GLOSSARY

Trending terms in the communications space

4G/LTE: long-term evolution (LTE) is the last step toward the development of the fourth-generation (4G) standard designed to increase the capacity and speed of mobile telephone networks. LTE supports scalable carrier bandwidths as well as both frequency-division duplexing and time-division duplexing.

5G: the fifth generation of wireless broadband technology based on the IEEE802.11ac standard, expected by 2020. 5G will increase network expandability up to hundreds of thousands of connections. 5G has greater coverage and speeds in addition to improved spectral and signaling efficiency. 5G technology will enable further changes like the Internet of Things (IoT).

Artificial intelligence (AI): the simulation of human intelligence processes by machines, especially computer systems. These processes include learning (the acquisition of information and rules for using the information), reasoning (using rules to reach approximate or definite conclusions) and self-correction.

Big data: any voluminous amount of structured, semistructured and unstructured data with the potential to be mined for information.

Centralized-RAN (C-RAN) topology: leveraging fiber's huge signal-carrying capacity for fronthaul, this topology centralizes multiple baseband units (BBUs) in one location, at a cell site or at a centralized BBU pool location. This simplifies the amount of equipment needed at each individual cell site and yields lower latency.

Data center: a physical infrastructure housing computing equipment like rackmount servers, routers, switches, and structured cabling, as well as supporting components for data backup and cooling.

Distributed antenna system (DAS): a network of spatially separated antenna nodes connected to a common source via a transport medium that provides wireless service within a geographic area or structure.

Ethernet: protocol for data networking. Ethernet networks typically operate at 10, 100 or 1000 Mbit/s.

Fiber deep: industry trend in which cable TV operators deploy fiber ever closer to customers to provide them with better service.

Fiber-to-the-x (FTTx): the x is a variable indicating the point at which the fiber in a network stops and copper cabling takes over. Common examples include fiber-to-the-home (FTTH), fiber-to-the-curb (FTTC) and fiber-to-the-antenna (FTTA).

Internet Cloud: it typically involves the provision of dynamically scalable and often virtualized resources as a service over the Internet.

Internet of Things (IoT): the ever-growing system of interconnected devices, and physical objects at large, that feature an IP address for Internet connectivity and the ability to transfer data over networks without requiring any human interaction.

Latency: the delay from input to desired output. Network latency, which encompasses Internet latency, is often measured in the time taken for a packet of data to get from one designated point to another.

Machine learning: an application of artificial intelligence giving systems the capability to automatically learn and improve from experience. Machine learning focuses on the development of software that can access and input data to predict an output via statistical analysis.

Mobile backhaul: a mobile backhaul network refers to the wireless communications system used to get data from the base station to the controller of the base station in a major wireless network.

Network functions virtualization (NFV): the implementation of network functions in software that can run on a range of generic server hardware, and that can be instantiated in various locations in the network, without the need for installation of new equipment.

Network operations center (NOC): a site from where administrators supervise, monitor and maintain a telecom network. The NOC is the focal point for network troubleshooting, software distribution and updating, router and domain name management, performance monitoring and coordination with affiliated networks.

Radio access network (RAN): connects individual devices to other parts of a network through radio connections. 3G and 4G network connections for mobile phones are examples of radio access networks.

Radio frequency (RF) technology: uses wireless electromagnetic signals as a form of communication. The signals are in the radio wave frequency bands. In addition to fiber infrastructure and small cell deployment, the path to 5G goes through high-frequency radio waves to ensure reliability and low latency.

Service assurance (SA): set of procedures aiming to optimize performance and provide actionable insights into communications networks. Service assurance is an overarching solution that ensures that the service-level agreements (SLAs) are met in terms of the quality of service (QoS) and the quality of experience (QoE) delivered to subscribers.

Service operations center (SOC): a transverse service- and customer-focused operational unit. A SOC proactively monitors the quality of key services such as VoLTE, USSD, video quality, web browsing, international and emergency calls from the subscriber viewpoint and triggers alerts in case of quality degradation.

Software-defined networking (SDN): an approach to networking in which the control plane (part of a network that carries signaling traffic and is responsible for routing) is centralized and decoupled from the physical infrastructure or data plane, hence allowing network administrators to support a network fabric across multivendor equipment.

Small cell: low-powered radio access nodes that operate in licensed and unlicensed spectrum and have a range of only 10 meters to 1 or 2 kilometers.

Spectral analysis: or spectrum analysis is the detection, measurement and analysis of a spectrum of frequencies/signals.

Spectrum:

Low-band - currently used for 2G, 3G and 4G services for voice, MBB services and IoT. Newly allocated spectrum for mobile networks include the 600 MHz and 700 MHz bands. These bands are ideal for wide area and outside-in coverage as well as for deep indoor coverage.

Mid-band - currently used for 2G, 3G and 4G services. New spectrum has been widely allocated in the 3.5 GHz band. Bandwidths of 50 megahertz to 100 megahertz per network will enable high-capacity and low-latency networks ideal for 5G use cases and for critical IoT applications. With better wide area and indoor coverage than high-band spectrum, mid-band spectrum is an optimal compromise between coverage, quality, throughput, capacity and latency. Combining the mid-band spectrum with low-band spectrum leads to exceptional network improvements.

High-band - the anticipated leap in data speed, capacity, quality and low latency promised by 5G. New spectrum bands are typically in the range 24 GHz to 50 GHz, with contiguous bandwidths of more than 100 megahertz per network. High-band spectrum is the opportunity for very high throughput services for eMBB, localized deployments and low latency use cases both for indoor and outdoor deployments.

Virtualized networks: networks able to simulate hardware functionality in software as a virtual instance, which is supported on generic host hardware.

Webscale operators: companies such as Google, Amazon, Netflix or Facebook that leverage new cloud-based processes and architectures to achieve extreme levels of agility and scalability.