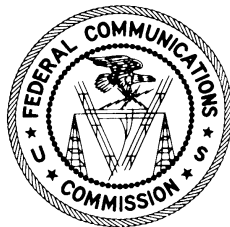


Voice Telephone Services: Status as of December 31, 2016

Industry Analysis and Technology Division
Wireline Competition Bureau
February 2018



This report is available for reference in the FCC's Reference Information Center, Courtyard Level, 445 12th Street, SW, Washington, DC. Copies may be purchased by contacting Best Copy and Printing, Inc., 445 12th Street, SW, Room CY-B402, Washington, DC 20554, telephone (800) 378-3160, or via their website at www.bcpiweb.com. The report can also be downloaded from the Voice Telephone Services Reports webpage at <https://www.fcc.gov/general/iatd-data-statistical-reports>.

Table of Contents

Introduction.....	1
Comparison to Local Telephone Competition Report.....	1
Retail Voice Telephone Service Connections.....	2
Figure 1 Retail Voice Telephone Service Connections, 2013-2016	2
Figure 2 Wireline Retail Voice Telephone Service Connections by Technology, Regulatory Status, and Customer Type as of December 31, 2016	3
Retail Service Relationships.....	4
Figure 3 Interconnected VoIP Subscribership by Reported Service Features, Regulatory Status, and Customer Type as of December 31, 2016	5
Figure 4 Retail Relationships of Wireline Voice Telephone Service with Internet Access Service by Regulatory Status as of December 31, 2016	6
Detailed Voice Telephone Services Data.....	7
Table 1 Voice Subscriptions – Total for US.....	8
Table 2 Number of Providers Reporting Voice Subscriptions – Total for US	10
Technical Notes	12
Glossary	13

SUPPLEMENTAL MATERIALS AVAILABLE ON FCC WEBSITE

- Table 1 and Table 2 in Excel format (national-level data back to December 2015)
- State-level Subscriptions table in Excel format (data back to December 2015)
- State-level Number of Providers table in Excel format (data back to December 2015)
- County-level Subscriptions information in Excel format (data back to June 2014)
- CSV-format file of consistent data series published for 2008-2016
- Crosswalk to the report *Local Telephone Competition: Status as of December 31, 2013* in PDF format

Voice Telephone Services: Status as of December 31, 2016

Introduction

The Commission has used FCC Form 477 to collect subscribership information from providers of voice telephone services – the incumbent local exchange carriers (ILECs), competitive local exchange carriers (CLECs), and mobile voice providers – since December 1999. The Commission has required interconnected Voice over Internet Protocol (“interconnected VoIP”) service providers to report subscribership information since December 2008 because the use of VoIP technology is growing rapidly and it increasingly is used to provide voice telephone service.¹ 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.²

This report summarizes the information collected about telephone services as of December 31, 2016. It demonstrates continued growth in subscribership to interconnected VoIP and mobile voice services and continued decline in subscribership to traditional wired telephone services.³

Comparison to Local Telephone Competition Report

This report previously was 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 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 (CPE); 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 the VoIP services that Skype offers in the United States, and subscribers to those services are not reported on Form 477.

² 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 that were adopted in 2013 (to be effective for reporting June 2014 and later data), and to avoid confusion, this report no longer uses the terms “standalone VoIP” and, by contrast, “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.

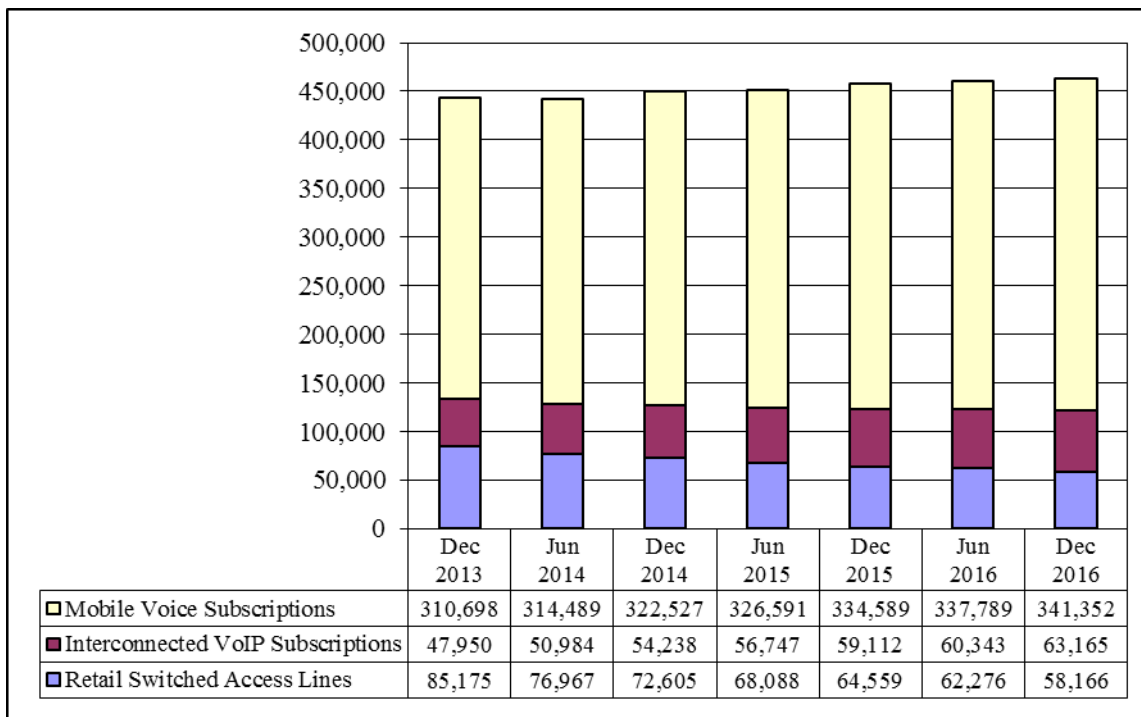
³ The presentation of mobile wireless telephone subscriber counts in this report does not constitute, or imply, Commission analysis of the extent to which wireline and mobile wireless telephone services are demand substitutes or complements in general or in any particular situation.

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.

- In December 2016, there were 58 million end-user switched access lines in service, 63 million interconnected VoIP subscriptions, and 341 million mobile subscriptions in the United States, or 463 million retail voice telephone service connections in total. See Figure 1.
- Over the three-year period presented in Figure 1, interconnected VoIP subscriptions increased at a compound annual growth rate of 10%, mobile voice subscriptions increased at a compound annual growth rate of 3%, and retail switched access lines declined at 12% per year.⁴

Figure 1
Retail Voice Telephone Service Connections, 2013-2016
(in Thousands)



Some previously published data have been revised.

- Of the 121 million wireline retail voice telephone service connections (including both switched access lines and interconnected VoIP subscriptions) in December 2016, 64 million (or 53%) were residential connections and 57 million (or 47%) were business connections.⁵ See Figure 2.

⁴ The compound annual growth rate (CAGR) 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.

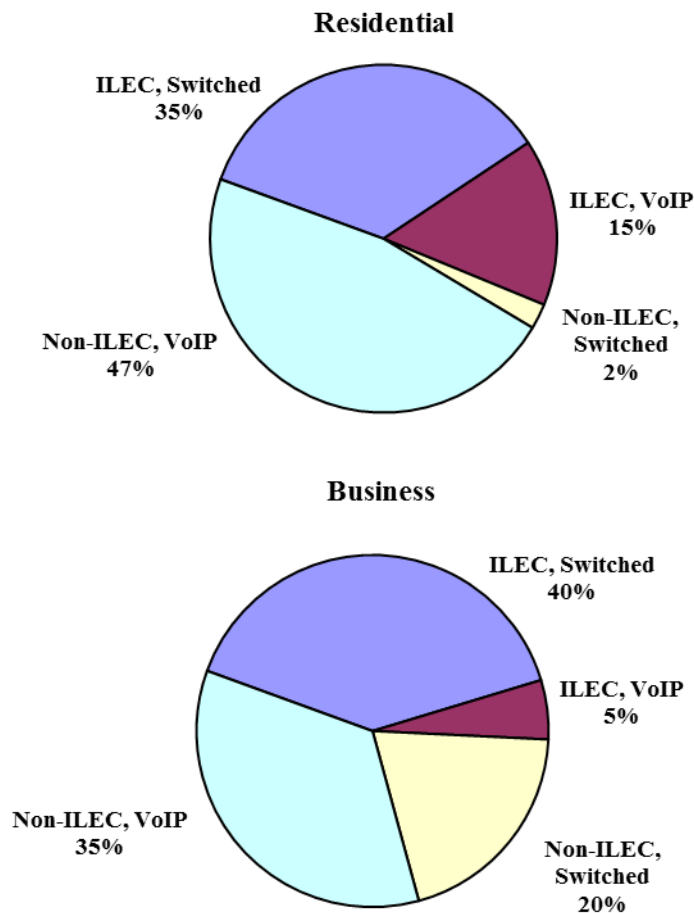
⁵ FCC Form 477 does not distinguish between residential and business subscribers to mobile *voice* service. The information that Form 477 collects about mobile *broadband* service is summarized elsewhere; see *Internet Access Services: Status as of June 30, 2016*, available at <https://www.fcc.gov/reports-research/reports/internet-access-services-reports/internet-access-services-reports>.

Figure 2
Wireline Retail Voice Telephone Service Connections by Technology, Regulatory Status, and Customer Type as of December 31, 2016 (in Thousands)

Total	Switched Access Lines	Interconnected VoIP	Total
ILEC	45,270	13,084	58,355
Non-ILEC	12,896	50,080	62,976
Total	58,166	63,165	121,331
Residential			
ILEC	22,650	9,988	32,638
Non-ILEC	1,520	30,292	31,812
Residential Total	24,170	40,280	64,450
Business			
ILEC	22,620	3,096	25,716
Non-ILEC	11,375	19,788	31,164
Business Total	33,996	22,885	56,880

Figures may not sum to totals due to rounding.

ILEC – Incumbent local exchange carrier. 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 64 million wireline residential connections in December 2016 were: 35% ILEC switched access lines, 47% non-ILEC interconnected VoIP subscriptions, 15% ILEC interconnected VoIP subscriptions, and 2% non-ILEC switched access lines. Similarly, the 57 million wireline business connections were: 40% ILEC switched access lines, 35% non-ILEC interconnected VoIP subscriptions, 5% ILEC interconnected VoIP subscriptions, and 20% non-ILEC switched access lines.

Retail Service Relationships

The revised Form 477 program collects two types of information about retail service relationships.

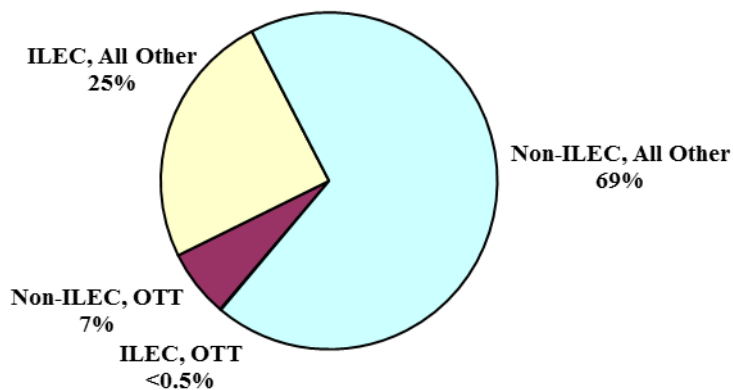
- Interconnected VoIP service retailers distinguish over-the-top (“OTT”) interconnected VoIP subscriptions—which, in the revised Form 477 program, means that the VoIP service end user has purchased (or has use of) a broadband connection from an entity that is not affiliated with the VoIP service retailer—by contrast to all other interconnected VoIP subscriptions. See Figure 3.
- Retailers of switched access lines and retailers of interconnected VoIP service distinguish between sales to end users who do not also purchase Internet access from them (including affiliates) and sales to end users who do purchase both these services. See Figure 4.

Figure 3
Interconnected VoIP Subscriberhip by Reported Service Features, Regulatory Status,
and Customer Type as of December 31, 2016 (in Thousands)

Total	Over-the-Top (OTT)	All Other VoIP	Total
ILEC	41	13,043	13,084
Non-ILEC	7,375	42,703	50,080
Total	7,416	55,746	63,165
Residential			
ILEC	38	9,950	9,988
Non-ILEC	2,619	27,673	30,292
Residential Total	2,658	37,622	40,280
Business			
ILEC	3	3,093	3,096
Non-ILEC	4,755	15,031	19,788
Business Total	4,758	18,124	22,885

Figures may not sum to totals due to rounding.

Residential



Business

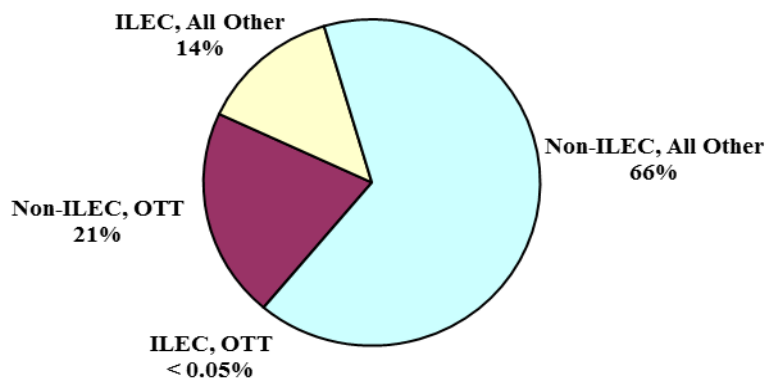
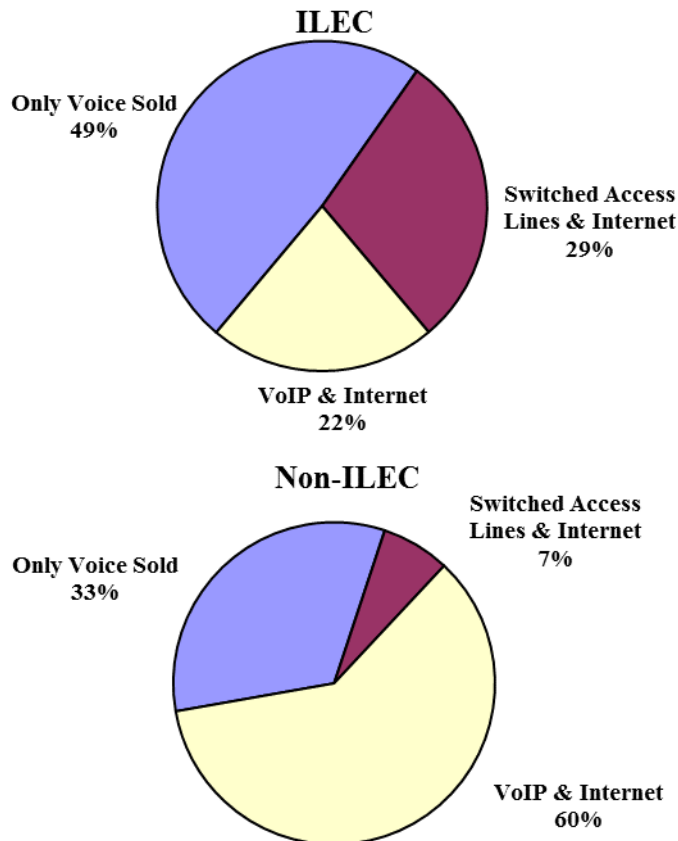


Figure 4
Retail Relationships of Wireline Voice Telephone Service with Internet Access Service
by Regulatory Status as of December 31, 2016 (in Thousands)

Total Sold to End Users	ILEC	Non-ILEC	Total
Switched Access Lines	45,270	12,896	58,166
Over-the-Top VoIP	41	7,375	7,416
All Other VoIP	13,043	42,703	55,746
Total	58,355	62,976	121,331
Internet Also Sold			
Switched Access Lines	16,971	4,334	21,305
Over-the-Top VoIP	0	0	0
All Other VoIP	13,007	37,937	50,944
Both Sold Total	29,978	42,271	72,249
Internet Not Also Sold			
Switched Access Lines	28,299	8,562	36,861
Over-the-Top VoIP	41	7,375	7,416
All Other VoIP	36	4,766	4,802
Only Voice Total	28,377	20,705	49,082

Figures may not sum totals due to rounding.



Detailed Voice Telephone Services Data

The remainder of this document consists of national information, technical notes, and a glossary of terms.

- Table 1 summarizes national-level voice telephone service subscription data for December and June 2016, and also for December 2015, for individual data elements collected by FCC Form 477.
- Table 2 shows the number of entities that reported the national-level subscription data for December and June 2016, and also for December 2015.

Table 1 and Table 2 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 December 2015)
- State-level Number of Providers table in Excel format (data back to December 2015)
- County-level Subscriptions 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 who consider using the complete data series for trend analysis should recall the discontinuities in the data that arise from Form 477 modifications over time.

- 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.⁶

⁶ See footnote 2, above.

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

Reference	Data element	Dec 2016	June 2016	Dec 2015
1	Mobile telephony	341,352	337,788	334,589
2	Directly-billed or prepaid	302,534	306,380	295,632
3	Not directly-billed or prepaid	38,818	31,408	38,958
4	Wireline End-User Switched Access Lines and Interconnected VoIP Subscriptions	121,331	123,174	123,671
5	Incumbent LECs	58,355	61,538	63,678
6	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	62,976	61,636	59,993
7	Consumer-grade service	64,450	66,202	67,524
8	Incumbent LECs	32,638	34,366	35,900
9	Other (Non-ILECs)	31,812	31,836	31,624
10	Business & Government-grade service	56,880	56,972	56,147
11	Incumbent LECs	25,716	27,171	27,778
12	Other (Non-ILECs)	31,164	29,801	28,369
13	Local exchange telephone service (Switched Access Lines)	58,166	61,894	64,559
14	Incumbent LECs	45,270	48,635	51,073
15	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	12,896	13,259	13,487
16	Consumer-grade service	24,170	25,939	27,564
17	Incumbent LECs	22,650	24,288	25,807
18	Other (Non-ILECs)	1,520	1,651	1,757
19	Business & Government-grade service	33,996	35,955	36,995
20	Incumbent LECs	22,620	24,347	25,265
21	Other (Non-ILECs)	11,375	11,608	11,730
22	Interconnected VoIP Subscriptions - Note: Includes both Over-the-top (OTT) and All Other sub-categories.	63,165	61,280	59,112
23	Incumbent LECs	13,084	12,903	12,605
24	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	50,080	48,377	46,507
25	Consumer-grade service	40,280	40,263	39,960
26	Incumbent LECs	9,988	10,078	10,093
27	Other (Non-ILECs)	30,292	30,185	29,868
28	Business & Government-grade service	22,885	21,017	19,152
29	Incumbent LECs	3,096	2,825	2,512
30	Other (Non-ILECs)	19,788	18,192	16,639
31	Over-the-top interconnected VoIP	7,416	6,624	6,101
32	Incumbent LECs	41	35	36
33	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	7,375	6,589	6,065
34	Consumer-grade service	2,658	2,767	2,788
35	Incumbent LECs	38	33	34
36	Other (Non-ILECs)	2,619	2,733	2,754
37	Business & Government-grade service	4,758	3,858	3,313
38	Incumbent LECs	3	2	2
39	Other (Non-ILECs)	4,755	3,855	3,311
40	All Other interconnected VoIP	55,746	54,656	53,011
41	Incumbent LECs	13,043	12,867	12,569
42	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	42,703	41,789	40,442
43	Consumer-grade service	37,622	37,497	37,172
44	Incumbent LECs	9,950	10,045	10,058
45	Other (Non-ILECs)	27,673	27,452	27,113
46	Business & Government-grade service	18,124	17,160	15,839
47	Incumbent LECs	3,093	2,822	2,510
48	Other (Non-ILECs)	15,031	14,337	13,328
49	Local exchange telephone service by last-mile delivery medium	58,166	61,894	64,559
50	Fiber-to-the-premises	6,121	6,156	5,561
51	Incumbent LECs	3,803	3,617	3,457
52	Other (Non-ILECs)	2,318	2,540	2,104
53	Coaxial cable	886	1,292	1,058
54	Incumbent LECs	60	56	50

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

Reference	Data element	Dec 2016	June 2016	Dec 2015
55	Other (Non-ILECs)	826	1,237	1,007
56	Terrestrial fixed wireless	510	527	540
57	Incumbent LECs	501	516	523
58	Other (Non-ILECs)	9	11	17
59	Copper local loop	50,649	53,918	57,402
60	Incumbent LECs	40,907	44,446	47,043
61	Other (Non-ILECs)	9,742	9,472	10,359
62	All Other interconnected VoIP by last-mile delivery medium	55,746	54,656	53,011
63	Fiber-to-the-premises	7,448	7,288	6,952
64	Incumbent LECs	5,424	5,341	5,306
65	Other (Non-ILECs)	2,024	1,947	1,645
66	Coaxial cable	34,626	34,193	33,416
67	Incumbent LECs	5	6	7
68	Other (Non-ILECs)	34,621	34,187	33,409
69	Terrestrial fixed wireless or satellite	95	86	69
70	Incumbent LECs	0	0	1
71	Other (Non-ILECs)	95	86	68
72	Copper local loop	13,578	13,089	12,575
73	Incumbent LECs	7,614	7,521	7,255
74	Other (Non-ILECs)	5,964	5,568	5,320
75	Non-Incumbent LEC local exchange telephone service by means of provisioning	12,896	13,259	13,487
76	Provided over owned last-mile facilities	4,480	4,782	4,551
77	Provided over UNE-L obtained from unaffiliated entity	2,309	2,611	2,503
78	Provided over other services obtained from unaffiliated entity	6,107	5,866	6,433
79	Incumbent LEC local exchange telephone service provided to unaffiliated carriers for resale	5,606	5,766	6,063
80	Wholesale lines	3,483	3,545	3,608
81	UNE-L	2,123	2,221	2,455
82	Local exchange telephone service and long-distance service	58,166	61,894	64,559
83	Consumer-grade service	24,170	25,939	27,564
84	Incumbent LEC is preferred long-distance carrier for its local exchange service customer	14,804	15,842	16,847
85	Incumbent LEC is not preferred long-distance carrier for its local exchange service customer	7,846	8,446	8,960
86	Non-ILEC is preferred long-distance carrier for its local exchange service customer	1,259	1,390	1,491
87	Non-ILEC is not preferred long-distance carrier for its local exchange service customer	262	261	265
88	Business & Government-grade service	33,996	35,955	36,995
89	Incumbent LEC is preferred long-distance carrier for its local exchange service customer	12,172	12,998	13,567
90	Incumbent LEC is not preferred long-distance carrier for its local exchange service customer	10,448	11,349	11,698
91	Non-ILEC is preferred long-distance carrier for its local exchange service customer	8,129	7,041	8,639
92	Non-ILEC is not preferred long-distance carrier for its local exchange service customer	3,247	4,567	3,091
93	End user buys local exchange telephone service and Internet access service from same entity	21,305	22,780	22,807
94	End user buys both services from incumbent LEC or affiliates	16,971	18,106	18,578
95	End user buys both services from Non-ILEC or affiliates	4,334	4,674	4,230
96	End user buys interconnected VoIP and Internet access service from same entity	50,944	50,607	48,965
97	End user buys both services from incumbent LEC or affiliates	13,007	12,836	12,536
98	End user buys both services from Non-ILEC or affiliates	37,937	37,771	36,429

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

Reference	Data element	Dec 2016	June 2016	Dec 2015
1	Mobile telephony	123	127	130
2	Directly-billed or prepaid	120	126	126
3	Not directly-billed or prepaid	23	23	25
4	Wireline End-User Switched Access Lines and Interconnected VoIP Subscriptions	1,691	1,669	1,644
5	Incumbent LECs	736	741	739
6	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	1,251	1,210	1,178
7	Consumer-grade service	1,240	1,239	1,243
8	Incumbent LECs	735	740	738
9	Other (Non-ILECs)	780	760	759
10	Business & Government-grade service	1,586	1,562	1,539
11	Incumbent LECs	731	737	736
12	Other (Non-ILECs)	1,144	1,103	1,070
13	Local exchange telephone service (Switched Access Lines)	1,016	1,028	1,026
14	Incumbent LECs	733	738	736
15	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	521	515	514
16	Consumer-grade service	910	922	921
17	Incumbent LECs	733	738	736
18	Other (Non-ILECs)	403	398	400
19	Business & Government-grade service	999	1,007	1,005
20	Incumbent LECs	729	735	734
21	Other (Non-ILECs)	502	493	491
22	Interconnected VoIP Subscriptions - Note: Includes both Over-the-top (OTT) and All Other sub-categories.	1,043	995	952
23	Incumbent LECs	101	97	89
24	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	1,002	958	917
25	Consumer-grade service	523	500	494
26	Incumbent LECs	50	48	43
27	Other (Non-ILECs)	491	472	467
28	Business & Government-grade service	943	900	857
29	Incumbent LECs	93	92	85
30	Other (Non-ILECs)	908	866	825
31	Over-the-top interconnected VoIP	590	557	529
32	Incumbent LECs	18	20	17
33	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	581	547	520
34	Consumer-grade service	163	150	155
35	Incumbent LECs	10	8	8
36	Other (Non-ILECs)	156	144	149
37	Business & Government-grade service	541	515	484
38	Incumbent LECs	13	17	14
39	Other (Non-ILECs)	537	507	478
40	All Other interconnected VoIP	650	623	605
41	Incumbent LECs	94	90	81
42	Other (Non-ILECs) - Note: ILEC voice-service affiliate operating outside ILEC's study area is included here.	612	590	574
43	Consumer-grade service	415	394	388
44	Incumbent LECs	44	42	38
45	Other (Non-ILECs)	388	370	365
46	Business & Government-grade service	578	555	539
47	Incumbent LECs	87	85	78
48	Other (Non-ILECs)	545	525	510
49	Local exchange telephone service by last-mile delivery medium	1,016	1,028	1,026
50	Fiber-to-the-premises	708	680	677
51	Incumbent LECs	560	540	530
52	Other (Non-ILECs)	326	300	304
53	Coaxial cable	89	93	90
54	Incumbent LECs	19	20	21

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

Reference	Data element	Dec 2016	June 2016	Dec 2015
55	Other (Non-ILECs)	78	81	79
56	Terrestrial fixed wireless	74	69	76
57	Incumbent LECs	44	42	44
58	Other (Non-ILECs)	41	37	43
59	Copper local loop	847	859	872
60	Incumbent LECs	628	634	639
61	Other (Non-ILECs)	353	360	371
62	All Other interconnected VoIP by last-mile delivery medium	650	623	605
63	Fiber-to-the-premises	379	345	339
64	Incumbent LECs	76	68	62
65	Other (Non-ILECs)	348	319	315
66	Coaxial cable	214	212	219
67	Incumbent LECs	9	8	9
68	Other (Non-ILECs)	212	210	214
69	Terrestrial fixed wireless or satellite	200	197	182
70	Incumbent LECs	12	11	8
71	Other (Non-ILECs)	191	188	175
72	Copper local loop	217	230	215
73	Incumbent LECs	45	49	41
74	Other (Non-ILECs)	193	205	192
75	Non-Incumbent LEC local exchange telephone service by means of provisioning	521	515	514
76	Provided over owned last-mile facilities	370	362	356
77	Provided over UNE-L obtained from unaffiliated entity	123	128	129
78	Provided over other services obtained from unaffiliated entity	216	216	226
79	Incumbent LEC local exchange telephone service provided to unaffiliated carriers for resale	47	50	42
80	Wholesale lines	45	47	41
81	UNE-L	12	13	10
82	Local exchange telephone service and long-distance service	1,016	1,028	1,026
83	Consumer-grade service	910	922	921
84	Incumbent LEC is preferred long-distance carrier for its local exchange service customer	672	668	677
85	Incumbent LEC is not preferred long-distance carrier for its local exchange service customer	678	692	681
86	Non-ILEC is preferred long-distance carrier for its local exchange service customer	372	371	372
87	Non-ILEC is not preferred long-distance carrier for its local exchange service customer	280	274	271
88	Business & Government-grade service	999	1,007	1,005
89	Incumbent LEC is preferred long-distance carrier for its local exchange service customer	669	667	675
90	Incumbent LEC is not preferred long-distance carrier for its local exchange service customer	655	670	658
91	Non-ILEC is preferred long-distance carrier for its local exchange service customer	451	446	442
92	Non-ILEC is not preferred long-distance carrier for its local exchange service customer	331	319	321
93	End user buys local exchange telephone service and Internet access service from same entity	903	917	903
94	End user buys both services from incumbent LEC or affiliates	712	716	711
95	End user buys both services from Non-ILEC or affiliates	417	417	406
96	End user buys interconnected VoIP and Internet access service from same entity	589	571	567
97	End user buys both services from incumbent LEC or affiliates	88	83	74
98	End user buys both services from Non-ILEC or affiliates	550	537	538

Technical Notes

General

Detailed information about the current Form 477 reporting requirements is available at <https://www.fcc.gov/general/form-477-resources-filers#block-menu-block-4>.

See Glossary for definitions of terms used in this report.

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-subsidiary 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 (CMRS) 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.

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.)
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 (PSTN).
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 or iVoIP	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.

