

## 10. Infrastructure

This section updates infrastructure data contained in section 8 of the May 1997 Monitoring Report in CC Docket No. 87-339, which had included data covering the years 1991 through 1995. The data are now filed each year at the beginning of April and are summarized from ARMIS Infrastructure filings of major carriers (FCC report 43-07).<sup>1</sup> To date, information is available for the years 1989 through 1997. This summary covers the 5-year period 1993 through 1997 and is intended to highlight underlying recent changes in the use of technology in the local telephone company plant.

The ARMIS 43-07 reports are filed only by those local exchange companies originally subject to mandatory price-cap regulation -- the Bell operating companies and the telephone operating companies owned by GTE.<sup>2</sup> Together, these large companies provide service to more than 90% of the nation's telephone lines. The data are generally filed at the "study area" level (an operating company's operations within a state). The state-by-state data, including, in some cases, disaggregation into Metropolitan Statistical Area (MSA) and non-MSA detail, are available from the **FCC-State Link** electronic bulletin board.<sup>3</sup> They are also available on the ARMIS internet site (<http://www.fcc.gov/ccb/armis/db/>).

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- 1 ARMIS, an acronym for Automated Reporting Management Information System, is a repository of financial, plant, demand, and quality of service data needed to administer various provisions of the Commission's Rules. Additional infrastructure data are contained in the ARMIS 43-08 report. See *Statistics of Communications Common Carriers*, published annually by the FCC (Industry Analysis Division) for a compilation of 43-08 infrastructure data.
  - 2 See *Policy and Rules Concerning Rates for Dominant Carriers*, CC Docket No. 87-313, FCC Rcd 6786 (1990) (LEC Price Cap Order), *Erratum*, 5 FCC Rcd 7664 (Com. Car. Bur. 1990). See also *Policy and Rules Concerning Rates for Dominant Carriers*, CC Docket No. 87-313, 8 FCC Rcd 7474 (Common Carrier Bureau 1993).
  - 3 Infrastructure summary reports released April 24, 1995 and March 13, 1997 are available from our **FCC-State Link** internet site (<http://www.fcc.gov/ccb/stats>) web page. The files are contained in the infrastructure section under the file names INFRA93.ZIP and INFRA95.ZIP, respectively. The raw data upon which the reports are based and the actual summary reports are also available on our dial-up **FCC-State Link** bulletin board system at (202) 418-0241. Raw data are contained on the BBS in a directory entitled ARMIS4307, and a spreadsheet template viewer file IVIEW2.ZIP can be downloaded to facilitate viewing the raw ASCII data files. Instructions for using the viewers are contained in a readme.txt file within the "zip" archive. This "zip" file contains two infrastructure data viewers, an executable program for translating the raw data files into ASCII output files with full annotations and data labels, and a second spreadsheet template for achieving the same goal by adding the annotations to the data using a spreadsheet template.

The information summarized in this section is arranged as two tables: Table 10.1 shows switching system data and Table 10.2 shows transmission system data. Each table contains segments for each of the regional Bell companies, one for the companies owned by GTE. The data summarized for each holding company reflect the aggregate of data filed for individual states or study areas and should be useful in assessing overall trends.<sup>4</sup>

The data have been aggregated where region-wide or company-wide composites were not filed. Many of the company totals were recalculated to more effectively identify errors.<sup>5</sup> Some of the data originally filed by the companies contained errors, particularly in the earlier years.

The full range of infrastructure data received in the ARMIS 43-07 reports and the items listed below that are contained in Tables 10.1 and 10.2 are described in the report entitled "Infrastructure of the Local Operating Companies Aggregated to the Holding Company Level" along with data qualifications and observations about the data itself.<sup>6</sup> The user should also refer to the source data, which contain more detailed study area information. Further analysis supplemented with data from state regulatory commissions may be needed to address localized issues.

#### Description of the Technologies and Data

The data in the Tables 10.1 and 10.2 provide a historical series for a variety of plant elements that illustrate the deployment of technology in the networks of the major local exchange carriers. The data items provide a picture of the key technologies presently in use. For example, although the issue of fiber in the local loop has gained a great deal of attention because of its potential for facilitating development of wideband video services, the progression of lower data-rate digital technologies to greater numbers of customers through an increased use of digital local access has been occurring for some time now. Both switching and transmission technology

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4 Due to the recent Bell Atlantic merger, facilities of NYNEX became part of a larger Bell Atlantic entity. Due to the large merged size of the new Bell Atlantic Entity and the fact that the merged entities operate in distinct regions of the country, the company still separates much of the filed data reflecting the pre merger Bell Atlantic entity, now called Bell Atlantic South in some of its filings. To enable current data to be trended with the prior data series we have presented the old NYNEX data as Bell Atlantic North and the remaining Bell Atlantic data as Bell Atlantic South.

5 A number of obvious discrepancies in calculation of totals were corrected and may account for small differences between company-filed totals and the ones presented here. Most of these discrepancies were identified as being associated with cumulative effects of rounding, typically associated with data presented in thousands.

6 See Appendix A, *Infrastructure of the Local Operating Companies Aggregated to the Holding Company Level*, released March 13, 1997.

provide the building blocks that make this possible. In the switch, Signalling System 7 (SS7) provides a means for networks and interoffice switches to communicate with each other. This system uses separate digital links outside the voice channel to accomplish this. Other elements in the data relating to equal access switches and touch-tone capable switches show that most switches now support equal access and that nearly all switches are equipped for touch-tone dialing.

A useful overall measure of company activity is gross capital expenditures. The data reported include all capital expenditures on both switching and transmission facilities. Capital expenditure levels should continue to be an important overall parameter in assessing deployment of new technology in the local service business and its relationship to future service quality.

Although there is considerable interest in digital switching, the term "digital switch" by itself is often misleading and does not address the important issues of switching capability and modularity. For example, while most network switches are presently classified as digital stored program controlled switches, this classification by itself does not indicate whether the switch has ISDN or SS7 capability and does not address the issue of modularity that allows lower-cost expansion. Therefore, measurement of digital switching proliferation requires one to look at more than a single statistic. While there are no across-the-board relationships between modularity and switch capability, many of the switches with ISDN capability also tend to be modular in design and can often be upgraded with software that can facilitate lower-cost expansion. The data presently being collected only cover circuit switches that provide a dedicated path through the network for the duration of a call, not routers or statistical switches that are used in internet services that are specifically designed to handle data packets.

ISDN technology provides the service protocols and channel designations for digital services to customers and can convey voice, computer data or compressed video. Basic rate ISDN services are provided as two 64-kilobit data channels and one 16-kilobit control channel associated with each basic-rate access line. The control channels allow the transfer of special information between the switch and the customer, unavailable with in-band signalling, as well as advanced network control features presently used in a number of enhanced services. Primary rate ISDN provides the capacity of twenty-three 64-kilobit data channels and one 64-kilobit control channel. Although these services can potentially provide for improved communication between computers, the lack of a critical mass of customers using ISDN was a stumbling block in the early proliferation of end-to-end digital services. Availability of the service is significant and expanding. There are, however, important regional and localized differences in investment and customer demand patterns that may require examination of data at a more localized level than presented here.<sup>7</sup>

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7 Individual study-area data are also available to address more localized issues that will become increasingly important in the coming years. This information is available by dial-up access described in footnote 3. A new viewer in executable format also described in footnote 3 has been created to further facilitate examination of the raw data files.

The companies typically report the number of access lines that can be connected to ISDN service within each wire center or switch. In 1995 Bell Atlantic and NYNEX began to report all access lines that can receive ISDN service, even those requiring a foreign exchange link to another wire center. These companies were notified that their method of counting ISDN-capable access lines was inconsistent with the Commission's reporting requirements.<sup>8</sup> As a result NYNEX subsequently refiled its 1995 data to address this problem.<sup>9</sup>

Because ISDN is a digital service, it is equipped to handle communication between computers without the need to first convert the signal to an analog form. Early on it was primarily marketed as a medium for enhanced voice services and was primarily targeted to business users. It has become an increasingly attractive alternative for residential customers and small businesses needing a second line for a computer and therefore its pricing in relation to the cost of two analog lines can significantly affect proliferation of the service. Many of the companies had installed digital switches in response to equal access requirements of divestiture. Almost all of the Bell company switching entities have equal access capability. The companies generally have been responding to increased interest in ISDN service and internet use by replacing or upgrading existing switches for ISDN capability.<sup>10</sup>

A number of transmission elements are included in the tables. These illustrate the rapid development of fiber capacity in terms of terminations, sheath-kilometers, and links. The tables

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8 Continuing changes in demand patterns for new access lines and in the character of telephone traffic from pure voice traffic to a changing mix of voice and data underscore the desirability of targeted improvement to the switching infrastructure. Use of easily upgradable switching systems will be increasingly important.

9 Company totals have been recalculated to minimize errors in summing raw study-area data. In calculating industry totals, some adjustments may have been made to account for missing or irregular company data and for rounding errors. In certain instances, the classification "other" was used for adjustment purposes so that the respective totals would properly reflect the sum of their components.

10 Increased use of ISDN services for internet access could lead to a critical mass of residential users that would be mutually beneficial to customers and the companies by driving down ISDN per-unit costs further. While increased business use should continue to be an important revenue source and a driving force leading to improved efficiencies in providing ISDN service, new marketing, pricing and regulatory factors could make ISDN more attractive for residential customers. Competitive activity and interconnection should require incumbent carriers to pay greater attention both to strategic planning and customer service. In the short term, investment, packaging and pricing strategies for ISDN services that consider local and regional issues might facilitate overall service quality improvement by encouraging migration from analog to digital access services, leading to improvement of the switching infrastructure. Next-generation wideband capabilities will become increasingly important in the longer term.

also highlight the relative magnitude of equipped and working channels, providing an indication of termination equipment utilization. Declines in the number of analog links can be noted, and for some time the number of interoffice fiber carrier links has significantly exceeded the number of copper carrier links for all companies shown. Although data on links and channels show that circuits connecting local central offices could typically be provided on only two fibers, the economics of fiber deployment have resulted in deployments of typical fiber cables containing more than 35 fibers. This suggests that there is a significant amount of fiber capacity presently unused in the *interoffice* transmission plant.<sup>11</sup>

Although the overall level of growth in fiber has been high, its use in the local loop is presently relatively small. Since fibers are not necessarily in current use and since there is a greater potential for more than one access line to be provided on one fiber than on one copper pair, especially nearer to the central offices, the ultimate number of central office fiber terminations needed to equip all access lines for fiber is expected to be considerably lower than the present number of copper terminations. However, due to the fact that less sharing of transmission facilities is possible in the portion of plant closest to customers, the cost of providing loop capacity nearest to the customer is greatest.

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11 A large portion of the cost of fiber deployment is associated with labor and installation rather than with the cable itself. Thus, the incremental cost of installing a larger fiber cable is typically relatively small. This suggests that the sheath-kilometer parameter shown in the attached tables may be a better measure of fiber coverage than fiber kilometers. In general, care should be exercised in interpreting aggregate fiber data when determining, for example, whether fiber is concentrated in certain parts of a company's service area with relatively little fiber elsewhere. See *FCC Fiber Deployment Update - End of Year 1997*, released September 4, 1998.

Table 10.1 Switching System Data  
(a): Ameritech

	1993	1994	1995	1996	1997
Gross Plant Expenditures (In Millions \$)	1,719	1,517	1,578	1,997	1,912
Local Switches	1,422	1,413	1,415	1,410	1,435
Tandem Switches	47	47	46	46	47
Hosts	230	236	238	236	243
Remotes (Stand Alone Only)	684	717	731	743	769
Total Switching Entities	1,469	1,460	1,461	1,456	1,482
Electromechanical	0	0	0	0	0
Analog Stored Pgm. Control	224	119	97	71	58
Digital Stored Pgm. Control	1,245	1,341	1,364	1,385	1,424
Total Access Lines (000)	17,500	18,123	19,310	19,552	20,334
Electromechanical Switches	0	0	0	0	0
Analog Stored Pgm. Ctrl. Switches	5,862	3,845	3,727	3,228	2,792
Digital Stored Pgm. Ctrl. Switches	11,638	14,278	15,583	16,324	17,542
Touch Tone Capable Switches	1,469	1,460	1,415	1,410	1,435
T. Tone Capable Access Lines (000)	17,500	18,122	19,310	19,553	20,334
Equal Access Switches	1,469	1,450	1,461	1,456	1,482
Equal Access Lines (000)	17,500	18,122	19,310	19,553	20,334
Signal. Sys. 7 Switches (SS7-394)	1,001	1,254	1,400	1,438	1,463
SS7-394 Access Lines (000)	13,376	16,482	18,538	19,293	20,223
Signal. Sys. 7 Switches (SS7-317)	1,116	1,347	1,417	1,439	1,463
SS7-317 Access Lines (000)	13,961	17,217	18,653	19,322	20,208
ISDN Capable Switches	387	444	489	601	695
ISDN Access Line Capac. (000)	8,056	10,259	12,860	13,802	15,465
ISDN Basic Rate Interface Eq'pd.	67,415	87,862	101,711	155,731	180,280
ISDN Primary Rate Interface Eq'pd.	707	1,505	2,209	4,247	14,569

Table 10.1 Switching System Data  
(b): Bell Atlantic - South

	1993	1994	1995	1996	1997
Gross Plant Expenditures (In Millions \$)	2,133	2,107	2,390	2,816	2,855
Local Switches	1,405	1,408	1,406	1,410	1,412
Tandem Switches	42	42	42	48	42
Hosts	194	199	202	210	212
Remotes (Stand Alone Only)	666	685	696	712	718
Total Switching Entities	1,421	1,422	1,420	1,430	1,426
Electromechanical	0	0	0	0	0
Analog Stored Pgm. Control	157	123	93	79	64
Digital Stored Pgm. Control	1,264	1,299	1,327	1,351	1,362
Total Access Lines (000)	18,645	19,167	19,820	20,566	21,375
Electromechanical Switches	0	0	0	0	0
Analog Stored Pgm. Ctrl. Switches	5,627	4,769	3,607	3,022	2,607
Digital Stored Pgm. Ctrl. Switches	13,018	14,398	16,213	17,544	18,768
Touch Tone Capable Switches	1,405	1,408	1,406	1,410	1,412
T. Tone Capable Access Lines (000)	18,645	19,167	19,820	20,566	21,375
Equal Access Switches	1,421	1,422	1,420	1,430	1,426
Equal Access Lines (000)	18,645	19,167	19,820	20,566	21,375
Signal. Sys. 7 Switches (SS7-394)	720	1,262	1,374	1,415	1,415
SS7-394 Access Lines (000)	13,240	18,118	19,709	20,469	21,325
Signal. Sys. 7 Switches (SS7-317)	1,359	1,374	1,373	1,426	1,426
SS7-317 Access Lines (000)	18,221	19,049	19,780	20,518	21,375
ISDN Capable Switches	515	592	671	722	734
ISDN Access Line Capac. (000)	9,923	11,750	13,919	15,534	16,754
ISDN Basic Rate Interface Eq'pd.	101,858	163,901	223,626	279,372	357,469
ISDN Primary Rate Interface Eq'pd.	121	5,311	9,185	17,724	31,171

Table 10.1 Switching System Data  
(c): BellSouth

	1993	1994	1995	1996	1997
Gross Plant Expenditures (In Millions \$)	3,012	3,118	3,160	3,269	3,477
Local Switches	1,661	1,658	1,647	1,650	1,654
Tandem Switches	70	70	71	70	70
Hosts	269	280	289	297	317
Remotes (Stand Alone Only)	714	732	742	747	766
Total Switching Entities	1,680	1,677	1,668	1,670	1,674
Electromechanical	0	0	0	0	0
Analog Stored Pgm. Control	236	182	158	130	106
Digital Stored Pgm. Control	1,444	1,495	1,510	1,540	1,568
Total Access Lines (000)	19,233	20,141	21,064	22,017	23,080
Electromechanical Switches	0	0	0	0	0
Analog Stored Pgm. Ctrl. Switches	5,929	4,837	4,455	4,018	3,746
Digital Stored Pgm. Ctrl. Switches	13,304	15,304	16,609	17,999	19,334
Touch Tone Capable Switches	1,661	1,658	1,647	1,650	1,654
T. Tone Capable Access Lines (000)	19,233	20,141	21,064	22,017	23,080
Equal Access Switches	1,680	1,677	1,668	1,670	1,674
Equal Access Lines (000)	19,233	20,141	21,064	22,017	23,080
Signal. Sys. 7 Switches (SS7-394)	1,447	1,627	1,629	1,652	1,674
SS7-394 Access Lines (000)	18,067	20,118	20,737	21,873	23,080
Signal. Sys. 7 Switches (SS7-317)	1,452	1,628	1,630	1,652	1,674
SS7-317 Access Lines (000)	18,122	20,136	20,755	21,873	23,080
ISDN Capable Switches	324	407	467	518	584
ISDN Access Line Capac. (000)	7,606	9,708	10,988	12,947	14,894
ISDN Basic Rate Interface Eq'pd.	65,607	76,348	80,641	122,043	167,512
ISDN Primary Rate Interface Eq'pd.	1,814	3,534	4,803	9,154	21,389



Table 10.1 Switching System Data  
(d): Bell Atlantic - North (NYNEX)

	1993	1994	1995	1996	1997
Gross Plant Expenditures (In Millions \$)	2,152	2,208	2,316	2,214	2,478
Local Switches	1,307	1,297	1,290	1,274	1,291
Tandem Switches	23	23	23	23	25
Hosts	155	159	169	157	153
Remotes (Stand Alone Only)	699	722	728	732	729
Total Switching Entities	1,326	1,316	1,309	1,293	1,311
Electromechanical	0	0	0	0	0
Analog Stored Pgm. Control	192	123	101	58	22
Digital Stored Pgm. Control	1,134	1,193	1,208	1,235	1,289
Total Access Lines (000)	16,129	16,578	17,139	17,739	18,339
Electromechanical Switches	0	0	0	0	0
Analog Stored Pgm. Ctrl. Switches	4,123	2,800	1,969	1,035	368
Digital Stored Pgm. Ctrl. Switches	12,006	13,778	15,170	16,704	17,971
Touch Tone Capable Switches	1,307	1,297	1,286	1,274	1,291
T. Tone Capable Access Lines (000)	16,129	16,578	17,139	17,739	18,339
Equal Access Switches	1,307	1,316	1,308	1,293	1,311
Equal Access Lines (000)	16,077	16,578	17,139	17,739	18,339
Signal. Sys. 7 Switches (SS7-394)	970	1,119	1,203	1,235	1,292
SS7-394 Access Lines (000)	11,300	13,852	15,168	16,704	18,098
Signal. Sys. 7 Switches (SS7-317)	969	1,119	1,203	1,235	1,292
SS7-317 Access Lines (000)	11,300	13,832	15,168	16,704	18,098
ISDN Capable Switches	114	247	259	357	486
ISDN Access Line Capac. (000)	3,483	9,357	8,198	12,148	14,371
ISDN Basic Rate Interface Eq'pd.	62,522	118,150	139,694	226,280	303,073
ISDN Primary Rate Interface Eq'pd.	837	1,082	3,322	7,051	12,751

Table 10.1 Switching System Data  
(e): SBC (Pacific Telesis)

	1993	1994	1995	1996	1997
Gross Plant Expenditures (In Millions \$)	1,734	1,620	1,664	1,877	2,209
Local Switches	846	837	840	833	810
Tandem Switches	20	20	20	20	21
Hosts	111	121	117	114	135
Remotes (Stand Alone Only)	302	320	316	310	364
Total Switching Entities	866	856	859	853	830
Electromechanical	3	2	1	0	0
Analog Stored Pgm. Control	176	109	87	72	49
Digital Stored Pgm. Control	687	745	771	781	781
Total Access Lines (000)	14,971	15,384	15,984	16,460	17,155
Electromechanical Switches	1	1	0	0	0
Analog Stored Pgm. Ctrl. Switches	7,036	5,029	4,036	3,354	2,422
Digital Stored Pgm. Ctrl. Switches	7,934	10,354	11,948	13,106	14,733
Touch Tone Capable Switches	846	837	840	833	810
T. Tone Capable Access Lines (000)	14,971	15,384	15,984	16,460	17,155
Equal Access Switches	844	834	838	852	810
Equal Access Lines (000)	14,949	15,360	15,966	16,460	17,155
Signal. Sys. 7 Switches (SS7-394)	522	764	772	794	791
SS7-394 Access Lines (000)	12,490	14,781	15,512	15,616	16,956
Signal. Sys. 7 Switches (SS7-317)	522	764	772	794	804
SS7-317 Access Lines (000)	12,490	14,781	15,512	15,616	16,956
ISDN Capable Switches	229	347	417	473	531
ISDN Access Line Capac. (000)	5,349	8,494	10,291	11,895	13,632
ISDN Basic Rate Interface Eq'pd.	65,683	115,146	171,305	304,182	314,003
ISDN Primary Rate Interface Eq'pd.	357	708	3,491	13,448	20,125

Table 10.1 Switching System Data  
(f): SBC (Southwestern Bell)

	1993	1994	1995	1996	1997
Gross Plant Expenditures (In Millions \$)	1,723	1,739	1,759	2,326	2,741
Local Switches	1,437	1,511	1,644	1,670	1,690
Tandem Switches	64	60	60	60	60
Hosts	230	233	245	241	267
Remotes (Stand Alone Only)	672	779	935	1,077	1,077
Total Switching Entities	1,469	1,539	1,679	1,730	1,750
Electromechanical	83	73	58	0	0
Analog Stored Pgm. Control	308	264	252	162	136
Digital Stored Pgm. Control	1,078	1,202	1,369	1,568	1,614
Total Access Lines (000)	13,180	13,611	14,095	14,104	15,306
Electromechanical Switches	102	96	62	0	0
Analog Stored Pgm. Ctrl. Switches	7,078	6,608	6,531	5,657	5,055
Digital Stored Pgm. Ctrl. Switches	6,000	6,907	7,502	8,447	10,251
Touch Tone Capable Switches	1,437	1,511	1,644	1,670	1,690
T. Tone Capable Access Lines (000)	13,180	13,611	14,095	14,104	15,306
Equal Access Switches	1,340	1,511	1,644	1,670	1,741
Equal Access Lines (000)	13,060	13,611	14,095	14,104	15,306
Signal. Sys. 7 Switches (SS7-394)	723	1,263	1,466	1,597	1,724
SS7-394 Access Lines (000)	8,828	12,787	13,289	13,890	15,249
Signal. Sys. 7 Switches (SS7-317)	649	1,263	1,466	1,597	1,724
SS7-317 Access Lines (000)	8,468	12,787	13,289	13,890	15,249
ISDN Capable Switches	92	123	303	331	331
ISDN Access Line Capac. (000)	1,476	1,933	8,826	9,440	10,577
ISDN Basic Rate Interface Eq'pd.	88,960	57,041	108,784	104,604	185,018
ISDN Primary Rate Interface Eq'pd.	410	1,238	5,084	6,150	15,434

Table 10.1 Switching System Data  
(g): US West

	1993	1994	1995	1996	1997
Gross Plant Expenditures (In Millions \$)	2,210	2,359	2,570	2,995	2,540
Local Switches	1,841	1,738	1,641	1,521	1,441
Tandem Switches	51	51	51	51	51
Hosts	223	232	238	248	249
Remotes (Stand Alone Only)	880	984	961	852	781
Total Switching Entities	1,858	1,752	1,654	1,534	1,492
Electromechanical	210	20	1	1	0
Analog Stored Pgm. Control	261	213	188	146	113
Digital Stored Pgm. Control	1,387	1,519	1,465	1,387	1,379
Total Access Lines (000)	13,710	14,309	14,817	15,405	16,132
Electromechanical Switches	161	18	1	1	0
Analog Stored Pgm. Ctrl. Switches	6,257	5,303	4,706	4,245	4,228
Digital Stored Pgm. Ctrl. Switches	7,292	8,988	10,110	11,159	11,905
Touch Tone Capable Switches	1,841	1,738	1,641	1,521	1,441
T. Tone Capable Access Lines (000)	13,710	14,309	14,817	15,405	16,132
Equal Access Switches	1,636	1,724	1,638	1,520	1,492
Equal Access Lines (000)	13,529	14,287	14,816	15,404	16,132
Signal. Sys. 7 Switches (SS7-394)	620	819	1,116	1,143	1,305
SS7-394 Access Lines (000)	9,931	11,704	13,411	14,420	15,739
Signal. Sys. 7 Switches (SS7-317)	621	839	1,116	1,143	1,305
SS7-317 Access Lines (000)	9,931	11,663	13,411	14,420	15,739
ISDN Capable Switches	213	240	262	327	541
ISDN Access Line Capac. (000)	3,982	5,045	6,192	9,668	10,264
ISDN Basic Rate Interface Eq'pd.	108,775	120,058	126,530	146,570	162,953
ISDN Primary Rate Interface Eq'pd.	674	742	2,315	2,734	4,329

Table 10.1 Switching System Data  
(h): GTE/CONTEL Companies

	1993	1994	1995	1996	1997
Gross Plant Expenditures (In Millions \$)	2,748	2,719	2,555	2,628	3,021
Local Switches	6,164	5,976	6,119	6,498	6,453
Tandem Switches	149	142	157	165	165
Hosts	876	831	867	928	939
Remotes (Stand Alone Only)	1,618	1,702	1,970	1,925	2,143
Total Switching Entities	6,202	5,993	6,136	6,518	6,483
Electromechanical	1,115	893	649	393	168
Analog Stored Pgm. Control	78	46	26	17	10
Digital Stored Pgm. Control	5,009	5,054	5,461	6,108	6,305
Total Access Lines (000)	15,906	15,928	16,535	17,389	18,320
Electromechanical Switches	1,042	782	523	284	158
Analog Stored Pgm. Ctrl. Switches	836	509	380	241	197
Digital Stored Pgm. Ctrl. Switches	14,028	14,637	15,632	16,864	17,965
Touch Tone Capable Switches	6,164	5,976	6,119	6,498	6,453
T. Tone Capable Access Lines (000)	15,904	15,925	16,530	17,394	18,320
Equal Access Switches	4,983	5,010	5,497	6,121	6,309
Equal Access Lines (000)	14,774	15,081	16,015	17,099	18,153
Signal. Sys. 7 Switches (SS7-394)	1,990	2,234	2,907	3,897	4,215
SS7-394 Access Lines (000)	8,847	10,766	12,841	15,193	15,967
Signal. Sys. 7 Switches (SS7-317)	2,113	2,234	2,907	4,218	4,215
SS7-317 Access Lines (000)	9,676	10,766	12,841	15,438	15,967
ISDN Capable Switches	272	276	390	523	779
ISDN Access Line Capac. (000)	2,096	5,010	6,251	9,677	10,620
ISDN Basic Rate Interface Eq'pd.	30,741	63,012	91,326	98,145	126,946
ISDN Primary Rate Interface Eq'pd.	896	1,406	2,703	17,377	16,465

Table 10.1 Switching System Data  
(i): Bell Company Totals

	1993	1994	1995	1996	1997
Gross Plant Expenditures (In Millions \$)	14,683	14,667	15,436	17,494	18,213
Local Switches	9,919	9,862	9,883	9,768	9,733
Tandem Switches	317	313	313	318	316
Hosts	1,412	1,460	1,498	1,503	1,576
Remotes (Stand Alone Only)	4,617	4,939	5,109	5,173	5,204
Total Switching Entities	10,089	10,022	10,050	9,966	9,965
Electromechanical	296	95	60	1	0
Analog Stored Pgm. Control	1,554	1,133	976	718	548
Digital Stored Pgm. Control	8,239	8,794	9,014	9,247	9,417
Total Access Lines (000)	113,368	117,313	122,229	125,843	131,721
Electromechanical Switches	264	115	63	1	0
Analog Stored Pgm. Ctrl. Switches	41,912	33,191	29,031	24,559	21,217
Digital Stored Pgm. Ctrl. Switches	71,192	84,007	93,135	101,283	110,504
Touch Tone Capable Switches	9,966	9,909	9,879	9,768	9,733
T. Tone Capable Access Lines (000)	113,368	117,312	122,229	125,844	131,721
Equal Access Switches	9,697	9,934	9,977	9,891	9,936
Equal Access Lines (000)	112,993	117,266	122,210	125,843	131,721
Signal. Sys. 7 Switches (SS7-394)	6,003	8,108	8,960	9,274	9,664
SS7-394 Access Lines (000)	87,232	107,842	116,364	122,265	130,670
Signal. Sys. 7 Switches (SS7-317)	6,688	8,334	8,977	9,286	9,688
SS7-317 Access Lines (000)	92,493	109,465	116,568	122,343	130,705
ISDN Capable Switches	1,874	2,400	2,868	3,329	3,902
ISDN Access Line Capac. (000)	39,875	56,546	71,274	85,434	95,957
ISDN Basic Rate Interface Eq'pd.	560,820	738,506	952,291	1,338,782	1,670,308
ISDN Primary Rate Interface Eq'pd.	4,920	14,120	30,409	60,508	119,768

Table 10.1 Switching System Data  
(j): All Company Totals

	1993	1994	1995	1996	1997
Gross Plant Expenditures (In Millions \$)	17,432	17,386	17,991	20,122	21,234
Local Switches	16,083	15,838	16,002	16,266	16,186
Tandem Switches	466	455	470	483	481
Hosts	2,288	2,291	2,365	2,431	2,515
Remotes (Stand Alone Only)	6,235	6,641	7,079	7,098	7,347
Total Switching Entities	16,291	16,015	16,186	16,484	16,448
Electromechanical	1,411	988	709	394	168
Analog Stored Pgm. Control	1,632	1,179	1,002	735	558
Digital Stored Pgm. Control	13,248	13,848	14,475	15,355	15,722
Total Access Lines (000)	129,274	133,241	138,764	143,232	150,041
Electromechanical Switches	1,306	897	586	285	158
Analog Stored Pgm. Ctrl. Switches	42,748	33,700	29,411	24,800	21,414
Digital Stored Pgm. Ctrl. Switches	85,220	98,644	108,767	118,147	128,469
Touch Tone Capable Switches	16,130	15,885	15,998	16,266	16,186
T. Tone Capable Access Lines (000)	129,272	133,237	138,759	143,238	150,041
Equal Access Switches	14,680	14,944	15,474	16,012	16,245
Equal Access Lines (000)	127,767	132,347	138,225	142,942	149,874
Signal. Sys. 7 Switches (SS7-394)	7,993	10,342	11,867	13,171	13,879
SS7-394 Access Lines (000)	96,079	118,608	129,205	137,458	146,637
Signal. Sys. 7 Switches (SS7-317)	8,801	10,568	11,884	13,504	13,903
SS7-317 Access Lines (000)	102,169	120,231	129,409	137,781	146,672
ISDN Capable Switches	2,146	2,676	3,258	3,852	4,681
ISDN Access Line Capac. (000)	41,971	61,556	77,525	95,111	106,577
ISDN Basic Rate Interface Eq'pd.	591,561	801,518	1,043,617	1,436,927	1,797,254
ISDN Primary Rate Interface Eq'pd.	5,816	15,526	33,112	77,885	136,233

Table 10.2 Transmission System Data  
(a): Ameritech

	1993	1994	1995	1996	1997
Total Sheath-Kilometers	556,814	537,133	562,934	575,407	586,712
Copper Sheath-Kilometers	521,187	498,238	519,775	526,955	533,491
Fiber Sheath-Kilometers	34,655	37,980	42,370	47,676	52,450
Other Sheath-Kilometers	972	915	789	776	771
Total Carrier Links	452,276	535,085	715,434	915,547	1,084,957
Copper Links	69,609	55,193	46,806	36,261	29,355
Fiber Links	377,963	475,981	667,746	878,959	1,055,285
Radio Links	4,704	3,911	882	327	317
Total Circuit Links	2,800,655	2,964,296	3,278,058	3,577,253	4,118,183
Baseband Links	59,460	56,164	56,287	53,688	47,196
Analog Links	468	440	189	38	38
Digital Links	2,740,727	2,907,692	3,221,582	3,523,527	4,070,949
Equipped Channels (000)	30,818	31,848	31,957	33,366	34,741
Copper	29,549	29,483	29,125	29,571	29,797
Fiber	1,269	2,365	2,832	3,795	4,944
Other	0	0	0	0	0
Working Channels (000)	18,611	19,106	19,714	20,506	21,152
Copper	17,812	18,096	18,479	18,896	19,083
Fiber	799	1,010	1,236	1,610	2,069
Other	0	0	0	0	0
Copper Pair Sw. Term.-Loop	28,687,860	28,645,732	28,217,638	28,693,472	28,970,660
Fiber Cent. Ofc. Loop Termin.	56,834	66,035	79,661	103,648	123,302
DS-1 Term.- Cust. Prem. Fiber	23,675	26,660	31,941	39,124	46,366
DS-3 Term.- Cust. Prem. Fiber	2,434	2,755	3,192	3,874	4,453



Table 10.2 Transmission System Data  
(b): Bell Atlantic - South

	1993	1994	1995	1996	1997
Total Sheath-Kilometers	507,245	514,377	518,999	524,759	534,981
Copper Sheath-Kilometers	461,040	461,558	460,772	462,019	465,471
Fiber Sheath-Kilometers	45,402	52,014	57,425	62,740	69,509
Other Sheath-Kilometers	803	805	802	0	1
Total Carrier Links	252,108	278,199	303,468	342,525	373,549
Copper Links	62,122	63,297	66,127	72,045	76,842
Fiber Links	182,816	207,750	230,335	265,219	291,883
Radio Links	7,170	7,152	7,006	5,261	4,824
Total Circuit Links	2,550,021	2,604,573	2,766,872	2,935,557	3,248,498
Baseband Links	105,941	73,773	42,296	35,110	29,036
Analog Links	0	0	0	0	0
Digital Links	2,444,080	2,530,800	2,724,576	2,900,447	3,219,462
Equipped Channels (000)	50,194	52,800	56,614	42,917	44,864
Copper	33,723	33,569	34,269	33,740	34,259
Fiber	16,471	19,231	22,344	9,177	10,604
Other	0	0	0	0	0
Working Channels (000)	21,354	22,146	23,515	25,271	27,328
Copper	18,641	18,513	19,068	19,361	20,019
Fiber	2,713	3,633	4,447	5,911	7,309
Other	0	0	0	0	0
Copper Pair Sw. Term.-Loop	30,504,712	30,479,864	30,444,724	30,488,288	30,645,886
Fiber Cent. Ofc. Loop Termin.	129,509	416,307	490,314	564,146	595,890
DS-1 Term.- Cust. Prem. Fiber	25,922	37,197	47,737	72,187	86,820
DS-3 Term.- Cust. Prem. Fiber	437	731	970	1,683	2,523

Table 10.2 Transmission System Data  
(c): BellSouth

	1993	1994	1995	1996	1997
Total Sheath-Kilometers	993,633	1,005,397	1,020,809	1,034,601	1,050,186
Copper Sheath-Kilometers	927,265	930,812	937,626	943,090	951,758
Fiber Sheath-Kilometers	65,100	73,370	82,012	90,093	96,852
Other Sheath-Kilometers	1,268	1,215	1,171	1,418	1,576
Total Carrier Links	991,365	1,035,404	1,210,164	1,490,563	1,873,566
Copper Links	86,390	52,813	48,503	69,210	66,326
Fiber Links	877,770	958,357	1,145,268	1,414,411	1,805,158
Radio Links	27,205	24,234	16,393	6,942	2,082
Total Circuit Links	2,935,064	4,287,654	4,756,430	5,245,925	6,107,816
Baseband Links	17,575	14,713	9,985	16,635	12,054
Analog Links	99	50	0	0	0
Digital Links	2,917,390	4,272,891	4,746,445	5,229,290	6,095,762
Equipped Channels (000)	33,070	34,670	36,022	37,867	39,551
Copper	29,291	29,996	30,352	30,903	31,271
Fiber	3,778	4,673	5,670	6,963	8,279
Other	0	0	0	0	0
Working Channels (000)	21,276	23,285	24,683	26,230	27,921
Copper	18,289	19,284	19,871	20,318	20,709
Fiber	2,987	4,001	4,812	5,912	7,212
Other	0	0	0	0	0
Copper Pair Sw. Term.-Loop	26,433,408	26,451,200	26,527,292	26,342,776	26,703,440
Fiber Cent. Ofc. Loop Termin.	59,663	73,260	106,710	138,364	157,957
DS-1 Term.- Cust. Prem. Fiber	9,078	13,941	19,132	27,482	36,911
DS-3 Term.- Cust. Prem. Fiber	3,294	4,034	4,559	5,353	6,847

Table 10.2 Transmission System Data  
(d): Bell Atlantic - North (NYNEX)

	1993	1994	1995	1996	1997
Total Sheath-Kilometers	451,030	452,707	454,149	454,905	457,989
Copper Sheath-Kilometers	416,312	414,170	412,025	409,965	408,112
Fiber Sheath-Kilometers	33,013	37,118	41,000	44,401	49,478
Other Sheath-Kilometers	1,705	1,419	1,124	539	399
Total Carrier Links	442,636	459,959	467,055	525,240	765,039
Copper Links	50,392	51,873	45,579	26,365	27,652
Fiber Links	389,124	406,135	420,415	498,082	737,291
Radio Links	3,120	1,951	1,061	793	96
Total Circuit Links	2,609,151	2,596,631	2,446,475	2,421,465	2,605,246
Baseband Links	310,515	244,437	170,517	152,279	118,376
Analog Links	0	0	0	0	0
Digital Links	2,298,636	2,352,194	2,275,958	2,269,186	2,486,870
Equipped Channels (000)	32,787	33,222	33,494	34,371	35,464
Copper	31,400	31,707	31,394	31,594	32,167
Fiber	1,387	1,515	2,101	2,777	3,297
Other	0	0	0	0	0
Working Channels (000)	18,869	18,776	20,176	20,157	21,272
Copper	18,136	17,875	18,860	18,638	19,410
Fiber	733	902	1,316	1,519	1,862
Other	0	0	0	0	0
Copper Pair Sw. Term.-Loop	30,053,156	30,097,348	30,190,922	30,253,844	30,697,008
Fiber Cent. Ofc. Loop Termin.	143,770	188,194	214,587	240,641	276,320
DS-1 Term.- Cust. Prem. Fiber	21,911	28,732	30,529	31,120	45,009
DS-3 Term.- Cust. Prem. Fiber	869	1,036	1,363	1,698	1,571

Table 10.2 Transmission System Data  
(e): SBC (Pacific Telesis)

	1993	1994	1995	1996	1997
Total Sheath-Kilometers	351,695	343,658	346,127	349,697	363,726
Copper Sheath-Kilometers	334,674	324,942	325,537	327,040	339,207
Fiber Sheath-Kilometers	15,814	17,598	19,472	21,513	23,375
Other Sheath-Kilometers	1,207	1,118	1,118	1,144	1,144
Total Carrier Links	890,851	962,858	1,383,705	2,545,435	3,281,078
Copper Links	335,250	153,493	123,014	117,895	110,874
Fiber Links	546,847	801,638	1,252,043	2,417,461	3,159,510
Radio Links	8,754	7,727	8,648	10,079	10,694
Total Circuit Links	2,137,179	2,568,706	2,646,904	2,240,779	3,369,967
Baseband Links	66,642	42,095	35,016	30,232	27,020
Analog Links	609	451	256	297	263
Digital Links	2,069,928	2,526,160	2,611,632	2,210,250	3,342,684
Equipped Channels (000)	26,287	26,447	26,850	27,732	28,635
Copper	25,860	25,915	26,179	26,952	27,549
Fiber	428	533	671	780	1,086
Other	0	0	0	0	0
Working Channels (000)	15,841	16,110	16,878	17,720	18,254
Copper	15,556	15,759	16,448	17,213	17,569
Fiber	285	351	430	507	685
Other	0	0	0	0	0
Copper Pair Sw. Term.-Loop	24,632,896	24,577,002	24,619,462	25,055,624	25,412,880
Fiber Cent. Ofc. Loop Termin.	39,830	33,538	34,692	37,156	88,192
DS-1 Term.- Cust. Prem. Fiber	701	756	655	719	762
DS-3 Term.- Cust. Prem. Fiber	2,410	3,108	4,047	3,113	6,145

Table 10.2 Transmission System Data  
(f): SBC (Southwestern Bell)

	1993	1994	1995	1996	1997
Total Sheath-Kilometers	646,283	652,224	662,108	676,945	685,526
Copper Sheath-Kilometers	608,238	609,725	612,764	617,776	622,960
Fiber Sheath-Kilometers	35,548	40,621	47,530	57,228	60,561
Other Sheath-Kilometers	2,497	1,878	1,814	1,941	2,005
Total Carrier Links	661,969	717,489	1,116,226	1,236,940	1,510,028
Copper Links	114,280	119,709	120,615	44,723	35,548
Fiber Links	532,317	584,519	982,517	1,187,045	1,467,224
Radio Links	15,372	13,261	13,094	5,172	7,256
Total Circuit Links	2,132,469	2,271,891	2,583,685	2,887,611	3,374,225
Baseband Links	42,930	32,798	26,474	21,045	19,123
Analog Links	2,080	827	97	26	11
Digital Links	2,087,459	2,238,266	2,557,114	2,866,540	3,355,091
Equipped Channels (000)	22,802	23,675	23,990	23,766	26,003
Copper	21,895	22,011	23,357	22,976	24,957
Fiber	906	1,664	634	789	1,046
Other	0	0	0	0	0
Working Channels (000)	13,431	15,446	15,918	16,580	16,306
Copper	12,704	14,047	15,376	15,937	15,532
Fiber	728	1,400	541	643	773
Other	0	0	0	0	0
Copper Pair Sw. Term.-Loop	21,379,496	22,010,904	21,990,828	22,185,268	22,926,816
Fiber Cent. Ofc. Loop Termin.	56,560	66,497	124,026	189,365	193,409
DS-1 Term.- Cust. Prem. Fiber	38,568	44,622	48,552	77,598	77,545
DS-3 Term.- Cust. Prem. Fiber	1,916	2,566	2,733	4,365	5,039

Table 10.2 Transmission System Data  
(g): US West

	1993	1994	1995	1996	1997
Total Sheath-Kilometers	757,869	750,757	753,942	722,753	717,085
Copper Sheath-Kilometers	707,384	694,797	691,844	660,393	653,205
Fiber Sheath-Kilometers	50,485	55,960	62,098	62,360	63,880
Other Sheath-Kilometers	0	0	0	0	0
Total Carrier Links	471,975	508,530	633,861	901,580	1,180,771
Copper Links	89,849	73,050	35,964	68,779	67,240
Fiber Links	357,269	412,014	575,849	816,218	1,094,250
Radio Links	24,857	23,466	22,048	16,583	19,281
Total Circuit Links	2,315,598	2,569,216	2,802,203	3,178,552	3,561,748
Baseband Links	27,397	24,530	27,184	27,472	25,547
Analog Links	12,879	5,702	4,376	1,762	1,115
Digital Links	2,275,322	2,538,984	2,770,643	3,149,318	3,535,086
Equipped Channels (000)	23,877	24,089	24,247	25,284	24,894
Copper	23,171	23,394	23,561	23,501	23,194
Fiber	704	695	686	1,783	1,700
Other	2	0	0	0	0
Working Channels (000)	14,809	15,322	15,347	16,359	17,195
Copper	14,359	14,863	14,873	15,232	16,114
Fiber	449	459	474	1,127	1,082
Other	1	0	0	0	0
Copper Pair Sw. Term.-Loop	22,128,232	22,179,410	22,168,428	22,291,698	20,463,592
Fiber Cent. Ofc. Loop Termin.	73,993	83,313	81,953	112,185	123,691
DS-1 Term.- Cust. Prem. Fiber	20,010	24,386	28,875	30,109	46,296
DS-3 Term.- Cust. Prem. Fiber	1,066	1,297	1,339	1,223	1,142

Table 10.2 Transmission System Data  
(h): GTE/CONTEL Companies

	1993	1994	1995	1996	1997
Total Sheath-Kilometers	1,522,253	1,276,369	1,209,595	1,248,505	1,268,110
Copper Sheath-Kilometers	1,218,440	1,214,758	1,143,855	1,177,702	1,188,835
Fiber Sheath-Kilometers	66,610	61,611	65,740	70,803	79,275
Other Sheath-Kilometers	237,203	0	0	0	0
Total Carrier Links	407,237	499,678	606,202	765,541	1,136,757
Copper Links	118,074	118,858	118,686	290,257	448,534
Fiber Links	275,733	368,202	475,876	467,328	680,858
Radio Links	13,430	12,618	11,640	7,956	7,365
Total Circuit Links	3,019,378	3,424,887	4,100,441	1,900,698	2,461,398
Baseband Links	61,703	58,835	55,704	43,652	40,770
Analog Links	6,727	4,736	3,729	1,375	833
Digital Links	2,950,948	3,361,316	4,041,008	1,855,671	2,419,795
Equipped Channels (000)	27,930	27,878	30,431	30,129	30,279
Copper	26,323	26,125	28,564	28,147	27,710
Fiber	1,598	1,749	1,863	1,979	2,559
Other	8	4	4	3	9
Working Channels (000)	18,321	18,719	19,653	20,422	20,654
Copper	17,212	17,553	18,387	18,982	18,850
Fiber	1,108	1,163	1,264	1,439	1,802
Other	0	2	2	2	2
Copper Pair Sw. Term.-Loop	27,735,992	25,933,740	28,562,746	27,804,888	29,713,976
Fiber Cent. Ofc. Loop Termin.	38,282	55,365	71,687	80,372	93,238
DS-1 Term.- Cust. Prem. Fiber	6,532	7,941	14,613	16,469	23,480
DS-3 Term.- Cust. Prem. Fiber	3,813	4,436	4,546	11,043	2,173

Table 10.2 Transmission System Data  
(i): Bell Company Totals

	1993	1994	1995	1996	1997
Total Sheath-Kilometers	4,264,569	4,256,253	4,319,068	4,339,067	4,396,205
Copper Sheath-Kilometers	3,976,100	3,934,242	3,960,343	3,947,238	3,974,204
Fiber Sheath-Kilometers	280,017	314,661	351,907	386,011	416,105
Other Sheath-Kilometers	8,452	7,350	6,818	5,818	5,896
Total Carrier Links	4,163,180	4,497,524	5,829,913	7,957,830	10,068,988
Copper Links	807,892	569,428	486,608	435,278	413,837
Fiber Links	3,264,106	3,846,394	5,274,173	7,477,395	9,610,601
Radio Links	91,182	81,702	69,132	45,157	44,550
Total Circuit Links	17,480,137	19,862,967	21,280,627	22,487,142	26,385,683
Baseband Links	630,460	488,510	367,759	336,461	278,352
Analog Links	16,135	7,470	4,918	2,123	1,427
Digital Links	16,833,542	19,366,987	20,907,950	22,148,558	26,105,904
Equipped Channels (000)	219,835	226,750	233,175	225,302	234,151
Copper	194,889	196,073	198,236	199,237	203,193
Fiber	24,943	30,675	34,937	26,063	30,956
Other	2	0	0	0	0
Working Channels (000)	124,191	130,192	136,231	142,824	149,429
Copper	115,496	118,437	122,975	125,595	128,436
Fiber	8,694	11,755	13,255	17,228	20,992
Other	1	0	0	0	0
Copper Pair Sw. Term.-Loop	183,819,760	184,441,460	184,159,294	185,310,970	185,820,282
Fiber Cent. Ofc. Loop Termin.	560,159	927,144	1,131,943	1,385,505	1,558,761
DS-1 Term.- Cust. Prem. Fiber	139,865	176,294	207,421	278,339	339,709
DS-3 Term.- Cust. Prem. Fiber	12,426	15,527	18,203	21,309	27,720



Table 10.2 Transmission System Data  
(j): All Company Totals

	1993	1994	1995	1996	1997
Total Sheath-Kilometers	5,786,822	5,532,622	5,528,663	5,587,572	5,664,315
Copper Sheath-Kilometers	5,194,540	5,149,000	5,104,198	5,124,940	5,163,039
Fiber Sheath-Kilometers	346,627	376,272	417,647	456,814	495,380
Other Sheath-Kilometers	245,655	7,350	6,818	5,818	5,896
Total Carrier Links	4,570,417	4,997,202	6,436,115	8,723,371	11,205,745
Copper Links	925,966	688,286	605,294	725,535	862,371
Fiber Links	3,539,839	4,214,596	5,750,049	7,944,723	10,291,459
Radio Links	104,612	94,320	80,772	53,113	51,915
Total Circuit Links	20,499,515	23,287,854	25,381,068	24,387,840	28,847,081
Baseband Links	692,163	547,345	423,463	380,113	319,122
Analog Links	22,862	12,206	8,647	3,498	2,260
Digital Links	19,784,490	22,728,303	24,948,958	24,004,229	28,525,699
Equipped Channels (000)	247,765	254,628	263,606	255,430	264,429
Copper	221,213	222,198	226,800	227,384	230,903
Fiber	26,541	32,424	36,800	28,042	33,515
Other	10	4	4	3	9
Working Channels (000)	142,512	148,910	155,884	163,246	170,083
Copper	132,708	135,990	141,362	144,577	147,286
Fiber	9,802	12,918	14,519	18,666	22,794
Other	1	2	2	2	2
Copper Pair Sw. Term.-Loop	211,555,752	210,375,200	212,722,040	213,115,858	215,534,258
Fiber Cent. Ofc. Loop Termin.	598,441	982,509	1,203,630	1,465,877	1,651,999
DS-1 Term.- Cust. Prem. Fiber	146,397	184,235	222,034	294,808	363,189
DS-3 Term.- Cust. Prem. Fiber	16,239	19,963	22,749	32,352	29,893