



Sources of Telecom Revenue

Opportunities Beyond Traditional Regulated Revenues

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Agenda



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- Over-the-top services
 - Wireless revenue opportunities
 - Latest in federal funding programs
 - Other lines of business
 - Summary

Introduction

- Rural telecommunications companies face unique challenges
 - Low population density, aging infrastructure and increased competition
- Regulated revenue from USF and access charges is declining
- Diversification of services is critical for long-term sustainability
- Nonregulated services are generally not governed by the FCC or state PUCs
 - Internet services beyond basic broadband
 - Smart home, IoT and managed services
 - Media content, OTT partnerships and cellular services
 - Business IT and cybersecurity solutions

Traditional telecom revenues

End user revenues

- Local exchange service charges and related fees
- Interstate subscriber line charge, access recovery charge, federal universal service charge and a few others
- Charges for DSL voice-data and CBOL services
 - While DSL voice-data is occasionally sold directly to end users, these services are most often sold on a wholesale basis to an ISP, which resells them to end users
 - CBOL internet services can be sold on a tariffed or nontariffed basis
- End user billed special access charges
 - Point to point connections billed directly to local businesses, schools or governments when not ordered through a carrier

Traditional telecom revenues

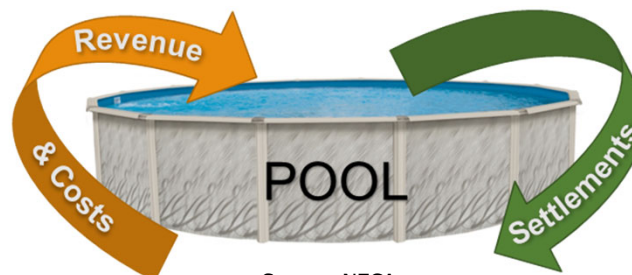
Intercarrier compensation

- Charges to other carriers who use the ILEC's network for the origination, termination and transport of telecommunications traffic
 - Interstate and intrastate access charges
 - Switched access – voice traffic over the public switched telephone network
 - Special access – dedicated or virtual private connections between designated locations
 - Reciprocal compensation
 - Charges for the exchange of local traffic between LECs within the same local access and transport area and between a LEC and a mobile wireless carrier within the same metropolitan transport area
 - CAF ICC funds for switched access support are **declining** each year

Traditional telecom revenues

NECA pooling and settlements

- The NECA pools are revenue distribution mechanisms designed to produce **interstate settlements** for company pool participants
- Each EC receives its share of total pool revenue available to cover its cost of providing interstate access services
- Basis for support for rate-of-return companies
 - Incentivizes companies to build and maintain networks



Source: NECA

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Traditional telecom revenues

Federal USF

- About \$8.6 billion disbursed in 2024
- **High cost** – supports ETCs that offer service in rural, insular and high-cost areas (over \$4.5 billion)
 - Includes HCL, CAF BLS, CAF ICC and model-based support
- **Schools and libraries (aka E-Rate)** – helps providers offer reduced rates for eligible schools and libraries (over \$2.6 billion)
- **Lifeline** – provides voice and broadband discounts for eligible low-income consumers (about \$943 million)
- **Rural health care** – provides reduced rates for eligible health care providers making telehealth services affordable in rural areas (about \$532 million)

Source: USAC_2024_Annual_Report.pdf

Competitive local exchange carriers

- Rural LECs compete to provide telecommunications services outside their regulated telecommunications study area
 - Usually overbuild **existing networks** with fiber facilities providing improved service offerings
 - Primarily broadband internet but can include voice and video
 - Managed Wi-Fi for small business, apartment complexes and motels
 - Wholesale transport services including leasing excess fiber capacity to other providers and backhaul services supporting wireless providers and ISPs
 - Lease tower space and conduit facilities
 - Use broadband infrastructure to offer smart city solutions
 - E-Rate and rural health care for institutions and USF funding where applicable

Competitive local exchange carriers

- Rural LECs compete to provide telecommunications services outside their regulated telecommunications study area (cont.)
 - Fixed wireless technologies are also an option
 - Competitive entities include incumbent ILECs, video and wireless entities, local computer companies, municipalities and ISPs

Fiber ring and transport opportunities

Owned, leased and partnerships

- Wholesale backhaul transport services
 - Wireless carriers, other ISPs and enterprises
- Enterprise connectivity and dedicated internet access
 - Sell high-capacity symmetrical gigabit speeds, SLAs and managed services
 - Hospitals, school districts, government buildings, banks and data centers
- Fiber ring connections to larger regional carrier hotels
 - Transport to internet exchange points
 - Cross connecting with content and cloud providers
 - Peering relationships for OTT and CDN traffic

Fiber ring and transport opportunities

Owned, leased and partnerships

- Value-added managed services
 - VoIP, UCaaS, security, video surveillance, virtual desktop and cloud backup services
- Lease excess capacity fiber or wavelengths
 - Lease fiber to regional providers, utilities or wireless carriers
 - Offer lit wavelength services on the ring
 - Optical wavelength service is now available in an ILEC regulated study area as an interstate Tariff No. 5 offering with speeds of 100 Gbps, 200 Gbps and 400 Gbps



Source: Dreamstime.com

Smart home communities

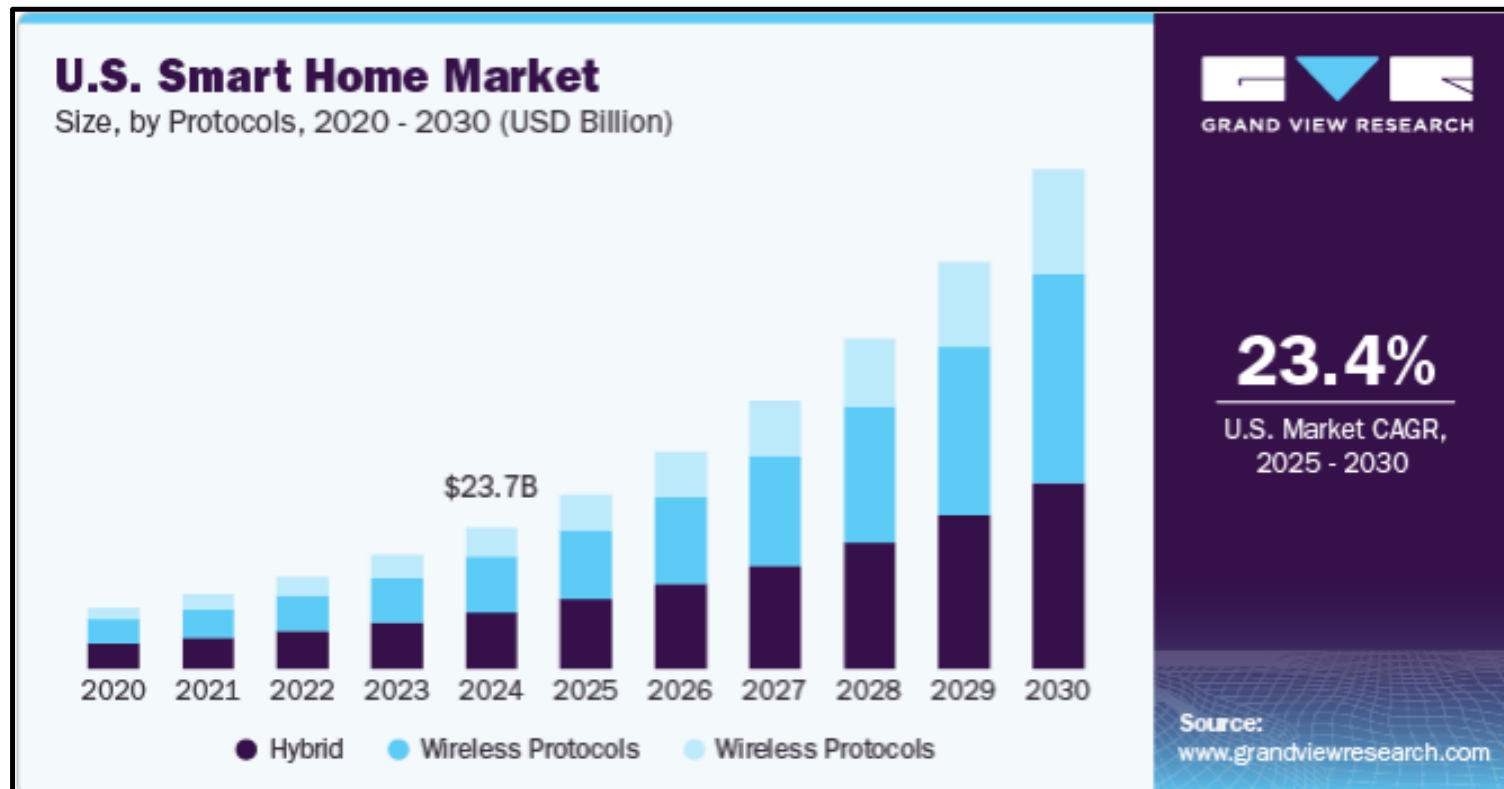
A vision for the future of connected living in rural America

- What is a smart home community?
 - Network of homes integrated with IoT devices
 - Utilizes centralized technology and data management
 - Focus on convenience, efficiency and sustainability
 - May utilize edge computing as last mile providers
- The U.S. smart home market is projected to be over \$29 billion in 2025*
 - Revenue per installed smart home currently averages \$120.66
 - Household penetration of smart home is expected to reach 81.3% this year
 - Smart home market CAGR is projected to be 23.4% over the next five years

*Source: Grand View Research

Smart home communities

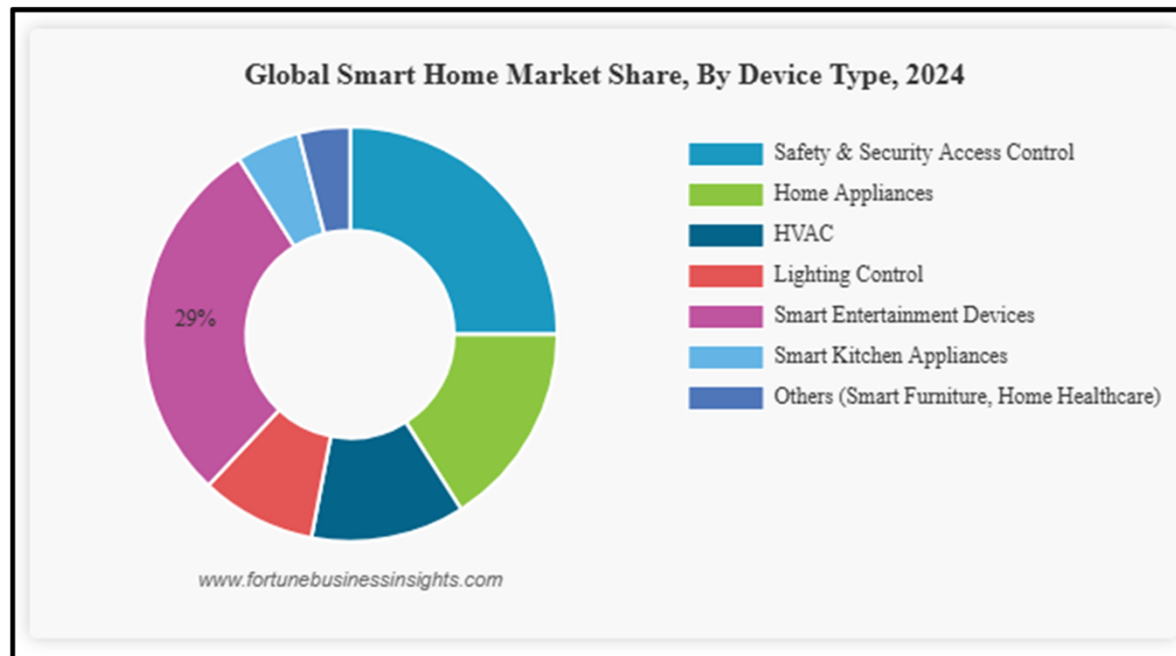
A vision for the future of connected living in rural America



Smart home communities

A vision for the future of connected living in rural America

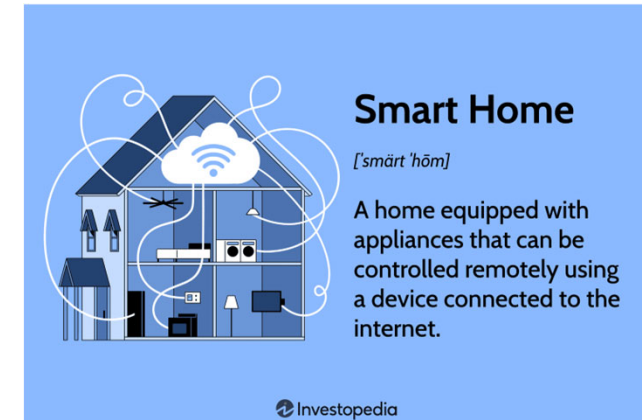
- The rising adoption of smart entertainment devices produces the highest device growth rate



Smart home communities

Revenue opportunities

- Bundled smart home services added to broadband and phone packages
 - Smart security, home automation, voice assistance integration and elderly care monitoring
 - Monthly revenue subscription plans of \$20 to \$60 per month
- Installation and support services
 - Provide onsite installation, setup and ongoing technical support for smart home devices
 - One-time install fees of \$75 to \$250 plus service contracts and hourly support rates



Source: Investopedia

Smart home communities

Revenue opportunities



Source: iStock

- Home security and monitoring services
 - Rural markets lack rapid police response times and have limited private security firms
 - \$30 to \$50 per month for home monitoring services, possibly in partnership with third-party providers
- Energy management solutions
 - LECs can provide solutions for rural homes that may face energy efficiency issues
 - Sales of hardware plus optional month savings-as-a-service models

Smart home communities

Revenue opportunities



Source: AARP

- Aging in place/remote health care integration
 - Rural LECs can offer health-adjacent smart home solutions for aging populations
 - \$25 to \$75 per month per household; partnerships with health systems or insurers
- Partnerships with OEMs/vendors
 - Rural LECs can become resellers or certified installers for landing smart home brands
 - Margin from hardware sales of 10% to 40% plus installation and support upselling

Smart home communities

Revenue opportunities

- Managed smart home Wi-Fi
 - Offer premium Wi-Fi solutions designated for smart homes
 - \$10 to \$15 per month per household for managed Wi-Fi, reducing churn and tech support costs
- Data and insights services
 - With permission, LECs can anonymize and aggregate smart home data to provide
 - Local utility insights and insurance risk scoring partnerships
 - B2B data sharing deals or smart city contacts

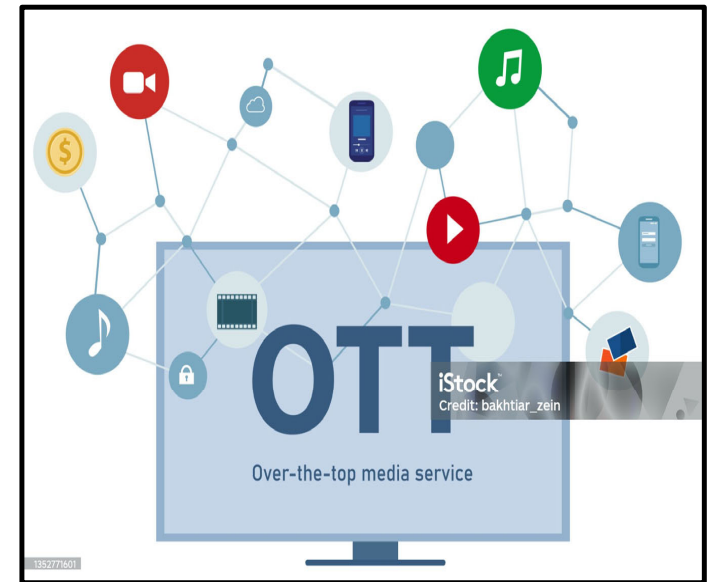
Over-the-top services

- LECs can leverage their infrastructure, customer relationships and bundling strategies
 - Partner with OTT platforms like Netflix, Hulu and YouTube and earn a portion of the subscription fee
 - Due to streaming, LEC can offer premium bandwidth tiers
 - Stream Netflix in 4K without buffering
 - Data monetization and smart advertising
 - Anonymized usage data for OTT partners for local marketing and data usage patterns to target upsells



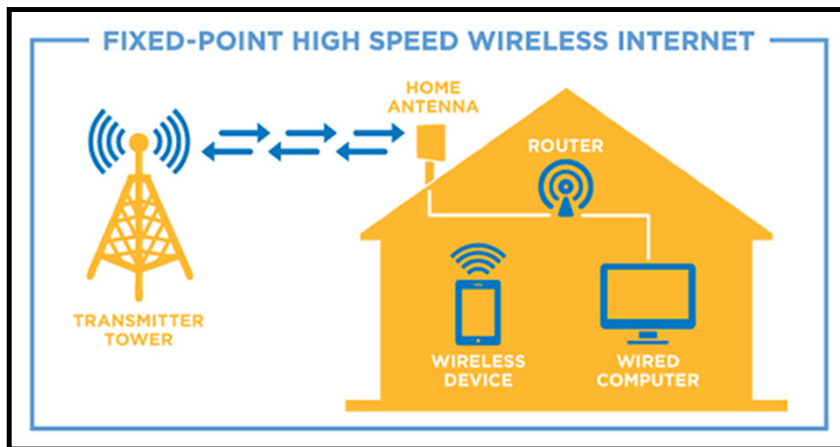
Over-the-top services

- LECs can leverage their infrastructure, customer relationships and bundling strategies (cont.)
 - Bundle and sell smart TV and streaming hardware on a resale basis
 - Streaming devices, Wi-Fi mesh systems and provide setup and tech support
 - LECs can host or stream OTT local content
 - Local sports, events, subscription or ad revenue and community-focused streaming apps
 - Technical and customer support services
 - OTT app setup support and premium support packages



Wireless revenue opportunities

Fixed wireless internet and mobile data services



Source: <https://www.techtricksworld.com/wp-content/uploads/2016/12/Fixed-wireless-broadband.png>

- Fixed wireless access provides high-speed broadband service using wireless signals
 - Offer tiered internet plans outside regulated study area
 - Lower upfront costs and long-term revenue generation
- Expand and improve **mobile coverage** for internet needs
 - Deployable via small cells, macro towers or distributed antenna systems
 - Create tiered mobile data packages including prepaid and postpaid options

Wireless revenue opportunities

Telemedicine and remote health care partnering opportunities

- Provide solutions including specialized data packages for telemedicine
 - Examples include high-definition video conferencing and remote patient monitoring
 - Service may provide a substantial value as rural areas may lack access to health care



Source: Rural Health Information Hub

Wireless revenue opportunities

Rural cellular and IoT solutions

- Mobile voice offering for NTCA members utilizing NRTC's Mobile Virtual Network Operator platform
 - LEC brands its own cellular voice service
- Growth of IoT in agriculture and environmental monitoring provides opportunities
 - IoT-enabled smart farming tools revenue
 - Soil moisture sensors and weather stations
 - Smart home devices revenue
 - Security systems, energy management and environmental monitoring devices
 - Revenue opportunities include connectivity, data storage and analytics services

Wireless revenue opportunities

Public safety networks and rural Wi-Fi hotspots

- Partner with local governments to provide critical communications infrastructure for first responders and emergency services
 - Generate revenue that comes from funded government contracts
- Set up Wi-Fi hotspots in community centers, libraries, parks and other public spaces
 - Charge for access to hotspots or offer subscriptions
 - Collaborate with local municipalities to provide free access in exchange for sponsorship or advertising

Wireless revenue opportunities

Wholesale wireless infrastructure and agricultural drones

- Rural telecom providers can lease wireless infrastructure to operators and businesses
 - Utilize towers, spectrum and backhaul
 - Lease space to companies that do not want to build their own network
- Drones are increasingly used for monitoring crops, livestock, soil and field analysis and precision spraying
 - Offer wireless data packages or drone-as-a-service solution
 - Charge for data storage, analysis and real-time communications



Source: Bearing Tips

Latest in federal funding programs

- BEAD created by the Infrastructure and Investment Jobs Act in 2021
 - \$42.45 billion NTIA grant fund targeting low-speed rural areas
 - Recent policy shifts include Secretary Lutnick rewriting BEAD as **technology-neutral**
 - Potential to steer funding toward fixed wireless and satellite providers
- On May 8-9, 2025, President Trump announced he was cancelling the Digital Equity Act grant programs
 - The cancellation halted \$2.75 billion initially appropriated by Congress
 - 140 advocacy organizations urged Secretary Lutnick to reinstate DEA grants
 - In late June 2025, 20 states filed a federal lawsuit concerning the termination

Latest in federal funding programs

- Tribal Broadband Connectivity Program – round two funding
 - Second NOFO included nearly \$980 million dollars available to tribal applicants
 - \$456 million to 55 tribal entities in December 2024 and January 2025
- Affordable Connectivity Program officially ended on June 1, 2024
 - 23 million households had enrolled in the ACP program and to date approximately 5 million households have lost all internet access
 - Result is lower overall internet revenue for rural LECs

Other lines of business

Call centers and telemarketing

- Leverage broadband infrastructure that provides diversified income sources
 - Inbound/outbound sales and telemarketing, help desk and tech support, appointment setting, surveys and polls, billing and collections, and 24/7 answering services
 - Provides local employment and work from home remote employment through decentralized call centers

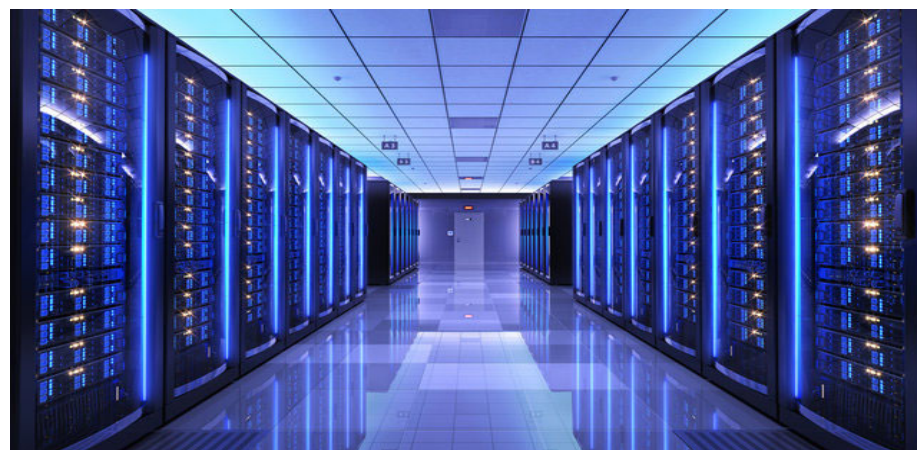


Source: Dreamstime.com

Other lines of business

Data centers

- Data centers provide hosting and colocation service for local banks, hospitals, government agencies, ISPs and content providers
 - Revenues include rack and space leasing, cloud hosting and virtual services, backup and disaster recovery and managed IT services



Source: Adobe stock

Other lines of business

Network operations centers

- Ensure network reliability and uptime for increasingly complex networks
 - Monitor network health in real-time and detection outages, security threats
 - Support advance services
 - FTTH networks, VoIP and IPTV as well as IoT and smart agriculture
 - Centralized multinetwork management for LECs
 - CLEC networks, wireless services and middle mile or data center assets
 - Position for growth and outsourcing
 - Support neighboring carriers, offer bandwidth and backhaul wholesale service



Source: Vecteezy

Other lines of business

- Supporting local businesses that rural communities need
 - Coffee shops, cafés, gas stations and grocery stores
 - Ranching and farming partnerships utilizing advanced IoT services
 - Retirement homes in rural communities
 - Partnerships with other utility entities for services including gas, water, sewer and electric
- Creating video show with a national TV channel for which the LEC gets paid for content

Summary

- Long-term success for rural LECs is dependent on diversification of service offerings
- Infrastructure investment needs to address future technology and service capacity needs
- Broadband connectivity provides a multitude of revenue opportunities for rural LECs
- Revenue opportunities can also be obtained through infrastructure sharing, leasing facilities, reselling services, network interconnections and strategic partnerships

thank you!



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Acronyms

■ ACP	Affordable Connectivity Program
■ B2B	Business to Business
■ BEAD	Broadband Equity Access and Deployment
■ CAF BLS	Connect American Fund Broadband Loop Support
■ CAF ICC	Connect America Fund Inter-carrier Compensation
■ CAGR	Compound Annual Growth Rate
■ CBOL	Consumer Broadband-only Loop
■ CDN	Content Delivery Network
■ CLEC	Competitive Local Exchange Carrier
■ DSL	Digital Subscriber Line
■ ETC	Eligible Telecommunications Carrier
■ FCC	Federal Communications Commission
■ FTTH	Fiber to the Home
■ HCL	High-cost Loop

Acronyms

■ HVAC	Heating Ventilation and Air Conditioning
■ ILEC	Incumbent Local Exchange Carrier
■ IoT	Internet of Things
■ ISP	Internet Service Provider
■ IT	Information Technology
■ LEC	Local Exchange Carrier
■ NECA	National Exchange Carrier Association
■ NOFO	Notice of Funding Opportunity
■ NTIA	National Telecommunications and Infrastructure Administration
■ OEM	Original Equipment Manufacturer
■ OTT	Over-the-Top
■ PUC	Public Utility Commission
■ UCaaS	Unified Communications as a Service
■ USF	Universal Service Fund

Acronyms

- VoIP Voice over Internet Protocol
- Wi-Fi Wireless Fidelity