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FOR IMMEDIATE RELEASE
October 23, 2000

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FCC RELEASES REPORT ON INFRASTRUCTURE

Washington, D. C. – The FCC has released a report entitled *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 1999. 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.

Among the key observations highlighted in the report is the fact that in the aggregate, there was a very small increase (less than 1%) in the number of ISDN-capable switches in 1999 following a 15% increase in 1998 and a 22% increase in 1997. The number of ISDN-capable switches has doubled since 1994 and has gone up more than five-fold since 1991, but now with the availability of xDSL access technologies, ISDN appears to be growing much more slowly. In addition, as of the end of 1999 there were about two million Bell Operating Company (BOC) fiber central office loop terminations. Growth of these terminations was about 21% in 1998 as compared to approximately 10% in 1999. Although the calculated annual growth rate of fiber terminations tends to fluctuate, there are indications that growth of fiber in the local loop is being affected by competing technologies and competitive activity. A separate report released in August 2000 entitled “Deployment of Advanced Telecommunications Capability – Second Report” (page 79) provides additional information relating to DSL growth rates in 1999. It reported growth rates of more than 50 percent for competitive local exchange carriers and more than 25 percent for incumbent local exchange carriers.

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 INFRA99.PDF or INFRA99.ZIP] from the **FCC-State Link** Internet site at <http://www.fcc.gov/ccb/stats> on the World Wide Web.

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INFRASTRUCTURE OF THE LOCAL OPERATING COMPANIES

OCTOBER 2000

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Industry Analysis Division
Common Carrier Bureau
Federal Communications Commission



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Infrastructure of the Local Operating Companies 1991 – 1999

Introduction

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

The data (ARMIS 43-07 reports²) upon which this infrastructure summary is based are filed April 1 for the previous calendar year. This infrastructure report includes data through 1999.³ The most recent data were filed in April 2000.

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 1999.

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 telephone operating companies owned by GTE.⁴ Together, these large companies provide service to more than 90% of the

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's 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.

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).

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 1.9 show switching system data and gross plant expenditures covering all types of plant. Tables 2.1 through 2.9 show transmission system data. Each set of tables contains one table for each of the regional Bell operating companies, one for the companies owned by GTE, and two that summarize data for all 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.⁵ The data items provide a picture of the technologies currently 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. Both switching and transmission technologies 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 the dollar amount of total gross capital expenditures, which increased about 14% for the BOCs in 1999 and 2.5% in 1998. The data reported includes all plant additions on both switching and transmission facilities motivated by modernization, replacement and growth.⁶ Total gross capital expenditures should therefore continue to be an

⁵ A number of irregularities including several time series anomalies were noted in the data. Not all data revisions were available in time for inclusion in this report. GTE indicates that at least some of the discrepancies have resulted from system changes made to its data collection systems over the past year. BellSouth indicates that ISDN capable line data (row 490) reflects a change in methodology. Prior data was based on equipped central office pairs. Data for 1999 is based on working lines.

⁶ The data is provided as a single number in the ARMIS 43-07 report and includes additions to plant accounts 2110, 2210, 2220, 2230, 2310, 2410, 2680, and 2690.

important overall parameter in assessing deployment of infrastructure in the local service business. Because construction expenditures may ultimately affect quality of service levels, broad long term changes in the relationship between construction expenditures and access line growth should be of continued interest.

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 which allows for lower-cost upgrading and capacity expansion. For example, while most network switches are currently 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. Because there are multiple capabilities that may be available in modern digital switches, assessment 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. ARMIS data currently mandated and being collected only cover circuit switches that provide a dedicated path through the network for the duration of a call, not routers or switches that are used in connection with frame relay, ATM and internet services that are specifically designed to handle data packets or bursts. Information on call routers (packet switches), frame relay and ATM switches is not currently collected but would more accurately portray deployment of current technology than the simple digital/analog categories.

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 currently 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. 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.⁷ Readers interested in more disaggregated information may wish to examine data at a more localized level than presented here.⁸

In the aggregate, there was a very small increase (less than 1%) in the number of ISDN-capable switches in 1999 following a 15% increase in 1998 and a 22% increase in 1997. The number of ISDN-capable switches has doubled since 1994 and has gone up more than five-fold since 1991 but

⁷ These services are generally referred to as xDSL (Digital Subscriber Loop) services. Limited data on the proliferation of xDSL terminal equipment by incumbent carriers are contained in Table 8 of our most recent *Fiber Deployment Update*, released September 9, 1999.

⁸ Individual study-area data are also available to address more localized issues. This information is available on the ARMIS Web page at <http://www.fcc.gov/ccb/armis/db/> on the World Wide Web.

now with the availability of xDSL access technologies ISDN appears to be growing much more slowly.⁹ 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.¹⁰

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. Not all transmission lines are capable of ISDN or higher rate digital operation. Thus, information on lines capable of handling ISDN data rates was added to the ARMIS 43-07 filing requirements starting with end-of-year 1997 data. This data will be helpful in assessing the capability of existing incumbent carriers to provide basic digital services and is included with this year's summary.

Many of the companies had installed digital switches in response to the equal-access requirements of divestiture. Today, nearly 100% of the Bell company switching entities have equal-access. Although 98% of the BOC's switches are digital stored-program-controlled switches, only about one-third 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.¹¹

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 number of sheath kilometers of fiber has more than doubled from 1991-1999, with over a half million fiber sheath kilometers being reported in 1999. The number of sheath kilometers of copper has remained steady at about 5.2 million and other sheath data, in relative terms, are not significant.

⁹ The companies can promote network modernization along with the systematic growth of high bandwidth services by attracting new customers to digital services with a wider range of digital consumer choices at a variety of data rates and cost. Data trends suggest that rate adjustments and service offerings that promote ISDN as an entry level digital alternative to the broader bandwidth xDSL services might be an effective way to increase the overall market for digital services and allow greater penetration of digital facilities into less urbanized areas. New service offerings at ISDN data rates, could, for example, include a lower cost entry-level non-switched digital service geared to internet users.

¹⁰ 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.

¹¹ New marketing, pricing and regulatory approaches designed to promote greater ISDN use by smaller business and residential customers will also promote the use of broadband capabilities and result in improvements to the local infrastructure.

Tables 2.1 through 2.9 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 1999, 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 currently unused in the *interoffice* transmission plant.¹²

¹² 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 1998*, released September 9, 1999.

Although the overall level of growth in fiber has been high, its use in the local loop at present is 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 1999. About 2 million BOC fiber terminations had been installed by end-of-year 1999. The data show that growth in central office fiber terminations increased about 10% during 1999 as compared to about 21% in 1998; however customer DS-1 and DS-3 terminations on fiber facilities increased dramatically in 1999 as compared to 1998. Over the longer term fiber and hybrid copper/fiber systems will likely become increasingly important in the local loop as the number of high-quality copper pairs available to support digital services declines.

Table 1.1 Switching Data
Total - All Companies

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total Gross Capital Expenditures (Millions)	\$17,286	\$17,292	\$17,384	\$17,405	\$18,009	\$20,122	\$21,233	\$21,847	\$24,299
Local Switches	16,251	16,506	16,650	16,017	16,157	16,267	16,186	16,117	16,261
Tandems	461	477	475	456	470	484	481	493	492
Hosts	2,000	2,217	2,366	2,309	2,382	2,432	2,515	2,471	2,461
Remotes (Stand Alone Only)	5,632	5,689	6,349	6,706	7,140	7,098	7,164	7,977	8,103
Total Switches	16,392	16,701	16,858	16,195	16,342	16,486	16,448	16,395	16,516
Electromechanical	2,610	1,954	1,493	1,029	739	394	168	0	0
Analog Stored Program Control	2,265	2,007	1,632	1,179	1,002	735	558	431	314
Digital Stored Program Control	11,517	12,739	13,733	13,987	14,601	15,356	15,722	15,964	16,202
Total Number Access Lines in Service (000)	123,022	125,776	129,642	133,409	138,907	143,239	150,043	155,530	159,364
Electromechanical Lines Served	3,310	1,977	1,348	912	596	286	157	0	0
Analog Stored Program Control Lines Served	54,838	49,989	42,746	33,699	29,409	24,803	21,416	16,688	11,713
Digital Stored Program Control Lines Served	64,873	73,815	85,549	98,799	108,903	118,149	128,470	138,842	147,651
Touch-Tone Capable Switches	16,137	16,506	16,697	16,017	16,199	16,267	16,185	16,117	16,262
Access Lines with Touch-Tone Capability (000)	122,849	125,776	129,642	133,376	138,870	143,239	150,043	155,530	159,364
Switches Equipped for Equal Access	11,607	14,211	15,096	15,055	15,600	15,967	16,245	16,374	16,475
Access Lines with Equal Access (000)	118,626	123,193	128,062	132,456	138,324	142,946	149,878	155,530	159,364
Total Switches Equipped w/SS7-394 (InterLATA) Svc.	1,248	5,745	8,037	10,358	11,890	13,171	13,879	15,151	15,994
Lines with SS7-394 (InterLATA) Service (000)	23,377	71,033	96,117	118,616	129,232	137,458	146,677	154,022	158,475
Total Switches Equipped w/SS7-317 (IntraLATA) Svc.	4,091	7,434	8,845	10,584	11,907	13,504	13,903	15,173	16,010
Lines with SS7-317 (IntraLATA) Service (000)	62,193	85,559	102,208	120,239	129,436	137,778	146,743	154,125	158,533
Total Switches Equipped with ISDN	964	1,437	2,146	2,670	3,258	3,852	4,681	5,392	5,404
Lines with Access to ISDN (000)	21,295	29,775	41,970	61,549	77,523	95,113	106,575	121,408	127,030
Basic Rate ISDN (BRI) Interfaces Equipped	298,176	491,430	591,561	801,518	1,039,456	1,507,551	1,797,254	2,491,509	2,720,871
Primary Rate ISDN (PRI) Interfaces Equipped	1,730	3,147	5,816	15,526	32,580	67,885	136,233	234,515	334,910

Table 1.2 Switching Data
Total - Bell Operating Companies

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total Gross Capital Expenditures (Millions)	\$14,502	\$14,629	\$14,683	\$14,667	\$15,436	\$17,494	\$18,212	\$18,663	\$21,317
Local Switches	9,829	9,909	9,919	9,862	9,883	9,768	9,733	9,579	9,602
Tandems	302	315	317	313	313	318	316	331	328
Hosts	1,263	1,293	1,411	1,460	1,498	1,503	1,576	1,516	1,516
Remotes (Stand Alone Only)	3,584	4,131	4,617	4,939	5,109	5,173	5,204	5,239	5,242
Total Switches	9,951	10,069	10,089	10,023	10,051	9,966	9,965	9,791	9,825
Electromechanical	1,148	615	296	95	60	1	0	0	0
Analog Stored Program Control	2,167	1,924	1,554	1,133	976	718	548	431	314
Digital Stored Program Control	6,636	7,530	8,239	8,795	9,015	9,247	9,417	9,360	9,511
Total Number Access Lines in Service (000)	107,389	109,995	113,368	117,345	122,266	125,846	131,722	136,426	139,349
Electromechanical Lines Served	1,876	717	264	115	63	1	0	0	0
Analog Stored Program Control Lines Served	53,450	48,959	41,912	33,191	29,031	24,561	21,219	16,688	11,713
Digital Stored Program Control Lines Served	52,062	60,324	71,192	84,040	93,172	101,283	110,503	119,738	127,636
Touch-Tone Capable Switches	9,715	9,909	9,966	9,862	9,925	9,768	9,732	9,579	9,603
Access Lines with Touch-Tone Capability (000)	107,216	109,995	113,368	117,312	122,229	125,846	131,722	136,426	139,349
Switches Equipped for Equal Access	8,601	9,281	9,697	9,933	9,978	9,845	9,936	9,768	9,784
Access Lines with Equal Access (000)	105,415	109,007	112,993	117,266	122,210	125,845	131,722	136,426	139,349
Total Switches Equipped w/SS7-394 (InterLATA) Svc.	1,248	4,246	6,003	8,108	8,960	9,274	9,664	9,624	9,685
Lines with SS7-394 (InterLATA) Service (000)	23,377	64,527	87,232	107,842	116,364	122,266	130,712	135,878	139,214
Total Switches Equipped w/SS7-317 (IntraLATA) Svc.	3,670	5,392	6,688	8,334	8,977	9,286	9,688	9,646	9,701
Lines with SS7-317 (IntraLATA) Service (000)	57,322	76,486	92,493	109,465	116,568	122,344	130,778	135,981	139,271
Total Switches Equipped with ISDN	920	1,219	1,874	2,400	2,868	3,329	3,902	4,146	4,352
Lines with Access to ISDN (000)	20,565	28,376	39,875	56,546	71,274	85,435	95,956	106,834	112,103
Basic Rate ISDN (BRI) Interfaces Equipped	289,292	468,667	560,820	738,506	948,130	1,409,406	1,670,308	2,352,038	2,552,907
Primary Rate ISDN (PRI) Interfaces Equipped	1,653	2,672	4,920	14,120	29,877	60,508	119,768	198,129	287,322

Table 1.3 Switching Data
SBC Ameritech Companies

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total Gross Capital Expenditures (Millions)	\$1,877	\$1,716	\$1,719	\$1,517	\$1,578	\$1,997	\$1,912	\$2,250	\$2,244
Local Switches	1,421	1,433	1,422	1,413	1,415	1,410	1,435	1,419	1,432
Tandems	49	46	47	47	46	46	47	51	52
Hosts	224	178	230	236	238	236	243	236	234
Remotes (Stand Alone Only)	654	666	684	717	731	743	769	764	775
Total Switches	1,438	1,473	1,469	1,460	1,461	1,456	1,482	1,470	1,485
Electromechanical	46	0	0	0	0	0	0	0	0
Analog Stored Program Control	373	318	224	119	97	71	58	46	39
Digital Stored Program Control	1,019	1,155	1,245	1,341	1,364	1,385	1,424	1,424	1,446
Total Number Access Lines in Service (000)	16,634	16,887	17,500	18,122	19,310	19,553	20,335	20,790	21,036
Electromechanical Lines Served	65	6	0	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	1,811
Digital Stored Program Control Lines Served	7,492	8,988	11,638	14,278	15,583	16,324	17,541	18,597	19,225
Touch-Tone Capable Switches	1,394	1,433	1,469	1,413	1,461	1,410	1,434	1,419	1,433
Access Lines with Touch-Tone Capability (000)	16,586	16,887	17,500	18,122	19,310	19,553	20,335	20,790	21,036
Switches Equipped for Equal Access	1,390	1,459	1,469	1,450	1,461	1,410	1,482	1,470	1,484
Access Lines with Equal Access (000)	16,563	16,855	17,500	18,122	19,310	19,553	20,335	20,790	21,036
Total Switches Equipped w/SS7-394 (InterLATA) Svc.	213	646	1,001	1,254	1,400	1,438	1,463	1,451	1,476
Lines with SS7-394 (InterLATA) Service (000)	4,779	9,099	13,376	16,482	18,538	19,293	20,266	20,694	20,998
Total Switches Equipped w/SS7-317 (IntraLATA) Svc.	502	818	1,116	1,347	1,417	1,439	1,463	1,462	1,481
Lines with SS7-317 (IntraLATA) Service (000)	7,662	9,838	13,961	17,217	18,653	19,322	20,280	20,739	21,001
Total Switches Equipped with ISDN	108	181	387	444	489	601	695	784	816
Lines with Access to ISDN (000)	1,738	3,839	8,056	10,259	12,860	13,802	15,464	16,804	17,472
Basic Rate ISDN (BRI) Interfaces Equipped	55,890	56,352	67,415	87,862	97,550	226,355	180,280	220,867	259,312
Primary Rate ISDN (PRI) Interfaces Equipped	703	728	707	1,505	1,677	4,247	14,569	24,800	38,037

Table 1.4 Switching Data
Total Bell Atlantic

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total Gross Capital Expenditures (Millions)	\$4,451	\$4,113	\$4,285	\$4,315	\$4,706	\$5,030	\$5,333	\$5,670	\$6,830
Local Switches	2,720	2,733	2,712	2,705	2,696	2,684	2,703	2,616	2,636
Tandems	72	65	65	65	65	71	67	67	74
Hosts	364	354	349	358	371	367	365	369	381
Remotes (Stand Alone Only)	1,170	1,329	1,365	1,407	1,424	1,444	1,447	1,405	1,437
Total Switches	2,750	2,768	2,747	2,738	2,729	2,723	2,737	2,655	2,682
Electromechanical	128	0	0	0	0	0	0	0	0
Analog Stored Program Control	541	463	349	246	194	137	86	37	16
Digital Stored Program Control	2,081	2,305	2,398	2,492	2,535	2,586	2,651	2,618	2,666
Total Number Access Lines in Service (000)	33,159	33,879	34,774	35,745	36,959	38,305	39,714	40,838	41,833
Electromechanical Lines Served	447	0	0	0	0	0	0	0	0
Analog Stored Program Control Lines Served	13,564	11,797	9,750	7,569	5,576	4,057	2,975	1,442	568
Digital Stored Program Control Lines Served	19,148	22,082	25,024	28,176	31,383	34,248	36,739	39,396	41,266
Touch-Tone Capable Switches	2,633	2,733	2,712	2,705	2,692	2,684	2,703	2,616	2,636
Access Lines with Touch-Tone Capability (000)	33,034	33,879	34,774	35,745	36,959	38,305	39,714	40,838	41,833
Switches Equipped for Equal Access	2,578	2,723	2,728	2,738	2,729	2,723	2,737	2,655	2,682
Access Lines with Equal Access (000)	32,833	33,787	34,722	35,745	36,959	38,305	39,714	40,838	41,833
Total Switches Equipped w/SS7-394 (InterLATA) Svc.	161	1,183	1,690	2,381	2,577	2,650	2,707	2,644	2,671
Lines with SS7-394 (InterLATA) Service (000)	3,147	15,819	24,540	31,970	34,877	37,173	39,422	40,515	41,778
Total Switches Equipped w/SS7-317 (IntraLATA) Svc.	1,608	2,045	2,328	2,493	2,576	2,661	2,718	2,655	2,682
Lines with SS7-317 (IntraLATA) Service (000)	20,307	25,639	29,521	32,881	34,948	37,222	39,473	40,573	41,833
Total Switches Equipped with ISDN	359	409	629	839	930	1,079	1,220	1,298	1,306
Lines with Access to ISDN (000)	9,357	9,977	13,406	21,107	22,117	27,682	31,125	34,367	36,336
Basic Rate ISDN (BRI) Interfaces Equipped	42,409	132,307	164,380	282,051	363,320	505,652	660,542	1,088,060	1,167,022
Primary Rate ISDN (PRI) Interfaces Equipped	7	301	958	6,393	12,507	24,775	43,922	71,983	97,177

Table 1.5 Switching Data
BellSouth Companies

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total Gross Capital Expenditures (Millions)	\$2,841	\$2,925	\$3,012	\$3,118	\$3,160	\$3,269	\$3,477	\$3,459	\$4,317
Local Switches	1,666	1,664	1,661	1,658	1,647	1,650	1,654	1,653	1,649
Tandems	62	66	70	70	71	70	70	71	71
Hosts	270	272	269	280	289	297	317	307	306
Remotes (Stand Alone Only)	696	703	714	732	742	747	766	765	765
Total Switches	1,680	1,678	1,680	1,677	1,668	1,670	1,674	1,673	1,668
Electromechanical	0	0	0	0	0	0	0	0	0
Analog Stored Program Control	318	283	236	182	158	130	106	100	83
Digital Stored Program Control	1,362	1,395	1,444	1,495	1,510	1,540	1,568	1,573	1,585
Total Number Access Lines in Service (000)	17,972	18,607	19,233	20,141	21,064	22,019	23,080	23,909	24,458
Electromechanical Lines Served	0	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	2,972
Digital Stored Program Control Lines Served	10,246	11,434	13,304	15,304	16,609	17,999	19,334	20,373	21,486
Touch-Tone Capable Switches	1,666	1,664	1,661	1,658	1,647	1,650	1,654	1,653	1,649
Access Lines with Touch-Tone Capability (000)	17,972	18,607	19,233	20,141	21,064	22,019	23,080	23,909	24,458
Switches Equipped for Equal Access	1,680	1,678	1,680	1,677	1,668	1,670	1,674	1,673	1,668
Access Lines with Equal Access (000)	17,972	18,607	19,233	20,141	21,064	22,019	23,080	23,909	24,458
Total Switches Equipped w/SS7-394 (InterLATA) Svc.	590	966	1,447	1,627	1,629	1,652	1,674	1,673	1,668
Lines with SS7-394 (InterLATA) Service (000)	9,391	14,231	18,067	20,118	20,737	21,874	23,080	23,909	24,458
Total Switches Equipped w/SS7-317 (IntraLATA) Svc.	956	1,121	1,452	1,628	1,630	1,652	1,674	1,673	1,668
Lines with SS7-317 (IntraLATA) Service (000)	14,635	15,959	18,122	20,136	20,755	21,874	23,080	23,909	24,458
Total Switches Equipped with ISDN	171	224	324	407	467	518	584	596	645
Lines with Access to ISDN (000)	3,319	4,934	7,606	9,708	10,988	12,948	14,894	15,980	17,413
Basic Rate ISDN (BRI) Interfaces Equipped	34,613	50,774	65,607	76,348	80,641	122,043	167,512	183,458	202,391
Primary Rate ISDN (PRI) Interfaces Equipped	282	559	1,814	3,534	4,803	9,154	21,389	33,564	51,669

Table 1.6 Switching Data
SBC Pacific Telesis Companies

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total Gross Capital Expenditures (Millions)	\$1,688	\$1,625	\$1,734	\$1,620	\$1,664	\$1,877	\$2,209	\$2,165	\$2,354
Local Switches	842	853	846	837	840	833	810	801	799
Tandems	19	20	20	20	20	20	21	24	24
Hosts	102	103	111	121	117	114	135	121	116
Remotes (Stand Alone Only)	238	253	302	320	316	310	364	361	350
Total Switches	862	873	866	857	860	853	830	824	822
Electromechanical	4	3	3	2	1	0	0	0	0
Analog Stored Program Control	242	218	176	109	87	72	49	38	17
Digital Stored Program Control	616	652	687	746	772	781	781	786	805
Total Number Access Lines in Service (000)	14,381	14,661	14,971	15,417	16,021	16,460	17,155	18,158	18,285
Electromechanical Lines Served	1	1	1	1	0	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	754
Digital Stored Program Control Lines Served	5,823	6,532	7,934	10,387	11,985	13,106	14,733	16,333	17,531
Touch-Tone Capable Switches	842	853	846	837	840	833	810	801	799
Access Lines with Touch-Tone Capability (000)	14,381	14,661	14,971	15,384	15,984	16,460	17,155	18,158	18,285
Switches Equipped for Equal Access	832	844	844	834	838	852	810	801	799
Access Lines with Equal Access (000)	14,348	14,630	14,949	15,360	15,966	16,460	17,155	18,158	18,285
Total Switches Equipped w/SS7-394 (InterLATA) Svc.	53	374	522	764	772	794	791	803	796
Lines with SS7-394 (InterLATA) Service (000)	1,161	9,638	12,490	14,781	15,512	15,616	16,956	18,134	18,285
Total Switches Equipped w/SS7-317 (IntraLATA) Svc.	253	374	522	764	772	794	804	803	796
Lines with SS7-317 (IntraLATA) Service (000)	7,190	9,638	12,490	14,781	15,512	15,616	16,956	18,134	18,285
Total Switches Equipped with ISDN	88	150	229	347	417	473	531	551	574
Lines with Access to ISDN (000)	1,567	2,905	5,349	8,494	10,291	11,895	13,632	15,134	16,202
Basic Rate ISDN (BRI) Interfaces Equipped	36,246	47,661	65,683	115,146	171,305	304,182	314,003	468,493	489,369
Primary Rate ISDN (PRI) Interfaces Equipped	113	308	357	708	3,491	13,448	20,125	31,345	47,794

Table 1.7 Switching Data
SBC Southwestern Bell Companies

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total Gross Capital Expenditures (Millions)	\$1,519	\$1,835	\$1,723	\$1,739	\$1,759	\$2,326	\$2,741	\$2,752	\$2,602
Local Switches	1,356	1,392	1,437	1,511	1,644	1,670	1,690	1,644	1,658
Tandems	48	67	64	60	60	60	60	67	56
Hosts	131	191	230	233	245	241	267	230	228
Remotes (Stand Alone Only)	311	488	672	779	935	1,077	1,077	1,158	1,163
Total Switches	1,380	1,425	1,469	1,539	1,679	1,730	1,750	1,711	1,727
Electromechanical	398	222	83	73	58	0	0	0	0
Analog Stored Program Control	366	348	308	264	252	162	136	115	88
Digital Stored Program Control	616	855	1,078	1,202	1,369	1,568	1,614	1,596	1,639
Total Number Access Lines in Service (000)	12,357	12,693	13,180	13,611	14,095	14,104	15,306	15,872	16,287
Electromechanical Lines Served	686	314	102	96	62	0	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	3,107
Digital Stored Program Control Lines Served	3,967	4,924	6,000	6,907	7,502	8,447	10,251	11,753	13,180
Touch-Tone Capable Switches	1,356	1,392	1,437	1,511	1,644	1,670	1,690	1,644	1,658
Access Lines with Touch-Tone Capability (000)	12,357	12,693	13,180	13,611	14,095	14,104	15,306	15,872	16,287
Switches Equipped for Equal Access	871	1,119	1,340	1,511	1,644	1,670	1,741	1,711	1,710
Access Lines with Equal Access (000)	11,517	12,284	13,060	13,611	14,095	14,104	15,306	15,872	16,287
Total Switches Equipped w/SS7-394 (InterLATA) Svc.	0	607	723	1,263	1,466	1,597	1,724	1,707	1,724
Lines with SS7-394 (InterLATA) Service (000)	0	8,117	8,828	12,787	13,289	13,890	15,249	15,858	16,276
Total Switches Equipped w/SS7-317 (IntraLATA) Svc.	105	563	649	1,263	1,466	1,597	1,724	1,707	1,724
Lines with SS7-317 (IntraLATA) Service (000)	2,332	7,733	8,468	12,787	13,289	13,890	15,249	15,858	16,276
Total Switches Equipped with ISDN	79	92	92	123	303	331	331	360	428
Lines with Access to ISDN (000)	981	1,964	1,476	1,933	8,826	9,440	10,577	13,361	12,158
Basic Rate ISDN (BRI) Interfaces Equipped	47,230	88,960	88,960	57,041	108,784	104,604	185,018	225,427	267,190
Primary Rate ISDN (PRI) Interfaces Equipped	161	380	410	1,238	5,084	6,150	15,434	31,570	46,533

Table 1.8 Switching Data
U S WEST Companies

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total Gross Capital Expenditures (Millions)	\$2,126	\$2,413	\$2,210	\$2,359	\$2,570	\$2,995	\$2,540	\$2,366	\$2,970
Local Switches	1,824	1,834	1,841	1,738	1,641	1,521	1,441	1,446	1,428
Tandems	52	51	51	51	51	51	51	51	51
Hosts	172	195	222	232	238	248	249	253	251
Remotes (Stand Alone Only)	515	692	880	984	961	852	781	786	752
Total Switches	1,841	1,852	1,858	1,752	1,654	1,534	1,492	1,458	1,441
Electromechanical	572	390	210	20	1	1	0	0	0
Analog Stored Program Control	327	294	261	213	188	146	113	95	71
Digital Stored Program Control	942	1,168	1,387	1,519	1,465	1,387	1,379	1,363	1,370
Total Number Access Lines in Service (000)	12,886	13,268	13,710	14,309	14,817	15,405	16,132	16,859	17,449
Electromechanical Lines Served	677	396	161	18	1	1	0	0	0
Analog Stored Program Control Lines Served	6,823	6,508	6,257	5,303	4,706	4,245	4,228	3,574	2,501
Digital Stored Program Control Lines Served	5,386	6,364	7,292	8,988	10,110	11,159	11,905	13,286	14,948
Touch-Tone Capable Switches	1,824	1,834	1,841	1,738	1,641	1,521	1,441	1,446	1,428
Access Lines with Touch-Tone Capability (000)	12,886	13,268	13,710	14,309	14,817	15,405	16,132	16,859	17,449
Switches Equipped for Equal Access	1,250	1,458	1,636	1,723	1,638	1,520	1,492	1,458	1,441
Access Lines with Equal Access (000)	12,182	12,844	13,529	14,287	14,816	15,404	16,132	16,859	17,449
Total Switches Equipped w/SS7-394 (InterLATA) Svc.	231	470	620	819	1,116	1,143	1,305	1,346	1,350
Lines with SS7-394 (InterLATA) Service (000)	4,899	7,623	9,931	11,704	13,411	14,420	15,739	16,769	17,418
Total Switches Equipped w/SS7-317 (IntraLATA) Svc.	246	471	621	839	1,116	1,143	1,305	1,346	1,350
Lines with SS7-317 (IntraLATA) Service (000)	5,196	7,679	9,931	11,663	13,411	14,420	15,739	16,769	17,418
Total Switches Equipped with ISDN	115	163	213	240	262	327	541	557	583
Lines with Access to ISDN (000)	3,603	4,757	3,982	5,045	6,192	9,668	10,264	11,189	12,522
Basic Rate ISDN (BRI) Interfaces Equipped	72,904	92,613	108,775	120,058	126,530	146,570	162,953	165,733	167,623
Primary Rate ISDN (PRI) Interfaces Equipped	387	396	674	742	2,315	2,734	4,329	4,867	6,112

Table 1.9 Switching Data
GTE Companies

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total Gross Capital Expenditures (Millions)	\$2,784	\$2,663	\$2,700	\$2,738	\$2,573	\$2,628	\$3,021	\$3,184	\$2,983
Local Switches	6,422	6,597	6,731	6,155	6,274	6,499	6,453	6,538	6,659
Tandems	159	162	158	143	157	166	165	162	164
Hosts	737	924	955	849	884	929	939	955	945
Remotes (Stand Alone Only)	2,048	1,558	1,732	1,767	2,031	1,925	1,960	2,738	2,861
Total Switches	6,441	6,632	6,769	6,172	6,291	6,520	6,483	6,604	6,691
Electromechanical	1,462	1,339	1,197	934	679	393	168	0	0
Analog Stored Program Control	98	83	78	46	26	17	10	0	0
Digital Stored Program Control	4,881	5,209	5,494	5,192	5,586	6,109	6,305	6,604	6,691
Total Number Access Lines in Service (000)	15,633	15,781	16,274	16,064	16,641	17,393	18,321	19,105	20,015
Electromechanical Lines Served	1,434	1,260	1,084	797	533	285	157	0	0
Analog Stored Program Control Lines Served	1,388	1,030	834	508	378	242	197	0	0
Digital Stored Program Control Lines Served	12,811	13,491	14,357	14,759	15,731	16,866	17,966	19,105	20,015
Touch-Tone Capable Switches	6,422	6,597	6,731	6,155	6,274	6,499	6,453	6,538	6,659
Access Lines with Touch-Tone Capability (000)	15,633	15,781	16,274	16,064	16,641	17,393	18,321	19,105	20,015
Switches Equipped for Equal Access	3,006	4,930	5,399	5,122	5,622	6,122	6,309	6,606	6,691
Access Lines with Equal Access (000)	13,211	14,186	15,069	15,190	16,114	17,101	18,156	19,105	20,015
Total Switches Equipped w/SS7-394 (InterLATA) Svc.	0	1,499	2,034	2,250	2,930	3,897	4,215	5,527	6,309
Lines with SS7-394 (InterLATA) Service (000)	0	6,506	8,885	10,774	12,868	15,192	15,965	18,143	19,261
Total Switches Equipped w/SS7-317 (IntraLATA) Svc.	421	2,042	2,157	2,250	2,930	4,218	4,215	5,527	6,309
Lines with SS7-317 (IntraLATA) Service (000)	4,871	9,073	9,715	10,774	12,868	15,434	15,965	18,143	19,261
Total Switches Equipped with ISDN	44	218	272	270	390	523	779	1,246	1,052
Lines with Access to ISDN (000)	730	1,399	2,095	5,003	6,249	9,678	10,619	14,574	14,926
Basic Rate ISDN (BRI) Interfaces Equipped	8,884	22,763	30,741	63,012	91,326	98,145	126,946	139,471	167,964
Primary Rate ISDN (PRI) Interfaces Equipped	77	475	896	1,406	2,703	7,377	16,465	36,386	47,588

Table 2.1 Transmission System Data
Total - All Companies

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sheath Kilometers:									
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	5,862,588
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	5,255,778
Fiber	245,150	291,471	341,415	378,038	419,175	456,814	495,380	536,520	576,868
Other	271,035	285,296	8,451	7,350	6,819	5,819	5,896	14,026	13,672
Interoffice Working Facilities:									
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	17,755,449
Copper	1,127,431	980,270	923,461	686,515	604,164	723,700	861,424	909,263	679,446
Radio	83,446	102,347	102,680	92,924	79,573	51,798	50,629	44,977	38,860
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	17,037,143
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	41,456,836
Baseband	1,463,701	968,452	692,383	547,345	423,463	380,113	319,122	311,350	360,437
Analog Carrier	87,492	37,080	23,063	12,206	8,647	3,498	2,260	989	493
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	39,249,268
Loop Plant -- Central Office Terminations:									
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	301,323,866
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	239,529,969
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	54,608,075
Other	8,202	5,821	7,791	6,360	6,162	4,789	10,817	5,303	4,538
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	194,450,381
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	153,540,207
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	40,663,228
Other	4,386	3,131	3,955	3,035	2,857	2,710	3,095	2,308	246,946
Other Transmission Facility Data									
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	220,996,180
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	2,178,743
Fiber Term at Customer Premises DS1 Rate	75,141	106,758	146,405	184,235	222,040	294,808	363,189	421,075	790,145
Fiber Term at Customer Premises DS3 Rate & High	17,991	14,824	16,251	19,963	22,699	32,352	29,893	47,205	247,066
ISDN Capable Lines							105,949,660	107,514,214	127,868,963

Table 2.2 Transmission System Data
Total - Bell Operating Companies

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sheath Kilometers:									
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	4,550,151
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	4,036,521
Fiber	196,791	238,406	280,017	314,661	351,907	386,011	416,105	449,554	483,688
Other	11,228	10,993	8,451	7,350	6,819	5,819	5,896	14,026	13,672
Interoffice Working Facilities:									
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	16,674,514
Copper	1,039,316	864,931	805,290	568,197	485,909	433,758	413,204	420,488	465,365
Radio	77,664	89,731	90,175	81,137	68,563	44,421	43,693	38,515	38,804
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	16,170,345
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	37,868,903
Baseband	1,324,771	905,946	630,460	488,510	367,759	336,461	278,352	271,269	321,907
Analog Carrier	66,571	28,956	16,135	7,470	4,918	2,123	1,427	619	329
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	35,700,029
Loop Plant -- Central Office Terminations:									
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	258,724,799
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	209,641,211
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	49,082,186
Other	5,665	2,594	3,091	1,313	1,206	1,756	1,360	1,072	1,402
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	168,462,701
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	133,325,001
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	35,137,339
Other	2,347	1,192	1,427	309	249	689	257	207	361
Other Transmission Facility Data									
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	189,375,937
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	2,062,477
Fiber Term at Customer Premises DS1 Rate	73,731	102,303	139,865	176,294	207,421	278,339	339,709	416,229	518,619
Fiber Term at Customer Premises DS3 Rate & High	17,468	12,793	12,426	15,527	18,153	21,309	27,720	42,766	94,336
ISDN Capable Lines							93,014,032	93,781,745	111,603,350

Table 2.3 Transmission System Data
SBC Ameritech Companies

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sheath Kilometers:									
Total Sheath Kilometers	547,157	552,792	556,814	537,133	562,934	575,407	586,712	598,858	601,779
Copper	522,154	522,374	521,187	498,239	519,775	526,955	533,491	541,197	540,170
Fiber	24,559	29,468	34,655	37,980	42,370	47,676	52,450	56,687	60,637
Other	444	950	971	915	789	776	771	974	972
Interoffice Working Facilities:									
Digital Carrier Links	291,366	335,813	452,223	535,035	715,311	915,501	1,084,919	1,350,740	1,670,368
Copper	91,888	84,340	69,609	55,193	46,806	36,261	29,355	36,092	33,811
Radio	5,041	4,662	4,651	3,861	759	281	279	293	237
Fiber	194,437	246,811	377,963	475,981	667,746	878,959	1,055,285	1,314,355	1,636,320
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	5,990,907
Baseband	187,964	151,207	59,460	56,164	56,287	53,688	47,196	46,197	43,915
Analog Carrier	3,295	1,734	468	440	189	38	38	35	32
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	4,094,322
Loop Plant -- Central Office Terminations:									
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	37,842,246
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	30,255,769
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	7,586,477
Other	0	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	22,227,572
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	19,135,507
Fiber Digital Carrier	466,895	965,933	799,203	1,009,500	1,235,575	1,609,843	2,069,080	2,566,326	3,092,065
Other	0	0	0	0	0	0	0	0	0
Other Transmission Facility Data									
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	29,605,539
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	165,171
Fiber Term at Customer Premises DS1 Rate	13,964	18,905	23,675	26,660	31,941	39,124	46,366	53,506	62,090
Fiber Term at Customer Premises DS3 Rate & High	1,462	1,871	2,434	2,755	3,192	3,874	4,453	5,145	5,788
ISDN Capable Lines							9,339,241	9,476,166	9,499,034

Table 2.4 Transmission System Data
Bell Atlantic Total Company

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sheath Kilometers:									
Total Sheath Kilometers	942,313	949,646	958,275	967,084	973,148	979,664	992,970	1,008,405	1,022,395
Copper	885,619	880,017	877,352	875,728	872,797	871,984	873,583	876,739	879,768
Fiber	53,269	66,619	78,415	89,132	98,425	107,141	118,987	130,872	141,888
Other	3,425	3,011	2,507	2,224	1,927	539	401	794	739
Interoffice Working Facilities:									
Digital Carrier Links	607,015	631,790	694,744	738,158	770,523	867,765	1,138,588	1,434,388	937,802
Copper	172,937	144,092	112,514	115,170	111,706	98,410	104,494	110,408	116,694
Radio	12,844	11,753	10,290	9,103	8,067	6,054	4,920	3,666	2,502
Fiber	421,234	475,945	571,940	613,885	650,750	763,301	1,029,174	1,320,314	818,606
Total Circuit Links	5,199,461	5,142,664	5,159,173	5,201,204	5,213,347	5,357,022	5,853,744	6,834,238	8,687,801
Baseband	833,745	553,149	416,456	318,210	212,813	187,389	147,412	132,650	108,811
Analog Carrier	197	0	0	0	0	0	0	0	0
Digital Carrier	4,365,519	4,589,515	4,742,716	4,882,994	5,000,534	5,169,633	5,706,332	6,701,588	8,584,990
Loop Plant -- Central Office Terminations:									
Total Equipped Channels	63,840,703	65,747,651	82,980,954	86,021,165	90,107,803	77,287,239	80,327,245	86,996,490	92,301,202
Copper	60,990,753	62,105,433	65,122,822	65,275,522	65,663,036	65,333,981	66,426,101	67,001,475	66,662,496
Fiber Digital Carrier	2,849,951	3,642,219	17,858,134	20,745,643	24,444,767	11,953,258	13,901,144	19,995,015	25,638,706
Other	0	0	0	0	0	0	0	0	0
Total Working Channels	37,674,622	38,168,035	40,222,933	40,922,175	43,690,966	45,428,073	48,600,177	53,815,181	58,961,565
Copper	36,155,389	36,121,824	36,776,495	36,387,944	37,927,283	37,998,341	39,429,529	39,221,423	39,882,421
Fiber Digital Carrier	1,519,233	2,046,213	3,446,439	4,534,231	5,763,683	7,429,732	9,170,648	14,593,758	19,079,144
Other	0	0	0	0	0	0	0	0	0
Other Transmission Facility Data									
Copper Pairs Term Main Frame (Loop Plant Only)	60,036,981	59,659,102	60,557,866	60,577,213	60,635,648	60,742,136	61,342,895	61,875,146	61,342,016
Fiber Strands Term in the CO (Loop Plant Only)	62,518	213,998	273,279	604,501	704,901	804,787	872,210	1,074,947	1,247,579
Fiber Term at Customer Premises DS1 Rate	17,373	33,090	47,833	65,929	78,266	103,307	131,829	106,632	147,132
Fiber Term at Customer Premises DS3 Rate & High	2,890	676	1,306	1,767	2,333	3,381	4,094	9,515	13,277
ISDN Capable Lines							31,943,090	40,648,786	52,446,784

Table 2.5 Transmission System Data
BellSouth Companies

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sheath Kilometers:									
Total Sheath Kilometers	966,488	979,751	993,633	1,005,397	1,020,809	1,034,601	1,050,186	1,074,896	1,110,838
Copper	916,955	921,509	927,265	930,812	937,626	943,090	951,758	965,108	973,995
Fiber	47,759	56,692	65,100	73,370	82,012	90,093	96,852	105,335	116,507
Other	1,773	1,550	1,268	1,215	1,171	1,418	1,576	4,453	4,067
Interoffice Working Facilities:									
Digital Carrier Links	567,627	792,255	991,318	1,035,397	1,210,164	1,490,563	1,873,566	2,457,119	2,543,675
Copper	81,294	89,209	86,357	52,806	48,503	69,210	66,326	89,213	113,962
Radio	11,394	27,597	27,188	24,234	16,393	6,942	2,082	928	652
Fiber	474,939	675,449	877,770	958,357	1,145,268	1,414,411	1,805,158	2,366,978	2,429,061
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	8,564,658
Baseband	59,780	28,095	17,575	14,713	9,985	16,635	12,054	9,675	6,054
Analog Carrier	630	122	99	50	0	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	8,558,604
Loop Plant -- Central Office Terminations:									
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	42,025,575
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	31,849,537
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	10,175,104
Other	692	812	798	842	842	842	842	842	934
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	30,422,706
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	21,237,643
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	9,184,935
Other	56	87	90	77	82	89	82	82	128
Other Transmission Facility Data									
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	26,602,864
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	205,840
Fiber Term at Customer Premises DS1 Rate	2,726	4,681	9,078	13,941	19,132	27,482	36,911	50,431	67,886
Fiber Term at Customer Premises DS3 Rate & High	2,918	5,490	3,294	4,034	4,559	5,353	6,847	8,974	35,492
ISDN Capable Lines							25,918,582	15,841,265	13,049,641

Table 2.6 Transmission System Data
SBC Pacific Telesis Companies

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sheath Kilometers:									
Total Sheath Kilometers	348,654	351,748	351,695	343,658	346,127	349,697	363,726	368,122	363,304
Copper	335,484	336,461	334,674	324,942	325,537	327,040	339,207	341,563	334,493
Fiber	11,266	13,412	15,814	17,598	19,472	21,513	23,375	25,416	27,648
Other	1,904	1,875	1,207	1,118	1,118	1,144	1,144	1,144	1,163
Interoffice Working Facilities:									
Digital Carrier Links	1,012,194	839,177	890,295	962,296	1,383,235	2,544,964	3,280,630	4,514,485	5,811,424
Copper	439,280	344,605	334,947	153,090	122,703	117,589	110,587	88,363	63,984
Radio	7,381	7,761	8,501	7,568	8,489	9,914	10,533	11,091	11,104
Fiber	565,533	486,811	546,847	801,638	1,252,043	2,417,461	3,159,510	4,415,031	5,736,336
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	4,352,282
Baseband	118,782	89,606	66,642	42,095	35,016	30,232	27,020	22,639	18,370
Analog Carrier	1,854	710	609	451	256	297	263	92	104
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	4,333,808
Loop Plant -- Central Office Terminations:									
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	30,750,502
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	29,074,479
Fiber Digital Carrier	266,970	336,737	427,522	532,661	671,162	779,783	1,086,411	1,390,754	1,675,811
Other	87	87	87	85	261	261	24	24	212
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	20,981,860
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	19,944,469
Fiber Digital Carrier	170,776	223,744	284,575	351,364	429,536	506,657	685,092	868,450	1,037,263
Other	77	77	80	82	115	117	24	24	128
Other Transmission Facility Data									
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	26,639,408
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	101,516
Fiber Term at Customer Premises DS1 Rate	570	628	701	756	655	719	762	854	894
Fiber Term at Customer Premises DS3 Rate & High	7,772	1,710	2,410	3,108	4,047	3,113	6,145	7,432	9,430
ISDN Capable Lines							12,803,002	14,007,670	14,466,224

Table 2.7 Transmission System Data
SBC Southwestern Bell Companies

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sheath Kilometers:									
Total Sheath Kilometers	631,229	637,840	646,283	652,224	662,108	676,945	685,526	700,914	715,915
Copper	603,323	605,825	608,238	609,725	612,764	617,776	622,960	634,236	645,280
Fiber	24,226	28,407	35,548	40,621	47,530	57,228	60,561	66,074	70,023
Other	3,682	3,608	2,497	1,878	1,814	1,942	2,005	604	612
Interoffice Working Facilities:									
Digital Carrier Links	402,312	537,239	660,586	717,040	1,116,103	1,236,919	1,510,025	2,278,495	3,768,834
Copper	129,880	104,474	112,915	119,260	120,492	44,702	35,545	32,033	55,698
Radio	17,454	13,055	15,354	13,261	13,094	5,172	7,256	4,023	4,323
Fiber	254,978	419,710	532,317	584,519	982,517	1,187,045	1,467,224	2,242,439	3,708,813
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	5,040,973
Baseband	68,676	50,622	42,930	32,798	26,474	21,045	19,123	24,501	53,980
Analog Carrier	14,371	6,676	2,080	827	97	26	11	15	19
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	4,986,974
Loop Plant -- Central Office Terminations:									
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	27,781,986
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	26,437,109
Fiber Digital Carrier	414,723	444,970	906,188	1,664,422	633,547	789,425	1,045,955	1,174,299	1,344,877
Other	3,449	90	90	90	0	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	17,857,937
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	16,854,720
Fiber Digital Carrier	327,985	352,945	727,542	1,399,626	541,299	642,649	773,375	887,978	1,003,217
Other	1,318	74	74	74	0	0	0	0	0
Other Transmission Facility Data									
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	23,579,244
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	158,881
Fiber Term at Customer Premises DS1 Rate	28,216	33,162	38,568	44,622	48,552	77,598	77,545	113,701	103,739
Fiber Term at Customer Premises DS3 Rate & High	1,338	1,612	1,916	2,566	2,733	4,365	5,039	5,615	1,995
ISDN Capable Lines							3,773,275	4,157,674	12,158,269

Table 2.8 Transmission System Data
U S WEST Companies

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sheath Kilometers:									
Total Sheath Kilometers	727,800	743,027	757,868	750,756	753,942	722,753	717,084	722,157	735,920
Copper	692,088	699,219	707,384	694,797	691,844	660,393	653,205	650,929	662,816
Fiber	35,712	43,808	50,485	55,960	62,098	62,360	63,880	65,171	66,986
Other	0	0	0	0	0	0	0	6,057	6,119
Interoffice Working Facilities:									
Digital Carrier Links	390,509	428,573	470,408	507,802	633,309	899,862	1,179,770	1,523,605	1,942,411
Copper	124,037	98,211	88,948	72,678	35,699	67,586	66,897	64,379	81,216
Radio	23,550	24,903	24,191	23,110	21,761	16,058	18,623	18,514	19,986
Fiber	242,922	305,459	357,269	412,014	575,849	816,218	1,094,250	1,440,712	1,841,209
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	5,232,282
Baseband	55,824	33,267	27,397	24,530	27,184	27,472	25,547	35,607	90,777
Analog Carrier	46,224	19,714	12,879	5,702	4,376	1,762	1,115	477	174
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	5,141,331
Loop Plant -- Central Office Terminations:									
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	28,023,288
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	25,361,821
Fiber Digital Carrier	435,420	575,314	703,502	694,588	685,674	1,782,962	1,699,888	1,799,003	2,661,211
Other	1,437	1,605	2,116	296	103	653	494	206	256
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	18,011,061
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	16,270,241
Fiber Digital Carrier	207,186	327,441	449,121	458,790	473,650	1,126,650	1,081,695	1,233,523	1,740,715
Other	896	954	1,183	76	52	483	151	101	105
Other Transmission Facility Data									
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	21,606,866
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	183,490
Fiber Term at Customer Premises DS1 Rate	10,882	11,837	20,010	24,386	28,875	30,109	46,296	91,105	136,878
Fiber Term at Customer Premises DS3 Rate & High	1,088	1,434	1,066	1,297	1,289	1,223	1,142	6,085	28,354
ISDN Capable Lines							9,236,842	9,650,184	9,983,398

Table 2.9 Transmission System Data
GTE Companies

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Sheath Kilometers:									
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	1,312,437
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	1,219,257
Fiber	48,359	53,065	61,398	63,377	67,268	70,803	79,275	86,966	93,180
Other	259,807	274,303	0	0	0	0	0	0	0
Interoffice Working Facilities:									
Digital Carrier Links	209,790	344,634	407,492	498,415	605,210	764,647	1,136,014	1,263,530	1,080,935
Copper	88,115	115,339	118,171	118,318	118,255	289,942	448,220	488,775	214,081
Radio	5,782	12,616	12,505	11,787	11,010	7,377	6,936	6,462	56
Fiber	115,893	216,679	276,816	368,310	475,945	467,328	680,858	768,293	866,798
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	3,587,933
Baseband	138,930	62,506	61,923	58,835	55,704	43,652	40,770	40,081	38,530
Analog Carrier	20,921	8,124	6,928	4,736	3,729	1,375	833	370	164
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	3,549,239
Loop Plant -- Central Office Terminations:									
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	42,599,067
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	29,888,758
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	5,525,889
Other	2,537	3,227	4,700	5,047	4,956	3,033	9,457	4,231	3,136
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	25,987,680
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	20,215,206
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	5,525,889
Other	2,039	1,939	2,528	2,726	2,608	2,021	2,838	2,101	246,585
Other Transmission Facility Data									
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	31,620,243
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	116,266
Fiber Term at Customer Premises DS1 Rate	1,410	4,455	6,540	7,941	14,619	16,469	23,480	4,846	271,526
Fiber Term at Customer Premises DS3 Rate & High	523	2,031	3,825	4,436	4,546	11,043	2,173	4,439	152,730
ISDN Capable Lines							12,935,628	13,732,469	16,265,613

Notes

Following are selected notes taken from the carriers ARMIS submissions that help clarify items presented in this report. Notes for Bell Atlantic shown here are not applicable to its New England and New York Companies.

Tables 1.1 through 1.9

1999

US West Companies:

1. Assumptions changed to exclude pair gain devices

GTE Companies

1. Row 113 Hosts include base units controlling one or more remote switches that are either survivable or non-survivable.

1998

Bell Atlantic 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 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 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 Companies:

1. Row 0300 - ISDN Potential Access Line Capacity - Only counts lines in switches which are equipped to provide ISDN.

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 Companies:

1. Row 0300 - ISDN Potential Access Line Capacity - Only counts lines in switches which are equipped to provide ISDN.

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 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 Companies:

1. Row 0300 - ISDN Potential Access Line Capacity - All lines in a wire center which has one switch are reported here 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 2.9

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 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 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 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 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 1.9:

1. Total Gross Capital Expenditures --	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 2.9:

1. Sheath Kilometers --	Rows 0320, 0321, 0322, and 0323.
2. Digital Carrier Links --	Rows 0360, 0361, 0362, and 0363.
3. Circuit Links --	Rows 0330, 0331, 0332, and 0333.
4. Equipped Channels --	Rows 0420 0430, 0440, and 0460.
5. Working Channels --	Rows 0370 0380, 0390, and 0410.
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.
10. ISDN Capable Lines	Row 0490

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.