

# Glossary of technical terms and abbreviations



**2G, 2.5G:** Mobile systems predating 3G. For 2G, they include GSM, and for 2.5G, GPRS and EDGE.

**3G:** Third-generation mobile system. The gradual introduction of packet switching technology into mobile networks allows 3G networks to provide access to a wide range of new services, particularly high-speed Internet access.

**Access network:** Network to which users directly connect their terminal equipment in order to access services. (See “Core network”.)

**Accounting rates:** System establishing the pricing principles to be used in interconnection agreements between international operators so that an operator in the country of origin and an operator in the country of destination may share international call revenue when cooperating to route international traffic. For calls to a given international destination, the operator in the country of origin sets the price charged to users (the retail price), which is called the collection rate. At the same time, this operator and the operator in the country of destination negotiate a per-minute accounting rate. Revenue is shared based on this rate according to a sharing formula that determines the portion (settlement rate) accruing to the operator in the country of origin and that accruing to the operator in the country of destination. This portion usually is equal to half of the accounting rate.

**ADSL (Asymmetrical Digital Subscriber Line):** ADSL is part of the xDSL technology family. It is designed to enhance the performance of access networks and in particular the subscriber's copper pair in the conventional telephone network. Use of two modems, one at the subscriber premises and the other on the subscriber line termination at the MDF allows for a significant improvement in the network bit rate, to reach speeds up to 70 times faster than with a conventional analogue modem. The principle underlying ADSL involves reserving one part of the bandwidth for voice transport, another for data transport in the direction of the core network (upstream data), and more importantly yet another part for data transport toward the subscriber (downstream data). Filtering at both ends of the line ensures acceptable voice quality by removing the unnecessary parts of the signal. ADSL technology is particularly well suited to the local loop since the throughput it supports diminishes with distance. It is relatively inexpensive and therefore is an attractive solution for broadband Internet access.

**AFA (Association des Fournisseurs d'Access à Internet):** French association of Internet service providers.

**ANFr (Agence Nationale des Fréquences):** Agency responsible for managing the radio frequency spectrum, allocating frequencies to the various government departments and independent authorities that assign them (ARCEP, CSA, the Ministry of Defence, etc.), handling interference, and conducting international spectrum negotiations.

**ATM (Asynchronous Transfer Mode):** Technique for the asynchronous transfer of digital broadband communications using short, fixed-length packets. ATM allows for superfast data transmission and the optimal use of line capacity, and is particularly well suited to broadband multiservice networks. This type of transmission is especially useful for optimising the core network. Using ATM in the core network is attractive because the technology responds to increased traffic levels by optimising allocated resources and offers a guaranteed quality of service.

**Bandwidth:** This denotes the transmission capacity of a transmission link. It determines the amount of information (in bps) that can be transmitted simultaneously. In computing, it is often confused with the transfer rate of a communication link, expressed in bits per second.

**BAS (Broadband Access Server):** Equipment whose function is to manage ATM data transport for ADSL-based Internet access offerings. Each BAS in the France Telecom network aggregates ATM traffic from about ten DSLAMs. Thus, a BAS manages traffic for all ADSL lines in the coverage area of the DSLAMs to which it is connected. France Telecom calls the area covered by a BAS a plaque (coverage area). Two ATM circuits, one "upstream" and the other "downstream", are established between each connected customer and the BAS serving that customer.

**Beauty contest (comparative selection):** Method of operator selection to award scarce resources. It is different from an auction in that it allows candidate selection to be based on multiple criteria and not just on price offered.

**Bit rate:** Amount of data transiting a network within a given timeframe.

**BSC (Base Station Controller):** GSM base station controller. Equipment that controls one or several BTSs and manages radio resources.

**BTS (Base Transceiver Station):** GSM equipment comprising transmitters and receivers and constituting the interface between the BSC and mobile terminals.

**CAA (Commutateur à Autonomie d'Acheminement):** Local exchange (exchange to which subscribers are connected) on the France Telecom telephone network. The structure of the France Telecom network is hierarchical and the CAA is the lowest-ranking exchange in the network. Thus, there are two types of exchange: subscriber exchanges (the CAAs) at the bottom of the hierarchy to which subscribers are linked via a subscriber line unit (called a *unité de raccordement d'abonné* or URA), and transit exchanges (CTs) at the top of the hierarchy.

**Cable networks:** This term denotes today's audiovisual distribution networks that offer electronic communication services.

**Callback: A calling process that operates as follows:** the user dials a number in the country operating the callback; since the call is not actually set up, there is no charge; an automatic device calls back the user, setting up the call on an international line; the user then dials the number of the called party; the call is billed at the tariff charged by whatever foreign operator is selected. This system thus enables users to take advantage of tariffs in the called country.

**Carrier selection:** Option given to customers to choose among multiple carrier operators. Carrier selection applies to all calls (local, national long distance and international long distance). It can be exercised per call or by subscription.

**CCR (*Commission Consultative des Radiocommunications*) and CCRSCE (*Commission Consultative des Réseaux et Services de Communications Electroniques*):** Respectively, the Consultative Committee for Radiocommunications and the Consultative Committee for Electronic Communication Networks and Services, which are advisory committees to the telecommunications minister and the Authority.

**Circuit:** Bi-directional link between two terminal units over which a connection-mode service can be provided.

**Colocation:** Under France Telecom's standard interconnection offer, physical interconnection is possible using three different techniques:

- Colocation: The operator installs its equipment at France Telecom's premises.
- Interconnection link: France Telecom installs its equipment at the operator's premises.
- In-span interconnection: a solution halfway between these methods of connection, where the connection point is located, for example, in the public domain.

For purposes of local loop unbundling, colocation consists of supplying the space and technical resources necessary to host and connect the technical equipment of alternative operators.

**Convergence:** This term is used to denote two distinct phenomena:

- Convergence of the broadcast and telecommunications sectors, made possible by technological advances that allow different media (cable networks, terrestrial or satellite wireless networks, computer terminals and television sets) to be used to transport and process all types of information and services involving sound, images and data; since it

derives from technological disruption (the digitisation of information), convergence has both economic and regulatory implications.

-Fixed-mobile convergence, involving the harmonisation of technologies used for, and services offered via, fixed and mobile telephones. For operators, this type of convergence opens up the possibility of offering all users the same services regardless of the technologies and networks used.

**Core network:** The core or backbone network, consisting of all transmission and switching infrastructure beginning with the local exchange.

**CPCE (*Code des Postes et des Communications Electroniques*):** French postal and electronic communications code.

**CRIP (*Comité des Réseaux d'Initiative Publique*):** Committee for public-initiative networks. A committee reporting to the ARCEP Executive Board. It comprises local government representatives and operators and is charged with defining success criteria for local authority projects focused on digital development in the regions.

**CSA (*Conseil Supérieur de l'Audiotvisuel*):** French national broadcasting authority.

**CUG (*Closed User Group*):** A CUG is an independent network for shared or private use. When the network is reserved for the use of the individuals or corporate entities that established it, it is called private, and when it is reserved for the use of multiple individuals or corporate entities organised as one or more closed user groups for purposes of exchanging communications internal to the group, it is called shared. The Authority has clarified this definition by indicating that a CUG is understood to be a group based on a community of interest that is stable enough to be identifiable and which predates provision of the telecommunication service. The notion of a "closed user group" is not limited to independent networks but is used also to define, for example, a virtual private network on a public network.

**Direct interconnection:** Also known as call termination service. For an operator, this consists of terminating a call to a France Telecom subscriber. The call is routed by the operator to the interconnection point; from that point, it is carried by France Telecom over the France Telecom network to the subscriber's customer premises equipment.

**DSLAM (*Digital Subscriber Line Access Multiplexer*):** One of the devices used to convert conventional telephone lines into ADSL lines for broadband data transmission, particularly for Internet access. The DSLAM is installed on the main distribution frame of the local operator's network. It combines several ADSL lines onto a single medium, which routes data to and from these lines.

**DTT:** Digital Terrestrial Television.

**EDGE (Enhanced Data rate for Global Evolution):** EDGE is a third-generation mobile standard allowing data to be transferred at 384kbps. It evolved from the GSM and American TDMA standards.

**Exchange:** Switching equipment permitting calls to be directed to their destinations by establishing a temporary connection between two circuits on a telecommunications network or by routing information organised as packets. France Telecom's network comprises a hierarchical system of switches. The higher the exchange is in the system, the greater the number of subscribers it serves.

**Flat-rate interconnection:** Denotes an offer for interconnecting third-party operators with the France Telecom network. Under it, the fees that third-party operators pay for the collection of local loop traffic are fixed on a per-circuit basis rather than billed per minute.

**GPRS (General Packet Radio Services):** Packet switching system (see "Switching") enabling enhanced data rates over GSM networks.

**HDSL (High-speed DSL):** Bi-directional symmetrical transmission technique conceived primarily for business applications. This technology achieves bit rates of 2Mbps over distances of up to 2500m.

**HLR (Home Location Register):** Central database of permanent subscriber information for a mobile network.

**HSCSD (High-speed Circuit Switched Data):** Circuit-switched data system (see "Switching") allowing improved bit rates on GSM networks.

**IMT-2000 (International Mobile Telecommunications 2000):** Third-generation mobile systems supporting enhanced mobility services thanks to the introduction of new functionality. The ITU selected five terrestrial radio interfaces for third-generation mobile systems under the designation IMT-2000. UMTS was one of the five.

**Interconnection:** The linking of various telecommunication networks so that any subscriber of one operator may communicate with any subscriber of any other operator.

**Interconnection agreement:** Private contract negotiated and signed by two operators to determine, on a case-by-case basis, the terms and conditions of interconnection between them. Generally, agreements signed with an operator that has significant market power are based on that operator's standard interconnection offer. Otherwise, the conditions are determined without reference to a standard interconnection offer.

**Indirect interconnection:** Also known as call-collection service, in which an alternative operator collects a call from a France Telecom subscriber. The subscriber dials a prefix to select the operator and the call is then carried by France Telecom from the subscriber's customer premises equipment to the point of interconnection, where the call is then carried by the alternative operator.

**Interconnection interface:** The set of technical specifications necessary for the operational implementation of interconnection based on establishing dialogue between networks. It defines physical interconnection arrangements, services and advanced functions accessible by the networks concerned, the ordering mechanism for these services, and associated billing and operating arrangements.

**Internet:** A group of variable-sized networks interconnected by the Internet protocol (IP) over which a wide range of services can be provided.

**Interoperability:** Also called interworking. Service interoperability refers to the seamless functioning of various services on different networks. With respect to interconnection, the technical functionality available at the interconnection interface determines partly whether a service will interoperate between different operators.

**IP (Internet Protocol):** Telecommunications protocol that is used by the networks that support the Internet. It allows information to be packetised for transmission and the various packets to be addressed, transferred independently of one another, and reassembled into the original message on arrival. The switching technique therefore is referred to as packet switching. For Internet use, it is associated with a data transmission control protocol called TCP (Transmission Control Protocol); it is therefore known as the TCP/IP protocol.

**IP address:** Address identifying equipment connected to the Internet network.

**ISP:** Internet Service Provider.

**LLO (Local loop operator):** Telecommunications company that operates subscriber lines.

**Local loop:** The wired or wireless facilities between the subscriber terminal and the local exchange to which the subscriber is connected. The local loop therefore is the part of an operator's network that provides direct access to the subscriber.



**Local loop unbundling:** Local loop unbundling, also known as unbundled access to the local network, consists of allowing new operators to use the incumbent operator's local copper-pair network to serve their subscribers directly. The new entrant of course pays the incumbent for use of the local network.

**Long distance carrier:** Telecommunications company which transports national and/or international long distance communications.

**Main distribution frame (MDF):** Apparatus that connects subscriber copper pairs to the cables that connect to the local exchange. It allows several subscriber lines to be concentrated onto a single cable.

**MSC (Mobile Services Switching Centre) and VLR (Visitor Location Register):** On GSM and/or UMTS networks, the MSC is the exchange that manages incoming and outgoing circuit-switched calls. The switch is linked to a database (VLR) containing a copy of the user profile and terminal or handset location information.

**NAS (Network Access Server):** Equipment used by operators to provide Internet access services over the switched telephone network. An NAS converts telephone calls into IP data streams and thus provides the interface between the switched telephone network and the IP data transport network.

**Network:** Totality of telecommunication resources employed including all switches and transmission links, whether wireline (metallic pair or cable or fibre optic cable) or wireless (terrestrial or satellite using electromagnetic waves).

**NRA:** National regulatory authority.

**On-net and off-net calling:** Respectively, calls between two customers of the same mobile network and between two customers of different mobile networks.

**PMR (Professional Mobile Radio):** Mobile radio networks for business users. In France the following distinctions are made:

- 3RP (Réseaux Radioélectriques à Ressources Partagés): trunked private mobile radio network.
- 3RPC (Réseaux Radioélectriques à Ressources Partagés Commerciaux): trunked public access commercial mobile radio networks using 3RP technology;
- RPN (Radiocommunications mobiles Professionnelles Numériques): digital trunked Professional Mobile Radio networks using Tetra or Tetrapol technology.

- 2RC (Réseaux à usage partagé à relais Commun): trunked private mobile radio networks for commercial purposes.
- 3R2P: 3RP networks operated for the user's private purposes.
- RPX: local trunked networks (new category of network).
- RPS (Radio Professionnelles Simplifiées): Short-range business radio.

**Radio interface:** System enabling a mobile terminal to communicate with the network. Standardisation of the UMTS interface was the subject of numerous discussions within ETSI during 1997. On 29 January 1998, the SMG (Special Mobile Group) committee adopted the UTRA (UMTS Terrestrial Radio Access) standard for the terrestrial interface (as opposed to the interface for satellite). The UTRA standard is a compromise between two originally competing standards: WCDMA and TD/CDMA. UTRA was adopted by the ITU in March 1999 as a radio interface standard for IMT-2000.

**SCS (*Société de commercialisation de services*):** A term specific to the mobile sector, designating a mobile communications service provider, a company that sells and manages mobile subscriptions on behalf of an operator.

**Short messages or SMS (*Short Message Service*):** These messages are transmitted over the GSM mobile network signalling channels and have a maximum length of 160 characters. Transmission of these messages on the GSM network is standardised. A short-message server integrated into the mobile network provides the interface between the mobile and fixed-network environments.

**Signalling:** On a telecommunication network, the signalling function performs the exchange of information internal to the network for purposes of call routing. Just as road signs on a roadway network direct the movement of vehicles, signalling information directs the movement of communications on the telecommunications network. This could involve, for example, the information necessary to recognise the caller for purposes of setting up call billing or displaying the calling number. This function can be provided directly by the network transporting the subscriber call. Thus, it is generally integrated into the switches. It can also be performed by a separate network, called the signalling network.

**SIM (*Subscriber Identity Module*):** Smartcard inserted into a mobile terminal and containing the subscriber data required to authenticate a user on the network.

**SIM (*Subscriber Identity Module*) card:** Subscriber and value-added services card (GSM standard).

**SMP (significant market power) operator:** An operator has significant market power (SMP) if, individually or jointly with others, it commands a position equivalent to a dominant position, i.e., it has considerable ability to behave without regard to its competitors, its customers and ultimately, consumers.

**SMS (Short Message Service):** See "Short Messages".

**SNG:** Satellite newsgathering, refers to ground stations for temporary satellite video links.

**Standard interconnection offer:** Also known as the interconnection catalogue. Technical and commercial interconnection offer that operators designated by the Authority as having significant market power, pursuant to Article L.3-8 of the CPCE (the postal and telecommunications code), are required to publish annually so that other operators may establish their own commercial offers and prices. The standard interconnection offer also sets forth the conditions governing physical interconnection between the SMP operator and other operators.

**Switching:** In a telecommunications network, switching allows temporary traffic connections to be established between two or more network points. This is carried out by equipment, called switches or exchanges, located at different points in the network. The basic structure of a telecommunications network therefore comprises transmission links interconnected by switches. Packet switching and circuit switching are two switching techniques used in telecommunication networks. The first is used by Internet (IP) networks for example and the second by traditional switched telephony networks.

**Switched Internet:** This refers to Internet access from the France Telecom public switched telephone network, which is used for routing conventional telephone calls.

**Terminal equipment:** Equipment allowing a user to send, process or receive information (e.g., telephone, fax, modem etc.).

**Third-party billing:** Service by which new operators may entrust the incumbent operator with billing for the services they offer their customers via interconnection. In the case of special services, third-party billing can be used for charged services only (not for services that are free to the caller). As this market develops, third party billing becomes essential for effective competition.

**Third-party collection:** In the context of interconnection, a service enabling a network operator to collect traffic from the incumbent's network on behalf of an operator that has no infrastructure in the geographic area concerned. This service is used particularly by telephone operators who

wish to provide their service over an extended area without deploying a network.

**Transmission:** In an electronic communication network, the transmission function transports information from one point in the network to another. The infrastructure supporting transmission may consist of copper or fibre optic cables or may be wireless. (See "Switching".)

**Triple play:** Provision of three services (voice, data and broadband Internet access) over an electronic communication infrastructure.

**URA (*Unité de Raccordement d'Abonné*):** On the France Telecom network, this is the subscriber line unit, the part of the telephone switch where subscriber lines connect and information is digitised.

**VPN (*Virtual Private Network*):** A virtual private network involves the shared use of one or several public networks for the internal purposes of a closed user group, which is defined "as a group based on a community of interest that is stable enough to be identifiable and which existed prior to the provision of the telecommunications service". It responds to a need for both internal communication (communication within the user group) and external communication (communication with public network users). It allows businesses with widely distributed sites to use the operator's network for emulated private network access that employs a numbering plan internal to the company: this emulation provides businesses with the functionality of a private automatic branch exchange (PABX) without requiring the investment .

**VSAT (*Very Small Aperture Terminal*):** Satellite telecommunication service supporting two-way information exchange at low or medium speed via a small transmitter-receiver terminal that uses a narrow part of the total satellite bandwidth.

**WAP (*Wireless Application Protocol*):** Standard that adapts the Internet to mobile telephone constraints, in particular by employing a suitable content format. This communication protocol is a component of the process for gradually migrating GSM mobile networks to the Internet.

**WiFi (*Wireless Fidelity*):** Generic commercial name for IEEE 802.11b wireless local Ethernet network (WLAN) technology operating at 2.4GHz.

**WiMAX (*Worldwide Interoperability for Microwave Access*):** Label certifying the interoperability of IEEE 802.16-standard equipment from different suppliers.

**Wireline network:** Network based on metallic or fibre optic cable infrastructure.

**WLAN (Wireless Local Area Network):** Wireless network operating over a limited area.

**WLL (wireless local loop):** Local loop employing radio technology rather than the copper wire used in today's networks, thereby allowing for greater flexibility in infrastructure deployment.

**WRC (World Radiocommunication Conference):** Its purpose is to ensure international coordination in matters relating to radiocommunication. This coordination is essential because frequencies cross borders and it is simpler to have the same types of services in the same bands. Organised by the ITU, this conference is held every three or four years. The results, once incorporated into radiocommunications regulations, constitute international treaty. Each WRC conference is preceded by a meeting of the Radiocommunications Assembly and is followed by a conference preparatory meeting (CPM), where the groundwork is laid to prepare for the next conference.

**ZAA (*Zone à autonomie d'acheminement*):** Local exchange area. In the France Telecom network, every category of switch is associated with a technical service area which indicates the number of subscribers served by one or more switches at a given level of the network. The ZAA (*Zone à autonomie d'acheminement*) corresponds to the CAA or local exchange, and the ZT (*Zone de transit*) corresponds to the CT or transit exchange (*Commutateur de transit*).

**ZLT (*Zone locale de tri*):** Local sorting area. The local loop operator sends calls to the carrier designated by the calling party only when the calls are destined for called parties outside of the ZLT; it keeps and routes calls internal to the ZLT regardless of the way in which the calling party dials the call. In France, the ZLT generally corresponds geographically to a département.

**ZT (*Zone de transit*):** Transit area. (See "ZAA").

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