

Overview

Another important theme in the 116th Congress is the future of technology and the United States involvement in technological advancements. In order to help our readers navigate the U.S. technological landscape, we are re-circulating the following glossary of terms.

Glossary

5G: Fifth-generation wireless: the next generation of cellular technology, engineered to increase the speed and responsiveness (lower latency) of wireless networks, higher system capacity, massive device connectivity and operate over large contiguous blocks of spectrum to enable a sharp increase in the amount of data that can be transmitted over wireless systems. 4G, which is the current generation of cellular technology, generally utilizes spectrum in the lower bands leading to large, high-power cell towers to radiate signals over longer distances coupled with small cells and distributed antennas to enhance coverage. 5G services will be transmitted across a range of spectrum bands. Lower bands will be used to provide service and coverage over a platform similar to 4G. However, providers will also use high-band millimeter wave frequencies in higher density areas to deploy significantly more “small cells” located in places like light poles or building roofs. All these sites will need backhaul transport from wireline as well as wireless providers to connect them to the network core.

10G: 10G is the term for cable broadband operators’ plan to offer a transmission speed of 10 gigabits per second. The 10 gigabit platform, currently in the testing stage, is intended to ensure that the United States has the network infrastructure needed to support the growing demand for faster speeds and data-intensive uses.

Ad Exchange: a digital marketplace that facilitates the buying and selling of advertising space to many advertisers and publishers, often through real-time auctions or automated computers.

Ad Network: an advertising company that usually serves as a broker between web site publishers and advertisers. Larger ad networks aggregate sites into general categories so that they can offer advertisers targeted buys.

Algorithm: a specific step by step method of solving a problem or downloading a file. It is commonly used for data processing, calculating, and other related computer and mathematical operations.

Analog Signal (video): the original transmission technology used to send television signals. Since the conclusion of the “digital transition” in 2009, all TV broadcasts now transmit signals exclusively in digital format. Analog signals are currently only used to transmit video on a shrinking number of older cable systems.

Anonymizing Data: the process of encrypting or removing personal information from data sets in order to protect one’s privacy.

Center Forward Basics

Center Forward brings together members of Congress, not-for profits, academic experts, trade associations, corporations and unions to find common ground. Our mission: to give centrist allies the information they need to craft common sense solutions, and provide those allies the support they need to turn those ideas into results.

In order to meet our challenges we need to put aside the partisan bickering that has gridlocked Washington and come together to find common sense solutions.

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Backhaul: the connection and transport of data between a wireless point, such as a cell tower or small cell, and the mobile network core. Backhaul can travel over high-capacity wired networks (typically fiber) or over microwave radio links or satellite relays. A new concept being introduced in 5G is “self-backhaul” or “integrated access and backhaul (IAB)” where the millimeter wave frequencies are used to provide both cellular service and backhaul.

Bandwidth: the capacity of a wired or wireless network to transmit a particular amount of data from one point to another over an Internet connection in a given amount of time, usually measured in “bits per second” – e.g., “Mbps” stands for “megabits per second.” Generally, Internet bandwidth measurements are expressed as download/upload Mbps, such as 10/1, 25/3, etc.

Bluetooth: a wireless technology standard used to send data over short distances, usually between personal mobile devices. A common example is connecting a personal Smartphone to a car’s audio system.

Bots/ Botnets: botnets are networks of end-user computing devices whose processing power has been “hijacked” and infected with remotely controlled bot malware that was not authorized or installed by end users. Bots are designed to automatically execute a set of tasks that are under the command and control of a remote administrator, or “bot master.” Bots and botnets are highly customizable and can be programmed to do many things, including but not limited to: theft of personal and other sensitive information, distributed denial of service (DDoS) attacks, attacks on critical Internet infrastructure, spam, email address harvesting, key-logging, hosting of illegal content, and click fraud.

Broadband Internet Access Service (BIAS): 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.

Broadcast: the simultaneous transmission of audio or video content using the electromagnetic spectrum, also known as radio waves, from one to many points (such as from a television station to viewers). Often called “over the air.”

Browser: an application program that allows internet users to access, navigate, and search web sites. When a browser loads a web page, it processes the HTML that includes items such as text, links, audio, and video files, and then renders them in the browser window. Examples of browsers include: Microsoft Internet Explorer, Mozilla Firefox, Google Chrome, and Apple Safari.

Cable Modem: a type of modem that connects a computer or local network to a cable operator’s broadband Internet service through the same cable that supplies cable television service.

Cloud Services: deliver capabilities such as server capacity, storage, databases, and networking over the Internet, private networks, or over a Virtual Private Network (VPN). The leading providers of cloud services are Amazon Web Services, Microsoft Azure, Google Cloud, and IBM Cloud. These are massive private networks that carry vast amounts of today’s Internet traffic.

Cookie: information stored on a website visitor’s browser. A cookie tracks the visitor’s movement on the website and is used to remember the visitor’s behavior and preferences and to serve targeted advertisements. These do not transfer across browsers.

Commercial Mobile Service: a radio communication service carried on between mobile stations or receivers and land stations that is provided for profit and makes interconnected service available to the public or to such classes of eligible users as to be effectively available to a substantial portion of the public.

Common Carrier: an entity that provides telecommunications services, by wire or radio such as voice telephone service, for a fee, to the general public, as opposed to a limited group of customers. Common carriers are regulated to varying degrees by the FCC under Title II (common carriers) of the Communications Act of 1934.

Common Carrier Exception: Section 5(a)(2) of the FTC Act exempts communications common carriers from FTC's jurisdiction.

Compulsory License: the statutory authorization to use the intellectual property without permission of the copyright holder.

Cybersecurity: the process of protecting information and ensuring the reliability and resiliency of services and underlying infrastructure from cyber attacks. The process includes preventing, detecting, and responding to attacks on and unauthorized intrusions in and access to, among other things, computers, servers, electronic systems, networks, and databases

Data Management Platform (DMP): a platform used for collecting, organizing, and managing data primarily for digital marketing purposes. DMPs collect and organize data from a variety of data sources and then share the information with other platforms such as DSP, SSPs, and ad exchanges to be used for targeted advertising, personalization, and content customization.

Data Portability: allows users to download or merge their personal data between different application programs, computing environments, or cloud services providers. For example, users can combine their contacts, messages, or photos on social networking platforms such as Facebook, LinkedIn, and Twitter. While there are some privacy concerns with this feature, companies such as Facebook, Google, Microsoft, and Twitter are participating in the Data Transfer Project, an open-source initiative which features data portability between multiple online platforms, to find ways to protect and promote consumers interests.

De-Identified Data: the process used to prevent a person's identity from being connected with information to protect their privacy. Identifiers that are commonly removed to make information de-identified include: names, dates, telephone numbers, social security numbers, and addresses. A common de-identification technique for hiding personally identifiable information (PII), is to use a one-way cryptographic function, also known as a hash function.

Demand Side Platforms (DSPs): allow buyers of digital advertising inventory to manage multiple ad exchange accounts through one interface. They are frequently used by marketers to buy ad impressions from exchanges as cheaply and efficiently as possible.

Direct Broadcast Satellite (DBS): geostationary satellites used by providers to offer video and other communications services to subscribers via residential satellite dishes.

Edge Computing: edge computing or multi-access edge computing (MEC) is essentially a cloud-based service environment at the edge of the network. MEC is a computing and network architecture that brings real-time, high-bandwidth, low-latency access to latency dependent applications are distributed at the edge of the network, close to uses and applications that use them.

Edge Provider: A person or entity that provides content, applications, or services (such as a website) to end-users over the Internet. Examples include Amazon, Facebook, Wayfair, Netflix, HBO Now, and TripAdvisor.

Firewall: a network security device that monitors incoming and outgoing network traffic and decides whether to allow or block specific traffic based on a defined set of security rules. The firewall can be hardware, software, or both.

General Data Protection Regulation (GDPR): a European data protection and privacy regulation that aims to give individuals control over their personal data. It applies to all individuals within the European Union and the European Economic Area as well as the export of their personal data outside these areas. The GDPR places obligations on "data controllers" and "data processors," requires affirmative consent from consumers for the collection and use of their personal

data, and grants data subjects located in the EU rights of access, correction, and portability for their personal data.

High, Mid and Low Band Spectrum: low-band spectrum is typically considered to be below 2 GHz. Low band signals propagate farther and will penetrate most structures, which affords low band spectrum an advantage with respect to coverage, but capacity is generally limited because it has been licensed in small bandwidths. High-band spectrum is generally considered to be above 24 GHz. It does not travel as far and has difficulty penetrating buildings, but because it is licensed in wide frequency bands, it can move large volumes of data at very high speeds. Mid-band spectrum is typically considered to be between 2 GHz and 24 GHz. Mid-band spectrum below 6 GHz has propagation characteristics that are more similar to low band spectrum, and if made available in large, contiguous blocks (to enable greater capacity) can combine the benefits of low- and high-band spectrum.

Incentive Auction: an auction method the FCC uses to repurpose spectrum for new uses, such as repurposing broadcast spectrum to 5G, through market forces. It consists of two parts: a reverse auction, which allows incumbent license holders to offer their spectrum for sale; and a forward auction, which will determine the price that prospective new licensees are willing to pay for that spectrum. Broadly speaking, the difference between the price paid to incumbents and the price paid by prospective licensees is deposited in the General Fund of the U.S. Treasury.

Information Service: a service that offers a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications, and includes electronic publishing, but does not include any use of such capability for the management, control, or operation of a telecommunications system or the management of a telecommunications service. Under federal law, (Title I of the Communications Act) providers of information services are subject to minimal regulation and may not be treated as common carriers.

Interconnection: also called “traffic exchange” or “peering,” interconnection refers to the various ways in which networks connect with each other and exchange IP traffic. Interconnection has long been based on private arrangements between multiple network providers, including Internet Service Providers (ISPs), content distribution networks (CDNs), and transit providers. Many networks interconnect without any exchange of money (referred to as “settlement-free” interconnection). Interconnection for networks that carry significant traffic is often subject to commercial agreements that can involve monetary consideration from one interconnecting party to the other (sometimes referred to as “paid peering” agreements).

Internet: the term used to describe the vast worldwide network of interconnected communications networks that interconnects billions of computing devices around the world.

Internet Service Providers (ISPs): a provider of a service by wire or radio that provides the capability to transmit data to and receive data from all or substantially all Internet endpoints.

Interoperability: the ability of platforms and software to connect with other devices to exchange information or resources. Interoperability is commonly achieved through Application Programming Interfaces that allows outside developers to interact with existing software and can include allowing third-party apps to verify a user’s identity, or access their data.

Intellectual Property: distinct and clearly definable ideas where the rights are recognized under patent, trademark, or copyright law.

Intermediary Liability: indirect legal responsibility, as when various online platforms platforms such as Facebook, Google, Twitter, and Wikipedia are sought to be held legally responsible for the content and activity of their users.

JavaScript Object Notation (JSON): a text-based, human-readable data interchange format used for representing simple data structures and objects in Web browser-based code. It is used across a variety of formatting and data websites.

Latency: the time it takes for a packet of data to be sent to and retrieved from a destination on a network. This round-trip time is often referred to as RTT and is measured in milliseconds. The lower the latency, the shorter the delay.

Metadata: data that describes and gives information about other data. For example, it may describe how large the picture is, the color depth, the image resolution, the date a file was created, and the file's size.

Mobile Network Operator (MNO): a provider of wireless communications services that owns or controls all the elements necessary to deliver services to end-users, such as facilities and spectrum. Examples include AT&T, Verizon, T-Mobile, and Sprint.

Mobile Virtual Network Operator (MVNO): a wireless communications service provider that does not own the wireless network infrastructure over which the MVNO provides services to its customers, or hold spectrum licenses. An MVNO is the product of a negotiated arrangement between the MVNO and one or more MNOs. Some cable operators are using these arrangements to offer wireless services to their subscribers.

Multichannel Video Programming Distributor (MVPD): an entity that makes available multiple channels of video programming available to subscribers. Examples include cable operators and television providers, such as Comcast, Verizon Communications, Charter, or Cox, and DBS video providers, such as DISH and AT&T's DirecTV. MVPDs are regulated to varying degrees under the Communications Act.

Multi-homing: a strategy where a developer publishes products for multiple platforms. Alternatively, in advertising markets, consumers may also use services from more than one publisher. Often this creates inefficiency in the process of matching advertisers to consumers because advertisers either reach too many consumers or do not reach enough.

Net Neutrality: the idea that consumers should be able to access the lawful online services, applications, and content of their choice without improper interference. Most ISPs have publicly committed to core net neutrality principles in their provision of broadband internet access services, including no blocking, no throttling, and no unreasonable discrimination. The FCC requires ISPs to disclose, among other things, information about the rates, terms, conditions, network management practices, and performance of their broadband internet access services sufficient to enable consumers to make informed choices about whether to buy and how to use such services, as well as to enable edge providers to develop, market and maintain Internet offerings.

Network Non-Duplication: the rules that protect a local commercial or non-commercial broadcast television station's right to be the exclusive distributor of network programming within a specified zone, and require programming subject to non-duplication rules to be latched out on request when carried on another station's signal imported by an MVPD into the local station's zone of protection. A television station's rights under the network non-duplication rules are governed by the terms of the contractual agreement between the television station and the holder of the rights to the program

Network Slicing: seen as one of the key features for 5G, allowing vertical industries to take advantage of 5G networks and services. Network slicing is about transforming a network from a single network to a network where logical partitions are created, with appropriate network isolation, resources, optimized topology and specific configuration to serve various service requirements. A network slice is viewed as a logical end-to-end network that can be dynamically created, where each slice may serve a particular service type with agreed upon Service-level Agreement (SLA).

News Feed: shows activity updates such as status updates, photos, videos, and links from one's friend list on the social networking site, Facebook.

Online Video Distributors ("OVD")/ "Over-the-Top" ("OTT") Providers: firms, such as Netflix, Hulu, and Amazon, that provide streaming video programming on a subscription basis over an Internet connection. To date, such entities have not been classified as MVPDs and are not subject to MVPD fees or regulations.

Opt-in: the process whereby a user gives affirmative consent to certain actions -- for example, to agree to renew a subscription, or, in the privacy context, to consent to the collection of personal information or online usage information.

Opt-out: the process whereby user consent for a particular action is assumed and a user must take action to withdraw their consent, such as unchecking a box or clicking an unsubscribe link.

Patents: an exclusive right or rights granted by a government to an inventor for a limited time period in exchange for the public disclosure of an invention.

Personally Identifiable Information (PII): information that can be used on its own or with other information to identify, contact, or locate a single person.

Platforms: a technology-enabled business model that allows users to connect to it and interact with it and each other. There are different types of platforms, such as social platforms, marketplace platforms, or crowd-sourcing platforms. Examples include Google Search, Facebook, Amazon Marketplace, iOS, Android, Windows Phone, Uber, AirBnB, Waze, and WeWork.

Pixel: the small dots that compose images on computer displays or monitors. Depending on the size of the monitor, the quantity, size, and color combination of the pixels will vary.

Phishing: using social engineering techniques to lure email recipients and web users into giving out information that reveals their personal identity such as credit card numbers, personal identification, and account usernames and passwords.

Pseudonymous Data: a data management procedure by which personal identifiable information fields are replaced by one or more artificial identifiers.

Retransmission Consent: a regime that requires cable operators and other MVPDs to obtain permission from broadcasters before carrying their programming. Every three years, broadcast stations must select between carriage pursuant to “must-carry” (which requires a cable operator to carry the broadcaster station’s signal, but without compensation in return), or “retransmission consent” (which requires a cable operator or MVPD to negotiate with the station for the right to carry its programming, typically in return for compensation- either monetary or in exchange for carriage of other programming, or both).

ROW Access Fee: a fee charged by government entities to communications and utility providers for access to the public rights-of-way. Fees can be “cost-based,” i.e., based on the cost to the government of the use, “market based,” i.e., based on the property’s market value, or otherwise determined.

Search Engine Optimization (SEO): the process of increasing the quantity and quality of traffic to a website through organic, non-paid search engine results including Google, Bing, and Yahoo. Typically, the earlier and more frequently a website appears in the search results list, the more visitors it will receive. SEO may target different kinds of searches such as an image search, video search, academic search, news search, or industry-specific vertical search engines.

Section 230: Section 230 is a common name for Title V of the Telecommunications Act of 1996, which provides that “no provider or user of an interactive computer service shall be treated as the publisher or speaker of any information provided by another information content provider.” The effect of this provision is to provide immunity to a range of firms from intermediary liability for the content or activities of third-party users of those firms’ platforms or services.

Server: a computer, device, or program used to manage network resources. It also can share data or resources for other programs or devices. Examples include: web server, application server, print servers, file servers, network servers, mail servers, and database servers.

Social Ads: ads that run on social media platforms, such as Twitter, LinkedIn, or Facebook.

Software Development Kit (SDK): a complete set of software development tools, libraries, relevant documentation, code samples, processes, and guides that can create applications or models for a software package, hardware platform, computer

system, operating system, or video game console.

Satellite Television Extension and Localism Act Reauthorization (STELAR) Act: The Satellite Home Viewer Act of 1988 created a distant signal compulsory/statutory license for satellite carriers in order to permit them to reach certain markets. The 1988 Act included a six-year sunset for the compulsory/statutory license, which was reauthorized in 1994, 1999, 2004, 2010 and, most recently in 2014 by STELAR. These periodic reauthorization bills have also addressed program carriage issues such as retransmission consent. The current STELAR reauthorization expires on December 31, 2019.

Supply Side Platform (SSP): an advertising technology platform used to sell advertising on websites and mobile apps in an automated and efficient way. SSPs are often used by online publishers to help them sell display, video, and mobile advertisements. SSP interfaces on the publisher side to advertising networks and exchange, which then interface to DSP on the advertiser side.

Syndicated Exclusivity: the syndicated exclusivity rules allow a local commercial broadcast television station or other distributor of syndicated programming to protect its exclusive distribution rights within a 35-mile geographic zone surrounding a television station's city of license, although the zone may not be greater than that provided for in the exclusivity contract between the station and syndicator.

Telecommunications: the transmission of information between or among points specified by the user, of information of the user's choosing, without change in form or content.

Telecommunications Carrier: providers of telecommunications services are treated as a common carrier under the Communications Act of 1934 only to the extent that they are engaged in providing telecommunications services.

Telecommunications Service: a service that offers telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used.

Two-Sided Platforms: platforms that connect two groups of people for economic purposes, for example homeowners and renters. Examples include Apartments.com, eBay, American Express, Facebook, LinkedIn, Match.com.

Unlicensed Spectrum: spectrum in which any service can be deployed without a specific license from the FCC as long as it follows the applicable technical rules, which are usually power restrictions. Some common examples of services operating on unlicensed spectrum include Wi-Fi, Bluetooth, microwave, and baby monitors.

The Universal Service Fund (USF): The USF provides subsidies to promote universal access to broadband and telecommunications services in the U.S. Federal USF rules are established by the FCC. Telecommunications companies and interconnected VoIP providers are required to contribute into the fund based on their interstate telecommunications revenues but are allowed to recover this contribution from their customers. Funding is distributed through several programs such as the Connect America Fund which funds rural broadband deployment, the Lifeline program, the E-rate program (which subsidizes discounted connectivity for schools, and libraries) , and the Rural Healthcare program. In addition to the federal USF, many states maintain their own funds.

Voice over Internet Protocol (VoIP): the transmission of voice and multimedia content over Internet Protocol networks, rather than through traditional non-IP telephone networks.

Wi-Fi: a form of wireless connectivity using unlicensed spectrum that allows devices to connect to the Internet or a home or work network. Devices can pick up the wireless signal from a hub, such as a router, over short distances.

Zip targeting: the practice of customizing and delivering an advertisement to a specific market based on the geographic location of the targeted users.