

# Voice Telephone Services: Status as of June 30, 2021

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Office of Economics and Analytics  
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## Voice Telephone Services: Status as of June 30, 2021

### 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.<sup>1</sup> The Commission has required interconnected Voice over Internet Protocol (“interconnected VoIP”) service providers to report subscribership information since December 2008.<sup>2</sup> 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.<sup>3</sup>

### 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.

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<sup>1</sup> 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.

<sup>2</sup> 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.

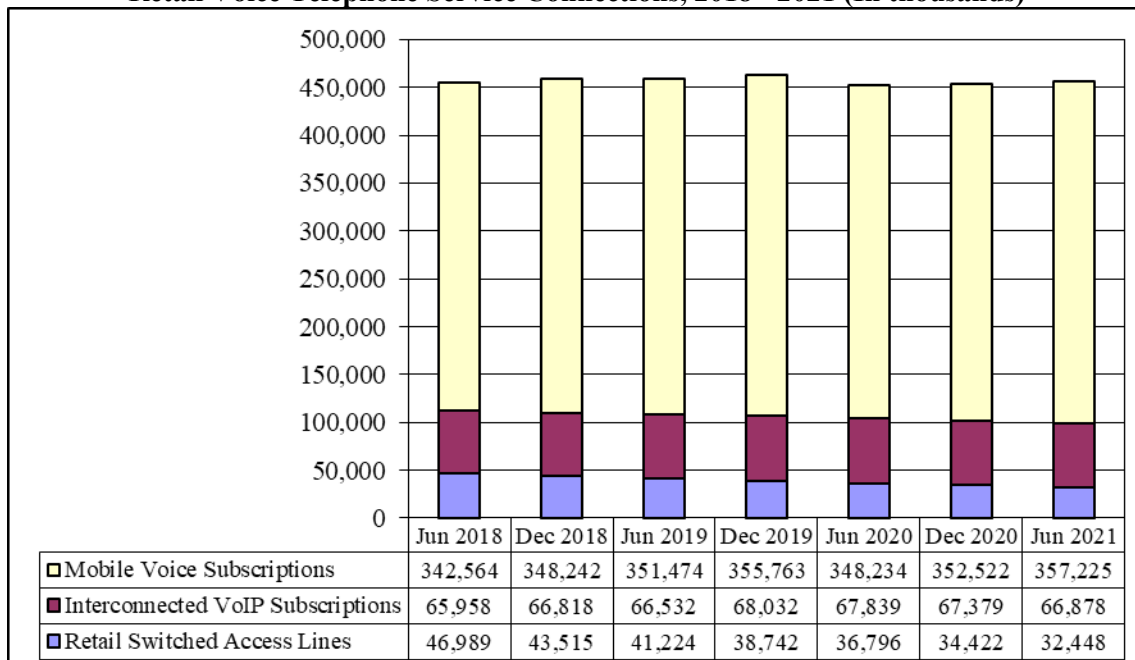
<sup>3</sup> The Technical Notes and the Glossary that appear at the end of this report provide more-detailed information about the current Form 477 and the meaning of terms used in this report. To be consistent with modifications to Form 477 adopted in 2013 (to be effective for reporting June 2014 and 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.<sup>4</sup>

- In June 2021, there were 32 million end-user switched access lines in service, 67 million interconnected VoIP subscriptions, and 357 million mobile subscriptions, for a total of 457 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 0.5%, 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 11.6% per year.<sup>5</sup>

**Figure 1**  
**Retail Voice Telephone Service Connections, 2018 - 2021 (In thousands)**



Note: Some previously published data have been revised.

- Of the 99 million wireline retail voice telephone service connections (including both switched access lines and interconnected VoIP subscriptions) in June 2021, 46 million (or 46%) were residential connections and 54 million (or 54%) were business connections.<sup>6</sup> 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.

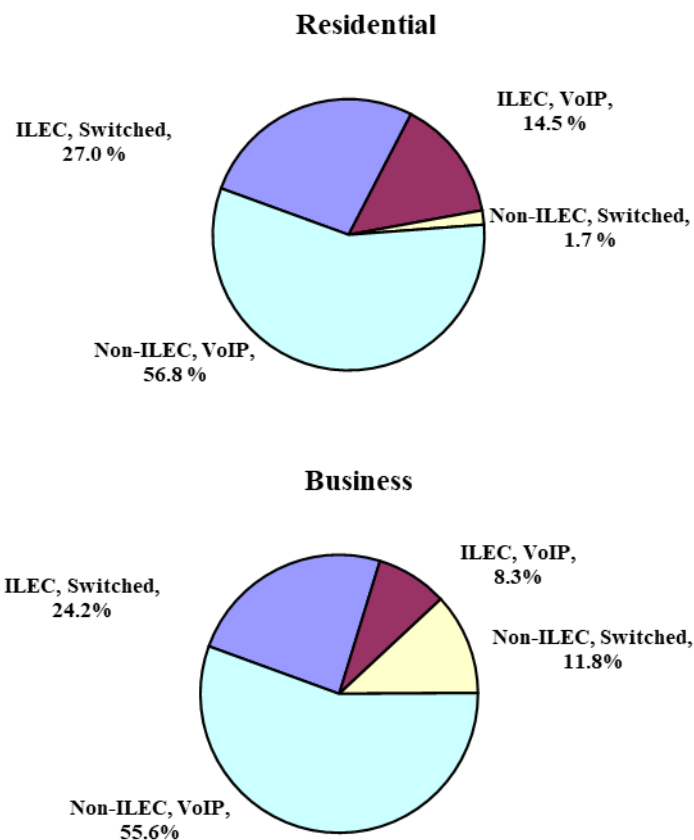
<sup>4</sup> The presentation of mobile wireless telephone subscriber counts in this report does not constitute, or imply, Commission analysis of the extent to which wireline and mobile wireless telephone services are demand substitutes or complements in general or in any particular situation.

<sup>5</sup> 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, 2021 (In thousands)**

<b>Total</b>	<b>Switched Access Lines</b>	<b>Interconnected VoIP</b>	<b>Total</b>
ILEC	25,335	11,100	36,434
Non-ILEC	7,113	55,779	62,892
<b>Total</b>	<b>32,448</b>	<b>66,878</b>	<b>99,326</b>
<b>Residential</b>			
ILEC	12,373	6,644	19,016
Non-ILEC	776	25,973	26,749
<b>Residential Total</b>	<b>13,149</b>	<b>32,617</b>	<b>45,765</b>
<b>Business</b>			
ILEC	12,962	4,456	17,418
Non-ILEC	6,337	29,806	36,143
<b>Business Total</b>	<b>19,299</b>	<b>34,262</b>	<b>53,561</b>

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 46 million wireline residential connections in June 2021 were: 27.0% ILEC switched access lines, 56.8% non-ILEC interconnected VoIP subscriptions, 14.5% ILEC interconnected VoIP subscriptions, and 1.7% non-ILEC switched access lines. Similarly, the 54 million wireline business connections were: 24.2% ILEC switched access lines, 55.6% non-ILEC interconnected VoIP subscriptions, 8.3% ILEC interconnected VoIP subscriptions, and 11.8% 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.<sup>7</sup> 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.

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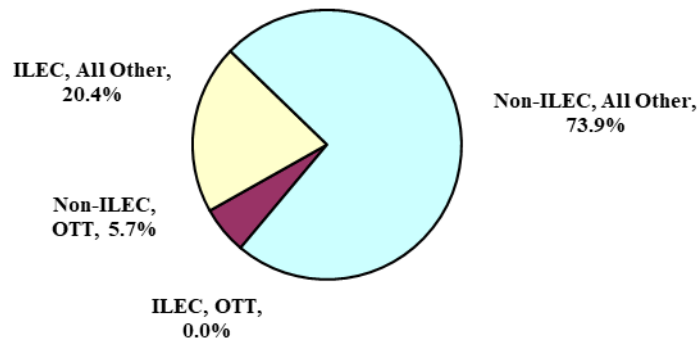
<sup>7</sup> A broadband connection may or may not provide the end user with internet access.

**Figure 3**  
**Interconnected VoIP Subscribership by Reported Service Features, Regulatory Status,**  
**and Customer Type as of June 30, 2021 (In thousands)**

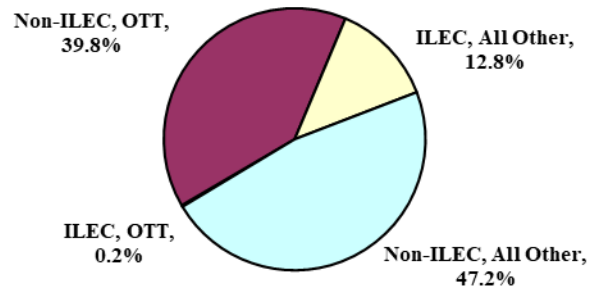
<b>Total</b>	<b>Over-the-Top (OTT)</b>	<b>All Other VoIP</b>	<b>Total</b>
ILEC	69	11,030	11,100
Non-ILEC	15,495	40,284	55,779
<b>Total</b>	<b>15,564</b>	<b>51,314</b>	<b>66,878</b>
<b>Residential</b>			
ILEC	0	6,643	6,644
Non-ILEC	1,873	24,099	25,973
<b>Residential Total</b>	<b>1,874</b>	<b>30,743</b>	<b>32,617</b>
<b>Business</b>			
ILEC	69	4,387	4,456
Non-ILEC	13,621	16,184	29,806
<b>Business Total</b>	<b>13,690</b>	<b>20,571</b>	<b>34,262</b>

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

**Residential**



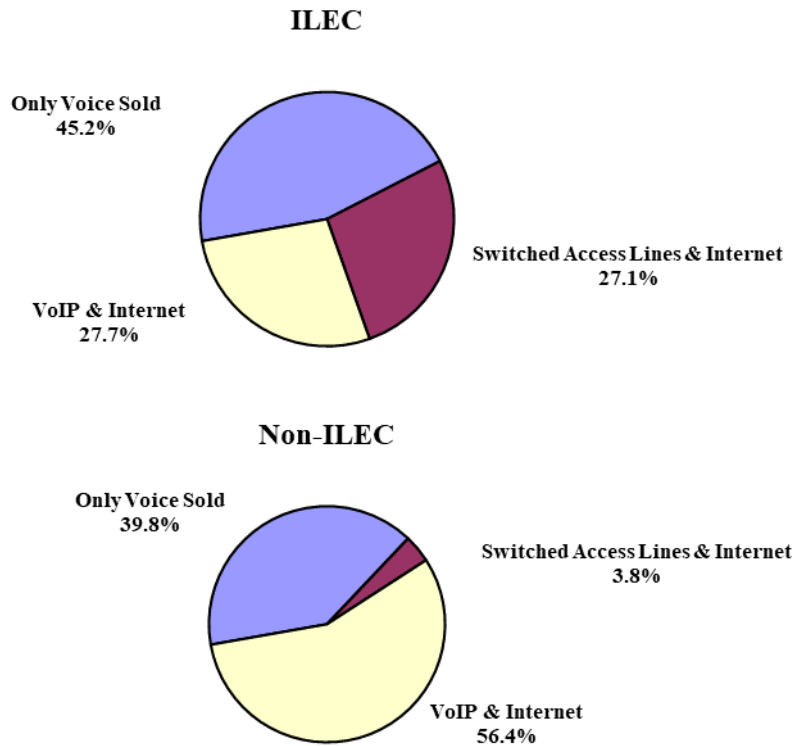
**Business**



**Figure 4**  
**Retail Relationships of Wireline Voice Telephone Service with Internet Access Service**  
**By Regulatory Status as of June 30, 2021 (In thousands)**

<b>Total</b>	<b>ILEC</b>	<b>Non-ILEC</b>	<b>Total</b>
Switched Access Lines	25,335	7,113	32,448
Over-the-Top VoIP	69	15,495	15,564
All Other VoIP	11,030	40,284	51,314
<b>Total</b>	<b>36,434</b>	<b>62,892</b>	<b>99,326</b>
<b>Sold with Internet</b>			
Switched Access Lines	9,877	2,402	12,278
Over-the-Top VoIP	0	0	0
All Other VoIP	10,077	35,442	45,519
<b>Total</b>	<b>19,954</b>	<b>37,844</b>	<b>57,797</b>
<b>Sold Without Internet</b>			
Switched Access Lines	15,458	4,711	20,170
Over-the-Top VoIP	69	15,495	15,564
All Other VoIP	953	4,842	5,795
<b>Total</b>	<b>16,480</b>	<b>25,048</b>	<b>41,529</b>

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 2020, and June 2021 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 2021.
- Table 4 shows mobile voice telephone service subscriptions by state for June 2021.

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 2020)
- State-level Number of Providers table in Excel format (data back to June 2020)
- 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.<sup>8</sup>

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<sup>8</sup> See footnote 3, above.

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

Reference	Data element	June 2020	Dec 2020	June 2021
1	Mobile telephony	348,234	352,522	357,225
2	Directly-billed or prepaid	308,767	303,547	307,095
3	Not directly-billed or prepaid	39,467	48,974	50,130
4	Wireline End-User Switched Access Lines and Interconnected VoIP Subscriptions	104,634	101,801	99,326
5	Incumbent LECs	40,401	38,353	36,434
6	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	64,233	63,448	62,892
7	Consumer-grade service	50,085	47,674	45,765
8	Incumbent LECs	21,266	20,071	19,016
9	Other (Non-ILECs)	28,819	27,603	26,749
10	Business & Government-grade service	54,549	54,127	53,561
11	Incumbent LECs	19,136	18,282	17,418
12	Other (Non-ILECs)	35,414	35,845	36,143
13	Local exchange telephone service (Switched Access Lines)	36,796	34,422	32,448
14	Incumbent LECs	28,414	26,767	25,335
15	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	8,382	7,655	7,113
16	Consumer-grade service	14,737	13,837	13,149
17	Incumbent LECs	13,813	13,027	12,373
18	Other (Non-ILECs)	924	809	776
19	Business & Government-grade service	22,059	20,585	19,299
20	Incumbent LECs	14,600	13,740	12,962
21	Other (Non-ILECs)	7,459	6,845	6,337
22	Interconnected VoIP Subscriptions - Note: Includes both Over-the-top (OTT) and All Other sub-categories.	67,839	67,379	66,878
23	Incumbent LECs	11,988	11,586	11,100
24	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	55,851	55,793	55,779
25	Consumer-grade service	35,348	33,837	32,617
26	Incumbent LECs	7,452	7,044	6,644
27	Other (Non-ILECs)	27,896	26,794	25,973
28	Business & Government-grade service	32,490	33,542	34,262
29	Incumbent LECs	4,535	4,542	4,456
30	Other (Non-ILECs)	27,955	29,000	29,806
31	Over-the-top interconnected VoIP	13,270	14,442	15,564
32	Incumbent LECs	74	68	69
33	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	13,196	14,374	15,495
34	Consumer-grade service	2,298	1,960	1,874
35	Incumbent LECs	2	1	0
36	Other (Non-ILECs)	2,296	1,958	1,873
37	Business & Government-grade service	10,973	12,482	13,690
38	Incumbent LECs	73	67	69
39	Other (Non-ILECs)	10,900	12,416	13,621
40	All Other interconnected VoIP	54,568	52,937	51,314
41	Incumbent LECs	11,913	11,518	11,030
42	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	42,655	41,419	40,284
43	Consumer-grade service	33,051	31,877	30,743
44	Incumbent LECs	7,451	7,042	6,643
45	Other (Non-ILECs)	25,600	24,835	24,099
46	Business & Government-grade service	21,518	21,059	20,571
47	Incumbent LECs	4,462	4,475	4,387
48	Other (Non-ILECs)	17,055	16,584	16,184
49	Local exchange telephone service by last-mile delivery medium	36,796	34,422	32,448
50	Fiber-to-the-premises	4,651	4,575	4,654
51	Incumbent LECs	2,728	2,691	2,793
52	Other (Non-ILECs)	1,923	1,884	1,861
53	Coaxial cable	441	442	486
54	Incumbent LECs	46	52	114
55	Other (Non-ILECs)	394	391	372

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

Reference	Data element	June 2020	Dec 2020	June 2021
56	Terrestrial fixed wireless	30	33	46
57	Incumbent LECs	14	13	13
58	Other (Non-ILECs)	16	20	33
59	Copper local loop	31,674	29,366	27,261
60	Incumbent LECs	25,625	24,009	22,414
61	Other (Non-ILECs)	6,049	5,357	4,847
62	All Other interconnected VoIP by last-mile delivery medium	54,568	52,937	51,314
63	Fiber-to-the-premises	8,479	8,364	10,236
64	Incumbent LECs	5,850	5,729	5,592
65	Other (Non-ILECs)	2,629	2,635	4,644
66	Coaxial cable	32,883	32,204	29,430
67	Incumbent LECs	11	12	16
68	Other (Non-ILECs)	32,872	32,192	29,413
69	Terrestrial fixed wireless or satellite	219	221	226
70	Incumbent LECs	0	0	1
71	Other (Non-ILECs)	219	221	225
72	Copper local loop	12,987	12,148	11,423
73	Incumbent LECs	6,052	5,777	5,421
74	Other (Non-ILECs)	6,935	6,371	6,001
75	Non-Incumbent LEC local exchange telephone service by means of provisioning	8,382	7,655	7,113
76	Provided over owned last-mile facilities	3,119	2,956	2,823
77	Provided over UNE-L obtained from unaffiliated entity	1,381	1,164	1,014
78	Provided over other services obtained from unaffiliated entity	3,883	3,531	3,277
79	Incumbent LEC local exchange telephone service provided to unaffiliated carriers for resale	3,950	3,650	3,367
80	Wholesale lines	2,660	2,466	2,337
81	UNE-L	1,291	1,184	1,030
82	Local exchange telephone service and long-distance service	36,796	34,422	32,448
83	Consumer-grade service	14,737	13,837	13,149
84	Incumbent LEC is preferred long-distance carrier for its local exchange service customer	9,346	9,057	8,404
85	Incumbent LEC is not preferred long-distance carrier for its local exchange service customer	4,467	3,970	3,969
86	Non-ILEC is preferred long-distance carrier for its local exchange service customer	722	663	647
87	Non-ILEC is not preferred long-distance carrier for its local exchange service customer	202	147	129
88	Business & Government-grade service	22,059	20,585	19,299
89	Incumbent LEC is preferred long-distance carrier for its local exchange service customer	8,120	8,232	7,379
90	Incumbent LEC is not preferred long-distance carrier for its local exchange service customer	6,481	5,506	5,583
91	Non-ILEC is preferred long-distance carrier for its local exchange service customer	5,443	5,008	4,761
92	Non-ILEC is not preferred long-distance carrier for its local exchange service customer	2,016	1,834	1,576
93	End user buys local exchange telephone service and Internet access service from same entity	13,013	12,600	12,278
94	End user buys both services from incumbent LEC or affiliates	10,691	10,021	9,877
95	End user buys both services from Non-ILEC or affiliates	2,322	2,579	2,402
96	End user buys interconnected VoIP and Internet access service from same entity	49,187	47,608	45,519
97	End user buys both services from incumbent LEC or affiliates	11,555	11,160	10,077
98	End user buys both services from Non-ILEC or affiliates	37,633	36,448	35,442

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

Reference	Data element	June 2020	Dec 2020	June 2021
1	Mobile telephony	66	65	61
2	Directly-billed or prepaid	65	63	57
3	Not directly-billed or prepaid	7	9	11
4	Wireline End-User Switched Access Lines and Interconnected VoIP Subscriptions	2,103	2,191	2,256
5	Incumbent LECs	716	713	711
6	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	1,716	1,815	1,890
7	Consumer-grade service	1,334	1,318	1,312
8	Incumbent LECs	715	712	711
9	Other (Non-ILECs)	938	932	934
10	Business & Government-grade service	1,995	2,088	2,175
11	Incumbent LECs	711	710	708
12	Other (Non-ILECs)	1,608	1,710	1,801
13	Local exchange telephone service (Switched Access Lines)	965	952	947
14	Incumbent LECs	710	707	706
15	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	514	507	508
16	Consumer-grade service	870	856	858
17	Incumbent LECs	710	707	706
18	Other (Non-ILECs)	409	401	407
19	Business & Government-grade service	947	939	935
20	Incumbent LECs	707	705	703
21	Other (Non-ILECs)	494	492	493
22	Interconnected VoIP Subscriptions - Note: Includes both Over-the-top (OTT) and All Other sub-categories.	1,562	1,671	1,750
23	Incumbent LECs	161	167	180
24	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	1,497	1,607	1,679
25	Consumer-grade service	708	713	720
26	Incumbent LECs	84	92	103
27	Other (Non-ILECs)	662	664	664
28	Business & Government-grade service	1,457	1,566	1,663
29	Incumbent LECs	154	161	175
30	Other (Non-ILECs)	1,394	1,504	1,592
31	Over-the-top interconnected VoIP	977	1,073	1,189
32	Incumbent LECs	36	33	39
33	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	962	1,058	1,173
34	Consumer-grade service	197	178	214
35	Incumbent LECs	12	9	12
36	Other (Non-ILECs)	189	172	207
37	Business & Government-grade service	934	1,029	1,143
38	Incumbent LECs	34	33	38
39	Other (Non-ILECs)	921	1,014	1,128
40	All Other interconnected VoIP	842	865	829
41	Incumbent LECs	150	159	168
42	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	777	804	763
43	Consumer-grade service	573	595	577
44	Incumbent LECs	79	87	97
45	Other (Non-ILECs)	530	548	524
46	Business & Government-grade service	768	789	771
47	Incumbent LECs	144	153	163
48	Other (Non-ILECs)	705	729	705
49	Local exchange telephone service by last-mile delivery medium	965	952	947
50	Fiber-to-the-premises	765	768	775
51	Incumbent LECs	622	632	633
52	Other (Non-ILECs)	374	375	382
53	Coaxial cable	82	87	87
54	Incumbent LECs	20	23	25
55	Other (Non-ILECs)	73	75	73

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

Reference	Data element	June 2020	Dec 2020	June 2021
56	Terrestrial fixed wireless	83	80	90
57	Incumbent LECs	49	49	51
58	Other (Non-ILECs)	51	47	52
59	Copper local loop	744	706	696
60	Incumbent LECs	547	525	519
61	Other (Non-ILECs)	320	306	299
62	All Other interconnected VoIP by last-mile delivery medium	842	865	829
63	Fiber-to-the-premises	571	600	604
64	Incumbent LECs	140	149	158
65	Other (Non-ILECs)	511	543	543
66	Coaxial cable	214	212	204
67	Incumbent LECs	10	12	14
68	Other (Non-ILECs)	207	205	197
69	Terrestrial fixed wireless or satellite	301	314	285
70	Incumbent LECs	11	12	11
71	Other (Non-ILECs)	294	307	277
72	Copper local loop	225	213	205
73	Incumbent LECs	56	61	65
74	Other (Non-ILECs)	194	181	169
75	Non-Incumbent LEC local exchange telephone service by means of provisioning	514	507	508
76	Provided over owned last-mile facilities	399	392	392
77	Provided over UNE-L obtained from unaffiliated entity	103	97	94
78	Provided over other services obtained from unaffiliated entity	177	178	174
79	Incumbent LEC local exchange telephone service provided to unaffiliated carriers for resale	25	23	22
80	Wholesale lines	23	21	19
81	UNE-L	11	11	12
82	Local exchange telephone service and long-distance service	965	952	947
83	Consumer-grade service	870	856	858
84	Incumbent LEC is preferred long-distance carrier for its local exchange service customer	668	665	660
85	Incumbent LEC is not preferred long-distance carrier for its local exchange service customer	659	658	652
86	Non-ILEC is preferred long-distance carrier for its local exchange service customer	387	380	379
87	Non-ILEC is not preferred long-distance carrier for its local exchange service customer	274	265	276
88	Business & Government-grade service	947	939	935
89	Incumbent LEC is preferred long-distance carrier for its local exchange service customer	665	664	658
90	Incumbent LEC is not preferred long-distance carrier for its local exchange service customer	641	637	637
91	Non-ILEC is preferred long-distance carrier for its local exchange service customer	457	456	451
92	Non-ILEC is not preferred long-distance carrier for its local exchange service customer	311	311	321
93	End user buys local exchange telephone service and Internet access service from same entity	882	880	874
94	End user buys both services from incumbent LEC or affiliates	695	696	696
95	End user buys both services from Non-ILEC or affiliates	440	440	439
96	End user buys interconnected VoIP and Internet access service from same entity	768	790	766
97	End user buys both services from incumbent LEC or affiliates	137	147	157
98	End user buys both services from Non-ILEC or affiliates	710	733	704

**Table 3: Residential Wireline Voice Telephone Service Connections and Households by State as of June 30, 2021**  
(Connections and households, in thousands)

State	Households	Switched Access		Interconnected VoIP		Total	
		Connections	Ratio	Connections	Ratio	Connections	Ratio
Alabama	1,889	205	0.11	392	0.21	596	0.32
Alaska	255	*	*	*	*	78	0.31
American Samoa	10	5	0.52	-	*	5	0.52
Arizona	2,643	206	0.08	445	0.17	650	0.25
Arkansas	1,171	156	0.13	132	0.11	287	0.25
California	13,103	1,214	0.09	3,766	0.29	4,980	0.38
Colorado	2,137	251	0.12	462	0.22	713	0.33
Connecticut	1,385	132	0.10	623	0.45	755	0.54
Delaware	371	27	0.07	193	0.52	220	0.59
District of Columbia	288	24	0.08	81	0.28	105	0.36
Florida	7,931	494	0.06	2,338	0.29	2,832	0.36
Georgia	3,830	543	0.14	863	0.23	1,407	0.37
Guam	42	22	0.52	*	*	*	*
Hawaii	468	80	0.17	128	0.27	209	0.45
Idaho	649	94	0.14	41	0.06	135	0.21
Illinois	4,884	384	0.08	1,164	0.24	1,548	0.32
Indiana	2,603	269	0.10	480	0.18	749	0.29
Iowa	1,274	280	0.22	184	0.14	464	0.36
Kansas	1,142	117	0.10	170	0.15	287	0.25
Kentucky	1,748	362	0.21	315	0.18	677	0.39
Louisiana	1,752	159	0.09	347	0.20	506	0.29
Maine	570	108	0.19	163	0.29	271	0.48
Maryland	2,231	187	0.08	931	0.42	1,118	0.50
Massachusetts	2,647	188	0.07	1,257	0.47	1,445	0.55
Michigan	3,980	280	0.07	1,041	0.26	1,321	0.33
Minnesota	2,208	402	0.18	372	0.17	774	0.35
Mississippi	1,117	111	0.10	148	0.13	259	0.23
Missouri	2,440	257	0.11	469	0.19	725	0.30
Montana	436	91	0.21	73	0.17	164	0.38
Nebraska	767	142	0.19	118	0.15	260	0.34
Nevada	1,130	82	0.07	251	0.22	333	0.29
New Hampshire	539	80	0.15	223	0.41	303	0.56
New Jersey	3,272	208	0.06	1,753	0.54	1,961	0.60
New Mexico	793	138	0.17	102	0.13	240	0.30
New York	7,417	594	0.08	3,274	0.44	3,868	0.52
North Carolina	4,032	506	0.13	1,030	0.26	1,536	0.38
North Dakota	321	68	0.21	23	0.07	92	0.29
Northern Mariana Islands	16	8	0.50	*	*	*	*
Ohio	4,717	527	0.11	1,115	0.24	1,642	0.35
Oklahoma	1,494	147	0.10	205	0.14	352	0.24
Oregon	1,643	194	0.12	334	0.20	528	0.32
Pennsylvania	5,107	671	0.13	1,820	0.36	2,490	0.49
Puerto Rico	1,206	*	*	*	*	*	*
Rhode Island	415	29	0.07	153	0.37	182	0.44
South Carolina	1,961	272	0.14	413	0.21	686	0.35
South Dakota	348	75	0.22	32	0.09	107	0.31
Tennessee	2,639	333	0.13	509	0.19	842	0.32
Texas	9,906	701	0.07	1,855	0.19	2,556	0.26
Utah	1,003	98	0.10	154	0.15	252	0.25
Vermont	263	85	0.32	78	0.30	163	0.62
Virgin Islands	30	*	*	*	*	9	0.30
Virginia	3,184	345	0.11	995	0.31	1,340	0.42
Washington	2,906	328	0.11	657	0.23	984	0.34
West Virginia	734	183	0.25	169	0.23	352	0.48
Wisconsin	2,378	302	0.13	511	0.21	813	0.34
Wyoming	233	35	0.15	36	0.15	71	0.30
<b>United States</b>	<b>123,657</b>	<b>13,149</b>	<b>0.11</b>	<b>32,617</b>	<b>0.26</b>	<b>45,765</b>	<b>0.37</b>

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

State	Population	Directly-Billed		Not Directly-Billed		Total	
		Subscriptions	Ratio	Subscriptions	Ratio	Subscriptions	Ratio
Alabama	4,893	4,370	0.89	862	0.18	5,232	1.07
Alaska	737	705	0.96	35	0.05	740	1.00
American Samoa	56	*	*	*	*	*	*
Arizona	7,174	6,575	0.92	717	0.10	7,292	1.02
Arkansas	3,012	2,480	0.82	796	0.26	3,276	1.09
California	39,346	39,900	1.01	5,202	0.13	45,102	1.15
Colorado	5,685	5,272	0.93	735	0.13	6,007	1.06
Connecticut	3,571	3,541	0.99	510	0.14	4,051	1.13
Delaware	968	904	0.93	164	0.17	1,068	1.10
District of Columbia	702	1,304	1.86	269	0.38	1,574	2.24
Florida	21,217	20,001	0.94	2,816	0.13	22,817	1.08
Georgia	10,517	9,790	0.93	1,853	0.18	11,643	1.11
Guam	159	202	1.27	3	0.02	205	1.29
Hawaii	1,420	1,403	0.99	183	0.13	1,586	1.12
Idaho	1,754	1,590	0.91	202	0.12	1,792	1.02
Illinois	12,716	12,005	0.94	2,190	0.17	14,195	1.12
Indiana	6,697	5,474	0.82	1,367	0.20	6,841	1.02
Iowa	3,150	2,811	0.89	397	0.13	3,208	1.02
Kansas	2,913	2,503	0.86	455	0.16	2,958	1.02
Kentucky	4,462	3,504	0.79	751	0.17	4,256	0.95
Louisiana	4,665	4,205	0.90	802	0.17	5,007	1.07
Maine	1,341	1,047	0.78	316	0.24	1,363	1.02
Maryland	6,038	5,824	0.96	765	0.13	6,589	1.09
Massachusetts	6,873	6,650	0.97	935	0.14	7,586	1.10
Michigan	9,974	8,905	0.89	1,698	0.17	10,602	1.06
Minnesota	5,600	5,065	0.90	824	0.15	5,890	1.05
Mississippi	2,982	2,594	0.87	406	0.14	2,999	1.01
Missouri	6,124	5,352	0.87	803	0.13	6,155	1.01
Montana	1,062	900	0.85	198	0.19	1,098	1.03
Nebraska	1,924	1,736	0.90	294	0.15	2,030	1.06
Nevada	3,030	2,834	0.94	338	0.11	3,172	1.05
New Hampshire	1,355	1,172	0.86	240	0.18	1,412	1.04
New Jersey	8,885	9,188	1.03	1,368	0.15	10,556	1.19
New Mexico	2,097	1,943	0.93	262	0.12	2,204	1.05
New York	19,515	19,154	0.98	4,192	0.21	23,346	1.20
North Carolina	10,386	8,728	0.84	2,023	0.19	10,751	1.04
North Dakota	760	693	0.91	110	0.14	803	1.06
Northern Mariana Islands	54	*	*	*	*	*	*
Ohio	11,675	10,342	0.89	2,155	0.18	12,498	1.07
Oklahoma	3,949	3,402	0.86	494	0.13	3,896	0.99
Oregon	4,176	3,825	0.92	644	0.15	4,469	1.07
Pennsylvania	12,795	11,360	0.89	2,195	0.17	13,554	1.06
Puerto Rico	3,256	3,152	0.97	362	0.11	3,514	1.08
Rhode Island	1,058	1,002	0.95	139	0.13	1,141	1.08
South Carolina	5,092	4,187	0.82	905	0.18	5,092	1.00
South Dakota	879	736	0.84	138	0.16	874	0.99
Tennessee	6,772	6,082	0.90	1,131	0.17	7,213	1.07
Texas	28,635	27,548	0.96	2,962	0.10	30,510	1.07
Utah	3,151	2,773	0.88	362	0.11	3,135	0.99
Vermont	624	471	0.75	138	0.22	609	0.98
Virgin Islands	106	*	*	*	*	*	*
Virginia	8,509	7,968	0.94	1,169	0.14	9,137	1.07
Washington	7,512	7,041	0.94	972	0.13	8,012	1.07
West Virginia	1,807	1,396	0.77	244	0.13	1,641	0.91
Wisconsin	5,807	4,846	0.83	939	0.16	5,785	1.00
Wyoming	581	528	0.91	96	0.17	624	1.07
<b>United States</b>	<b>330,200</b>	<b>307,095</b>	<b>0.93</b>	<b>50,130</b>	<b>0.15</b>	<b>357,225</b>	<b>1.08</b>

- = 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

<b>Term</b>	<b>Definition</b>
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, 2021*

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:
- press
  - current telecommunications carrier
  - potential telecommunications carrier
  - business customer evaluating vendors/service options
  - consultant, law firm, lobbyist
  - other business customer
  - academic/student
  - residential customer
  - FCC employee
  - other federal government employee
  - state or local government employee
  - Other (please specify)

2. Please rate the report:
- |                      | Excellent             | Good                  | Satisfactory          | Poor                  | No opinion            |
|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Data accuracy        | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Data presentation    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 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"/> |
| Text clarity         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Completeness of text | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

3. Overall, how do you rate this report?
- |  | Excellent             | Good                  | Satisfactory          | Poor                  | No opinion            |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

4. How can this report be improved?

5. May we contact you to discuss possible improvements?

Name:

Telephone #:

To discuss the information in this report, contact: 202-418-0940 or for users of TTY equipment, call 202-418-0484		
Fax this response to 202-418-0520	or	Mail this response to
Scan and email to <a href="mailto:OEA-IADReports@fcc.gov">OEA-IADReports@fcc.gov</a>		FCC/OEA/IAD, Mail Stop 1600 F Washington, DC 20554