

## Guide to Useful Telecoms Risk Assurance Acronyms and Terms

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Acronym	Definition
AAA	Accounting, Authentication, Authorisation. A framework for intelligently controlling access to computer resources, enforcing policies, auditing usage, and providing the information necessary to bill for services. These combined processes are considered important for effective network management and security.
APN	Access Point Name. Gateway between a mobile network and another computer network, frequently the public Internet.
ARPU	Average Revenue Per User. In reality measures revenue per SIM. Alternative measures include Average Revenue per Unique Subscriber ARPS.
BSC	Base Station Controller. A base station controller (BSC) is a critical mobile network component that controls one or more BTSs. Key BSC functions include radio network management (such as radio frequency control), BTS handover management and call setup.
BSI	British Standards Institution. UK National Standards Body. Standardisation, certification, compliance and training organisation.
BSS	Business Support Systems. The components that a CSP uses to run its business operations towards customers. See also OSS.
BTS	Base Transceiver Station. Mobile network transmitting station or cell site in 2G and 3G networks.
Callset	A matrix of test calls and/or events that can be scheduled as an integrated and efficient programme designed to meet defined investigative objectives.
CAMEL	Customised Applications for Mobile Enhanced Logic. Based on IN standards, a framework which provides tools for operators to define additional features for standard GSM and UMTS services.
CDR	Call Detail Record. The billing records that describe particular aspects of a telephone call, message, event or data session. Typically includes date and time of call start, the duration of the call, A- and B-party numbers. May also include additional information about the subscriber or the call, such as cell ID, location, call type, calculated cost, remaining bundle balance and so on.
CODEC	Coder-Decoder. A device or computer program for encoding analogue signals into digital form and decoding digital data streams or signals. Codecs are specific to the signal type being encoded and currently include Adaptive Multi-Rate Wideband, AAC-ELD (Advanced Audio Coding – Enhanced Low Delay) for LTE and VoLTE.
CN	Core Network. Generic term for the central part of a telecommunications network which routes communications across and between networks.
CSP	Communication Service Provider. The term encompasses public and private companies in the telecom (fixed and mobile), Internet, cable, satellite, and managed services businesses.
CSG	Closed Subscriber Group. Groups of mobile network subscribers who can only make calls and receive calls from members within the group. Alternative terminology is Closed User Group.

CSSR	Call Setup Success Rate. The fraction of attempts to make a call that result in a connection to the dialled number. A network performance KPI.
DSL	Digital Subscriber Line. Technology family delivering digital services over telephone line infrastructure, including ADSL, VDSL etc.
EBITDA	Earnings Before Interest Taxes Depreciation and Amortization. An accounting measure used as a proxy for a company's current operating profitability and cash flow. Intended to allow a comparison of profitability between different companies, by discounting the effects of charges which may vary widely due to location, company history, and other factors.
EDGE	Enhanced Data Rates for GSM Evolution. A data transmission standard for mobile networks transitioning from second to third generation.
E-GPRS	Enhanced GPRS. A synonym for EDGE.
EDR	Event Detail Record. See CDR
EIR	Equipment Identity Register. Database of valid IMEIs for subscribers on a mobile network, forming part of the AAA.
eNodeB	Evolved Node B. 4G mobile networks base station that controls the mobiles in one or more cells.
EPC	Evolved Packet Core. The core network of 4G mobile network, consisting of MME, S-GW and P-GW.
ETSI	European Telecommunications Standards Institute. Regional standardisation committee. Not an EU body.
E-UTRAN	Evolved UMTS Terrestrial Radio Access Network. Technology employed for radio communications in a 4G mobile network.
GGSN	Gateway GPRS Support Node. Device within a GSM network that connects the telco's packet-switched network to other networks, usually the Internet. Equivalent to P-GW in 4G networks.
GPS	Global Positioning System. Satellite-based location-finding service that uses a constellation of low-earth-orbit satellites that transmit accurate timing data to GPS receivers on or near the earth's surface. Receivers use the differential in received timing data along with prior knowledge of satellite trajectories to calculate accurate three-dimensional position, speed, heading and time information. Run by the US government and currently free for global civilian use, alternatives include GLONASS (Russia), NAVIC (India), BeiDou-2tf (China) and Galileo (Europe).
GSM	Global System for Mobile Communications. A second-generation (2G) cellular technology.
HLR	Home Location Register. Central database of network subscriber information in 2G and 3G networks. Superseded by HSS in 4G networks.
HSS	Home Subscriber Server. A centralised database of network-level subscriber data combined with AAA functionality in the EPC of a 4G mobile network. Functions include mobility management, call and session establishment support, user authentication, and access authorisation. Combines the 2G and 3G network functions of the HLR and Authentication Centre (AuC).
IMEI	International Mobile Equipment Identifier. The serial number assigned to a particular piece of mobile equipment. Compare IMSI.
IMSI	International Mobile Subscriber Identity. The serial number assigned to a particular mobile subscriber. Compare IMEI.
IN Platform	Intelligent Network. Allows operators to differentiate themselves by providing value-added services in addition to the standard telecom services. The intelligence for the IN value added services is provided by network nodes on the service layer, which is distinct from the switching layer of the core network,

	historically used to provide telecoms network services.
IoT	Internet of Things. The internetworking of physical "connected devices" and "smart devices" embedded in vehicles, buildings and other machines. Electronics, software, sensors, actuators, and network connectivity enable these objects to collect and exchange data and controls.
IP	Internet Protocol. The underlying "language" spoken by the vast majority of computers attached to the internet and / or private networks. Two versions are currently in use – IPv4 which is now ubiquitous but has run out of address space, and IPv6 which is being introduced to mitigate the address space (and other) issues with IPv4.
IMS	IP Multimedia Subsystem. A network architecture for delivering alternative technologies for voice or other multimedia services to smartphones on mobile networks.
ISDN	Integrated Services Digital Network. A set of ITU communication standards for simultaneous digital transmission of voice, video, data, and other network services over the traditional circuits of the public switched telephone network. Superseded as a consumer offering by broadband services.
ISMS	Information Security Management System. Procedures and devices used to maintain information integrity within an organisation.
ITU	International Telecommunications Union. The United Nations body providing a forum for standardisation of telecommunications and radio frequencies, to enable system interworking and prevent interference between technologies.
KPI	Key Performance Indicator. Business metrics used to evaluate factors that are crucial to the success of an organization.
LTE	Long Term Evolution. A fourth generation (4G) mobile telephone and broadband technology employed for voice, messaging and high-speed data services.
MAP	Mobile Application Part. SS7 protocol providing the application layer for assorted network elements within UMTS and GSM core networks.
MME	Mobility Management Entity. Part of the 4G EPC. Key control node for UE access to the LTE network. Functionality includes management of network access, radio resource, mobility, roaming, UE location, and tracking area for UE.
MMS	Multimedia Messaging Service. Event type supported by mobile operators that uses a combination of binary SMS alerting and particular APNs and packet-switched data to convey rich messaging (text, images, sound and video) between subscribers within a network or on different networks. Generally in decline due to the rise in popularity of OTT services.
MNO	Mobile Network Operator. A communications provider that owns and runs its own cell sites, core network and business support systems. Contrast MVNO.
MSC	Mobile Switching Centre. A 2G and 3G core network element which controls the network switching subsystem elements.
MSISDN	Mobile Subscriber Integrated Services Digital Network – the subscriber's directory number
MTR	Mobile Termination Rate. Charges which one telecommunications operator charges to another for terminating calls on its network.
MVNO	Mobile Virtual Network Operator. A communications provider that purchases mobile network operations wholesale from an MNO, generally rebranding them or re-bundling them in the process.
NFV	Network Function Virtualisation. A network architecture concept that uses the technologies of IT virtualization to virtualize entire classes of network node functions into building blocks that may connect, or chain together, to create communication services. See also SDN

NTP	Network Time Protocol. Used to accurately synchronise computers and other network-enabled devices over an IP network
Ofcom	Office of Communications. National Regulatory Authority for the communications industry in the UK.
OSS	Operational Support System. IT systems supporting management functions such as network inventory, service provisioning, network configuration and fault management.
OTT	Over The Top. Generic term used to describe an emerging trend for smartphone-based applications to provide alternate or superior services traditionally provided by network operators. Typically, these mobile apps exchange data without necessarily interacting with the cellular network – for example by using WiFi – or even if they do use the cellular network, simply use cellular data as backhaul. Examples of OTT applications include, iMessage, FaceTime, Google Hangouts, Whatsapp, Viber, Facebook Messenger and so on. Applications such as Viber and iMessage can be especially disruptive as they can use the subscriber’s MSISDN – an item of data that is traditionally seen as the exclusive “property” of the network – and use it to connect users if they both happen to be using the same OTT platform.
P(A)BX	Private (Automatic) Branch Exchange. Local telephone exchange, typically used with land lines within a business or corporate entity. Historically used with PSTN technology, but more commonly now with VoIP technologies, proprietary or otherwise.
PCRF	Policy Control and Charging Rules Function. Part of the 4G EPC providing AAA functionality in 4G mobile networks.
P-GW	Packet Data Network (PDN) Gateway. Part of the 4G EPC. Component of a 4G network which connects to external data networks. Equivalent function to the GGSN in GSM and UMTS networks.
PLMN	Public Land Mobile Network. A network established for the specific purpose of providing land mobile telecommunications services to the public.
POI	Point Of Interconnect. A connection between a network operator’s facilities and the equipment belonging to its customer, or to a connection between two (or more) operators’ networks.
PSTN	Public switched telephone network. Standard analogue or digital (ISDN) terrestrial wired phone service.
P&L	Profit & Loss. A profit and loss statement is a financial statement that summarizes the revenues, costs and expenses incurred during a specific period of time.
RAFM	Revenue Assurance & Fraud Management. In telecoms risk assurance the core issues are revenue/cost leakage and fraud, and can extend to opportunity loss and maximisation of revenue possibility.
RAN	Radio Access Network. Generic term for the radio frequency access element of a mobile network. Compare core network.
ROI	Return On Investment. A performance measure used to evaluate the efficiency of an investment or to compare the efficiency of a number of different investments. Measures the amount of return on an investment relative to the investment’s cost.
SDN	Software Defined Network. An emerging architecture that is dynamic, manageable, cost-effective, and adaptable. In a software-defined network, a network administrator can shape traffic using centralized control without having to touch individual switches, and can deliver services to wherever they are needed in the network, without regard to which specific devices a server or other device is connected. The key technologies are functional separation, network virtualization and automation through programmability. See also NFV.

SGSN	Serving GPRS Support Node. Part of the core network in GSM and UMTS mobile networks.
S-GW	Serving Gateway. Part of the 4G EPC. Acts as a router, and forwards data between the base station and the PDN gateway.
SIM	Subscriber Identity Module. An integrated circuit that is intended to securely store the IMSI and its related key, which are used to identify and authenticate subscribers on mobile telephony devices.
SMS	Short Messaging Service – also known as text messaging, a service which allows mobile (and in certain cases land-line subscribers) to send short (up to 160 characters, depending on the character set used) messages to other subscribers. Currently under pressure from competing OTT services such as iMessage, Google Hangouts, Whatsapp etc.
SMSC	Short Message Service Centre. GSM technology
SNMP	Simple Network Management Protocol.
SS7	Signalling System 7. ITU standard for telephony signalling protocols.
TCG	Test Call Generator. A device capable of placing test calls and events for the purpose of testing the performance of communications networks. Device usually houses multiple phone modules and multiple SIMs.
TÜV SÜD BABT	Approvals, certification and assurance provider. Formerly known as BABT, British Approvals Board for Telecommunications.
UE	User Equipment. Commonly mobile handsets, but includes any telecoms terminal equipment.
UMTS	Universal Mobile Telecommunications System. 3 <sup>rd</sup> generation (3G) mobile network technology, evolved from GSM.
UPS	Uninterruptible Power Supply. Device designed to maintain clean, continuous power to devices under its protection when the inbound mains supply goes out of specification, for example during surges, sags or complete failures.
UICC	Universal Integrated Circuit Card. Provides SIM card functionality for LTE equipment. It runs an application known as the Universal Subscriber Identity Module (USIM) storing user-specific data such as the user's phone number, home network identity and security keys.
USSD	Unstructured Supplementary Service Data. A service enabling users to send short numerical commands to the network. Typically used to set up or cancel divers, call forwarding, CLIR and to request network information such as pre-paid balance or directory number. More recently also used for driving mobile money platforms.
VLR	Visitor Location Register. GSM and UMTS network element which informs the HLR when a subscriber arrives in its area and stores a cached copy of HLR data to facilitate quicker access. Additionally, keeps track of subscriber location within its area to enable paging requests (such as call alerting), assigns internal roaming numbers for subscribers under its control and informs the HLR when the subscriber leaves its area.
VoIP	Voice over Internet Protocol. Generic term to describe the conveyance of voice data over packet-switched networks using IP. Implemented in a wide variety of scenarios including, modern PBXs, internally within telcos, as “last mile” delivery to customers, in a specifically optimised incarnation with VoLTE and with apps offering OTT functionality.
VoLTE	Voice over Long Term Evolution. The operation of packetised voice services over the LTE mobile network. Offers up to six times the voice traffic for a given amount of spectrum and offers users rich calling services via integration with the network's IP Multimedia Subsystem (IMS).
VoWiFi	Voice over WiFi. Typically another form of VoIP, but used to distinguish it from

	voice transported over wireline IP networks or cellular last-mile. Also known as WiFi calling, it's typically integrated into UE firmware to allow easy and continued use of a telco's voice offering even when cellular service is unavailable, precluding the need and hassle for technologies such as femtocells. Can also aid in offloading or traffic managing the macrocell network. May also refer to the use of OTT apps providing calling services in lieu of a cellular carrier by using either domestic WiFi or public WiFi hotspots.
WLAN	Wireless LAN. Also known colloquially as WiFi. Provides wireless Ethernet services (which typically convey IP) over a small radius using low-powered transceivers over license free spectrum in the 2.4GHz and 5GHz bands. Has speeds ranging from the 10s of megabits to near gigabit speeds depending on the iteration of the technology and local conditions. Standardised by the US electrical engineering institute in IEEE 802.11.
xDR	x Detail Record, where x refers to other acronyms such as C (call), E (event), S (session) etc.