GLOSSARY[1]

TERM	DEFINITION
BDS, or "Business Data Services"	The name the FCC recently gave to what for decades had been called "special access," high speed, dedicated lines used by business customers for last-mile and middle mile applications. BDS services typically provide dedicated symmetrical transmission speeds with performance guarantees, such as guarantees for traffic prioritization, guarantees against certain levels of frame latency, loss, and jitter to support real-time IP telephony and video applications, or guarantees on service availability and resolving outages… and are offered to businesses, non-profits, and government institutions that need to support mission critical applications and have greater demands for symmetrical bandwidth, increased reliability, security, and service to more than one location.[2]
"Best Efforts" Broadband	A "best efforts" service is typically an asymmetrical service with greater download than upload speeds, is shared among multiple users absent service guarantees, and is subject to failure during high congestion periods.[3]
Broadband, Broadband Internet access service (BIAS)	Service that provides end users access to the Internet.[4]
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 traditional 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.

[1] Unless noted otherwise, definitions are from the FCC's 2016 Voice Telephone Services Report, available here: https://www.fcc.gov/wireline-competition/voice-telephone-services-report.

[2] *BDS Order*, *supra*, at ¶ 13.

[3] *Id.* at ¶ 14.

[4] *Open Internet Order*, at ¶ 21 (defining BIAS as a "mass-market retail service by wire or radio that provides the capability to transmit data to and receive data from all or substantially all Internet endpoints, including any capabilities that are incidental to and enable the operation of the communications service, but excluding dial-up Internet access service").

TERM	DEFINITION
Connection	A line or subscription.[5]
Customer	Although the parties sometimes, and the public often, conflate customer and subscription numbers, a single customer may have multiple lines/connections/subscriptions.
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. Does not include communication by Wi-Fi or by mobile communications protocols.
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).
ILEC	Incumbent Local Exchange Carriers, also referred to as the legacy telephone carriers. The FCC's *Telephone Voice Services Report* defines ILEC as 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."
Incumbent or legacy carrier	Same as ILEC
Internet protocol or IP	A set of formal rules that govern how packets transit the Internet.

[5] FCC Form 477 Instructions, at 4, 5 *passim*, available at https://transition.fcc.gov/form477/477inst.pdf.

TERM	DEFINITION
Interconnected VoIP or iVoIP or 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. Comes in two varieties: packaged with connectivity (facilities-based), and packed independently, i.e., without connectivity (known as over-the-top or OTT).
Last Mile Network Facility	A facility, wired or wireless that provides access from the customer location to the network.
LEC or local telephone carrier/company	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. A cable company's last mile connection to its end-users is the functional equivalent of a local loop.
Managed VoIP	Transmission guarantee at certain service quality levels.
Market or Telecommunications Market	The market for all types of telecommunications transport services, including both middle mile and last mile connections, whether those services are delivered via copper wire, coaxial cable, fiber or radio waves or some combination.
Mobile wireless service	A radio communication service between an antenna and a mobile device using a mobile communications protocol, e.g., GSM, CDMA, LTE, etc. between mobile stations.
Network, Telecommunications Network	The telecommunications network consists of all the infrastructure, hardware and software necessary for two-way transmission of voice and data, whether originating in analog or digital form, between devices linked to telephone numbers and/or IP addresses.[6]

[6] OIO, at ¶ 48 ("with the Commission's previous recognition that the public switched network will grow and change over time, this Order updates the definition of public switched network to reflect current technology, by including services that use public IP addresses. Under this

TERM	DEFINITION
Non-ILEC carrier	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 is a Non-ILEC.
OTT VoIP	Over-the-top VoIP: VoIP service delivered over a connection that the customer obtains (that is, buys), or has the use of, from an entity not affiliated with the VoIP service provider. (Colloquially, "bring-your- own-broadband.") E.g., Skype, Apple FaceTime, Vonage, etc.
Packet switching	A method of completing electronic communications in which the information is disassembled into multiple, discrete packets of information, which are transmitted independently and later reassembled; IP is a packet-switched communications protocol.
POTS	Plain Old Telephone Service, the traditional service offered over the Public Switched Telephone Network (PSTN), and used primarily for voice.
Public Switched Telephone Network	The portion of the telecommunications network that involves voice communication between devices linked to telephone numbers.
Public Switched Network	What was previously referred to as the public switched telephone network (PSTN) is now referred to as the "public switched network" (although the switches are now likely to be routers or "soft switches"), and includes telephone and broadband telecommunication between telephone numbers and/or IP addresses.[7]

revised definition, the Order concludes that mobile broadband Internet access service is interconnected with the public switched network"); ¶ 319 ("Revising the definition of public switched network to include networks that use standardized addressing identifiers other than NANP numbers for routing of packets recognizes that today's broadband Internet access networks use their own unique addressing identifier, IP addresses, to give users a universally recognized format for sending and receiving messages across the country and worldwide").

[7] OIO, at ¶ 48 ("with the Commission's previous recognition that the public switched network will grow and change over time, this Order updates the definition of public switched network to reflect current technology, by including services that use public IP addresses. Under this revised definition, the Order concludes that mobile broadband Internet access service is interconnected with the public switched network"); ¶ 319 ("Revising the definition of public switched network to include networks that use standardized addressing identifiers other than NANP numbers for routing of packets recognizes that today's broadband Internet access networks use their own unique addressing identifier, IP addresses, to give users a universally recognized format for sending and receiving messages across the country and worldwide").

TERM	DEFINITION
"Public Internet"	Sometimes referred to as "best efforts Internet," in order to contrast it with managed networks where voice or data transmission is accompanied with a "service level agreement."[8]
Subscriptions	For purposes of this Decision, we will follow the FCC and its Form 477 Instructions, which treat subscriptions as "connections," i.e., 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 network.[9]
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).
Telecommunications	The one-way or two-way transmission of information, including voice, between distant locations via wires or electromagnetic (especially radio) waves.
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.
VoIP	Voice over Internet Protocol
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.
Wireline (or landline or wired) Voice Service	Voice service provided over a wired last-mile—includes both interconnected VoIP and switched access service.

[8] *See BDS Order*, at ¶¶ 59-65.

[9] *See* FCC Form 477, Local Telephone Competition and Broadband Reporting Instructions, at 6-8, 34 (Glossary), and other resources available at https://www.fcc.gov/general/form-477-resources-filers.

APPENDIX B
DOCUMENTS OFFICIALLY NOTICED

1. CPUC Communications Division Report, Market Share Analysis of Retail Communications in California June 2001 through June 2013 (January 5, 2015), http://www.cpuc.ca.gov/NR/rdonlyres/57DED05C-AE4A-4DEF-87CB-27AAF2FFA0C5/0/CommunicationsMarketShareReport_CA_Jan52015.pdf

2. CPUC Communications Division Report, Market Pricing Survey of Retail Communications Services in California (December 2, 2014), http://www.cpuc.ca.gov/NR/rdonlyres/8B59ACD5-10AA-47CA-919D-B1B205FADEC1/0/MarketPricingSurveyStaffReport2014.pdf

3. CPUC Communications Division Report, Sixth Annual DIVCA Report for the Year Ending December 31, 2012 (July 31, 2014),

4. CPUC Communications Division Report, Market Share Analysis of Retail Communications in California (January 5, 2011)

5. Division of Ratepayer Advocates, CPUC, Failure of Consumer Protection (Oct. 2010), available at: http://www.dra.ca.gov/DRA/Telecom/consumers/urf.htm

6. September 30, 2010 CPUC Staff Report to the California Legislature, "Affordability of Basic Telephone Service (September 30, 2010), http://www.cpuc.ca.gov/NR/rdonlyres/383BBEA3-45F8-42E4-8582-70413539AC45/0/2010_Affordability_Report_Final_Sep_29_2010.pdf

7. California Senate Office of Oversight and Outcomes Report issued on July 16, 2010, titled "California Public Utilities Commission: Gaps Emerge in Telephone Consumer Protections" ("Senate Report"), available at http://sooo.senate.ca.gov/sites/sooo.senate.ca.gov/files/ca_public_utilities_commis_report_for_web.pdf;

8. TURN report issued on March 25, 2009 titled "Why 'Competition' is Failing to Protect Consumers" ("TURN Report"), available at http://www.issuelab.org/resource/why_competition_is_failing_to_protect_consumers;

9. DRA report issued on July 29, 2008 titled "Report on Rate Increases of Verizon, AT&T, SureWest, and Frontier California Following Adoption of the Uniform Regulatory Framework Decision 06-06-030" ("DRA Report"), available at http://www.dra.ca.gov/uploadedFiles/Content/Hot_Topics/2008_Report_on_Rate_Increases.pdf;

10. 2003 CPUC Report to the Legislature on the Status of Telecommunications Competition in California (Third Report), available at http://docs.cpuc.ca.gov/published//REPORT/31223.htm;

11. 2003 CPUC Report to the Legislature on the Status of Telecommunications Competition in California (Second Report), available at http://docs.cpuc.ca.gov/published//REPORT/25311.htm; and

12. 2002 CPUC Report to the Legislature on the Status of Telecommunications Competition in California, available at http://docs.cpuc.ca.gov/published//REPORT/16454.htm.

13. CPUC Broadband Availability Map, available at http://www.broadbandmap.ca.gov/map/;

14. CPUC Communications Division Report, "California Wireline Telephone Service Quality, Pursuant to General Order 133-C, Calendar Years 2010 through 2013, available at http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M111/K579/111579788.PDF,

15. CPUC Communications Division Report, "Broadband Services as a Component of Basic Telephone Service" (August 2002 Report To The Legislature, Per SB 1712), at http://docs.cpuc.ca.gov/published/report/18279.htm;

16. CPUC Communications Division Report, "Comparative Analysis of Small ILEC CHCF-A Carriers to Non-CHCF-A Carriers," (2010 and 2011), available at http://www.cpuc.ca.gov/PUC/Telco/generalInfo/Comparative+Analysis+of+Small+ILEC+CHCF-A+Carriers+to+Non-CHCF-A+Carriers.htm;

17. CPUC Mobile Broadband Testing Reports, available at http://www.cpuc.ca.gov/General.aspx?id=1778.

18. FCC Broadband (Internet Access Services Reports 2009-2014 https://www.fcc.gov/reports/internet-access-services-reports;

19. FCC Mobile Wireless Competition Reports http://wireless.fcc.gov/competition-reports/mobile-wireless/mw-17/;

20. FCC Local Competition Reports 1994-2014 https://www.fcc.gov/encyclopedia/local-telephone-competition-reports;

21 FCC 2016 *Voice Telephone Services* Report, available at https://www.fcc.gov/wireline-competition/voice-telephone-services-report.

22. FCC *18th Annual Mobile Wireless Competition Report*, available at https://apps.fcc.gov/edocs_public/attachmatch/DA-15-1487A1_Rcd.pdf;

23. FCC *2016 Broadband Progress Report*, available at https://www.fcc.gov/reports-research/reports/broadband-progress-reports/2016-broadband-progress-report;

24. FCC decision *In re Business Data Services, et al.* (16-54), released May 2, 2016, available at http://transition.fcc.gov/Daily_Releases/Daily_Business/2016/db0602/FCC-16-54A1.pdf;

25. FCC decision *In re Lifeline and Link Up Reform and Modernization* (WC Docket No. 11-42), *Telecommunications Carriers Eligible For Universal Service Support* (WC Docket No. 09-197) and *Connect America Fund* (WC Docket No. 10-90), FCC 16-38, released April 27, 2016, available at https://apps.fcc.gov/edocs_public/attachmatch/FCC-16-38A1.pdf;

26. FCC *2015 Measuring Broadband America, Fixed Broadband Report*, released December 30, 2015, available at https://www.fcc.gov/reports-research/reports/measuring-broadband-america/measuring-broadband-america-2015#block-menu-block-4;

27. Wireless Substitution: State-level Estimates from the National Health Interview Survey, January 2007–June 2010 (April 2011), available at: http://www.cdc.gov/nchs/data/nhsr/nhsr039.pdf;

28. The Berkman Center at Harvard, "Next Generation Connectivity, a review of broadband Internet transitions and policy from around the world" (2010), at https://cyber.law.harvard.edu/pubrelease/broadband/;

29. Akamai State of the Internet, Q1 2016 Report, available at https://www.akamai.com/us/en/our-thinking/state-of-the-internet-report/global-state-of-the-internet-connectivity-reports.jsp;

30. FCC *In re International Comparison Pursuant to Broadband Data Improvement Act; International Broadband Data Report*, 31 FCC Rcd 2667 (January 2016) (International Broadband Comparison); and

31. Ofcom Strategic Review of Digital Communications http://stakeholders.ofcom.org.uk/consultations/dcr-discussion/.

APPENDIX C
LIST OF CARRIERS WITH DATA ANALYZED IN THIS DECISION

PROVIDER (DBA NAME)	SERVICE
101 Netlink	WISP
AT&T	WIRELINE
AT&T Mobile	MOBILE
Brighthouse	WIRELINE
CALNET	WISP
Calaveras Internet - CalTel Connections	WIRE-WISP
California Broadband Services	WISP
CalNeva Broadband	WIRELINE
Cal-Ore Telephone	WIRE-WISP
Catalina Broadband Solutions	WIRELINE
Charter Communications	WIRELINE
Colfax	WISP
Comcast	WIRELINE
Com-Pair	WISP
Conifer	WISP
Consolidated (formerly Surewest)	WIRELINE
Cox	WIRELINE
DigitalPath	WISP

PROVIDER (DBA NAME)	SERVICE
DM-TECH	WISP
Ducor Telephone	WIRELINE
Etheric Networks	WISP
ExWire	WISP
Fire2Wire	WISP
Fort Mojave Telecommunications, Inc.	WIRELINE
Frontier Communications	WIRELINE
Giggle Fiber - New (acquired Champion)	WIRELINE
Global Capacity (was MegaPath)	WIRELINE
Google	WIRELINE
Horizon Cable TV	WIRELINE
Internet Free Planet	WISP
Inyo Networks	WIRELINE
IWVISP	WISP
Kern Valley Wireless	WISP
Lone Pine TV	WIRE-WISP
Mediacom	WIRELINE
Mother Lode Internet	WISP
North Coast Internet	WISP

PROVIDER (DBA NAME)	SERVICE
Northland Cable TV, Inc.	WIRELINE
Oacys	WISP
Outback Internet	WISP
PaeTec	WIRELINE
Pinnacles	WIRE-WISP
Plumas Sierra	WISP
Ponderosa Edge	WIRELINE
Ponderosa Telephone	WIRELINE
Race	WIRELINE
Raw Bandwith	WIRELINE
Rural Net	WISP
San Bruno Municipal Cable TV	WIRELINE
SBC-Wireless	WISP
Sebastian - Audeamus	WIRE-WISP
Sebastian - Foresthills	WIRELINE
Sebastian - Kerman	WIRELINE
Sierra Telephone Company, Inc.	WIRELINE
Siskiyou Telephone	WIRELINE
Smarter Broadband	WISP
Softcom	WISP
Sonic Telecom	WIRELINE

PROVIDER (DBA NAME)	SERVICE
South Valley Internet	WISP
Sprint	MOBILE
Succeed.net	WISP
Suddenlink	WIRELINE
Surfnet	WISP
TDS Telecom	WIRELINE
Time Warner Cable	WIRELINE
T-Mobile	MOBILE
Tsunami Wireless	WISP
Unwired Broadband	WISP
USA Communications	WIRELINE
Valley Internet	WISP
Velocity Wireless	WIRE-WISP
Verizon California (now Frontier)	WIRELINE
Verizon Wireless	MOBILE
Volcano Communications Group	WIRE-WISP
Wave (including Astound)	WIRELINE
Winters	WISP
XO Communications	WIRELINE
Zayo Group	WIRELINE