

9. Quality of Service

Introduction

This section summarizes various kinds of service quality data filed by the regional Bell operating companies, Embarq (formerly Sprint) and other price-cap regulated incumbent local exchange carriers for calendar year 2008.¹ The data track the quality of service provided to both retail customers (business and residential) and access customers (interexchange carriers).

The Commission does not impose service quality standards on communications common carriers. Rather, the Commission annually monitors quality of service data submitted by incumbent local exchange carriers that are regulated as price-cap carriers. The Commission summarizes these data and periodically publishes a report on quality of service trends.² The tables included in this section present comparative data on key company performance indicators. These include objective indicators of installation and maintenance performance, switch outages and trunk blocking performance. The tables also present data on customer perceptions of service, as well as the level of consumer complaints.

Background

At the end of 1983, anticipating AT&T's imminent divestiture of its local operating companies, the Commission directed the Common Carrier Bureau³ to establish a monitoring

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- 1 In February 1992, United Telecommunications Inc. became Sprint Corporation (Local Division); and in March 1993, Sprint Corporation acquired Centel Corporation. Recently Sprint spun off its Local Division as a new company named Embarq. 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). Pacific Telesis, Ameritech, and SNET are shown separately despite the merger of SBC and Pacific Telesis in April 1997, SBC and SNET in October 1998, and SBC and Ameritech in October 1999. Following the merger of SBC and AT&T, the name SBC was changed to AT&T. More recently AT&T acquired BellSouth.
 - 2 The latest report, which covers data for 2007, was released March 13, 2009. See Industry Analysis and Technology Division, Wireline Competition Bureau, Federal Communications Commission, *Quality of Service of Incumbent Local Exchange Carriers* (March 2009). This report includes data revisions that were received after the cutoff date for data in this Monitoring Report. It also includes an analysis of the quality of the data and the significance of changes over time. That report (as a PDF file) and previous reports can be found on the Commission's website at www.fcc.gov/wcb/stats.
 - 3 As the result of a reorganization in March 2002, the Wireline Competition Bureau now performs Common Carrier Bureau functions described in this section. In this section, references to the Common Carrier Bureau apply to activities prior to the above date.

program that would provide a basis for detecting adverse trends in Bell operating company network service quality. Subsequently, the Bureau modified the service quality reporting requirements to reduce unnecessary paperwork and to ensure that needed information would be provided in a uniform format. Initially, the data were received twice yearly. The data collected for 1989 and 1990 formed the basis for FCC summary reports published in June 1990 and July 1991, respectively, highlighting five basic elements of quality of service data collected at that time.

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 that have elected to be subject to price-cap regulation.⁴ These carriers are known as non-mandatory price-cap carriers and most of them are much smaller than the Bell operating companies. Second, it included service quality reports in the Automated Reporting Management Information System (ARMIS).⁵ Finally, the Commission ordered significant changes to the kinds of data these carriers had to report.⁶ Following these developments, the Commission released service quality summary reports annually starting in February 1993 incorporating the ARMIS data.⁷ This section summarizes current year data from all reporting price-cap companies used in preparation of the summary reports.⁸

4 *Policy and Rules Concerning Rates for Dominant Carriers*, CC Docket No. 87-313, 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 (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.

5 *LEC Price-Cap Order*, 5 FCC Rcd at 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 level which generally represents operations within a given state.

6 *Id.*; *Policy and Rules Concerning Rates for Dominant Carriers*, CC Docket No. 87-313, Memorandum Opinion and Order, 6 FCC Rcd 2974 (1991) (*Service Quality Order*), *recon.*, 6 FCC Rcd 7482 (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.

7 The reports have included data from the mandatory price-cap companies and the largest non-mandatory carriers, GTE and Embarq (formerly Sprint). GTE is now a part of Verizon, a mandatory price-cap carrier. Non-mandatory carriers are not required to file customer satisfaction data that appears in the ARMIS 43-06 report.

8 The following smaller non-mandatory price-cap companies that file ARMIS 43-05 data are included in this summary: Century Tel., Cincinnati Bell, Citizens, Citizens Frontier,

In 1996, pursuant to requirements in the Telecommunications Act of 1996,⁹ the Commission reduced the frequency of data reporting for all reports to annual submissions.¹⁰ In May 1997, relevant definitions were clarified further. These changes have been reflected in filed data starting with the 1997 calendar year. The raw data are now filed annually in April of each year. However, in 2008, the Commission granted forbearance from carriers' obligations to file ARMIS Reports 43-05 and 43-06, which provide the source data for the service quality report, subject to the commitment of all price-cap carriers "to continue collecting service quality and customer satisfaction data and to filing those data publicly through ARMIS Report 43-05 and 43-06 filings for twenty four months from the effective date of this order" (September 6, 2008).¹¹

Iowa Telecom, and Windstream Communications (spun off from Alltel Corp. and merged with Valor Telecommunications). Embarq (formerly Sprint), the largest of the non-mandatory price-cap companies, has been included in prior summaries.

- 9 Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56.
- 10 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, CC Docket No. 96-193, Order and Notice of Proposed Rulemaking, 11 FCC Rcd 11716 (1996); Revision of ARMIS Quarterly Report (FCC Report 43-01) et al., CC Docket No. 96-193, Order, 11 FCC Rcd 22508 (1996); Policy and Rules Concerning Rates for Dominant Carriers, CC Docket No. 87-313, Memorandum Opinion and Order, 12 FCC Rcd 8115 (1997); Revision of ARMIS Annual Summary Report (FCC Report 43-01) et al., AAD No. 95-91, Order, 12 FCC Rcd 21831 (1997).
- 11 See Service Quality, Customer Satisfaction, Infrastructure and Operating Data Gathering; Petition of AT&T Inc. for Forbearance Under 47 U.S.C. § 160(c) From Enforcement of Certain of the Commission's ARMIS Reporting Requirements; Petition of Qwest Corporation for Forbearance from Enforcement of the Commission's ARMIS and 492A Reporting Requirements Pursuant to 47 U.S.C. § 160(c); Petition of the Embarq Local Operating Companies for Forbearance Under 47 U.S.C. § 160(c) From Enforcement of Certain of ARMIS Reporting Requirements; Petition of Frontier and Citizens ILECs for Forbearance Under 47 U.S.C. § 160(c) From Enforcement of Certain of the Commission's ARMIS Reporting Requirements; Petition of Verizon for Forbearance Under 47 U.S.C. § 160(c) From Enforcement of Certain of the Commission's Recordkeeping and Reporting Requirements; Petition of AT&T Inc. For Forbearance Under 47 U.S.C. § 160 From Enforcement of Certain of the Commission's Cost Assignment Rules, WC Docket Nos. 08-190, 07-139, 07-204, 07-273, 07-21, Memorandum Opinion and Order and Notice of Proposed Rulemaking, 23 FCC Rcd 13647 (2008) (ARMIS Forbearance Order paragraph 12), pet. for recon. pending, pet. for review pending, NASUCA v. FCC, Case No. 08-1353 (D.C. Cir. filed Nov. 4, 2008).

The Data

The data presented in this section summarize the most recent ARMIS 43-05 and 43-06 carrier reports.¹² Tables in this year's summary include data from the regional Bell operating companies, Embarq (formerly Sprint), and all other reporting incumbent local exchange carriers. Tables 9.1(a), 9.2(a), 9.3(a), 9.4 and 9.5 cover data for the Bell operating companies, or mandatory price cap companies, and Tables 9.1(b), 9.2(b) and 9.3(b) cover data for smaller non-mandatory price-cap companies. These companies report quality of service data at a study area level which generally represents operations within a given state. Although the companies provide selected company aggregate data, the tables of this section contain summary data recalculated by FCC staff as the composite aggregate of all study areas for each listed entity. This section also includes a fairly extensive summary of data about individual switching outages, including outage durations and numbers of lines affected, for which no company calculated summaries are provided. Switch outage data have also been aggregated to the company level for inclusion in the tables.

The company-level quality of service data included in the tables of this section are derived by calculating sums or weighted averages of data reported at the study area level. In particular, where companies report study area information in terms of percentages or average time intervals, this section presents company composites that are calculated by weighting the percentage or time interval figures from all study areas within that company. For example, we weight the percent of commitments met by the corresponding number of orders provided in the filed data.¹³

In the case of outage data summarized in Tables 9.2, and 9.3, we calculate a number of useful statistics from raw data records for individual switches with outages lasting more than two minutes. These statistics include the total number of events lasting more than two minutes, the average outage duration, the average number of outages per hundred switches, the average number

12 Source data used in preparing this section 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/wcb/eafs. The data are also available from Best Copy and Printing, Inc. at (202) 488-5300. A number of prior-year data summary reports are available through the FCC's Reference Information Center (Courtyard Level) at 445 12th Street, SW, Washington, D.C. 20554.

13 Although companies have prepared their own company composites, we have recalculated a number of them from study area data for presentation in the tables to assure that company averages are calculated in a consistent manner. We weight data involving percentages or time intervals in order to arrive at consistent composite data shown in the tables. Parameters used for weighting in this section 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 multiplying the average installation interval at the individual study area level by the number of orders in that study area, summing the results for all study areas, and then dividing that sum by the total number of orders.

of outages per million access lines, and the average outage line-minutes per thousand access lines and per event. The outage line-minutes parameter is a measure that combines both duration and number of lines affected in a single parameter. We derive this parameter from the raw data by multiplying the number of lines involved in each outage by the duration of the outage and summing the resulting values. We then divide the resulting sum by the total number of thousands of access lines or of events to obtain average outage line-minutes per access line and average outage line minutes per event respectively.

The tables contained in this section cover data for 2008. Table 9.1 provides installation, maintenance and customer complaint data. The installation and maintenance data are presented separately for local services provided to end users and access services provided to interexchange carriers. Table 9.2 shows switch downtime and trunk servicing data. Table 9.3 shows outage data by cause. Table 9.4 presents the percentages of residential, small business and large business customers indicating dissatisfaction with BOC installations, repairs and business offices, as determined by BOC customer perception surveys.¹⁴ Table 9.5 shows the underlying survey sample sizes.

More detailed information on the raw data from which this section has been developed may be found on the Commission's ARMIS web page cited earlier. Tables 9.4 and 9.5 were prepared from data filed only by the Bell operating companies in the ARMIS 43-06 report. The statistics presented in Tables 9.4 and 9.5 are straightforward and reflect the data in the format filed. Complete data descriptions are available in several Commission orders.¹⁵

14 Customer satisfaction data, collected in the 43-06 report and summarized in Tables 9.4 and 9.5, are required to be reported only by the mandatory price-cap carriers.

15 *See supra* note 10.

Table 9.1 (a)
Installation, Maintenance, & Customer Complaints
Bell Companies - 2008

	AT&T Ameritech	AT&T BellSouth	AT&T Pacific	AT&T Southwestern	AT&T SNET	Qwest	Verizon North	Verizon South	Verizon GTE
ACCESS SERVICES PROVIDED TO CARRIERS -- SWITCHED ACCESS									
Percent Installation Commitments Met	99.7	100.0	99.7	98.6	86.4	99.4	99.4	99.7	96.8
Average Installation Interval (days)	21.2	17.7	20.4	23.2	15.4	15.1	12.9	12.4	17.2
Average Repair Interval (hours)	8.3	11.1	11.8	4.3	3.1	2.6	2.5	8.5	8.4
ACCESS SERVICES PROVIDED TO CARRIERS -- SPECIAL ACCESS									
Percent Installation Commitments Met	89.4	99.4	94.6	97.5	98.4	96.5	95.0	94.7	96.3
Average Installation Interval (days)	18.0	14.2	16.3	16.0	19.3	4.3	12.9	12.9	11.8
Average Repair Interval (hours)	6.0	3.5	5.8	5.0	4.1	3.7	4.0	3.7	3.8
LOCAL SERVICES PROVIDED TO RESIDENTIAL AND BUSINESS CUSTOMERS									
Percent Installation Commitments Met	98.4	97.3	99.5	99.1	99.7	99.7	99.0	98.3	98.0
Residence	98.5	98.5	99.6	99.0	99.7	99.8	99.1	98.4	98.2
Business	98.3	89.5	99.3	99.0	99.5	99.1	98.2	97.4	95.8
Average Installation Interval (days)	1.8	1.3	1.2	1.0	1.3	0.1	2.5	1.8	1.1
Residence	1.8	1.2	1.1	0.9	0.7	0.0	2.6	1.7	1.0
Business	1.7	1.3	1.8	1.5	3.4	0.4	1.6	2.1	2.0
Average Out of Service Repair Interval (hours)	25.5	23.6	31.7	29.5	33.9	17.5	27.3	46.2	29.0
Residence	26.4	25.7	32.9	31.0	34.9	18.2	29.4	52.2	31.5
Business	21.3	14.5	24.8	23.8	28.3	14.8	20.4	18.9	15.7
Initial Trouble Reports per Thousand Lines	184.2	252.5	116.2	228.6	164.2	101.9	181.7	161.5	168.4
Total MSA	184.6	242.8	115.2	227.1	161.9	114.8	179.3	154.6	159.1
Total Non MSA	180.3	308.8	143.6	235.3	187.7	43.0	235.8	248.2	206.7
Total Residence	258.6	319.9	167.2	299.9	218.6	128.3	246.2	231.7	211.0
Total Business	81.1	136.5	46.4	105.2	68.8	55.5	96.0	69.4	84.8
Troubles Found per Thousand Lines	147.3	182.7	93.7	174.6	116.1	84.0	148.2	128.6	138.7
Repeat Troubles as a Pct. of Trouble Reports	13.4%	15.4%	9.4%	14.6%	14.1%	20.0%	17.0%	16.1%	15.2%
Res. Complaints per Mill. Res. Access Lines	30.5	202.3	44.0	42.9	134.5	121.3	97.5	1118.4	278.8
Bus. Complaints per Mill. Bus. Access Lines	4.9	65.2	8.1	10.9	15.4	25.2	24.6	68.1	56.3

NA: Not available

Please refer to text for notes and data qualifications

Table 9.1 (b)
Installation, Maintenance, & Customer Complaints
Other Price-Cap Companies - 2008

	Century Tel.	Cincinnati	Citizens	Citizens Frontier	Embarq	Hawaiian Telecom	Iowa Telecom	Windstream Alltel	WindStream Valor
ACCESS SERVICES PROVIDED TO CARRIERS -- SWITCHED ACCESS									
Percent Installation Commitments Met	97.4	95.3	86.1	93.9	92.0	92.5	50.3	99.6	93.1
Average Installation Interval (days)	18.0	54.6	33.6	20.5	10.0	10.5	18.1	4.7	5.7
Average Repair Interval (hours)	206.0	NA	21.6	24.7	2.2	22.8	9.5	3.8	9.2
ACCESS SERVICES PROVIDED TO CARRIERS -- SPECIAL ACCESS									
Percent Installation Commitments Met	88.2	91.7	86.9	96.1	93.1	81.8	85.6	97.4	84.3
Average Installation Interval (days)	18.7	47.4	14.4	17.8	11.9	13.8	1.8	7.2	8.6
Average Repair Interval (hours)	115.5	7.2	21.1	71.4	3.8	23.5	20.3	3.6	11.2
LOCAL SERVICES PROVIDED TO RESIDENTIAL AND BUSINESS CUSTOMERS									
Percent Installation Commitments Met	98.3	99.5	95.1	97.6	96.5	90.4	96.2	96.8	96.6
Residence	99.0	99.7	95.2	97.9	96.8	91.8	96.4	97.2	96.9
Business	95.7	99.1	94.5	96.2	95.2	80.8	95.3	93.5	92.7
Average Installation Interval (days)	0.5	2.2	6.1	4.6	1.6	3.5	2.9	3.6	4.6
Residence	0.4	1.8	6.1	4.4	1.5	3.5	2.9	3.6	4.7
Business	1.2	4.1	6.0	5.6	2.0	3.2	2.7	3.6	4.7
Average Out of Service Repair Interval (hours)	17.0	23.7	23.7	24.6	19.9	32.3	17.4	16.1	16.0
Residence	17.1	24.9	24.1	25.2	20.1	35.7	18.1	16.5	16.1
Business	16.1	15.7	20.8	21.8	18.4	24.7	11.4	13.4	15.6
Initial Trouble Reports per Thousand Lines	197.2	130.4	284.8	290.1	167.8	101.0	173.7	179.8	254.4
Total MSA	176.4	130.4	NA	303.0	140.5	103.4	174.3	159.3	155.2
Total Non MSA	215.7	NA	284.9	278.9	226.1	96.7	173.6	197.4	330.4
Total Residence	241.7	178.7	329.0	329.1	215.0	122.3	203.7	258.6	302.3
Total Business	76.9	47.9	162.8	179.1	72.5	70.1	84.6	63.1	129.2
Troubles Found per Thousand Lines	172.5	120.6	256.8	265.4	95.0	88.1	154.8	150.1	208.5
Repeat Troubles as a Pct. of Trouble Reports	11.5%	10.6%	21.1%	15.1%	20.2%	11.5%	19.3%	17.4%	21.9%
Res. Complaints per Mill. Res. Access Lines	900.1	308.2	674.8	325.4	52.3	58.3	48.4	273.9	335.1
Bus. Complaints per Mill. Bus. Access Lines	215.2	69.1	120.8	103.5	12.2	24.8	0.0	31.2	100.1

NA: Not available

Please refer to text for notes and data qualifications

Table 9.2 (a)
Switch Downtime & Trunk Blocking
Bell Companies - 2008

	AT&T Ameritech	AT&T BellSouth	AT&T Pacific	AT&T Southwestern	AT&T SNET	Qwest	Verizon North	Verizon South	Verizon GTE
Total Access Lines in Thousands	11,627	15,519	12,254	10,034	1,436	10,199	9,292	14,708	10,994
Total Trunk Groups	763	1,299	922	623	88	1357.0	633	1,011	1,504
Total Switches	1,432	1,608	778	1,591	181	1,304	943	1,403	2,411
Switches with Downtime									
Number of Switches	5	12	8	9	1	166	9	26	93
As a Percentage of Total Switches	0.3%	0.7%	1.0%	0.6%	0.6%	12.7%	1.0%	1.9%	3.9%
Average Switch Downtime in Seconds per Switch*									
For All Events	10.6	83.4	70.9	672.3	1.0	77.6	65.8	44.7	634.7
For Unscheduled Events Over 2 Minutes	10.5	83.4	70.7	672.0	1.0	70.3	65.5	37.4	634.1
For Unscheduled Downtime More Than 2 Minutes									
Number of Occurrences or Events	3	7	6	3	1	19	4	13	115
Events per Hundred Switches	0.2	0.4	0.8	0.2	0.6	1.5	0.4	0.9	4.8
Events per Million Access Lines	0.26	0.45	0.49	0.30	0.70	1.86	0.43	0.88	10.46
Average Outage Duration in Minutes	83.8	319.2	152.8	5939.8	3.0	80.4	257.4	67.2	221.6
Average Lines Affected per Event in Thousands	8.7	7.0	23.1	13.2	24.8	8.6	0.5	13.3	2.2
Outage Line-Minutes per Event in Thousands	185.9	486.6	4,430.7	7541.0	74.4	174.2	74.5	1,319.3	219.6
Outage Line-Minutes per 1,000 Access Lines	48.0	219.5	2,169.4	2,254.6	51.8	324.4	32.1	1,166.1	2,296.6
For Scheduled Downtime More Than 2 Minutes									
Number of Occurrences or Events	0	0	0	1	0	3	0	1	1
Events per Hundred Switches	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.1	0.0
Events per Million Access Lines	0.00	0.00	0.00	0.10	0.00	0.29	0.00	0.07	0.09
Average Outage Duration in Minutes	NA	NA	NA	5.8	NA	5.3	NA	155.0	12.8
Avg. Lines Affected per Event in Thousands	NA	NA	NA	8.7	NA	13.8	NA	2.3	23.2
Outage Line-Minutes per Event in Thousands	NA	NA	NA	50.4	NA	83.6	NA	354.8	295.3
Outage Line-Minutes per 1,000 Access Lines	0.0	0.0	0.0	5.0	0.0	24.6	0.0	24.1	26.9
% Common Trunk Grps. Exceeding Blocking Objectives:	0.00%	12.78%	1.41%	3.85%	0.00%	0.3	3.16%	9.40%	0.66%

* Aggregate downtime divided by total number of company switches.

NA: Not available

Please refer to text for notes and data qualifications

Table 9.2 (b)
Switch Downtime & Trunk Blocking
Other Price-Cap Companies - 2008

	Century Tel.	Cincinnati	Citizens	Citizens Frontier	Embarq	Hawaiian Telecom	Iowa Telecom	Windstream Alltel	WindStream Valor
Total Access Lines in Thousands	498	705	1,034	594	5,688	493	193	636	433
Total Trunk Groups	299	44	244	308	243	76	53	97	253
Total Switches	187	91	208	74	1,320	157	270	243	265
Switches with Downtime									
Number of Switches	0	3	12	5	1	6	29	57	81
As a Percentage of Total Switches	0.0%	3.3%	5.8%	6.8%	0.1%	3.8%	10.7%	23.5%	30.6%
Average Switch Downtime in Seconds per Switch*									
For All Events	0.0	33.7	827.9	932.4	45.2	587.0	7,973.8	12,458.5	36,571.2
For Unscheduled Events Over 2 Minutes	NA	NA	827.9	466.2	45.2	587.0	7,973.8	12,149.4	36,076.8
For Unscheduled Downtime More Than 2 Minutes									
Number of Occurrences or Events	0	0	14	3	1	7	29	164	380
Events per Hundred Switches	0.0	0.0	6.7	4.1	0.1	4.5	10.7	67.5	143.4
Events per Million Access Lines	0.00	0.00	13.54	5.05	0.18	14.21	149.99	257.82	877.16
Average Outage Duration in Minutes	NA	NA	205.0	191.7	994.0	219.4	1237.3	300.0	419.3
Average Lines Affected per Event in Thousands	NA	NA	3.4	1.9	25.8	3.4	0.6	3.0	1.2
Outage Line-Minutes per Event in Thousands	NA	NA	643.4	436.3	25,693.9	842.9	515.4	1,147.6	408.4
Outage Line-Minutes per 1,000 Access Lines	0.0	0.0	8,713.8	2,203.6	4,517.4	11,974.5	77,300.8	295,875.5	358,201.1
For Scheduled Downtime More Than 2 Minutes									
Number of Occurrences or Events	0	0	0	3	0	0	0	14	13
Events per Hundred Switches	0.0	0.0	0.0	4.1	0.0	0.0	0.0	5.8	4.9
Events per Million Access Lines	0.00	0.00	0.00	5.05	0.00	0.00	0.00	22.01	30.01
Average Outage Duration in Minutes	NA	NA	NA	191.7	NA	NA	NA	86.4	160.6
Avg. Lines Affected per Event in Thousands	NA	NA	NA	1.9	NA	NA	NA	4.4	1.4
Outage Line-Minutes per Event in Thousands	NA	NA	NA	440.0	NA	NA	NA	306.1	100.9
Outage Line-Minutes per 1,000 Access Lines	0.0	0.0	0.0	2,221.9	0.0	0.0	0.0	6,737.1	3,028.0
% Common Trunk Grps. Exceeding Blocking Objectives	2.01%	43.18%	0.00%	8.12%	17.70%	0.00%	0.00%	0.00%	0.00%

* Aggregate downtime divided by total number of company switches.

NA: Not available

Please refer to text for notes and data qualifications

Table 9.3 (a)
Switch Downtime Causes -- Outages More Than 2 Minutes in Duration
Bell Companies - 2008

	AT&T Ameritech	AT&T BellSouth	AT&T Pacific	AT&T Southwestern	AT&T SNET	Qwest	Verizon North	Verizon South	Verizon GTE
Total Number of Outages									
1. Scheduled	0	0	0	1	0	3	0	1	1
2. Procedural Errors -- Telco. (Inst./Maint.)	0	1	2	1	0	0	0	3	6
3. Procedural Errors -- Telco. (Other)	0	0	0	0	0	0	0	0	0
4. Procedural Errors -- System Vendors	0	0	0	0	0	3	0	0	0
5. Procedural Errors -- Other Vendors	1	0	1	0	0	0	1	0	1
6. Software Design	0	0	0	0	1	0	0	2	1
7. Hardware Design	0	0	0	0	0	0	0	0	1
8. Hardware Failure	0	2	3	0	0	12	2	3	39
9. Natural Causes	1	2	0	2	0	1	0	0	0
10. Traffic Overload	0	0	0	0	0	0	0	0	0
11. Environmental	0	0	0	0	0	0	0	1	6
12. External Power Failure	0	0	0	0	0	1	0	2	54
13. Massive Line Outage	0	0	0	0	0	0	0	0	0
14. Remote	0	0	0	1	0	3	0	1	1
15. Other/Unknown	1	0	0	0	0	0	1	2	5
Total Outage Line-Minutes per Thousand Access Lines									
1. Scheduled	0.0	0.0	0.0	5.0	0.0	24.6	0.0	24.1	26.9
2. Procedural Errors -- Telco. (Inst./Maint.)	0.0	5.4	15.2	40.8	0.0	0.0	0.0	25.2	211.5
3. Procedural Errors -- Telco. (Other)	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	6.7
4. Procedural Errors -- System Vendors	0.0	0.0	0.0	0.0	0.0	31.6	0.0	0.0	0.0
5. Procedural Errors -- Other Vendors	25.4	0.0	2,069.2	0.0	0.0	0.0	1.0	0.0	8.6
6. Software Design	0.0	0.0	0.0	0.0	51.8	0.0	0.0	10.1	0.1
7. Hardware Design	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.2
8. Hardware Failure	0.0	44.9	84.9	0.0	0.0	237.9	20.0	47.6	471.9
9. Natural Causes	4.9	167.6	0.0	2,213.8	0.0	47.6	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	899.4	49.0
12. External Power Failure	0.0	0.0	0.0	0.0	0.0	5.6	0.0	183.5	1,520.7
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	1.8	0.0	0.0	1.4
15. Other/Unknown	17.7	0.0	0.0	0.0	0.0	0.0	11.1	0.3	14.5

Please refer to text for notes and data qualifications

Table 9.3 (b)
Switch Downtime Causes -- Outages More Than 2 Minutes in Duration
Other Price-Cap Companies - 2008

	Century Tel.	Cincinnati	Citizens	Citizens Frontier	Embarq	Hawaiian Telecom	Iowa Telecom	Windstream Alltel	WindStream Valor
Total Number of Outages									
1. Scheduled	0	0	0	3	0	0	0	14	13
2. Procedural Errors -- Telco. (Inst./Maint.)	0	0	1	0	0	1	6	2	3
3. Procedural Errors -- Telco. (Other)	0	0	0	0	0	0	0	0	0
4. Procedural Errors -- System Vendors	0	0	0	0	0	0	0	1	0
5. Procedural Errors -- Other Vendors	0	0	2	0	0	0	5	1	3
6. Software Design	0	0	2	0	0	0	6	0	5
7. Hardware Design	0	0	0	0	0	0	0	0	0
8. Hardware Failure	0	0	3	0	0	3	1	89	131
9. Natural Causes	0	0	1	0	0	0	0	5	76
10. Traffic Overload	0	0	0	0	0	0	0	1	0
11. Environmental	0	0	1	0	0	0	4	1	11
12. External Power Failure	0	0	4	3	1	3	5	7	34
13. Massive Line Outage	0	0	0	0	0	0	1	21	30
14. Remote	0	0	0	3	0	0	0	14	13
15. Other/Unknown	0	0	0	0	0	0	1	30	72
Total Outage Line-Minutes per Thousand Access Lines									
1. Scheduled	0.0	0.0	0.0	2,221.9	0.0	0.0	0.0	6,737.1	3,028.0
2. Procedural Errors -- Telco. (Inst./Maint.)	0.0	0.0	83.4	0.0	0.0	344.0	1,234.5	233.0	268.2
3. Procedural Errors -- Telco. (Other)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,599.9	1,168.4
4. Procedural Errors -- System Vendors	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,080.5	0.0
5. Procedural Errors -- Other Vendors	0.0	0.0	78.3	0.0	0.0	0.0	2,596.9	0.1	5,422.0
6. Software Design	0.0	0.0	758.8	0.0	0.0	0.0	3,476.1	0.0	339.9
7. Hardware Design	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8. Hardware Failure	0.0	0.0	1,963.6	0.0	0.0	3,672.4	2,280.0	162,733.0	46,463.4
9. Natural Causes	0.0	0.0	2,491.2	0.0	0.0	0.0	0.0	9,603.5	67,526.7
10. Traffic Overload	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.7	0.0
11. Environmental	0.0	0.0	52.5	0.0	0.0	0.0	56,230.5	43.2	2,190.3
12. External Power Failure	0.0	0.0	3,286.1	2,203.6	4,517.4	7,958.1	11,390.0	6,286.4	7,415.2
13. Massive Line Outage	0.0	0.0	0.0	0.0	0.0	0.0	50.1	102,386.7	126,013.4
14. Remote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	244.3	13,807.0
15. Other/Unknown	0.0	0.0	0.0	0.0	0.0	0.0	42.7	10,642.1	87,586.6

Please refer to text for notes and data qualifications

Table 9.4
Customer Perception Surveys - Percent of Customers Dissatisfied
Bell Companies - 2008

	AT&T Ameritech	AT&T BellSouth	AT&T Pacific	AT&T Southwestern	AT&T SNET	Qwest	Verizon North	Verizon South	Verizon GTE
Installations:									
Residential	7.93%	7.22%	7.64%	8.95%	13.18%	4.52%	9.31%	11.24%	10.03%
Small Business	10.08%	8.59%	7.78%	7.47%	11.39%	6.32%	14.44%	16.98%	13.98%
Large Business	NA	NA	NA	NA	NA	NA	16.11%	14.12%	13.16%
Repairs:									
Residential	8.97%	11.54%	9.13%	9.62%	14.00%	9.24%	18.91%	27.48%	16.79%
Small Business	8.02%	6.30%	6.50%	7.73%	12.21%	8.56%	14.64%	14.98%	12.29%
Large Business	NA	NA	NA	NA	NA	NA	9.69%	12.47%	12.57%
Business Office:									
Residential	12.14%	10.43%	7.63%	9.61%	12.04%	4.36%	12.39%	16.03%	15.63%
Small Business	7.33%	9.31%	6.08%	7.90%	12.21%	6.09%	10.78%	13.22%	13.80%
Large Business	NA	NA	NA	NA	11.96%	NA	27.86%	33.42%	28.82%

NA: Not available

Please refer to text for notes and data qualifications

Table 9.5
Customer Perception Surveys - Sample Sizes
Bell Companies - 2008

	AT&T Ameritech	AT&T BellSouth	AT&T Pacific	AT&T Southwestern	AT&T SNET	Qwest	Verizon North	Verizon South	Verizon GTE
Installations:									
Residential	6,075	6,077	5,958	5,989	2,428	2,669	15,916	20,149	26,087
Small Business	6,012	6,043	6,057	5,996	316	807	9,824	11,814	12,228
Large Business	0	0	0	0	0	0	267	354	190
Repairs:									
Residential	6,064	6,058	6,169	5,601	1,229	4,256	14,474	16,698	18,944
Small Business	6,068	4,265	5,984	5,805	893	2,410	9,857	11,178	11,218
Large Business	0	0	0	0	0	0	258	369	191
Business Office:									
Residential	12,409	10,380	12,045	11,979	1,761	21,439	10,349	12,776	18,234
Small Business	11,611	9,767	10,837	11,372	598	3,188	3,470	6,031	5,427
Large Business	0	0	0	0	184	0	219	325	170

Please refer to text for notes and data qualifications

Customer Response

Publication: 2009 Universal Service Monitoring Report

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.

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| Data accuracy | () | () | () | () | () |
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