

9. Quality of Service

Introduction

This section summarizes various kinds of service quality data filed by the regional Bell operating companies and other price-cap regulated incumbent local exchange carriers for calendar year 2009.¹ 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 in tabular form for inclusion in this section of the Monitoring Report and publication in its annual report on quality of service trends.² The tables 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 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

1 See *infra* notes 9 and 10 for a list of large and small carriers reporting data for this summary.

2 The latest report, which covers data for 2008, was released December 24, 2009. See Industry Analysis and Technology Division, Wireline Competition Bureau, Federal Communications Commission, *Quality of Service of Incumbent Local Exchange Carriers* (December 2009). That report (as a PDF file) and previous reports can be found on the Commission's website at <http://www.fcc.gov/wcb/iatd/stats.html>. In any given year, the quality of service summary typically includes data revisions filed with the Commission after the cutoff date for data included in the Monitoring Report. The quality of service summary also tracks changes in key service quality indicators over multiple years, and uses statistical methods to determine the significance of those changes; discusses the quality and reliability of the data; and provides information regarding proper data interpretation.

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.

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 In 1996, pursuant to requirements in the Telecommunications Act of 1996,⁷ the Commission reduced the frequency of data reporting for ARMIS reports to annual submissions and, in 1997, further clarified relevant definitions.⁸ These

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

8 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).

clarifications have been reflected in filed data starting with the 1997 calendar year. Most recently, the data have been filed in April each year.

The Commission has released service quality summary reports incorporating ARMIS data annually since 1993. This section of the Monitoring Report summarizes current year data from all reporting large⁹ and small¹⁰ price-cap companies, which are also used in preparation of the summary report.

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 condition that the carriers continue to collect service quality data and file these ARMIS reports for a two year period following the effective date of the forbearance order. All price-cap carriers agreed to this condition. The two-year period has now ended and reports will no longer be filed.¹¹

9 The larger companies of this summary are AT&T Ameritech, AT&T BellSouth, AT&T Pacific, AT&T SNET, AT&T Southwestern, CenturyLink-Embarq, Qwest, Verizon GTE, Verizon North, and Verizon South.

10 The smaller companies of this summary are Windstream-Alltel, Cincinnati Bell, Citizens, Citizens Frontier, CenturyLink-Century Tel, Hawaiian Telecom, Iowa Telecom, Windstream-Valor, Windstream-Other, Fairpoint Communications, and Telecommunications of Puerto Rico.

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), *pet. for recon. pending, pet. for review pending, NASUCA v. FCC*, Case No. 08-1353 (D.C. Cir. filed Nov. 4, 2008). In its most recent ARMIS Forbearance Order, the Commission recognized the potential for information, such as that presented in the annual service quality report to help consumers make informed choices in a competitive market, but only if the data were available from all relevant providers.

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 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 of outages per million access lines, and the average outage line-minutes per thousand access lines

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.

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 2009. 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 8.

Table 9.1 (a)
Installation, Maintenance, & Customer Complaints
Bell Companies - 2009

	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	99.9	100.0	99.8	99.4	95.1	79.3	99.6	99.9	96.4
Average Installation Interval (days)	20.6	15.6	18.2	20.7	17.1	12.9	17.3	13.0	19.8
Average Repair Interval (hours)	5.7	14.6	4.8	3.0	5.5	3.1	2.7	11.9	11.2
ACCESS SERVICES PROVIDED TO CARRIERS -- SPECIAL ACCESS									
Percent Installation Commitments Met	94.9	98.6	94.5	98.1	91.1	83.4	95.8	96.0	96.5
Average Installation Interval (days)	17.3	14.8	16.2	14.9	18.9	4.6	9.8	10.4	12.4
Average Repair Interval (hours)	4.9	4.3	5.9	4.8	4.6	2.9	7.6	4.8	4.3
LOCAL SERVICES PROVIDED TO RESIDENTIAL AND BUSINESS CUSTOMERS									
Percent Installation Commitments Met	98.6	97.4	99.6	99.0	98.5	99.8	99.1	98.8	98.4
Residence	98.6	98.4	99.6	98.9	98.4	99.8	99.2	98.9	98.8
Business	98.4	91.2	99.4	99.1	98.9	99.4	98.3	98.1	94.8
Average Installation Interval (days)	1.8	1.2	1.2	1.0	1.5	0.0	4.2	1.5	0.8
Residence	1.9	1.2	1.1	0.9	1.0	0.0	4.6	1.4	0.6
Business	1.7	1.2	1.8	1.4	3.3	0.2	1.6	1.7	3.4
Average Out of Service Repair Interval (hours)	26.1	33.1	35.5	32.4	19.3	17.5	30.1	49.8	28.2
Residence	27.5	36.7	36.5	33.9	19.5	18.0	32.5	57.3	30.8
Business	20.4	17.3	29.3	26.4	18.3	15.3	22.8	18.3	14.0
Initial Trouble Reports per Thousand Lines	167.4	248.6	114.6	216.0	148.0	98.3	165.5	159.9	163.4
Total MSA	166.8	236.1	113.5	209.5	145.8	111.4	162.9	151.6	151.7
Total Non MSA	173.8	318.6	143.0	245.3	169.8	40.1	225.1	263.0	210.7
Total Residence	237.0	315.1	166.1	286.1	196.8	126.3	226.4	232.4	209.7
Total Business	76.4	132.8	47.2	102.7	69.2	50.9	90.1	69.4	77.2
Troubles Found per Thousand Lines	124.2	184.6	85.8	158.2	103.4	80.2	137.0	132.0	136.3
Repeat Troubles as a Pct. of Trouble Reports	15.3%	14.9%	10.5%	13.8%	14.2%	19.4%	17.3%	16.6%	15.6%
Res. Complaints per Mill. Res. Access Lines	17.1	218.4	35.9	71.0	159.6	137.2	109.1	968.6	272.6
Bus. Complaints per Mill. Bus. Access Lines	3.6	26.3	7.0	13.9	31.1	28.0	29.5	68.9	62.4

NA: Not available

Please refer to text for notes and data qualifications

Table 9.1 (b)
Installation, Maintenance, & Customer Complaints
Other Price-Cap Companies - 2009

	--CenturyLink -- Embarq Century Tel.	Cincinnati	Citizens	Citizens Frontier	Fair- point	Hawaiian Telecom	Iowa Telecom	Puerto- Rico	-- Windstream -- Alltel	Valor	Other	
ACCESS SERVICES PROVIDED TO CARRIERS -- SWITCHED ACCESS												
Percent Installation Commitments Met	91.9	92.4	99.9	93.3	85.8	22.8	85.8	64.6	0.1	99.0	100.0	93.1
Average Installation Interval (days)	10.7	23.8	30.0	27.2	23.4	31.5	23.4	20.0	84.1	4.8	10.0	8.7
Average Repair Interval (hours)	2.2	140.7	NA	33.5	17.2	61.0	17.2	20.1	508.7	3.4	5.5	4.1
ACCESS SERVICES PROVIDED TO CARRIERS -- SPECIAL ACCESS												
Percent Installation Commitments Met	90.9	93.6	95.0	83.4	94.4	47.7	94.4	72.2	15.3	96.2	96.3	96.1
Average Installation Interval (days)	10.6	17.7	32.0	15.7	16.6	26.4	16.6	14.3	53.3	7.0	7.2	7.6
Average Repair Interval (hours)	3.8	106.3	6.2	23.3	56.2	21.3	56.2	15.5	16.3	4.3	4.1	4.1
LOCAL SERVICES PROVIDED TO RESIDENTIAL AND BUSINESS CUSTOMERS												
Percent Installation Commitments Met	96.5	98.5	99.6	94.4	97.9	73.4	97.9	97.4	90.4	96.2	96.1	96.1
Residence	96.9	99.2	99.7	95.2	97.8	74.6	97.8	97.5	91.8	96.7	96.7	96.5
Business	95.1	96.3	99.2	91.0	98.1	65.6	98.1	97.0	77.4	90.8	90.4	90.8
Average Installation Interval (days)	1.6	0.4	2.2	4.3	3.9	1.9	3.9	3.1	13.1	4.1	3.4	3.7
Residence	1.6	0.3	1.6	4.4	4.3	1.8	4.3	3.1	9.8	3.9	3.4	3.7
Business	1.6	0.8	4.0	4.2	3.0	3.1	3.0	2.8	46.0	5.0	3.6	4.4
Average Out of Service Repair Interval (hours)	18.8	16.0	28.7	26.3	24.2	34.3	24.2	14.5	34.5	8.5	5.4	6.7
Residence	19.2	15.9	29.7	26.3	24.7	35.5	24.7	14.9	39.1	8.6	5.3	6.7
Business	16.6	16.6	23.1	23.3	20.9	25.4	20.9	10.9	10.7	7.7	5.4	6.9
Initial Trouble Reports per Thousand Lines	162.8	164.5	126.8	331.6	304.0	295.5	304.0	147.4	514.8	225.0	229.1	182.2
Total MSA	134.7	135.4	126.8	NA	300.8	249.4	300.8	159.0	510.2	189.1	228.5	180.1
Total Non MSA	221.0	191.0	NA	331.6	306.7	337.4	306.7	144.3	622.6	264.5	229.6	184.9
Total Residence	211.0	205.6	178.7	388.3	362.8	413.0	362.8	172.6	638.3	291.6	269.5	226.3
Total Business	68.3	62.3	44.4	175.1	143.6	95.0	143.6	76.0	249.0	86.7	119.2	72.8
Troubles Found per Thousand Lines	107.2	142.5	115.3	307.5	280.9	271.9	280.9	132.9	476.9	176.8	184.5	139.9
Repeat Troubles as a Pct. of Trouble Reports	21.3%	13.7%	10.7%	16.8%	17.3%	18.2%	17.3%	13.2%	17.2%	18.2%	19.0%	14.8%
Res. Complaints per Mill. Res. Access Lines	13.0	64.8	480.9	729.8	448.6	2947.0	448.6	29.9	338.9	366.0	166.9	70.3
Bus. Complaints per Mill. Bus. Access Lines	4.6	0.0	84.8	104.4	34.0	918.3	34.0	0.0	39.2	74.8	8.3	14.9

NA: Not available

Please refer to text for notes and data qualifications

Table 9.2 (a)
Switch Downtime & Trunk Blocking
Bell Companies - 2009

	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	10,143	14,065	10,892	8,853	1,259	9,010	8,283	13,344	9,754
Total Trunk Groups	743	1,167	811	615	89	1363.0	581	981	1,503
Total Switches	1,423	1,606	778	1,584	181	1,296	934	1,412	2,417
Switches with Downtime									
Number of Switches	6	9	3	12	0	232	8	11	75
As a Percentage of Total Switches	0.4%	0.6%	0.4%	0.8%	0.0%	17.9%	0.9%	0.8%	3.1%
Average Switch Downtime in Seconds per Switch*									
For All Events	1.4	10.0	0.4	16.1	0.0	290.4	69.0	47.3	914.3
For Unscheduled Events Over 2 Minutes	0.1	9.9	0.2	12.6	NA	279.4	68.9	47.2	914.3
For Unscheduled Downtime More Than 2 Minutes									
Number of Occurrences or Events	1	5	1	1	0	14	7	12	82
Events per Hundred Switches	0.1	0.3	0.1	0.1	0.0	1.1	0.7	0.8	3.4
Events per Million Access Lines	0.10	0.36	0.09	0.11	0.00	1.55	0.85	0.90	8.41
Average Outage Duration in Minutes	3.0	52.8	3.0	333.0	NA	431.1	153.2	92.6	449.2
Average Lines Affected per Event in Thousands	20.7	11.9	0.2	15.0	NA	2.3	10.7	7.7	2.3
Outage Line-Minutes per Event in Thousands	62.0	252.4	0.6	5006.3	NA	362.3	2,800.1	299.4	571.3
Outage Line-Minutes per 1,000 Access Lines	6.1	89.7	0.1	565.5	0.0	562.9	2,366.4	269.2	4,802.8
For Scheduled Downtime More Than 2 Minutes									
Number of Occurrences or Events	1	0	0	4	0	8	0	0	0
Events per Hundred Switches	0.1	0.0	0.0	0.3	0.0	0.6	0.0	0.0	0.0
Events per Million Access Lines	0.10	0.00	0.00	0.45	0.00	0.89	0.00	0.00	0.00
Average Outage Duration in Minutes	28.0	NA	NA	22.0	NA	10.1	NA	NA	NA
Avg. Lines Affected per Event in Thousands	2.8	NA	NA	8.7	NA	12.9	NA	NA	NA
Outage Line-Minutes per Event in Thousands	77.3	NA	NA	115.9	NA	54.5	NA	NA	NA
Outage Line-Minutes per 1,000 Access Lines	7.6	0.0	0.0	52.4	0.0	48.4	0.0	0.0	0.0
% Common Trunk Grps. Exceeding Blocking Objectives	1.21%	4.63%	1.60%	1.14%	1.12%	0.3	18.59%	79.00%	0.60%

* 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 - 2009

	--CenturyLink -- Embarq Century Tel.	Cincinnati Tel.	Cincinnati Tel.	Citizens Citizens	Citizens Frontier	Fair- point	Hawaiian Telecom	Iowa Telecom	Puerto- Rico	-- Windstream -- Alltel Valor	Other	
Total Access Lines in Thousands	5,121	476	641	1,008	548	1,034	548	181	804	534	451	1,636
Total Trunk Groups	423	339	45	248	91	47	91	50	105	97	253	604
Total Switches	1,321	187	91	211	74	348	74	276	15	243	265	640
Switches with Downtime												
Number of Switches	2	0	1	13	2	0	2	14	2	52	85	259
As a Percentage of Total Switches	0.2%	0.0%	1.1%	6.2%	2.7%	0.0%	2.7%	5.1%	13.3%	21.4%	32.1%	40.5%
Average Switch Downtime in Seconds per Switch*												
For All Events	5.9	0.0	528.1	2,807.2	81.1	0.0	81.1	837.3	4,012.0	30,511.1	20,314.4	11,368.7
For Unscheduled Events Over 2 Minutes	5.9	NA	NA	2807.2	NA	NA	NA	837.3	4012.0	27976.0	15268.1	7,687.9
For Unscheduled Downtime More Than 2 Minutes												
Number of Occurrences or Events	2	0	0	13	0	0	0	14	2	371	310	472
Events per Hundred Switches	0.2	0.0	0.0	6.2	0.0	0.0	0.0	5.1	13.3	152.7	117.0	73.8
Events per Million Access Lines	0.39	0.00	0.00	12.89	0.00	0.00	0.00	77.31	2.49	694.35	688.01	288.48
Average Outage Duration in Minutes	64.5	NA	NA	759.4	NA	NA	NA	275.1	501.5	305.4	217.5	173.7
Average Lines Affected per Event in Thousands	50.8	NA	NA	4.0	NA	NA	NA	0.4	32.6	1.4	1.3	1.8
Outage Line-Minutes per Event in Thousands	1740.3	NA	NA	2392.6	NA	NA	NA	94.2	16312.7	300.4	354.6	268.5
Outage Line-Minutes per 1,000 Access Lines	679.7	0.0	0.0	30,852.5	0.0	0.0	0.0	7,281.4	40,583.4	208,552.4	243,953.1	77,463.9
For Scheduled Downtime More Than 2 Minutes												
Number of Occurrences or Events	0	0	0	0	0	0	0	0	0	18	16	19
Events per Hundred Switches	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.4	6.0	3.0
Events per Million Access Lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.69	35.51	11.61
Average Outage Duration in Minutes	NA	NA	NA	NA	NA	NA	NA	NA	NA	240.1	87.5	50.3
Avg. Lines Affected per Event in Thousands	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0	2.0	1.2
Outage Line-Minutes per Event in Thousands	NA	NA	NA	NA	NA	NA	NA	NA	NA	175.3	309.0	54.1
Outage Line-Minutes per 1,000 Access Lines	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5,903.9	10,974.1	628.5
% Common Trunk Grps. Exceeding Blocking Objective	10.87%	5.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.33%

* 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 - 2009

	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	1	0	0	4	0	8	0	0	0
2. Procedural Errors -- Telco. (Inst./Maint.)	0	2	1	0	0	0	0	0	1
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	0	0
5. Procedural Errors -- Other Vendors	0	0	0	0	0	1	0	0	2
6. Software Design	0	0	0	0	0	0	1	3	0
7. Hardware Design	0	0	0	0	0	0	0	0	0
8. Hardware Failure	1	0	0	1	0	12	4	8	36
9. Natural Causes	0	3	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	1	1	1
12. External Power Failure	0	0	0	0	0	1	1	0	34
13. Massive Line Outage	0	0	0	0	0	0	0	0	1
14. Remote	1	0	0	4	0	8	0	0	0
15. Other/Unknown	0	0	0	0	0	0	0	0	0
Total Outage Line-Minutes per Thousand Access Lines									
1. Scheduled	7.6	0.0	0.0	52.4	0.0	48.4	0.0	0.0	0.0
2. Procedural Errors -- Telco. (Inst./Maint.)	0.0	7.0	0.1	0.0	0.0	0.0	0.0	0.0	19.5
3. Procedural Errors -- Telco. (Other)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.9
4. Procedural Errors -- System Vendors	0.0	0.0	0.0	0.0	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	50.6	0.0	0.0	1,060.7
6. Software Design	0.0	0.0	0.0	0.0	0.0	0.0	43.3	8.0	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	6.1	0.0	0.0	565.5	0.0	383.5	41.6	233.5	690.4
9. Natural Causes	0.0	82.8	0.0	0.0	0.0	0.0	0.0	0.0	1,200.3
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	2,100.5	27.8	504.3
12. External Power Failure	0.0	0.0	0.0	0.0	0.0	128.8	180.9	0.0	988.8
13. Massive Line Outage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	257.7
14. Remote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	68.0
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 9.3 (b)
Switch Downtime Causes -- Outages More Than 2 Minutes in Duration
Other Price-Cap Companies - 2009

	-- CenturyLink -- Embarq Century Tel.	-- Cincinnati Citizens	Citizens Frontier	Citizens Fair- point	Hawaiian Telecom	Iowa Telecom	Puerto- Rico	-- Windstream -- Alltel Valor	Other			
Total Number of Outages												
1. Scheduled	0	0	0	0	0	0	0	18	16	19		
2. Procedural Errors -- Telco. (Inst./Main)	0	0	0	0	0	0	0	3	5	11		
3. Procedural Errors -- Telco. (Other)	0	0	0	0	0	0	0	0	0	0		
4. Procedural Errors -- System Vendors	0	0	0	0	0	0	0	1	2	6		
5. Procedural Errors -- Other Vendors	0	0	0	2	0	0	0	4	0	11	7	22
6. Software Design	0	0	0	1	0	0	0	7	0	2	6	8
7. Hardware Design	0	0	0	0	0	0	0	0	0	2	9	12
8. Hardware Failure	1	0	0	4	0	0	0	1	134	107	173	
9. Natural Causes	0	0	0	3	0	0	0	0	142	51	93	
10. Traffic Overload	0	0	0	0	0	0	0	0	1	1	0	
11. Environmental	0	0	0	0	0	0	0	0	2	3	3	
12. External Power Failure	0	0	0	3	0	0	0	3	0	29	42	43
13. Massive Line Outage	0	0	0	0	0	0	0	0	0	24	53	46
14. Remote	0	0	0	0	0	0	0	0	0	18	16	19
15. Other/Unknown	0	0	0	0	0	0	0	1	8	12	29	
Total Outage Line-Minutes per Thousand Access Lines												
1. Scheduled	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5,903.9	10,974.1	628.5	
2. Procedural Errors -- Telco. (Inst./Main)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6,110.4	3,130.8	3,158.8	
3. Procedural Errors -- Telco. (Other)	154.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	49.7	6,276.6	26.5	
4. Procedural Errors -- System Vendors	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	92.1	37,635.9	189.4	
5. Procedural Errors -- Other Vendors	0.0	0.0	0.0	626.1	0.0	0.0	0.0	1,839.9	0.0	16,428.5	8,668.3	12,538.6
6. Software Design	0.0	0.0	0.0	26.0	0.0	0.0	0.0	4,241.9	0.0	1,410.8	3,030.2	1,289.4
7. Hardware Design	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.9	598.2	673.3
8. Hardware Failure	525.3	0.0	0.0	1,938.8	0.0	0.0	0.0	0.0	13,768.5	26,880.3	65,259.5	13,338.6
9. Natural Causes	0.0	0.0	0.0	27,664.0	0.0	0.0	0.0	0.0	0.0	109,724.8	14,410.8	5,509.9
10. Traffic Overload	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	7.4	0.0
11. Environmental	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	68.6	2,805.9	30.2
12. External Power Failure	0.0	0.0	0.0	597.6	0.0	0.0	0.0	1,199.6	0.0	25,483.2	25,107.0	1,885.4
13. Massive Line Outage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15,861.3	74,820.5	30,479.9
14. Remote	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,841.4	735.6	512.7
15. Other/Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26,814.8	4,587.5	1,466.4	7,831.2

Please refer to text for notes and data qualifications

**Table 9.4
Customer Perception Surveys - Percent of Customers Dissatisfied
Bell Companies - 2009**

	AT&T Ameritech	AT&T BellSouth	AT&T Pacific	AT&T Southwestern	AT&T SNET	Qwest	Verizon North	Verizon South	Verizon GTE
Installations:									
Residential	8.57%	9.45%	7.29%	8.13%	14.13%	5.77%	9.54%	11.60%	10.17%
Small Business	10.88%	9.99%	7.57%	9.39%	16.28%	9.62%	15.58%	17.62%	15.21%
Large Business	NA	NA	NA	NA	3.49%	NA	10.73%	8.15%	6.98%
Repairs:									
Residential	9.53%	12.78%	11.57%	11.07%	10.73%	10.34%	17.28%	25.07%	17.13%
Small Business	8.46%	6.63%	9.83%	9.74%	9.56%	12.04%	15.42%	15.21%	11.86%
Large Business	NA	NA	NA	NA	4.79%	NA	5.19%	9.51%	15.11%
Business Office:									
Residential	12.56%	10.07%	6.69%	8.89%	7.79%	3.67%	13.03%	16.61%	16.75%
Small Business	8.44%	9.13%	6.53%	8.31%	12.82%	3.86%	11.04%	13.15%	15.59%
Large Business	NA	NA	NA	NA	8.38%	NA	24.63%	28.15%	21.67%

NA: Not available

Please refer to text for notes and data qualifications

**Table 9.5
Customer Perception Surveys - Sample Sizes
Bell Companies - 2009**

	AT&T Ameritech	AT&T BellSouth	AT&T Pacific	AT&T Southwestern	AT&T SNET	Qwest	Verizon North	Verizon South	Verizon GTE
Installations:									
Residential	1,307	2,043	1,358	1,389	283	4,520	12,344	20,408	27,179
Small Business	5,063	8,021	5,275	5,188	393	883	6,577	8,401	10,794
Large Business	0	0	0	0	6,467	0	317	356	129
Repairs:									
Residential	1,291	2,050	1,331	1,346	233	54,906	12,354	18,399	17,194
Small Business	5,097	8,076	5,200	4,498	722	3,194	6,087	9,421	10,763
Large Business	0	0	0	0	6,370	0	308	347	139
Business Office:									
Residential	1,664	2,065	1,660	1,945	244	16,809	11,018	14,680	15,077
Small Business	6,054	9,030	5,575	5,862	780	3,113	3,779	4,333	6,108
Large Business	0	0	0	0	8,397	0	272	341	120

Please refer to text for notes and data qualifications