

Voice Telephone Services: Status as of June 30, 2020

Industry Analysis Division
Office of Economics and Analytics
August 2022



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Voice Telephone Services: Status as of June 30, 2020

Introduction

The Commission has used FCC Form 477 to collect subscribership information from providers of voice telephone services – incumbent local exchange carriers (ILECs), competitive local exchange carriers (CLECs), and mobile voice providers – since December 1999.¹ The Commission has required interconnected Voice over Internet Protocol (“interconnected VoIP”) service providers to report subscribership information since December 2008.² Also, starting with the data reported for 2014, Form 477 has been modified to distinguish “over-the-top” (colloquially, “bring your own broadband”) interconnected VoIP subscriptions from other interconnected VoIP subscriptions.³

Comparison to Local Telephone Competition Report

This report was previously titled *Local Telephone Competition*. Reports under the earlier title summarized Form 477 data through December 31, 2013. Reports under the current title provide much of the summarized data as supplemental spreadsheet files, available at <https://www.fcc.gov/voice-telephone-services-report>. A crosswalk between data elements in this report and data elements in the *Local Telephone Competition* report is available at that page.

¹ An Incumbent Local Exchange Carrier is an entity that was providing local exchange telephone service in a particular area on February 8, 1996, the date on which the Telecommunications Act of 1996 was enacted into law. *See* 47 C.F.R. § 51.5.

² The FCC’s rules (at 47 C.F.R. § 9.3) state:

An interconnected Voice over Internet Protocol (VoIP) service is a service that:

- (1) Enables real-time, two-way voice communications;
- (2) Requires a broadband connection from the user’s location;
- (3) Requires Internet protocol-compatible customer premises equipment; and
- (4) Permits users generally to receive calls that originate on the public switched telephone network and to terminate calls to the public switched telephone network.

We note that the current interpretation of element (4) of the definition excludes certain VoIP services (e.g., those offered by Skype) and subscribers to those services are not reported on Form 477.

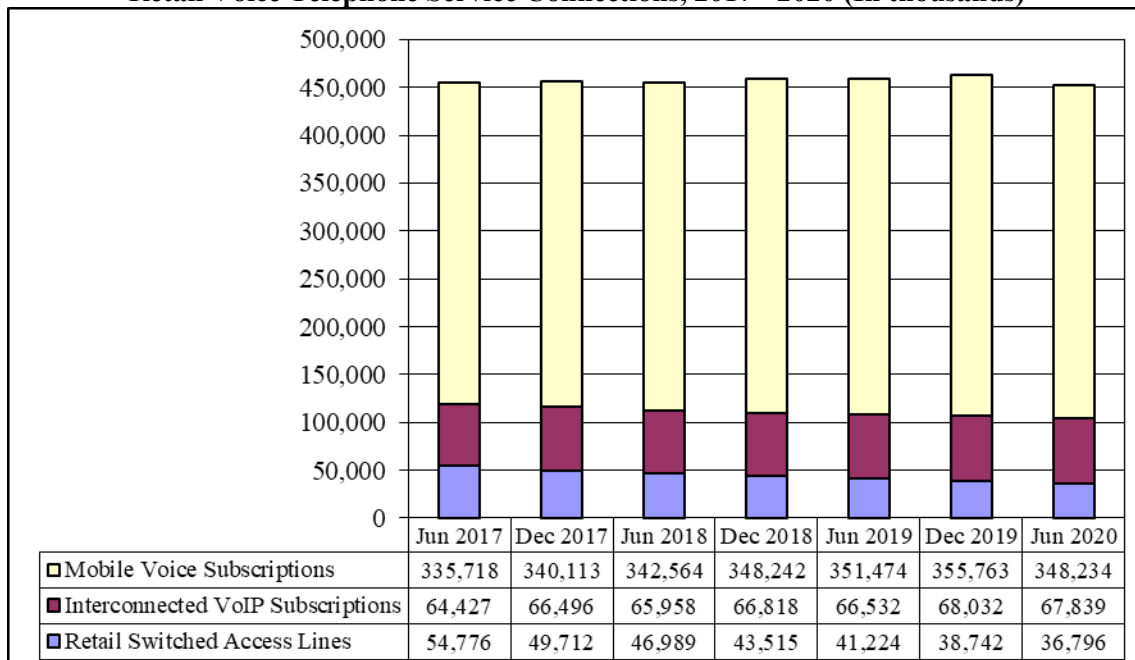
³ The Technical Notes and the Glossary that appear at the end of this report provide more-detailed information about the current Form 477 and the meaning of terms used in this report. To be consistent with modifications to Form 477 adopted in 2013 (to be effective for reporting June 2014 and later data), this report no longer uses the terms “standalone VoIP” and “broadband bundle.” Standalone VoIP in the earlier, *Local Telephone Competition*, reports has a different meaning from “over-the-top” VoIP in this report. In particular, subscriptions reported as standalone VoIP for December 2013 and earlier dates included over-the-top subscriptions as defined in this report and also video-plus-VoIP service subscriptions sold by cable TV system operators and other entities that own last-mile facilities to end-user premises. We note that, accordingly, 13% of total interconnected VoIP subscriptions were categorized as standalone VoIP in December 2013 and, by contrast, 10% of total interconnected VoIP subscriptions were categorized as over-the-top VoIP in December 2014.

Retail Voice Telephone Service Connections

Retail voice telephone service customers are served by two wireline technologies – end-user switched access lines and interconnected VoIP subscriptions – and by mobile wireless subscriptions.⁴

- In June 2020, there were 37 million end-user switched access lines in service, 68 million interconnected VoIP subscriptions, and 348 million mobile subscriptions, for a total of 453 million retail voice telephone service connections in the United States. See Figure 1.
- Over the three-year period presented in Figure 1, interconnected VoIP subscriptions increased at a compound annual growth rate of 2%, mobile voice subscriptions increased at a compound annual growth rate of 1%, and retail switched access lines declined at a compound annual growth rate of 12% per year.⁵

Figure 1
Retail Voice Telephone Service Connections, 2017 - 2020 (In thousands)



Note: Some previously published data have been revised.

- Of the 105 million wireline retail voice telephone service connections (including both switched access lines and interconnected VoIP subscriptions) in June 2020, 50 million (or 48%) were residential connections and 55 million (or 52%) were business connections.⁶ See Figure 2.
- We believe mobile voice subscriptions decreased by 2% between December 2019 and June 2020 due to a change in accounting procedures by one or more providers.

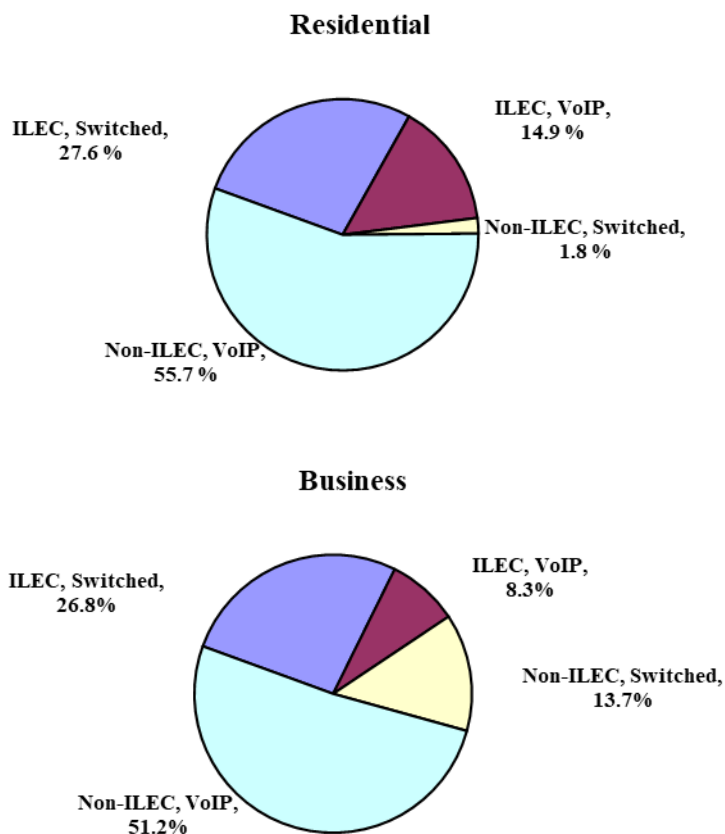
⁴ The presentation of mobile wireless telephone subscriber counts in this report does not constitute, or imply, Commission analysis of the extent to which wireline and mobile wireless telephone services are demand substitutes or complements in general or in any particular situation.

⁵ The compound annual growth rate is a smoothed rate of growth calculated in three steps. First, divide the ending value by the beginning value. Second, raise the result of that division to a power equal to one divided by the number of years in the period (in this case, 3 years, so the power is 1/3). Third, subtract one from the result of the second step.

Figure 2
Wireline Retail Voice Telephone Service Connections by Technology, Regulatory Status,
And Customer Type as of June 30, 2020 (In thousands)

Total	Switched Access Lines	Interconnected VoIP	Total
ILEC	28,414	11,988	40,401
Non-ILEC	8,382	55,851	64,233
Total	36,796	67,839	104,634
Residential			
ILEC	13,813	7,452	21,266
Non-ILEC	924	27,896	28,819
Residential Total	14,737	35,348	50,085
Business			
ILEC	14,600	4,535	19,136
Non-ILEC	7,459	27,955	35,414
Business Total	22,059	32,490	54,549

Note: Figures may not sum to totals due to rounding. A voice service affiliate of an ILEC that is operating outside of the ILEC's traditional service area ("study area") is a Non-ILEC.



- Cross-classified by technology and the retailer’s regulatory status in Figure 2, the 50 million wireline residential connections in June 2020 were: 27.6% ILEC switched access lines, 55.7% non-ILEC interconnected VoIP subscriptions, 14.9% ILEC interconnected VoIP subscriptions, and 1.8% non-ILEC switched access lines. Similarly, the 55 million wireline business connections were: 26.8% ILEC switched access lines, 51.2% non-ILEC interconnected VoIP subscriptions, 8.3% ILEC interconnected VoIP subscriptions, and 13.7% non-ILEC switched access lines.

Retail Service Relationships

Respondents submit two types of information about retail service relationships on the current Form 477.

- Interconnected VoIP service retailers distinguish over-the-top (“OTT”) interconnected VoIP subscriptions—where the end user accesses the service using a broadband connection from an entity that is not affiliated with the VoIP service retailer—from all other interconnected VoIP subscriptions.⁷ See Figure 3.
- Retailers of switched access lines and retailers of interconnected VoIP service distinguish between sales to end users who also purchase Internet access from them (including affiliates) and those who do not. See Figure 4.

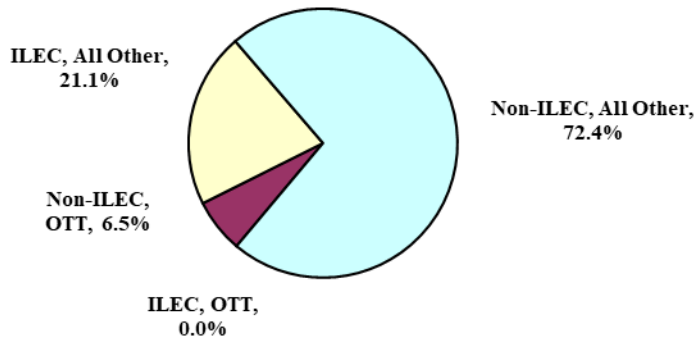
⁷ A broadband connection may or may not provide the end user with internet access.

Figure 3
Interconnected VoIP Subscribership by Reported Service Features, Regulatory Status,
and Customer Type as of June 30, 2020 (In thousands)

Total	Over-the-Top (OTT)	All Other VoIP	Total
ILEC	74	11,913	11,988
Non-ILEC	13,196	42,655	55,851
Total	13,270	54,568	67,839
Residential			
ILEC	2	7,451	7,452
Non-ILEC	2,296	25,600	27,896
Residential Total	2,298	33,051	35,348
Business			
ILEC	73	4,462	4,535
Non-ILEC	10,900	17,055	27,955
Business Total	10,973	21,518	32,490

Note: Figures may not sum to totals due to rounding.

Residential



Business

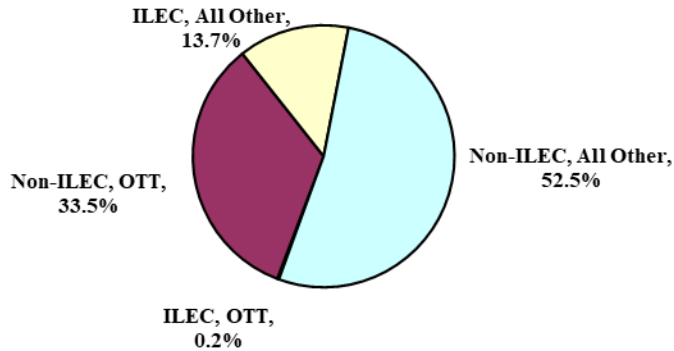
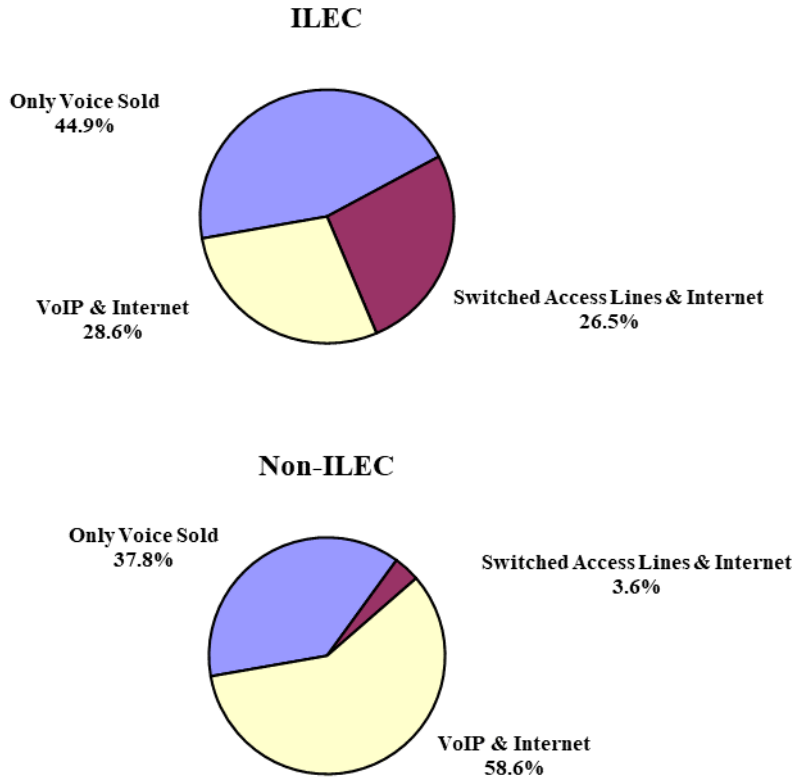


Figure 4
Retail Relationships of Wireline Voice Telephone Service with Internet Access Service
By Regulatory Status as of June 30, 2020 (In thousands)

Total	ILEC	Non-ILEC	Total
Switched Access Lines	28,414	8,382	36,796
Over-the-Top VoIP	74	13,196	13,270
All Other VoIP	11,913	42,655	54,568
Total	40,401	64,233	104,634
Sold with Internet			
Switched Access Lines	10,691	2,322	13,013
Over-the-Top VoIP	0	0	0
All Other VoIP	11,555	37,633	49,187
Total	22,246	39,955	62,200
Sold Without Internet			
Switched Access Lines	17,723	6,060	23,783
Over-the-Top VoIP	74	13,196	13,270
All Other VoIP	358	5,022	5,381
Total	18,155	24,278	42,434

Note: Figures may not sum totals due to rounding.



Detailed Voice Telephone Services Data

- Table 1 summarizes national-level voice telephone service subscription data for June and December 2019, and for June 2020, for individual data elements collected by FCC Form 477.
- Table 2 shows the number of entities that reported subscription data for the same time periods.
- Table 3 shows residential wireline voice telephone service connections by state for June 2020.
- Table 4 shows mobile voice telephone service subscriptions by state for June 2020.

Tables 1, 2, 3, and 4 are available in Excel format at <https://www.fcc.gov/voice-telephone-services-report>. Also available at that page are:

- State-level Subscriptions table in Excel format (data back to June 2019)
- State-level Number of Providers table in Excel format (data back to June 2019)
- County-level Subscription information in Excel format (data back to June 2014)
- CSV-format file of the consistent data series that are available back to December 2008, when interconnected VoIP retailers were first required to report subscription information on Form 477.

Earlier data, back to December 1999, are available in the Local Telephone Competition reports at <https://www.fcc.gov/general/local-telephone-competition-reports>. However, researchers using the complete data series for trend analysis should be aware of the following discontinuities in the data.

- Between December 1999 and December 2004, Form 477 collected state-by-state data only from local exchange carriers with at least 10,000 end-user switched access lines in service in the state, and from facilities-based mobile voice carriers with at least 10,000 mobile voice subscriptions in service in the state.
- Prior to December 2008, interconnected VoIP service retailers were not required to submit Form 477, but an unknown amount of interconnected VoIP service was included along with the switched access lines reported by some Form 477 filers.
- As discussed earlier in this report, the category standalone interconnected VoIP that was reported from December 2008 to December 2013 is different (that is, includes more subscriptions) than the category over-the-top interconnected VoIP that is reported starting with the June 2014 data.⁸

⁸ See footnote 3, above.

Table 1. Voice Subscriptions (in Thousands) - Total for US

Reference	Data element	June 2019	Dec 2019	June 2020
1	Mobile telephony	351,474	355,763	348,234
2	Directly-billed or prepaid	310,668	314,122	308,767
3	Not directly-billed or prepaid	40,807	41,641	39,467
4	Wireline End-User Switched Access Lines and Interconnected VoIP Subscriptions	107,757	106,774	104,634
5	Incumbent LECs	44,640	42,208	40,401
6	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	63,117	64,566	64,233
7	Consumer-grade service	53,862	51,794	50,085
8	Incumbent LECs	24,027	22,570	21,266
9	Other (Non-ILECs)	29,835	29,224	28,819
10	Business & Government-grade service	53,894	54,981	54,549
11	Incumbent LECs	20,612	19,638	19,136
12	Other (Non-ILECs)	33,282	35,343	35,414
13	Local exchange telephone service (Switched Access Lines)	41,224	38,742	36,796
14	Incumbent LECs	31,976	29,897	28,414
15	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	9,248	8,844	8,382
16	Consumer-grade service	16,470	15,496	14,737
17	Incumbent LECs	15,511	14,603	13,813
18	Other (Non-ILECs)	958	893	924
19	Business & Government-grade service	24,755	23,245	22,059
20	Incumbent LECs	16,465	15,294	14,600
21	Other (Non-ILECs)	8,290	7,951	7,459
22	Interconnected VoIP Subscriptions - Note: Includes both Over-the-top (OTT) and All Other sub-categories.	66,532	68,032	67,839
23	Incumbent LECs	12,663	12,310	11,988
24	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	53,869	55,722	55,851
25	Consumer-grade service	37,393	36,297	35,348
26	Incumbent LECs	8,516	7,966	7,452
27	Other (Non-ILECs)	28,877	28,331	27,896
28	Business & Government-grade service	29,140	31,735	32,490
29	Incumbent LECs	4,147	4,344	4,535
30	Other (Non-ILECs)	24,992	27,391	27,955
31	Over-the-top interconnected VoIP	10,926	11,788	13,270
32	Incumbent LECs	70	71	74
33	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	10,856	11,717	13,196
34	Consumer-grade service	2,268	2,251	2,298
35	Incumbent LECs	2	2	2
36	Other (Non-ILECs)	2,266	2,249	2,296
37	Business & Government-grade service	8,657	9,537	10,973
38	Incumbent LECs	68	69	73
39	Other (Non-ILECs)	8,589	9,468	10,900
40	All Other interconnected VoIP	55,607	56,244	54,568
41	Incumbent LECs	12,594	12,240	11,913
42	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	43,014	44,005	42,655
43	Consumer-grade service	35,124	34,046	33,051
44	Incumbent LECs	8,514	7,964	7,451
45	Other (Non-ILECs)	26,610	26,082	25,600
46	Business & Government-grade service	20,483	22,198	21,518
47	Incumbent LECs	4,080	4,275	4,462
48	Other (Non-ILECs)	16,403	17,923	17,055
49	Local exchange telephone service by last-mile delivery medium	41,224	38,742	36,796
50	Fiber-to-the-premises	4,797	4,687	4,651
51	Incumbent LECs	2,784	2,712	2,728
52	Other (Non-ILECs)	2,013	1,975	1,923
53	Coaxial cable	542	466	441
54	Incumbent LECs	56	47	46
55	Other (Non-ILECs)	486	419	394

Table 1. Voice Subscriptions (in Thousands) - Total for US

Reference	Data element	June 2019	Dec 2019	June 2020
56	Terrestrial fixed wireless	30	34	30
57	Incumbent LECs	13	15	14
58	Other (Non-ILECs)	17	18	16
59	Copper local loop	35,856	33,555	31,674
60	Incumbent LECs	29,123	27,123	25,625
61	Other (Non-ILECs)	6,732	6,432	6,049
62	All Other interconnected VoIP by last-mile delivery medium	55,607	56,244	54,568
63	Fiber-to-the-premises	8,669	8,963	8,479
64	Incumbent LECs	6,239	6,080	5,850
65	Other (Non-ILECs)	2,430	2,883	2,629
66	Coaxial cable	33,950	33,409	32,883
67	Incumbent LECs	8	11	11
68	Other (Non-ILECs)	33,942	33,398	32,872
69	Terrestrial fixed wireless or satellite	201	206	219
70	Incumbent LECs	0	0	0
71	Other (Non-ILECs)	200	206	219
72	Copper local loop	12,787	13,666	12,987
73	Incumbent LECs	6,347	6,148	6,052
74	Other (Non-ILECs)	6,441	7,518	6,935
75	Non-Incumbent LEC local exchange telephone service by means of provisioning	9,248	8,844	8,382
76	Provided over owned last-mile facilities	3,347	3,220	3,119
77	Provided over UNE-L obtained from unaffiliated entity	1,352	1,473	1,381
78	Provided over other services obtained from unaffiliated entity	4,549	4,151	3,883
79	Incumbent LEC local exchange telephone service provided to unaffiliated carriers for resale	4,526	4,130	3,950
80	Wholesale lines	2,870	2,723	2,660
81	UNE-L	1,657	1,407	1,291
82	Local exchange telephone service and long-distance service	41,224	38,742	36,796
83	Consumer-grade service	16,470	15,496	14,737
84	Incumbent LEC is preferred long-distance carrier for its local exchange service customer	10,515	9,779	9,346
85	Incumbent LEC is not preferred long-distance carrier for its local exchange service customer	4,996	4,824	4,467
86	Non-ILEC is preferred long-distance carrier for its local exchange service customer	798	736	722
87	Non-ILEC is not preferred long-distance carrier for its local exchange service customer	160	157	202
88	Business & Government-grade service	24,755	23,245	22,059
89	Incumbent LEC is preferred long-distance carrier for its local exchange service customer	9,371	8,621	8,120
90	Incumbent LEC is not preferred long-distance carrier for its local exchange service customer	7,094	6,673	6,481
91	Non-ILEC is preferred long-distance carrier for its local exchange service customer	6,371	6,102	5,443
92	Non-ILEC is not preferred long-distance carrier for its local exchange service customer	1,919	1,849	2,016
93	End user buys local exchange telephone service and Internet access service from same entity	15,635	14,033	13,013
94	End user buys both services from incumbent LEC or affiliates	12,333	11,173	10,691
95	End user buys both services from Non-ILEC or affiliates	3,302	2,860	2,322
96	End user buys interconnected VoIP and Internet access service from same entity	50,380	50,274	49,187
97	End user buys both services from incumbent LEC or affiliates	12,288	11,860	11,555
98	End user buys both services from Non-ILEC or affiliates	38,092	38,414	37,633

Table 2. Number of Providers Reporting Voice Subscriptions - Total for US

Reference	Data element	June 2019	Dec 2019	June 2020
1	Mobile telephony	71	69	66
2	Directly-billed or prepaid	71	69	65
3	Not directly-billed or prepaid	7	8	7
4	Wireline End-User Switched Access Lines and Interconnected VoIP Subscriptions	1,971	2,028	2,103
5	Incumbent LECs	723	715	716
6	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	1,559	1,625	1,716
7	Consumer-grade service	1,294	1,315	1,334
8	Incumbent LECs	722	715	715
9	Other (Non-ILECs)	875	904	938
10	Business & Government-grade service	1,871	1,923	1,995
11	Incumbent LECs	719	711	711
12	Other (Non-ILECs)	1,458	1,520	1,608
13	Local exchange telephone service (Switched Access Lines)	977	966	965
14	Incumbent LECs	720	709	710
15	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	504	506	514
16	Consumer-grade service	881	871	870
17	Incumbent LECs	719	709	710
18	Other (Non-ILECs)	400	402	409
19	Business & Government-grade service	963	952	947
20	Incumbent LECs	717	707	707
21	Other (Non-ILECs)	488	489	494
22	Interconnected VoIP Subscriptions - Note: Includes both Over-the-top (OTT) and All Other sub-categories.	1,398	1,464	1,562
23	Incumbent LECs	143	144	161
24	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	1,342	1,403	1,497
25	Consumer-grade service	641	671	708
26	Incumbent LECs	81	80	84
27	Other (Non-ILECs)	595	625	662
28	Business & Government-grade service	1,299	1,364	1,457
29	Incumbent LECs	138	139	154
30	Other (Non-ILECs)	1,247	1,307	1,394
31	Over-the-top interconnected VoIP	859	907	977
32	Incumbent LECs	30	31	36
33	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	848	893	962
34	Consumer-grade service	181	177	197
35	Incumbent LECs	13	12	12
36	Other (Non-ILECs)	172	170	189
37	Business & Government-grade service	814	863	934
38	Incumbent LECs	27	28	34
39	Other (Non-ILECs)	805	852	921
40	All Other interconnected VoIP	783	805	842
41	Incumbent LECs	136	137	150
42	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	728	745	777
43	Consumer-grade service	520	554	573
44	Incumbent LECs	75	75	79
45	Other (Non-ILECs)	477	512	530
46	Business & Government-grade service	712	733	768
47	Incumbent LECs	131	133	144
48	Other (Non-ILECs)	661	676	705
49	Local exchange telephone service by last-mile delivery medium	977	966	965
50	Fiber-to-the-premises	757	758	765
51	Incumbent LECs	611	613	622
52	Other (Non-ILECs)	361	368	374
53	Coaxial cable	83	79	82
54	Incumbent LECs	21	17	20
55	Other (Non-ILECs)	72	71	73

Table 2. Number of Providers Reporting Voice Subscriptions - Total for US

Reference	Data element	June 2019	Dec 2019	June 2020
56	Terrestrial fixed wireless	76	74	83
57	Incumbent LECs	41	40	49
58	Other (Non-ILECs)	45	48	51
59	Copper local loop	775	749	744
60	Incumbent LECs	574	552	547
61	Other (Non-ILECs)	325	319	320
62	All Other interconnected VoIP by last-mile delivery medium	783	805	842
63	Fiber-to-the-premises	513	543	571
64	Incumbent LECs	123	125	140
65	Other (Non-ILECs)	460	491	511
66	Coaxial cable	221	216	214
67	Incumbent LECs	12	10	10
68	Other (Non-ILECs)	214	209	207
69	Terrestrial fixed wireless or satellite	282	283	301
70	Incumbent LECs	11	10	11
71	Other (Non-ILECs)	274	276	294
72	Copper local loop	230	226	225
73	Incumbent LECs	56	57	56
74	Other (Non-ILECs)	200	194	194
75	Non-Incumbent LEC local exchange telephone service by means of provisioning	504	506	514
76	Provided over owned last-mile facilities	381	379	399
77	Provided over UNE-L obtained from unaffiliated entity	101	105	103
78	Provided over other services obtained from unaffiliated entity	189	192	177
79	Incumbent LEC local exchange telephone service provided to unaffiliated carriers for resale	21	20	25
80	Wholesale lines	19	18	23
81	UNE-L	10	10	11
82	Local exchange telephone service and long-distance service	977	966	965
83	Consumer-grade service	881	871	870
84	Incumbent LEC is preferred long-distance carrier for its local exchange service customer	674	668	668
85	Incumbent LEC is not preferred long-distance carrier for its local exchange service customer	671	662	659
86	Non-ILEC is preferred long-distance carrier for its local exchange service customer	377	379	387
87	Non-ILEC is not preferred long-distance carrier for its local exchange service customer	274	270	274
88	Business & Government-grade service	963	952	947
89	Incumbent LEC is preferred long-distance carrier for its local exchange service customer	671	667	665
90	Incumbent LEC is not preferred long-distance carrier for its local exchange service customer	652	638	641
91	Non-ILEC is preferred long-distance carrier for its local exchange service customer	445	444	457
92	Non-ILEC is not preferred long-distance carrier for its local exchange service customer	307	313	311
93	End user buys local exchange telephone service and Internet access service from same entity	885	877	882
94	End user buys both services from incumbent LEC or affiliates	704	693	695
95	End user buys both services from Non-ILEC or affiliates	420	425	440
96	End user buys interconnected VoIP and Internet access service from same entity	712	741	768
97	End user buys both services from incumbent LEC or affiliates	124	128	137
98	End user buys both services from Non-ILEC or affiliates	663	686	710

Table 3: Residential Wireline Voice Telephone Service Connections and Households by State as of June 30, 2020
(Connections and households, in thousands)

State	Households	Switched Access		Interconnected VoIP		Total	
		Connections	Ratio	Connections	Ratio	Connections	Ratio
Alabama	1,889	236	0.12	430	0.23	666	0.35
Alaska	255	*	*	*	*	85	0.33
American Samoa	10	5	0.52	-	*	5	0.52
Arizona	2,643	235	0.09	522	0.20	757	0.29
Arkansas	1,171	169	0.14	153	0.13	322	0.28
California	13,103	1,363	0.10	4,110	0.31	5,473	0.42
Colorado	2,137	288	0.13	492	0.23	780	0.36
Connecticut	1,385	144	0.10	664	0.48	808	0.58
Delaware	371	33	0.09	203	0.55	236	0.64
District of Columbia	288	28	0.10	89	0.31	116	0.40
Florida	7,931	582	0.07	2,534	0.32	3,116	0.39
Georgia	3,830	567	0.15	942	0.25	1,509	0.39
Guam	42	21	0.50	*	*	*	*
Hawaii	468	90	0.19	129	0.28	219	0.47
Idaho	649	101	0.16	44	0.07	145	0.22
Illinois	4,884	445	0.09	1,292	0.26	1,737	0.36
Indiana	2,603	307	0.12	524	0.20	830	0.32
Iowa	1,274	304	0.24	205	0.16	509	0.40
Kansas	1,142	133	0.12	190	0.17	323	0.28
Kentucky	1,748	380	0.22	335	0.19	716	0.41
Louisiana	1,752	187	0.11	409	0.23	596	0.34
Maine	570	119	0.21	168	0.29	287	0.50
Maryland	2,231	226	0.10	1,014	0.45	1,240	0.56
Massachusetts	2,647	225	0.09	1,344	0.51	1,569	0.59
Michigan	3,980	313	0.08	1,097	0.28	1,410	0.35
Minnesota	2,208	444	0.20	406	0.18	850	0.38
Mississippi	1,117	123	0.11	159	0.14	282	0.25
Missouri	2,440	291	0.12	511	0.21	802	0.33
Montana	436	101	0.23	76	0.17	177	0.41
Nebraska	767	152	0.20	128	0.17	280	0.37
Nevada	1,130	96	0.08	286	0.25	383	0.34
New Hampshire	539	89	0.17	233	0.43	322	0.60
New Jersey	3,272	263	0.08	1,904	0.58	2,166	0.66
New Mexico	793	149	0.19	105	0.13	254	0.32
New York	7,417	692	0.09	3,499	0.47	4,191	0.57
North Carolina	4,032	562	0.14	1,091	0.27	1,654	0.41
North Dakota	321	76	0.24	26	0.08	103	0.32
Northern Mariana Islands	16	8	0.50	*	*	*	*
Ohio	4,717	584	0.12	1,196	0.25	1,780	0.38
Oklahoma	1,494	163	0.11	236	0.16	399	0.27
Oregon	1,643	213	0.13	335	0.20	549	0.33
Pennsylvania	5,107	757	0.15	1,938	0.38	2,695	0.53
Puerto Rico	1,206	*	*	*	*	*	*
Rhode Island	415	35	0.08	172	0.41	207	0.50
South Carolina	1,961	308	0.16	439	0.22	747	0.38
South Dakota	348	83	0.24	36	0.10	119	0.34
Tennessee	2,639	374	0.14	544	0.21	918	0.35
Texas	9,906	785	0.08	2,090	0.21	2,875	0.29
Utah	1,003	112	0.11	168	0.17	280	0.28
Vermont	263	91	0.35	80	0.30	171	0.65
Virgin Islands	30	*	*	*	*	10	0.34
Virginia	3,184	408	0.13	1,097	0.34	1,505	0.47
Washington	2,906	358	0.12	690	0.24	1,048	0.36
West Virginia	734	190	0.26	192	0.26	382	0.52
Wisconsin	2,378	337	0.14	559	0.24	896	0.38
Wyoming	233	39	0.17	39	0.17	77	0.33
United States	123,657	14,737	0.12	35,348	0.29	50,085	0.41

- = Rounds to Zero; * = Data withheld to maintain firm confidentiality.

Notes: Numbers may not sum to totals due to rounding. Total fixed voice connections equal the sum of switched access lines and interconnected VoIP subscriptions. We calculate residential fixed voice connections per household using, in the denominator, U.S. household estimates from the 2016-2020 ACS 5-year estimates and, for Puerto Rico and the other inhabited island areas, Census 2010 households.

**Table 4: Mobile Voice Telephone Service Subscriptions and Population by State
as of June 30, 2020
(Connections and population, in thousands)**

State	Population	Directly-Billed		Not Directly-Billed		Total	
		Subscriptions	Ratio	Subscriptions	Ratio	Subscriptions	Ratio
Alabama	4,893	4,304	0.88	769	0.16	5,073	1.04
Alaska	737	690	0.94	32	0.04	722	0.98
American Samoa	56	*	*	*	*	*	*
Arizona	7,174	6,501	0.91	562	0.08	7,063	0.98
Arkansas	3,012	2,439	0.81	740	0.25	3,179	1.06
California	39,346	39,906	1.01	5,169	0.13	45,075	1.15
Colorado	5,685	5,302	0.93	576	0.10	5,878	1.03
Connecticut	3,571	3,570	1.00	378	0.11	3,947	1.11
Delaware	968	906	0.94	137	0.14	1,043	1.08
District of Columbia	702	1,300	1.85	206	0.29	1,506	2.15
Florida	21,217	19,924	0.94	1,951	0.09	21,875	1.03
Georgia	10,517	9,731	0.93	1,451	0.14	11,182	1.06
Guam	159	185	1.16	-	*	185	1.16
Hawaii	1,420	1,420	1.00	135	0.10	1,555	1.10
Idaho	1,754	1,557	0.89	178	0.10	1,735	0.99
Illinois	12,716	12,388	0.97	1,457	0.11	13,845	1.09
Indiana	6,697	5,619	0.84	1,032	0.15	6,651	0.99
Iowa	3,150	2,801	0.89	350	0.11	3,151	1.00
Kansas	2,913	2,544	0.87	391	0.13	2,935	1.01
Kentucky	4,462	3,678	0.82	644	0.14	4,322	0.97
Louisiana	4,665	4,288	0.92	565	0.12	4,854	1.04
Maine	1,341	1,038	0.77	296	0.22	1,334	0.99
Maryland	6,038	5,915	0.98	553	0.09	6,467	1.07
Massachusetts	6,873	6,696	0.97	736	0.11	7,432	1.08
Michigan	9,974	9,219	0.92	1,167	0.12	10,387	1.04
Minnesota	5,600	5,076	0.91	709	0.13	5,785	1.03
Mississippi	2,982	2,518	0.84	375	0.13	2,894	0.97
Missouri	6,124	5,392	0.88	628	0.10	6,021	0.98
Montana	1,062	880	0.83	185	0.17	1,064	1.00
Nebraska	1,924	1,772	0.92	251	0.13	2,022	1.05
Nevada	3,030	2,831	0.93	250	0.08	3,081	1.02
New Hampshire	1,355	1,168	0.86	211	0.16	1,379	1.02
New Jersey	8,885	9,313	1.05	1,084	0.12	10,397	1.17
New Mexico	2,097	1,927	0.92	214	0.10	2,140	1.02
New York	19,515	19,510	1.00	2,779	0.14	22,289	1.14
North Carolina	10,386	8,937	0.86	1,459	0.14	10,396	1.00
North Dakota	760	687	0.90	105	0.14	792	1.04
Northern Mariana Islands	54	*	*	*	*	*	*
Ohio	11,675	10,754	0.92	1,551	0.13	12,305	1.05
Oklahoma	3,949	3,385	0.86	441	0.11	3,825	0.97
Oregon	4,176	3,831	0.92	513	0.12	4,343	1.04
Pennsylvania	12,795	11,369	0.89	1,891	0.15	13,260	1.04
Puerto Rico	3,256	2,701	0.83	225	0.07	2,926	0.90
Rhode Island	1,058	1,002	0.95	108	0.10	1,110	1.05
South Carolina	5,092	4,195	0.82	754	0.15	4,950	0.97
South Dakota	879	726	0.83	135	0.15	861	0.98
Tennessee	6,772	6,158	0.91	915	0.14	7,073	1.04
Texas	28,635	27,545	0.96	1,966	0.07	29,511	1.03
Utah	3,151	2,739	0.87	283	0.09	3,022	0.96
Vermont	624	469	0.75	126	0.20	596	0.95
Virgin Islands	106	*	*	*	*	*	*
Virginia	8,509	7,904	0.93	960	0.11	8,864	1.04
Washington	7,512	7,023	0.93	793	0.11	7,816	1.04
West Virginia	1,807	1,368	0.76	242	0.13	1,609	0.89
Wisconsin	5,807	4,951	0.85	742	0.13	5,693	0.98
Wyoming	581	523	0.90	90	0.15	613	1.05
United States	330,200	308,767	0.94	39,467	0.12	348,234	1.05

- = Rounds to Zero; * = Data withheld to maintain firm confidentiality.

Notes: Numbers may not sum to totals due to rounding. Directly-billed subscriptions are those where the customer is directly billed by the facilities-based provider. Total mobile voice subscriptions equal the sum of subscriptions that are directly-billed and those that are not. We calculate mobile voice subscriptions per person using, in the denominator, U.S. population estimates from the 2016-2020 ACS 5-year estimates and, for Puerto Rico and the other inhabited island areas, Census 2010 populations.

Technical Notes

Detailed information about the current Form 477 reporting requirements is available at <https://www.fcc.gov/general/form-477-resources-filers>.

Counting lines and subscribers

- Form 477 counts both switched access lines and interconnected VoIP subscriptions as the maximum number of calls that may be active, simultaneously, from the end user's location under the purchased service plan. All VoIP subscriptions discussed in this report are interconnected VoIP subscriptions.
- Form 477 data may not count all VoIP phone connections to Internet Protocol Private Branch Exchange (IP PBX) equipment that is owned by business end users because of the variety of ways the IP PBX may connect to the public switched telephone network.

Holding company-subsidary relationships

- When counting service providers that report voice telephone service in a particular geography, we count a holding company or common-control entity no more than once in any specified sub-category of total providers.
- Nationwide counts of providers are unique counts for any specified sub-category of total providers (for example, all non-ILECs or all interconnected VoIP providers); an entity operating in multiple states is counted only once.

ILEC-CLEC affiliations

- If a CLEC is affiliated with an ILEC and reports some end-user switched access lines or interconnected VoIP subscriptions in the ILEC's service area in the state, then the switched access lines or interconnected VoIP subscriptions reported by the CLEC are allocated between the ILEC and non-ILEC categories based on staff estimates.

Mobile voice subscriptions

- Commercial mobile radio service carriers that own or operate wireless networks report both their retail voice service subscriptions and the retail subscriptions of the mobile voice service resellers that use their network. Mobile voice service resellers do not file Form 477.
- Providers may assign subscriptions to a particular state based on the area code of the device's telephone number, or by using some other method that best reflects the subscriber's location, such as a billing address of the device's place of primary use address.

UNE-Platform lines replaced by commercial agreements

- UNE-Platform (UNE-P) was the combination of ILEC loop UNE, switching UNE, and transport UNE. The Commission directed CLECs to migrate their retail customers served by UNE-P to an alternative arrangement within 12 months of the effective date of the *Triennial Review Remand Order*, that is, by March 11, 2006. See C.F.R. § 51.319(d)(2)(ii). Such lines are reported on Form 477 as ILEC wholesale lines provided to unaffiliated providers for resale.

Glossary

Term	Definition
All Other interconnected VoIP	Interconnected VoIP service other than OTT interconnected VoIP. (See the definition of OTT VoIP, below.)
Broadband connection	A wired line or wireless channel that terminates at an end-user location and enables the end user to receive information from and/or send information to the Internet at information transfer rates exceeding 200 kilobits per second in at least one direction.
Circuit switching	A method of completing electronic communications in which a transmission path is established for dedicated use by a communication; the basis of the public switched telephone network.
Coaxial cable	The technology widely used by cable system operators to terminate their services at the end user's premises.
Copper local loop	The technology widely used by telephone companies to terminate their service at the end user's premises.
CLEC	Competitive Local Exchange Carrier: A local exchange carrier (LEC) that operates within the traditional service area of an unaffiliated incumbent LEC.
End users	Residential, business, institutional, or government entities that use services for their own purposes and who do not resell such services to other entities.
Fixed wireless service	A radio communication service between specified fixed points.
FTTP or FTTH	Fiber to the Premises (Home): A network access architecture in which optical fiber is deployed all the way to the customer's premises (home).
Internet access service	Service that provides end users access to the Internet.
ILEC	Incumbent Local Exchange Carrier: A company or cooperative that was providing telephone service in a localized area, typically on a monopoly basis, prior to enactment of the Telecommunications Act of 1996.
Internet protocol or IP	A language and set of formal rules that govern how packets transit the Internet.
Interconnected VoIP	A service that enables real-time, two-way voice communications; requires a broadband connection from the user's location; requires Internet-protocol compatible customer premises equipment; and permits users generally to receive calls that originate on the public switched telephone network and to terminate calls to the public switched telephone network.
LEC	Local Exchange Carrier: A company that provides telephone service within a localized area and access services that connect its customers to long-distance (Interexchange Carrier) networks.
Local loop	The physical connection between the customer's premises and the telephone company's local switching office, typically provided using copper, fiber, or a combination of copper and fiber facilities.
Mobile wireless service	A radio communication service between mobile and fixed stations, or between mobile stations.

Non-ILEC	Any provider of communications services who does not have ILEC regulatory status. A voice-service affiliate of an ILEC that is operating outside the ILEC's traditional service area ("study area") is a Non-ILEC.
OTT interconnected VoIP	Over-the-top interconnected VoIP: Service delivered to the end-user customer's premises over a high-capacity connection that the customer obtains (that is, buys), or has the use of, from an entity not affiliated with the interconnected VoIP service provider. (Colloquially, "bring-your-own-broadband.")
PBX	Private Branch Exchange: A communications switch that is owned or leased by the service provider's end-user customer and generally located on the customer's premises.
Packet switching	A method of completing electronic communications in which the information is disassembled into discrete packets that are transmitted independently and later reassembled; IP is an example.
Retail wireline voice telephone service	Switched access lines and interconnected VoIP subscriptions for which an end user is the customer.
Switched access line	A service connection between an end user and the local telephone company's switch; the basis of plain old telephone service (POTS).
UNE	Unbundled Network Element: A physical or functional element of an ILEC network that must be provided to a CLEC at a cost-based price, as provide for in the Telecommunications Act of 1996.
UNE-L	UNE-Loop: An ILEC unbundled local loop provided to a CLEC at a cost-based price.
Wholesale switched access lines	Local telephone service provided to an unaffiliated telephone company, which resells the service to end users; typically provided by an ILEC to a CLEC.

Customer Response

Publication: *Voice Telephone Services: Status as of June 30, 2020*

You can help us provide the best possible information to the public by completing this form and returning it to the Industry Analysis Division of the FCC's Office of Economics and Analytics.

1. Please check the category that best describes you:

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Timeliness of data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Completeness of data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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4. How can this report be improved?

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