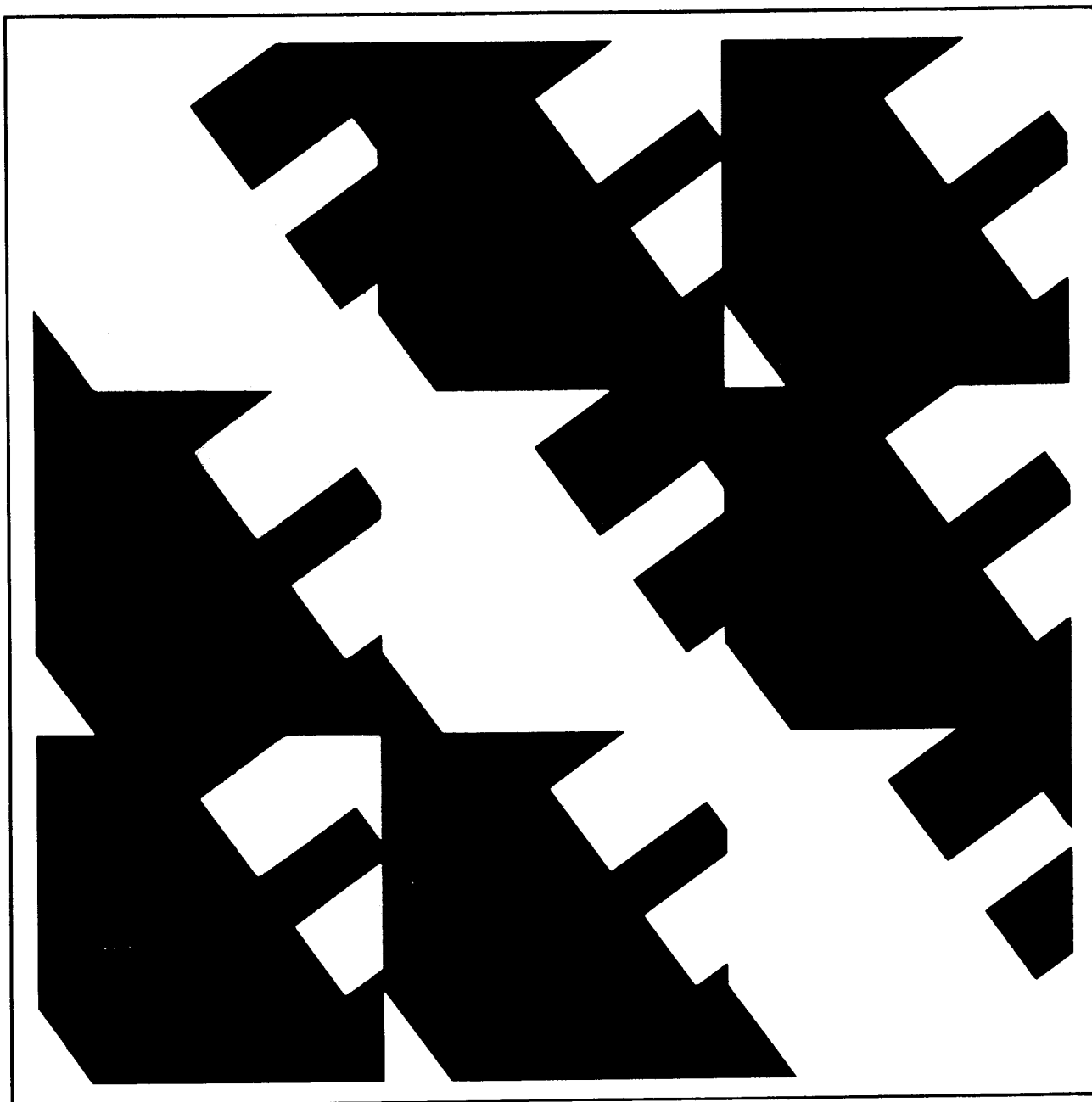


IEEE Standard Definitions of Terms for Communication Switching



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**IEEE Standard Definitions of
Terms for Communication Switching**

Sponsor
**Communication Switching Committee
of the
IEEE Communication Society**

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Foreword

(This foreword is not part of IEEE Std 312-1977, Standard for Definitions of Terms for Communication Switching.)

The terms listed in this standard have been carefully defined keeping in mind certain important rules of good nomenclature practice. For example, the term to be defined is not used in the definition. Each definition usually is confined to a single sentence made as succinct as possible and may include words or terms defined elsewhere in this glossary.

Best use is made of this glossary by reference to the permuted index. The index should be entered into whenever looking for a term. In many cases earlier or familiar terms have now been deprecated. These are cross-referenced to the preferred term. The permuted index then guides one to the proper alphabetical location of the term.

The glossary does not generally include abbreviations or acronyms. Adjectives that are obvious or unnecessary have been omitted.

The reader should keep in mind that this is a telecommunications switching glossary. Many terms associated with switching apply to other areas of telecommunication, such as wire communication, and are not included herein. In some special switching areas the depth of coverage is limited. The traffic terms that are included were taken with some modifications from the glossary assembled by a committee of the International Teletraffic Congresses. Definitions have not been included for most customer services, particularly for those used in PBX's. Some switching terms included here apply to data switching as well. The list is not all inclusive but many of the omitted terms are the same as their counterparts in computer or data processing glossaries.

IEEE Switching Nomenclature List. Attached to this glossary is a permuted index of all terms defined. This index cross-references all terms so that they are easily located and related terms can be identified.

The column on the left contains the actual terms that are to be defined and the column on the right shows where they are located. *For Example:*

digit absorption is not located under Digit, but as can be seen by the right hand column is located under Absorption.

base-rate area is another example. A quick glance will tell you that Base-Rate Area is located under Area not Base.

special-billing call is not located under Special but is located under Call.

This standard was prepared by a working group of the Communication Switching Subcommittee of the IEEE Communication Technology Group having the following membership:

J. Gordon Pearce, *Chairman*

**F. K. Becker
P. O. Dahlman
H. J. Elschner**

**W. B. Groth
A. E. Joel, Jr
C. A. Pleasance**

IEEE Standard Definitions of Terms for Communication Switching

A

absorption, digit. The interpretation and rejection of those digits received, but not required, in the setting of automatic direct control system crosspoints.

accessibility. The ability of a given inlet to reach the available outlets.

accounting, automatic message (AMA). An arrangement for automatically collecting, recording, and processing information relating to calls for billing purposes.

accounting, centralized automatic message (CAMA). An arrangement at an intermediate office for collecting automatic message accounting information.

accounting, local automatic message (LAMA). An arrangement at a local office for collecting automatic message accounting information.

adapter, long-line. Equipment inserted between a line circuit and the associated station(s) to allow conductor loop resistances greater than the maximum for which a system is designed.

alarm, major. An alarm indicating trouble or the presence of hazardous conditions needing immediate attention in order to restore or maintain the system capability.

alarm, minor. An alarm indicating trouble which does not seriously impair the system capability.

alarm, permanent-signal. An alarm resulting from the simultaneous accumulation of a predetermined number of permanent signals.

alerting, group. A central office feature for simultaneously signaling a group of customers from a control station providing an oral or recorded announcement.

allotting. The preselecting by a common control of an idle circuit.

announcement, recorded. A prerecorded oral message received on a call.

area, base-rate. The territory in which the tariff applies.

area, exchange. The territory included within the boundaries of a telecommunications exchange.

area, extended-service. That part of the local service area that is outside of the boundaries of the exchange area of the calling customer.

area, foreign. A numbering plan area other than the one in which the calling customer is located.

area, home. The numbering plan area in which the calling customer is located.

area, integrated numbering-plan. A geographical area of the world that is identified by a world-zone number which is also used as a country code.

area, local-service. The area within which are located the stations that a customer may call at rates in accordance with the local tariff.

area, national numbering-plan. A geographical area of the world where a country code and the national boundaries are related uniquely.

area, numbering-plan (NPA). A geographical subdivision of the territory covered by a national or integrated numbering plan. An NPA is identified by a distinctive area code (NPA code).

array, one-sided switching. A switching array where each crosspoint interconnects multiples within one group.

array, switching. An assemblage of multiplied crosspoints.

attendant. A private branch exchange or centrex operator.

availability. The number of outlets of a group that can be reached from a given inlet in a switching stage or network.

availability, full. Availability that is equal to the number of outlets in the desired group.

availability, limited. Availability that is less than the number of outlets in the desired group.

B

blocking. The inability of a telecommunication system to establish a connection due to the unavailability of paths.

blocking, internal. The unavailability of paths in a switching network between a given inlet and any suitable idle outlet.

by-link. A temporary connection between trunks and registers set up before the normal connection between them can be established.

busy, camp-on. A feature whereby a call encountering a busy condition can be held and subsequently connected automatically when the busy condition is removed.

busy, make. Conditioning a circuit to be unavailable for service.

C

call. A demand to set up a connection.

call, abandoned. A call during which the calling station goes on-hook prior to its being answered.

call, answered. A call on which an answer signal occurred.

call, assistance. A call to an operator for help in making a call.

call, charge-to-third-number. A call for which the charges are billed to a number other than that of the calling or called number.

call, coin. A call in which a coin collection device is used.

call, collect. A call for which the called customer agrees to pay.

call, completed. An answered call that has been released.

call, conference. A call in which communication is provided among more than two main stations.

call, credit-card. A call in which a credit-card identity is used for billing purposes.

call, detailed-billed. A call for which there is a record including the calling and called line identities which will appear in a customer's billing statement.

call, detailed-record. A call for which there is a record including the calling and called line identities that may be used in the billing process as well as for other purposes.

call, directory-assistance. A call placed to request the directory number of a customer.

call, 911. A call to an emergency service bureau.

call, flat-rate. A call for which no billing is required.

call, free-code. A call to a service or office code for which no charge is made.

call, free-line. A call to a directory number for which no charge is made.

call, intercept. A call to a line or an unassigned code that reaches an operator, a recorded announcement, or a vacant-code tone.

call, international. A call to a destination outside of the national boundaries of the calling customer.

call, international interzone. A call to a destination outside of a national or integrated numbering-plan area.

call, international intrazone. A call to a destination within the boundaries of an integrated numbering-plan area, but outside the national boundaries of the calling customer.

call, interoffice. A call between lines connected to different central offices.

call, intraoffice. A call between lines connected to the same central office.

call, leave-word. A person-to-person call on which the designated called person was not available and the operator left instructions for its later establishment.

call, local. A call for a destination within the local-service area of the calling customer.

call, lost. A call that cannot be completed due to blocking.

call, malicious. A call of a harassing, abusive, obscene, or threatening nature.

call, message-unit. A call for which billing is in terms of accumulated message units.

call, multiunit. A call for which there is a multi-message-unit charge for an initial minimum interval.

call, national. A toll call to a destination outside of the local service area of the calling

customer but within the boundaries of the country in which he is located.

call, no-busy test. A call in which busy testing is inhibited.

call, no-hunt. A call in which PBX hunting is inhibited.

call, notify. A call for which notification of the expiration of the initial charge period is requested.

call, off-net. A call from a switched-service network to a station outside that network.

call, on-net. A call within a switched-service network.

call, one-plus (1+). A type of station-to-station call in which the digit one is dialed as an access code.

call, one-unit. A call for which there is a single-unit charge for an initial minimum interval.

call, operator-handled. A call in which information necessary for its completion, other than the number of the calling station, is verbally given by or to an operator.

call, person-to-person. A call intended for a designated person.

call, precedence. A call on which the calling party has elected to use one of several levels of priority available to him.

call, reverting. A call between two stations on the same party line.

call, special-billing. A call charged to a special number.

call, station-to-station. A call intended for a designated main station.

call, test. A call made to determine if circuits or equipment are performing properly.

call, time-and-charge-request (T&C). A call for which a request is made to be informed of its duration and cost upon its completion.

call, toll. A call for a destination outside the local-service area of the calling station.

call, video-telephone. A call between stations equipped to provide video-telephone service.

call, zero-minus (0-). A call for which the digit zero is dialed alone to indicate that operator assistance is desired.

call, zero-plus (0+). A call in which the digit zero is dialed as a prefix where operator intervention is necessary.

call-seconds, hundred. (CCS) A commonly used

unit of traffic intensity, equal to a hundred seconds of call volume or usage in an hour.

center, international originating toll. In World Zone 1, a toll center where telephone operators handle originating international interzone calls.

center, international operating. In World Zone 1, a center where telephone operators handle originating and terminating international interzone calls and may also handle international intrazone calls.

center, international switching. A toll office that normally serves as a point of entry or exit for international interzone calls.

center, primary. A toll office to which toll centers and toll points may be connected. Primary centers are classified as Class 3 offices.

center, regional. A toll office to which a number of sectional centers are connected. Regional centers are classified as Class 1 offices.

center, sectional. A toll office to which may be connected a number of primary centers, toll centers, or toll points. Sectional centers are classified as Class 2 offices.

center, switching control. A place where maintenance analysis and control activities are centralized for switching entities situated in different locations.

center, toll. A toll office where trunks from end offices are connected to intertoll trunks and where operator's assistance is provided in completing incoming calls and where other traffic operating functions are performed. Toll centers are classified as Class 4C offices.

centrex CO (company). The provision of centrex service by switching equipment located on telephone company owned or leased premises; the station equipment and attendant facilities are located on the premises of the customer.

centrex CU (customer). The provision of centrex service by switching, station equipment, and attendant facilities located on the premises of the customer.

checking, alarm. The identification of an alarm from a remote location by communicating with its point of origin.

choice. The position of an outlet in a group with respect to the order of selection.

circuit, PBX central office trunk. A trunk circuit located at the PBX end of a PBX trunk.

circuit, cord. A connecting circuit, usually terminating in a plug at one or both ends, used at switchboard positions in establishing telephone connections.

circuit, line. An interface circuit between a line and a switching system.

circuit, service. A circuit used for signaling purposes connected to and disconnected from a communication path during the progress of a call.

circuit, trunk. An interface circuit between a trunk and a switching system.

class, office. A designation (Class 1, 2, 3, 4, 5) given to each office in World Zone 1 involved in the completion of toll calls. The class is determined according to the office's switching function, its interrelation with other switching offices, and its transmission requirements. The class designation given to the switching points in the network determines the routing pattern for all calls. Class 1 is higher in rank than Class 2; Class 2 is higher than Class 3; and so on.

code, access. One or more digits required in certain situations in lieu of or preceding an area or office code.

code, area. A one-, two-, or three-digit number that, for the purpose of distance dialing, designates a geographical subdivision of the territory covered by a separate national or integrated numbering plan.

code, country. The one-, two-, or three-digit number that, in the world numbering plan, identifies each country or integrated numbering plan area in the world. The initial digit is always the world-zone number. Any subsequent digits in the code further define the designated geographical area normally identifying a specific country. On an international call, this code is dialed ahead of the national number.

code, destination. A combination of digits providing a unique termination address in a telecommunication network.

code, language. On an international call, an address digit that permits an originating operator to obtain assistance in a desired language.

code, main-station. The digits designating a main station; these usually follow an office code.

code, numbering-plan area (NPA). A one-, two-, or three-digit number that, for the purpose of distance dialing, designates one of the geographical areas within a country (and in some instances neighboring territories) that is covered by a separate numbering plan.

code, office. The digits that designate a block of main-station codes within a numbering-plan area.

code, operator. The digits dialed by operators to reach other operators.

code, prefix. One or more digits preceding the national or international number to implement direct distance dialing.

code, routing. A digit or combination of digits used to direct a call towards its destination.

code, service. Any of the destination codes for use by customers to obtain directory assistance or repair service, or to reach the business office of the telecommunications company.

code, system routing. In World Zone 1, a three-digit code consisting of a country code and two additional numerals that uniquely identifies an international switching center.

code, terminating toll center (TTC). In operator distance dialing, the three digits used for identifying the toll center within the area to which a call is routed.

code, vacant. A digit or a combination of digits that is unassigned.

community-of-interest. A characteristic of traffic resulting from the calling habits of the customers.

concentrator. A switching entity for connecting a number of inlets to a smaller number of outlets.

concentrator, line. A concentrator in which the inlets are lines.

concentrator, remote. A concentrator located away from a serving system control.

concentrator, trunk. A concentrator in which all inlets and outlets are trunks.

connection, double. A fault condition whereby two separate calls are connected together.

console. A desk or desk-top cordless switch-

board which may include display elements in addition to those required for supervisory purposes.

contact, dry. A contact through which no direct current flows.

contact, wet. A contact through which direct current flows.

NOTE: The term has significance because of the heating action of direct current flowing through contacts.

control, common. An automatic switching arrangement in which the control equipment necessary for the establishment of connections is shared, being associated with a given call only during the period required to accomplish the control function.

control, fourth-wire. The wire (in addition to the tip, ring, and sleeve wires) used for transmission of special signals necessary in the establishment or supervision of a call.

control, line-load. A means of selectively restricting call attempts during emergencies so as to permit the handling of essential traffic.

control, network. The means of determining and establishing the required connections in response to information received from the system control.

control, stored program. A system control using stored logic.

control, system. The means for collecting and processing pulsing and supervisory signals in a switching system.

control, wired program. A system control using wired logic.

conversion, code. The substitution of a routing code for a destination code.

corrector, pulse. Equipment to reestablish, within predetermined limits, the make/break ratio of dial pulses.

count, peg. The notation of the number of occurrences of an event.

crossconnection. Easily changed or removed wire that is run loosely between equipment terminals to establish an electrical association.

crosspoint. A controlled device used in extending a transmission or control path.

customer, telecommunications. One for whom telecommunications service is provided (formerly referred to as a "subscriber").

cycle, ringing. A recurring sequence made up of ringing signals and the intervals between them.

D

delay, post-dialing. In an automatic telecommunication system that time interval between the receipt of the last called address digit from the calling station and the application of ringing to the called station.

deletion, digit. In the processing of a call, the elimination of a portion of the destination code.

desk, test. A position equipped with testing apparatus so arranged that connections can be made from it to telephone lines or central office equipment for testing purposes.

device, calling. An apparatus that generates the signals required for establishing connections in an automatic switching system.

diagram, central office. A simplified switching network plan for a given installation, specifying types and quantities of equipment and trunk groups and other parameters.

dial, pushbutton. A type of calling device used in automatic switching that has an activator per digit that generates distinctive pulsing.

dial, rotary. A type of calling device used in automatic switching that generates pulses by manual rotation and release of a dial, the number of pulses being determined by how far the dial is rotated before being released.

dialing. The act of using a calling device.

dialing, abbreviated. A feature permitting the establishment of a call with an input of fewer digits than required under the numbering plan.

dialing, automatic-identified outward (AIOD). A method of automatically obtaining the identity of a calling station from a private branch exchange over a separate data link for use in automatic message accounting.

dialing, direct distance (DDD). The automatic establishing of toll calls in response to signals from the calling device of a customer.

dialing, direct inward (DID). A private automatic branch exchange or centrex service feature that permits outside calls to be dialed directly to the stations.

dialing, direct outward (DOD). A private automatic branch exchange or centrex service feature that permits stations to dial outside numbers without intervention of an attendant.

dialing, distance. The automatic establishing of toll calls by means of signals from the calling device of either a customer or an operator.

dialing, international distance (IDD). The automatic establishing of international calls by means of signals from the calling device of either a customer or an operator.

dialing, international direct distance (IDDD). The automatic establishing of international calls by means of signals from the calling device of a customer.

dialing, national distance. The automatic establishing of a national call by means of signals from the calling device of either a customer or an operator.

distributing, signal. Delivering of signals from a common control to other circuits.

distributor, automatic call (ACD). The facility for allotting incoming traffic to idle operators or attendants.

E

entity, decentralized switching. A portion of a central office that is intended to be located away from the serving system control.

entity, remote switching. An entity for switching inlets to outlets located away from a serving system control.

entity, switching. A switching network and its control.

erlang. The international unit of traffic intensity expressed as call hours per hour or call seconds per second. One erlang corresponds to the continuous occupancy of one traffic path for one hour.

evaluation, service. Determination of the quality of service received by the customer.

exchange, automatic telecommunications. A telecommunications exchange in which connections between stations are automatically established as a result of signals produced by calling devices.

exchange, manual telecommunications. A tele-

communications exchange in which connections between stations are manually set by means of plugs and jacks or keys.

exchange, multioffice. A telecommunications exchange served by more than one local central office.

exchange, private automatic (PAX). A private nonbranch exchange that is automatic.

exchange, private automatic branch (PABX). A private branch exchange that is automatic.

exchange, private nonbranch. A private automatic telecommunications exchange that has no access to a public telecommunications exchange.

exchange, private branch (PBX). A private telecommunications exchange that includes access to a public telecommunications exchange.

exchange, private telecommunications. A telecommunications exchange for a single organization.

exchange, public telecommunications. A telecommunications exchange that serves the public.

exchange, single-office. A telecommunications exchange served by one central office.

exchange, telecommunications. A means of providing telecommunications services to a group of users within a specified geographical area.

expandor. A switching entity for connecting a number of inlets to a greater number of outlets.

extender, range. Equipment inserted in a switched connection to allow an increased loop resistance.

F

finding. Locating a circuit requesting service.

forwarding, call. A feature that permits a customer to instruct the switching equipment to transfer calls intended for his station to another station.

frame, main distributing (MDF). A frame where crossconnections are made between the outside plant and central office equipment.

frame, intermediate distributing (IDF). A frame where crossconnections are made only between units of central office equipment.

G

grade-of-service. The proportion of total calls, usually during the busy hour, that cannot be completed immediately or served within a prescribed time.

grading. Partial commoning or multiplying of the outlets of connecting networks where there is limited availability to the outgoing group or subgroup of outlets.

grading, progressive. A grading in which the outlets of different grading groups are connected together in such a way that the number of grading groups connected to each outlet is larger for later choice outlets.

group, alternate-route trunk. A trunk group which accepts alternate-routed traffic.

group, final-trunk. A trunk group in the last choice position of a hierarchical network of alternate-route trunk groups.

group, full-direct trunk. A full trunk group between end offices.

group, full-trunk. A trunk group, other than a final trunk group, that does not overflow calls to another trunk group.

group, grading. That part of a grading in which all inlets have access to the same outlets.

group, high-usage trunk. A trunk group engineered on the basis of relative trunk efficiencies and economic considerations which will overflow traffic.

group, line. A multiplicity of lines served by a common set of links.

group, number. An arrangement for associating equipment numbers with main-station codes.

group, trunk. A number of trunks that can be used interchangeably between two switching entities.

H

homing. Resetting of a sequential switching operation to a fixed starting point.

hour, busy. That uninterrupted period of sixty minutes during the day when the traffic offered is a maximum.

hunting. Searching for an available idle circuit of a group.

hunting, private branch exchange. An arrangement for searching over a group of trunks at the central office, any one of which would provide a connection to the desired private branch exchange.

howler. A circuit which generates a receiver-off-hook tone.

I

identification, automatic number (ANI). The automatic obtaining of a calling station directory or equipment number for use in automatic message accounting.

identification, calling line. Means for automatically identifying the source of calls.

identification, operator number (ONI). An arrangement in which the operator requests the identity of the calling station and enters it into the system for automatic message accounting.

identification, station. A means of determining which of the customers served by a party line is making a call.

indication, class-of-service. An indication of the features assigned to a switching network termination.

interval, charge-delay. The recognition time for a valid answer signal in message charging.

J

jumper. Crossconnection wire(s).

juncitor. Within a switching system, a connection or circuit between inlets and outlets of the same or different switching networks.

K

key. A hand-operated switching device ordinarily comprising concealed spring contacts with an exposed handle or push-button, capable of closing or opening one or more parts of a circuit.

keyshelf. The shelf on which are mounted control keys for use by operators or other personnel.

L

line, fixed-called-address. A line for originating calls to a fixed called address.

line, foreign-exchange. A loop from an exchange other than the one from which service would normally be furnished.

line, individual. A line arranged to serve one main station.

line, party. A line arranged to serve more than one main station, with distinctive ringing for each station.

line, station. Conductors carrying direct current between a central office and a main station, private branch exchange, or other end equipment.

link. A connection between switching stages within the same switching system.

lockout, line. A means for the handling of permanent line signals to prevent further recognition as a call attempt.

logic, stored. Instructions in memory arranged to direct the performance of predetermined functions in response to readout.

logic, wired. A fixed pattern of interconnections among a group of devices to perform predetermined functions in response to input signals.

loop, telecommunication. A channel between a telecommunications station and a switching entity.

M

marker. A wired-logic control circuit that, among other functions, tests, selects, and establishes paths through a switching stage or stages.

message. An answered call or the information content thereof.

N

network, blocking switching. A switching network in which a given outlet cannot be reached from any given inlet under certain traffic conditions.

network, message telecommunication. An arrangement of switching and transmission facilities to provide telecommunication services to the public.

network, nonblocking switching. A switching network in which any idle outlet can always be reached from any given inlet under all traffic conditions.

network, reentrant switching. A switching network in which outlets (usually last choice) from a given connecting stage are connected to inlets of the same or a previous stage.

network, switched-service (SSN). An arrangement of dedicated switching facilities to provide telecommunications services for a specific customer.

network, switching. Switching stages and their interconnections. Within a switching system there may be more than one switching network.

nonhoming. Resumption of a sequential switching operation from its last setting.

number, directory. The full complement of digits required to designate a customer in a directory.

number, PBX extension. A main station code for a PBX station.

number, equipment. A unique physical or other identification of an input or output termination of a switching network.

number, international. The combination of digits representing a country code plus a national number.

number, national. The combination of digits representing an area code and a directory number that, for the purpose of distance dialing, uniquely identifies each main station within each of the world's geographical areas that is identified by a country code.

number, vacant. An unassigned or unequipped directory number.

number, world-zone. The first digit of a country code. In the world-numbering plan, this number identifies one of the larger geographical areas into which the world is arranged, namely

Zone 1	North America (includes areas operating with unified regional numbering).
Zone 2	Africa.
Zones 3 and 4	Europe.
Zone 5	South America, Cuba, Central America, including part of Mexico.
Zone 6	South Pacific, Austral—Asia.