

Voice Telephone Services: Status as of June 30, 2022

Industry Analysis Division
Office of Economics and Analytics
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Voice Telephone Services: Status as of June 30, 2022

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, FCC 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 FCC 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 FCC Form 477.

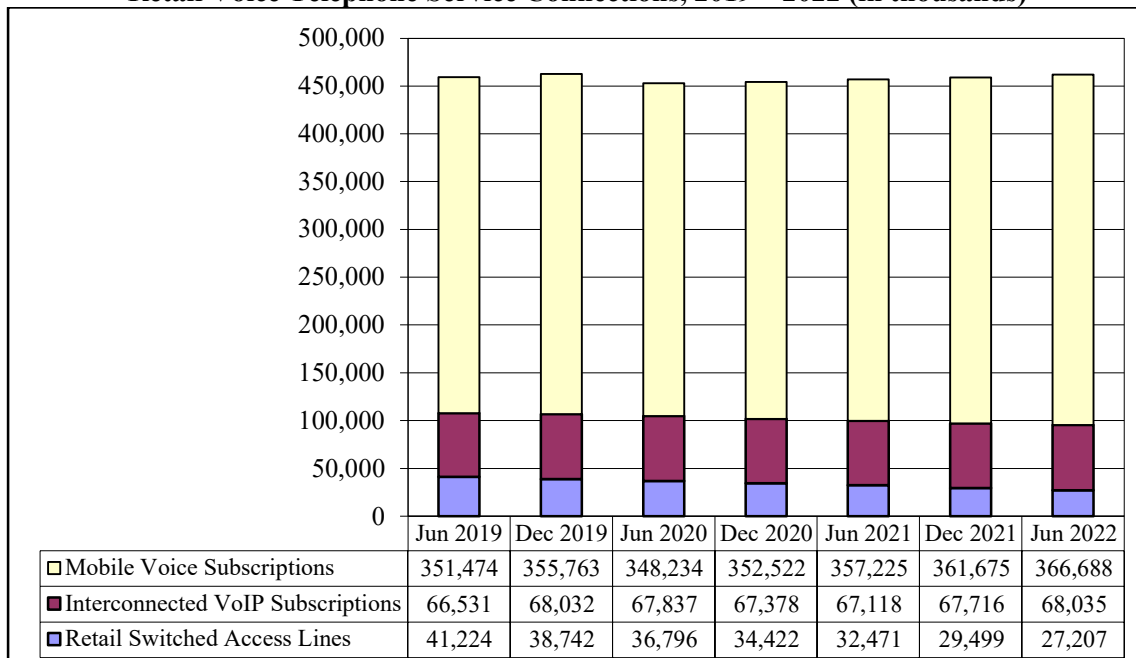
³ The Technical Notes and the Glossary that appear at the end of this report provide more-detailed information about the current FCC Form 477 and the meaning of terms used in this report. To be consistent with modifications to FCC Form 477 adopted in 2013 (to be effective for reporting June 2014 and 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 2022, there were 27 million end-user switched access lines in service, 68 million interconnected VoIP subscriptions, and 367 million mobile subscriptions, for a total of 462 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 0.7%, mobile voice subscriptions increased at a compound annual growth rate of 1.4%, and retail switched access lines declined at a compound annual growth rate of 12.9% per year.⁵

Figure 1
Retail Voice Telephone Service Connections, 2019 – 2022 (in thousands)



Note: Some previously published data may have been updated as FCC Form 477 filers revise their data.

- Of the 95 million wireline retail voice telephone service connections (including both switched access lines and interconnected VoIP subscriptions) in June 2022, 41 million (or 43%) were residential connections and 55 million (or 57%) 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.

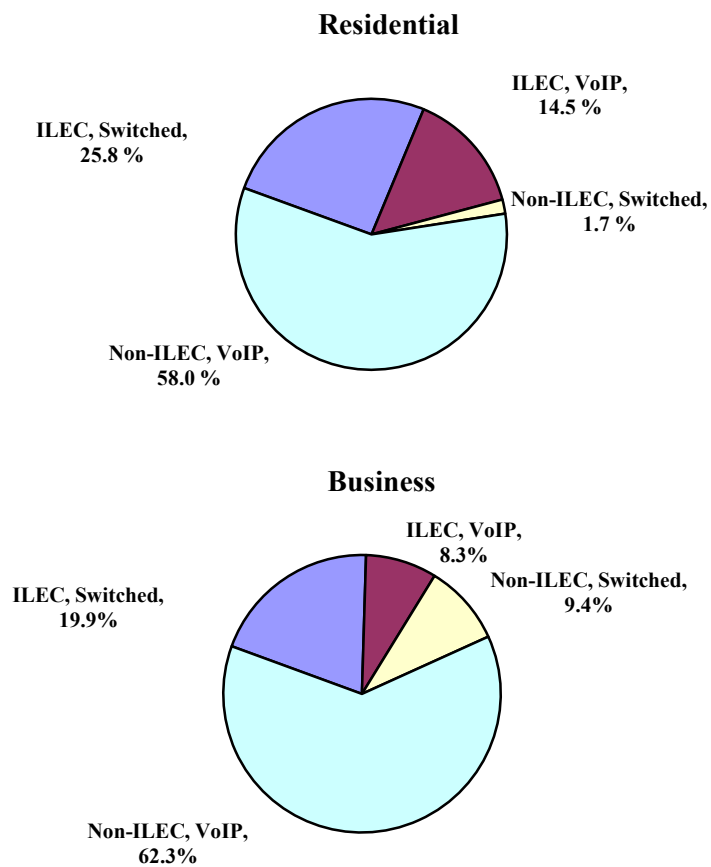
⁴ The presentation of mobile wireless telephone subscriber counts in this report does not constitute, or imply, Commission analysis of the extent to which wireline and mobile wireless telephone services are demand substitutes or complements in general or in any particular situation.

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 the number 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, 2022 (in thousands)

Total	Switched Access Lines	Interconnected VoIP	Total
ILEC	21,352	10,433	31,785
Non-ILEC	5,855	57,602	63,457
Total	27,207	68,035	95,242
Residential			
ILEC	10,465	5,904	16,370
Non-ILEC	699	23,548	24,247
Residential Total	11,164	29,453	40,617
Business			
ILEC	10,887	4,529	15,416
Non-ILEC	5,157	34,053	39,210
Business Total	16,043	38,582	54,625

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 41 million wireline residential connections in June 2022 were: 25.8% ILEC switched access lines, 58.0% non-ILEC interconnected VoIP subscriptions, 14.5% ILEC interconnected VoIP subscriptions, and 1.7% non-ILEC switched access lines. Similarly, the 55 million wireline business connections were: 19.9% ILEC switched access lines, 62.3% non-ILEC interconnected VoIP subscriptions, 8.3% ILEC interconnected VoIP subscriptions, and 9.4% non-ILEC switched access lines.

Retail Service Relationships

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

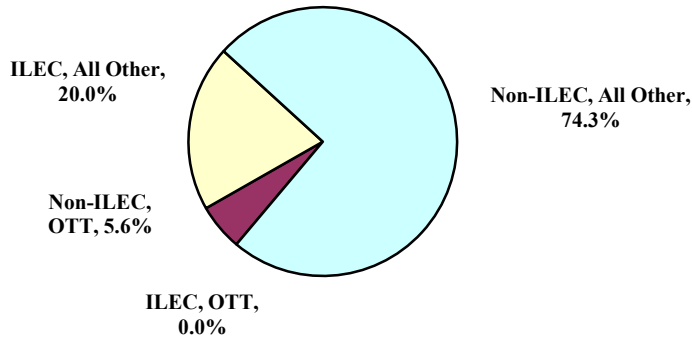
⁷ A broadband connection may or may not provide the end user with internet access.

Figure 3
Interconnected VoIP Subscriberhip by Reported Service Features, Regulatory Status,
and Customer Type as of June 30, 2022 (in thousands)

Total	Over-the-Top (OTT)	All Other VoIP	Total
ILEC	60	10,373	10,433
Non-ILEC	19,599	38,002	57,602
Total	19,659	48,375	68,035
Residential			
ILEC	1	5,903	5,904
Non-ILEC	1,656	21,892	23,548
Residential Total	1,658	27,795	29,453
Business			
ILEC	58	4,470	4,529
Non-ILEC	17,943	16,110	34,053
Business Total	18,001	20,581	38,582

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

Residential



Business

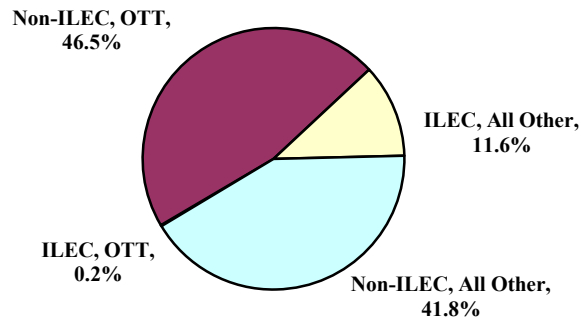
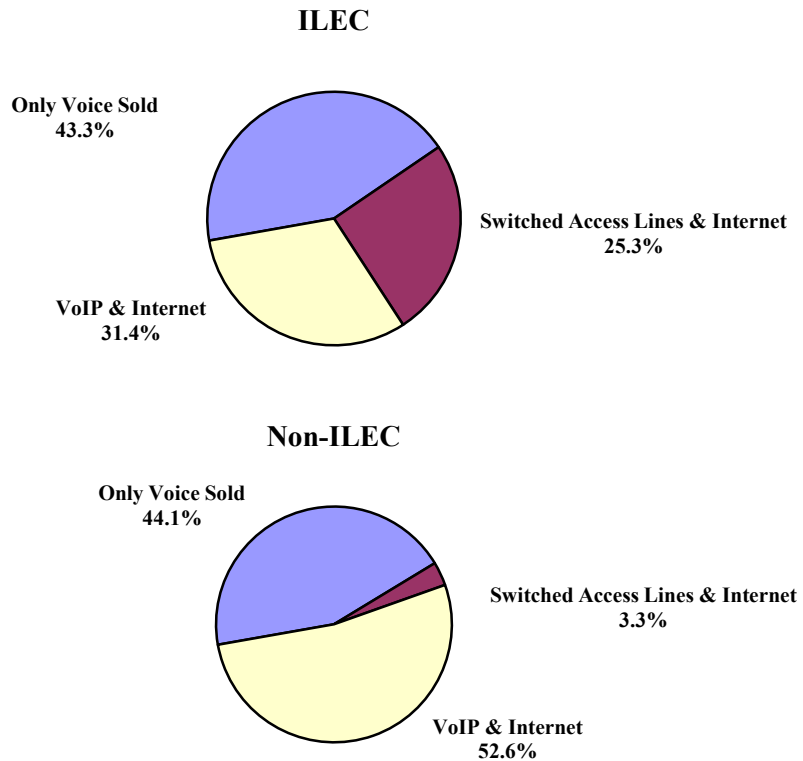


Figure 4
Retail Relationships of Wireline Voice Telephone Service with Internet Access Service
By Regulatory Status as of June 30, 2022 (in thousands)

Total	ILEC	Non-ILEC	Total
Switched Access Lines	21,352	5,855	27,207
Over-the-Top VoIP	60	19,599	19,659
All Other VoIP	10,373	38,002	48,375
Total	31,785	63,457	95,242
Sold with Internet			
Switched Access Lines	8,050	2,072	10,122
Over-the-Top VoIP	0	0	0
All Other VoIP	9,987	33,404	43,391
Total	18,037	35,476	53,513
Sold without Internet			
Switched Access Lines	13,302	3,783	17,085
Over-the-Top VoIP	60	19,599	19,659
All Other VoIP	386	4,598	4,984
Total	13,748	27,981	41,729

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 2021, and for June 2022 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 2022.
- Table 4 shows mobile voice telephone service subscriptions by state for June 2022.

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 2021)
- State-level Number of Providers table in Excel format (data back to June 2021)
- 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 FCC 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, FCC 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 FCC Form 477, but an unknown amount of interconnected VoIP service was included along with the switched access lines reported by some FCC 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 the United States

Reference	Data element	June 2021	Dec 2021	June 2022
1	Mobile telephony	357,225	361,675	366,688
2	Directly-billed or prepaid	307,097	322,540	328,950
3	Not directly-billed or prepaid	50,128	39,135	37,738
4	Wireline End-User Switched Access Lines and Interconnected VoIP Subscriptions	99,589	97,215	95,242
5	Incumbent LECs	36,385	33,980	31,785
6	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	63,204	63,235	63,457
7	Consumer-grade service	45,765	42,928	40,617
8	Incumbent LECs	19,016	17,474	16,370
9	Other (Non-ILECs)	26,749	25,455	24,247
10	Business & Government-grade service	53,824	54,286	54,625
11	Incumbent LECs	17,370	16,506	15,416
12	Other (Non-ILECs)	36,455	37,780	39,210
13	Local exchange telephone service (Switched Access Lines)	32,471	29,499	27,207
14	Incumbent LECs	25,286	23,067	21,352
15	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	7,185	6,432	5,855
16	Consumer-grade service	13,148	11,907	11,164
17	Incumbent LECs	12,372	11,202	10,465
18	Other (Non-ILECs)	776	705	699
19	Business & Government-grade service	19,323	17,592	16,043
20	Incumbent LECs	12,914	11,865	10,887
21	Other (Non-ILECs)	6,409	5,726	5,157
22	Interconnected VoIP Subscriptions - Note: Includes both Over-the-top (OTT) and All Other sub-categories.	67,118	67,716	68,035
23	Incumbent LECs	11,099	10,913	10,433
24	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	56,018	56,803	57,602
25	Consumer-grade service	32,617	31,021	29,453
26	Incumbent LECs	6,644	6,272	5,904
27	Other (Non-ILECs)	25,973	24,749	23,548
28	Business & Government-grade service	34,501	36,695	38,582
29	Incumbent LECs	4,456	4,641	4,529
30	Other (Non-ILECs)	30,045	32,054	34,053
31	Over-the-top interconnected VoIP	15,697	17,325	19,659
32	Incumbent LECs	69	57	60
33	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	15,628	17,269	19,599
34	Consumer-grade service	1,874	1,609	1,658
35	Incumbent LECs	0	2	1
36	Other (Non-ILECs)	1,873	1,607	1,656
37	Business & Government-grade service	13,823	15,717	18,001
38	Incumbent LECs	69	55	58
39	Other (Non-ILECs)	13,755	15,662	17,943
40	All Other interconnected VoIP	51,421	50,391	48,375
41	Incumbent LECs	11,030	10,856	10,373
42	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	40,390	39,534	38,002
43	Consumer-grade service	30,743	29,413	27,795
44	Incumbent LECs	6,643	6,270	5,903
45	Other (Non-ILECs)	24,100	23,143	21,892
46	Business & Government-grade service	20,678	20,978	20,581
47	Incumbent LECs	4,387	4,586	4,470
48	Other (Non-ILECs)	16,291	16,392	16,110
49	Local exchange telephone service by last-mile delivery medium	32,471	29,499	27,207
50	Fiber-to-the-premises	4,660	4,377	3,955
51	Incumbent LECs	2,793	2,626	2,429
52	Other (Non-ILECs)	1,868	1,750	1,526
53	Coaxial cable	438	406	405
54	Incumbent LECs	66	61	70
55	Other (Non-ILECs)	372	345	335

Table 1. Voice Subscriptions (in thousands) - Total for the United States

Reference	Data element	June 2021	Dec 2021	June 2022
56	Terrestrial fixed wireless	46	22	16
57	Incumbent LECs	13	12	11
58	Other (Non-ILECs)	33	10	5
59	Copper local loop	27,327	24,694	22,832
60	Incumbent LECs	22,414	20,367	18,842
61	Other (Non-ILECs)	4,913	4,327	3,990
62	All Other interconnected VoIP by last-mile delivery medium	51,421	50,391	48,375
63	Fiber-to-the-premises	10,277	10,408	9,283
64	Incumbent LECs	5,592	5,512	4,705
65	Other (Non-ILECs)	4,684	4,896	4,578
66	Coaxial cable	29,445	28,055	27,248
67	Incumbent LECs	16	14	14
68	Other (Non-ILECs)	29,429	28,041	27,234
69	Terrestrial fixed wireless or satellite	226	591	199
70	Incumbent LECs	1	2	1
71	Other (Non-ILECs)	225	590	199
72	Copper local loop	11,473	11,336	11,645
73	Incumbent LECs	5,421	5,328	5,653
74	Other (Non-ILECs)	6,052	6,008	5,991
75	Non-Incumbent LEC local exchange telephone service by means of provisioning	7,185	6,432	5,855
76	Provided over owned last-mile facilities	2,829	2,588	2,279
77	Provided over UNE-L obtained from unaffiliated entity	1,014	571	475
78	Provided over other services obtained from unaffiliated entity	3,342	3,272	3,102
79	Incumbent LEC local exchange telephone service provided to unaffiliated carriers for resale	3,368	3,078	2,845
80	Wholesale lines	2,338	2,197	2,130
81	UNE-L	1,030	881	715
82	Local exchange telephone service and long-distance service	32,471	29,499	27,207
83	Consumer-grade service	13,148	11,907	11,164
84	Incumbent LEC is preferred long-distance carrier for its local exchange service customer	8,403	7,445	6,716
85	Incumbent LEC is not preferred long-distance carrier for its local exchange service customer	3,969	3,757	3,749
86	Non-ILEC is preferred long-distance carrier for its local exchange service customer	647	625	612
87	Non-ILEC is not preferred long-distance carrier for its local exchange service customer	129	81	86
88	Business & Government-grade service	19,323	17,592	16,043
89	Incumbent LEC is preferred long-distance carrier for its local exchange service customer	7,331	6,719	6,105
90	Incumbent LEC is not preferred long-distance carrier for its local exchange service customer	5,583	5,147	4,782
91	Non-ILEC is preferred long-distance carrier for its local exchange service customer	4,822	4,416	4,033
92	Non-ILEC is not preferred long-distance carrier for its local exchange service customer	1,587	1,310	1,124
93	End user buys local exchange telephone service and Internet access service from same entity	12,241	10,908	10,122
94	End user buys both services from incumbent LEC or affiliates	9,828	8,557	8,050
95	End user buys both services from Non-ILEC or affiliates	2,413	2,351	2,072
96	End user buys interconnected VoIP and Internet access service from same entity	45,625	45,231	43,391
97	End user buys both services from incumbent LEC or affiliates	10,077	10,382	9,987
98	End user buys both services from Non-ILEC or affiliates	35,548	34,849	33,404

Table 2. Number of Providers Reporting Voice Subscriptions - Total for the United States

Reference	Data element	June 2021	Dec 2021	June 2022
1	Mobile telephony	61	60	59
2	Directly-billed or prepaid	58	55	57
3	Not directly-billed or prepaid	10	12	9
4	Wireline End-User Switched Access Lines and Interconnected VoIP Subscriptions	2,261	2,299	2,342
5	Incumbent LECs	711	707	708
6	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	1,893	1,937	1,987
7	Consumer-grade service	1,314	1,314	1,350
8	Incumbent LECs	711	707	707
9	Other (Non-ILECs)	934	940	986
10	Business & Government-grade service	2,180	2,225	2,262
11	Incumbent LECs	708	704	705
12	Other (Non-ILECs)	1,804	1,858	1,902
13	Local exchange telephone service (Switched Access Lines)	952	937	918
14	Incumbent LECs	707	702	702
15	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	511	497	488
16	Consumer-grade service	861	837	830
17	Incumbent LECs	707	702	702
18	Other (Non-ILECs)	408	386	388
19	Business & Government-grade service	938	924	908
20	Incumbent LECs	703	698	699
21	Other (Non-ILECs)	495	483	475
22	Interconnected VoIP Subscriptions - Note: Includes both Over-the-top (OTT) and All Other sub-categories.	1,751	1,802	1,860
23	Incumbent LECs	179	190	200
24	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	1,681	1,733	1,786
25	Consumer-grade service	719	741	788
26	Incumbent LECs	102	113	123
27	Other (Non-ILECs)	664	682	730
28	Business & Government-grade service	1,665	1,725	1,774
29	Incumbent LECs	175	183	191
30	Other (Non-ILECs)	1,594	1,657	1,704
31	Over-the-top interconnected VoIP	1,190	1,223	1,279
32	Incumbent LECs	39	37	44
33	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	1,174	1,208	1,260
34	Consumer-grade service	214	198	243
35	Incumbent LECs	12	12	22
36	Other (Non-ILECs)	207	192	230
37	Business & Government-grade service	1,144	1,186	1,227
38	Incumbent LECs	38	35	41
39	Other (Non-ILECs)	1,129	1,172	1,209
40	All Other interconnected VoIP	830	855	854
41	Incumbent LECs	167	182	185
42	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	765	787	786
43	Consumer-grade service	576	610	615
44	Incumbent LECs	96	107	111
45	Other (Non-ILECs)	524	553	563
46	Business & Government-grade service	773	800	804
47	Incumbent LECs	163	176	177
48	Other (Non-ILECs)	707	732	740
49	Local exchange telephone service by last-mile delivery medium	952	937	918
50	Fiber-to-the-premises	777	768	762
51	Incumbent LECs	633	633	636
52	Other (Non-ILECs)	383	379	377
53	Coaxial cable	88	86	82
54	Incumbent LECs	25	27	27
55	Other (Non-ILECs)	73	70	68

Table 2. Number of Providers Reporting Voice Subscriptions - Total for the United States

Reference	Data element	June 2021	Dec 2021	June 2022
56	Terrestrial fixed wireless	90	74	71
57	Incumbent LECs	50	43	44
58	Other (Non-ILECs)	53	43	42
59	Copper local loop	698	663	654
60	Incumbent LECs	519	490	485
61	Other (Non-ILECs)	301	293	283
62	All Other interconnected VoIP by last-mile delivery medium	830	855	854
63	Fiber-to-the-premises	604	633	652
64	Incumbent LECs	157	172	174
65	Other (Non-ILECs)	544	571	589
66	Coaxial cable	206	193	186
67	Incumbent LECs	14	14	13
68	Other (Non-ILECs)	199	187	182
69	Terrestrial fixed wireless or satellite	286	289	286
70	Incumbent LECs	11	16	14
71	Other (Non-ILECs)	278	279	279
72	Copper local loop	207	214	204
73	Incumbent LECs	65	68	66
74	Other (Non-ILECs)	171	179	167
75	Non-Incumbent LEC local exchange telephone service by means of provisioning	511	497	488
76	Provided over owned last-mile facilities	393	378	381
77	Provided over UNE-L obtained from unaffiliated entity	94	87	84
78	Provided over other services obtained from unaffiliated entity	177	171	160
79	Incumbent LEC local exchange telephone service provided to unaffiliated carriers for resale	23	24	32
80	Wholesale lines	20	23	29
81	UNE-L	12	10	11
82	Local exchange telephone service and long-distance service	952	937	918
83	Consumer-grade service	861	837	830
84	Incumbent LEC is preferred long-distance carrier for its local exchange service customer	661	657	660
85	Incumbent LEC is not preferred long-distance carrier for its local exchange service customer	652	646	642
86	Non-ILEC is preferred long-distance carrier for its local exchange service customer	379	362	362
87	Non-ILEC is not preferred long-distance carrier for its local exchange service customer	277	265	267
88	Business & Government-grade service	938	924	908
89	Incumbent LEC is preferred long-distance carrier for its local exchange service customer	658	652	658
90	Incumbent LEC is not preferred long-distance carrier for its local exchange service customer	637	630	626
91	Non-ILEC is preferred long-distance carrier for its local exchange service customer	453	441	431
92	Non-ILEC is not preferred long-distance carrier for its local exchange service customer	322	313	326
93	End user buys local exchange telephone service and Internet access service from same entity	879	860	842
94	End user buys both services from incumbent LEC or affiliates	697	688	689
95	End user buys both services from Non-ILEC or affiliates	442	425	416
96	End user buys interconnected VoIP and Internet access service from same entity	768	770	779
97	End user buys both services from incumbent LEC or affiliates	156	167	175
98	End user buys both services from Non-ILEC or affiliates	707	709	713

Table 3: Residential Wireline Voice Telephone Service Connections and Households by State as of June 30, 2022
(Connections and households, in thousands)

State	Households	Switched Access		Interconnected VoIP		Total	
		Connections	Ratio	Connections	Ratio	Connections	Ratio
Alabama	1,903	171	0.09	358	0.19	528	0.28
Alaska	261	*	*	*	*	68	0.26
American Samoa	10	6	0.62	-	0.00	6	0.62
Arizona	2,684	169	0.06	396	0.15	565	0.21
Arkansas	1,158	126	0.11	118	0.10	244	0.21
California	13,218	1,086	0.08	3,385	0.26	4,471	0.34
Colorado	2,228	214	0.10	425	0.19	639	0.29
Connecticut	1,397	107	0.08	559	0.40	666	0.48
Delaware	381	23	0.06	179	0.47	202	0.53
District of Columbia	310	21	0.07	70	0.23	91	0.29
Florida	8,157	394	0.05	2,053	0.25	2,447	0.30
Georgia	3,885	397	0.10	760	0.20	1,158	0.30
Guam	42	*	*	*	*	*	*
Hawaii	478	70	0.15	121	0.25	191	0.40
Idaho	657	88	0.13	40	0.06	127	0.19
Illinois	4,930	331	0.07	1,020	0.21	1,351	0.27
Indiana	2,623	228	0.09	429	0.16	658	0.25
Iowa	1,276	228	0.18	162	0.13	391	0.31
Kansas	1,140	102	0.09	152	0.13	254	0.22
Kentucky	1,748	283	0.16	287	0.16	570	0.33
Louisiana	1,749	133	0.08	300	0.17	433	0.25
Maine	571	97	0.17	155	0.27	252	0.44
Maryland	2,294	160	0.07	841	0.37	1,001	0.44
Massachusetts	2,714	159	0.06	1,172	0.43	1,331	0.49
Michigan	3,977	247	0.06	918	0.23	1,165	0.29
Minnesota	2,229	337	0.15	337	0.15	673	0.30
Mississippi	1,109	91	0.08	136	0.12	227	0.20
Missouri	2,434	215	0.09	421	0.17	636	0.26
Montana	436	79	0.18	71	0.16	150	0.34
Nebraska	767	117	0.15	108	0.14	224	0.29
Nevada	1,142	70	0.06	215	0.19	286	0.25
New Hampshire	540	71	0.13	208	0.38	279	0.52
New Jersey	3,397	176	0.05	1,576	0.46	1,751	0.52
New Mexico	798	126	0.16	95	0.12	222	0.28
New York	7,530	486	0.06	2,969	0.39	3,455	0.46
North Carolina	4,035	417	0.10	947	0.23	1,364	0.34
North Dakota	317	59	0.19	24	0.08	84	0.27
Northern Mariana Islands	16	7	0.44	*	*	*	*
Ohio	4,754	451	0.09	1,023	0.22	1,475	0.31
Oklahoma	1,504	124	0.08	180	0.12	305	0.20
Oregon	1,658	180	0.11	315	0.19	494	0.30
Pennsylvania	5,148	570	0.11	1,672	0.32	2,243	0.44
Puerto Rico	1,197	*	*	*	*	*	*
Rhode Island	427	26	0.06	135	0.32	161	0.38
South Carolina	1,976	231	0.12	379	0.19	610	0.31
South Dakota	346	69	0.20	30	0.09	99	0.29
Tennessee	2,665	272	0.10	447	0.17	718	0.27
Texas	10,239	598	0.06	1,636	0.16	2,234	0.22
Utah	1,034	82	0.08	145	0.14	227	0.22
Vermont	263	77	0.29	71	0.27	148	0.56
Virgin Islands	30	9	0.30	0	0.00	9	0.30
Virginia	3,249	300	0.09	892	0.27	1,192	0.37
Washington	2,932	297	0.10	608	0.21	905	0.31
West Virginia	711	129	0.18	162	0.23	291	0.41
Wisconsin	2,402	274	0.11	491	0.20	765	0.32
Wyoming	231	32	0.14	33	0.14	65	0.28
United States	125,305	11,164	0.09	29,453	0.24	40,617	0.32

- = 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 2017-2021 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, 2022**
(Connections and population, in thousands)

State	Population	Directly-Billed		Not Directly-Billed		Total	
		Subscriptions	Ratio	Subscriptions	Ratio	Subscriptions	Ratio
Alabama	4,998	4,906	0.98	418	0.08	5,324	1.07
Alaska	736	724	0.98	28	0.04	752	1.02
American Samoa	56	*	*	*	*	*	*
Arizona	7,079	7,073	1.00	536	0.08	7,609	1.07
Arkansas	3,006	3,003	1.00	319	0.11	3,322	1.11
California	39,455	41,486	1.05	4,449	0.11	45,935	1.16
Colorado	5,723	5,541	0.97	642	0.11	6,184	1.08
Connecticut	3,605	3,692	1.02	439	0.12	4,130	1.15
Delaware	982	986	1.00	117	0.12	1,104	1.12
District of Columbia	683	1,459	2.14	234	0.34	1,694	2.48
Florida	21,340	21,477	1.01	2,402	0.11	23,879	1.12
Georgia	10,626	10,891	1.02	1,086	0.10	11,978	1.13
Guam	159	173	1.09	0	0.00	173	1.09
Hawaii	1,453	1,462	1.01	162	0.11	1,624	1.12
Idaho	1,812	1,730	0.95	121	0.07	1,850	1.02
Illinois	12,822	12,787	1.00	1,626	0.13	14,413	1.12
Indiana	6,751	6,053	0.90	914	0.14	6,967	1.03
Iowa	3,179	3,100	0.98	183	0.06	3,284	1.03
Kansas	2,932	2,810	0.96	195	0.07	3,005	1.02
Kentucky	4,494	3,984	0.89	555	0.12	4,538	1.01
Louisiana	4,657	4,505	0.97	580	0.12	5,085	1.09
Maine	1,357	1,254	0.92	140	0.10	1,394	1.03
Maryland	6,149	6,083	0.99	680	0.11	6,763	1.10
Massachusetts	6,992	6,969	1.00	855	0.12	7,824	1.12
Michigan	10,063	9,447	0.94	1,364	0.14	10,811	1.07
Minnesota	5,670	5,445	0.96	574	0.10	6,020	1.06
Mississippi	2,967	2,801	0.94	246	0.08	3,046	1.03
Missouri	6,142	5,667	0.92	723	0.12	6,389	1.04
Montana	1,078	1,041	0.97	84	0.08	1,125	1.04
Nebraska	1,951	1,939	0.99	166	0.09	2,104	1.08
Nevada	3,059	3,023	0.99	286	0.09	3,309	1.08
New Hampshire	1,372	1,285	0.94	154	0.11	1,440	1.05
New Jersey	9,234	9,640	1.04	1,232	0.13	10,872	1.18
New Mexico	2,109	2,064	0.98	201	0.10	2,265	1.07
New York	20,115	20,557	1.02	3,381	0.17	23,938	1.19
North Carolina	10,367	9,717	0.94	1,381	0.13	11,098	1.07
North Dakota	773	789	1.02	34	0.04	824	1.07
Northern Mariana Islands	54	*	*	*	*	*	*
Ohio	11,770	11,135	0.95	1,603	0.14	12,738	1.08
Oklahoma	3,948	3,577	0.91	363	0.09	3,941	1.00
Oregon	4,207	4,010	0.95	523	0.12	4,534	1.08
Pennsylvania	12,971	12,310	0.95	1,556	0.12	13,866	1.07
Puerto Rico	3,311	2,978	0.90	459	0.14	3,437	1.04
Rhode Island	1,092	1,056	0.97	108	0.10	1,164	1.07
South Carolina	5,079	4,693	0.92	506	0.10	5,199	1.02
South Dakota	882	866	0.98	41	0.05	908	1.03
Tennessee	6,859	6,700	0.98	661	0.10	7,361	1.07
Texas	28,863	29,119	1.01	2,527	0.09	31,646	1.10
Utah	3,231	2,927	0.91	341	0.11	3,267	1.01
Vermont	642	542	0.84	80	0.12	622	0.97
Virgin Islands	106	*	*	*	*	*	*
Virginia	8,582	8,612	1.00	756	0.09	9,368	1.09
Washington	7,617	7,376	0.97	812	0.11	8,188	1.07
West Virginia	1,801	1,474	0.82	175	0.10	1,649	0.92
Wisconsin	5,872	5,248	0.89	678	0.12	5,926	1.01
Wyoming	577	598	1.04	37	0.06	636	1.10
United States	333,412	328,950	0.99	37,738	0.11	366,688	1.10

- = 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 2017-2021 ACS 5-year estimates and, for Puerto Rico and the other inhabited island areas, Census 2010 populations.

Technical Notes

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

Counting lines and subscribers

- FCC 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.
- FCC 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 FCC 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 or 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 FCC 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.
FOTP 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.