

# Bridging Nebraska's Digital Divide

## *Broadband Terminology & Glossary*

### Agencies

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<b>FCC</b>	Federal Communications Commission
<b>NITC</b>	Nebraska Information Technology Commission
<b>NROC</b>	Nebraska Regional Officials Council, association of 8 economic development districts
<b>NTIA</b>	National Telecommunications and Information Administration. Part of the Department of Commerce
<b>PSC</b>	Public Service Commission
<b>RBTF</b>	Rural Broadband Task Force
<b>RUS</b>	Rural Utilities Service - part of the USDA
<b>USDA</b>	United States Department of Agriculture

### Technical Terms

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<b>bandwidth</b>	The total amount of data a network is able to transmit, including both upload and download traffic. Often quantified in Mbps.
<b>broadband</b>	The transmission of wide bandwidth data, voice, and video over a high speed internet connection.
<b>buried/aerial fiber</b>	The two main approaches to constructing fiber optic networks. Buried fiber involves trenching and/or boring and laying cabling underground, while aerial construction places fiber optic cabling on utilities poles. Aerial fiber is frequently cheaper but is at a greater risk of damage by weather, accidents, or other factors.
<b>cable</b>	Broadband via coaxial cables capable of high download speeds, but upload is often comparatively slow. May be subject to network congestion at peak use times.

<b>Community Anchor Institutions</b>	Schools, libraries, medical and healthcare providers, public safety entities, community colleges and other institutions of higher education, and other community support organizations and entities.
<b>conduit</b>	A small pipe through which telecommunications infrastructure, frequently fiber optic cabling, may be laid. Most often buried underground.
<b>Digital Subscriber Line (DSL)</b>	Broadband via copper telephone cables. Speed degrades sharply as the distance from multiplexers/hubs increases.
<b>direct bury</b>	Refers to fiber optic cabling laid without accompanying utilities conduit. Projects built this way are often cheaper and faster to build, but costlier to replace or maintain.
<b>download / downstream</b>	Refers to traffic from the internet to end users. Necessary for most uses of the internet, particularly streaming, videoconferencing, and file downloads. Often listed 25/10 Mbps (1st number is download speed)
<b>Ethernet</b>	A hardwired connection from a router to a computer or other device. Often faster and more reliable than WiFi, but limited by specific types of cables and/or ports used.
<b>fiber</b>	A high-speed data transmission medium delivered via thin filaments of glass into a single cable where the bundled glass filaments are then protected by an exterior sheath; also known as optic cables or fiber optics.
<b>fixed wireless</b>	The operation of wireless communication devices or systems to connect two fixed locations with a radio or other wireless link. Requires line-of-sight often through a dish or receiver attached to the roof and positioned to face the nearest wireless transmitter; not be confused with mobile or cellular broadband connection to cell towers.
<b>jitter</b>	The variation in time delay between when a signal is transmitted and when it's received over a network connection. High jitter negatively impacts "live" applications like streaming or videoconferencing.
<b>latency</b>	A measure of the time information takes to travel from a source to its destination. Measured in milliseconds. Below 100 is adequate for most purposes, with 20-40 being ideal. Higher latencies will impact network experience, particularly when streaming video/audio, videoconferencing, or online gaming. Impacted by both distance and network technology (fiber broadband is generally low-latency, while satellite, DSL, and fixed wireless networks are higher-latency).

<b>Mbps - Megabits per Second</b>	A measure of the speed at which a network transfers data between users and the internet. One thousand Mbps is referred to as a Gigabit (Gbps).
<b>redundancy</b>	A process of providing multiple paths for traffic, so that data can keep flowing even in the event of a failure.
<b>satellite</b>	Broadband via geostationary orbit or low-earth orbit satellites.
<b>throughput</b>	The total amount of data successfully transmitted over a network, rather than its theoretical capacity.
<b>upload / upstream</b>	Refers to traffic from end users to the internet. Necessary for file uploads, videoconferencing, online gaming, and so forth. Upstream traffic has increased substantially in recent years but remains smaller than downstream traffic. Often listed 25/10 Mbps (2 <sup>nd</sup> number is upload speed)
<b>WiFi</b>	A wireless network transmitted by a router, while convenient, may be subject to interference from other wireless devices or architectural features.

## Regulatory Terms

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<b>Census Block</b>	A territorial division set forth by the US Census Bureau and used by many government agencies to assess broadband coverage and grant eligibility.
<b>CLEC</b>	Competitive Local Exchange Carrier. A telecommunications provider that offers service in an exchange area in which it is not the incumbent carrier.
<b>Dark Fiber</b>	Inactive (or “dark”) portions of fiber optic cables. May be activated or leased and used for other purposes including telecommunications uses.
<b>Dig-Once</b>	Refers to politics adopted by states, counties, or cities that require the installation of utilities conduit during road construction projects. Conduit installed this way may then be leased to telecommunications companies, reducing overall project costs and expediting network construction.
<b>Easements /Rights-of-Way</b>	Arrangements between telecommunications companies and landowners or public entities that allow for network infrastructure to be constructed on land not owned by a telecommunications company.
<b>ETC</b>	Eligible Telecommunications Carrier. A specific designation by state regulators that allows companies to apply for and receive certain types of funding, but entails greater regulatory responsibilities.

<b>Exchange Area</b>	A territorial division created to facilitate landline telephone network construction and administration. Now used to regulate certain telecommunications
<b>ILEC</b>	Incumbent local exchange carrier. A company offering monopolized local telephone service before the Telecommunications Act of 1996 was designated as an incumbent carrier. Now applies to certain broadband providers.
<b>FCC Form 477</b>	Providers offering broadband services are required to report their coverage by census block to the FCC twice yearly, including maximum advertised speeds, company information, network technology, and consumer or business offerings. Reported on the census block level, it is frequently criticized for overstating coverage.
<b>Last-Mile</b>	The portion of a network that connects directly to subscribers.
<b>Location Fabric</b>	A major component of proposed FCC and state broadband map updates that would report availability at an address or parcel level, rather than by census block.
<b>Middle-Mile</b>	The portion of a network that does not connect directly to end subscribers. Also referred to as the internet “backbone.” Frequently composed of high-throughput fiber optic infrastructure.
<b>Overbuild</b>	Refers to the construction of networks in areas already served by incumbent providers and the introduction of competitive service options for residents. Frequently controversial when public funding is involved.
<b>Pole Sharing</b>	Similar to easements, but referring specifically to utility poles. Securing pole-sharing agreements that allow a provider to install cabling on utility- or city-owned poles is frequently a major hurdle in network construction processes.
<b>Underserved</b>	A household as being a location that lacks access to reliable broadband service offered with a speed of not less than 100 megabits per second for downloads; and 20 megabits per second for uploads.
<b>Unserved</b>	Areas in which broadband service at or above a threshold speed is not available and that the threshold speed be no less than 25 Mbps download and 3 Mbps upload transmission capacity.
<b>Wholesale Broadband</b>	Refers to the leasing of middle-mile networks to last-mile providers. Wholesale bandwidth is used by businesses that are engaged in telecommunications, wholesale internet access, or wholesale ISP services.