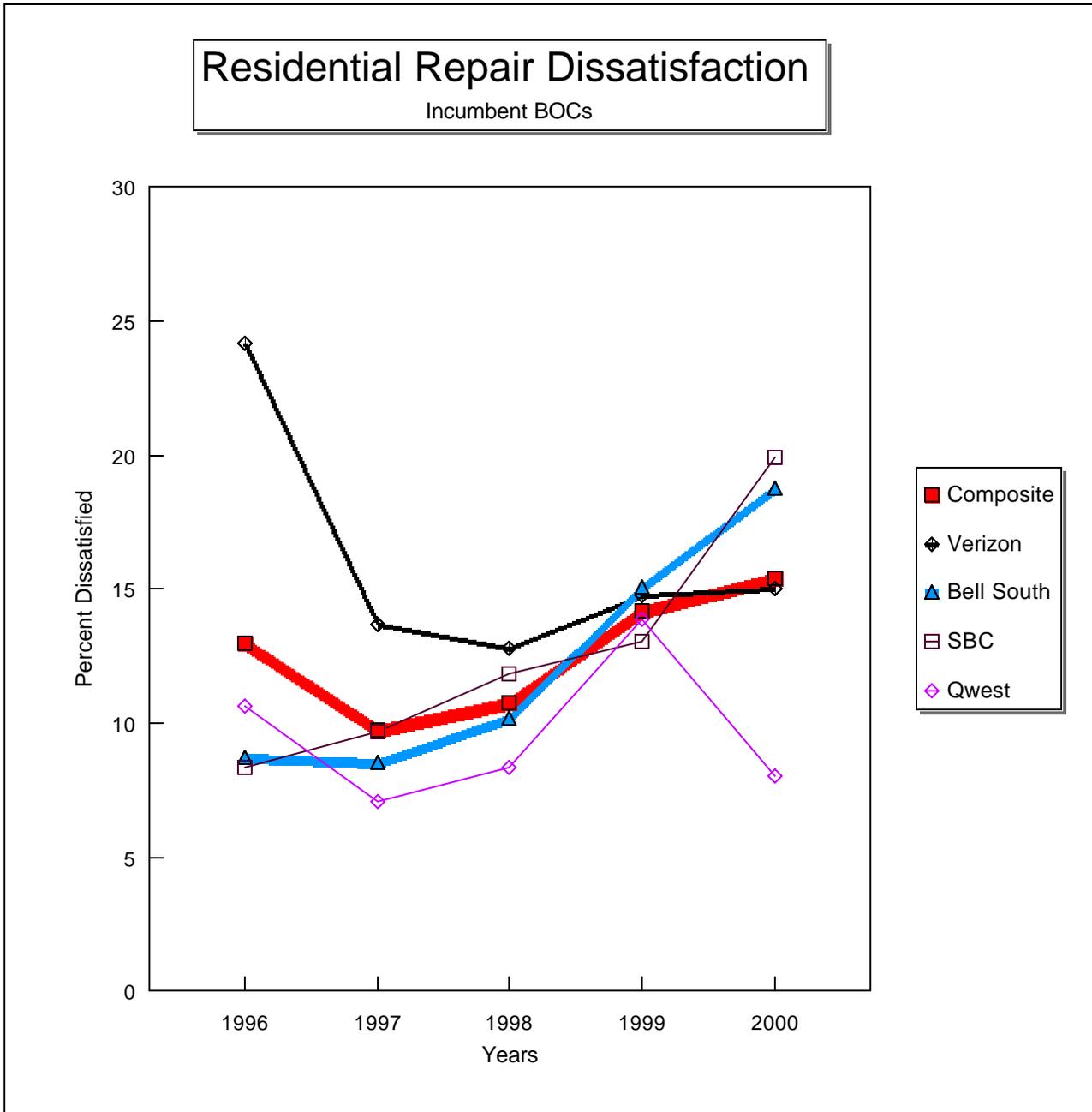
Chart 5



Average Installation Interval -- Local Services
(Using Company Provided Composites)

	1996	1997	1998	1999	2000
BellSouth	0.6	0.6	0.7	1.3	1.3
Qwest	0.6	0.7	1.0	1.1	1.0
SBC Ameritech	2.0	2.1	2.2	2.1	2.1
SBC Pacific	1.9	2.8	2.2	1.5	1.8
SBC Southwestern	0.7	0.7	0.7	0.8	0.8
Verizon GTE	2.6	2.8	3.0	1.4	1.0
Verizon North	2.0	(Combined with Verizon South)			
Verizon South	1.5	1.4	1.5	1.5	1.5
Sprint	2.5	2.6	3.5	4.5	3.9

Chart 6

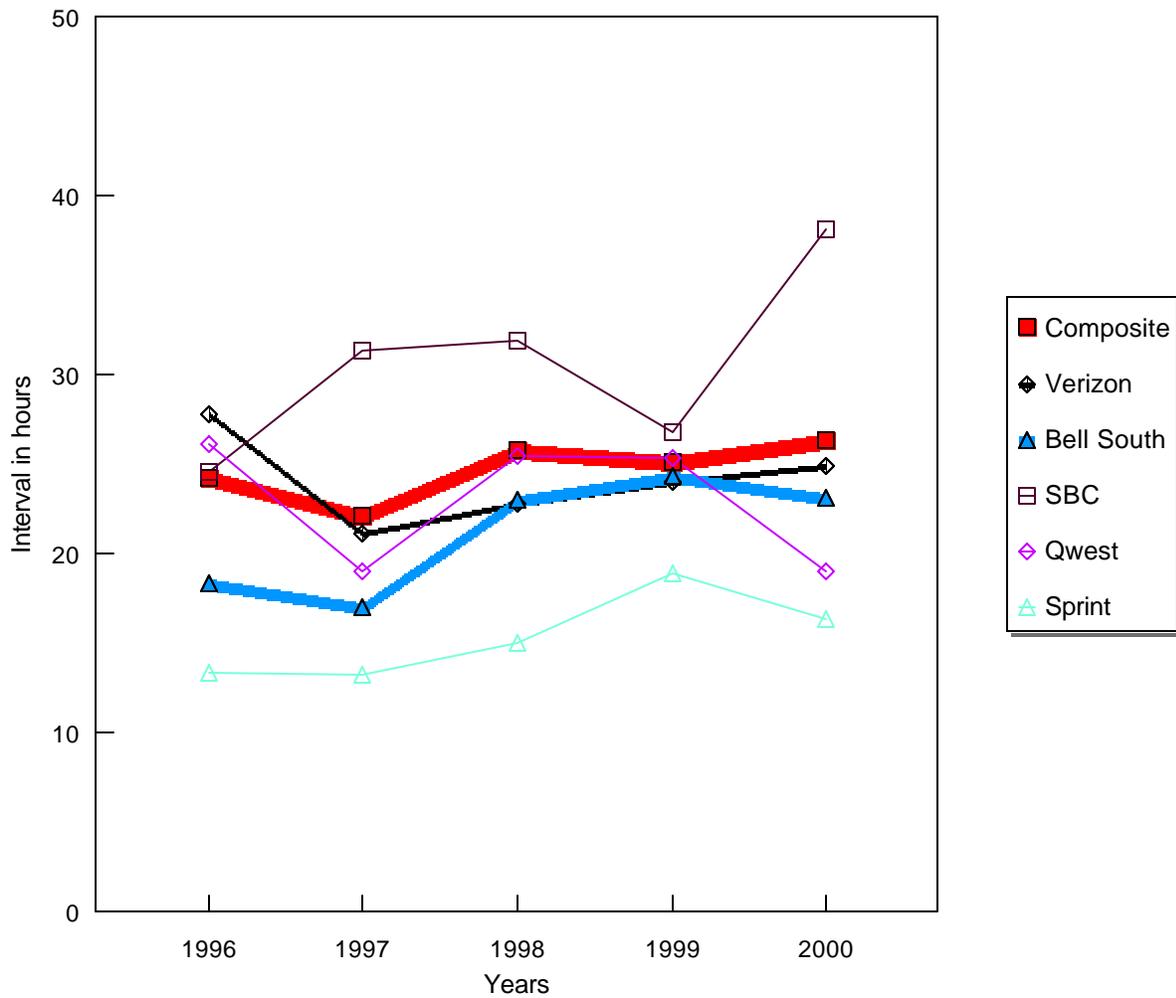


Percent Dissatisfied -- Residential Repairs (Using Company Provided Composites)

	1996	1997	1998	1999	2000
BellSouth	8.7	8.5	10.2	15.1	18.8
Qwest	10.6	7.1	8.3	13.9	8.0
SBC Ameritech	9.1	10.4	12.4	15.4	26.5
SBC Pacific	7.4	10.6	15.6	15.8	23.6
SBC Southwestern	8.4	8.0	7.6	7.9	9.6
Verizon GTE	12.8	11.8	11.0	11.6	9.4
Verizon North	27.3	(Combined with Verizon South)			
Verizon South	21.1	13.7	12.8	14.8	15.0

Chart 7

Residential Initial Out of Service Repair Intervals



Average Initial Out of Service Repair Interval -- Residential Services
(Using Company Provided Composites)

	1996	1997	1998	1999	2000
BellSouth	18.3	17.0	23.0	24.3	23.1
Qwest	26.1	19.0	25.4	25.3	19.0
SBC Ameritech	26.8	25.4	23.7	21.7	49.0
SBC Pacific	29.1	46.5	49.5	37.6	42.1
SBC Southwestern	17.8	22.1	22.4	20.9	23.2
Verizon GTE	17.5	15.0	14.9	14.1	13.0
Verizon North	28.1	(Combined with Verizon South)			
Verizon South	27.5	21.1	22.8	24.0	24.9
Sprint	13.3	13.2	15.0	18.9	16.3

Table 1(a): Company Comparison -- Installation, Maintenance, & Customer Complaints -- 2000

Company	BellSouth	Qwest	SBC Ameritech	SBC Pacific	SBC Southwestern	Verizon North	Verizon South	Verizon GTE	Sprint
ACCESS SERVICES PROVIDED TO CARRIERS -- SWITCHED ACCESS									
Percent Installation Commitments Met	96.7	93.3	98.5	55.2	65.8	96.7	93.6	90.2	89.6
Average Installation Interval (days)	26.5	36.3	64.3	32.3	39.3	47.4	27.8	33.4	24.7
Average Repair Interval (hours)	1.4	5.6	29.7	16.0	35.9	3.0	9.4	16.7	7.3
ACCESS SERVICES PROVIDED TO CARRIERS -- SPECIAL ACCESS									
Percent Installation Commitments Met	89.7	90.7	88.0	69.5	94.3	85.0	79.4	84.4	89.3
Average Installation Interval (days)	16.3	21.7	15.6	37.3	0.0	27.4	20.1	28.4	17.7
Average Repair Interval (hours)	4.6	3.4	2.9	4.5	1.7	8.3	4.1	10.2	8.0
LOCAL SERVICES PROVIDED TO RESIDENTIAL AND BUSINESS CUSTOMERS									
Percent Installation Commitments Met	99.9	98.7	98.7	98.9	98.7	96.9	98.3	98.3	97.4
Residence	100.0	98.9	98.9	99.1	98.8	97.7	98.9	98.5	97.7
Business	99.8	97.3	97.3	97.8	98.3	96.3	97.8	96.1	94.8
Average Installation Interval (days)	1.4	1.4	2.2	2.0	0.8	2.0	2.5	0.8	4.2
Residence	1.3	1.2	2.1	1.8	0.8	1.5	1.6	0.7	4.0
Business	2.3	2.7	3.0	3.9	0.8	2.4	3.5	2.1	5.9
Initial Trouble Reports per Thousand Lines	290.9	163.0	177.5	157.7	212.8	194.7	156.2	177.1	223.7
Total MSA	275.8	162.6	177.0	156.1	194.2	191.2	157.0	177.2	218.4
Total Non MSA	378.4	164.6	182.5	200.0	303.3	225.8	146.9	233.1	234.5
Total Residence	340.5	202.1	226.7	205.7	267.6	231.4	197.4	224.8	266.2
Total Business	171.5	83.6	89.3	77.5	102.4	125.1	82.5	111.7	114.5
Troubles Found per Thousand Lines	147.5	120.7	103.3	114.4	139.4	182.6	151.1	176.9	136.6
Repeat Troubles as a Pct. of Trouble Rpts.	21.2%	37.7%	30.1%	17.6%	15.6%	NA	NA	NA	14.6%
Total Residence	21.9%	37.0%	31.4%	18.3%	15.9%	NA	NA	NA	14.9%
Total Business	17.5%	41.0%	24.4%	14.9%	13.7%	NA	NA	NA	12.8%
Res. Complaints per Mill. Res. Access Lines	364.5	532.1	1,048.9	64.4	41.4	281.3	625.4	158.2	413.3
Bus. Complaints per Mill. Bus. Access Lines	118.7	226.2	177.6	13.9	14.7	192.6	83.7	55.3	162.5

Please refer to text for notes and data qualifications

Table 1(b): Company Comparison -- Switch Downtime & Trunk Blocking -- 2000

Company	BellSouth	Qwest	SBC Ameritech	SBC Pacific	SBC Southwestern	Verizon North	Verizon South	Verizon GTE	Sprint
Total Access Lines in Thousands	24,558	17,626	20,898	18,236	16,411	17,815	22,690	18,709	8,183
Total Trunk Groups	3,704	3,073	1,136	2,089	961	1,053	993	2,001	5,513
Total Switches	1,644	1,400	1,447	779	1,665	1,297	1,337	3,325	1,359
Switches with Downtime									
Number of Switches	105	589	239	148	200	64	163	98	139
As a percentage of Total Switches	6.4%	42.1%	16.5%	19.0%	12.0%	4.9%	12.2%	2.9%	10.2%
Average Switch Downtime in seconds per Switch									
For All Events	119.1	316.1	33.3	14.0	111.4	30.1	40.8	317.8	961.2
For Unscheduled Events Over 2 Minutes	113.8	280.0	24.9	10.6	97.6	24.3	29.1	317.5	785.6
For Unscheduled Downtime More than 2 Minutes									
Number of Occurrences or Events	68	93	28	7	21	18	30	96	51
Events per Hundred Switches	4.1	6.6	1.9	0.9	1.3	1.4	2.2	2.9	3.8
Events per Million Access Lines	2.77	5.28	1.34	0.38	1.28	1.01	1.32	5.13	6.23
Average Outage Duration in Minutes	45.8	70.3	21.5	19.6	128.9	29.2	21.7	183.3	348.9
Average Lines Affected per Event in Thousands	18.9	10.2	28.7	44.8	24.6	23.9	37.4	4.5	7.7
Outage Line-Minutes per Event in Thousands	765.5	426.6	496.5	627.4	2,186.9	1,196.6	522.2	343.7	1,897.4
Outage Line-Minutes per 1,000 Access Lines	2,119.5	2,250.6	665.3	240.8	2,798.5	1,209.0	690.4	1,763.5	11,826.2
For Scheduled Downtime More than 2 Minutes									
Number of Occurrences or Events	15	37	9	1	12	14	12	1	88
Events per Hundred Switches	0.9	2.6	0.6	0.1	0.7	1.1	0.9	0.0	6.5
Events per Million Access Lines	0.61	2.10	0.43	0.05	0.73	0.79	0.53	0.05	10.75
Average Outage Duration in Minutes	5.3	9.4	13.3	3.0	11.5	6.7	5.5	7.9	45.2
Avg. Lines Affected per Event in Thousands	18.3	20.9	10.6	31.0	35.4	49.6	34.2	17.7	3.0
Outage Line-Minutes per Event in Thousands	130.8	230.4	133.0	93.1	285.9	288.4	191.2	139.6	150.8
Outage Line-Minutes per 1,000 Access Lines	79.9	483.6	57.3	5.1	209.1	226.6	101.1	7.5	1,621.7
% Trunk Grps. Exceeding Blocking Objectives	20.90%	5.92%	2.02%	5.41%	0.73%	13.49%	13.90%	1.30%	1.49%

Please refer to text for notes and data qualifications

Table 1(c): Company Comparison -- Switch Downtime Causes -- 2000

Company	BellSouth	Qwest	SBC Ameritech	SBC Pacific	SBC Southwestern	Verizon North	Verizon South	Verizon GTE	Sprint
TOTAL NUMBER OF OUTAGES									
1. Scheduled	15	9	9	1	12	14	12	1	88
2. Proced. Errors -- Telco. (Inst./Maint.)	0	1	1	5	4	7	3	5	6
3. Proced. Errors -- Telco. (Other)	6	1	1	0	0	0	1	6	1
4. Procedural Errors -- System Vendors	11	1	1	1	3	2	4	0	2
5. Procedural Errors -- Other Vendors	1	1	1	0	1	1	3	5	2
6. Software Design	11	10	10	0	1	2	11	7	3
7. Hardware design	2	8	8	0	0	0	0	0	0
8. Hardware Failure	26	6	6	1	10	3	7	39	10
9. Natural Causes	1	0	0	0	1	0	0	8	5
10. Traffic Overload	0	0	0	0	0	0	0	0	0
11. Environmental	0	0	0	0	0	0	0	1	2
12. External Power Failure	6	0	0	0	0	0	0	25	2
13. Massive Line Outage	0	0	0	0	0	0	0	0	7
14. Remote	0	0	0	0	0	0	0	0	8
15. Other/Unknown	4	0	0	0	1	3	1	0	3
TOTAL OUTAGE LINE-MINUTES PER THOUSAND ACCESS LINES									
1. Scheduled	79.9	67.9	57.3	5.1	209.1	226.6	101.1	7.5	1621.7
2. Proced. Errors -- Telco. (Inst./Maint.)	0.0	6.2	5.3	217.3	64.0	57.7	15.8	72.9	315.2
3. Proced. Errors -- Telco. (Other)	143.4	4.0	3.4	0.0	0.0	0.0	14.9	48.2	0.2
4. Procedural Errors -- System Vendors	142.7	3.5	3.0	2.3	225.5	2.1	334.0	0.0	14.0
5. Procedural Errors -- Other Vendors	4.1	57.6	48.6	0.0	118.2	55.7	192.9	109.4	1705.5
6. Software Design	142.1	556.5	359.5	0.0	5.6	3.7	74.0	75.4	49.2
7. Hardware design	144.3	233.0	196.5	0.0	0.0	0.0	0.0	0.0	0.0
8. Hardware Failure	661.1	58.2	49.1	21.3	1095.0	245.6	35.7	1035.5	337.8
9. Natural Causes	618.9	0.0	0.0	0.0	1286.5	0.0	0.0	258.3	7249.8
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	1.3	80.4
12. External Power Failure	252.5	0.0	0.0	0.0	0.0	0.0	0.0	162.5	80.5
13. Massive Line Outage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	603.9
14. Remote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1230.8
15. Other/Unknown	10.4	0.0	0.0	0.0	3.6	844.2	23.1	0.0	159.0

Please refer to text for notes and data qualifications

Table 1(d): Company Comparison -- 2000 Customer Perception Surveys

Company	BellSouth	Qwest	SBC Ameritech	SBC Pacific	SBC Southwestern	Verizon North	Verizon South	Verizon GTE
Percentage of Customers Dissatisfied								
Installations:								
Residential	12.84	7.29	16.43	9.69	6.75	5.52	4.86	4.88
Small Business	8.25	16.37	12.60	9.63	9.63	11.89	9.30	8.47
Large Business	6.51	NA	20.75	13.59	12.58	9.09	7.33	1.30
Repairs:								
Residential	18.76	7.88	26.53	16.63	9.57	14.60	15.52	12.02
Small Business	10.40	12.18	18.69	8.80	7.22	11.47	13.51	10.62
Large Business	6.45	NA	37.81	10.53	12.92	9.50	9.17	1.54
Business Office:								
Residential	11.75	2.97	12.20	10.01	7.06	8.72	7.11	8.09
Small Business	12.03	6.70	21.17	9.19	8.59	11.72	11.95	11.79
Large Business	NA	NA	27.41	12.43	8.63	8.49	10.82	0.81

Please refer to text for notes and data qualifications

Table 1(e): Company Comparison -- 2000 Customer Perception Surveys

Company	BellSouth	Qwest	SBC Ameritech	SBC Pacific	SBC Southwestern	Verizon North	Verizon South	Verizon GTE
Sample Sizes -- Customer Perception Surveys								
Installations:								
Residential	23,993	8,440	12,053	15,178	13,210	14,622	10,633	25,857
Small Business	17,701	5,519	8,799	14,835	13,942	13,689	10,593	24,516
Large Business	5,839	NA	60	2,295	4,221	1,254	996	690
Repairs:								
Residential	24,228	3,876	11,912	15,593	14,888	14,647	10,657	25,800
Small Business	18,230	3,201	12,015	14,873	13,966	14,060	10,616	25,558
Large Business	6,031	NA	60	2,328	5,235	1,221	971	650
Business Office:								
Residential	35,091	8,437	28,181	27,514	27,805	10,997	12,873	15,638
Small Business	10,901	5,518	17,204	28,516	27,757	4,300	5,174	12,949
Large Business	NA	NA	60	579	2,993	978	804	741

Please refer to text for notes and data qualifications

Table 2(a): Company Comparison -- Installation, Maintenance, & Customer Complaints -- 1999

Company	BellSouth	Qwest	SBC Ameritech	SBC Pacific	SBC Southwestern	Verizon North	Verizon South	Verizon GTE	Sprint
ACCESS SERVICES PROVIDED TO CARRIERS -- SWITCHED ACCESS									
Percent Installation Commitments Met	96.2	86.5	91.4	60.7	64.0	97.7	94.2	95.7	82.3
Average Installation Interval (days)	26.0	41.0	70.1	26.8	27.8	41.4	25.7	29.5	2.7
Average Repair Interval (hours)	2.6	9.7	25.7	11.9	4.3	3.2	4.9	5.2	13.5
ACCESS SERVICES PROVIDED TO CARRIERS -- SPECIAL ACCESS									
Percent Installation Commitments Met	85.1	84.0	93.6	74.9	97.0	84.0	85.4	90.6	80.0
Average Installation Interval (days)	15.9	23.3	15.7	22.3	0.0	20.4	15.1	20.6	9.8
Average Repair Interval (hours)	4.4	4.4	3.0	4.4	2.7	4.0	4.2	7.9	13.5
LOCAL SERVICES PROVIDED TO RESIDENTIAL AND BUSINESS CUSTOMERS									
Percent Installation Commitments Met	97.3	98.2	98.9	98.9	98.5	98.3	97.7	98.3	97.7
Residence	97.8	98.5	99.0	99.0	98.6	98.5	98.3	95.5	97.9
Business	91.8	96.1	97.7	98.0	97.8	97.0	94.0	98.6	96.1
Average Installation Interval (days)	1.4	1.7	2.2	1.8	0.9	1.2	2.2	1.6	4.7
Residence	1.2	1.4	2.1	1.5	0.8	1.1	2.1	1.4	4.5
Business	2.6	3.2	2.9	3.7	1.1	1.8	3.2	3.4	5.9
Initial Trouble Reports per Thousand Lines	287.8	202.2	208.3	153.3	205.1	182.6	156.1	173.7	235.8
Total MSA	272.5	201.8	204.9	152.0	178.2	184.3	157.4	166.5	230.1
Total Non MSA	379.2	203.7	255.1	188.7	346.5	170.6	140.6	192.6	247.4
Total Residence	336.9	246.5	263.2	205.8	245.2	222.8	198.2	201.7	277.7
Total Business	173.9	109.2	110.1	72.1	112.9	108.4	82.1	108.2	127.8
Troubles Found per Thousand Lines	144.1	141.3	147.4	106.6	142.6	131.2	105.1	173.4	144.2
Repeat Troubles as a Pct. of Trouble Rpts.	19.9%	38.4%	18.1%	16.0%	14.3%	20.1%	22.0%	NA	13.6%
Total Residence	20.6%	38.0%	18.6%	16.3%	14.6%	20.2%	22.5%	NA	14.0%
Total Business	16.9%	40.3%	16.0%	14.8%	12.9%	19.6%	19.9%	NA	11.1%
Res. Complaints per Mill. Res. Access Lines	265.4	1,053.1	312.4	57.0	44.3	263.3	402.6	131.1	249.4
Bus. Complaints per Mill. Bus. Access Lines	120.4	391.1	44.4	15.2	12.8	146.6	77.7	41.1	118.3

Please refer to text for notes and data qualifications

Table 2(b): Company Comparison -- Switch Downtime & Trunk Blocking -- 1999

Company	BellSouth	Qwest	SBC Ameritech	SBC Pacific	SBC Southwestern	Verizon North	Verizon South	Verizon GTE	Sprint
Total Access Lines in Thousands	24,458	17,449	21,036	18,285	16,287	19,103	22,730	20,015	7,879
Total Trunk Groups	3,712	2,920	1,289	2,089	932	1,054	1,090	2,494	4,697
Total Switches	1,649	1,428	1,432	789	1,658	1,297	1,339	4,531	1,359
Switches with Downtime									
Number of Switches	137	1,107	334	109	285	65	59	154	171
As a percentage of Total Switches	8.3%	77.5%	23.3%	13.8%	17.2%	5.0%	4.4%	3.4%	12.6%
Average Switch Downtime in seconds per Switch									
For All Events	168.2	214.1	59.4	4.5	36.1	59.5	49.7	215.4	739.6
For Unscheduled Events Over 2 Minutes	158.7	134.7	30.3	102.0	3.6	53.1	47.3	214.2	665.8
For Unscheduled Downtime More than 2 Minutes									
Number of Occurrences or Events	98	90	37	5	10	20	22	151	119
Events per Hundred Switches	5.9	6.3	2.6	0.6	0.6	1.5	1.6	3.3	8.8
Events per Million Access Lines	4.01	5.16	1.76	0.27	0.61	1.05	0.97	7.54	15.10
Average Outage Duration in Minutes	44.5	35.6	19.5	268.2	10.0	57.4	48.0	107.1	126.7
Average Lines Affected per Event in Thousands	20.2	8.8	32.6	38.5	42.9	19.0	27.5	3.2	4.3
Outage Line-Minutes per Event in Thousands	602.0	515.5	690.4	3,200.7	342.3	835.4	1,711.9	154.1	538.3
Outage Line-Minutes per 1,000 Access Lines	2,412.1	2,659.1	1,214.2	875.2	210.2	874.6	1,656.9	1,162.3	8,129.4
For Scheduled Downtime More than 2 Minutes									
Number of Occurrences or Events	28	469	22	4	38	18	5	2	85
Events per Hundred Switches	1.7	32.8	1.5	0.5	2.3	1.4	0.4	0.0	6.3
Events per Million Access Lines	1.14	26.88	1.05	0.22	2.33	0.94	0.22	0.10	10.79
Average Outage Duration in Minutes	6.4	2.3	23.0	80.7	5.1	6.1	3.3	3.6	19.7
Avg. Lines Affected per Event in Thousands	21.9	10.4	20.5	48.9	38.7	41.1	32.1	9.5	10.9
Outage Line-Minutes per Event in Thousands	115.2	24.9	120.1	1,155.9	178.8	241.1	106.9	33.8	164.6
Outage Line-Minutes per 1,000 Access Lines	131.9	670.1	125.6	252.9	417.1	227.1	23.5	3.4	1,775.5
% Trunk Grps. Exceeding Blocking Objectives	3.80%	8.63%	0.93%	4.88%	1.29%	5.50%	20.73%	0.64%	1.11%

Please refer to text for notes and data qualifications

Table 2(c): Company Comparison -- Switch Downtime Causes -- 1999

Company	BellSouth	Qwest	SBC Ameritech	SBC Pacific	SBC Southwestern	Verizon North	Verizon South	Verizon GTE	Sprint
TOTAL NUMBER OF OUTAGES									
1. Scheduled	28	469	22	4	38	18	5	2	85
2. Proced. Errors -- Telco. (Inst./Maint.)	0	3	2	2	2	5	3	8	16
3. Proced. Errors -- Telco. (Other)	12	1	5	0	2	0	1	6	1
4. Procedural Errors -- System Vendors	12	2	6	1	1	1	2	1	1
5. Procedural Errors -- Other Vendors	3	1	0	0	0	1	0	9	5
6. Software Design	34	41	17	0	1	1	4	16	5
7. Hardware design	4	4	0	0	0	0	0	0	0
8. Hardware Failure	26	29	7	0	1	5	5	69	33
9. Natural Causes	1	0	0	0	0	0	1	10	7
10. Traffic Overload	0	0	0	0	0	0	0	0	0
11. Environmental	0	0	0	0	0	0	1	1	1
12. External Power Failure	3	6	0	0	0	2	0	30	8
13. Massive Line Outage	0	0	0	0	0	0	0	0	13
14. Remote	0	1	0	0	0	1	1	1	13
15. Other/Unknown	3	2	0	2	3	4	4	0	16
TOTAL OUTAGE LINE-MINUTE PER THOUSAND ACCESS LINES									
1. Scheduled	131.9	670.1	125.6	252.9	417.1	227.1	23.5	3.4	1775.5
2. Proced. Errors -- Telco. (Inst./Maint.)	0.0	1934.3	10.8	87.5	15.2	463.0	168.8	21.0	2058.1
3. Proced. Errors -- Telco. (Other)	81.3	3.3	382.9	0.0	82.0	0.0	6.2	36.9	2.8
4. Procedural Errors -- System Vendors	248.2	1.8	264.4	23.6	3.6	5.6	54.5	0.3	768.5
5. Procedural Errors -- Other Vendors	13.8	8.5	0.0	0.0	0.0	1.0	0.0	96.6	200.2
6. Software Design	752.6	233.8	433.7	0.0	10.8	6.0	39.1	123.3	1133.3
7. Hardware design	13.7	10.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8. Hardware Failure	416.0	219.0	122.5	0.0	8.3	87.0	102.7	565.4	1466.4
9. Natural Causes	0.6	0.0	0.0	0.0	0.0	0.0	1252.7	148.0	478.0
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	25.6	55.1	2.7
12. External Power Failure	794.2	240.6	0.0	0.0	0.0	204.3	0.0	110.6	295.1
13. Massive Line Outage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1256.9
14. Remote	0.0	2.9	0.0	0.0	0.0	15.7	0.5	5.3	106.9
15. Other/Unknown	91.6	4.7	0.0	764.2	90.2	92.1	6.8	0.0	360.5

Please refer to text for notes and data qualifications

Table 2(d): Company Comparison -- 1999 Customer Perception Surveys

Company	BellSouth	Qwest	SBC Ameritech	SBC Pacific	SBC Southwestern	Verizon North	Verizon South	Verizon GTE
Percentage of Customers Dissatisfied								
Installations:								
Residential	9.15	7.08	7.80	16.34	5.70	5.06	5.66	7.08
Small Business	8.21	17.40	11.30	16.10	7.39	9.46	8.57	12.53
Large Business	6.06	NA	NA	17.05	7.38	7.19	10.26	3.27
Repairs:								
Residential	15.09	12.97	15.30	23.77	7.94	13.87	15.84	11.59
Small Business	10.73	16.05	14.08	16.81	5.98	10.79	13.00	12.22
Large Business	6.77	NA	NA	19.50	8.12	10.00	13.02	2.59
Business Office:								
Residential	8.39	2.78	8.63	13.94	6.54	7.43	5.65	1.81
Small Business	10.63	6.85	14.21	17.37	7.37	8.27	9.94	3.44
Large Business	6.34	NA	5.17	15.10	5.58	7.55	10.82	0.90

Please refer to text for notes and data qualifications

Table 2(e): Company Comparison -- 1999 Customer Perception Surveys

Company	BellSouth	Qwest	SBC Ameritech	SBC Pacific	SBC Southwestern	Verizon North	Verizon South	Verizon GTE
Sample Sizes -- Customer Perception Surveys								
Installations:								
Residential	37,611	17,826	29,324	15,682	9,365	14,730	10,066	21,337
Small Business	18,254	7,382	27,211	13,470	13,942	14,941	10,590	21,413
Large Business	1,287	NA	NA	4,466	6,112	2,019	1,345	825
Repairs:								
Residential	29,489	11,309	28,457	16,108	18,634	14,729	10,042	21,345
Small Business	20,714	2,706	27,986	15,193	14,066	15,105	10,617	21,539
Large Business	1,344	NA	NA	3,813	5,264	1,960	1,248	754
Business Office:								
Residential	27,513	8,509	49,513	15,985	27,909	15,995	19,599	20,711
Small Business	9,798	5,493	5,873	26,894	27,627	5,051	6,631	14,027
Large Business	962	NA	1,141	6,654	2,062	1,365	961	781

Please refer to text for notes and data qualifications

Appendix A – Description of Key Elements in Tables I and II:

This report displays a number of data elements that have remained roughly comparable over the past few years. More detailed information on the raw data from which this report has been developed is contained on the Commission's website for the ARMIS database noted above. In addition, complete data descriptions are available in several Commission Orders.¹ The following descriptions are tied to Tables 1a-1e and 2a-2e which follow the text of this report. The row numbers and columns associated with the raw source data in the ARMIS 43-05 report are included in the footnotes to the descriptions below.²

¹ Orders implementing filing frequency and other reporting requirement changes associated with implementation of the Telecommunications Act of 1996 are as follows: *Implementation of the Telecommunications Act of 1996: Reform of Filing Requirements and Carrier Classifications*, Order and Notice of Proposed Rulemaking, 11 FCC Rcd 11716 (rel. Sep. 12, 1996); *Revision of ARMIS Quarterly Report (FCC Report 43-01) et al.*, Order, 11 FCC Rcd 22508 (Com. Car. Bur., rel. Dec. 17, 1996); *Policy and Rules Concerning Rates for Dominant Carriers*, Memorandum Opinion and Order, 12 FCC Rcd 8115 (rel. May 30, 1997); *Revision of ARMIS Annual Summary Report (FCC Report 43-01) et al.*, Order, 12 FCC Rcd 21831 (Com. Car. Bur., rel. Dec. 16, 1997).

² For ARMIS rows 110-121 in the raw machine readable data sets, column a or aa is the first column; for rows 130 to 151, column d or ad is the first column; for rows 180 to 190, column k or ak is the first column; for rows 200 to 214, column n or an 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 or da is the first column. The companies also file printed copies of their submissions where rows 110-121 are designated as Table I, rows 130-170 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 rows 142, 143 and 160 do not appear in numerical order. In addition to definitional wording changes, most of which are minor, rows 111, 131, 160 and 170 (missed installations for customer reasons and subsequent trouble reports) have been added with the 1997 data; however, not all companies have populated the added rows. Many column designations have also been changed and most column labels are now preceded by the letter "a". 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. Because the entire row and column descriptions and definitions for each year in question are too voluminous to reproduce here, the reader should refer to the relevant Commission Order referenced in a prior footnote describing requirements for the specific data year of interest.

1. Percent of Installation Commitments Met

Percent of installations that were met by the date promised by the company to the customer. It is presented separately for residential and business customers' local service. Trends for this data are summarized using company provided composites in the accompanying charts.³

2. Average Installation Interval (in days)

Average interval (in days) between the installation service order and completion of installation. Trended data for this ARMIS 43-05 report data are highlighted in the accompanying charts along with customer installation dissatisfaction data from the ARMIS 43-06 report, using company provided composites.⁴

3. Average Repair Interval (in hours)

Average time (in hours) for the company to repair access lines and service subcategories for switched access, high-speed special access, and all special access. Data for switched and special access services provided to carriers are presented which have been provided for the longest period of time. Trended data for this ARMIS 43-05 report data are highlighted in the accompanying charts along with customer repair dissatisfaction data from the ARMIS 43-06 report using company provided composites.⁵

4. Initial Trouble Reports per Thousand Access Lines

Calculated as the total count of trouble reports reported as "initial trouble reports," divided by the number of access lines in thousands. (Note that multiple calls within a 30 day period associated with the same problem are counted as a single initial trouble, and the number of access lines reported and used in the calculation is the total number of

³ See ARMIS 43-05 report row 132, columns f and i or af and ai, respectively, and access services provided to carriers (row 112, columns a and c or aa and ac).

⁴ Installation interval is shown separately for receipt of access service provided to carriers ARMIS 43-05 report row 114, column a and c or aa and ac) and for residential and business customers' local service (row 134, columns f and i or af and ai, respectively). Data on intervals for missed installations (rows 113 and 133) were replaced by average interval described above.

⁵ See ARMIS 43-05 report row 121, column a and c or aa and ac. We have presented customer response data on repairs in this report.

access lines divided by 1,000.) The aggregate initial trouble report indicator has remained fairly stable as shown in trended data in the accompanying charts.⁶

5. Found or Verified Troubles per Thousand Access Lines

Calculated as described in item 4, above. Represents the number of trouble reports in which the company identified a problem.⁷

6. Repeat Troubles as a percent of Initial Trouble Reports

Calculated as the number of initial trouble reports cleared by the company that recur, or remain unresolved, within 30 days of the initial trouble report, divided by the number of initial trouble reports as described above.⁸

7. Complaints per Million Access Lines

The number of residential and business customer complaints, per million access lines, reported to state or federal regulatory bodies during the reporting period. Some increasing trends can be noted in this data as shown in Chart 1 included in the report.⁹

⁶ This item is subcategorized by Metropolitan Statistical Areas (MSA) (the sum of ARMIS 43-05 report row 141, column d or ad and row 141, column g or ag divided by the sum of row 140, column d or ad and row 140, column g or ag); non-MSA (the sum of row 141, column e or ae and row 141, column h or ah divided by the sum of row 140, column e or ae and row 140, column h or ah); residence (row 141, column f or af divided by row 140, column f or af); and business (row 141, column i divided by row 140, column i or ai). Note that access lines for data filed in 1997 were requested in whole numbers, but were requested in thousands for prior years.

⁷ Data shown is ARMIS report 43-05 row 141, column j or aj less row 143, column j or aj divided by row 140, column j or aj.

⁸ Data shown is ARMIS 43-05 report row 142, column j or aj divided by row 141, column j or aj. This measure provides a measure of the effectiveness of the company in resolving troubles at the outset. Subcategorized by MSA, non-MSA, residence, and business. (Also refer to the discussion of data qualifications that follows.)

⁹ Total residence complaints are calculated as the sum of ARMIS 43-05 report row 331, column aa and row 332, column aa; total business complaints are calculated as the sum of row 321, column aa or da and row 322, column aa or da.

¹⁰ The count of in-service access lines included on ARMIS 43-05 report row 140, column j or

8. Number of Access Lines, Trunk Groups and Switches

The number of in-service access lines are shown in the ARMIS 43-05 report.¹⁰ Trunk groups only include common trunk groups between Local Exchange Carrier (LEC) access tandems and LEC end offices. When comparing current data herein with data in prior reports the reader should note that access lines were reported in thousands in pre 1997 data submissions. Starting with 1997 data submissions access line information has been requested in whole numbers.

9. Switches with Downtime

Number of network switches experiencing downtime and the percentage of the total number of company network switches experiencing downtime.¹¹

10. Average Switch Downtime in Seconds per Switch

Total switch downtime divided by the total number of company network switches indicates the average switch downtime in seconds per switch.¹²

11. Unscheduled Downtime Over 2 Minutes per Occurrence

Number of occurrences of more than 2 minutes in 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 represents total outage line-minutes. This number was divided by the total number of access lines to provide line-minutes-per-access-line, and, by the number of occurrences, to provide

aj, trunk groups included on row 180, column k or ak, and switches included as the sum of row 200, column n or an and row 201, column n or an or the sum of row 210, column n or an through row 214, column n or an.

¹¹ See ARMIS 43-05 report row 210, column o or ao through row 214, column o or ao or the sum of row 200, column o or ao and row 201, column o or ao.

¹² Data are shown for all occurrences (the sum of ARMIS 43-05 report row 200, column p or ap and row 201, column p or ap, multiplied by 60 and divided by the sum of row 200, column n or an and row 201, column n or an) 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 or an).

the line-minutes-per-occurrence. This categorizes the normalized magnitude of the outage in two ways and provides a 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.¹³

12. Scheduled Downtime Over 2 Minutes per Occurrence

Determined as in item 11, above, except that it consists of scheduled occurrences.¹⁴

13. Percent of Trunk Groups Meeting Design Objectives

This data item provides the percentage of trunk groups exceeding an industry standard for blocking over the reporting interval. The trunk groups measured and reported are interexchange access facilities. These represent only a small portion of the total trunk groups in service.¹⁵

¹³ These items are derived from ARMIS 43-05 report data in rows 220 through 319 and 333 through 500, columns t through z, in the source data).

¹⁴ These items are derived from data contained on ARMIS 43-05 report rows 220 through 319, and rows 333 through 500, columns t through z, in the source data.

¹⁵ This data is shown as the sum of ARMIS 43-05 report rows 189 and 190, column k, divided by row 180, column k for 1995 data and the sum of rows 189 and 190, column ak divided by row 180 column ak starting with 1996 data.

Customer Response

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You can help us provide the best possible information to the public by completing this form and returning it to the Industry Analysis Division of the FCC's Common Carrier Bureau.

1. Please check the category that best describes you:

- press
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- consultant, law firm, lobbyist
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2. Please rate the report: Excellent Good Satisfactory Poor No opinion

- | | | | | | |
|----------------------|-----|-----|-----|-----|-----|
| Data accuracy | () | () | () | () | () |
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| Completeness of data | () | () | () | () | () |
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3. Overall, how do you rate this report? Excellent Good Satisfactory Poor No opinion

- | | | | | | |
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| | () | () | () | () | () |
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