

## Broadband and Digital Divide Glossary

### 5G

The fifth generation of mobile connectivity. This technology enables projected speeds to be at least ten times faster than current 4G speeds with lower latency, lower battery power consumption, and capacity to handle many more connections from a single radio.

### Bit

The smallest unit of information data is measured as a bit or binary digit.

### Bit rate

The speed of the internet is measured by how fast data is transferred over a period of time. This is also known as the bit rate or the number of bits processed over a period of time, usually one second.

### Broadband

The Federal Communications Commission (FCC) defines broadband as an internet service with a download speed of at least 25 megabits per second (Mbps) and an upload speed of 3 Mbps. Broadband provides internet access via a variety of wired and wireless networks.

### Broadband Network

The broadband network is made up of **first, middle, and last-mile**:

- The **first mile** consists of a very high-capacity fiber-optic backbone that transmits large amounts of data over long distances;
- The **middle mile** links the backbone to the internet service providers (last mile) access network;
- The **last mile** brings the connection to a home or business. The last mile can be provided using different transmission media such as Digital Subscriber Line (DSL), Cable, Fiber, Wireless, and Satellite.

### Cable

Provides broadband connection over the same coaxial cables that deliver cable television service. Cable is the most prominent broadband technology in densely populated areas.

### California Public Utilities Commission (CPUC)

The CPUC regulates privately owned public utilities in California including electric power, telecommunications, natural gas, and water companies.

### City Asset

Assets that are owned, operated, or otherwise controlled by a city or available for city use. This includes street poles, street furniture, rooftops, conduit, and other facilities that can be used for broadband deployment.

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### **Dark Fiber**

Optical fiber that has been installed but is not being used to transmit data (via light). This is often used to refer to the untapped potential of a fiber network.

### **Digital Access**

The availability of reliable, affordable, and high-quality broadband service to every household in every community.

### **Digital Adoption**

Everyone has the digital skills, tools, and resources needed to safely and privately use information and communication technology to improve their lives.

### **Digital Equity**

Digital equity can be achieved by ensuring everyone has equal access to high-quality broadband connectivity and the tools and skills needed for full participation in our society, democracy, and economy. Digital Equity includes both equitable **Access** and **Adoption**.

### **Digital Divide**

The gap between the members of society who have reliable access to broadband service and an adequate device for connecting to the internet and those who do not.

### **Digital Inclusion**

Digital inclusion can be achieved when all individuals and communities, including those that are under-resourced, have reliable and affordable access to and use of technology and devices.

### **Digital Literacy**

The ability to find, assess, use, create, and share content using communication technologies like computers and the internet. What it means to be digitally “literate” is constantly changing, as technology and society change.

### **Digital Redlining**

Historically, underserved communities have been impacted by digital redlining - in which internet service providers have neglected to invest in infrastructure or provide services to certain areas of cities or regions that don't offer high returns on investment.

### **Digital Navigators**

Digital navigators are trusted guides who assist community members in internet adoption and the use of computing devices. Digital navigation services include ongoing assistance with affordable internet access, device acquisition, technical skills, and application support.

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### **Digital Subscriber Line (DSL)**

Provides broadband connection over telephone lines.

### **Federal Communications Commission (FCC)**

Government agency that regulates communication across the United States. The FCC regulates interstate and international communications by radio, television, wire, satellite, and cable.

### **Fiber**

Transmits the fastest broadband connection and can handle vast amounts of data.

### **Fiber Conduit**

Conduit is the tubing that is used to house and protect the individual fiber strands that make up the fiber network. Fiber conduits are typically made of steel or metal with polyvinyl chloride (PVC) or fiberglass.

### **Fiber-optic**

A fiber-optic cable is a glass filament that transmits data through light pulses.

### **Internet Service Provider (ISP)**

An entity that provides homes and businesses with internet service.

### **LTE / 4G LTE**

Long-term evolution (LTE) is a wireless broadband communication standard for mobile devices. 4G refers to the fourth generation of mobile connectivity. Although different specifications, the terms 4G and LTE are often used interchangeably to refer to the standard signifying multiple speed, quality, and functional improvements over its 3G or third generation predecessor.

### **Franchise**

A contract or authorization permitting use of public property by a private entity.

### **Gigabits per second (Gbps)**

A gigabit-speed connection can transfer one billion bits per second, internet speed at this level would allow a user to download a file the size of a two-hour movie in less than 10 seconds.

### **Gigabyte (GB)**

Unit of measuring data and information that is stored and processed in a device. A byte is equal to 8 bits.

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### Hotspot

A physical location where people can access the internet, typically using Wi-Fi, with a router connected to an internet service provider.

### Megabits Per Second (Mbps)

The speed of how fast data is transferred is typically measured as a megabit per second, or Mbps, which equates to one million bits per second. Mbps can be used to measure both internet download and upload speeds. For example, 25/3 Mbps refers to a 25 megabits downstream speed and 3 megabit per second upstream speed.

### Net Neutrality

Principle that all data on the internet should be treated equally, no matter the content or platform of use. Prohibits internet service providers from acting as gatekeepers between users and content by prioritizing, blocking, or slowing access to selected content.

### Open Access Middle Mile Networks

“Open-access” refers to middle mile fiber networks that permit any broadband provider to connect to the network on nondiscriminatory terms and conditions. Open-access, middle-mile networks can provide the savings that spur last-mile providers to build further and faster to reach unconnected residences. In this way, an open-access, middle-mile model promotes private investment and competition in last-mile service by reducing capital expenditures required to build last-mile connections.

### Satellite

Broadband connections use radio waves directly from satellites orbiting the earth to a fixed device typically mounted on the roof or side of a home. Satellites delivering home broadband can be in medium earth orbit (MEO) or low earth orbit (LEO).

### Small Cell

A small cell is a wireless radio access point with low radio frequency power output, footprint, and range. Small cells can be used to provide indoor or outdoor wireless service. Small cells are an integral part of future LTE or 5G networks.

### Spectrum

Spectrum comprises radio frequencies from 30Hz to 300Hz, also known as radio waves, that are primarily used in wireless communications. Sections of the spectrum are divided into frequency “bands” that are reserved for specific uses to prevent interference.



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### Wireless

Wireless broadband connections use over the air radio waves between a cellular tower and the home:

- **Fixed wireless** provides a connection between the tower and a device typically mounted on the roof or the side of a home

**Mobile** broadband provides a connection between the tower and a mobile device such as a laptop or a smartphone.