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FCC RELEASES REPORT ON INFRASTRUCTURE

The FCC has released a report titled *Infrastructure of the Local Operating Companies*. This report presents data that highlights the development of switching and transmission technologies in the local telephone networks over the period 1991 through 1998. Included in the report are data on company switches and access lines, Signaling System 7 and Integrated Services Digital Network (ISDN) capability, as well as fiber optic and copper facilities.

The report is available for reference in the FCC's Reference Information Center, Courtyard Level, 445 12th Street, S.W. Copies may be purchased by calling International Transcription Services, Inc. (ITS) at (202) 857-3800. The report can be downloaded [file name INFRA98.PDF or INFRA98.ZIP] from the **FCC-State Link** internet site at http://www.fcc.gov/ccb/stats on the World Wide Web.

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

INFRASTRUCTURE OF THE LOCAL OPERATING COMPANIES JULY 1999

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Infrastructure of the Local Operating Companies
1991 - 1998

Introduction

The infrastructure information contained in this report is based upon data collected by the FCC as part its price-cap monitoring procedures.[1] This summary is intended to highlight changes in the use of standard technology in the local telephone company plant.

The data (ARMIS 43-07 reports[2]) upon which this infrastructure summary is based are filed April 1 for the previous calendar year. This infrastructure report includes data through 1998.[3] The most recent data were filed in April 1999 (with updates and revisions through June 1999).

Background

The data items presented here summarize ARMIS Report 43-07, which is filed by local exchange carriers subject to mandatory price-cap regulation. The information contained in this report is for the years 1991 through 1998.

The ARMIS 43-07 reports are filed only by those local exchange companies originally subject to mandatory price-cap regulation--the Bell operating companies (BOCs) and the

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[1] These procedures were established in CC Docket No. 87-313.

[2] ARMIS, an acronym for Automated Reporting Management Information System, is a publicly available repository of financial, plant, demand, and quality-of-service data. 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.

[3] See *Infrastructure of the Local Operating Companies Aggregated to the Holding Company Level,* released April 24, 1994 for data for the years 1989 and 1990. Those early years have not been included in this report because some of the data apparently contain discrepancies and are inconsistent with the later years. Reports containing data for the early years can be found in the infrastructure section of the FCC-State Link internet site at http://www.fcc.gov/ccb/stats on the World Wide Web under the file names INFRA98.ZIP, INFRA95.ZIP, and INFRA93.ZIP.

telephone operating companies owned by GTE.[4] 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, which typically consists of a company's operations within a state. The state-by-state data are available from the Commission's ARMIS web page at http://www.fcc.gov/ccb/armis/db/ on the World Wide Web.

The information summarized in this report is organized into two sets of tables: Tables 1.1 through 1.10 show switching system data and gross plant expenditures covering all types of plant. Tables 2.1 through 2.10 show transmission system data. Each set of tables contain segments for each of the five regional Bell operating companies (corresponding to the seven original regional BOCs), one for the companies owned by GTE, and two that summarize data for the BOCs and all reporting companies. 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.

In some cases, refiled data may cause values to differ from prior summary reports. Totals associated with GTE and Contel entities have been aggregated into a single GTE composite. The infrastructure data items contained in the ARMIS 43-07 and summarized in this report are described in Appendix A.

Description of the Technologies and Analysis of the Data

The data in the attached tables 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 standard 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 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 nearly all switches now are equipped for both equal access and touch-tone dialing.

A useful overall measure of company activity is total gross plant expenditures, which increased about 3% for the BOCs in 1998. The data reported include all plant additions on both switching and transmission facilities. Gross plant expenditures tend to correspond

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[4] See *Policy and Rules Concerning Rates for Dominant Carriers,* CC Docket No. 87-313, 5 FCC Rcd 6786 (1990) (LEC Price Cap Order), *Erratum*, 5 FCC Rcd 7664 (1990), and 8 FCC Rcd 7474 (1993).

closely with the overall access line growth and should continue to be an important overall parameter in assessing deployment of infrastructure in the local service business and its relationship to future service-quality levels.

The number of access lines per switching entity increased in 1998 as compared to 1997 for all BOCs, but significantly for the Bell Atlantic South companies (9%), SBC companies (6%), and U S WEST companies (7%). SBC - Pacific Telesis companies now support more than 22,000 access lines per switching entity on average, the largest number shown. Data for other BOCs typically fall in the range of 9,000 to 16,000 access lines per switching entity; GTE reported about 3,000 access lines per switching entity but typically utilizes smaller, less expensive switches to serve less densely populated areas.

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. 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, and newer services are now available that offer broadband digital capability using special terminal equipment that enhances the capability of existing copper access lines.[5] There are, however, important regional and localized

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[5] These services are generally referred to as xDSL (Digital Subscriber Loop) services. Limited data on the proliferation of xDSL terminal equipment by incumbent carriers is contained in Table 8 of our most recent *Fiber Deployment Update*, released September 4, 1998.

differences in investment and customer demand patterns that may require examination of data at a more localized level than presented here.[6]

In the aggregate, there was a 15% increase in the number of ISDN-capable switches in 1998 following a 22% increase in 1997; the actual number of ISDN-capable switches has doubled since 1994 and has gone up more than five-fold since 1991. Ameritech and GTE reported the largest gains, being the only two companies to report double-digit gains. Although switch capabilities and modularity tend to vary by vendor, these switches tend to be better able to deal with the changing characteristics of telecommunication traffic.[7]

The companies typically report the number of access lines that can be connected to ISDN service within each wire center or switch. 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 the equal-access requirements of divestiture. Nearly 100% of the Bell company switching entities have equal-access capability with SBC Pacific Telesis companies being the only ones reporting less than 100% at 97%. Although 96% of the BOCs switches are digital stored-program-controlled switches, only about 42% have ISDN 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.[8]

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.

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[6] 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 on the ARMIS Web page at http://www.fcc.gov/ccb/armis/db/ on the World Wide Web.

[7] 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 upgradeable switching systems will be increasingly important.

[8] Increased use of ISDN services for internet access along with the availability of xDSL services noted above should tend to drive down the cost of ISDN service further and promote the migration from analog to basic-rate ISDN service. New marketing, pricing and regulatory approaches that are designed to promote greater ISDN use by smaller customers will also tend to promote the use of broadband capabilities and result in improvements to the local infrastructure.

The number of sheath kilometers of fiber has more than doubled from 1991-1998, with over a half million fiber sheath kilometers being reported in 1998. Sheath kilometers of copper has remained steady at about 5.2 million and other sheath kilometers have become insignificant.

Tables 2.1 through 2.10 also highlight the relative magnitude of equipped and working channels, providing an indication of termination equipment utilization. In both cases, copper has grown about 15% from 1991 to 1998, whereas fiber has increased over five-fold. Analog links have almost disappeared, and the number of interoffice fiber carrier links has surpassed the number of copper carrier links. 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 40 fibers. This suggests that there is a significant amount of fiber capacity presently unused in the *interoffice* transmission plant.[9]

Although the overall level of growth in fiber has been high, its use in the local loop is presently relatively small. The BOCs had an installed base of about 189 million copper-pair mainframe terminations in their central offices for local loop use in 1998. About 1.9 million BOC fiber terminations had been installed by end-of-year 1998 (up 21% from the prior year.) 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. Based on these considerations, it is likely that significantly fewer than 1.9 million fibers actually terminate on customer premises. Fiber will become increasingly important in the local loop as the number of high-quality copper pairs available to support digital services declines.

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[9] 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 1.1 Switching Data
Total - All Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Gross Plant Expenditures (Millions)	$17,286	$17,292	$17,384	$17,405	$18,009	$20,122	$21,233	$21,847
Local Switches	16,251	16,506	16,650	16,017	16,157	16,267	16,186	16,310
Tandems	461	477	475	456	470	484	481	493
Hosts	2,000	2,217	2,366	2,309	2,382	2,432	2,515	2,472
Remotes (Stand Alone Only)	5,632	5,689	6,349	6,706	7,140	7,098	7,164	7,978
Total Switches	16,392	16,701	16,858	16,195	16,342	16,486	16,448	16,587
Electromechanical	2,610	1,954	1,493	1,029	739	394	168	0
Analog Stored Program Control	2,265	2,007	1,632	1,179	1,002	735	558	431
Digital Stored Program Control	11,517	12,739	13,733	13,987	14,601	15,356	15,722	16,156
Total Number Access Lines in Service (000)	123,022	125,776	129,642	133,409	138,907	143,239	150,043	155,548
Electromechanical Lines Served	3,310	1,977	1,348	912	596	286	157	0
Analog Stored Program Control Lines Served	54,838	49,989	42,746	33,699	29,409	24,803	21,416	16,688
Digital Stored Program Control Lines Served	64,873	73,815	85,549	98,799	108,903	118,149	128,470	138,860
Touch-Tone Capable Switches	16,137	16,506	16,697	16,017	16,199	16,267	16,185	16,310
Access Lines with Touch-Tone Capability (000)	122,849	125,776	129,642	133,376	138,870	143,239	150,043	155,548
Switches Equipped for Equal Access	11,607	14,211	15,096	15,055	15,600	15,967	16,245	16,567
Access Lines with Equal Access (000)	118,626	123,193	128,062	132,456	138,324	142,946	149,878	155,548
Total Switches Equipped w/SS7-394 (InterLATA) Svc.	1,248	5,745	8,037	10,358	11,890	13,171	13,879	15,340
Lines with SS7-394 (InterLATA) Service (000)	23,377	71,033	96,117	118,616	129,232	137,458	146,677	154,039
Total Switches Equipped w/SS7-317 (IntraLATA) Svc.	4,091	7,434	8,845	10,584	11,907	13,504	13,903	15,362
Lines with SS7-317 (IntraLATA) Service (000)	62,193	85,559	102,208	120,239	129,436	137,778	146,743	154,142
Total Switches Equipped with ISDN	964	1,437	2,146	2,670	3,258	3,852	4,681	5,392
Lines with Access to ISDN (000)	21,295	29,775	41,970	61,549	77,523	95,113	106,575	121,408
Basic Rate ISDN (BRI) Interfaces Equipped	298,176	491,430	591,561	801,518	1,039,456	1,507,551	1,797,254	2,533,133
Primary Rate ISDN (PRI) Interfaces Equipped	1,730	3,147	5,816	15,526	32,580	67,885	136,233	346,515

Table 1.2 Switching Data
Total - Bell Operating Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Gross Plant Expenditures (Millions)	$14,502	$14,629	$14,683	$14,667	$15,436	$17,494	$18,212	$18,663
Local Switches	9,829	9,909	9,919	9,862	9,883	9,768	9,733	9,579
Tandems	302	315	317	313	313	318	316	331
Hosts	1,263	1,293	1,411	1,460	1,498	1,503	1,576	1,516
Remotes (Stand Alone Only)	3,584	4,131	4,617	4,939	5,109	5,173	5,204	5,239
Total Switches	9,951	10,069	10,089	10,023	10,051	9,966	9,965	9,791
Electromechanical	1,148	615	296	95	60	1	0	0
Analog Stored Program Control	2,167	1,924	1,554	1,133	976	718	548	431
Digital Stored Program Control	6,636	7,530	8,239	8,795	9,015	9,247	9,417	9,360
Total Number Access Lines in Service (000)	107,389	109,995	113,368	117,345	122,266	125,846	131,722	136,426
Electromechanical Lines Served	1,876	717	264	115	63	1	0	0
Analog Stored Program Control Lines Served	53,450	48,959	41,912	33,191	29,031	24,561	21,219	16,688
Digital Stored Program Control Lines Served	52,062	60,324	71,192	84,040	93,172	101,283	110,503	119,738
Touch-Tone Capable Switches	9,715	9,909	9,966	9,862	9,925	9,768	9,732	9,579
Access Lines with Touch-Tone Capability (000)	107,216	109,995	113,368	117,312	122,229	125,846	131,722	136,426
Switches Equipped for Equal Access	8,601	9,281	9,697	9,933	9,978	9,845	9,936	9,768
Access Lines with Equal Access (000)	105,415	109,007	112,993	117,266	122,210	125,845	131,722	136,426
Total Switches Equipped w/SS7-394 (InterLATA) Svc.	1,248	4,246	6,003	8,108	8,960	9,274	9,664	9,624
Lines with SS7-394 (InterLATA) Service (000)	23,377	64,527	87,232	107,842	116,364	122,266	130,712	135,878
Total Switches Equipped w/SS7-317 (IntraLATA) Svc.	3,670	5,392	6,688	8,334	8,977	9,286	9,688	9,646
Lines with SS7-317 (IntraLATA) Service (000)	57,322	76,486	92,493	109,465	116,568	122,344	130,778	135,981
Total Switches Equipped with ISDN	920	1,219	1,874	2,400	2,868	3,329	3,902	4,146
Lines with Access to ISDN (000)	20,565	28,376	39,875	56,546	71,274	85,435	95,956	106,834
Basic Rate ISDN (BRI) Interfaces Equipped	289,292	468,667	560,820	738,506	948,130	1,409,406	1,670,308	2,393,662
Primary Rate ISDN (PRI) Interfaces Equipped	1,653	2,672	4,920	14,120	29,877	60,508	119,768	310,129

Table 1.3 Switching Data
Ameritech Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Gross Plant Expenditures (Millions)	$1,877	$1,716	$1,719	$1,517	$1,578	$1,997	$1,912	$2,250
Local Switches	1,421	1,433	1,422	1,413	1,415	1,410	1,435	1,419
Tandems	49	46	47	47	46	46	47	51
Hosts	224	178	230	236	238	236	243	236
Remotes (Stand Alone Only)	654	666	684	717	731	743	769	764
Total Switches	1,438	1,473	1,469	1,460	1,461	1,456	1,482	1,470
Electromechanical	46	0	0	0	0	0	0	0
Analog Stored Program Control	373	318	224	119	97	71	58	46
Digital Stored Program Control	1,019	1,155	1,245	1,341	1,364	1,385	1,424	1,424
Total Number Access Lines in Service (000)	16,634	16,887	17,500	18,122	19,310	19,553	20,335	20,790
Electromechanical Lines Served	65	6	0	0	0	0	0	0
Analog Stored Program Control Lines Served	9,076	7,898	5,862	3,845	3,727	3,228	2,793	2,193
Digital Stored Program Control Lines Served	7,492	8,988	11,638	14,278	15,583	16,324	17,541	18,597
Touch-Tone Capable Switches	1,394	1,433	1,469	1,413	1,461	1,410	1,434	1,419
Access Lines with Touch-Tone Capability (000)	16,586	16,887	17,500	18,122	19,310	19,553	20,335	20,790
Switches Equipped for Equal Access	1,390	1,459	1,469	1,450	1,461	1,410	1,482	1,470
Access Lines with Equal Access (000)	16,563	16,855	17,500	18,122	19,310	19,553	20,335	20,790
Total Switches Equipped w/SS7-394 (InterLATA) Svc.	213	646	1,001	1,254	1,400	1,438	1,463	1,451
Lines with SS7-394 (InterLATA) Service (000)	4,779	9,099	13,376	16,482	18,538	19,293	20,266	20,694
Total Switches Equipped w/SS7-317 (IntraLATA) Svc.	502	818	1,116	1,347	1,417	1,439	1,463	1,462
Lines with SS7-317 (IntraLATA) Service (000)	7,662	9,838	13,961	17,217	18,653	19,322	20,280	20,739
Total Switches Equipped with ISDN	108	181	387	444	489	601	695	784
Lines with Access to ISDN (000)	1,738	3,839	8,056	10,259	12,860	13,802	15,464	16,804
Basic Rate ISDN (BRI) Interfaces Equipped	55,890	56,352	67,415	87,862	97,550	226,355	180,280	220,867
Primary Rate ISDN (PRI) Interfaces Equipped	703	728	707	1,505	1,677	4,247	14,569	24,800

Table 1.4 Switching Data
Bell Atlantic South Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Gross Plant Expenditures (Millions)	$2,353	$2,111	$2,133	$2,107	$2,390	$2,816	$2,855	$2,906
Local Switches	1,404	1,416	1,405	1,408	1,406	1,410	1,412	1,337
Tandems	43	42	42	42	42	48	42	42
Hosts	227	203	194	199	202	210	212	202
Remotes (Stand Alone Only)	639	661	666	685	696	712	718	646
Total Switches	1,414	1,432	1,421	1,422	1,420	1,430	1,426	1,351
Electromechanical	0	0	0	0	0	0	0	0
Analog Stored Program Control	267	212	157	123	93	79	64	37
Digital Stored Program Control	1,147	1,220	1,264	1,299	1,327	1,351	1,362	1,314
Total Number Access Lines in Service (000)	17,750	18,180	18,645	19,167	19,820	20,566	21,375	22,124
Electromechanical Lines Served	0	0	0	0	0	0	0	0
Analog Stored Program Control Lines Served	7,974	6,624	5,627	4,769	3,607	3,022	2,607	1,442
Digital Stored Program Control Lines Served	9,776	11,556	13,018	14,398	16,213	17,544	18,768	20,682
Touch-Tone Capable Switches	1,404	1,416	1,405	1,408	1,406	1,410	1,412	1,337
Access Lines with Touch-Tone Capability (000)	17,750	18,180	18,645	19,167	19,820	20,566	21,375	22,124
Switches Equipped for Equal Access	1,411	1,432	1,421	1,422	1,420	1,430	1,426	1,351
Access Lines with Equal Access (000)	17,740	18,180	18,645	19,167	19,820	20,566	21,375	22,124
Total Switches Equipped w/SS7-394 (InterLATA) Svc.	0	444	720	1,262	1,374	1,415	1,415	1,340
Lines with SS7-394 (InterLATA) Service (000)	0	7,362	13,240	18,118	19,709	20,469	21,325	21,801
Total Switches Equipped w/SS7-317 (IntraLATA) Svc.	1,178	1,306	1,359	1,374	1,373	1,426	1,426	1,351
Lines with SS7-317 (IntraLATA) Service (000)	15,953	17,182	18,221	19,049	19,780	20,518	21,375	21,859
Total Switches Equipped with ISDN	332	367	515	592	671	722	734	768
Lines with Access to ISDN (000)	8,514	8,745	9,923	11,750	13,919	15,534	16,754	18,825
Basic Rate ISDN (BRI) Interfaces Equipped	16,880	92,654	101,858	163,901	223,626	279,372	357,469	729,987
Primary Rate ISDN (PRI) Interfaces Equipped	7	50	121	5,311	9,185	17,724	31,171	51,278

Table 1.5 Switching Data
Bell Atlantic North Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Gross Plant Expenditures (Millions)	$2,099	$2,003	$2,152	$2,208	$2,316	$2,214	$2,478	$2,765
Local Switches	1,316	1,317	1,307	1,297	1,290	1,274	1,291	1,279
Tandems	29	23	23	23	23	23	25	25
Hosts	137	151	155	159	169	157	153	167
Remotes (Stand Alone Only)	531	668	699	722	728	732	729	759
Total Switches	1,336	1,336	1,326	1,316	1,309	1,293	1,311	1,304
Electromechanical	128	0	0	0	0	0	0	0
Analog Stored Program Control	274	251	192	123	101	58	22	0
Digital Stored Program Control	934	1,085	1,134	1,193	1,208	1,235	1,289	1,304
Total Number Access Lines in Service (000)	15,409	15,699	16,129	16,578	17,139	17,739	18,339	18,714
Electromechanical Lines Served	447	0	0	0	0	0	0	0
Analog Stored Program Control Lines Served	5,590	5,173	4,123	2,800	1,969	1,035	368	0
Digital Stored Program Control Lines Served	9,372	10,526	12,006	13,778	15,170	16,704	17,971	18,714
Touch-Tone Capable Switches	1,229	1,317	1,307	1,297	1,286	1,274	1,291	1,279
Access Lines with Touch-Tone Capability (000)	15,284	15,699	16,129	16,578	17,139	17,739	18,339	18,714
Switches Equipped for Equal Access	1,167	1,291	1,307	1,316	1,309	1,293	1,311	1,304
Access Lines with Equal Access (000)	15,093	15,607	16,077	16,578	17,139	17,739	18,339	18,714
Total Switches Equipped w/SS7-394 (InterLATA) Svc.	161	739	970	1,119	1,203	1,235	1,292	1,304
Lines with SS7-394 (InterLATA) Service (000)	3,147	8,457	11,300	13,852	15,168	16,704	18,098	18,714
Total Switches Equipped w/SS7-317 (IntraLATA) Svc.	430	739	969	1,119	1,203	1,235	1,292	1,304
Lines with SS7-317 (IntraLATA) Service (000)	4,354	8,457	11,300	13,832	15,168	16,704	18,098	18,714
Total Switches Equipped with ISDN	27	42	114	247	259	357	486	530
Lines with Access to ISDN (000)	843	1,232	3,483	9,357	8,198	12,148	14,371	15,541
Basic Rate ISDN (BRI) Interfaces Equipped	25,529	39,653	62,522	118,150	139,694	226,280	303,073	358,073
Primary Rate ISDN (PRI) Interfaces Equipped	0	251	837	1,082	3,322	7,051	12,751	20,705

Table 1.6 Switching Data
BellSouth Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Gross Plant Expenditures (Millions)	$2,841	$2,925	$3,012	$3,118	$3,160	$3,269	$3,477	$3,459
Local Switches	1,666	1,664	1,661	1,658	1,647	1,650	1,654	1,653
Tandems	62	66	70	70	71	70	70	71
Hosts	270	272	269	280	289	297	317	307
Remotes (Stand Alone Only)	696	703	714	732	742	747	766	765
Total Switches	1,680	1,678	1,680	1,677	1,668	1,670	1,674	1,673
Electromechanical	0	0	0	0	0	0	0	0
Analog Stored Program Control	318	283	236	182	158	130	106	100
Digital Stored Program Control	1,362	1,395	1,444	1,495	1,510	1,540	1,568	1,573
Total Number Access Lines in Service (000)	17,972	18,607	19,233	20,141	21,064	22,019	23,080	23,909
Electromechanical Lines Served	0	0	0	0	0	0	0	0
Analog Stored Program Control Lines Served	7,726	7,173	5,929	4,837	4,455	4,020	3,746	3,536
Digital Stored Program Control Lines Served	10,246	11,434	13,304	15,304	16,609	17,999	19,334	20,373
Touch-Tone Capable Switches	1,666	1,664	1,661	1,658	1,647	1,650	1,654	1,653
Access Lines with Touch-Tone Capability (000)	17,972	18,607	19,233	20,141	21,064	22,019	23,080	23,909
Switches Equipped for Equal Access	1,680	1,678	1,680	1,677	1,668	1,670	1,674	1,673
Access Lines with Equal Access (000)	17,972	18,607	19,233	20,141	21,064	22,019	23,080	23,909
Total Switches Equipped w/SS7-394 (InterLATA) Svc.	590	966	1,447	1,627	1,629	1,652	1,674	1,673
Lines with SS7-394 (InterLATA) Service (000)	9,391	14,231	18,067	20,118	20,737	21,874	23,080	23,909
Total Switches Equipped w/SS7-317 (IntraLATA) Svc.	956	1,121	1,452	1,628	1,630	1,652	1,674	1,673
Lines with SS7-317 (IntraLATA) Service (000)	14,635	15,959	18,122	20,136	20,755	21,874	23,080	23,909
Total Switches Equipped with ISDN	171	224	324	407	467	518	584	596
Lines with Access to ISDN (000)	3,319	4,934	7,606	9,708	10,988	12,948	14,894	15,980
Basic Rate ISDN (BRI) Interfaces Equipped	34,613	50,774	65,607	76,348	80,641	122,043	167,512	183,458
Primary Rate ISDN (PRI) Interfaces Equipped	282	559	1,814	3,534	4,803	9,154	21,389	33,564

Table 1.7 Switching Data
SBC Pacific Telesis Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Gross Plant Expenditures (Millions)	$1,688	$1,625	$1,734	$1,620	$1,664	$1,877	$2,209	$2,165
Local Switches	842	853	846	837	840	833	810	801
Tandems	19	20	20	20	20	20	21	24
Hosts	102	103	111	121	117	114	135	121
Remotes (Stand Alone Only)	238	253	302	320	316	310	364	361
Total Switches	862	873	866	857	860	853	830	824
Electromechanical	4	3	3	2	1	0	0	0
Analog Stored Program Control	242	218	176	109	87	72	49	38
Digital Stored Program Control	616	652	687	746	772	781	781	786
Total Number Access Lines in Service (000)	14,381	14,661	14,971	15,417	16,021	16,460	17,155	18,158
Electromechanical Lines Served	1	1	1	1	0	0	0	0
Analog Stored Program Control Lines Served	8,557	8,128	7,036	5,029	4,036	3,354	2,422	1,825
Digital Stored Program Control Lines Served	5,823	6,532	7,934	10,387	11,985	13,106	14,733	16,333
Touch-Tone Capable Switches	842	853	846	837	840	833	810	801
Access Lines with Touch-Tone Capability (000)	14,381	14,661	14,971	15,384	15,984	16,460	17,155	18,158
Switches Equipped for Equal Access	832	844	844	834	838	852	810	801
Access Lines with Equal Access (000)	14,348	14,630	14,949	15,360	15,966	16,460	17,155	18,158
Total Switches Equipped w/SS7-394 (InterLATA) Svc.	53	374	522	764	772	794	791	803
Lines with SS7-394 (InterLATA) Service (000)	1,161	9,638	12,490	14,781	15,512	15,616	16,956	18,134
Total Switches Equipped w/SS7-317 (IntraLATA) Svc.	253	374	522	764	772	794	804	803
Lines with SS7-317 (IntraLATA) Service (000)	7,190	9,638	12,490	14,781	15,512	15,616	16,956	18,134
Total Switches Equipped with ISDN	88	150	229	347	417	473	531	551
Lines with Access to ISDN (000)	1,567	2,905	5,349	8,494	10,291	11,895	13,632	15,134
Basic Rate ISDN (BRI) Interfaces Equipped	36,246	47,661	65,683	115,146	171,305	304,182	314,003	510,117
Primary Rate ISDN (PRI) Interfaces Equipped	113	308	357	708	3,491	13,448	20,125	143,345

Table 1.8 Switching Data
SBC Southwestern Bell Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Gross Plant Expenditures (Millions)	$1,519	$1,835	$1,723	$1,739	$1,759	$2,326	$2,741	$2,752
Local Switches	1,356	1,392	1,437	1,511	1,644	1,670	1,690	1,644
Tandems	48	67	64	60	60	60	60	67
Hosts	131	191	230	233	245	241	267	230
Remotes (Stand Alone Only)	311	488	672	779	935	1,077	1,077	1,158
Total Switches	1,380	1,425	1,469	1,539	1,679	1,730	1,750	1,711
Electromechanical	398	222	83	73	58	0	0	0
Analog Stored Program Control	366	348	308	264	252	162	136	115
Digital Stored Program Control	616	855	1,078	1,202	1,369	1,568	1,614	1,596
Total Number Access Lines in Service (000)	12,357	12,693	13,180	13,611	14,095	14,104	15,306	15,872
Electromechanical Lines Served	686	314	102	96	62	0	0	0
Analog Stored Program Control Lines Served	7,704	7,455	7,078	6,608	6,531	5,657	5,055	4,119
Digital Stored Program Control Lines Served	3,967	4,924	6,000	6,907	7,502	8,447	10,251	11,753
Touch-Tone Capable Switches	1,356	1,392	1,437	1,511	1,644	1,670	1,690	1,644
Access Lines with Touch-Tone Capability (000)	12,357	12,693	13,180	13,611	14,095	14,104	15,306	15,872
Switches Equipped for Equal Access	871	1,119	1,340	1,511	1,644	1,670	1,741	1,711
Access Lines with Equal Access (000)	11,517	12,284	13,060	13,611	14,095	14,104	15,306	15,872
Total Switches Equipped w/SS7-394 (InterLATA) Svc.	0	607	723	1,263	1,466	1,597	1,724	1,707
Lines with SS7-394 (InterLATA) Service (000)	0	8,117	8,828	12,787	13,289	13,890	15,249	15,858
Total Switches Equipped w/SS7-317 (IntraLATA) Svc.	105	563	649	1,263	1,466	1,597	1,724	1,707
Lines with SS7-317 (IntraLATA) Service (000)	2,332	7,733	8,468	12,787	13,289	13,890	15,249	15,858
Total Switches Equipped with ISDN	79	92	92	123	303	331	331	360
Lines with Access to ISDN (000)	981	1,964	1,476	1,933	8,826	9,440	10,577	13,361
Basic Rate ISDN (BRI) Interfaces Equipped	47,230	88,960	88,960	57,041	108,784	104,604	185,018	225,427
Primary Rate ISDN (PRI) Interfaces Equipped	161	380	410	1,238	5,084	6,150	15,434	31,570

Table 1.9 Switching Data
U S WEST Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Gross Plant Expenditures (Millions)	$2,126	$2,413	$2,210	$2,359	$2,570	$2,995	$2,540	$2,366
Local Switches	1,824	1,834	1,841	1,738	1,641	1,521	1,441	1,446
Tandems	52	51	51	51	51	51	51	51
Hosts	172	195	222	232	238	248	249	253
Remotes (Stand Alone Only)	515	692	880	984	961	852	781	786
Total Switches	1,841	1,852	1,858	1,752	1,654	1,534	1,492	1,458
Electromechanical	572	390	210	20	1	1	0	0
Analog Stored Program Control	327	294	261	213	188	146	113	95
Digital Stored Program Control	942	1,168	1,387	1,519	1,465	1,387	1,379	1,363
Total Number Access Lines in Service (000)	12,886	13,268	13,710	14,309	14,817	15,405	16,132	16,859
Electromechanical Lines Served	677	396	161	18	1	1	0	0
Analog Stored Program Control Lines Served	6,823	6,508	6,257	5,303	4,706	4,245	4,228	3,574
Digital Stored Program Control Lines Served	5,386	6,364	7,292	8,988	10,110	11,159	11,905	13,286
Touch-Tone Capable Switches	1,824	1,834	1,841	1,738	1,641	1,521	1,441	1,446
Access Lines with Touch-Tone Capability (000)	12,886	13,268	13,710	14,309	14,817	15,405	16,132	16,859
Switches Equipped for Equal Access	1,250	1,458	1,636	1,723	1,638	1,520	1,492	1,458
Access Lines with Equal Access (000)	12,182	12,844	13,529	14,287	14,816	15,404	16,132	16,859
Total Switches Equipped w/SS7-394 (InterLATA) Svc.	231	470	620	819	1,116	1,143	1,305	1,346
Lines with SS7-394 (InterLATA) Service (000)	4,899	7,623	9,931	11,704	13,411	14,420	15,739	16,769
Total Switches Equipped w/SS7-317 (IntraLATA) Svc.	246	471	621	839	1,116	1,143	1,305	1,346
Lines with SS7-317 (IntraLATA) Service (000)	5,196	7,679	9,931	11,663	13,411	14,420	15,739	16,769
Total Switches Equipped with ISDN	115	163	213	240	262	327	541	557
Lines with Access to ISDN (000)	3,603	4,757	3,982	5,045	6,192	9,668	10,264	11,189
Basic Rate ISDN (BRI) Interfaces Equipped	72,904	92,613	108,775	120,058	126,530	146,570	162,953	165,733
Primary Rate ISDN (PRI) Interfaces Equipped	387	396	674	742	2,315	2,734	4,329	4,867

Table 1.10 Switching Data
GTE Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Gross Plant Expenditures (Millions)	$2,784	$2,663	$2,700	$2,738	$2,573	$2,628	$3,021	$3,184
Local Switches	6,422	6,597	6,731	6,155	6,274	6,499	6,453	6,731
Tandems	159	162	158	143	157	166	165	162
Hosts	737	924	955	849	884	929	939	956
Remotes (Stand Alone Only)	2,048	1,558	1,732	1,767	2,031	1,925	1,960	2,739
Total Switches	6,441	6,632	6,769	6,172	6,291	6,520	6,483	6,796
Electromechanical	1,462	1,339	1,197	934	679	393	168	0
Analog Stored Program Control	98	83	78	46	26	17	10	0
Digital Stored Program Control	4,881	5,209	5,494	5,192	5,586	6,109	6,305	6,796
Total Number Access Lines in Service (000)	15,633	15,781	16,274	16,064	16,641	17,393	18,321	19,123
Electromechanical Lines Served	1,434	1,260	1,084	797	533	285	157	0
Analog Stored Program Control Lines Served	1,388	1,030	834	508	378	242	197	0
Digital Stored Program Control Lines Served	12,811	13,491	14,357	14,759	15,731	16,866	17,966	19,123
Touch-Tone Capable Switches	6,422	6,597	6,731	6,155	6,274	6,499	6,453	6,731
Access Lines with Touch-Tone Capability (000)	15,633	15,781	16,274	16,064	16,641	17,393	18,321	19,123
Switches Equipped for Equal Access	3,006	4,930	5,399	5,122	5,622	6,122	6,309	6,799
Access Lines with Equal Access (000)	13,211	14,186	15,069	15,190	16,114	17,101	18,156	19,123
Total Switches Equipped w/SS7-394 (InterLATA) Svc.	0	1,499	2,034	2,250	2,930	3,897	4,215	5,716
Lines with SS7-394 (InterLATA) Service (000)	0	6,506	8,885	10,774	12,868	15,192	15,965	18,161
Total Switches Equipped w/SS7-317 (IntraLATA) Svc.	421	2,042	2,157	2,250	2,930	4,218	4,215	5,716
Lines with SS7-317 (IntraLATA) Service (000)	4,871	9,073	9,715	10,774	12,868	15,434	15,965	18,161
Total Switches Equipped with ISDN	44	218	272	270	390	523	779	1,246
Lines with Access to ISDN (000)	730	1,399	2,095	5,003	6,249	9,678	10,619	14,574
Basic Rate ISDN (BRI) Interfaces Equipped	8,884	22,763	30,741	63,012	91,326	98,145	126,946	139,471
Primary Rate ISDN (PRI) Interfaces Equipped	77	475	896	1,406	2,703	7,377	16,465	36,386

Table 2.1 Transmission System Data
Total - All Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Total Sheath Kilometers	5,768,111	5,825,538	5,631,823	5,570,853	5,553,702	5,587,572	5,664,315	5,763,419
Copper	5,251,928	5,248,771	5,281,958	5,185,466	5,127,707	5,124,940	5,163,039	5,212,873
Fiber	245,150	291,471	341,415	378,038	419,175	456,814	495,380	536,520
Other	271,035	285,296	8,451	7,350	6,819	5,819	5,896	14,026
Digital Carrier Links	3,480,813	3,909,481	4,567,066	4,994,143	6,433,855	8,720,221	11,203,512	14,822,362
Copper	1,127,431	980,270	923,461	686,515	604,164	723,700	861,424	909,263
Radio	83,446	102,347	102,680	92,924	79,573	51,798	50,629	44,977
Fiber	2,269,936	2,826,864	3,540,922	4,214,704	5,750,118	7,944,723	10,291,459	13,868,122
Total Circuit Links	19,086,423	19,926,411	20,533,013	23,293,421	25,385,271	24,387,840	28,847,081	32,231,481
Baseband	1,463,701	968,452	692,383	547,345	423,463	380,113	319,122	311,350
Analog Carrier	87,492	37,080	23,063	12,206	8,647	3,498	2,260	989
Digital Carrier	17,535,230	18,920,879	19,817,544	22,733,870	24,953,161	24,004,229	28,525,699	31,919,142
Total Equipped Channels	215,602,988	227,730,736	248,436,477	254,793,596	263,768,547	255,430,475	264,429,362	279,341,845
Copper	207,367,142	217,154,922	221,879,025	222,353,743	226,953,330	227,384,081	230,903,175	236,490,113
Fiber Digital Carrier	8,227,643	10,569,994	26,549,664	32,433,491	36,809,055	28,041,605	33,515,370	42,846,429
Other	8,202	5,821	7,791	6,360	6,162	4,789	10,817	5,303
Total Working Channels	136,482,321	139,618,361	142,822,216	149,000,831	155,980,548	163,245,940	170,083,120	182,546,160
Copper	131,199,676	132,456,117	133,010,643	136,073,024	141,452,266	144,576,836	147,286,389	151,593,687
Fiber Digital Carrier	5,278,258	7,159,115	9,807,620	12,924,773	14,525,425	18,666,394	22,793,636	30,950,165
Other	4,386	3,131	3,955	3,035	2,857	2,710	3,095	2,308
Copper Pairs Term Main Frame (Loop Plant Only)	208,381,202	209,059,369	212,060,160	210,515,830	212,867,099	213,115,863	215,534,261	218,990,613
Fiber Strands Term in the CO (Loop Plant Only)	277,698	476,713	598,657	982,625	1,203,705	1,465,877	1,651,999	2,006,581
Fiber Term at Customer Premises DS1 Rate	75,141	106,758	146,405	184,235	222,040	294,808	363,189	307,374
Fiber Term at Customer Premises DS3 Rate & Higher	17,991	14,824	16,251	19,963	22,699	32,352	29,893	47,205

Table 2.2 Transmission System Data
Total - Bell Operating Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Total Sheath Kilometers	4,163,639	4,214,804	4,264,568	4,256,253	4,319,069	4,339,067	4,396,205	4,473,351
Copper	3,955,622	3,965,405	3,976,101	3,934,243	3,960,342	3,947,238	3,974,204	4,009,772
Fiber	196,791	238,406	280,017	314,661	351,907	386,011	416,105	449,554
Other	11,228	10,993	8,451	7,350	6,819	5,819	5,896	14,026
Digital Carrier Links	3,271,023	3,564,847	4,159,574	4,495,728	5,828,645	7,955,574	10,067,498	13,558,832
Copper	1,039,316	864,931	805,290	568,197	485,909	433,758	413,204	420,488
Radio	77,664	89,731	90,175	81,137	68,563	44,421	43,693	38,515
Fiber	2,154,043	2,610,185	3,264,106	3,846,394	5,274,173	7,477,395	9,610,601	13,099,829
Total Circuit Links	16,382,990	16,936,496	17,480,159	19,862,967	21,280,627	22,487,142	26,385,683	29,786,010
Baseband	1,324,771	905,946	630,460	488,510	367,759	336,461	278,352	271,269
Analog Carrier	66,571	28,956	16,135	7,470	4,918	2,123	1,427	619
Digital Carrier	14,991,648	16,001,594	16,833,542	19,366,987	20,907,950	22,148,558	26,105,904	29,514,122
Total Equipped Channels	187,777,737	199,711,901	219,835,083	226,750,190	233,174,719	225,301,948	234,150,782	247,886,836
Copper	180,538,025	190,509,931	194,889,380	196,073,469	198,236,366	199,237,109	203,193,297	208,249,299
Fiber Digital Carrier	7,234,047	9,199,377	24,942,615	30,675,406	34,937,147	26,063,083	30,956,125	39,636,465
Other	5,665	2,594	3,091	1,313	1,206	1,756	1,360	1,072
Total Working Channels	118,654,346	120,848,353	124,191,050	130,191,511	136,230,815	142,823,739	149,428,649	160,620,830
Copper	114,046,814	114,609,436	115,495,808	118,436,706	122,975,273	125,595,227	128,436,312	131,867,374
Fiber Digital Carrier	4,605,184	6,237,727	8,693,817	11,754,497	13,255,293	17,227,823	20,992,080	28,753,249
Other	2,347	1,192	1,427	309	249	689	257	207
Copper Pairs Term Main Frame (Loop Plant Only)	181,769,794	182,448,499	183,819,758	184,441,462	184,159,296	185,310,972	185,820,281	188,677,100
Fiber Strands Term in the CO (Loop Plant Only)	259,058	450,209	560,159	927,144	1,131,943	1,385,505	1,558,761	1,879,977
Fiber Term at Customer Premises DS1 Rate	73,731	102,303	139,865	176,294	207,421	278,339	339,709	302,528
Fiber Term at Customer Premises DS3 Rate & Higher	17,468	12,793	12,426	15,527	18,153	21,309	27,720	42,766

Table 2.3 Transmission System Data
Ameritech Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Total Sheath Kilometers	547,157	552,792	556,814	537,133	562,934	575,407	586,712	598,858
Copper	522,154	522,374	521,187	498,239	519,775	526,955	533,491	541,197
Fiber	24,559	29,468	34,655	37,980	42,370	47,676	52,450	56,687
Other	444	950	971	915	789	776	771	974
Digital Carrier Links	291,366	335,813	452,223	535,035	715,311	915,501	1,084,919	1,350,740
Copper	91,888	84,340	69,609	55,193	46,806	36,261	29,355	36,092
Radio	5,041	4,662	4,651	3,861	759	281	279	293
Fiber	194,437	246,811	377,963	475,981	667,746	878,959	1,055,285	1,314,355
Total Circuit Links	2,628,075	2,783,389	2,800,655	2,964,296	3,278,058	3,577,253	4,118,183	4,912,927
Baseband	187,964	151,207	59,460	56,164	56,287	53,688	47,196	46,197
Analog Carrier	3,295	1,734	468	440	189	38	38	35
Digital Carrier	2,436,816	2,630,448	2,740,727	2,907,692	3,221,582	3,523,527	4,070,949	4,866,695
Total Equipped Channels	29,845,701	29,831,652	30,818,287	31,847,802	31,957,236	33,365,840	34,740,814	36,301,862
Copper	29,005,103	28,551,452	29,549,359	29,482,850	29,124,886	29,571,017	29,797,059	30,063,619
Fiber Digital Carrier	840,598	1,280,200	1,268,928	2,364,952	2,832,350	3,794,823	4,943,755	6,238,243
Other	0	0	0	0	0	0	0	0
Total Working Channels	19,055,582	19,283,745	18,610,716	19,105,653	19,714,345	20,506,219	21,152,075	21,782,557
Copper	18,588,687	18,317,812	17,811,513	18,096,153	18,478,770	18,896,376	19,082,995	19,216,231
Fiber Digital Carrier	466,895	965,933	799,203	1,009,500	1,235,575	1,609,843	2,069,080	2,566,326
Other	0	0	0	0	0	0	0	0
Copper Pairs Term Main Frame (Loop Plant Only)	28,038,407	28,244,797	28,687,860	28,645,733	28,217,638	28,693,470	28,970,660	29,303,138
Fiber Strands Term in the CO (Loop Plant Only)	31,299	40,664	56,834	66,035	79,661	103,648	123,302	141,621
Fiber Term at Customer Premises DS1 Rate	13,964	18,905	23,675	26,660	31,941	39,124	46,366	53,506
Fiber Term at Customer Premises DS3 Rate & Higher	1,462	1,871	2,434	2,755	3,192	3,874	4,453	5,145

Table 2.4 Transmission System Data
Bell Atlantic South Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Total Sheath Kilometers	495,980	501,229	507,245	514,377	518,999	524,759	534,981	545,497
Copper	465,277	462,151	461,040	461,558	460,772	462,019	465,471	468,409
Fiber	29,644	38,123	45,402	52,014	57,425	62,740	69,509	77,086
Other	1,059	956	803	805	803	0	2	2
Digital Carrier Links	235,043	243,064	252,108	278,199	303,468	342,525	373,549	433,169
Copper	77,730	67,892	62,122	63,297	66,127	72,045	76,842	83,741
Radio	7,856	7,280	7,170	7,152	7,006	5,261	4,824	3,511
Fiber	149,457	167,892	182,816	207,750	230,335	265,219	291,883	345,917
Total Circuit Links	2,441,962	2,513,861	2,550,021	2,604,573	2,766,872	2,935,557	3,248,498	3,568,414
Baseband	243,128	146,756	105,941	73,773	42,296	35,110	29,036	26,695
Analog Carrier	0	0	0	0	0	0	0	0
Digital Carrier	2,198,834	2,367,105	2,444,080	2,530,800	2,724,576	2,900,447	3,219,462	3,541,719
Total Equipped Channels	32,859,600	33,799,188	50,194,454	52,799,629	56,613,562	42,916,509	44,863,659	46,747,792
Copper	30,977,902	31,304,770	33,722,962	33,568,961	34,269,367	33,739,851	34,259,397	33,885,506
Fiber Digital Carrier	1,881,699	2,494,419	16,471,492	19,230,668	22,344,195	9,176,658	10,604,262	12,862,286
Other	0	0	0	0	0	0	0	0
Total Working Channels	19,527,456	19,749,052	21,353,685	22,145,713	23,514,796	25,271,313	27,328,127	30,691,499
Copper	18,478,872	18,285,784	18,640,719	18,513,071	19,067,569	19,360,794	20,019,201	20,629,036
Fiber Digital Carrier	1,048,584	1,463,270	2,712,966	3,632,642	4,447,227	5,910,519	7,308,926	10,062,463
Other	0	0	0	0	0	0	0	0
Copper Pairs Term Main Frame (Loop Plant Only)	29,920,520	30,272,652	30,504,710	30,479,865	30,444,725	30,488,291	30,645,886	31,212,287
Fiber Strands Term in the CO (Loop Plant Only)	14,189	125,719	129,509	416,307	490,314	564,146	595,890	688,739
Fiber Term at Customer Premises DS1 Rate	9,103	13,408	25,922	37,197	47,737	72,187	86,820	53,187
Fiber Term at Customer Premises DS3 Rate & Higher	285	234	437	731	970	1,683	2,523	7,838

Table 2.5 Transmission System Data
Bell Atlantic North Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Total Sheath Kilometers	446,333	448,417	451,030	452,707	454,149	454,905	457,989	462,908
Copper	420,342	417,866	416,312	414,170	412,025	409,965	408,112	408,330
Fiber	23,625	28,496	33,013	37,118	41,000	44,401	49,478	53,786
Other	2,366	2,055	1,704	1,419	1,124	539	399	792
Digital Carrier Links	371,972	388,726	442,636	459,959	467,055	525,240	765,039	1,001,219
Copper	95,207	76,200	50,392	51,873	45,579	26,365	27,652	26,667
Radio	4,988	4,473	3,120	1,951	1,061	793	96	155
Fiber	271,777	308,053	389,124	406,135	420,415	498,082	737,291	974,397
Total Circuit Links	2,757,499	2,628,803	2,609,152	2,596,631	2,446,475	2,421,465	2,605,246	3,265,824
Baseband	590,617	406,393	310,515	244,437	170,517	152,279	118,376	105,955
Analog Carrier	197	0	0	0	0	0	0	0
Digital Carrier	2,166,685	2,222,410	2,298,636	2,352,194	2,275,958	2,269,186	2,486,870	3,159,869
Total Equipped Channels	30,981,103	31,948,463	32,786,500	33,221,536	33,494,241	34,370,730	35,463,586	40,248,698
Copper	30,012,851	30,800,663	31,399,860	31,706,561	31,393,669	31,594,130	32,166,704	33,115,969
Fiber Digital Carrier	968,252	1,147,800	1,386,642	1,514,975	2,100,572	2,776,600	3,296,882	7,132,729
Other	0	0	0	0	0	0	0	0
Total Working Channels	18,147,166	18,418,983	18,869,248	18,776,462	20,176,170	20,156,760	21,272,050	23,123,682
Copper	17,676,517	17,836,040	18,135,776	17,874,873	18,859,714	18,637,547	19,410,328	18,592,387
Fiber Digital Carrier	470,649	582,943	733,473	901,589	1,316,456	1,519,213	1,861,722	4,531,295
Other	0	0	0	0	0	0	0	0
Copper Pairs Term Main Frame (Loop Plant Only)	30,116,461	29,386,450	30,053,156	30,097,348	30,190,923	30,253,845	30,697,009	30,662,859
Fiber Strands Term in the CO (Loop Plant Only)	48,329	88,279	143,770	188,194	214,587	240,641	276,320	386,208
Fiber Term at Customer Premises DS1 Rate	8,270	19,682	21,911	28,732	30,529	31,120	45,009	53,445
Fiber Term at Customer Premises DS3 Rate & Higher	2,605	442	869	1,036	1,363	1,698	1,571	1,677

Table 2.6 Transmission System Data
BellSouth Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Total Sheath Kilometers	966,488	979,751	993,633	1,005,397	1,020,809	1,034,601	1,050,186	1,074,896
Copper	916,955	921,509	927,265	930,812	937,626	943,090	951,758	965,108
Fiber	47,759	56,692	65,100	73,370	82,012	90,093	96,852	105,335
Other	1,773	1,550	1,268	1,215	1,171	1,418	1,576	4,453
Digital Carrier Links	567,627	792,255	991,318	1,035,397	1,210,164	1,490,563	1,873,566	2,457,119
Copper	81,294	89,209	86,357	52,806	48,503	69,210	66,326	89,213
Radio	11,394	27,597	27,188	24,234	16,393	6,942	2,082	928
Fiber	474,939	675,449	877,770	958,357	1,145,268	1,414,411	1,805,158	2,366,978
Total Circuit Links	2,459,749	2,702,141	2,935,085	4,287,654	4,756,430	5,245,925	6,107,816	6,134,728
Baseband	59,780	28,095	17,575	14,713	9,985	16,635	12,054	9,675
Analog Carrier	630	122	99	50	0	0	0	0
Digital Carrier	2,399,339	2,673,924	2,917,390	4,272,891	4,746,445	5,229,290	6,095,762	6,125,053
Total Equipped Channels	31,352,182	31,742,421	33,070,338	34,669,704	36,022,283	37,866,890	39,550,588	40,957,871
Copper	28,925,104	28,821,672	29,291,200	29,995,720	30,351,794	30,903,216	31,270,774	31,917,878
Fiber Digital Carrier	2,426,385	2,919,937	3,778,341	4,673,140	5,669,647	6,962,832	8,278,972	9,039,151
Other	692	812	798	842	842	842	842	842
Total Working Channels	19,915,444	20,196,488	21,275,558	23,284,636	24,682,894	26,230,400	27,921,162	29,836,968
Copper	18,002,278	17,874,950	18,288,532	19,283,574	19,871,262	20,318,019	20,708,890	21,233,672
Fiber Digital Carrier	1,913,109	2,321,451	2,986,937	4,000,986	4,811,550	5,912,292	7,212,190	8,603,214
Other	56	87	90	77	82	89	82	82
Copper Pairs Term Main Frame (Loop Plant Only)	26,383,292	26,382,231	26,433,408	26,451,200	26,527,293	26,342,776	26,703,438	27,082,625
Fiber Strands Term in the CO (Loop Plant Only)	44,363	52,591	59,663	73,260	106,710	138,364	157,957	185,416
Fiber Term at Customer Premises DS1 Rate	2,726	4,681	9,078	13,941	19,132	27,482	36,911	50,431
Fiber Term at Customer Premises DS3 Rate & Higher	2,918	5,490	3,294	4,034	4,559	5,353	6,847	8,974

Table 2.7 Transmission System Data
SBC Pacific Telesis Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Total Sheath Kilometers	348,654	351,748	351,695	343,658	346,127	349,697	363,726	368,122
Copper	335,484	336,461	334,674	324,942	325,537	327,040	339,207	341,563
Fiber	11,266	13,412	15,814	17,598	19,472	21,513	23,375	25,416
Other	1,904	1,875	1,207	1,118	1,118	1,144	1,144	1,144
Digital Carrier Links	1,012,194	839,177	890,295	962,296	1,383,235	2,544,964	3,280,630	4,514,485
Copper	439,280	344,605	334,947	153,090	122,703	117,589	110,587	88,363
Radio	7,381	7,761	8,501	7,568	8,489	9,914	10,533	11,091
Fiber	565,533	486,811	546,847	801,638	1,252,043	2,417,461	3,159,510	4,415,031
Total Circuit Links	2,233,398	2,104,431	2,137,179	2,568,706	2,646,904	2,240,779	3,369,967	3,760,855
Baseband	118,782	89,606	66,642	42,095	35,016	30,232	27,020	22,639
Analog Carrier	1,854	710	609	451	256	297	263	92
Digital Carrier	2,112,762	2,014,115	2,069,928	2,526,160	2,611,632	2,210,250	3,342,684	3,738,124
Total Equipped Channels	16,684,591	25,576,494	26,287,306	26,447,355	26,850,298	27,732,011	28,635,080	29,739,661
Copper	16,417,534	25,239,670	25,859,697	25,914,609	26,178,875	26,951,967	27,548,645	28,348,883
Fiber Digital Carrier	266,970	336,737	427,522	532,661	671,162	779,783	1,086,411	1,390,754
Other	87	87	87	85	261	261	24	24
Total Working Channels	15,393,192	15,624,516	15,840,904	16,110,206	16,877,850	17,719,765	18,254,128	20,103,518
Copper	15,222,339	15,400,695	15,556,249	15,758,760	16,448,199	17,212,991	17,569,012	19,235,044
Fiber Digital Carrier	170,776	223,744	284,575	351,364	429,536	506,657	685,092	868,450
Other	77	77	80	82	115	117	24	24
Copper Pairs Term Main Frame (Loop Plant Only)	23,813,846	24,098,663	24,632,897	24,577,002	24,619,462	25,055,625	25,412,880	25,953,289
Fiber Strands Term in the CO (Loop Plant Only)	31,676	35,565	39,830	33,538	34,692	37,156	88,192	97,385
Fiber Term at Customer Premises DS1 Rate	570	628	701	756	655	719	762	854
Fiber Term at Customer Premises DS3 Rate & Higher	7,772	1,710	2,410	3,108	4,047	3,113	6,145	7,432

Table 2.8 Transmission System Data
SBC Southwestern Bell Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Total Sheath Kilometers	631,229	637,840	646,283	652,224	662,108	676,945	685,526	700,914
Copper	603,323	605,825	608,238	609,725	612,764	617,776	622,960	634,236
Fiber	24,226	28,407	35,548	40,621	47,530	57,228	60,561	66,074
Other	3,682	3,608	2,497	1,878	1,814	1,942	2,005	604
Digital Carrier Links	402,312	537,239	660,586	717,040	1,116,103	1,236,919	1,510,025	2,278,495
Copper	129,880	104,474	112,915	119,260	120,492	44,702	35,545	32,033
Radio	17,454	13,055	15,354	13,261	13,094	5,172	7,256	4,023
Fiber	254,978	419,710	532,317	584,519	982,517	1,187,045	1,467,224	2,242,439
Total Circuit Links	1,812,234	2,028,241	2,132,469	2,271,891	2,583,685	2,887,611	3,374,225	4,013,947
Baseband	68,676	50,622	42,930	32,798	26,474	21,045	19,123	24,501
Analog Carrier	14,371	6,676	2,080	827	97	26	11	15
Digital Carrier	1,729,187	1,970,943	2,087,459	2,238,266	2,557,114	2,866,540	3,355,091	3,989,431
Total Equipped Channels	22,805,215	23,280,470	22,801,616	23,675,325	23,990,229	23,765,557	26,003,155	26,573,984
Copper	22,387,043	22,835,410	21,895,338	22,010,813	23,356,682	22,976,132	24,957,200	25,399,685
Fiber Digital Carrier	414,723	444,970	906,188	1,664,422	633,547	789,425	1,045,955	1,174,299
Other	3,449	90	90	90	0	0	0	0
Total Working Channels	12,924,549	13,400,320	13,431,477	15,446,486	15,917,610	16,579,937	16,305,661	17,626,797
Copper	12,595,246	13,047,301	12,703,861	14,046,786	15,376,311	15,937,288	15,532,286	16,738,819
Fiber Digital Carrier	327,985	352,945	727,542	1,399,626	541,299	642,649	773,375	887,978
Other	1,318	74	74	74	0	0	0	0
Copper Pairs Term Main Frame (Loop Plant Only)	21,723,564	22,047,874	21,379,496	22,010,903	21,990,829	22,185,268	22,926,817	22,904,300
Fiber Strands Term in the CO (Loop Plant Only)	37,827	41,947	56,560	66,497	124,026	189,365	193,409	206,178
Fiber Term at Customer Premises DS1 Rate	28,216	33,162	38,568	44,622	48,552	77,598	77,545	0
Fiber Term at Customer Premises DS3 Rate & Higher	1,338	1,612	1,916	2,566	2,733	4,365	5,039	5,615

Table 2.9 Transmission System Data
U S WEST Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Total Sheath Kilometers	727,800	743,027	757,868	750,756	753,942	722,753	717,084	722,157
Copper	692,088	699,219	707,384	694,797	691,844	660,393	653,205	650,929
Fiber	35,712	43,808	50,485	55,960	62,098	62,360	63,880	65,171
Other	0	0	0	0	0	0	0	6,057
Digital Carrier Links	390,509	428,573	470,408	507,802	633,309	899,862	1,179,770	1,523,605
Copper	124,037	98,211	88,948	72,678	35,699	67,586	66,897	64,379
Radio	23,550	24,903	24,191	23,110	21,761	16,058	18,623	18,514
Fiber	242,922	305,459	357,269	412,014	575,849	816,218	1,094,250	1,440,712
Total Circuit Links	2,050,073	2,175,630	2,315,598	2,569,216	2,802,203	3,178,552	3,561,748	4,129,315
Baseband	55,824	33,267	27,397	24,530	27,184	27,472	25,547	35,607
Analog Carrier	46,224	19,714	12,879	5,702	4,376	1,762	1,115	477
Digital Carrier	1,948,025	2,122,649	2,275,322	2,538,984	2,770,643	3,149,318	3,535,086	4,093,231
Total Equipped Channels	23,249,345	23,533,213	23,876,582	24,088,839	24,246,870	25,284,411	24,893,900	27,316,968
Copper	22,812,488	22,956,294	23,170,964	23,393,955	23,561,093	23,500,796	23,193,518	25,517,759
Fiber Digital Carrier	435,420	575,314	703,502	694,588	685,674	1,782,962	1,699,888	1,799,003
Other	1,437	1,605	2,116	296	103	653	494	206
Total Working Channels	13,690,957	14,175,249	14,809,462	15,322,355	15,347,150	16,359,345	17,195,446	17,455,809
Copper	13,482,875	13,846,854	14,359,158	14,863,489	14,873,448	15,232,212	16,113,600	16,222,185
Fiber Digital Carrier	207,186	327,441	449,121	458,790	473,650	1,126,650	1,081,695	1,233,523
Other	896	954	1,183	76	52	483	151	101
Copper Pairs Term Main Frame (Loop Plant Only)	21,773,704	22,015,832	22,128,231	22,179,411	22,168,426	22,291,697	20,463,591	21,558,602
Fiber Strands Term in the CO (Loop Plant Only)	51,375	65,444	73,993	83,313	81,953	112,185	123,691	174,430
Fiber Term at Customer Premises DS1 Rate	10,882	11,837	20,010	24,386	28,875	30,109	46,296	91,105
Fiber Term at Customer Premises DS3 Rate & Higher	1,088	1,434	1,066	1,297	1,289	1,223	1,142	6,085

Table 2.10 Transmission System Data
GTE Companies

	1991	1992	1993	1994	1995	1996	1997	1998
Total Sheath Kilometers	1,604,472	1,610,734	1,367,255	1,314,600	1,234,633	1,248,505	1,268,110	1,290,068
Copper	1,296,306	1,283,366	1,305,857	1,251,223	1,167,365	1,177,702	1,188,835	1,203,101
Fiber	48,359	53,065	61,398	63,377	67,268	70,803	79,275	86,966
Other	259,807	274,303	0	0	0	0	0	0
Digital Carrier Links	209,790	344,634	407,492	498,415	605,210	764,647	1,136,014	1,263,530
Copper	88,115	115,339	118,171	118,318	118,255	289,942	448,220	488,775
Radio	5,782	12,616	12,505	11,787	11,010	7,377	6,936	6,462
Fiber	115,893	216,679	276,816	368,310	475,945	467,328	680,858	768,293
Total Circuit Links	2,703,433	2,989,915	3,052,854	3,430,454	4,104,644	1,900,698	2,461,398	2,445,471
Baseband	138,930	62,506	61,923	58,835	55,704	43,652	40,770	40,081
Analog Carrier	20,921	8,124	6,928	4,736	3,729	1,375	833	370
Digital Carrier	2,543,582	2,919,285	2,984,002	3,366,883	4,045,211	1,855,671	2,419,795	2,405,020
Total Equipped Channels	27,825,251	28,018,835	28,601,394	28,043,406	30,593,828	30,128,527	30,278,580	31,455,009
Copper	26,829,117	26,644,991	26,989,645	26,280,274	28,716,964	28,146,972	27,709,878	28,240,814
Fiber Digital Carrier	993,596	1,370,617	1,607,049	1,758,085	1,871,908	1,978,522	2,559,245	3,209,964
Other	2,537	3,227	4,700	5,047	4,956	3,033	9,457	4,231
Total Working Channels	17,827,975	18,770,008	18,631,166	18,809,320	19,749,733	20,422,201	20,654,471	21,925,330
Copper	17,152,862	17,846,681	17,514,835	17,636,318	18,476,993	18,981,609	18,850,077	19,726,313
Fiber Digital Carrier	673,074	921,388	1,113,803	1,170,276	1,270,132	1,438,571	1,801,556	2,196,916
Other	2,039	1,939	2,528	2,726	2,608	2,021	2,838	2,101
Copper Pairs Term Main Frame (Loop Plant Only)	26,611,408	26,610,870	28,240,402	26,074,368	28,707,803	27,804,891	29,713,980	30,313,513
Fiber Strands Term in the CO (Loop Plant Only)	18,640	26,504	38,498	55,481	71,762	80,372	93,238	126,604
Fiber Term at Customer Premises DS1 Rate	1,410	4,455	6,540	7,941	14,619	16,469	23,480	4,846
Fiber Term at Customer Premises DS3 Rate & Higher	523	2,031	3,825	4,436	4,546	11,043	2,173	4,439

Notes

Following are selected notes taken from the carriers ARMIS submissions that help clarify items presented in this report.

Tables 1.1 through 1.10

1998
Bell Atlantic South Companies:
1. Row 0111 - Local Switches - The reduction in switches is primarily due to removing business office remote switches from the database.

2. Row 0113 - Hosts - For Bell Atlantic Washington DC: Two hosts serve remote switches in Maryland.

3. Row 0311- ISDN Basic Rate Interfaces Equipped: Data from a different source which includes all capacity for ISDN BRI service.

BellSouth Companies:
1. Row 0300 - ISDN Potential Access Line Capacity - Potential access refers to the ability of the line to have ISDN access in the switch it is presently served by.

GTE Companies:
1. Row 0113 - Hosts - Hosts include base units controlling one or more remote switches that are either survivable or non-survivable.

1997:
Bell Atlantic South Companies:
1. Row -0111 - Local Switches - Includes customer-specific and for D.C., Maryland, and Virginia, WITS switches.

BellSouth Companies:
1. Row 0300 - ISDN Potential Access Line Capacity - Potential access refers to the ability of the line to have ISDN access in the switch it is presently served by.

SBC Southwestern Bell Companies:
1. Row 0114 - Remotes (Stand Alone Only) - Excludes remotes used in distribution services pairgain applications.

U S WEST Companies:
1. Row 0110 - Total Switches - Decreases are due to the sale of several rural exchanges. (COSAs NWIA, NWMN, NWNE, and NWSD)

GTE Companies:
1. Row 0113 - Hosts - Hosts include base units controlling one or more remote switches that are either survivable or non-survivable.

1996:
BellSouth Companies:
1. Row 0300 - ISDN Potential Access Line Capacity - Potential access refers to the ability of the line to have ISDN access in the switch it is presently served by.

SBC Southwestern Bell Companies:
1. Row 0114 - Remotes (Stand Alone Only) - Excludes remotes used in distribution services pairgain applications.

U S WEST Companies:
1. Row 0110 - Total Switches - Decreases are due to the sale of several rural exchanges. (COSAs MSID, MSNM, MSUT, NWND, and NWSD)

GTE Companies:
1. Row 0113 - Hosts - Hosts include base units controlling one or more remote switches that are either survivable or non-survivable.

1995:
Bell Atlantic South Companies:
1. Row 0232 - Lines with SS7-394 (InterLATA) Service - Includes lines in 24 customer specific-switches which do not require access to SS7-394 capabilities.

2. Row 0234 - Lines with SS7-317 (IntraLATA) Service - Includes lines in 43 customer specific-switches which do not require access to SS7-317 capabilities.

3. Row 0300 - ISDN Potential Access Line Capacity - The switches equipped with ISDN capabilities serve 13,141 (000) MSA lines and 700 (000) non-MSA lines.

4. Row 0311 - Basic Rate ISDN (BRI) Interfaces Equipped - Data represents interface units equipped.

5. Row 0312 - Primary Rate ISDN (PRI) Interfaces Equipped - Data represents interface units equipped.

BellSouth Companies:
1. Row 0300 - ISDN Potential Access Line Capacity - Potential access refers to the ability of the line to have ISDN access in the switch it is presently served by.

SBC Southwestern Bell Companies:
1. Row 0114 - Remotes (Stand Alone Only) - Excludes remotes used in distribution services pairgain applications.

U S WEST Companies:
1. Row 0110 - Total Switches - Decreases are due to the sale of several rural exchanges. (COSAs MSAZ, MSCO, PNOR, and PNWA)

GTE Companies:
1. Row 0113 - Hosts - Hosts include base units controlling one or more remote switches that are either survivable or non-survivable.

1994:
Bell Atlantic South Companies:
1. Row 0300 - ISDN Potential Access Line Capacity - Only counts lines in switches which are equipped to provide IDSN.

2. Row 0311 - Basic Rate ISDN (BRI) Interfaces Equipped - Data represents interface units equipped.

3. Row 0312 - Primary Rate ISDN (PRI) Interfaces Equipped - Data represents interface units equipped rather than working services reported in previous years.

BellSouth Companies:
1. Row 0300 - ISDN Potential Access Line Capacity - Potential access refers to the ability of the line to have ISDN access in the switch it is presently served by.

SBC Southwestern Bell Companies:
1. Row 0112 - Tandem - Tandem reporting includes all access tandems which carry Feature Group D traffic (1+, 0+, 800).

2. Row 0113 - Hosts - Arkansas is in the process of replacing all 2B and 1A switches with digital switches. This results in remote going up and host going down. As replacement occurs, many 2B host configurations are being replaced with remote configurations.

3. Row 0114 - Remotes (Stand Alone Only) - Southwestern Bell completed a Siemens overlay in Texas in 1994 which resulted in a substantial increase in MSA remotes.

4 Row 0114 - Remotes (Stand Alone Only) - Includes all remotes used in class 5 switch applications. Typically these remotes are equipped with stand alone capability. (However, this is not a requirement of a class 5 switch.)

5. Row 0114 - Remotes (Stand Alone Only) - Excludes remotes used in distribution services pairgain applications.

6. Row 0311 - Basic Rate ISDN (BRI) Interfaces Equipped - Effective end of year 1994, ARMIS 4307, Southwestern Bell has reported BRI interfaces which are fully equipped. That is only those frames which have

cards in the slots are considered responsive. Previously, Southwestern Bell reported BRI interfaces as the number of slots, with and without cards, contained in its BRI frames. This change effectively reduces the total reported.

7. Row 0312 - Primary Rate ISDN (PRI) Interfaces Equipped - Effective end of year 1994, ARMIS 4307, Southwestern Bell has reported PRI interfaces which are fully equipped. That is only those frames which have cards in the slots are considered responsive. Previously, Southwestern Bell reported PRI interfaces as the number of slots, with and without

U S WEST Companies:
1. Row 0110 - Total Switches - Decreases are due to the sale of several rural exchanges. (COSAs MSMT, MSUT, and MSWY)

GTE Companies:
1. Row 0113 - Hosts - Hosts include base units controlling one or more remote switches that are either survivable or non-survivable.

1993:
Bell Atlantic South Companies:
1. Row 0300 - ISDN Potential Access Line Capacity - Only counts lines in switches which are equipped to provide IDSN.

2. Row 0311 - Basic Rate ISDN (BRI) Interfaces Equipped - Data represents interface units equipped. Data for this report came from a different source and may be inconsistent with data previously reported.

3. Row 0312 - Primary Rate ISDN (PRI) Interfaces Equipped - Data represents the number of working services.

BellSouth Companies:
1. Row 0300 - ISDN Potential Access Line Capacity - Potential access refers to the ability of the line to have ISDN access in the switch it is presently served by.

SBC Pacific Telesis Companies:
1. Row 0312 - Primary Rate ISDN (PRI) Interfaces Equipped - Includes count for tandem (+20).

SBC Southwestern Bell Companies:
1. Row 0112 - Tandem - Tandem reporting includes all access tandems which carry Feature Group D traffic (1+, 0+, 800).

2. Row 0114 - Remotes (Stand Alone Only) - Includes all remotes used in class 5 switch applications. Typically these remotes are equipped with stand alone capability. (However, this is not a requirement of a class 5 switch.)

3. Row 0114 - Remotes (Stand Alone Only) - Excludes remotes used in distribution services pairgain applications.

4. Row 0300 - ISDN Potential Access Line Capacity - ISDN equipped switches are defined herein as switches that are physically ISDN equipped. Thus the equipped ISDN access lines appear lower than in 1992 ARMIS 4307 report where equipped ISDN was calculated to include all switches located in a wire center that was ISDN equipped.

GTE Companies:
1. Row 0113 - Hosts - Hosts include base units controlling one or more remote switches that are either survivable or non-survivable.

1992:
Bell Atlantic South Companies:
1. Row 0300 - ISDN Potential Access Line Capacity - All lines in a wire center which has one switch equipped with ISDN are included here consistent with disclosures in other ISDN documents.

2. Row 0311 - Basic Rate ISDN (BRI) Interfaces Equipped - Data represents interface units equipped rather than number of working services reported in previous filings.

3. Row 0312 - Primary Rate ISDN (PRI) Interfaces Equipped - Data represents the number of working services.

BellSouth Companies:
1. Row 0300 - ISDN Potential Access Line Capacity - Potential access refers to the ability of the line to have ISDN access in the switch it is presently served by.

SBC Pacific Telesis Companies:
1. Row 0312 - Primary Rate ISDN (PRI) Interfaces Equipped - Includes count for tandem (+20).

SBC Southwestern Bell Companies:
1. Row 0114 - Remotes (Stand Alone Only) - Includes all remotes used in class 5 switch applications. Typically these remotes are equipped with stand alone capability. (However, this is not a requirement of a class 5 switch.)

2. Row 0114 - Remotes (Stand Alone Only) - Excludes remotes used in distribution services pairgain applications.

GTE Companies:
1. Row 0113 - Hosts - Hosts include base units controlling one or more remote switches that are either survivable or non-survivable.

1991:
Bell Atlantic South Companies:
1. Row 0300 - ISDN Potential Access Line Capacity - All lines in a wire center which has one switch are reported here to be to be consistent with recent disclosures in the ONA plan.

SBC Southwestern Bell Companies:
1. Row 0114 - Remotes (Stand Alone Only) - Includes all remotes used in class 5 switch applications. Typically these remotes are equipped with stand alone capability. (However, this is not a requirement of a class 5 switch.)

2. Row 0114 - Remotes (Stand Alone Only) - Excludes remotes used in distribution services pairgain applications.

U S WEST Companies:
1. Row 0112 - Tandem - Includes access tandem only. No operator services tandems.

Tables 2.1 through 2.10

1998:
Bell Atlantic South Companies:
1. Row 0363 - Fiber Digital Carrier Links - Data do not fully reflect the capacity of deployed sonnet systems which cannot be readily counted.

2. Row 0390 - Fiber Digital Working Channels - Includes DS0 equivalent special circuits including analog and digital services, DS1, DS3, FDDI (100MB), OC1, OC3, OC12, and OC48.

3. Row 0440 - Fiber Digital Equipped Channels - Includes DS0 equivalent special circuits including analog and digital services, DS1, DS3, FDDI (100MB), OC1, OC3, OC12, and OC48.

4. Row 0482 - Fiber Terminated at Customer's Premises at DS1 Rate - Data from a new source used throughout the region. These data may not be consistent with previously reported data.

5. Row 0484 - Fiber Terminated at Customer's Premises at DS3 Rate - Data from a new source used throughout the region. These data may not be consistent with previously reported data.

Bell Atlantic North Companies:
1. Row 0390 - Fiber Digital Working Channels - Includes DS0 equivalent special circuits including analog and digital services, DS1, DS3, FDDI (100MB), OC1, OC3, OC12, and OC48.

2. Row 0440 - Fiber Digital Equipped Channels - Includes DS0 equivalent special circuits including analog and digital services, DS1, DS3, FDDI (100MB), OC1, OC3, OC12, and OC48.

SBC Pacific Telesis Companies:
1. Row 0410 - Other Working Channels - For Nevada Bell other is radio.

2. Row 0460 - Other Equipped Channels - For Nevada Bell other is radio.

U S WEST Companies:
1. Row 0410 - Other Working Channels - Data represents working channels from radio T-1 signals. (COSAs - MSUT & MSWY)

2. Row 0460 - Other Equipped Channels - Data represents working channels from radio T-1 signals. (COSAs - MSAZ, MSUT, and MSWY)

1997:
Bell Atlantic South Companies:
1. Row 0363 - Fiber Digital Carrier Links - Data do not fully reflect the capacity of deployed sonnet systems which cannot be readily counted.

SBC Pacific Telesis Companies:
1. Row 0410 - Other Working Channels - For Nevada Bell other is radio.

2. Row 0460 - Other Equipped Channels - For Nevada Bell other is radio.

SBC Southwestern Bell Companies:
1. Row 0360, 0361, 0362, and 0363 - Total Digital Carrier Links, Copper, Radio, and Fiber, respectively - Includes a small amount of loop facilities.

U S WEST Companies:
1. Row 0410 - Other Working Channels - Data represents working channels from radio T-1 signals. (COSAs - MSAZ, MSUT, and MSWY)

2. Row 0460 - Other Equipped Channels - Data represents working channels from radio T-1 signals. (COSAs - MSAZ, MSUT, and MSWY)

1996:
SBC Pacific Telesis Companies:
1. Row 0410 - Other Working Channels - For Nevada Bell other equals radio.

2. Row 0460 - Other Equipped Channels - For Nevada Bell other equals radio.

SBC Southwestern Bell Companies:
1. Row 0360, 0361, 0362, and 0363 - Total Digital Carrier Links, Copper, Radio, and Fiber, respectively - Includes a small amount of loop facilities.

U S WEST Companies:
1. Row 0410 - Other Working Channels - Data represents working channels from radio T-1 signals. (COSAs - MSWY and PNWA)

2. Row 0460 - Other Equipped Channels - Data represents working channels from radio T-1 signals. (COSAs - MSWY and PNWA)

GTE Companies:
1. Row 0330 - Total Circuit Links - Previously, HICAP special circuits were channelized and counted as circuit links. HICAP special circuits have been dechannelized and counted as carrier links.

2. Row 0360 - Total Digital Circuit Links - Previously, HICAP special circuits were channelized and counted as circuit links. HICAP special circuits have been dechannelized and counted as carrier links.

3. Row 0480 - Fiber Strands Terminated in the Central Office (Loop Plant Only) - For previous periods reported, data was collected manually, transitioned to a mechanized method of data collection.

4. Row 0482 - Fiber Terminated at Customer's Premises at the DS1 Rate - For previous periods reported, data was collected manually, transitioned to a mechanized method of data collection.

5. Row 0484 - Fiber Terminated at Customer's Premises at the DS3 Rate - For previous periods reported, data was collected manually, transitioned to a mechanized method of data collection.

1995:
Bell Atlantic South Companies:
1. Row 0480 - Fiber Strands Terminated in the Central Office (Loop Plant Only) - Data are from a different source than in previous years which may result in some inconsistency.

SBC Southwestern Bell Companies:
1. Row 0360, 0361, 0362, and 0363 - Total Digital Carrier Links, Copper, Radio, and Fiber, respectively - Includes a small amount of loop facilities.

U S WEST Companies:
1. Row 0410 - Other Working Channels - Working channel for Radio T-1 signals have been eliminated due to the sale of several rural exchanges. (COSAs MSCO and MSUT)

2. Row 0460 - Other Equipped Channels - Working channel for Radio T-1 signals have been eliminated due to the sale of several rural exchanges. (COSAs MSCO and MSUT)

1994:
SBC Southwestern Bell Companies:
1. Row 0360, 0361, 0362, and 0363 - Total Digital Carrier Links, Copper, Radio, and Fiber, respectively - Includes a small amount of loop facilities.

GTE Companies:
1. Row 0330, 0331, 0332, and 0333 - Total Circuit Baseband, Analog, and Digital, respectively - Data are derived from mechanized system. Quantities reported in prior reporting period had been frozen while the current mechanized system was in the process of transferring records.

2. Row 0360, 0361, 0362, and 0363 - Total Digital Carrier Links, Copper, Radio, and Fiber, respectively - Data are derived from mechanized system. Quantities reported in prior reporting period had been frozen while the current mechanized system was in the process of transferring records.

1993:
BellSouth Companies:
1. Row 0484 - Fiber Terminated at Customer's Premises at the DS3 Rate - The data source for this row has changed. Prior to this submission, Row 0484 was manually extracted from Tirks printouts. Due to new data entry procedures, this data can now be mechanically extracted using FEPS/PWS resulting in greater accuracy.

SBC Pacific Telesis Companies:
1. Row 0323 - Other Sheath Kilometers - Coaxial Cable.

SBC Southwestern Bell Companies:
1. Row 0360, 0361, 0362, and 0363 - Total Digital Carrier Links, Copper, Radio, and Fiber, respectively - Includes a small amount of loop facilities.

GTE Companies:
1. Row 0330, 0331, 0332, and 0333 - Total Circuit Baseband, Analog, and Digital, respectively - Data unchanged from last reporting period. Data system in transition and until process is complete, current value data extracts are unavailable.

2. Row 0360, 0361, 0362, and 0363 - Total Digital Carrier Links, Copper, Radio, and Fiber, respectively - Data unchanged from last reporting period. Data system in transition and until process is complete, current value data extracts are unavailable.

1992:
Bell Atlantic South Companies:
1. A new data collection was introduced during 1992 to improve the reporting process. Some data elements reported in this filing differ significantly from previous data gathered manually.

2. Row 0480 - Fiber Strands Terminated in the Central Office (Loop Plant Only) - This data reflects installed fibers, as required by the order, rather than working fibers which was the only available data in previous years.

BellSouth Companies:
1. Row 0484 - Fiber Terminated at Customer's Premises at the DS3 Rate - This figure also includes fiber terminated at interexchange carrier premises for the purpose of delivering interlata message traffic.

SBC Southwestern Bell Companies:
1. Row 0360, 0361, 0362, and 0363 - Total Digital Carrier Links, Copper, Radio, and Fiber, respectively - Includes a small amount of loop facilities.

1991:

Bell Atlantic South Companies:
1. Row 0480 - Fiber Strands Terminated in the Central Office (Loop Plant Only) - This data reflects only working fibers which is the only information available from current mechanized systems.

SBC Southwestern Bell Companies:
1. Row 0360, 0361, 0362, and 0363 - Total Digital Carrier Links, Copper, Radio, and Fiber, respectively - Includes a small amount of loop facilities.

U S WEST Companies:
1. Row 0410 - Other Working Channel - entries in this table are working channels derived from radio T1 signals.

1. Row 0460 - Other Equipped Channel - entries in this table are working channels derived from radio T1 signals.

Appendix A

ARMIS 43-07 Report -- Summarized Items Included in the Report

The following items are extracted from the raw ARMIS data and are contained in Tables 1.1 through 1.10:

1. Total TPIS Gross Additions -- Row 0540.
2. Local Switches -- Row 0111.
3. Tandem -- Row 0112.
4. Hosts -- Row 0113.
5. Remotes (Stand Alone Only) -- Row 0114.
6. Total Switches -- Row 0110.
7. Access Lines Served -- Row 0120.
8. Touch-Tone Capable Switches -- Row 0210.
9. Touch-Tone Capable Access Lines-- Row 0220.
10. Equal Access Switches -- Row 0190.
11. Equal Access Lines - Row 0200.
12. Signalling System 7 Switches -- Rows 0234 and 0240.
13. Signalling System 7 Access Lines -- Rows 0232 and 0236.
14. ISDN Capable Switches -- Row 0270.
15. ISDN Potential Access Line Capacity -- Row 0300.
16. ISDN Basic Rate Interfaces Equipped -- Row 0311.
17. ISDN Primary Rate Interfaces Equipped -- Row 0312.

The following items are contained in Tables 2.1 through 2.10:

1. Total Sheath Kilometers -- Row 0320.
2. Total Carrier Links -- Rows 0351, 0362 and 0363.
3. Total Circuit Links -- Rows 0331, 0332 and 0333.
4. Equipped Channels -- Row 0420.
5. Working Channels -- Row 0370.
6. Copper Pairs Main Frame Terminations in the Loop Plant -- Row 0470.
7. Fiber Strands Central Office Terminations in the Loop Plant -- Row 0480.
8. DS1 Terminations on Customer Premises Fiber -- Row 0482.
9. DS3 Terminations on Customer Premises Fiber -- Row 0484.

See the ARMIS Web page at http://www.fcc.gov/ccb/armis/ for report descriptions and procedures, as well as row and column definitions and specifications.

Customer Response

Publication: Infrastructure of the Local Operating Companies: July 1999

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