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Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN).

1 Scope

The present document lists the terms used in the ETSI Standards and Technical Reports covering network aspects in general. Included are terms already defined in other technical areas if they have a special meaning in a network aspects context or if an unambiguous definition is essential.

The terms are listed in alphabetical order only and are not sorted according to the technical area (services, powering, transfer mode, signalling, interfaces etc.) to which they belong.

The list of abbreviations and acronyms include acronyms defined in other contexts and used in network aspect documents.

2 References

For the purposes of this Technical Report (TR) the following references apply:

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[13] ITU-T Recommendation G.902 (1995): "Framework Recommendation on functional access networks (AN) Architecture and functions, access types, management and service node aspects".

[14] ITU-T Recommendation H.223 (1996): "Multiplexing protocol for low bit rate multimedia communication".

[15] ITU-T Recommendation H.323 (2000): "Packet-based multimedia communications systems".

[16] ITU-T Recommendation I.112 (1993): "Vocabulary of terms for ISDNs".

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[18] ITU-T Recommendation I.140 (1993): "Attribute technique for the characterisation of telecommunication services supported by an ISDN and network capabilities of an ISDN".

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[22] ITU-T Recommendation I.363 series: "B-ISDN ATM Adaptation Layer (AAL) specification. Type x AAL".

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[25] ITU-T Recommendation I.501 (1993): "Service interworking".

[26] ITU-T Recommendation I.510 (1993): "Definitions and general principles for ISDN interworking".

[27] ITU-T Recommendation I.570 (1993): "Public/private ISDN interworking".

[28] ITU-T Recommendation J.1 (1999): "Terms, definitions and acronyms applicable to the transmission of television and sound-programme signals and of related data signals".

[29] ITU-T Recommendation M.60 (1993): "Maintenance terminology and definitions".

[30] ITU-T Recommendation M.3010 (2000): "Principles for a Telecommunications management network".

[31] ITU-T Recommendation Q.9 (1988): "Vocabulary of switching and signalling terms".

[32] ITU-T Recommendation Q.65 (1997): "The unified functional methodology for the characterisation of services and network capabilities".

[33] ITU-T Recommendation Q.825 (1998): "Specification of TMN applications at the Q3 interface: Call detail recording".

[34] ITU-T Recommendation Q.921 (1997): "ISDN user-network interface - Data link layer specification".

[35] ITU-T Recommendation Q.1290 (1998): "Glossary of terms used in the definition of intelligent networks".

[36] ITU-T Recommendation Q.2931 (1995): "Digital Subscriber Signalling System No. 2 - User-Network Interface (UNI) layer 3 specification for basic call/connection control".

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[46] ETSI ETR 149: "Network Aspects (NA); Interworking between Metropolitan Area Networks (MANs) and Asynchronous Transfer Mode (ATM) networks for the Connectionless Broadband Data Service (CBDS)".

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[50] ETSI TR 101 615: "Network Aspects (NA); Services and networks architecture evolution for telecommunications".

[51] ETSI TR 101 686: "Hybrid Fibre Coax (HFC) access networks; Interworking with B-ISDN networks".

[52] ETSI TR 101 694: "Asynchronous Transfer Mode (ATM); Provision of internet applications via ATM based networks and interworking with IP networks".

[53] ETSI TR 101 734: "Internet Protocol (IP) based networks; Parameters and mechanisms for charging".

[54] ETSI TR 101 619: "Network Aspects (NA); Considerations on networks mechanism for charging and revenue accounting".

[55] ETSI TR 102 100: "Network Aspects (NA); Interworking framework".

[56] ETSI EG 201 400: "Hybrid Fiber Coax (HFC) access networks; Part 1: Interworking with PSTN, N-ISDN, Internet and digital mobile networks".

[57] ETSI ETS 300 349: "Broadband Integrated Services Digital Network (B-ISDN); Asynchronous Transfer Mode (ATM); Adaptation Layer (AAL) specification - type 3/4".

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[59] ETSI ETS 300 354: "Broadband Integrated Services Digital Network (B-ISDN); B-ISDN Protocol Reference Model (PRM)".

[60] ETSI ETS 300 404: "Broadband Integrated Services Digital Network (B-ISDN); B-ISDN Operation And Maintenance (OAM) principles and functions".

[61] ETSI ETS 300 469: "Broadband Integrated Services Digital Network (B-ISDN); Asynchronous Transfer Mode (ATM); Management of the network element view [ITU-T Recommendation I.751 (1996)]".

[62] ETSI ETS 300 478: "Network Aspects (NA); Connectionless Broadband Data Service (CBDS) over Asynchronous Transfer Mode (ATM); Framework and protocol specification at the User-Network Interface (UNI)".

[63] ETSI ETS 300 479: "Network Aspects (NA); Connectionless Broadband Data Service (CBDS) over Asynchronous Transfer Mode (ATM); Protocol specification at the Network Node Interface (NNI)".

[64] ETSI ETS 300 780: "Broadband Integrated Services Digital Network (B-ISDN); Broadband Connection-Oriented Bearer Service (BCOBCS) [ITU-T Recommendation F.811 (1996)]".

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[83] ISO 10646: "Information technology - Universal Multiple-Octet Coded Character Set (UCS) - Part 1: Architecture and Basic Multilingual Plane".

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[89] ITU-T Recommendations G.825: "The control of jitter and wander within digital networks which are based on the synchronous digital hierarchy (SDH)".

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[93] ITU-T Recommendation I.431: "Basic user-network interface - Layer 1 specification".

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[95] ETSI ETS 300 455: "Broadband Integrated Services Digital Network (B-ISDN); Broadband Virtual Path Service (BVPS); Part 1: BVPS for Permanent communications (BVPS-P)".

[96] IETF RFC 1577: "Classical IP and ARP over ATM".

3 Information about the present document

Terms and definitions taken from ITU Recommendations are identified by appropriate reference in parentheses at the end of the definition. The numbers after the Q.9, G.601, G.701, I.112, I.113 and I.114 references are the word numbers in these documents.

Where the definition has been based upon, but differs from, a definition in another document, the reference is given followed by "modified".

Terms defining general used acronyms such as **Asynchronous Transfer Mode (ATM)** are written with leading capitals.

Some definitions include terms in *italics* to indicate that these terms are defined elsewhere in the present document.

The list of abbreviations and acronyms includes acronyms such as PAL and SECAM normally not used in network aspect contexts but generally used in the relevant standards and technical reports. Also included are acronyms with more than one meaning such as CC for Call Control, Country Code or Cross Connect. For some acronyms it is indicated in brackets in which context they are created, e.g. (Internet), (ATM Forum). Some out-of-date acronyms are marked (deprecated).

Many terms are overloaded with several meanings. For instance "virtual circuit" has a generic meaning and also a very specific non-generic meaning in ATM. For these multiple-meaning cases the generic form is presented first and the specific forms follow the generic form as new definitions but marked with area/scope within square brackets after the term in question. In cases where a term is valid within more than one field (and is not valued as a generic definition) the areas for which it applies are given within square brackets as a comma separated alphabetically ordered list

During the revision of the document specific concerns were raised regarding the usage of terminology which were found to be worth addressing them in particular. It is considered that these will be enlightening to the reader of the present document and provide a guideline outside the scope of the contained definitions while also conveying the specific generic revision decisions being made.

3.1 The distinction between old and new technologies

In older telecommunication definitions many terms were defined with an embedded distinction to some other technology. A classical example would be "analogue link" versus "digital link" which was required to distinguish old analogue FDM systems with then new TDM systems. Thus, the need to create definitions for digital switching only becomes of interest if you know and assume that switching normally used to be done with analogue channels.

Furthermore, the use of qualifiers like "emerging" is also part of a definition which will not survive the time. What was emerging and new at the time of the definition will be old in 10 to 20 years time and possibly be amusing to the engineers at that time.

A more subtle error of the same kind is to be found when a technology is being associated with a certain bit rate. For most technologies the bit rates they can support is changing over time. So, stating that Ethernet has the bit rate of 10 Mbit/s (which used to be true) would only date the definition to be historic at best. The usage of bit rates other than for examples or when a certain name has been given to denote a speed (i.e. E1, T1 etc.) shall thus be avoided.

3.2 Generic vs. Specific

Many terms have been found to apply only for specific technology areas even though the term bears no reference to that area. In such cases a more generic definition has been included. Also, some definitions have carried a subtle binding to a specific technology or means of implementation while this may be questioned. For those cases the definition was modified or replaced in order to provide a generic definition that only grasps the property while not implicating certain types of implementations.

4 Vocabulary of terms

address mask: bit mask used to identify the bits in an address which correspond to certain specific portions of the address

address resolution: Conversion of a network-layer address (e.g. IP address) into the corresponding physical address (e.g., MAC address) (see IETF RFC 1983).

addressable entity: entity which is recognizable by the network, to which the network is able to route a *call*

addressing domain: context within which an identifier (name, number, etc.) is unique

Abstract Syntax Notation One (ASN.1): language used by the OSI protocols for describing abstract syntax

NOTE 1: ASN.1 is defined in ISO documents 8824.2 and 8825.2, and ITU Recommendations X.680-X690, ISO standards 8824.2 and 8825.2, ITU-T Recommendations series X.680 to X.690.

access capability [ISDN]: Number and type of the access channels at an ISDN access interface that are actually available for tele*communication* purposes (see ITU-T Recommendation I.112-416).

access channel (channel) [ISDN]: Channel provided at the User Network Interface (see: *channel*).

NOTE 2: The term "access channel" may be qualified, for example by H, B or D in which case it is appropriate to abbreviate the term to "H-channel", to "B-channel" or to "D-channel".

access connection element (subscriber access) [ISDN]: equipment providing the concatenation of functional groups between and including the *exchange* termination and the NT1

NOTE 3: The term should be qualified by the type of access supported. That is either basic access *connection* elements or primary rate access connection elements (see ITU-T Recommendation I.112-429).

access contention [ISDN]: Conflict between the demands made on a network termination in multipoint access (see ITU-T Recommendation I.112-423).

access contention resolution [ISDN]: Arbitration of conflicting demands on a network termination in multipoint access (see ITU-T Recommendation I.112-424).

access function: Set of processes in a network that provide for interaction between the user and a network (see ITU-T Recommendation Q.1290).

access network: Implementation comprising those entities (such as cable plant, transmission facilities, etc.) which provide the required transport bearer capabilities for the provision of telecommunication services between one or more Service Node Interfaces (SNI) and each of the associated User Network Interfaces (UNI). An access network according to ITU-T Recommendation G.902 does not interpret user signalling. ITU-T Recommendation G.902 (modified), see also ITU-T Recommendation Y.101.

Access Network Interface (ANI): Interface between a local switch and an *access network* within a local network (see ITU-T Recommendation Y.101).

access network operator: Network operator to which the customer is physically connected (see TR 101 619).

access node: edge node of a network providing access to a network and its services

access protocol: Defined set of procedures that is adopted at an Access Network Interface enable the user to employ the service and/or facilities of that network (see ITU-T Recommendation I.112-406 modified).

accounting: procedure whereby revenue is shared between operators (see ITU-T Recommendation D.000 modified).

acknowledgement (ACK): Type of message sent to indicate that a previously sent message arrived at its destination. (See also: Negative Acknowledgement IETF RFC 1983 modified).

activation [ISDN]: Function which places a system, or part of a system, which may have been in low power consumption mode during deactivation, into its fully operating mode (see ITU-T Recommendation I.112-602).

actor: person or an entity who plays a visible role in the IN environment

address: String or combination of decimal digits, symbols, and additional information which identifies the specific termination point(s) in a network(s) (see ITU-T Recommendation E.164, modified).

address mask [IP]: Bit mask used to identify which bits in an IP address correspond to the network and subnet portions of the address. This mask is often referred to as the subnet mask because the network portion of the address (i.e., the network mask) can be determined by the encoding inherent in an IP address. See also: Classless Inter- domain Routing (see IETF RFC 1983).

address resolution: conversion of an address into some other address, possibly of another address format

addressable entity: entity which is recognizable by the network, to which the network is able to route a *call* or *message*

addressing domain: context within which an identifier (name, number, etc.) is unique

Adjunct (AD): Entity in the Intelligent Network that is functionally equivalent to a service control point but is directly connected to a service switching point (see ITU-T Recommendation Q.1290).

Administrative Domain (AD): Collection of hosts and routers, and the interconnecting network(s), managed by a single administrative organization (see IETF RFC 1983 modified).

Administrative Interface [Number Portability]: Interface/information base in which information on ported numbers is available for Network Operators (see TR 101 619).

Advice Of Charge (AOC): supplementary service related to the presentation of charging information to the user

NOTE 4: AOC appears in three versions AOC-S provides the served user with information about the charging rates at call establishment. In addition, the served user shall be informed if a change in charging rates takes place during the call. AOC-D provides the served user with cumulative charging information during the call. AOC-E provides the served user with charging information for a call when the call is terminated (see TR 101 619).

agent: Agent is an element that performs some task on behalf of some party (i.e., a user, machine, application, or another agent) rather than having the party itself perform the task (see ITU-T Recommendation Y.101).

aggregate stream: Stream composed of an aggregation of many individual streams (see EG 201 898).

alias: name/address that is translated into another name/address

NOTE 5: The translation may be done in order to provide shorter and/or easier names to a user.

NOTE 6: The translation may be done in order to make a virtual name/address to be widely spread while the real name/address is being kept in some database (see IETF RFC 1983 modified).

American Standard Code for Information Interchange (ASCII): standard character-to-number encoding widely used in the computer industry

NOTE 7: In more recent times it is being replaced by ISO 8859-1 and ISO 10646. However, ASCII is still widely used to denote binary encoding of alphanumeric text (see IETF RFC 1983).

analogue signal: *Signal* one of whose characteristic quantities follows continuously the variation of another quantity representing information (see ITU-T Recommendation I.112-103).

anisochronous: essential characteristic of a time-scale or a signal such that the time intervals between consecutive significant instants do not necessarily have the same duration or durations that are integral multiples of the Unit Interval

NOTE 8: Isochronous and anisochronous are characteristics of a signal, while synchronous and asynchronous are relationships (see ITU-T Recommendation G.701 modified and US Fed. Std.1037C.

appliance: Generic term used to describe the terminal device employed by the service application. Telephones, TV sets, computers, etc. are examples of appliances (see ITU-T Recommendation Y.101).

application: set of capabilities to satisfy a certain set of user's requirements

NOTE 9: An example of an application using the telephony service would an the information desk.

application entity: Set of Application Service Elements which together perform all or part of the communications aspects of an application process (see ITU-T Recommendation Q.9 - 2156 modified).

application layer [OSI]: Top layer of the ISO OSI network protocol stack. The application layer is concerned with the semantics of work (e.g. formatting electronic mail messages). How to represent that data and how to reach the foreign node are issues for lower layers of the network (see IETF RFC 1983 modified).

application process: Sequence of operations that perform the information processing for a particular application (see ITU-T Recommendation Y.101).

application program: Logic residing in the Service Control and Service Management realms that directs and/or controls the performance of actions in the network to provide and/or manage the provision of IN service features (see ITU-T Recommendation Q.1290).

Application Programming Interfaces (APIs): Interfaces that support the process of creating, installing, testing, modifying application programs (see ITU-T Recommendation Q.1290 modified).

Application Service Element (ASE): Coherent set of integrated functions within an application entity (see ITU-T Recommendation Q.9).

Application Service Element (ASE): Coherent set of integrated functions within an application entity (see ITU-T Recommendation Q.9-2158 modified).

Application Service Object (ASO): Configuration of various groups of application service elements (see ITU-T Recommendation Y.101).

architecture: Any ordered arrangement of the parts of a system (see ITU-T Recommendation Q.1290).

assigned cell [ATM]: cell which provides a service to an application using the ATM layer service

assigned numbers: subset of numbers assigned by an appointed authority

association: Logical relationship between entities exercised in performing a function (see ITU-T Recommendation Q.1290).

Asymmetrical Digital Subscriber Line (ADSL): Modem technology that converts twisted-pair telephone lines into access paths for data communications. The bit rates transmitted in both directions are different (see ITU-T Recommendation Y.101 modified).

asynchronous: characteristic of time scales or signals such that their is no fixed time relationship between its significant instants and any other system timing

NOTE 10: Isochronous and anisochronous are characteristics of a signal, while synchronous and asynchronous are relationships (see US Fed. Std.1037C).

Asynchronous Time Division (ATD) multiplexing [ATM, B-ISDN]: Statistical time division multiplexing technique in which a transmission capability is organized in undedicated slots filled with packets/*cells.* Packets/cells from the same source are usually all assumed to be anisochronous (see ITU-T Recommendation I.113-202 modified).

Asynchronous Transfer Mode (ATM): *Transfer mode* in which the information is organized into fixed-sized packets, called cells; the recurrence of cells in a connection is not necessarily isochronous (see ITU-T Recommendation I.113-204 modified).

ATM Adaptation Layer (AAL) [ATM]: ATM Adaptation Layer (AAL) enhances the service provided by the ATM layer to support functions required by the next higher layer. The AAL performs functions required by the user, control and management planes and supports the mapping between the ATM layer and the next higher layer. The functions performed in the AAL depend upon the higher layer requirements. (see ITU-T Recommendation I.363).

ATM connection: Concatenation of ATM layer links in order to provide an end-to-end transfer capability to access points (see ITU-T Recommendation I.113-505).

ATM End System Address (AESA): Address defined by the ATM Forum to be used in ATM networks. The AESA is derived from the ISO Network Service Access Point (NSAP) Address and hence may occur in different formats (see ATM-Forum Spec. af-ra-0106.000 modified).